County of Ventura

RESOURCE MANAGEMENT AGENCY

MEMORANDUM

DATE: March 11, 2019

TO: Clerk of the Board of Supervisors and Board of Supervisors Agenda Distribution

FROM: Kim Prillhart, RMA Director

SUBJECT: Revision Packet for Board of Supervisors Meeting on March 12, 2019, Agenda Item #31.

Please accept the attached packet of materials that include xx additional comments received after the publication for the 3/12/2019 Board of Supervisors Agenda. A breakdown of the comments received is provided on the cover page this packet.

- 67 Additional comment letters received March 8, 2019
- 25 Additional comment letters received March 9, 2019
- 33 Additional comment letters received March 10, 2019
- 65 Additional comment letters received 3:00 pm, March 11, 2019

Wildlife Ordinance Comment Letters received March 08, 2019			
Last Name	**First Name**	**Organization**	**Title**
Antonatos	Kathryn		
Arnett	Diane		
Beaumont	Kathy		
Berge	Merrill		
Bower	Sunny		
Budd	Jamie		
Canty	Laurie		
Caputo	Michael		
Comrack	Janine		
Dacko	Yolanda	Ventura Fish and Wildlife	Secretary
Dawson	Miles		
Fillingame	Jaclyn		
Glass	Marian		
Glennon	Marion		
Haggstrom	Shirley		
Hanson	Dale		
Hartman	Jill		
Hovsepian	Karine		
Infanti	Gay		
Keogh	Carolyn		
Kinsler	Denise		
Kleiman	Babette		
Klimusko	Susan		
Knight	Kelleen		
Knowles	Diane		
La Cerra	Peggy		
Larsen	Danelle		
Lebeck	Mary		
Longcore	Travis		
Lundin	Lana		
Mason	Rowena		
McCready	Tamara		
McDonough	Catherine		
Meisels	Gary		
Miranda	Veronica		
Moore	Diana		
Moore	Sharon		
Murtha	Janet		
Neill	Jeremy		

Wildlife Ordinance Comment Letters received March 08, 2019			
Last Name	**First Name**	**Organization**	**Title**
Nelson	Mary		
Nightengale	Brandy		
Off	Doug		
Orlosky	Scott		
Otterstrom	Sarah		
Page	Bliss		
Pineau	Cuma		
Poole	Bob		
Prince	Pamela		
Raines	Carole		
Raskin	Sarah		
Rch	Tracey		
Ronske	Linda		
Rudell	Debbie		
Shapiro	Kerry		
Shields	Sara		
Sotelo	Tracy		
Talbot	Julie		
Thomas	Michelle		
Thompson	Rosemary		
Tokar	Cynthia		
Weirick	Cynthia		
White	Ganga		
Wiseman	Danira		
Woodbury	Alan		
Zbyzenski	Rosemary		
Zermeno	Steve		
Ziehler-Martin	Paige		

Batinica, Meighan

From: Kathryn Antonatos <Kathryn.Antonatos.150204747@p2a.co>
Sent: Friday, March 08, 2019 5:50 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Kathryn Antonatos
1960 Cate Mesa Rd
Carpinteria, CA 93013

Batinica, Meighan

From: Diane Arnett <Diane.Arnett.150193641@p2a.co>
Sent: Friday, March 08, 2019 5:19 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Diane Arnett
1550 Goodenough Road
Fillmore, CA 93015

Batinica, Meighan

From: Kathy Beaumont <Kathy.Beaumont.150223674@p2a.co>
Sent: Friday, March 08, 2019 6:42 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Kathy Beaumont
543 Hillcrest Dr
Camarillo, CA 93012

Batinica, Meighan

From: Merrill Berge <Merrill.Berge.70540680@p2a.co>
Sent: Friday, March 08, 2019 3:40 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Merrill Berge
11 Natalie Way
Camarillo, CA 93010

Batinica, Meighan

From: Sunny Bower <Sunny.Bower.150079819@p2a.co>
Sent: Friday, March 08, 2019 11:33 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Sunny Bower
1595 Orchard Dr
Ojai, CA 93023

Batinica, Meighan

From: Jamie Budd <Jamie.Budd.150010382@p2a.co>
Sent: Friday, March 08, 2019 8:17 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Jamie Budd
449 Lilac Dr
Baywood-los Osos, CA 93402

Batinica, Meighan

From: laurie canty <laurie.canty.150231963@p2a.co>
Sent: Friday, March 08, 2019 7:09 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

laurie canty
206 E Aliso St
Ojai, CA 93023

Batinica, Meighan

From: Michael Caputo <Michael.Caputo.150116033@p2a.co>
Sent: Friday, March 08, 2019 1:43 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Michael Caputo
1739 Chaps Ct.
Simi Valley, CA 93063

Batinica, Meighan

From: JANINE COMRACK <JANINE.COMRACK.16447495@p2a.co>
Sent: Friday, March 08, 2019 4:57 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

JANINE COMRACK
1070 DOMINION RD
Ojai, CA 93023

A

Batinica, Meighan

From: Dacko, Yolanda <yolanda_dacko@fws.gov>
Sent: Friday, March 08, 2019 12:08 PM
To: Wildlife Corridors
Cc: Sussman, Shelley; Christopher Diel; Mark Ogonowski; jeff_phillips@fws.gov; chris_dellith@fws.gov; Leilani Takano
Subject: Support for Ventura County Habitat Connectivity and Wildlife Corridors Program
Attachments: Local VEN Cnty Support Letter for Wildlife Corridor Board Hearing 2019-CPA-0049 FINAL.pdf

Good afternoon,

Attached is a copy of our Support for Ventura County Habitat Connectivity and Wildlife Corridors Program. If you have any further questions or concerns please contact us at your convenience. Thank you and have a good day.

Yolanda M. Dacko
Secretary
Ventura Fish and Wildlife Service Office
2493 Portola Road, Suite B
Ventura, CA 93003

805/677-3335 Main
805/701-5754

United States Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Ecological Services
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
08EVEN00-2019-CPA-0049

March 8, 2019

Clerk of the Board
800 South Victoria Avenue, L#1920
Ventura, California 93009-1920

Subject: Support for Ventura County Habitat Connectivity and Wildlife Corridors Program

Dear Ventura County Board of Supervisors:

We are responding to your notice, received in our office via electronic mail on March 1, 2019, for the upcoming Ventura County Board of Supervisors hearing on the Ventura County Habitat Connectivity and Wildlife Corridors Program (Program). We are writing to express our support for the Program and the County's efforts to balance development with maintaining connected habitats. As we have noted in previous letters and testimony, the geographic location of Ventura County is uniquely situated to provide the regional habitat connectivity necessary for facilitating wildlife movement and maintaining the integrity of the County's unique ecological communities.

We are fortunate to have large areas of protected habitat within Ventura County in the relatively undisturbed Santa Monica Mountains National Recreational Area to the south and the Los Padres National Forest to the north, as well as natural open spaces that connect these habitats. It is essential that we preserve this connectivity to maintain gene flow and the genetic fitness of native plants and animals, and to allow for adaptation to environmental changes including projected future climate change. Connected habitats allow species with limited ranges such as reptiles and small mammals to shift to adjacent areas if populations experience loss of habitat, and facilitate movement of wide-ranging species such as mountain lions (*Puma concolor*) that require large areas to secure needed resources. Even highly mobile animals including birds and insects require habitat connectivity to sustain their populations, such as monarch butterflies (*Danaus plexippus*) which use patches of native habitat to secure needed nectar resources along their migratory journey. Connectivity areas also help maintain critical ecological processes for example pollination, seed dispersal, and predator-prey interactions in the habitats they connect.

In addition to facilitating the movement of individuals and maintenance of ecological processes, the County's habitat connectivity areas provide important "live-in" and breeding habitat that sustains populations of many federally listed plants and animals the U.S. Fish and Wildlife Service works to protect, including areas of designated critical habitat for several species. Federally listed species occurring in the proposed Habitat Connectivity and Wildlife Corridors

Overlay Zone include riparian nesting birds such as least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*); aquatic species including California red-legged frog (*Rana draytonii*), tidewater goby *(Eucyclogobius newberryi*), and Riverside fairy shrimp (*Streptocephalus wootoni*); and a range of plant species including Lyon's pentachaeta (*Pentachaeta lyonii*), Braunton's milkvetch (*Astragalus brauntonii*), and Conejo dudleya (*Dudleya parva*). The Ventura River corridor also provides habitat for two species currently being considered for listing under the Endangered Species Act, the southwestern pond turtle (*Actinemys pallida*) and two-striped garter snake (*Thamnophis hammondii*).

We wish to draw particular attention to the Tierra Rejada Valley area and encourage you to preserve its inclusion as a Critical Wildlife Passage Area (CWPA) in the final Program. Along with the Simi Hills, the Tierra Rejada Valley represents a critical link in the modeled wildlife corridor that facilitates animal movement between the Santa Monica Mountains and mountain ranges to the north, and is threatened by ongoing development and land conversion. In addition to its key role in maintaining regional habitat connectivity, the Tierra Rejada Valley encompasses significant areas of coastal sage scrub vegetation that provide essential nesting habitat for the federally threatened coastal California gnatcatcher (*Polioptila californica californica*). Coastal sage scrub habitats have been greatly reduced in California in recent decades due to development, and gnatcatchers nest almost exclusively in this vegetation type. Nonetheless, coastal California gnatcatchers have been found in substantial numbers in and around the Tierra Rejada Valley in recent years. Extension of the more protective development standards proposed for CWPAs to the Tierra Rejada Valley, including clustering of development, would help minimize loss of coastal sage scrub vegetation and, in turn, help ensure the continued survival of coastal California gnatcatchers in Ventura County.

We support the County's proposed inclusion of setbacks (buffers) from important wildlife crossing structures and surface water features. Ideally, the specification of an appropriate minimum setback distance to ensure that a landscape feature continues to provide functional connectivity should be based on the best available science. However, while there is a growing body of scientific literature on this topic, defining an appropriate science-based buffer is challenging because the minimum recommended distance may depend upon the species, habitat, topography, and impact type (e.g. night lighting, noise, spread of invasive species, disturbance from domestic pets, etc.) under consideration. For example, the Service typically requires a 500-foot buffer around occupied least Bell's vireo nests to minimize the likelihood of noise disturbance to nesting vireos, though this buffer may be reduced in some cases if intervening barriers to the transmission of noise exist on the landscape. Because focused research is seldom available for a given species, impact, and location, and because Ventura County's proposed buffers would be implemented to address a range of impacts to multiple species, our recommendation is that a larger setback distance (i.e. 200 feet) is more likely to preserve the value and function of crossing structures, surface waters, and other connectivity features for wildlife.

In summary, the Service supports the many important elements of the County's proposed Program and we encourage you to retain these in the final Program, including:

- Inclusion of the Tierra Rejada Valley, Simi Hills, and Oak View Critical Wildlife Passage Areas
- Clustering of development features within CWPAs
- Provision of adequate buffers around surface water features, with 200 feet preferred
- Inclusion of the Ventura and Santa Clara River corridors in the Overlay Zone
- Provisions to reduce impacts of night lighting and promote wildlife permeable fencing
- Protection and enhancement of wildlife crossing structures
- Possible addition of the Santa Susana Field Lab in the Overlay Zone

Proactive land use planning which includes mapping of intact connectivity areas and identification of potential threats to their integrity can play a critical role in maintaining habitat connectivity for the benefit of plants, animals, and ecological processes. Land use policies and regulations can promote local and regional habitat connectivity in a variety of ways, such as clustering development away from wildlife movement areas. In concert with highway wildlife crossings, permanent protection of connectivity areas through conservation easements or land acquisition, and other tools, regulatory mechanisms such as Ventura County's proposed Program can help maintain regional habitat connectivity as development proceeds.

The U.S. Fish and Wildlife Service's mission is working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. The Ventura County Habitat Connectivity and Wildlife Corridors Program is consistent with that mission, and it may also be beneficial for other Federal agencies in Ventura County who are looking for opportunities to meet the requirements of section 7(a)(1) of the Endangered Species Act of 1973, as amended, for Federal agencies to use their authorities to carry out programs for the conservation of federally listed species.

Our office is ready to assist in accomplishing the goals of the Ventura County Habitat Connectivity and Wildlife Corridors Program. We are encouraged by and support this and other efforts involving multiple agencies and stakeholders to promote the conservation of plants and wildlife and the habitats on which they depend. If you have any questions regarding this matter, please contact Mark Ogonowski of my staff at (805) 677-3350.

Sincerely,

Stephen P. Henry
Field Supervisor

cc:
Shelley Sussman, Ventura County Planning Division

Batinica, Meighan

From: Miles Dawson <Miles.Dawson.150157957@p2a.co>
Sent: Friday, March 08, 2019 3:37 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Miles Dawson
200 City Blvd W, Orange, CA
Orange, CA 92868

Batinica, Meighan

From: Jaclyn Fillingame <Jaclyn.Fillingame.150103488@p2a.co>
Sent: Friday, March 08, 2019 1:24 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Jaclyn Fillingame
19406 E Telegraph Rd
Santa Paula, CA 93060

Batinica, Meighan

From: Marian Glass <Marian.Glass.150149587@p2a.co>
Sent: Friday, March 08, 2019 2:57 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Marian Glass
1249 Willsbrook Ct
Westlake Village, CA 91361

Batinica, Meighan

From: Marion Glennon <Marion.Glennon.150208734@p2a.co>
Sent: Friday, March 08, 2019 6:03 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Marion Glennon
137 S Palm St
Ventura, CA 93001

Batinica, Meighan

From: Shirley Haggstrom <Shirley.Haggstrom.150041928@p2a.co>
Sent: Friday, March 08, 2019 9:47 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Shirley Haggstrom
17711 Sabbiadoro Way
Los Angeles, CA 90272

Batinica, Meighan

From: Dale Hanson <Dale.Hanson.150123260@p2a.co>
Sent: Friday, March 08, 2019 1:54 PM
To: Wildlife Corridors
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Dale Hanson
221 E Matilija St
Ojai, CA 93023

Batinica, Meighan

From: Jill hartman <Jill.hartman.40101662@p2a.co>
Sent: Friday, March 08, 2019 4:09 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Jill hartman
1631 Meander Dr
Simi Valley, CA 93065

Batinica, Meighan

From: Karine hovsepian <Karine.hovsepian.150096045@p2a.co>
Sent: Friday, March 08, 2019 1:00 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Karine hovsepian
2773 Bayshore Ave
Ventura, CA 93001

Batinica, Meighan

From: Gay Infanti <Gay.Infanti.150030128@p2a.co>
Sent: Friday, March 08, 2019 9:15 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Gay Infanti
920 Nysted Dr
Solvang, CA 93463

Batinica, Meighan

From: Carolyn Keogh <Carolyn.Keogh.149961712@p2a.co>
Sent: Friday, March 08, 2019 5:55 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Carolyn Keogh
333 Old Mill Rd
Santa Barbara, CA 93110

Batinica, Meighan

From: Denise Kinsler <Denise.Kinsler.150257523@p2a.co>
Sent: Friday, March 08, 2019 10:23 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Denise Kinsler
1641 Addax Cir
Ventura, CA 93003

Batinica, Meighan

From: Babette Kleiman <Babette.Kleiman.149979380@p2a.co>
Sent: Friday, March 08, 2019 6:45 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Babette Kleiman
3175 Emerald Ave
Simi Valley, CA 93063

Batinica, Meighan

From: Susan Klimusko <Susan.Klimusko.150219976@p2a.co>
Sent: Friday, March 08, 2019 6:32 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Susan Klimusko
9 Greenmeadow Dr
Thousand Oaks, CA 91320

Batinica, Meighan

From: Kelleen Knight <Kelleen.Knight.150168991@p2a.co>
Sent: Friday, March 08, 2019 4:08 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Kelleen Knight
P.O. Box 147
Summerland, CA 93067

Batinica, Meighan

From: Diane Knowles <Diane.Knowles.150232421@p2a.co>
Sent: Friday, March 08, 2019 7:11 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Diane Knowles
4530 Carpinteria Ave
Carpinteria, CA 93013

Batinica, Meighan

From: Peggy La Cerra <Peggy.LaCerra.150151584@p2a.co>
Sent: Friday, March 08, 2019 3:07 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Peggy La Cerra
P.O.Box 1191
Ojai, CA 93024

Batinica, Meighan

From: Danelle Larsen <danelle_larsen@hotmail.com>
Sent: Friday, March 08, 2019 1:51 PM
To: Wildlife Corridors
Subject: Proposed Green Map

Please do not vote to approve this proposal. The map that it is based on is so old and does not take into consideration a large number of homes that were developed after the map was designed. Entire developments in Dos Vientos Ranch would be in the green area and we would lose all control over our property, most likely loss of significant home value, and likely the inability to insure our properties at current rates going forward.

Please push the proposal out for a new study or refute it in its entirety.

Thank you,
Danelle Larsen

Batinica, Meighan

From: Mary Lebeck <Mary.Lebeck.150087009@p2a.co>
Sent: Friday, March 08, 2019 12:15 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Mary Lebeck
6191 Braeburn Dr
Goleta, CA 93117

A

Batinica, Meighan

From: Travis Longcore <longcore@usc.edu>
Sent: Friday, March 08, 2019 10:09 AM
To: Wildlife Corridors
Subject: Ventura County's Habitat Connectivity and Wildlife Corridor Ordinance
Attachments: 2016LongcoreRicheLS.pdf; 2017Longcore_NRRreport_NPSfinal_20170306.pdf; 2018LongcoreLEDProfReview.pdf; 2018LongcoreetalJEZA.pdf; 2018DonnersetalInsectAttraction.pdf; SCRLC_Longcore_Final_Report.pdf; Grubisic_et_al-2018-Annals_of_Applied_Biology.pdf; Knop_et_al-2017-Nature.pdf

To the Board of Supervisors:

I have been pleased to learn that Ventura County's proposed Habitat Connectivity and Wildlife Corridor Ordinance contains language that will reduce the impacts of excessive outdoor lighting on species and their habitats. I am the co-editor of the book *Ecological Consequences of Artificial Night Lighting* (Island Press, 2006) and have published extensively on this topic, including research in Santa Monica Mountains and ongoing research on the coast of southern California, including Ventura County. I am attaching a range of publications and reports for your files in support of the lighting controls in the proposed ordinance.

As a general principle it is futile to protect land for wildlife connectivity without also considering the nocturnal environment and controlling night lighting. Large wildlife species that might use such corridors are active at night, especially in urban areas. For example, research on mountain lion movement indicates that they will avoid artificially illuminated areas when they can, and as a consequence might miss wildlife connections across the landscape. Half of nature is active in the dark and our lights disrupt that habitat.

Ventura County, with its significant agricultural sector, should pay special attention to the adverse impacts of night lighting on pollinators. Recent research from Europe shows that light pollution plays a role in the decline of insect pollinators. These studies show a spillover effect where lights reduce pollination effectiveness at night, which reduces plant species seed set and then has an impact on daytime pollinators from the reduced abundance of flowering plants. Certainly, the impacts of light pollution on pollination in large agricultural ecosystems deserves additional research, but the evidence already available of the effects of light pollution on insects and the current decline of insects generally adds urgency to the need to act now.

The proposed ordinance contains ample exemptions for safety and security within wildlife corridor zones. Reducing light output, using motion detectors, pointing lights downward, and other commonsense measures allow for appropriate use of outdoor lighting without compromising safety or security.

Please feel free to contact me (longcore@usc.edu; 310-247-9719) if you would like further information about this important topic. These comments represent my professional opinion and do not imply endorsement by the University of Southern California.

Sincerely,
Travis Longcore, Ph.D.

--
Travis Longcore, Ph.D., GISP
Assistant Professor of Architecture, Spatial Sciences, and Biological Sciences

Ecological and Organismic Effects of Light Pollution

Travis Longcore, *University of Southern California, Los Angeles, California, USA*
Catherine Rich, *The Urban Wildlands Group, Los Angeles, California, USA*

Advanced article

Article Contents

Online posting date: 15th November 2016

Since the invention of the electric light bulb in 1879, a significant portion of the planet has been transformed from experiencing a natural pattern of light and dark determined by the sun, moon, stars and occasional other transient lights to being subjected to intermittent and perpetual illumination from human civilisation that is unprecedented in the history of Earth. The pervasiveness of this phenomenon and its exponential growth has measurable and significant consequences for living organisms. The results of recent research have extended knowledge about the geographic scope and specific impacts of artificial night lighting on animal behaviour, physiological processes and ecological interactions across a range of taxa and its broader ecosystem effects.

Introduction

Even a cursory review of satellite-derived composite maps of nocturnal light emissions reveals the global reach of human-produced disruption of the night-time environment. Remotely sensed images can be used to discern city and other electric lights, fires, flares from hydrocarbon facilities and fishing boats (**Figure 1**). The influence of lights on surrounding terrestrial and aquatic habitats depends in large part on the total amount of light directed outwards and downwards and on the amount of cloud cover and particulates in the air that are available to scatter light that otherwise would propagate upwards (Kyba *et al*., 2011). The geographic rate of increase in outdoor lighting is estimated to be 6% per year (Hölker *et al*., 2010).

Light pollution within the context of the life sciences requires a context-dependent definition. From the perspective of evolutionary history and the environment to which all life has adapted, any human-generated light can be considered pollution in that it disrupts natural conditions. Such a definition is unsatisfactory, because nocturnal illumination is a hallmark of modern society and viewed as being indispensable to economic and social well-being. Consequently, a definition of light pollution could be limited to human-generated nocturnal lighting that is excessive or unnecessary or that has adverse impacts on particular species or species groups that are of concern. This definition is also subjective, because one person's excessive lighting is another's artistic expression. For practical purposes, therefore, a definition of light pollution is negotiated in a context-dependent manner that weighs the reality that all artificial lighting disrupts natural patterns of light and dark against the utility and desirability of that light for a range of human activities. The focus on impacts to either the natural environment or the human view of the night sky leads to recognition of 'ecological light pollution' and 'astronomical light pollution' (Longcore and Rich, 2004).

Light at night as an influence on biological processes is a global phenomenon that is highly spatially variable. Global night lights have been measured by satellites at a ~1 km resolution since 1992 and at a ~500 m resolution since 2012 (Kyba *et al*., 2015). These sensors measure the amount of light that escapes upwards, which is correlated with the amount of light that might be received by any person or organism in the environment. Across the globe, lighting visible from space is correlated with economic activity, population density, industrial production and other human activities. Night-time lights have their greatest concentration on continents and in the Northern Hemisphere but are highly variable within these regions (Gaston *et al*., 2014). The effects of lights extend far beyond locations where they occur because light is scattered and reflected in the atmosphere (Kyba *et al*., 2011). The resulting light visible on the ground is called *sky glow* and can reach intensities equal to the illumination from the full moon (**Table 1**). Extrapolation of satellite-measured night-time lights to the associated sky glow effects has shown that very few night skies in the world are entirely unaffected by scattered light from human sources (Cinzano *et al*., 2001).

The natural range of illumination between day and night is 11 orders of magnitude (**Table 1**). Illumination at a forest floor can be 10^{-4} or 10^{-5} lx or less, while a full moon usually produces around 0.1 lx (or more at high altitudes or near the equator) and full sunlight can exceed 10^5 lx. As a result of this variation, species have evolved powers of perception and navigation adapted to the large differences in ambient illumination between day and night. For example, some species have the ability to navigate, by sight, in conditions that are far darker than what

eLS subject area: Ecology

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DOI: 10.1002/9780470015902.a0026328

Figure 1 The global extent and intensity of artificial night lighting is visible in this photograph of the India–Pakistan border taken from the International Space Station on August 21, 2011. The border itself is entirely illuminated with the characteristic orange light of sodium vapour floodlights installed by the Indian government. Photograph ISS028-E-029679 from NASA.

humans would consider complete darkness (Warrant and Dacke, 2010). Bioluminescent organisms have evolved to exploit the natural conditions of illumination for signalling, especially in the oceans and forests. Disruption of these natural conditions, even at light levels imperceptible to the human eye, therefore has adverse consequences on a range of species and interactions (Longcore and Rich, 2004) and, potentially, their evolutionary trajectories (Swaddle *et al*., 2015). These effects could be profound; even streetlights are a million times brighter than typical ambient night-time conditions (Perry *et al*., 2008).

Processes of Biological Disruption by Light Pollution

The degree to which artificial night lighting affects biological systems depends on the species involved and the type of disruption in question, combined with the characteristics of the light itself. Gaston *et al*. (2013) identified six biological and ecological processes that could be disrupted by light at night: photosynthesis, niche partitioning, dark repair and recovery, photoperiodism/circadian rhythms, visual perception and spatial orientation. The extent of impacts varies with the duration, intensity and wavelengths of light that are in the environment (Gaston *et al*., 2013; Longcore and Rich, 2016).

Photosynthesis

Photosynthesis under artificial lighting is desirable in greenhouse agricultural production, where large amount of energy from light that is concentrated in wavelengths at which plants are photosynthetically active (400–700 nm) is required. Little photosynthesis occurs under artificial lighting outdoors and it is limited to areas close to the light sources (Raven and Cockell, 2006). Lighting can affect photosynthesis indirectly as well, through triggering of other physiological responses in plants that influence photosynthesis (Skaf *et al*., 2010).

Niche partitioning

Niche partitioning associated with lighting levels has developed as a result of the historically predictable daily, monthly and annual patterns of light and dark. Diurnal animals that exploit artificial night lighting as a means to extend activity periods occupy the 'night light niche', thereby disrupting normal species interactions during the time locations are illuminated. Perry *et al*. (2008) provide an extensive list of diurnal reptiles and amphibians that exploit the night light niche, including geckos, iguanas, skinks, snakes, toads and treefrogs. This phenomenon was also measured for fishes around offshore platforms, where it was referred to as a 'visual subsidy' for the fishes exploiting the night light niche (Keenan *et al*., 2007). Although it is tempting to interpret use of the night light niche as being 'good' in some abstract sense, this is misleading; every species that benefits from day-like conditions at night intrudes into a niche already occupied by species adapted to natural patterns of light and dark.

Other species that are normally active between twilight and dawn can have their niches disrupted as well. Fireflies are active during particular ambient illumination conditions that sequentially separate the activity periods of different species (Lloyd, 2006). This temporal niche partitioning is vulnerable to changes in nocturnal lighting conditions.

The logical and predictable extension of the erosion of light as a means to maintain niche partitioning is that local species diversity

Table 1 Illumination from natural and artificial sources compared with ecological consequences across taxonomic groups

Magnitude (lx)	Natural and artificial illumination levels (lx)	Species responses with illumination levels (lx)
10^5	103 000 Full sunlight	
10^4	50 000 Partial sunlight	
	10 000 Cloudy	
10^3		
10^2	188 Sunset (Nowinszky, 2004)	
10^1	10 Parking lot	
10^0	1 Light pollution in urban marsh habitat	2.1 Reduction in seed set in short-day soya beans
		1 Initiation of downstream drift and emergence from winter substrate in fishes
10^{-1}	0.5 Illumination from urban sky glow (Kiel, Germany)	0.5 Maximum for foraging in some fishes
	0.1 Typical full moon (0.4 maximum	0.3 Melatonin reduced in Senegal sole (Oliveira *et al*., 2010)
	0.18–0.71 Light pollution on beaches (Taiwan) (Santos *et al*., 2010)	0.25 Disrupted melatonin, promoted tumour growth in rats
	0.178 Illumination from urban sky glow (Vienna)	0.2 Maximum illumination for most fireflies (Brazil) (Hagen and Viviani, 2009)
		0.1 Reduced foraging in rodents and schooling in fishes
		0.1 Desynchronisation of coral planula production (Jokiel *et al*., 1985)
10^{-2}	0.01 Lower limit of many commercial light meters	0.06 Prairie rattlesnakes forage more compared with 0.35 lx
	0.01–0.04 Crescent to half illuminated moon	0.04 Maximum illumination for activity in frogs
		0.01 Delayed foraging on forest floor (Wise, 2007) and increased number of visual threat displays in salamanders
10^{-3}	0.001 Instream illumination from billboards	0.003 Less activity and females hide nest in frogs
		0.001 Foraging in brown trout
		0.001–0.01 Most moth activity (Nowinszky, 2004)
10^{-4}	0.0005 Starry sky without moon	0.0006 Circadian rhythm of *Drosophila jambulina* influenced (Thakurdas *et al*., 2010)
		0.0001 Maximum for activity of *Ascaphus truei* frogs
10^{-5}		0.00001 Lower foraging limit in fishes
10^{-6}	0.000001 Dark night in forest	0.0000004 Negative phototaxis in phantom midge

Common sources of artificial light, including light reflected in the atmosphere (sky glow), produce illumination both brighter than many naturally occurring night-time conditions and above threshold levels to influence many biological phenomena. Sources in Rich and Longcore (2006) unless otherwise noted.

will decline when the full range of light and dark conditions no longer occurs and breadth of potential light-associated niches is reduced. **See also**: **Coexistence**

Dark repair and recovery

Dark repair and recovery refers to nocturnal physiological processes that are essential to healthy functioning of organisms inactive at night. Exposure to artificial lighting during these periods, even for short bursts, can disrupt these physiological processes and have adverse consequences. The production of the hormone melatonin during dark hours and the consequent repair benefits is an example (Liu *et al*., 2013). Melatonin is produced in organisms ranging from single celled to the most complex because of its early origins in evolutionary history (Jones *et al*., 2015). In vertebrates, its function as an antioxidant and scavenger of free radicals can be suppressed by exposure to light at night.

Suppression of melatonin production is greatest for wavelengths of light in the blue portion of the spectrum (Brainard *et al*., 2001). The response to light is dose dependent, with small reductions in melatonin production documented down to within the measurement accuracy of melatonin in the saliva or blood (Rea *et al*., 2010). The lower levels of illumination associated with measurable melatonin suppression in humans is on the order of magnitude of that provided by a streetlight shining directly through a window. The epidemiological studies of melatonin suppression and associated circadian disruption of humans by exterior lighting do suggest an effect; the brightness of human sleeping environments is associated with obesity (McFadden *et al*., 2014), breast cancer (Hurley *et al*., 2014) and prostate cancer (Kloog *et al*., 2009), with the intermediate mechanism of circadian disruption and melatonin suppression assumed. Such studies involve use of satellite imagery of night lighting at multiple scales and provide epidemiological indications that light pollution affects these chronic diseases in humans through interruption of dark repair and recovery.

Photoperiodism and circadian rhythms

Light is a signal that influences the timing of activities for organisms at several scales. Circadian rhythms are entrained daily by light and dark cycles for all organisms living in illuminated

environments. Similarly, daylength signals trigger physiological responses associated with seasonal changes in environmental conditions for species living in seasonal environments.

Circadian clocks have evolved to synchronise physiology, metabolism and behaviour to the 24-h cycle of Earth (Vanin *et al*., 2012). In diverse organisms, circadian oscillators can be entrained to local time through the detection of an environmental cue, known as a zeitgeber, such that the endogenous timing of peaks and troughs stably corresponds to an environmental reference point, frequently dark-to-light transition, for which specialised photoreceptive and phototransductive mechanisms have evolved to be capable of functioning as pacemakers to synchronise downstream rhythmic events to the environment. **See also**: **Circadian Rhythms**

Studies of the effects of artificial lighting on photoperiodic responses are abundant, partly because of the implications for understanding human health (Zubidat *et al*., 2010). As a whole, they show that artificial lighting can entrain circadian rhythms and influence physiological functions such as immune response at relatively low levels (Bedrosian *et al*., 2011). For example, extremely dim light is sufficient to entrain rhythms in mice and can be done without affecting the other physiological indicators of light influence such as phase shifting or reduced melatonin production (Butler and Silver, 2011). For shorter wavelengths (blue and green), entrainment takes place at 10^{-3} lx. Adverse effects of mistiming have been documented on immune response, metabolism and stress associated with exposure to dim light at night (Bedrosian *et al*., 2011; Fonken *et al*., 2010; Zubidat *et al*., 2010).

Light pollution might reset interactions among species whenever synchronisation is important because entrainment requirements are different between species. For instance, plants 'anticipate' the dawn with a synchronised circadian clock and increase immune defence at the time of day when infection is most likely (Wang *et al*., 2011). The timing of resistance (R)-gene-mediated defences in *Arabidopsis* to downy mildew is tied to the circadian system such that defences are greatest before dawn, when the mildew normally disperses its spores (Wang *et al*., 2011). The importance of circadian rhythms in plants, for everything from disease response and flowering time to seed germination, and the potential for disruption by artificial night lighting, has not been explored widely (Resco *et al*., 2009). Some plants might use light-triggered circadian rhythms to synchronise expression of antiherbivory compounds with periods of peak herbivory, leading to increased loss from herbivory in out-of-phase plants (Goodspeed *et al*., 2012). **See also**: **Plant Circadian Rhythms**

In animals, research on timing of morning birdsong illustrates how lights can subtly influence reproductive behaviours through influences on circadian rhythms. For forest birds in Vienna, proximity to night lights advanced the morning chorus and resulted in more extrapair copulations than would be expected for younger Blue Tits (*Cyanistes caeruleus*) that were defending lower quality territories on forest edges adjacent to streetlights (Kempenaers *et al*., 2010). Other work has shown an earlier dawn chorus in light-polluted environments e.g., (Miller, 2006).

Artificial lighting can also induce or delay seasonal changes that are asynchronous with actual conditions, described as 'seasons out of time' (Haim *et al*., 2005). Such mistiming leads to failure of organisms to adjust appropriately to changing seasons, with a range of results that include plants not setting seed with shortened days or failing to drop leaves in the fall (Bennie *et al*., 2016) and disruption of reproductive synchronisation necessary to exploit environmental conditions (Robert *et al*., 2015). Integrating studies of circadian disruption on species in the wild with research on human and animal models is at the frontier of chronobiological research (Dominoni *et al*., 2016).

Visual perception

Artificial lighting can allow species to see at night that would otherwise not be able to do so. This has the potential to affect a whole range of behaviours and species interactions. Many studies link foraging activity with specific lighting conditions, presumably optimised to reduce predation risk while maximising foraging efficiency for each species. For example, onset of foraging time is delayed in lesser horseshoe bats (*Rhinolophus hipposideros*) when exposed to lighting and the lit areas of hedgerows were avoided (Stone *et al*., 2009). This pattern of delay is now seen in multiple taxa, from salamanders (Wise, 2007) to sugar gliders (*Petaurus breviceps*) (Barber-Meyer, 2007) to bats (Boldogh *et al*., 2007).

A driving force behind patterns of activity and foraging by animals influenced by artificial lighting is presumably the balance between rewards of foraging and risk of predation. The general pattern that has emerged is that increased light assists predators to locate prey. As a result, primary consumers that might otherwise forage under cover of darkness avoid illuminated areas. This general rule has an exception, which is that prey species with a communal predator defence, such as schooling or flocking, experience decreased risk of predation with additional light. Observations of individual species and of communities are consistent with this pattern. The insect community under streetlights has elevated proportions of predators (Davies *et al*., 2012), while schooling fish are aided by group vigilance afforded by additional light (Nightingale *et al*., 2006). A general review of nocturnal foraging suggests that birds and mammals are subject to less predation pressure at night and that the number of animals foraging together is greater at night, especially for clades that are not strictly nocturnal (Beauchamp, 2007).

Spatial orientation

The orientation of species relative to artificial light sources at night, or the inability of species to orient in the presence of artificial light sources, is perhaps the most visible impact of artificial lighting on ecology (Verheijen, 1985). For example, migratory birds are attracted to and collide with oil platforms, cruise ships, communication towers, buildings and athletic stadia and seabirds are attracted to lighted vessels (reviewed in Longcore and Rich, 2016). Hatchling sea turtles are unable to orient properly to crawl to the ocean in areas influenced by artificial lights (Salmon, 2003) and insects are attracted to artificial light sources (**Figure 2**).

Figure 2 Different light sources along a riverside meadow verge in Germany, including cold-white LED (light-emitting diode), halogen spotlight, neutral-white LED, high-pressure sodium vapour, mercury vapour and metal halide. Greatest numbers and species of insects were collected at traps affixed to lamps rich in blue and ultraviolet lights (mercury vapour and metal halide). LEDs, which did not contain ultraviolet light, attracted the fewest insects compared with other types of lighting, but among LEDs, cold-white LEDs attracted the greatest number of insects (Eisenbeis and Eick, 2011). Reproduced with permission from A. Hänel.

Movement and distribution of animals are limited by their ability to orient within the environment. Visual cues and light detection are used by almost all species except those living in perpetual darkness. The pervasiveness of light detection in orientation is shown by the discovery in *Drosophila* larvae of photoreceptors not associated with vision, which are found in each body segment and are sensitive in the ultraviolet, violet and blue wavelengths (Xiang *et al*., 2010). These are precisely the areas of the spectrum associated with light avoidance because daylight is rich in these spectra. Even those species that restrict their activities to the darkest, moonless nights have means of using available light to orient. Nørgaard *et al*. (2008) documented the visual ability of a nocturnal spider in the Namib Desert that presumably uses spatial and temporal summation to identify landscape structures, allowing it to orient and be active in the darkest conditions, thereby minimising predation risk.

The mechanisms by which artificial lighting influences spatial orientation of different taxa may differ. For nocturnally migrating songbirds, the disorientation of birds at lighted communication towers or tall buildings tends to occur when cloud cover has precluded navigation by celestial cues and the bird has encountered a bright light on the landscape. The behaviour is described as the bird being 'trapped' within the zone of influence of the lights. Studies show that flashing lights attract far fewer birds and that turning off a light temporarily allows birds to leave an area and continue on their migratory route. The process for insect attraction and disorientation is similarly described as the animal being 'trapped' or 'dazzled' at the light, with several hypotheses for the mechanism of the phenomenon. For hatchling sea turtles, experimental evidence has established that individuals move away from the horizon with dark silhouettes, which for most of evolutionary history would have been the onshore dune and beach vegetation. Artificial lighting onshore is inconsistent with that pattern and hatchlings either orient towards lights or do not have a fixed orientation (Salmon, 2003).

Synergistic Effects

The effects of light pollution may extend beyond directly observed impacts on physiology and behaviour. In humans, disturbance by light at night could lead to behaviours that increase circadian disruption such as turning on additional lights. In ecosystems, the behavioural or physiological changes caused by artificial night lighting could have cascading effects (Bennie *et al*., 2015). The ecological and evolutionary consequences that result from the global increase in night lighting can interact synergistically with other hazards. For example, lights attract birds to other hazardous sites such as offshore petroleum platforms, wind turbines and buildings where they subsequently are at risk of colliding with glass.

Another synergistic consequence is the creation of polarised light by night lighting (Horváth *et al*., 2009). For example, mayflies are attracted to wet pavement at night because polarised light created by reflecting lights off the pavement is similar to the polarised light signal of water bodies.

The documented disruption of immune function by artificial lighting across a range of taxa has potentially synergistic adverse

effects in combination with emerging pathogens and the spread of well-known pathogens under changed climates.

Mitigating Light Pollution

A comprehensive approach to mitigating the effects of light pollution on biological systems would include five considerations: need, spectrum, intensity, direction and duration (Longcore and Rich, 2016). In short, adverse impacts of artificial night lighting could be minimised if

- unnecessary lights are extinguished or not installed;
- spectrum of light is chosen to minimise impacts (especially not ultraviolet or blue, with a preference to reduce and avoid light less than 540 nm (Falchi *et al*., 2011));
- lights are only as bright as necessary for the purpose;
- light is directed only where it is needed, including shielding sensitive habitats from lights, even if those lights are directed downwards; and
- lights are only illuminated as long as necessary and are turned off when not needed (e.g. using timers, motion detectors or bilevel lighting systems that reduce light during low-use periods).

As an example of these considerations, duration and spectrum of lights are important for efforts to mitigate impacts on migrating birds. Attraction varies by wavelength of light (Poot *et al*., 2008) and much work remains to be done on the functioning of avian magnetoreception under different spectra and irradiances of artificial lighting and how these interact in the field. Both red and white solid lights attract birds in a way that flashing lights do not (Gehring *et al*., 2009). Attraction of birds to lights can be reduced by flashing (with a completely dark phase), regardless of spectrum (Gehring *et al*., 2009), so that changes to duration can mitigate spectrum. Where lights must be on all of the time, such as on offshore hydrocarbon platforms, green lights will apparently attract far fewer birds than full-spectrum (white) lights (Poot *et al*., 2008).

New technologies create both opportunities and challenges for mitigation of light pollution. LED (light-emitting diode) lamps have short warm-up time, are highly directional and can be dimmed easily to allow for a dynamic lighting system, but many also contain far more light in the blue spectrum than those lamps they might replace. These attributes provide the opportunity for better lighting control in terms of intensity and direction, but often also result in increased exposure to physiologically active short wavelengths that propagate more in the atmosphere. In 2016, the American Medical Association issued a statement warning against the use of blue-rich street lighting because of potential harmful effects on human health, public safety and the environment (see http://www.ama-assn.org/ama/pub/news/news/2016/2016-06-14-community-guidance-street-lighting.page). LEDs that are lower in blue content are reaching the market, and to reduce ecological and astronomical impacts, light and filter combinations are now being developed and installed.

Many approaches are available to mitigate the effects of light pollution on biological systems (Falchi *et al*., 2011), and unlike other forms of pollution, no costly clean-up is needed. Because other interest groups are involved in attempts to control lighting for the purpose of astronomical observation or energy conservation, full engagement by biologists and life scientists of all specialties is needed to ensure that measures proposed as solutions also reduce impacts to people, ecosystems and evolutionary processes. Testing and defining mitigation strategies for artificial night lighting will be an important research direction.

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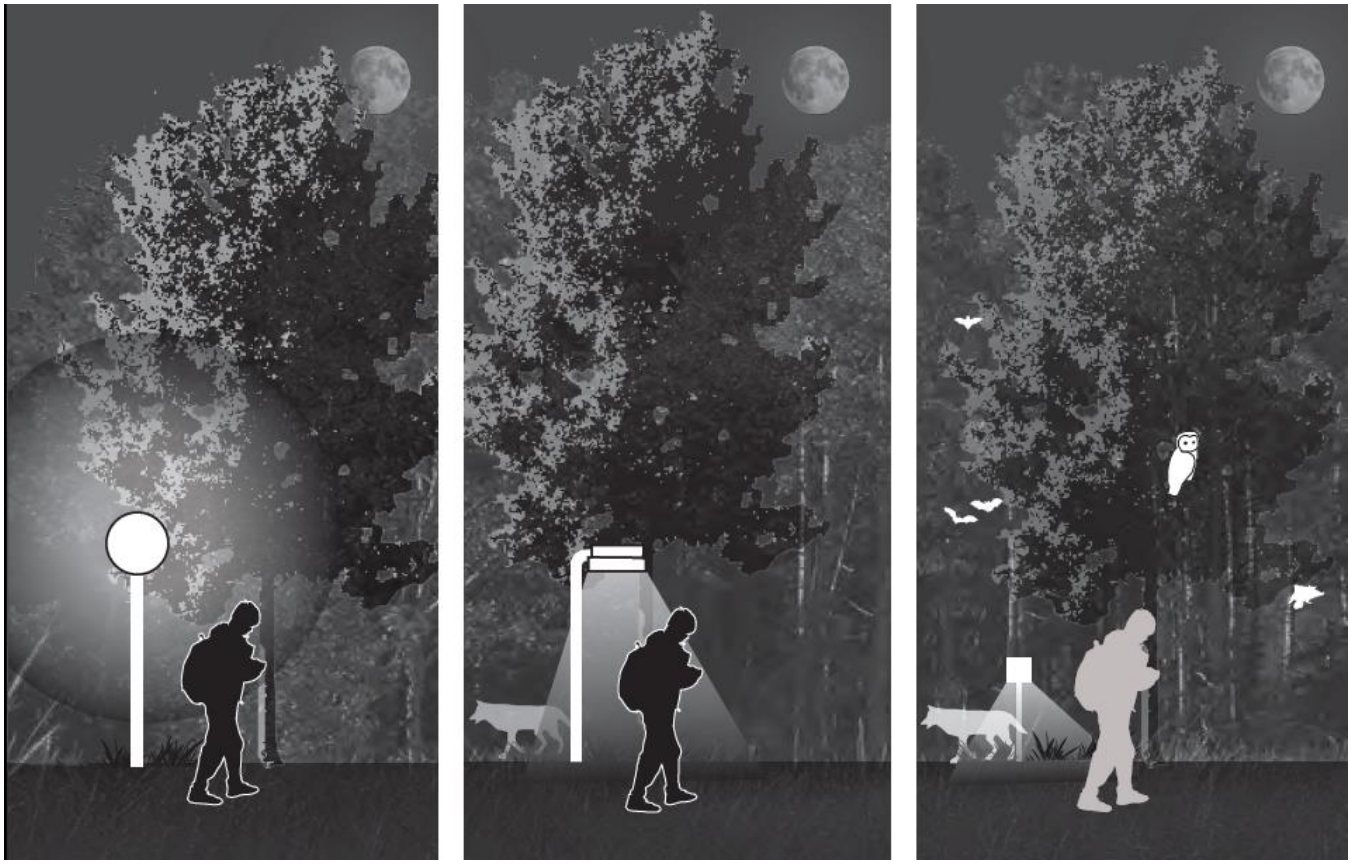
Natural Resource Stewardship and Science

Artificial Night Lighting and Protected Lands

Ecological Effects and Management Approaches (Revised August 2017)

Natural Resource Report NPS/NRSS/NSNS/NRR—2017/1493



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ON THE COVER
Example of controlling light direction to reduce environmental consequences
Illustration by Leigha DelBusso

Artificial Night Lighting and Protected Lands

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Natural Resource Report NPS/NRSS/NSNS/NRR—2017/1493

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U.S. Department of the Interior
National Park Service
Natural Resource Stewardship and Science
Fort Collins, Colorado

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Executive Summary

Artificial night lighting represents a growing challenge for managers of parks and protected lands. The disruption of natural patterns of light and dark, which have been more or less reliable for millions of years, has a range of adverse consequences for wildlife across taxonomic groups and landscape types. This document reviews effects of artificial night lighting by habitat type and discusses the approaches available to land managers to mitigate and avoid certain adverse effects of artificial night lighting.

Coastal dunes, beaches, and shorelines are a transition zone between terrestrial and aquatic habitats. They often contain gradients of lighting influence from developed shorelines to darker lakes and oceans. Sea turtles are prominent victims of these disrupted lighting regimes. The foraging decisions of many other species are influenced by lighting conditions, embodying tradeoffs between predation risk and dietary needs.

Deserts and scrublands are open habitats with few barriers to light transmission. They are also often hot in the day, with large proportions of nocturnal and crepuscular species avoiding thermal stress. Many nocturnal desert species prefer low illumination levels and have good visual performance under the faint light of the darkest nights.

Wetlands and rivers are often dark spots surrounded by lights, especially when close to human settlement. Movement of species into and out of wetlands and streams is influenced by lights, as is the movement of animals, such as fishes or aquatic invertebrates, up and down rivers and streams. Downwelling light mediates most predator–prey interactions in the water column. Changing light levels cause predators and prey to change depth. Small prey species are influenced by the phase of the moon, and lighting can degrade conditions favorable to successful foraging. Emerging research demonstrates that lighting influences the developmental rates of wetland organisms such as amphibians.

Islands, oceans, and reefs are increasingly influenced by lights from onshore sources, hydrocarbon extraction platforms, fishing vessels, and all manner of ships. Downwelling light is also a dominant factor in structuring ecosystem processes in marine water columns, and many organisms are sensitive to extremely small changes in light levels. Extensive vertical migrations are driven by changes in surface illumination. Changes in surface lighting can have effects hundreds of meters below the surface. Lighting will alter reproduction and predator–prey interactions, and can attract organisms across wide areas.

Grasslands are also open habitats with few barriers to block lights. Research shows influence of lighting on nesting behavior of birds, distribution of predators, and signaling by bioluminescent organisms such as fireflies.

Deciduous and evergreen forests can block light and reduce its influence, but also contain communities of forest floor species adapted to lighting levels much dimmer than in exposed habitats. Therefore even low levels of light can influence foraging times or timing of reproductive activity.

Alpine and tundra habitats are well represented in protected lands. Many species have annual rhythms designed to avoid the harsh winter that are potentially disrupted by lighting cues. In alpine habitats, the slope of the land potentially exposes habitats to direct glare from downslope sources in addition to light reflected in the atmosphere.

Finally, *urban environments* have many artificial light sources, but still can support significant biodiversity in the form of both resident and migratory species. Migratory birds are attracted to lighted structures at night and collide with windows during the day. Some bat species are attracted to insects found under city lights, while others avoid them.

Mitigation of adverse effects of anthropogenic light in these different habitats is guided in five ways:

1. Need. Creative solutions are often available to avoid use of lights where they are not absolutely necessary. Especially in natural areas, managers should exercise discretion in limiting the lighting infrastructure.
2. Spectrum. Although no color of light is benign in all situations, managers should avoid lights that have ultraviolet or blue light (shorter wavelengths) and in general use lights with red and yellow hues.
3. Intensity. Reducing the intensity of lights can often improve visibility for humans by reducing the contrast between light and shadow, allowing people to see a larger area than they might otherwise be able to discern. Guidelines for lighting intensity from the lighting industry should not be followed when trying to reduce impacts to wildlife, because they are usually higher than necessary for human vision and do not take into account impacts to wildlife.
4. Direction. Lights should be shielded such that they only cast light where it is needed, and never be directed upwards.
5. Duration. Timers and motion detectors can reduce the time a light is on and may therefore reduce impacts. Curfew hours for lights can also enhance visitor experience.

In this report, many lighting situations are considered, including communication towers, night hiking and mountain biking, campsite lighting, off-road vehicles, monuments, light-assisted fishing, security lighting, bridges, roadway lighting, energy production installations, indoor lighting, lighthouses, and billboards. With careful planning and collaboration, usually with nearby jurisdictions, managers of parks and other protected lands can be leaders in the control of light pollution and increase enjoyment of natural lands from inner city parks to wilderness areas.

Acknowledgments

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Two natural forms of light at night — from the moon and bioluminescent plankton — contrast with coastal urban lighting in New Jersey, United States. Artificial lighting dramatically changes the intensity and spectrum of light available at night and homogenizes the nocturnal visual environment over space and time. Photograph by Flickr user catalano82 is reproduced with permission.

Introduction

Americans have long recognized that parks and protected lands can provide opportunities to see and enjoy the solitude of unspoiled nature, where the natural rhythms of life are allowed to flourish with minimal influence from humans. Managers of parks and protected lands balance the need to provide visitor facilities with the impacts of such infrastructure on the environment. Although night lighting may be a requirement for visitors in some circumstances, scientific research has documented a range of adverse consequences of night lighting on ecosystems and wildlife. The effects of lighting on species and ecosystems can be reduced, and in some instances avoided altogether. This report provides examples of assessing the impacts of night lighting on wildlife, and presents options to retrofit and design lighting that minimize impacts to wildlife and the nocturnal environment.

Extensive outdoor (and indoor) electric lighting is a recent phenomenon. Thomas Edison commercialized the electric light bulb in the late 1880s, and outdoor use was largely limited to cities until well into the 1900s. Electric lights were introduced in city centers as replacements for gas lamps in the late 1880s, with lethal effects on wildlife. Nearly 1,000 migratory birds were killed in collisions after being attracted to an electric light tower in Decatur, Illinois in 1886 (Gastman 1886). Significant outdoor lighting spread with the rural electrification programs of the 1930s and 1940s. More recently, other significant sources of outdoor lighting have spread across large swaths of the globe, primarily through illumination of human settlements and associated transportation infrastructure. Other sources of artificial night lighting have proliferated as well. Lighting associated with oil and gas development illuminates large terrestrial and offshore regions. Similarly, light-assisted fishing operations illuminate oceans in many regions and oceangoing freighters and passenger ships introduce mobile light sources along oceanic routes. Together, these and other light sources introduce novel lighting conditions that have no historical precedent in natural ecosystems. Natural patterns of darkness are lost or endangered globally (Bennie et al. 2015, Duffy et al. 2015, Marcantonio et al. 2015).

This document is divided into two sections. The first section reviews the effects of artificial night lighting on major habitat types. No single solution can mitigate all adverse effects of artificial night lighting. We therefore attempt to generalize the concerns that typify each biome. The second section provides recommendations for management approaches to minimize impacts from lighting. We address the characteristics of lights in terms of need, spectrum, intensity, direction, and duration, with reference to biomes in which each method of control would be applicable. This discussion addresses common lighting applications — roadways, parking, and walkways — as well as specialized situations like night hiking and mountain biking, vanity lighting, communication towers, and light-assisted fishing.

Effects of Artificial Night Lighting on Natural Ecosystems

Natural patterns of light and dark

In the natural world, sources of light are either very predictable or notably ephemeral. The dominant and structuring source of light is the sun, through daylight and the reflected light of moonlight. Patterns and intensity of sunlight and moonlight vary with geographic location, weather, and time, but they have certain predictable characteristics. For example, the daily, monthly, and seasonal patterns of moonlight and sunlight incident upon the Earth's atmosphere are only rarely interrupted (e.g., by a solar eclipse). Once the sun has set, the brightest possible constant light source is a full moon until the sun rises again (**Figure 1**). The length of the night varies by season and latitude and these patterns are, in the timescale of biological activity, fixed. Weather influences illumination during the day, and does not, with the exception of lightning, increase nocturnal illumination. Fires, lightning, bioluminescence, starlight, airglow, and zodiacal light contribute to nighttime illumination under natural conditions, and these transient sources are brief, rare, or dim in comparison with sunlight and moonlight.

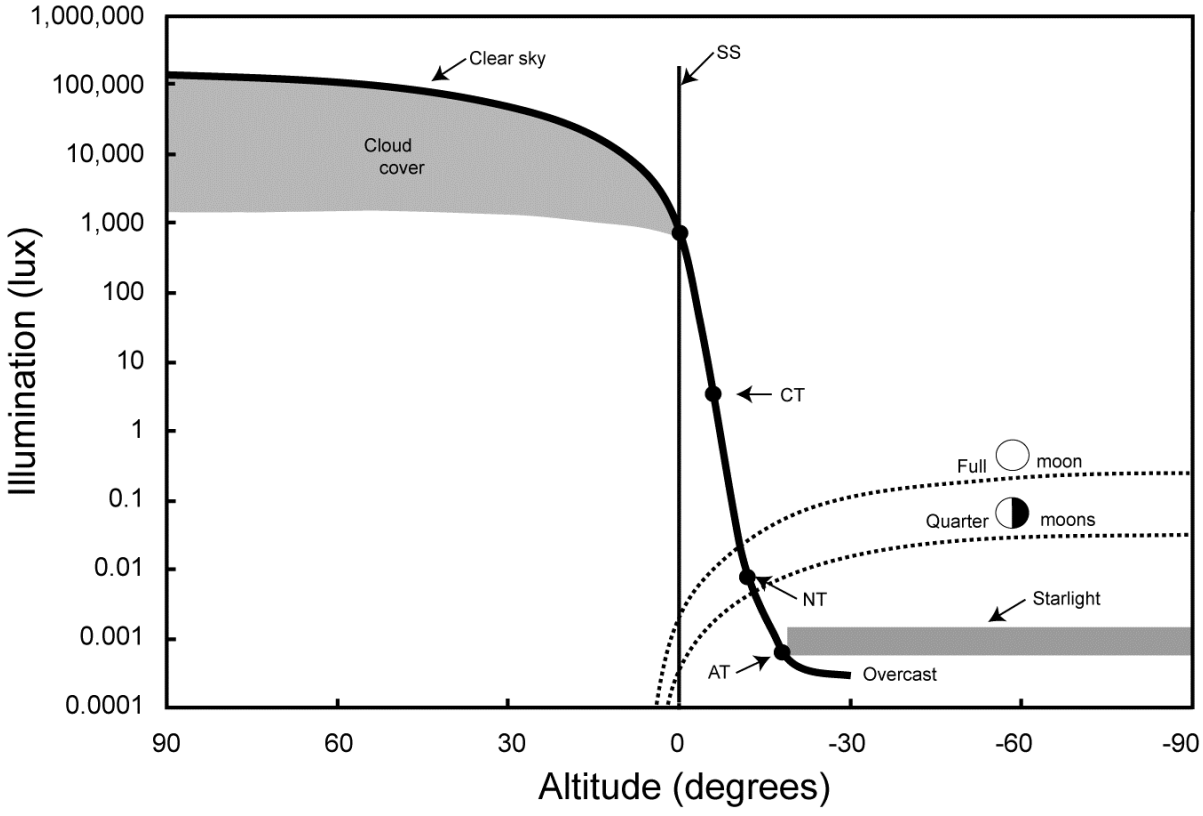

Figure 1. Natural horizontal illumination during the day, sunset, and at night (Beier 2006). Horizontal illumination on the y-axis; x-axis shows altitude above the horizon for the sun and moon. SS = sunset, CT = civil twilight, NT = nautical twilight, AT = astronomical twilight. Modified with permission from Beier (2006) and following Brown (1952).

Light falling on a surface is often measured in lux, a unit of illuminance that sums electromagnetic energy after filtering in accordance with the daytime (photopic) sensitivity of the human eye. Light

emitted from a source is often measured in lumens, a unit of luminance that also accounts for the photopic spectral sensitivity of the human eye. Measurements of lux and lumens place more weight on wavelengths to which the human eye responds most strongly, and less on those wavelengths to which the human eye is less sensitive. Similar measurements can be customized for the optic spectral sensitivities of different species by re-weighting the calculations to emphasize different wavelengths of light (Gal et al. 1999 and **Figure 2**).

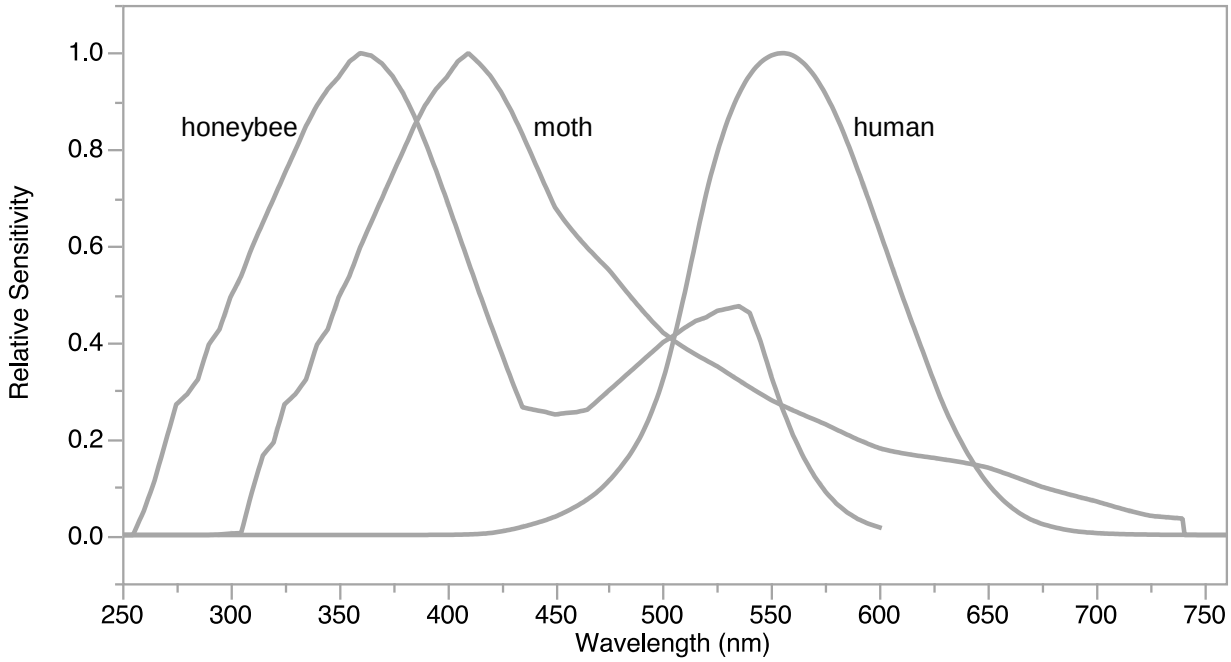

Figure 2. Relative sensitivity to light across the visual spectrum for honeybees (Menzel and Greggers 1985), moths (Cleve 1964), and human photopic vision (CIE 1932).

Outdoor illumination during the day ranges from 100,000 lux in full sunlight to 1,000 lux on a cloudy day (**Figure 1**). Dusk and dawn are transitions into and out of much darker conditions. These transitions are also characterized by predictable changes in the relative intensities of the wavelengths of light. As dusk falls, blue light increases, especially when the moon is new or not present. With moonlight, this blue pulse is diminished or absent and moonlight itself is red-shifted relative to sunlight (Sweeney et al. 2011). Airglow is dominated by green light while zodiacal light is reflected sunlight and will track its spectral composition quite closely, although very slightly shifted to the red (Leinert et al. 1998). Variations in illuminance and color trigger many behavioral and physiological processes (Sweeney et al. 2011, Walmsley et al. 2015). Circadian, circannual, and circalunar rhythms are linked to the predictable changes in the light environment. Light triggers can be at different illuminations depending on the environment. What is extraordinarily dim in one environment may be bright in another. For example, the illumination at which activity takes place on a forest floor is on average dimmer than illumination levels triggering the same activity for similar organisms in open grassland. Illumination that is within the natural range of variation on a beach may be far brighter than anything experienced at night at ground level in a dense forest.

Life evolved with predictable daily, monthly, and seasonal patterns of light and dark, and these patterns underlie the natural rhythms of nearly all living organisms. Artificial night lighting has long been known to affect these patterns. Nocturnal species, which represent the majority of some major taxonomic groups (**Figure 3**), are obviously vulnerable, as are diurnal or crepuscular species whose behavioral niches can be distorted by lighting. Concern about adverse effects of lighting dates to descriptions of the "destruction" of birds at lighthouses in the late 1800s (Allen 1880) and even the first electric urban lighting (Kumlien 1888). Mortality of hatchling sea turtles at lights was identified as a conservation issue in the 1960s (McFarlane 1963). Verheijen coined the term *photopollution* in 1985 (Verheijen 1985), which was followed by Ken Frank's classic review of the effects of lighting on moths (Frank 1988), and a series of unpublished reports (Outen 1998), conference proceedings (Schmiedel 2001), and research reports from Europe (De Molenaar et al. 2000, Kolligs 2000). In 2004, we described *ecological light pollution* as "artificial light that alters the natural patterns of light and dark in ecosystems" (Longcore and Rich 2004).

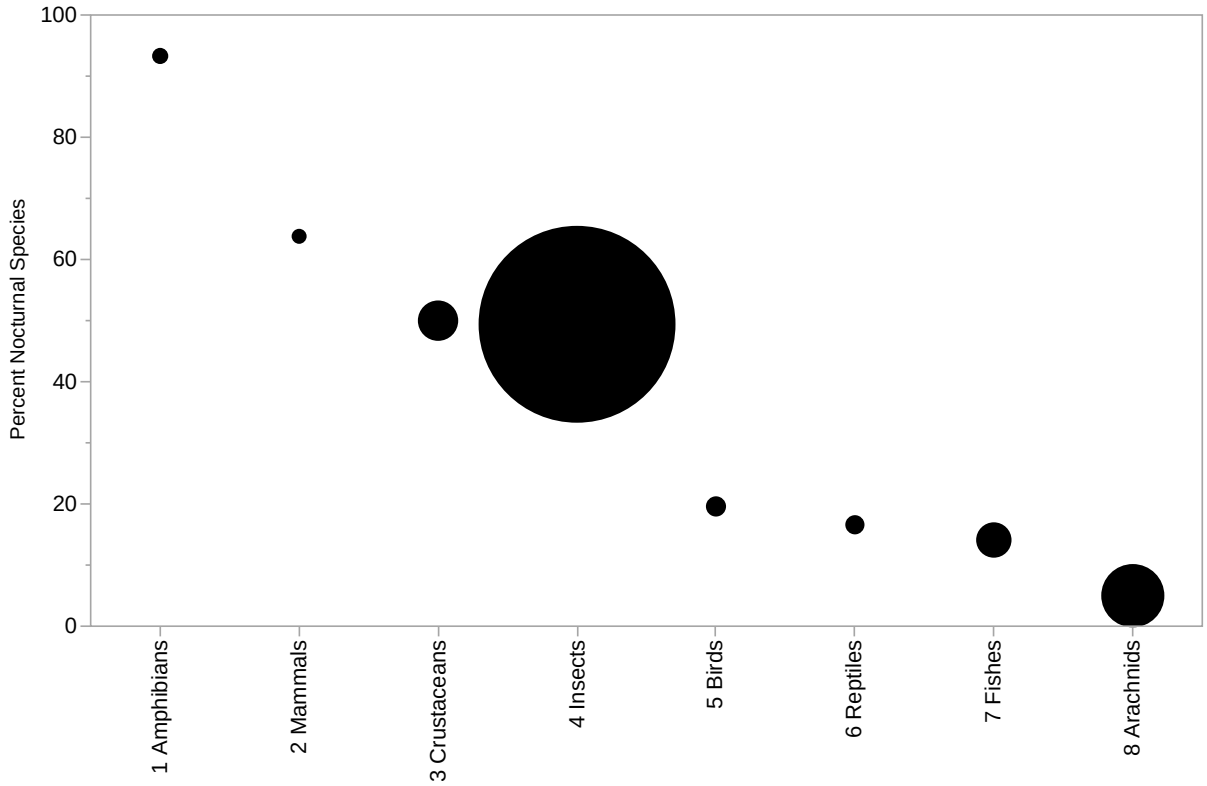

Figure 3. Proportion of major animal groups that are nocturnal. Area of markers is proportional to the number of species known in the group. Data from Hölker et al. (2010).

The disruptions caused by artificial night lighting occur whenever the natural patterns of light and dark are changed. This means that very low lighting levels (far below that of the full moon) can have important effects.

Reviews of the effects of artificial night lighting on different taxonomic groups can be found in Rich and Longcore (2006). Resource managers dealing with questions about specific groups of organisms

should consult this source, which contains chapters on mammals, birds, reptiles and amphibians, fishes, invertebrates, and plants. Taxonomically specific information is essential to devise lighting systems that minimize impacts on sensitive species when lighting is necessary. Sensitive species should be identified relative to a specific area and might include both those species that have a formal designation as being threatened or endangered or any species of concern that would be sensitive to changes in nocturnal illumination. Nocturnal, crepuscular, and diurnal species can be affected by nighttime lighting conditions.

In the sections that follow, we present short reviews of the effects of artificial night lighting in different habitat types.

Coastal dunes, beaches, and shorelines

Coastal dunes and beaches are generally open environments with low vegetation adapted to moving sand (**Figure 4**). Dunes present unique environmental conditions that are often quite distinct from their surroundings, and they are often populated by endemic species that thrive in these unique conditions. Coastal endemic species are often a focus of management concern because of the development pressure on coastal ecosystems in the United States (Schlacher et al. 2007a). Dunes are also ecological transition zones between land and water; light from development in coastal dunes illuminates adjacent water bodies, and animals such as turtles move from water to land to nest. Shorelines are essential for organisms such as amphibians and aquatic insects that have biphasic life cycles.

On a beach or coast under natural conditions, the view toward the land is almost always darker than the view toward the water. This is a function of landward vegetation and topography blocking light from the sky (Salmon 2006), in addition to moonlight and starlight reflected off the water. Organisms can use this pattern for orientation. Artificial lighting on the shore or from cities and other coastal development can reverse the natural conditions; the landward horizon becomes brighter, while the water is darker (Salmon 2006).

Stray light and sky glow from coastal development spread across and into many dune and shoreline environments. As in many environments, nocturnal activity near shorelines is significant (Salmon 2006). Beaches and coasts also regularly experience foggy and high-aerosol conditions, which scatter light and thereby amplify the local effects of lights (Kyba et al. 2011).

Artificial lighting has adverse consequences for sea turtles because the darkest horizon is no longer the landward horizon. Indeed, the lethal effects of lights on sea turtles have led to increased awareness of the adverse effects of artificial night lighting in general. Female sea turtles avoid illuminated beaches as nest sites, and hatchings are fatally affected by lights visible from beaches (Salmon 2003, 2006). This phenomenon was first recorded by MacFarlane (1963), and aversion of females to lights was confirmed experimentally by Witherington (1992). Habitat degradation by lights is caused both by lights adjacent to dunes and beaches and by regional sky glow (Salmon 2006).

Figure 4. Beach environments are vulnerable to the effects of anthropogenic light because of their open nature. Hatchling sea turtles are easily disoriented by onshore lights or sky glow and patterns of nocturnal foraging by shorebirds are also affected.

As a general rule, additional light — whether moonlight or anthropogenic light — increases foraging efficiency of predators and reduces activity of prey (Longcore and Rich 2004, Rich and Longcore 2006, Seligmann et al. 2007). This phenomenon has been shown many times in different habitats. On dunes, Bird et al. (2004) investigated the effects of lighting on foraging behavior of beach mice. Bird et al. (2004) used low-pressure sodium lights and yellow incandescent "bug" lights, which are commonly employed on beaches in Florida because they have limited effects on sea turtle hatchlings. They found that foraging by beach mice was significantly decreased in proximity to both types of turtle-friendly lights. Similar behavior by prey species has been shown for both natural and anthropogenic light. For example, ghost crabs are active only at night, and avoid activity under both the full moon (Schlacher et al. 2007b) and artificial light (Christoffers 1986). The exception to this pattern is that prey species that flock or school together can be aided by additional light that facilitates communal vigilance (Nightingale et al. 2006).

Effects from lights on beaches and shorelines may also affect aquatic ecosystems. For example, lights affect the predator–prey dynamics of fishes and marine mammals (Hobson 1965, Hobson et al. 1981, Yurk and Trites 2000, Nightingale et al. 2006).

Shorebirds sometimes forage at night (Dugan 1981, Burger and Gochfeld 1991, Rohweder and Baverstock 1996). Various explanations have been proposed: as a defense against predation (Robert

et al. 1989, McNeil et al. 1992, Thibault and McNeil 1994), as a result of slightly higher invertebrate activity on beaches at night (Dugan 1981, Evans 1987), and as a response to visual cues that are available due to higher levels of natural or anthropogenic light (Dwyer et al. 2012). Predator defenses of shorebirds are different during the night compared with the day; in an observational study, some proportion of Dunlins freeze and limit vocalizations as a defense at night while all individuals in a flock fly away in response to predators during the day (Mouritsen 1992). Owls are the major nocturnal predator of shorebirds and are aided by additional light when foraging (Clarke 1983). Timing of foraging by shorebirds, therefore, probably depends on tradeoffs between risks of becoming prey with ability to detect their own prey. Whether birds are flocking and have sufficient light for the associated communal predator vigilance probably also interacts with these factors.

Artificial night lighting on dunes and beaches can therefore have a variety of effects on species. Predator–prey relations are disrupted and key reproductive behaviors can be inhibited. Beaches and dunes also provide a gateway to adjacent water bodies, which have no barriers to block the propagation of light. Because there is usually less anthropogenic light at beaches and on shorelines than in surrounding urban or suburban areas, park visitors often use beaches and dunes to gaze at the night sky. Beaches and dunes should be kept as free from the influence of artificial lights as possible, with special attention paid to ensuring that any lights installed are absolutely necessary and that no lights are directly visible from the beach and points offshore.

Deserts and scrublands

Deserts and scrublands are open habitats with few barriers to the spread of light (**Figure 5**). Many animal species in hot deserts and scrublands adopt nocturnal behaviors to conserve water and avoid daytime temperature maxima. This shift to nocturnal activity may increase seasonally with higher temperature (Kronfeld-Schor and Dayan 2008). Consequently, artificial night lighting has the potential to change the ecology of these environments by disrupting the natural patterns of light and dark relied upon by a large proportion of fauna.

Desert animals can have narrow preferences for illumination levels. These preferences may be related to foraging opportunities, predation risk, or physiological requirements. For example, *Leucorchestris arenicola*, a trapdoor spider endemic to the Namib Desert, exhibits exclusively nocturnal activity patterns (Nørgaard et al. 2006). Males are active only during dark moonless nights, when they are able to navigate hundreds of meters across dune environments using only faint ambient light from stars, airglow, and zodiacal light (Nørgaard et al. 2006). For a species such as this, addition of illumination from any source in its habitat would eliminate its preferred habitat conditions.

Desert rodents also exhibit specific illumination preferences to manage their risk of becoming prey (Grigione and Mrykalo 2004, Beier 2006). Some species are active at twilight, others after twilight, and some during the darkest periods of moonless nights (Grigione and Mrykalo 2004, Upham and Hafner 2013). Anthropogenic light can disrupt these patterns; even the light from a camp lantern equivalent to a quarter moon ($\sim 10^{-2}$ lux) was sufficient to substantially inhibit foraging by a suite of rodent species (Kotler 1984). Those species vulnerable to this disruption lack other predator avoidance abilities such as exceptional hearing (Kotler 1984, Kotler 1985). Because many desert

animals exhibit circalunar patterns in their activities, especially predaceous arthropods such as scorpions (Skutelsky 1996, Tigar and Osborne 1999) and granivorous small mammals (Price et al. 1984, Daly et al. 1992, Upham and Hafner 2013), it follows that any artificial light that produces light equivalent to even a quarter moon can alter these patterns.

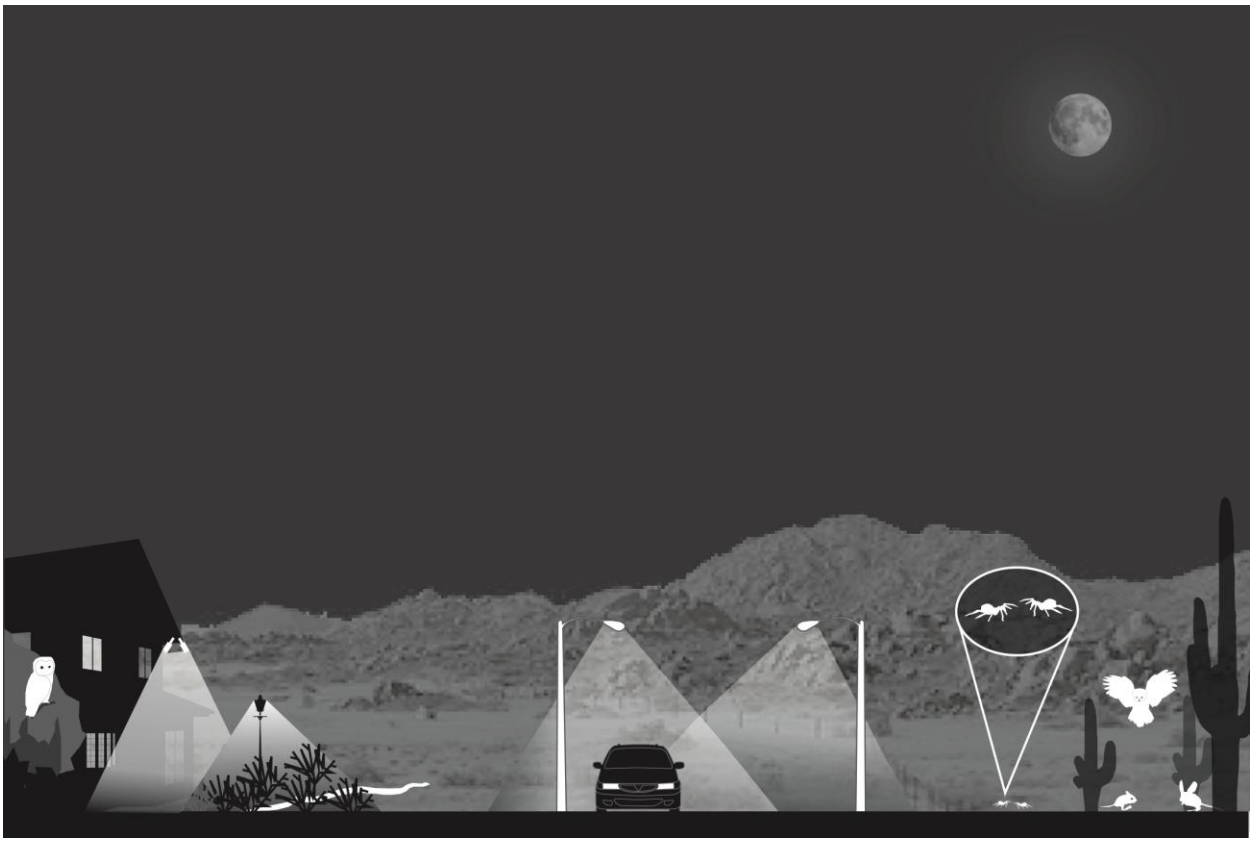

Figure 5. Lights in desert scrublands are visible for long distances and night lighting affects a disproportionate fraction of the wildlife because high daytime temperatures induce nocturnal activity patterns.

Scrubland environments share many characteristics with deserts, especially in Mediterranean climates. A disproportionate number of species is nocturnal at high temperatures, and the open vegetation structure of drier scrublands allows for light to propagate for unusually long distances.

Perry and Fisher (2006) describe the decline of nocturnal snake species in the scrublands of southern California. Long-nosed snake (*Rhinocheilus lecontei*), a nocturnal species, showed a pattern of decline consistent with the gradient of light pollution as estimated by satellite imagery (Fisher and Case, unpub. data). Otherwise suitable scrub habitats, which supported other diurnal species of snakes, lacked long-nosed snakes. The authors hypothesized that decreases in numbers of the snake's small-mammal prey, also associated with light pollution, were responsible for the decline (Perry and Fisher 2006).

Wetlands and rivers

In some places, wetlands and lakes are the last refuges of a natural night on the landscape (**Figure 6**). The difficulty of developing wetlands often leaves them as the only remaining unlighted sites in urban and suburban regions. Many aquatic organisms depend on daily cycles of light and dark and artificial lights disrupt critical behaviors in many species (Moore et al. 2006, Perkin et al. 2011, Henn et al. 2014).

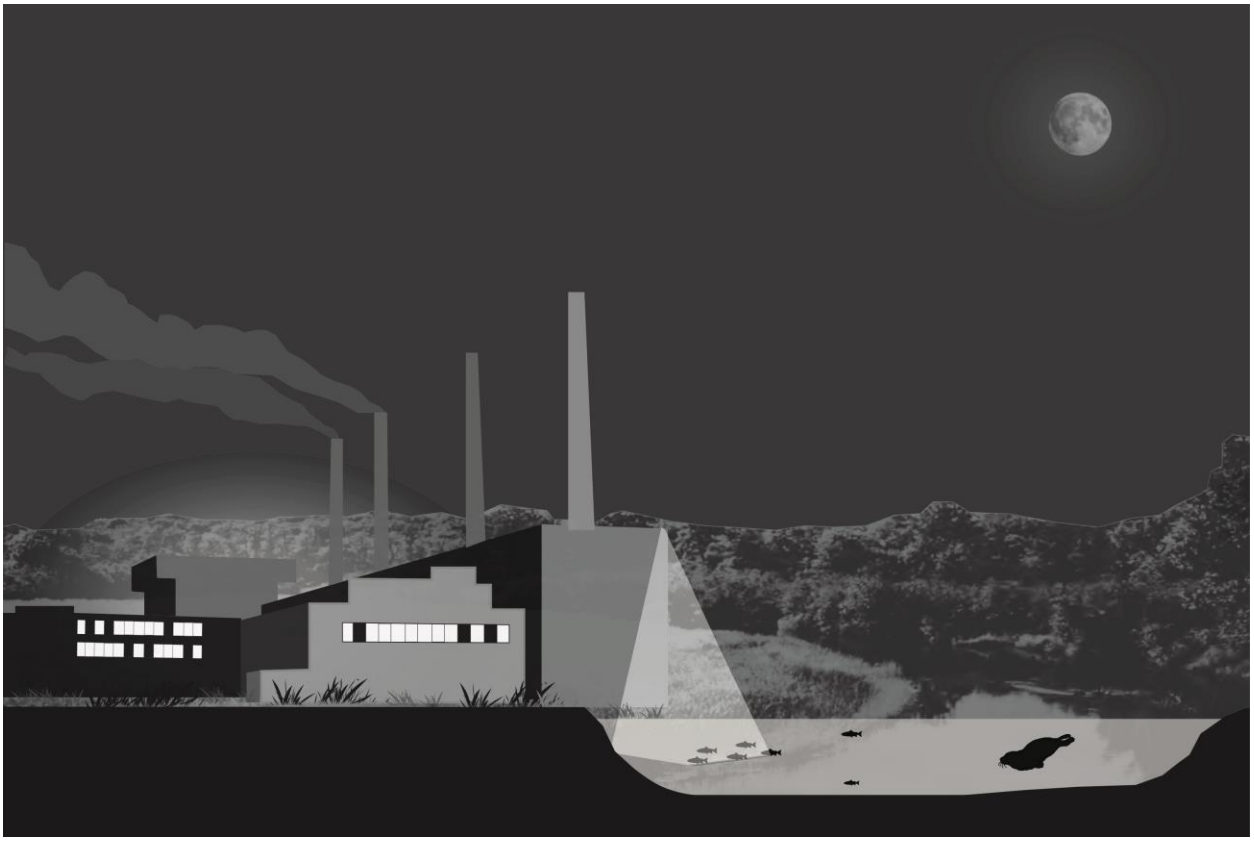

Figure 6. Lights along rivers and streams can disrupt predator–prey interactions, such as seals hunting salmon under lights.

Wetlands are often geographically fragmented, occurring as isolated patches or as linear features stretching across the landscape. Linear features are susceptible to disturbances such as artificial night lighting because they have a high edge-to-area ratio. They also tend to induce development along their edges, which leads to lighting from urban development on either side. Similarly, small wetlands are especially vulnerable to disturbances from their surroundings.

Aquatic invertebrates are important components of wetland ecosystems and provide an example of the sensitivity of wetlands to lighting levels (**Figure 7**). Many aquatic invertebrates migrate up and down in wetlands during the course of a night and day. This "diel vertical migration" presumably results from a need to avoid predation during lighted conditions so many zooplankton forage near water surfaces only during dark conditions. Light dimmer than that of a half moon ($<10^{-1}$ lux) is sufficient to influence the vertical distribution of aquatic invertebrates, and indeed diel vertical

migration follows a lunar cycle. When constant light from human development is added to the natural nocturnal illumination of the moon and stars, the darkest conditions are never experienced, and the magnitude of diel migrations (both range of vertical movement and number of individuals migrating) is decreased, which has been shown experimentally for *Daphnia* (Moore et al. 2000). Disruption of diel vertical migration by artificial lighting may have significant detrimental effects on ecosystem health. Moore et al. (2000) conclude that "[decreases in] vertical migration of lake grazers may contribute to enhanced concentrations of algae in both urban lakes and coastal waters. This condition, in turn, often results in deterioration of water quality (i.e. low dissolved oxygen, toxicity, and odor problems)."

Figure 7. Light in wetlands can suppress diel vertical migration of zooplankton and influence foraging behavior of amphibians.

Amphibians found in nearshore and wetland habitats also are particularly vulnerable to artificial lighting. Amphibians are highly sensitive to light and can perceive increases in illumination that are impossible for humans to detect (Hailman and Jaeger 1976). A rapid increase in illumination causes a temporary reduction in visual acuity, from which the recovery time may be minutes to hours (Buchanan 1993, Buchanan 2006). In this manner, a simple flash of headlights can arrest activity of a frog for hours (Perry et al. 2008). Amphibians are also sensitive to changes in ambient illumination from sky glow. Frogs in an experimental enclosure ceased mating activity during night football games when lights from a nearby stadium increased sky glow (Buchanan 2006). In an experiment to

investigate the effects of intermittent artificial light, male green frogs called less and moved more when exposed to the light of a handheld flashlight (Baker and Richardson 2006).

In naturally lit environments, some amphibians will forage only at extremely low light levels, and foraging times are partitioned among species with different lighting level preferences (Jaeger and Hailman 1976). The squirrel tree frog (*Hyla squirrela*) orients and forages at lighting levels as low as 10^{-6} lux and stops foraging at illumination above 10^{-3} lux (Buchanan 1998). The western toad (*Bufo boreas*) forages only at illuminations between 10^{-1} and 10^{-5} lux, while the tailed frog (*Ascaphus truei*) forages only during the darkest part of the night below 10^{-5} lux (Hailman 1984).

Laboratory experiments indicate that the development of amphibians is influenced by artificial light (Wise and Buchanan 2006, Wise 2007). Light interferes with the production of the hormone melatonin, which is involved in regulating many important functions, including sexual development, thermoregulation, adaptation of eyes to the dark, and skin coloration (Wise and Buchanan 2006, Wise 2007). Current research shows that artificial lighting slows larval amphibian development in the laboratory (**Figure 8**). The influence of artificial lighting on such physiological processes in the field is currently not well known, but the potential for lighting to harm amphibians and other wetland species is evident.

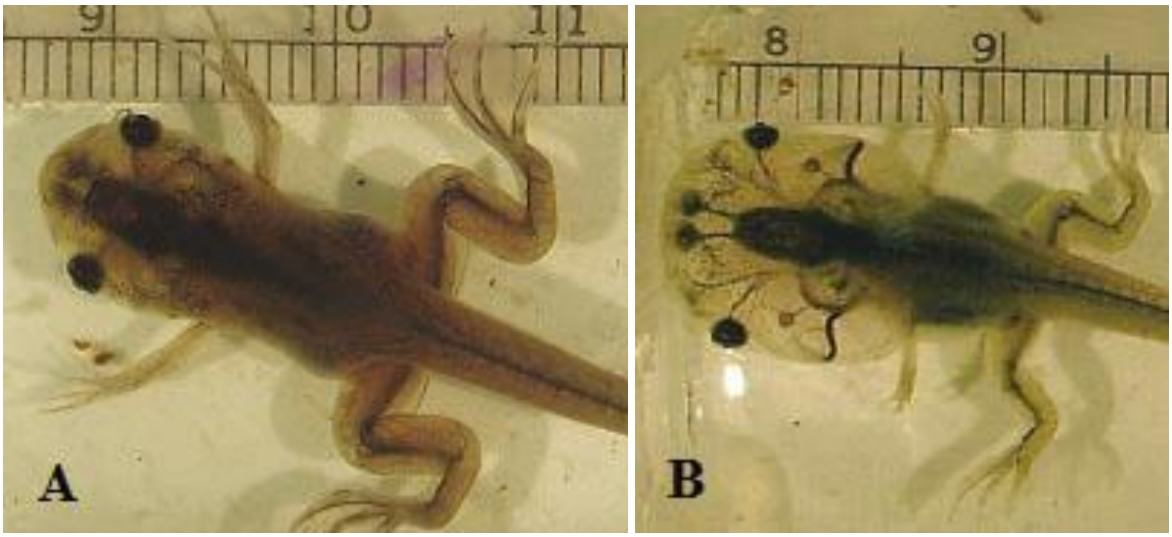

Figure 8. Two tadpoles of the same age and kept in 12:12 L:D lighting. (A) was kept in the equivalent of very dark night (10^{-4} lux) in the dark phase, while (B) was exposed to artificially bright illumination in the dark phase and is not yet metamorphosing (reprinted from Wise 2007).

Fishes are also highly attuned to natural ambient light conditions, with lighting levels influencing the distribution of predaceous species and the foraging behavior of their prey (Nightingale et al. 2006, Becker et al. 2013). Laboratory experiments have shown that the timing of downstream migration of salmon (*Salmo salar*) fry is significantly delayed and disrupted by lights of a similar illumination and spectrum as streetlights (Riley et al. 2013). Nocturnal downstream drift of insects is also delayed by artificial lighting (Henn et al. 2014).

Islands, oceans, and reefs

Light propagates unimpeded across open water, and its reach is extended beyond the curvature of the Earth by reflection off high clouds. Fog can increase local impacts of bright lights. Although light shining directly down on water tends to penetrate rather than reflect, light coming in at an angle is reflected. This physical property of water exacerbates the effects of coastal lighting as it is reflected and propagates out from the shoreline. Island, ocean, and reef environments are affected by artificial light sources that range from light-assisted fishing to urban sky glow to offshore hydrocarbon facilities (Davies et al. 2014) (**Figure 9**).

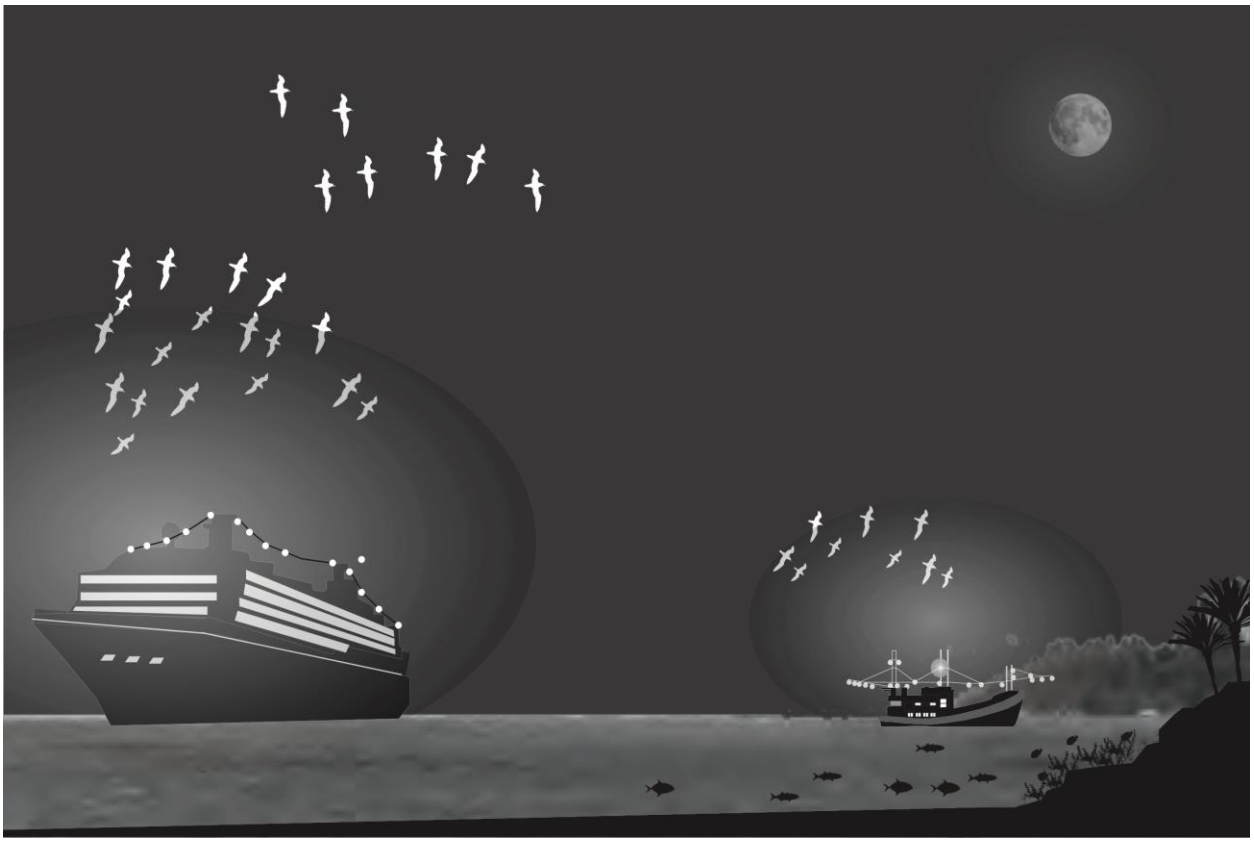

Figure 9. Cruise ships and squid boats are just two of the sources of artificial lighting on the oceans that attract seabirds and migrating songbirds.

In 1999, Xantus's murrelets (*Synthliboramphus hypoleucus*) nesting on Santa Barbara Island, part of Channel Islands National Park off the coast of southern California, were dying at twice the average annual rate. Park managers suspected this increase in mortality was directly related to a recent increase in fishing boats equipped with dusk-to-dawn floodlights to attract squid. Squid boats typically have 30,000 watts of light per boat. The number of squid boats increased dramatically in the 1990s, and in 1999 intense squid fishing occurred during murrelet nesting season (spring, while historically fishing was during fall and winter), and near important murrelet breeding islands. Managers believed that the nesting seabirds, without the safety of darkness, were subject to increased predation, especially from barn owls (*Tyto alba*). During the 1999 season, an unprecedented 165

dead Xantus's murrelets were found on Santa Barbara Island. Most of the dead were killed by barn owls, while five were victims of western gulls (*Larus occidentalis*). Researchers also recorded high nest abandonment closest to the most intensive squid boat activity. Faced with these observations, managers closed the areas around the islands to squid fishing, and death rates for the birds returned to normal. The excluded areas were subsequently incorporated into a permanent marine preserve with no fishing allowed to allow for replenishment of fish stocks. Also, the California Fish and Game Commission listed Xantus's murrelet under the California Endangered Species Act, citing artificial night lighting as one of the major threats to the species.

Nearly all seabirds are nocturnal, and an adverse response to decidedly unnatural conditions such as those suffered by Xantus's murrelets should not be surprising (Montevecchi 2006). Years of studies have shown that nocturnal seabirds are less active during moonlit nights, and those that are active suffer more predation during those times. Seabird chicks are directly affected by lighting levels; they are far less likely to be fed by adults during bright nights (Riou and Hamer 2008). Seabirds are attracted to lights perhaps because they naturally cue in on bioluminescent plankton to find prey (Montevecchi 2006). They have, therefore, long suffered from collisions with light sources on and adjacent to the ocean, including lighthouses, cruise ships, fishing vessels, lighted buoys, oil derricks, and streetlights on and near islands where they nest (Rodríguez and Rodríguez 2009, Rodrigues et al. 2012, Wilhelm et al. 2013); many of these collisions are fatal. Where lights correspond with critical habitat or high-use zones such as feeding or breeding areas, or migratory routes, the effects could be significant.

Other sources of artificial night lighting threaten the nighttime environment of the oceans. Cruise ships are pervasive, large, and are often brightly illuminated. Ships in the path of bird migrations, or near undersea food sources, may attract both migratory birds and foraging seabirds, which collide with the ships and can be stunned or killed. Anecdotal accounts have emerged where cruise ship staff frantically work to clear the decks of dead birds before passengers awake in the morning. Offshore hydrocarbon extraction platforms are also significant sources of light, and attract and kill birds through collision, exhaustion, and even by incineration in flares burning off natural gas. Many of these birds are long-distance migrants, and the losses at oil platforms may affect regional and global breeding populations.

Coral reefs are also threatened by artificial night lighting. Lighting has been used as a proxy for other impacts (urban development, intense fishing, hydrocarbon extraction) to assess risk to coral reefs on a global scale (Aubrecht et al. 2008). Aubrecht et al. (2008) also illustrated how artificial lighting would adversely impact reefs directly. Corals themselves are highly sensitive to light and synchronize spawning according to lunar cycles (Jokiel et al. 1985, Gorbunov and Falkowski 2002). Many coral reef species exhibit marked light-driven diel cycles or synchronize reproduction by monthly cycles (Sebens and DeRiemer 1977, Bentley et al. 2001, Levy et al. 2001). Predator–prey interactions are influenced by light levels, with diel vertical migration of both zooplankton (Yahel et al. 2005) and planktivorous fishes observed (Leis 1986). Natural light signals, such as bioluminescence, are important to marine organisms (Johnsen 2012), and can both attract and repel fishes (Holzman and Genin 2003, 2005). Artificial lighting at similar and greater intensity must

affect a range of marine organisms. Experimental investigation has now confirmed that lighting affects the colonization of marine invertebrates on surfaces (Davies et al. 2015).

Grasslands

Like other open habitats, light has few barriers in grasslands (**Figure 10**). Lights can thereby influence both illumination and direct glare over hundreds of meters or more, depending on topography. Artificial night lighting can be expected to influence habitat use and behavior of grassland species.

Figure 10. Grasslands are vulnerable to disruption from even distant lights because of their open character. Fireflies, often found in wet grasslands, can have their signals disrupted or be excluded by high illumination, while some grassland bird species, such as black-tailed godwit (*Limosa limosa*), have been shown to avoid streetlights in selecting nest sites (De Molenaar et al. 2006).

The lights of a road bisecting wet grassland in the Netherlands were shown to influence the spatial distribution of black-tailed godwit (*Limosa limosa*), a rare ground-nesting bird (De Molenaar et al. 2000, De Molenaar et al. 2006). When road lights were turned on during a breeding season, the birds nested slightly farther away from the road, with the effect extending 300 m (984 ft) from the lights. Birds that arrived first to the breeding area nested farther from the lights while those arriving later nested closer (De Molenaar et al. 2000, De Molenaar et al. 2006). The same research group investigated the behavior of mammals in wet grasslands and showed that some species (polecat, *Mustela putorius*, stout, *Mustela erminea*, weasel, *Mustela nivalis*, and fox, *Vulpes vulpes*) were

more likely to take paths near lights, while other species were not influenced or preferred darker areas (De Molenaar et al. 2003). Such differences in habitat use have the potential to change predation rates and distribution of prey species as well (Lima 1998).

Fireflies are another group of grassland species that can be adversely affected by artificial night lighting (Lloyd 2006). Because light is used for firefly communication, both for sexual behavior and in some interspecific interactions (where females attract males of other species to capture and eat them), any disruption of the ability to see light will have adverse effects. Artificial light washes out the signals used for communication and is potentially contributing to the decline of fireflies and other organisms that rely on bioluminescent communication (Lloyd 2006, Hagen and Viviani 2009, Bird and Parker 2014).

Deciduous and evergreen forests

Although the structural complexity of forests blocks light and reduces its propagation, species that inhabit the forest floor are sensitive to illumination at levels appropriate to the darker nighttime environment there (**Figure 11**). A review of the research on forest species shows some general patterns that illustrate the potential for lights to affect wildlife behavior.

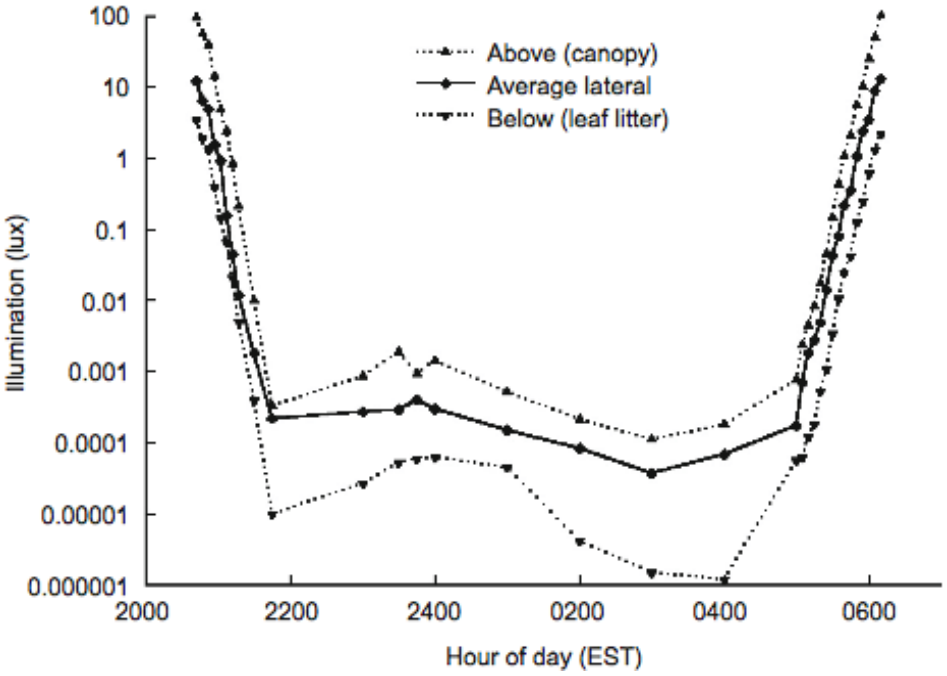

Figure 11. Illumination in deciduous forest (Buchanan 2006). Reprinted with permission.

As in many other ecosystems, salamanders in forests exhibit reactions to light equivalent to moonlight, under which foraging is reduced or delayed (Wise 2007) (**Figure 12**). This has been shown experimentally with dim artificial lights installed in a forest environment (Wise 2007). In two different experiments, lighting delayed the emergence time of nocturnal mammals (DeCoursey 1986, Barber-Meyer 2007) and reduced foraging activity (Barber-Meyer 2007). For sugar gliders, a

nocturnal forest mammal native to Australia, light equivalent to that produced by streetlights (7–12 lux) reduced the time individuals were active at night (Barber-Meyer 2007).

Figure 12. Species of the deciduous forest are adapted to the lower light levels found under the canopy. Flying squirrels and salamanders will delay their foraging under artificial lights.

In other instances, reproductive behavior can be affected by artificial lighting. The leafcutter ant *Atta texana* usually undertakes nuptial flights approximately 15 minutes before dawn, but in instances where security lights from homes and businesses were visible, the colonies flew 15 minutes after dawn (Moser et al. 2004). This change in timing interferes with behaviors that are carefully synchronized across colonies. Furthermore, artificial lights are also attractive to the flying ants and, as a result, may both decrease mating success and increase predation at the lights (Moser et al. 2004).

Alpine and tundra habitats

Alpine and tundra habitats are disproportionately represented in parks and other protected lands. They are on average less developed than other habitat types but can be, and are, developed for recreational and industrial infrastructure. Control of artificial lighting in alpine and tundra habitats is important to avoid disruptions of predator–prey interactions and to avoid disrupting annual rhythms that are entrained by day length.

The topography of mountainous habitats also makes them vulnerable to sky glow from distant sources (**Figure 13**). Because sky glow brightens horizons, areas of steep slopes are positioned to be

exposed to that light. In these locations, the aspect of the slope becomes important. Those facing bright horizons will be substantially brighter than nearby locations facing a different direction and therefore will be exposed to far less artificial lighting.

As in other habitats, predator–prey interactions in alpine environments are mediated by illumination (**Figure 14**). For example, small mammals of rocky outcrops typical of alpine regions are often nocturnal, foraging in open areas at night and retreating to the safety of outcrops for shelter (Kramer and Birney 2001). In experimental conditions one such species, long-eared mouse (*Phyllotis xanthopygus*), foraged less under 1.5 and 3.0 lux treatments (up to very bright moonlight) when compared with a 0.0 lux control (Kramer and Birney 2001). Similar results have been found for snowshoe hares (Gilbert and Boutin 1991), which are subject to more predation under brighter nocturnal conditions, especially during the winter (Griffin et al. 2005). Such small mammals depend on natural darkness for foraging to keep up body weight (Vasquez 1994).

Figure 13. Alpine habitats can be affected by distant lights and those from recreational and industrial facilities.

Circannual rhythms are found in most animals, but the environmental conditions that influence them are less well understood because of the long period necessary to conduct experimental research (Beier 2006). Light appears to have a large influence in setting these cycles, although temperature is also important (Beier 2006). Light can be important in determining when species react to the seasons (e.g., hibernation, Hock 1955), and consequently disrupting these signals has the potential to put

species out of phase with climate. In alpine and tundra environments, where conditions change so dramatically between the seasons, appropriate synchronization of activities is important. For example, reindeer (*Rangifer tarandus*) eyes change seasonally to reflect different wavelengths of light; color of the tapetum lucidum shifts from yellow in the summer to blue in the winter, which is associated with increased retinal sensitivity during the dark winter nights (Stokkan et al. 2013). Captive reindeer exposed to sodium vapor streetlights, not directly visible but just over the horizon, are reported to have green eyes in the winter, not completing the normal transition from yellow to blue, and with reduced visual sensitivity (Yong 2013).

Figure 14. Predator–prey interactions are affected by artificial lights during long nights on the tundra.

Urban environments

Even though urban environments have many sources of artificial lighting at night, variations within already light-polluted environments still make a difference to wildlife (**Figure 15**). For example, American crows (*Corvus brachyrhynchos*) choose roost sites in urban areas that are on average more brightly illuminated than non-roost sites (Gorenzel and Salmon 1995). Presumably, this allows the communal predator response behaviors of the flock to operate more efficiently, reducing predation from owls. Elevated populations of this native species have adverse consequences for other native species for which the crows are predators. In another example, urban-tolerant bat species are influenced by the degree of illumination on the exit hole of their roosts. Nightly emergence is delayed by illumination of the exit hole, which reduces fitness of individuals in the colony and can eliminate the colony altogether (Boldogh et al. 2007). Because of the importance of bats as

consumers of insects, and their conservation status, the adverse impacts of lighting are concerning (Stone et al. 2015).

Figure 15. Cities are affected by altered light environments, which are exploited by synanthropic species such as crows and some bat species.

Cities are also sites of mortality for nocturnally migrating birds, which are attracted to lights. Birds die either in collisions with buildings at night, or during the day when they attempt to regain their orientation and continue migration. This phenomenon is well documented in Chicago, Toronto, New York, and Washington, D.C. A notable example in a national park is the ongoing mortality of nocturnal migrant birds at the Washington Monument, which started when it was illuminated (Overing 1938).

The profusion of light in urban areas also has spillover effects on surrounding natural areas and open spaces within cities. For example, extremely high levels of ambient light are measured in the Santa Monica Mountains National Recreation Area near Los Angeles, with all-sky brightness exceeding natural levels by 18.4 times and maximum nocturnal vertical illuminance 32.4 times brighter than natural levels (J. White and C. Moore, pers. comm.). Although it is difficult to address the multitude of sources of light, it is worthwhile for parks to incorporate lighting and the night sky as part of their education, outreach, and engagement in communities adjacent to and near parks (Aubé and Roby 2014).

The evidence from across habitat types indicates that artificial lighting at night is either proven to, or has the potential to, disrupt the natural behavior of wildlife species, sometimes with lethal consequences. From this context we can identify practices that can reduce and minimize the effects of lighting in parks and other lands managed for natural resource values.

Mitigating the Effects of Lighting on Protected Lands

Knowledge about the effects of lighting on wildlife continues to grow. All indications are that lighting can have cumulative and additive consequences that are especially important for vulnerable species. Many general approaches to minimizing the effects of artificial lighting on wildlife are known. To reduce effects on certain target species, these mitigations may need to be adapted to craft desirable solutions for specific locations. In the following two sections, considerations for developing such mitigation measures are discussed. First we introduce the attributes of nighttime lighting that might be manipulated — spectrum, intensity, direction, and duration — and how different groups of species might be affected by them. Then we review the many contexts in which light is used (e.g., security lighting, vanity lighting, communication towers) and identify preferred mitigation strategies for them.

Approaches to minimize lighting impacts

The impacts of artificial lighting to wildlife can be reduced in five ways: 1) avoiding use of lighting that is not needed, 2) controlling color spectrum, 3) limiting light intensity, 4) managing the direction of light emissions, and 5) limiting the duration of light output. For some of these characteristics, a single approach applies in all instances. For others, the recommendation depends upon the context of use or the species that might be affected. A combination of mitigation approaches is likely to be more effective (e.g., reducing intensity and adjusting color spectrum) than would be any approach taken individually.

Need

The first question that should be asked about artificial lighting, especially in natural areas, is whether it is in fact needed. In some situations, a creative solution, such as the choice of a pale color for a pathway, curb, or steps, is all that is needed to guide visitors (**Figure 16**). In others, lighting can be left to the visitor to provide in the form of headlights or a flashlight. Only when the need is demonstrated and necessary for visitor experience, safety, or security, should lights be installed.

Figure 16. A pale-colored path can be just as effective as electric lights in some park situations.

Spectrum

It is tempting to believe that a certain spectrum of light will minimize the effects of lighting in all situations. Unfortunately, no universal solution exists. Rather, it is possible to identify spectra of light that have shown to affect wildlife less in certain contexts. The only 100% wildlife-friendly light is one that is switched off or never installed.

The higher efficiency of high-pressure and low-pressure sodium lamps resulted in their widespread adoption in street lighting applications and security lighting, replacing the older mercury vapor lamp technology. Recently, however, full-spectrum light sources such as metal halide lamps, compact fluorescent lamps, and LEDs are becoming more common (Gaston 2013). Full-spectrum lights appear white, in contrast with other lights such as sodium vapor lamps that appear yellow or orange. Earlier technologies, such as mercury vapor lamps, were also full-spectrum, but have largely been replaced by sodium vapor lamps. LEDs are more efficient than older lamps used for outdoor lighting, and have greater color rendition than sodium vapor light sources. This return to white light sources brings certain advantages for human use, but includes a wider range of wavelengths, potentially impacting more species (Stone et al. 2012) and exacerbating sky glow (Aubé et al. 2013).

The combination of colors that make up a full-spectrum light is described by the correlated color temperature (CCT) of the light. CCT is measured in degrees Kelvin and corresponds to the appearance of light that would be emitted from an idealized “black body” if it were heated to that temperature. Lower CCTs are dominated by yellow and other longer wavelengths, while higher

CCTs are dominated by blue and other shorter wavelengths. For example, an incandescent bulb has a CCT of 2600–2700 K (Elvidge et al. 2010), while a metal halide lamp has a CCT of 2900–4200 K (Elvidge et al. 2010) and direct sunlight 3000–30,000 K, but usually 5200–6000 K (Thorington 1985). Full-spectrum LEDs are offered in many color temperatures, from 6500 K to 2700 K. High-pressure sodium lamps have a CCT of around 2100 K (Elvidge et al. 2010) and low-pressure sodium lamps, which are almost monochromatic yellow, are measured at 1740–1800 K (Thorington 1985, Elvidge et al. 2010).

One general rule is to avoid any light that has emissions in the ultraviolet spectrum and adjacent short wavelengths. Ultraviolet light is not visible to humans, yet is visible to other species. Insects are highly attracted to ultraviolet light and their attraction and mass death at lights would be dramatically reduced by eliminating ultraviolet light from general use (Frank 1988, Eisenbeis and Hassel 2000, Eisenbeis 2006, Frank 2006). Mercury vapor lamps are high in ultraviolet radiation, while other commonly used outdoor lamps (e.g., metal halide, fluorescent) have some ultraviolet as well. LEDs have no ultraviolet emissions and therefore attract fewer insects than lamps of comparable intensity and color temperature that do have some ultraviolet emissions (Poiani et al. 2015, Longcore et al. 2015).

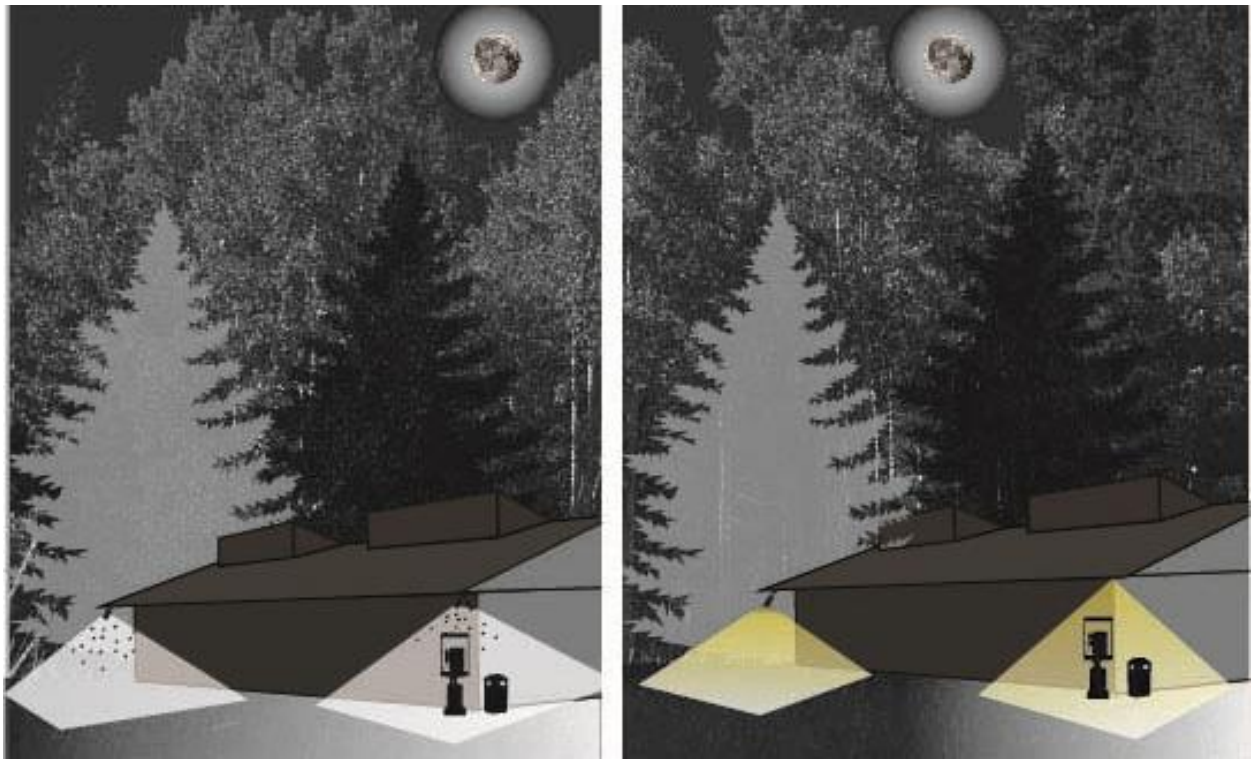

Figure 17. Yellow light that does not contain blue or ultraviolet wavelengths attracts far fewer insects.

Insects are also attracted to light in the short visible wavelengths (e.g., violet and blue) (**Figure 17**). Full-spectrum lighting that allows good color rendering for human vision is not advisable from the standpoint of ecological effects because it contains light in the blue spectrum (Eisenbeis and Eick

2011). All lights heavy in the blue portion of the spectrum, such as fluorescent lights, metal halide lights, and full-spectrum LED lights, will have greater impacts on insects than lights with longer wavelengths (e.g., low-pressure sodium vapor lamps or yellow/amber LEDs) (Eisenbeis and Eick 2011, Pawson and Bader 2014, Poiani et al. 2015, Longcore et al. 2015). If full-spectrum lighting is required, then the lowest possible color temperature is recommended (Longcore et al. 2015).

Blue light contains the most biologically active wavelengths for physiological processes such as the production of hormones and the timing of daily activities (Beier 2006, Brainard et al. 2015). This concern has been best expressed relative to human health (Pauley 2004, Brainard et al. 2015), but blue light also disrupts circadian rhythms in wildlife. To minimize disruption to circadian rhythms, shorter wavelengths such as blue and violet should be avoided. They might also be avoided to minimize influence on species that are phototactic to blue light, such as many frog species that have a blue light preference whereby they move toward blue light, presumably as an escape mechanism that leads them away from vegetation (and into water) in times of danger (Hailman and Jaeger 1974, Buchanan 2006); these preferences can vary depending on the intensity of illumination, however (Buchanan 2006).

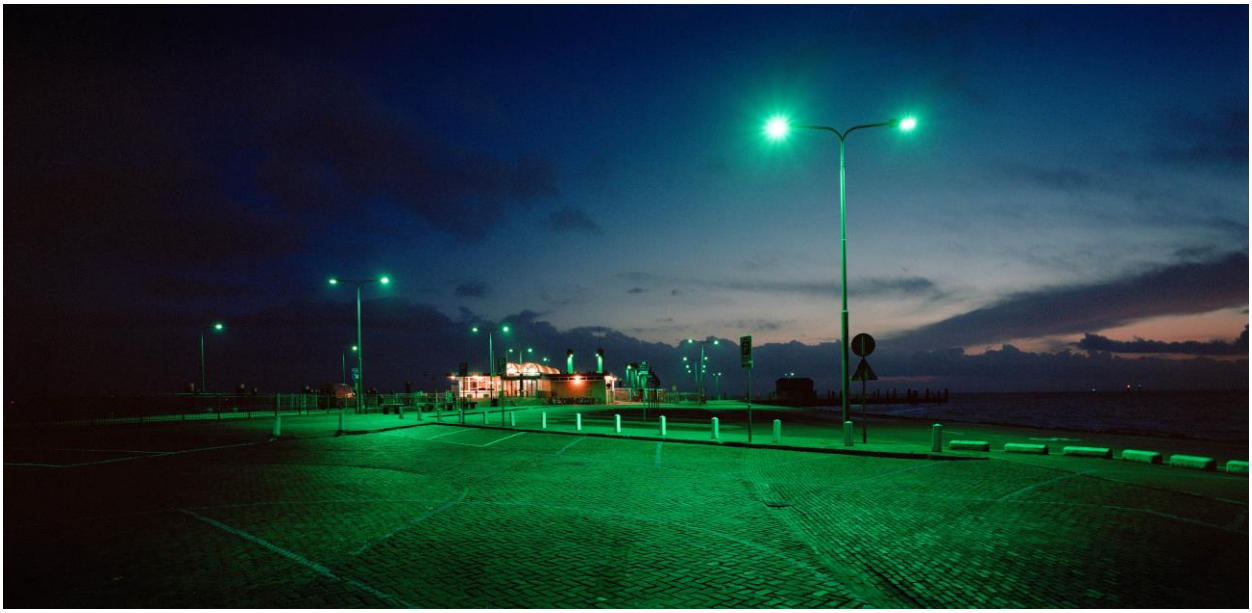

Figure 18. Green lighting designed to minimize attraction of birds developed by Philips. Shell is using these lights on an oil platform in Alaska and Philips is adding the lights to its regular catalog. Photograph courtesy of Joop Marquenie.

Birds are able to orient to the Earth's magnetic field under monochromatic blue or green light, but such navigational ability apparently does not function under lights that are only red or yellow. The molecular mechanism that allows detection of the Earth's magnetic field requires light of a certain wavelength to be activated (Ritz et al. 2009), which presumably explains the inability of migratory birds to orient under light that lacks those wavelengths (Wiltschko et al. 1993, Wiltschko and Wiltschko 1995). Dutch researchers have experimented with the use of specially designed lamps that contain blue and green light at coastal locations and on offshore platforms to see if the number of

attracted and disoriented birds is decreased (van de Laar 2007, Poot et al. 2008). Results show blue and green lights influence birds less than red and full-spectrum (white) light, although the effects on other species have not been documented in the scientific literature (**Figure 18**; **Figure 19**).

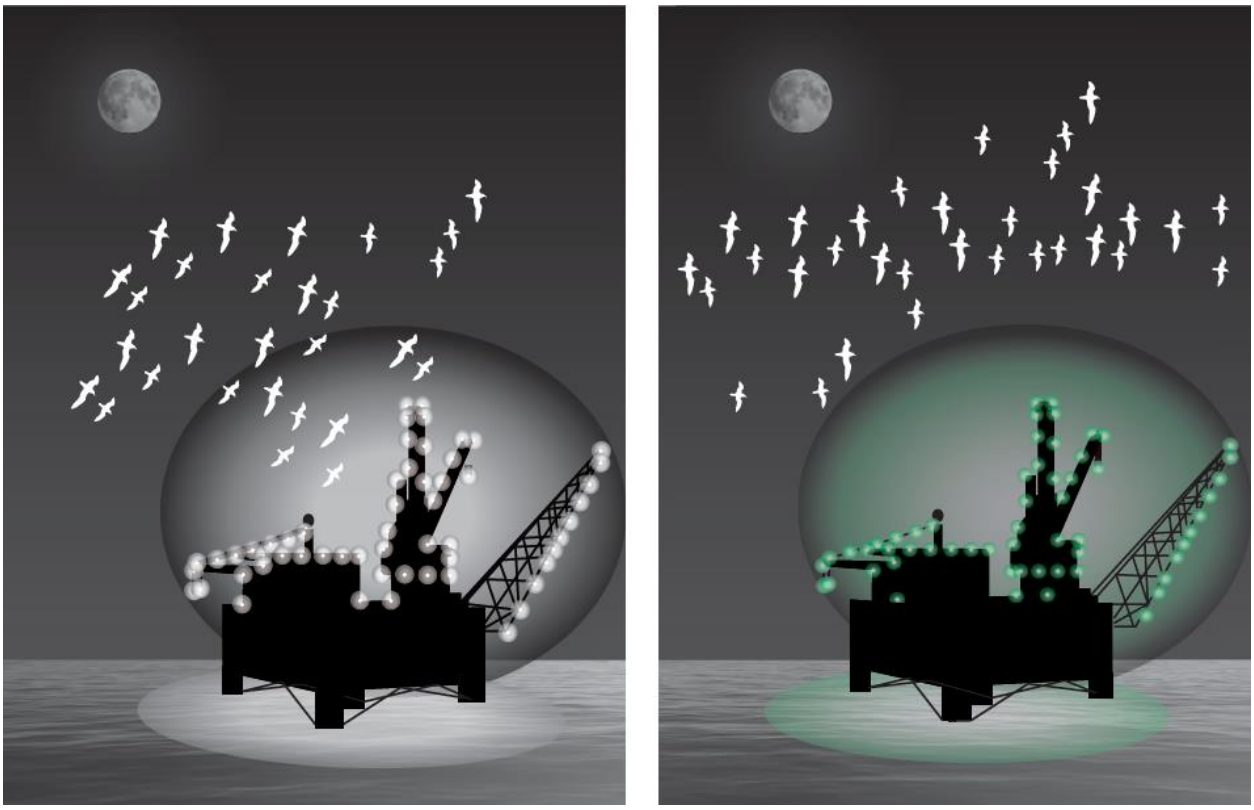

Figure 19. Green lights have been investigated for use on offshore structures and shown to be less attractive to birds.

In other situations, light that includes longer wavelengths appears to attract few insects and does not disrupt orientation of sea turtle hatchlings. For this reason, yellow lights are commonly identified as being wildlife-friendly (**Figure 17**). These same lights, however, reduce the foraging activity of native beach mice (some species of which are endangered) along the Florida coastlines where turtle-friendly lighting is recommended (Bird et al. 2004). Fireflies are vulnerable to impacts from yellow light because it is this part of the spectrum that is used by those species flying after dusk (Lloyd 2006).

Red light appears to disrupt the orientation capabilities of birds, but it seems to have the least effect on other species (**Figure 20**). Few insects are attracted to red light and dark-adapted eyes are not bleached by red light, making it the spectrum of choice for stargazers. In low-light environments in parks, red light might be preferable where lights are needed for safety reasons (**Figure 21**).

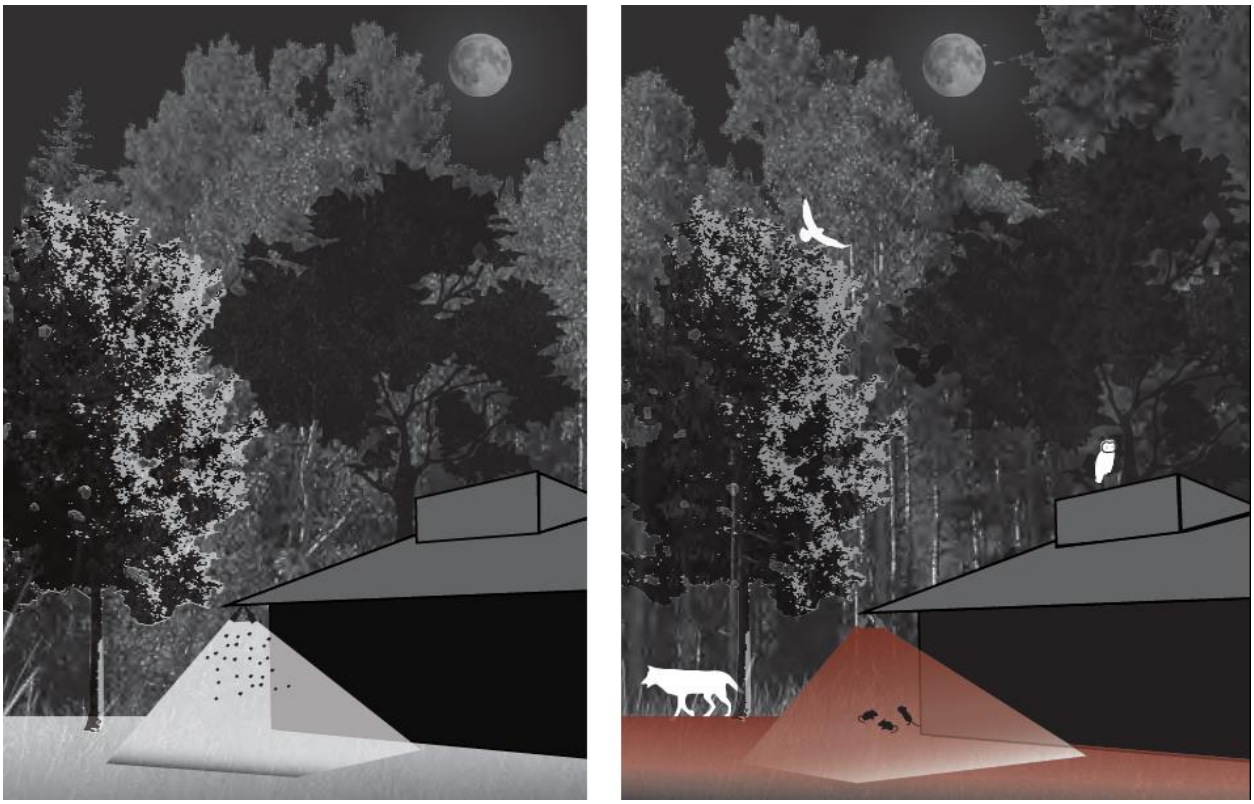

Figure 20. Red light does not disrupt dark-adapted vision and is therefore appropriate for campsites and locations used for astronomical observation.

Figure 21. Illumination of a stairway at a campground by two low-intensity red bulbs instead of by a bright white spotlight (Wagner et al. undated).

Through all the considerations for different taxa, a few general lessons emerge to guide use of spectrum: 1) the choice of color significantly affects the degree of biological disruption; 2) narrow-spectrum lights are preferable to broad-spectrum sources (i.e., white light); 3) ultraviolet light should be avoided; 4) blue and shorter wavelengths increase biological responses and generally should be avoided; and 5) concerns about individual species in an area may influence the choice of least disruptive color for lights.

Intensity

Land and facility managers have great latitude in selecting the intensity and quantity of lighting used. From a wildlife perspective, discretion should be exercised to use the minimum amount of light required. This can be accomplished by significantly decreasing the luminous output commonly specified by lighting designers. Land managers should not rely on standards promulgated by professional societies to guide lighting levels for natural areas because these are generally developed for urban/suburban areas with little to no regard for wildlife. Rather, every effort should be made to reduce the intensity of lights and still achieve the desired function.

Reduction in lighting intensity benefits species in the vicinity of lighting and also reduces the reflection of light in the atmosphere. The glow of lighted areas can thereby be reduced, decreasing impacts to natural systems and park visitor experience in wildlands. Often, illumination levels can be reduced without adverse consequence for human activity. In fact, reducing the contrast between light and dark areas increases the ability of humans to see. The human eye adapts to the brightest light in view. As the eye adapts to bright lights, acuity in darker areas is lost. Bright lights plunge the surrounding areas into dark shadows, while with dimmer lights the eye is able to retain some of its ability to see in darker areas.

Direction

Shielding lights is a common mitigation measure to reduce impacts to natural lands and species (**Figure 22**). Usually this involves shielding a fixture so that little or no light is emitted above the horizontal plane, and less than 10% of the light is emitted within ten degrees below the horizontal plane. This is the definition of a full cutoff lighting fixture. Shielding in this manner greatly reduces (but does not eliminate) sky glow. Light still reflects off the ground and scatters, so reduction in intensity should be combined with shielding. Downward-directed lights may still have adverse ecological consequences such as attracting insects and species that feed on the insects (e.g., bats, frogs, birds), or directing light into sensitive habitats such as wetlands and rivers.

Land managers should endeavor to shield lights beyond full cutoff to ensure that light falls only on the intended surfaces. Such mitigation will minimize direct glare, which can affect the orientation of organisms across distances (Reed et al. 1985, Telfer et al. 1987, Beier 1995, Longcore and Rich 2004); this will also minimize the area that is artificially illuminated. Design solutions to achieve these goals include the use of embedded lights to illuminate important surfaces (**Figure 23**) and simple retrofits to shield existing lights (**Figure 24**).

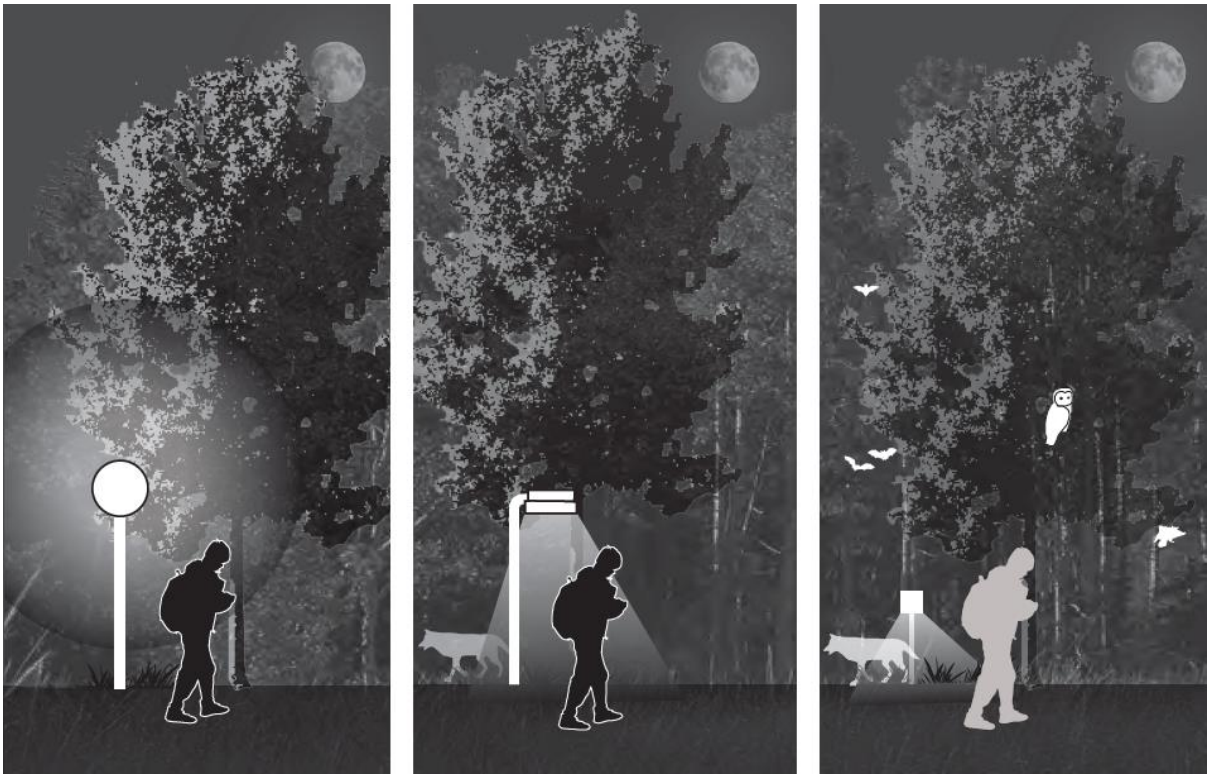

Figure 22. The more focused light can be on its target, the less it will affect other species.

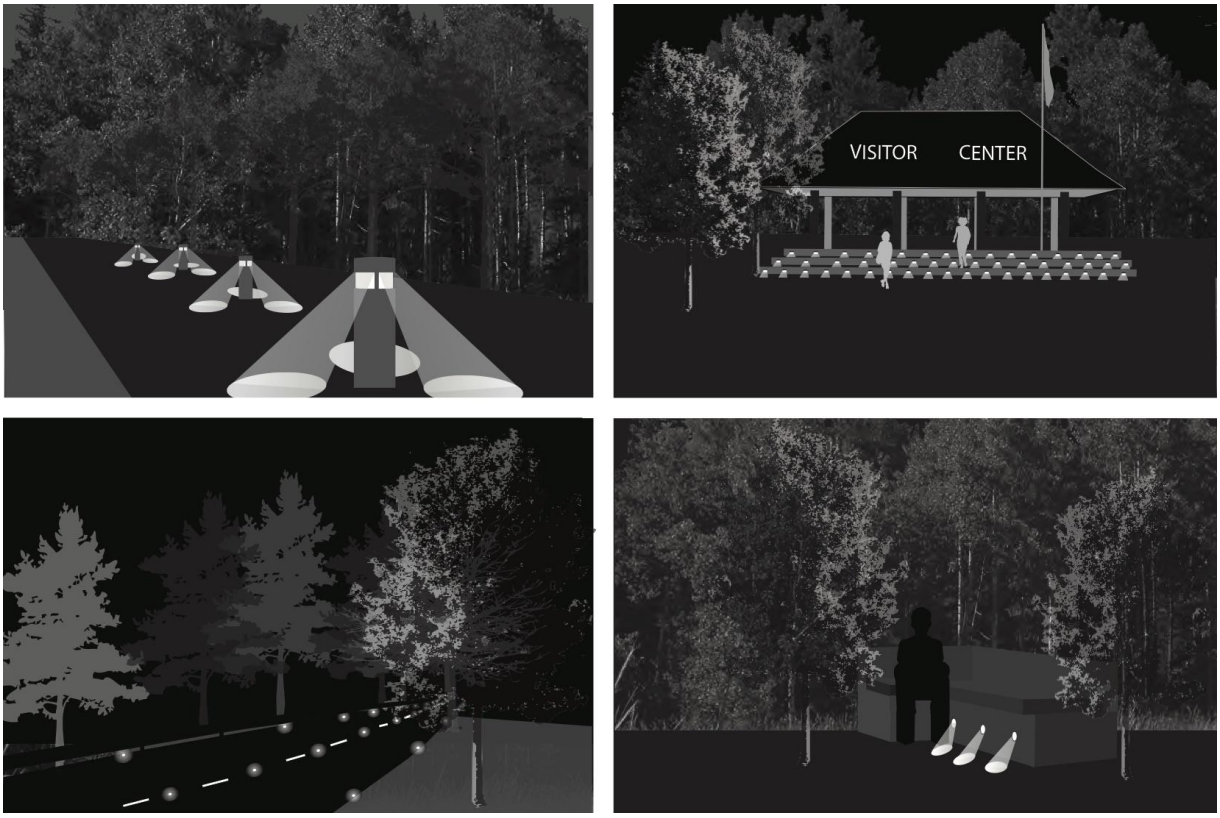

Figure 23. Embedded lights allow wayfinding with minimal intensity and good directional control.

Figure 24. A full cutoff shield being installed on an existing light on the lodge at Yellowstone National Park. This previously unshielded light was visible across the lake and from the backcountry. Photograph by Travis Longcore.

Duration

Impacts from lighting can be reduced by changing the duration of illumination. This approach reduces some impacts, but it may have some adverse consequences for those species sensitive to a changing light environment and so should be implemented with these limitations in mind. One common way to reduce the duration of illumination is to install a motion detector so that a light is only on when there is activity in a particular area (**Figure 25**). Although this limits the amount of time lights are on, lights that go on and off at irregular intervals may disrupt the nocturnal behavior of some species. For example, green frogs (*Rana clamitans*) reduce calling behavior and move away when a light is shining on them (Baker and Richardson 2006); return to a dark-adapted state can take hours (Buchanan 2006).

Another restriction on duration is setting a time for lights to be extinguished each night (**Figure 26**). For example, the lights that illuminate Mount Rushmore are only on for a few hours each night. This approach, known as part-night lighting, reduces impacts by allowing darkness during the late night and early morning hours. Depending on the timing of the lighting, darkness can be maintained for the majority of the activity period for a target species (Day et al. 2015). This approach, however, may still disrupt activities during the specific light conditions at dusk that are required by other species (Longcore et al. 2003, Day et al. 2015). Rather than a smooth range of illumination conditions occurring as the sun goes down and darkness falls, sites will experience a single illumination level until the lights are turned off. Many groups of species share resources across lighting levels; that is, one species may forage at dusk, another right after dusk, and another in the dark of night (Hailman 1984). Increased illumination, even on a temporary basis at dusk or dawn, reduces the time available

for critical behaviors and could eliminate them altogether if a species prefers the transitional lighting levels of dusk when lights are illuminated. If artificial lighting eliminates a significant period of potential activity time for a species, the long-term consequences will be negative. In studies of bats, part-night lighting has been found to be ineffective in avoiding the activity periods of most species in the locations studied (Azam et al. 2015, Day et al. 2015).

Figure 25. Motion- and heat-detecting lights provide illumination only when it is needed.

Figure 26. Timed lights may affect species negatively during the transitional period of dusk, but may reduce impacts later at night.

There may be instances where avoiding lighting during a particular time when animals are active is an appropriate way to mitigate impacts. Many species are active during the crepuscular periods of dusk and dawn. If lighting can be avoided until after dark, or closer to dark, certain impacts on those species might be avoided. Setting photodetectors to activate lights only at very low levels of illumination will avoid the biologically active crepuscular period, reduce insect attraction, and limit light to after civil twilight when it is really needed.

Whenever lights are required, reducing their intensity or turning them off during periods they are not needed should always reduce impacts. For example, the Dutch government has mitigated lighting impacts on sensitive wet grassland habitats by turning off roadway lighting at 11 P.M. and replacing it with 7-watt incandescent bulbs halfway up the light standards (De Molenaar et al. 2006). These lights allow for wayfinding and have not changed the number of accidents occurring on the road.

Lighting situations

In addition to controlling for spectrum, intensity, direction, and duration, mitigation measures can be devised for many other situations in which lighting might be installed in parks. In the sections that follow, we discuss the issues involved with mitigating impacts from a series of different situations that might be faced by a park manager.

Communication towers

Each tower in the United States that is taller than 200 ft (61 m) must have obstruction lighting in accordance with Federal Aviation Administration (FAA) guidelines. Lighting is a primary factor resulting in the attraction to and mortality of birds at towers. An estimated 6.8 million birds per year are killed at tall towers (Longcore et al. 2012), including many species of conservation concern (Longcore et al. 2013). Reviews of previous work, and subsequent studies, have shown that mortality can be reduced by using a lighting system that has flashing lights only, whether these are strobe lights or red flashing lights (Gehring and Kerlinger 2007). White strobe lights have long been approved as lighting on towers and the FAA has updated its regulations to allow red flashing lights only (see FAA Advisory Circular 70/7460-1K). It is also important that towers do not have ground-level lighting around them because these lights can attract birds that then collide with tower guy wires (Longcore et al. 2008). Another option for tower lighting is an audio-visual warning system like OCAS (http://www.ocasinc.com). This approach uses radar to detect nearby aircraft, activating marker lights and emitting a verbal warning on aviation band radio. It is essentially a motion detector for tower lighting.

Night hiking and mountain biking

Night hiking and mountain biking have become popular activities in natural areas. The lights used in these activities, especially those used in mountain biking, have become brighter in recent years. For example, full-spectrum LED lights that emit 3,600 lumens (approximately the same as a 200-watt incandescent bulb) are advertised for use by bikers. Activities such as these expose wildlife to unnatural disturbance at night; this affects behaviors both because of the disturbance itself and because of the potential bleaching of eye pigments ("blinding") from which recovery time can take minutes to hours.

Managers can mitigate the impacts of night hiking and biking by employing various strategies. These include:

1. Restrict the time of month when illuminated nocturnal recreation is allowed to the days before and after the full moon. In this manner animals are allowed the darkest part of the month as a refuge from disturbance.
2. Restrict the total luminous intensity of lights used in these activities.
3. Set curfews for illuminated nocturnal recreation.
4. Restrict nocturnal recreation activities to areas that are already disturbed by night lighting, leaving more remote wildland areas protected from nocturnal disturbance.

Campsite lighting

Although "traditional" camping with firelight and flashlights is certainly still a popular activity, more and brighter portable lights are being brought to campsites. Large arrays of lights are readily available and increasingly used by campers. Such lights can degrade the nighttime camping experience for other campers and will have greater impacts on wildlife than a campfire or small personal flashlight. Park managers might consider establishing guidelines for nighttime lighting at campsites, including limits on overall illumination, lighting curfews, and recommendations to use

flashlights instead of area lighting. Lighting restrictions could be established in conjunction with quiet hours, and address portable lanterns and recreational vehicle lights. In especially dark areas, managers could recommend the use of red filters on flashlights. Such actions should be paired with minimizing lighting from the existing infrastructure (e.g., converting lights on bathrooms to low-intensity red lamps).

Off-road vehicles

Deserts and beaches often accommodate vehicular recreation. Vehicles commonly have 1,000–1,500 lumens of forward-facing light, and because this is concentrated in a fairly narrow cone, the light intensity can be very high, with low-beam headlights exceeding 4,000 candela on axis (candela is a unit measuring the brightness of a light emitted in a particular direction). For wildlife along the axis of the headlight, the intensity of a directional headlight is equivalent to an unrestricted 100,000-lumen light source (Schoettle et al. 2004). This disruption can be an intermittent impact or, in some situations, a chronic one. For example, vehicles on a beach will often park with the headlights kept on, in which case multiple headlights will be directed into the shoreline environment and have the effect of a much larger number of streetlights due to their concentrated and directed nature. The most effective mitigation would be to prohibit vehicles from these environments during sensitive times for wildlife. Additional mitigations may include restricting headlights to when the vehicle is moving or requiring low beams only.

Monuments

Parks must consider the need to preserve natural and cultural resources when making decisions related to lighting cultural monuments. For example, the Washington Monument is bathed in white light and is known to attract and kill migratory birds (Overing 1938). Because the Washington Monument has been illuminated at night since the 1930s and is so powerfully symbolic of Washington, D.C., it is not feasible to propose elimination of lighting altogether. Limitation on the hours of illumination is probably the best management action in such situations. Lighting for monuments should be designed to illuminate the monument only, and with the lowest intensity possible. Bright lighting that might have been required to accommodate photography in the past is no longer needed with current digital imaging technology.

Lighting schemes at monuments could also play a role in pest management. At the Lincoln Memorial, the lights are turned on at twilight when midges and gnats fly over from the Potomac River and onto the Memorial. This in turn attracts many spiders that weave webs on the monument and require extensive and frequent cleaning (C. Moore, pers. comm.). It might be possible to turn the lights on slightly later, after the crepuscular period, or to change the spectrum of light used to eliminate short blue and ultraviolet wavelengths. In such a manner the lighting scheme then becomes part of an Integrated Pest Management program.

Light-assisted fishing

Offshore lighting poses threats both to aquatic and terrestrial ecosystems. Light has a long history of use as a method to attract fishes for capture. In artisanal fisheries, dim lamps may be used on small human-powered boats. Current industrial-scale fisheries, however, use extremely bright lights (equivalent to 30,000 watts incandescent) to attract squid and other fishes. Even boats that do not use

lights to attract their catch operate during the night and are highly illuminated. Illumination in this manner affects behavior of fishes (Nightingale et al. 2006) and other aquatic organisms (Forsythe et al. 2004). Lighting is also implicated in the mortality of seabirds in fisheries (Dick and Donaldson 1978, Carter et al. 2000). Spillover light on seabird nesting colonies has the potential to increase predation on vulnerable species (Keitt et al. 2004). Park managers should take action to reduce fishing activity with disruptive lighting near sensitive island habitats and in marine protected areas. A range of options is available to do so, including outright bans, limiting light-assisted fishing by phase of the moon (to dates around the full moon), and limiting total luminance allowed in protected waters.

Security lighting

Managers are often faced with pressure to install security lighting in hopes of decreasing illegal activity. The evidence that increased illumination reduces crime is unclear at best (Tien et al. 1977, Sherman et al. 1997), and dimming or shutting off lights may in fact reduce crime (Steinbach et al. 2015). Some schools use a "dark campus" approach, wherein all lights are extinguished at a certain hour. Lights seen after this time are then quickly recognized as indicative of unauthorized activity (Mizon 2012). Park managers should think very carefully about installation of any dusk-to-dawn security lighting. It has very little chance of being effective if staff members are not on site to observe activity. Complete darkness at night for areas in parks and protected areas that are off-limits and unoccupied should be considered in consultation with law enforcement.

Bridges

Bridges can introduce artificial lighting into natural areas through roadway lighting for safety or through architectural lighting. Both of these have the potential to disrupt natural habitats. For example, harbor seals used the lights on the Puntledge Bridge in British Columbia to form a "feeding line" and intercept outmigrating juvenile salmonid smolts (Yurk and Trites 2000). Extinguishing these lights led to a decrease in salmon mortality. Other studies document increased predation on fishes under illuminated bridges and docks (Nightingale et al. 2006). For bridges with tall structures, illumination of these towers may result in attraction of migratory birds. Such lighting should be avoided to the extent possible, such that obstruction lighting is limited to red flashing lights (if lighting is required by the FAA) and any roadway lighting is carefully directed onto the roadway with little or no spillover into the river. Furthermore, use of yellow light is preferable under most circumstances to minimize the attraction of insects, although selection of yellow lights alone will not eliminate the effects of lighting on foraging behavior of mammals (Bird et al. 2004). Other considerations with bridges include the synergistic effects of lighting and polarization that misleads insects and may even result in bridges being dispersal barriers along rivers (Horváth et al. 2009, Málnás et al. 2011).

Roadway lighting

Roadway lighting is a major source of outdoor illumination and contributes significantly to sky glow. In a study of lighting in Tucson, Arizona, roadway lighting accounted for 12% of upward directed lighting, following only commercial lights (36%) and sports fields (32%) as a proportion of total uplight (Luginbuhl et al. 2009). To maintain natural illumination conditions inside parks, managers must work with communities outside park boundaries to address these sources. Inside park

boundaries, managers must make the decision whether roadway lighting is necessary in the first place, and if so, what characteristics it should have. To minimize impacts on wildlife, roadway lighting should be avoided to the extent possible, and where used should only be designed for the required intensity. The recommended lighting for a local road with low pedestrian conflict in the United States is 3–4 lux (ANSI/IES RP-8-14), which is more than 30 times brighter than the full moon's maximum intensity, so no roadway lighting is ecologically trivial. Recommended illumination for most roadways ranges from 6–15 lux (ANSI/IES RP-8-14).

One issue with reducing illumination for roadways is a concern that any reduction will increase traffic collisions. Studies of changes to roadway lighting in England and Wales, however, found no significant effect on number of traffic collisions from part-night lighting, switching off roadway lighting entirely, or changing the spectrum of roadway lighting (Steinbach et al. 2015).

Where light is essential, fixtures should be full cutoff and shielded to minimize glare from any non-road site, especially in areas with known sensitive species. The best overall choice for spectrum is probably yellow (e.g., low-pressure sodium or yellow/amber LED), but technical considerations may lead to use of a broader spectrum (e.g., high-pressure sodium). Yellow/amber LED streetlight fixtures are commercially available in response to demand for lighting with minimal impacts on bats (e.g., Innolumis bat lamp from the Netherlands) and other wildlife (e.g., Star Friendly® lights, C&W Energy Solutions).

Other alternatives are available to further reduce the impacts of street lighting. Embedded roadway lighting (**Figure 27**) has been investigated in Florida as a way to minimize impacts on nesting sea turtles (Bertolotti and Salmon 2005). Such lights may be useful in locations where snow plowing is not necessary. Another alternative is the use of dynamic lighting systems that decrease illumination based on the time of day or traffic volume so that lights are extinguished by a certain time at night or at a percentage of peak traffic (Collins et al. 2002).

Interested park managers can consult reviews on the impacts of light from street lighting systems, which recommend against full-spectrum lamps because of ecological, physiological, and dark-sky impacts (Falchi et al. 2011, Bierman 2012).

Vehicles along roads can cause the type of periodic changes in lighting levels that can affect animal behavior (Baker and Richardson 2006) and influence views of the night sky (Luginbuhl et al. 2009). Birds, especially migratory species and seabirds, can be attracted to vehicle headlights (Gauthreaux and Belser 2006). Although additional research on this topic would be welcome, managers can mitigate impacts from headlights by providing shielding of sensitive receptors using a range of physical barriers, including berms, dense shrubs, or even walls in particularly sensitive areas.

Figure 27. Embedded roadway lighting. These LED lights installed in the pavement are not visible to sea turtles nesting on the adjacent beach and are well received by motorists and pedestrians (Bertolotti and Salmon 2005). Photograph courtesy of Michael Salmon.

Energy production installations

Efforts to increase domestic energy production have resulted in pressure to explore and extract fossil fuels and develop industrial-scale facilities for wind and solar energy both on land and water. Energy production facilities have the potential to affect natural resources on park properties that may be found intermixed with other public and private lands approved for such activities. The direct impacts of such activities are of great conservation concern, but are not discussed here. In the event that such facilities are evaluated in the environmental review process, the following recommendations could be made to minimize the impacts of artificial night lighting.

Wind energy installations are generally illuminated with red flashing lights at the corners of arrays of turbines. Not all turbines have obstruction lighting. Researchers documenting mortality of animals (both bats and birds) at wind turbines have concluded that these flashing lights do not attract birds, but that constant illumination of ancillary structures on the ground is associated with increased bird mortality at nearby turbines (Kerlinger 2004, Kerlinger et al. 2010). Wind turbines currently are estimated to kill on the order of 100,000 (Kerlinger et al. 2011) and 573,000 (Smallwood 2013) birds per year, with this number likely to grow 30-fold in the next 20 years to meet federal goals for renewable energy. Ensuring that lighting is only red flashing with no steady-burning lights on any accessory structures would reduce mortality of nocturnal migrant birds, but would not mitigate the significant bat mortality that is associated with wind turbines (Kunz et al. 2007, Smallwood 2013).

Solar power plants are proposed and being built in open desert areas near parks and protected natural lands. Such facilities should not require dusk-to-dawn night lighting. If security lighting is desired, the recommendation should be made that it be fully shielded, low intensity, and on a motion detector.

Oil and natural gas facilities are often brightly illuminated at night. This light can have adverse consequences for any habitat in which it is found. For example, offshore oil platforms attract seabirds, usually to their detriment (Wiese et al. 2001, Montevecchi 2006). Terrestrial oil and gas facilities are often the only sources of light in remote open spaces. Parks can work with existing facilities to retrofit lights. For marine facilities, some initially positive data have been collected suggesting that using a green light on an offshore platform reduces the number of birds that are attracted to it (van de Laar 2007, Poot et al. 2008). By retrofitting the platform from white lights to green lights, Dutch researchers documented a reduction in the number of birds observed circling a platform (van de Laar 2007). The cause of this reduction could have been the wavelength of light used, or an overall decrease in lighting intensity that was a byproduct of the lighting change. The research shows that decreasing illumination and restricting the spectrum of light is a promising approach to reducing impacts to biological resources while still maintaining safe operations.

Indoor lighting

Although outdoor lighting is usually the focus of efforts to reduce impacts of night lighting on wildlife, indoor lighting should be considered as well. Indoor lighting may contribute substantially to ecological light pollution. In the extreme example of all-glass structures, greenhouses in Germany attract insects and migratory birds (Abt and Schultz 1995, Kolligs 2000). Furthermore, office buildings in urban cores can contribute as much to sky glow as billboards or roadway lighting (Oba et al. 2005). In darker environments, even the lights from a residence may have some effect on local wildlife behavior and degrade the experience of visitors in adjacent natural areas. Managers can be aware of these issues and seek to shield interior lights through use of curtains. This also gives an additional reason to cluster developments within parks. For urban areas and office buildings, guidelines are available to minimize the effects on birds, including through steps to reduce interior illumination (New York City Audubon Society 2007).

Lighthouses

The fatal attraction of birds to lighthouses has been observed for well over a century (Dutcher 1884, Miller 1897, Hansen 1954). In the United States, mortality of birds is more commonly reported on the East Coast than on the West Coast (Allen 1880, Merriam 1885), although mortality has been recorded on the West Coast as well (Squires and Hanson 1918). There has been some conflicting research on lighting color and flashing since the early 1900s (see review in Gauthreaux and Belser 2006), but the view has solidified that mortality can be decreased through the use of a flashing rather than constant light (Baldwin 1965, Jones and Francis 2003, Gauthreaux and Belser 2006). It is important that the light itself flashes, extinguishing completely between flashes, rather than the flashing effect being created by a rotating beam that remains illuminated. Reduction in lighting intensity also reduces bird mortality (Jones and Francis 2003).

Billboards

Billboards and other signage can affect wildlife behavior when illuminated. For example, light from a single billboard was sufficient to change the concealment behavior of juvenile salmon in a stream (Contor and Griffith 1995). While the significance of such behavioral changes is unknown, illumination of billboards and other signs should be controlled to minimize cumulative effects of lighting on wildlife, especially as digital billboards proliferate. Illumination from a typical digital

billboard proposed for installation in endangered species habitat in southern California would have caused lighting levels to exceed 10^{-1} lux (equivalent to that of a full moon) up to 1,000 ft (305 m) from the sign, according to the lighting engineers for the applicant (Longcore 2015; the proposal was not approved). Such intense lighting has the potential to influence nearby sensitive resources and contribute to sky glow.

Conclusion

Light pollution within parks and protected lands can have a measurable impact upon the habitat quality of the park, even if the light itself originates outside of the park's administrative boundary. Minimizing ecological impacts requires that land managers adopt an ethic of using only the minimum light necessary for human needs and being cautious when introducing light into or near a natural landscape. This report provides examples of the range of negative consequences that may arise from artificial night lighting. Though not a compendium of information for every species and every environment, it should provide adequate evidence for reasonable management of lighting in natural areas.

Park managers should first inventory their resources and determine if and where sensitive species or habitats exist. This information can then guide the development of the prescription of lighting zones within a park where different levels of lighting are allowed, depending on the uses and experiences desired for those zones. Lighting zones may be designed to minimize wildlife impacts only or also to integrate other aspects of a park experience. The most sensitive zone would have a prohibition on outdoor lighting or impose restrictions that define a narrow range of allowable artificial lighting. Looser restrictions that still provide adequate mitigation would be delineated for developed areas in parks and those with substantial human nighttime activity. In all instances, mitigation should address spectrum, intensity, direction, and duration. When all four aspects are addressed, mitigations can be effective at reducing ecological disruption from artificial night lighting.

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RESEARCH ARTICLE

WILEY JEZ-A ECOLOGICAL AND INTEGRATIVE PHYSIOLOGY

Colors of attraction: Modeling insect flight to light behavior

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Abstract

Light sources attract nocturnal flying insects, but some lamps attract more insects than others. The relation between the properties of a light source and the number of attracted insects is, however, poorly understood. We developed a model to quantify the attractiveness of light sources based on the spectral output. This model is fitted using data from field experiments that compare a large number of different light sources. We validated this model using two additional datasets, one for all insects and one excluding the numerous Diptera. Our model facilitates the development and application of light sources that attract fewer insects without the need for extensive field tests and it can be used to correct for spectral composition when formulating hypotheses on the ecological impact of artificial light. In addition, we present a tool allowing the conversion of the spectral output of light sources to their relative insect attraction based on this model.

KEYWORDS

artificial light at night, Diptera, Lepidoptera, light pollution, phototaxis, spectral sensitivity

1 | INTRODUCTION

Over the last 150 years the use of artificial illumination has dramatically changed the nightscape (Garstang, 2004). Insect attraction to light is a well-known phenomenon, which was already reported shortly after the introduction of outdoor lighting (Claypole, 1885; Douglas, 1856). Although there are a number of nonexcluding underlying mechanisms (e.g.Hsiao, 1973; Robinson & Robinson, 1950) by which insects come to light sources, we broadly interpret positive phototaxis as insects arriving at light sources for the purpose of this study. The large-scale use of artificial light at night has been identified as a significant threat for many organisms and ecosystem services (Hölker, Wolter, Perkin, & Tockner, 2010; Longcore & Rich, 2004). For moths (Lepidoptera), effects have been reported at individual (Truxa & Fiedler, 2012; van Geffen, van Grunsven, van Ruijven, Berendse, & Veenendaal, 2014; van Langevelde, Ettema, Donners, WallisDeVries, & Groenendijk, 2011; van Langevelde, van Grunsven, Veenendaal, & Fijen, 2017) and population levels (Eisenbeis, 2006; van Langevelde et al., 2018) and artificial light is thought to contribute to the decline of moth populations in Western Europe (Fox, 2013; Frank, 1988; Groenendijk & Ellis, 2011). Attraction of insects to artificial light sources can indirectly negatively affect pollination in plants that depend partly or completely on nocturnal pollination (Knop et al., 2017; Macgregor, Evans, Fox, & Pocock, 2017). Less well studied is the role of artificial light in attracting disease vectors (Erazo & Cordovez, 2016; Longcore et al., 2015). Some of these groups of insects are positively phototactic, such as the vectors of Chagas disease (e.g. *Triatoma* spp.) (Erazo & Cordovez, 2016; Minoli & Lazzari, 2006), leishmaniasis (e.g. *Lutzomyia intermedia* and *L. whitmani*) (Erazo & Cordovez, 2016), malaria (*Anopheles* spp.) (Barghini & De Medeiros, 2010), and West Nile virus (*Culex* spp.) (Bentley, Kaufman, Kline, & Ja, 2009).

The spectral composition of a light source directly influences the degree to which it attracts insects. Many nocturnal insects are attracted to light sources rich in UV (Barghini & De Medeiros,

2012; van Langevelde et al., 2011) and short wavelength (visible) light is in general more attractive than long wavelength light (Longcore et al., 2015; Somers-Yeates, Hodgson, McGregor, Spalding, & Ffrench-Constant, 2013; van Langevelde et al., 2011). Many studies have compared attractiveness of different light sources to nocturnal flying insects, specifically moths (Barghini & De Medeiros, 2012; Eisenbeis, 2006; Eisenbeis & Eick, 2010; Pawson & Bader, 2014; Somers-Yeates et al., 2013; van Grunsven et al., 2014; van Langevelde et al., 2011). Nevertheless, despite this body of theory we still cannot predict insect flight to light based on the spectral output of a light source (van Grunsven et al., 2014).

The current technological shift from high-intensity discharge lights to UV-poor but broad spectrum LEDs is changing the spectral composition of nocturnal illumination worldwide (Davies, Bennie, Inger, Ibarra, & Gaston, 2013). This could result in less or more attraction of insects depending on the spectral composition of the LEDs (Longcore et al., 2015) and the light sources they replace (van Grunsven et al., 2014). A model to assess the contribution of different parts of the spectral composition of modern light sources to insect attraction is urgently needed and could greatly influence the development and application of light sources with reduced attractiveness to flying insects. We developed such a model by parametrizing a theoretical model of the insect eye with field experiments on the attractiveness of a variety of different light sources for a wide range of flying insects. This model consists of two parts, the first weighs the parts of the emission spectrum, giving a value for the attractiveness of a spectrum expressed in the proposed new unit Insect Light Attraction (ILA) and the second quantifies the relationship between ILA and insect attraction for a given radiant flux.

2 | MATERIALS AND METHODS

2.1 | Model construction

The spectral response model presented here contains an action spectrum that gives the relative attractiveness for insects per nanometer wavelength so that the products of emitted power per nanometer and its relative attractiveness summed over the entire spectrum (the so-called sum product) gives the signal strength as experienced by the attracted insects (Laughlin, 1981). This action spectrum is composed as a linear combination of the absorption bands of the common photoreceptors in insect eyes. Most insects share a UV (U) and a short wavelength or blue receptor (S) and many insects additionally have a middle wavelength or green receptor (M). A fourth receptor, for red light, and even a fifth receptor can be found in some insects, but this is rare and mostly found in diurnal species (Briscoe & Chittka, 2003; Peitsch et al., 1992). In an earlier version of the model, a fourth receptor was included but this did not improve the model and therefore we chose not to include it in our final model (data not presented). We fitted the sensitivity curves using data from three field experiments described below. The spectral sensitivity curve of each photoreceptor class could be described by a skewed Gaussian curve with four independent parameters as proposed by Stavenga, Smits, and Hoenders (1993). This curve has a single peak wavelength (λ_{max}), peak height (A), width (a_0), and skew (a_1) as described by the equation:

$$\alpha_i = A_i \exp\left[-a_0 x_i^2\left(1 + a_{1,i}x_i + a_{2,i}x_i^2\right)\right],$$

where $x_i = {}^{10}\log(\frac{\lambda}{\lambda_{\max,i}})$ and restricting the parameterization by setting:

$$a_{2,i} = \frac{3a_{1,i}^2}{8}$$

Adding the UV (U), blue (S), and green (M) bands together, we could construct the reaction spectrum as follows:

$$\varepsilon(\lambda) = \sum \alpha_i(\lambda) = U(\lambda) + S(\lambda) + M(\lambda).$$

2.2 | Parameter ranges based on known sensitivity curves

The ranges for the parameters defining these templates (Table 1) were a priori determined from published sensitivity curves for different groups of insects (Beier & Menzel, 1972; Eguchi, Watanabe, Hariyama, & Yamamoto, 1982; Hu & Stark, 1980; Johnsen et al., 2006; Poiani, Dietrich, Barroso, & Costa-Leonardo, 2014; White, Xu, Münch, Bennett, & Grable, 2003; Yamaguchi, Desplan, & Heisenberg, 2010; Zufall, Schmitt, & Menzel, 1989). Peak height was set at 1 for the U absorption band and was free for the other two bands. The ranges used are limited to primary or α bands. The higher-order bands of the different receptors overlap completely with the primary band of the UV and blue receptors. They have been incorporated in the UV and blue band by fitting their shape so that the fitted curve reflects the sum of the primary band and overlapping higher order curves of the other receptors. The individual curves therefore are dominated by the primary band of the respective receptors but does not exactly describe this, as it can include higher order bands of other receptors. However, the overall model does describe the sum of all primary and higher order bands.

2.3 | Fitting the model using field data

The parameters of the spectral response curves were determined by modeling the numbers of insects attracted by the different lamps caught per unit time in three field experiments. In these field experiments, 18 spectrally different light sources were tested (six by van Langevelde et al., 2011, six by van Grunsven et al., 2014, and 6 by Smit & Groenendijk, 2011, see Supporting Information 1 for details on the field experiments), 97,746 insects, spread over 14 orders, were caught and identified, with Diptera being the most numerous group (74,121 individuals).

We fitted the log of the sum product of the spectral distribution of the photon flux, $q_{n,p}$ (in mol photons nm^{-1} s^{-1}), with the spectral attraction model, ε, versus the observed attraction, N_s, using a logistic function

$$log_{10}(N_s) = log_{10}\frac{L}{1 + e^{-k(x-x_0)}},$$

TABLE 1 The ranges for the different parameters used to define the templates for the UV, blue, and green band and the final fitted values

	Peak wavelength (λ_{max})			Width (a_0)			Skew (a_1)			Peak Height (A)	
	Minimum	Maximum	Fitted	Minimum	Maximum	Fitted	Minimum	Maximum	Fitted	A priori	Fitted
UV	320	400	352	74	483	74	4	36	36	1	1
Blue	400	472	400	206	403	363	0	12	12	No limit	1
Green	490	570	520	228	401	232	1	9	5	No limit	0.3

where $x = log_{10}(\int q_{n,p}(\lambda)\varepsilon(\lambda)d\lambda)$, ($\log_{10}$ of sum product), $x_0 = 0.83$ (midpoint of the s-curve), $k = 1.90$ (steepness of the curve) and L = local asymptotic maximum of the curve.

The factor L allows for differences in conditions or local insect densities between experiments, L thus has a single value per field study. This corresponds with an asymptotic maximum of the logistic function for each experiment and ranged from 600 to 4000. We used a generalized reduced gradient method of iteration to achieve the highest Pearson correlation coefficient between the left-hand side (observed attraction) and the right-hand side (modeled attraction) of the logistic equation given above by adjusting values of λ_{max} (peak wavelength), A (peak height), a_0 (width), and a_1 (skew) for the three photoreceptor bands, and L, x_0, and k to fit the logistic function. The peak height parameter of the U band was fixed at $A = 1$ and the other peak heights calculated relative to this (Figure 2).

2.4 | Relation output and attraction

The fitting procedure gave the attractiveness for each wavelength relative to the peak height of the U band. We chose to subsequently scale the model so that the most attractive wavelength has an attractiveness of 1 summed over all bands. The sum product of the spectral output and this response curve has an exponential relationship with insect attraction. Most parameters were fitted as described above but the local asymptotical maximum (L) depends on the local insect density and therefore has no universal value; it varied from 113 to 3074 insects per 1000 s in our datasets. However, this value has a linear relation with the predictive attraction and therefore does not present a problem when comparing light sources. For the calculations presented in Supporting Information 3 we chose an L of 1000, arbitrary but well within the range we observed. Some examples of light sources with output in lumen, calculated attractions and measured attraction are given in Supporting Information 2.

2.5 | Marginal means as measure of attractiveness

Using the model, the marginal means of the log counts of the lamps were estimated. We used these marginal means as measure of attractiveness, i.e., the $\log_{10}(N_s)$ in the logistic equation above. The adjusted 95% confidence intervals constructed for the marginal means take into account that in the model calibration, a factor for the counts was fitted for each of the experiments (L), so that only the differences between the lamps are relevant. Such a factor translates to an addition on the log-count scale, meaning that during the calibration the average log-count of a test can be fitted perfectly. This can be interpreted as allowing for differences in insect densities or environmental variables between experiments. The 95% confidence intervals for all lamps are quite similar. This is important when considering the calibration: if the estimated attractiveness of some lamps would be much more uncertain, the fit criterion should reflect that extra uncertainty. In our case, the adjusted confidence intervals were similar and thus the fit criterion does not need adjustment. The correlation coefficient for the relation between the spectral response model and the data used to fit the model was $r = 0.993$ with RMSE = 0.097 (Figure 2a) indicating that the model fits the empirical data very well, especially considering the large diversity of light types in this data set. Our data contain a large number of individuals from the order Diptera, which made up 43% of the individual insects in the data used to fit the model. Therefore, a good fit for Diptera can result in a good fit overall without a good fit for other insects. We assessed whether the spectral response model as fitted on the complete data sets is also accurate for non-Diptera by using the data sets excluding Diptera. The correlation between the model predictions and the non-Dipteran data sets is high ($r = 0.996$, RMSE = 0.10) as well.

As the goal of the model is to predict the total number of flying insects, and not the number for lower taxonomical levels, we did not assess the fit at order level.

2.6 | Model interpretation

The sum product of the spectral output of a light source per unit wavelength and its action spectrum (Figure 1) gives the output weighted for insect attraction; we propose to call this new unit Insect Light Attraction (ILA). The light output in ILA has a logistic relationship with the number of insects attracted. ILA can be calculated by multiplying the lamps' spectral output with the ILA spectral response curve, which gives a dimensionless value for the relative attraction of a light source. This can easily be done using Supporting Information 3.

2.7 | Model validation

We validated our model with data from two experiments not used for fitting the model. The first experiment was performed in the Netherlands, using Robinson traps with light sources mounted above, and the second in California, USA, using pan traps with shielded lights directed at the pan trap (Longcore et al., 2015). The Dutch dataset was collected using six light traps with different light sources over 18 nights catching a total of 3809 insects. From the Californian dataset, five traps with different light sources were included that caught 4911 insects in total over 19 nights (for details see Supporting Information 2). A negative binomial regression model with a log-link function was used to correct for the effects of night and location, and the estimated marginal means

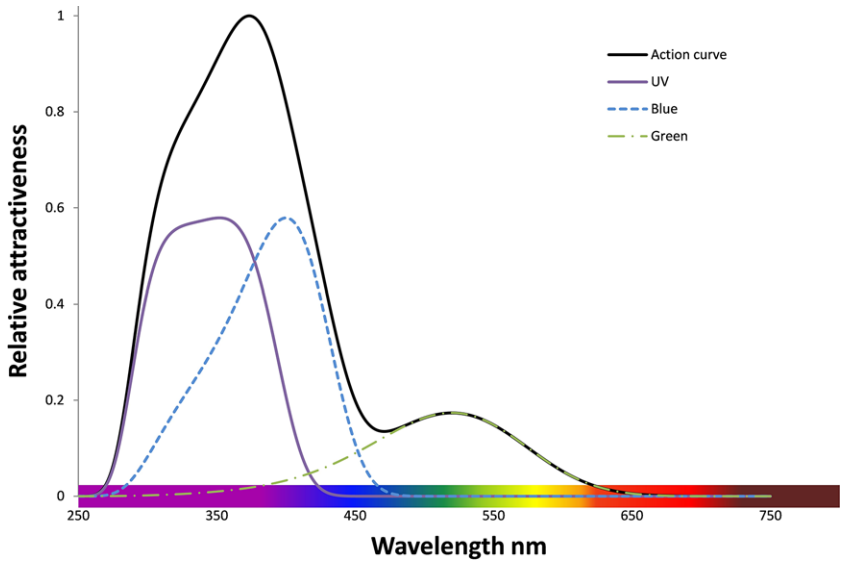

FIGURE 1 The action curve for the relation between spectral output (in photons nm^{-1} s^{-1}) and attraction of insects is the sum of the curves for the UV, blue, and green photoreceptors [Color figure can be viewed at wileyonlinelibrary.com]

for the different lamps were used as was done for the other datasets. We then compared the predictions based on the spectral output with the measured attraction.

The data used for validation contain a large number of individuals from the order Diptera, therefore, we assessed whether the spectral response model as fitted on the complete datasets is also accurate for non-Diptera by using the datasets excluding Diptera. As the goal of the model is to predict the total number of flying insects, and not the number for lower taxonomical levels we did not perform a validation at order level.

3 | RESULTS

3.1 | Model description

The spectral response curve is the sum of three Gaussian curves with the parameters given in Table 1, these parameters are the peak wavelength (λ_{max}), peak height (A), width (a_0), and skew (a_1) for each band resulting in the action spectrum shown in Figure 1. The sum product of the spectral output of a light source and this spectral response curve has a logistic relationship with the number of insects attracted following the function $Ns = 1000/1+e^{-1.9(\mathrm{Log}(10)x-0.83)}$ with N_s being attraction and χ being the aforementioned sum product. Using the tool provided as Supporting Information 3, both the ILA, i.e., the sum product, and the relative attractiveness of light sources can be calculated from the spectral output of light sources.

3.2 | Validation of the model

For the validation of the model, we used a Dutch and a Californian dataset not used for model fitting. We found strong correlations between the model predictions based on the spectral composition of the lamps used and the data for the Dutch (r = 0.941, RMSE = 0.15) and for the California dataset (r = 0.967, RMSE = 0.12) (Figure 2b; Supporting Information 2).

In both datasets, Diptera formed a large proportion of the insects caught (87% for the Dutch and 58% for the Californian dataset). Therefore, a good prediction might be caused by a good prediction of the response of only the Diptera, while being a poor predictor for other insect groups. To assess whether the spectral response model is also accurate for non-Diptera, we tested the spectral response model excluding Diptera from the data using the same method. The correlation between the model predictions and attraction for the validation datasets excluding Diptera is relatively strong as well (r = 0.829, RMSE = 0.23 for the Dutch and r = 0.825, RMSE = 0.22 for the California data set). The correlation between predicted and measured attractiveness is less strong than when the complete data sets were used, but reasonable given the large reduction in the data and therefore reliability of the estimates of attractiveness remains high.

4 | DISCUSSION

Our model accurately assesses insect attraction to light sources based on their spectral output by combining current knowledge on insect eye physiology and large field datasets on the attractiveness of different light sources for a wide range of insect groups. This is especially relevant given the current world-wide trend to replace older lighting with LED technology. Our model allows a priori comparison of light sources for their insect attraction. Hence, it is a crucial tool for the application and development of light sources and can facilitate the application of light sources that attract fewer insects, with benefits for conservation and reduction of pest and disease vectors.

Although the model is based on data from the Netherlands, the validation with data from California indicates that the insects occurring in this region do not substantially differ in their spectral sensitivity. For the California dataset, the model ranks the lights correctly but

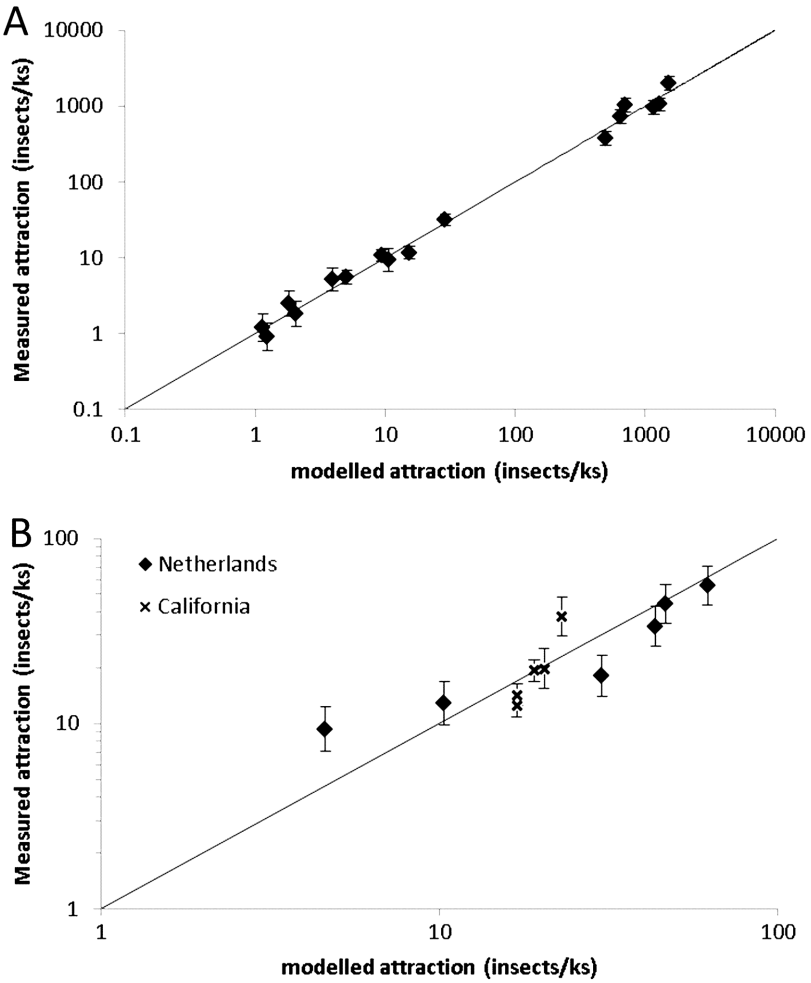

FIGURE 2 The model predictions are highly correlated with the empirical data, both for the experiments used to fit the model (a; $r = 0.993$) as well as for the validation test (b; $r = 0.941$ for the Dutch and $r = 0.967$ for the California data; ks is kilosecond). The empirical data is corrected to only include the effects attributed to the lamp types and to exclude effects caused by differences in locations and nights. The values are marginal means with estimated 95% confidence intervals. The line X = Y, reflecting a perfect model, is included as a reference

the ratio between the light sources in attracted number of insects is larger than predicted. The light was projected downward in this experiment (Longcore et al., 2015), in contrast to the spherical projection in the other experiments. Therefore, the light intensity of the trap as perceived by insects is different. The light intensity will be low when perceived outside of the projection and much higher for insects within this beam. As the relationship between ILA and attraction is not linear but described by a logistic function, this causes the model to underestimate the differences between light sources (Figure 2b). That the traps are ranked correctly and there seems to be a near linear relationship between modeled and measured attraction indicating that the ILA is estimated well.

Even when the datasets are strongly reduced after removal of the Diptera, the model still gives a good prediction of the number of insects attracted. The lower correlation coefficients and higher RMSE for the data without Diptera can be explained by the drastic reduction of the number of individual insects included in the analysis. Our spectral response model is thus not limited to Diptera but valid for nocturnal positively phototaxic insects in general. As there is a huge diversity in insect visual systems and spectral response can differ strongly between species (Briscoe & Chittka, 2003), the proposed model may not be valid for lower taxonomic levels or individual species (Somers-Yeates et al., 2013; van Grunsven et al., 2014). We did not model attraction for lower taxonomic levels, such as separate orders, as we were interested to provide a tool for assessment of current light sources or the development of new ones for nocturnal flying insects as a group. However, as we demonstrate here the wide variation between species apparently does not preclude the formulation of a validated model to predict the general pattern in the response of nocturnal flying insects.

Light level is currently expressed in photons $m^{-2}\ s^{-1}$, Watt $m^{-2}\ s^{-1}$, or lux (Cinzano, Falchi, & Elvidge, 2001; Longcore & Rich, 2004). Such units, quantifying particles, energy, and illuminance, respectively, are unsuitable for the assessment of the impact of irradiance on insects as light sources with a similar luminous or radiant flux can differ in attractiveness to insects depending on the spectral composition. We present here a new unit for the attractiveness of light to insects, namely the Insect Light Attraction (ILA), that weighs the spectral output for the

differences in attraction effect for each wavelength. This allows for a qualitative comparison of light sources thereby allowing light designers to develop a light source that attracts fewer insects. Insight in potential insect attraction of light sources can be the key to mitigate and minimize ecological impact of nocturnal illumination or in locations where the attraction of nuisance insects and disease vectors are an issue. This model creates the possibility for, e.g., policy makers to lay down demands on light sources with less impact on insect populations without the need for field tests. This is highly relevant as, e.g., different white LEDs that are perceived as similar by the human eye can substantially differ in their attraction of nocturnal insects (Longcore et al., 2015).

Furthermore, our model can give insight in the impact of the current change in spectral composition of the nightscape (Davies et al., 2013). For spatially explicit studies the model presented here can be combined with remote sensing data, such as from VIRRS or photos from ISS (Kyba et al., 2014). This makes it possible to quantitatively compare the exposure to artificial light for different areas or the same area at different moments in time, for instance before and after a change in lighting, taking the spectral composition into account. The impact of artificial light at night on a larger spatial scale is currently unknown. The model presented here allows for the formulation of testable hypotheses on the impact of artificial light on populations of nocturnal insects and allows us to correct light levels for spectral composition when assessing the impact on insects.

Artificial light at night affects insects in more ways than mere attraction. It has been shown to interfere with pollination (Macgregor et al., 2017), feeding (van Langevelde et al., 2017), chemical communication (van Geffen et al., 2015b), mating behavior (van Geffen et al., 2015a), and disrupt initiation of diapause (van Geffen et al., 2014). It is currently unknown to what extent the model presented here is applicable for other impacts of artificial light on insects, besides attraction. The latter four studies were shown to be affected more by short than long wavelength light reflecting the general pattern found for flight to light behavior here. This suggests that other impacts of artificial light on insects might have a similar spectral sensitivity as attraction. If this is true mitigation to reduce attraction would also reduce the other impacts.

In conclusion, the model presented here allows comparing light sources for better informed choices, is valuable for the development of more insect friendly lighting, helps to formulate quantitative hypotheses on the impact of nocturnal artificial light and allows for a quantitative comparison of light pollution from areas with different spectral composition.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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RESEARCH ARTICLE

WILEY JEZ-A ECOLOGICAL AND INTEGRATIVE PHYSIOLOGY

Rapid assessment of lamp spectrum to quantify ecological effects of light at night

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Abstract

For many decades, the spectral composition of lighting was determined by the type of lamp, which also influenced potential effects of outdoor lights on species and ecosystems. Light-emitting diode (LED) lamps have dramatically increased the range of spectral profiles of light that is economically viable for outdoor lighting. Because of the array of choices, it is necessary to develop methods to predict the effects of different spectral profiles without conducting field studies, especially because older lighting systems are being replaced rapidly. We describe an approach to predict responses of exemplar organisms and groups to lamps of different spectral output by calculating an index based on action spectra from behavioral or visual characteristics of organisms and lamp spectral irradiance. We calculate relative response indices for a range of lamp types and light sources and develop an index that identifies lamps that minimize predicted effects as measured by ecological, physiological, and astronomical indices. Using these assessment metrics, filtered yellow-green and amber LEDs are predicted to have lower effects on wildlife than high pressure sodium lamps, while blue-rich lighting (e.g., $K \geq 2200$) would have greater effects. The approach can be updated with new information about behavioral or visual responses of organisms and used to test new lighting products based on spectrum. Together with control of intensity, direction, and duration, the approach can be used to predict and then minimize the adverse effects of lighting and can be tailored to individual species or taxonomic groups.

KEYWORDS

action spectrum, behavioral response, light pollution, phototaxis

1 | INTRODUCTION

It has long been known that artificial night lighting affects wildlife through attraction and disorientation (Allen, 1880), and recent research has documented the extent of the adverse consequences of artificial night lighting to include, for example, plant phenology (Somers-Yeates et al., 2016), predator–prey relations (Minnaar, Boyles, Minnaar, Sole, & McKechnie, 2015), circadian rhythms (Dominoni, 2015), and nocturnal rest and recovery (Gaston, Bennie, Davies, & Hopkins, 2013). Importantly, light attraction and disorientation results in direct mortality of many groups of insects (Eisenbeis & Hänel, 2009), birds (Longcore et al., 2012), including seabirds (Rodríguez et al., 2017b), and sea turtles (Salmon, 2003), contributing to species decline (Fox, 2013; Wilson et al., 2018). The degree of influence of outdoor electric lighting is determined by the direction, intensity, duration, and spectrum of the lights (Gaston, Davies, Bennie, & Hopkins, 2012; Longcore and Rich, 2017). For many years, only a handful of lamp types were economically viable for widespread deployment and their spectral characteristics were limited. For example, low pressure sodium lamps, with nearly all emissions in the yellow/orange at 589 nm became the lamp of choice around astronomical observation sites and near sea turtle nesting beaches because both night sky observation and sea turtle orientation benefit from a narrow-band light in the longer wavelengths (Witherington, 1992). Other lamps were similarly deployed in different situations and consequently most studies of ecological effects are on these types—low-pressure sodium, high-pressure sodium, metal halide, and mercury vapor (although this lamp type has largely been phased out) (Eisenbeis & Eick, 2011; Rich and Longcore, 2006). In the past decade, however, light-emitting diode (LED) lamps have become economically viable, bringing a range of new spectral characteristics to the marketplace (Boyce, Fotios, & Richards, 2009; Gaston, 2013) along with concerns about their differential effects on wildlife species (Davies, Bennie, Inger, de Ibarra, & Gaston, 2013; Gaston, 2013).

In the early days of commercial LEDs for outdoor lighting, full spectrum light was achieved through coating a blue LED with a phosphor, which produced light across the visual spectrum (Hecht, 2012). These lamps had a high correlated color temperature (CCT), indicating a high proportion of blue and violet in the emissions, as a result of the underlying blue LED. This blue hue became more dramatic as the phosphor aged. Many in the general public and scientific community may have developed the perception that all light from LEDs was a "cool" white (high CCT) at this time. Technological innovation in the LED industry has, however, been rapid, because the energy savings from LEDs are so attractive that replacement lamp types that address a range of color spectrum specifications have been developed (Dudley, Erkintalo, & Genty, 2015). While earlier efforts to develop LEDs with lower color temperatures came with a penalty of less efficiency, by 2015, LEDs at 2700 K and 3000 K were commercially available that matched the energy efficiency of 5000 K lamps. Furthermore, the development of different colors of LEDs and different filtering technologies has led to a range of different spectral signatures for lamps that are all economically competitive in terms of energy efficiency.

Conservation scientists need to keep up with the changing array of outdoor lighting options to provide guidance to officials and managers around the world who are faced with the obvious economic choice of switching to high-efficiency lighting such as LEDs (Hecht, 2016). Such a switch can be catastrophic for the effects on other species, or it can be a benefit, depending on the spectrum, duration, direction, and intensity of the new lamps (Gaston et al., 2012; Longcore et al., 2015; Rodríguez, Dann, & Chiaradia, 2017a). The same applies to sky glow (Kinzey et al., 2017). Some ecologists have voiced generic concerns about LEDs in general, questioning whether they pose a risk across the board (Pawson and Bader, 2014; Stone, Jones, & Harris, 2012), and noting the unfortunate "rebound effect" in which more efficient lighting leads to deployment of even more light (Kyba et al., 2017; Kyba, Hänel, & Hölker, 2014). Similar concerns about the adverse effects of the rapid spread of full spectrum LED lighting are voiced by dark sky advocates (Bierman, 2012). The spectrum of light used will greatly affect the amount of scattering of light at different distances from a source (Kinzey et al., 2017). The extent of these effects depends in part on the spectral characteristics of the LEDs used, and many opportunities are available to evaluate the performance of the wide array of LED spectral configurations, such as investigating multiple spectral configurations of 2700 K LEDs to reduce attraction of flying insects (Longcore et al., 2015) or comparing LEDs of different color temperatures (Eisenbeis & Eick, 2011).

Differences between the spectral response curve for human vision (both photopic and scotopic) and the visual sensitivity and measured behavioral responses of animals indicate an opportunity to configure outdoor lighting that avoids sensitive regions of the spectrum while providing needed visibility for humans. For example, many insects are attracted to shorter wavelengths (blue, violet, and ultraviolet) more than longer wavelengths (Eisenbeis, 2006; Eisenbeis & Hänel, 2009). Light sources that have low blue and shorter wavelength emissions attract fewer insects (Cleve, 1964; Eisenbeis & Eick, 2011; Eisenbeis & Hänel, 2009; Menzel & Greggers, 1985) and consequently, fewer bats that forage on insects (Stone, Harris, & Jones, 2015). The lower behavioral response of hatching sea turtles to longer wavelengths of light (Witherington, 1992) has become the basis to limit the permissible spectral characteristics of lights on and near nesting beaches in many jurisdictions. Such regulations to minimize adverse effects of lighting on nature are always compromises and usually driven by the species or species group with regulatory protection in a particular situation.

The current challenge for conservationists is that assessing the effects of different spectral distributions on wildlife in experimental or field situations is time consuming and an increasing number of lamp types are being developed, while jurisdictions are making decisions about replacement of aging fixtures every day (Hecht, 2016). Once such decisions are made, new lamps will be in place for years to come. Tools are therefore needed to assess the potential adverse effects of newly developed lights compared with existing technologies in a rapid manner and in a way that allows tradeoffs between adverse effects on wildlife and human needs to be compared. In this paper, we assemble a series of spectral response curves from the literature and a series of spectral emission curves for established and new outdoor lighting sources, develop a standardized index that weights the spectral output by the response curves, provide a matrix of lighting performance measures (e.g., color rendering index, correlated color temperature, Star Light Index), and present these results on a website that can be periodically updated to serve as a clearinghouse for this information.

2 | METHODS

We obtained spectral power distribution curves for a wide range of lamp types and calculated indices representing the degree of overlap with a series of spectral response curves for different organisms. Following recommendations of the Bureau International des Poids et Mesures (BIPM), action spectra are dimensionless, while spectral irradiance is measured in $\mu W \cdot cm^{-2} \cdot nm^{-1}$, from which we calculate the weighted sum across wavelengths (BIPM, 2006, Appendix 3, Section 2). We treat spectral response curves like action spectra even if they do not meet the high standards for a true action spectrum (Björn, 2015). Species response curves were converted from photons to spectral power ($\mu W \cdot cm^{-2} \cdot nm^{-1}$) because organismal responses are dependent on the number of photons, not the energy of the light (Johnsen, 2012) while light is frequently measured with power units.

Spectral power distributions were obtained in $\mu W \cdot cm^{-2} \cdot nm^{-1}$ and resampled to 1 nm increments from 350 nm (well in the ultraviolet, which is still the visual spectrum for some insects) (Menzel & Greggers, 1985) through 780 nm to encompass the full range of vision for organisms. Spectral response curves were normalized to 1 at the maximal value, and multiplied by the emissions at each wavelength and then summed over all wavelengths, yielding three metrics.

1. A standard "effective irradiance" metric, computed by multiplying spectral irradiance at each wavelength by the spectral response ("actinic power"). (BIPM, 2006, Appendix 3 and CIE, 2007)

$$E_{eff} = \int E_\lambda S_i(\lambda)\, d\lambda,$$

where E_λ represents the source spectral irradiance and S_i is the actinic spectrum.

2. The actinic power per lux (the human photopic response, $V(\lambda)$):

$$E_{lux} = \frac{\int E_\lambda S_i(\lambda)\, d\lambda}{\int E_\lambda V(\lambda)\, d\lambda}.$$

The resulting measurement is thereby standardized in terms of the effect on each species per lux produced by the lamp and can be referred to as the taxonomic (e.g., turtle, salmon) action factor of the light source (CIE, 2014).

3. To allow comparison across species, we scaled the action factor relative to the response that would be elicited by daylight.

$$a_{D65} = \frac{E_{lux}(E)}{E_{lux}(D65)}.$$

The resulting values indicate the increase of effects on species relative to sunlight for each additional lux. A metric indexed to daylight allows actinic response metrics to be compared across species, even when the "shape" of the action spectra varies.

This approach allows comparison across lamp types and for different intensities by isolating the effect of spectrum. These methods follow the overall approach of Aubé, Roby, and Kocifaj (2013) and the recommendations of the BIPM (2006) and CIE (2014).

We used measured spectral distributions for mercury vapor, metal halide, high pressure sodium, low pressure sodium, incandescent, phosphor-coated amber LED, and 3000 K LED from Elvidge, Keith, Tuttle, and Baugh (2010). We also obtained spectral power distributions for three filtered LED systems (warm white LED with integrated filter) from C&W Energy Solutions, a filtered LED from LED Living Technology (LLT) and three lamps used in an experiment with attraction of shearwaters to light (Rodríguez et al., 2017a; Table 1; Figure 1).

For the species responses, we used spectral response curves developed for a range of organisms, including insects, sea turtles, and birds (Table 2). Some response curves represent behavioral responses to light of different wavelengths (e.g., moths and hatchling sea turtles) while others represent the visual sensitivity of the eyes of the organisms or physiological response (photosynthesis). For visual sensitivity curves, we used $\log_{10}$ transformed values, which were then normalized, because perceptual responses to visual cues are widely seen to be on a log scale as suggested by Stevens' power law (Stevens, 1961) and its application to sensory phenomena in insects (Ruchty, Roces, & Kleineidam, 2010).

To evaluate the potential effect of each lamp on night sky pollution, we calculated the Star Light Index proposed by Aubé et al. (2013) using the spreadsheet provided as an electronic supplement, which tracks human scotopic vision. We also calculated indices to evaluate the effect of spectrum on Rayleigh scattering, which would be prevalent near cities, and Mie scattering, which would predominate in indirect skyglow >80 km from city centers (Aubé, 2015; Luginbuhl, Boley, & Davis, 2014; see Figure 2).

Finally, we calculated photometric indices for each light source that are important to lighting engineers and end users. These include the correlated color temperature (CCT), color rendering index (CRI), and M/P ratio (melanopic/photopic ratio), using the spreadsheet from Lucas et al. (2014).

TABLE 1 Lamps and spectral output curves included in study, by type, correlated color temperature (CCT), and color rendering index (CRI)

Lamp/Standard	Type	CCT	CRI
D65 (Daylight)	Natural	6504	100
CIE Illuminant A	Lighting Standard	2856	100
Kerosene Oil	Combustion	1913	99
Full moon	Natural	4134	98
Philips TL950	Fluorescent	4684	96
SORAA Vivid	LED	4965	93
CFL Greenlite 13 W	Fluorescent	2892	81
Philips AmbientLED	LED	2601	81
LLT Telescope Light	Filtered LED	1908	81
3000K LED	LED	3262	80
OCTRON 32 W	Fluorescent	4012	79
Metal Halide 70W	Metal Halide	3071	79
LSG Good Night 2016	LED	2266	76
LEDway Streetlight CW 54W	LED	6270	75
City of Los Angeles Streetlight	LED	4310	73
LED VBLFL-855-4-40	LED	4663	70
Cosmopolis 60W	Metal Halide	2879	66
Yard Blaster	LED	4164	64
PC Amber Cree	PC Amber LED	1717	59
AEL 75W	PC Amber LED	1743	58
CWES 74 WW CW7	Filtered LED	2448	54
Iwasaki 60W	Mercury Vapor	3757	53
MH MASTER HPI-T Plus 400W/645 E40 1SL	Metal Halide	3808	51
CWES 74 WW CW10	Filtered LED	2096	49
CWES Anna's Light	Filtered LED	1193	26
HPS SON-T 400W/220 E40 1SL	High Pressure Sodium	1947	18
150 W HPS	High Pressure Sodium	2059	17
18 W LPS	Low Pressure Sodium	1810	−44

We then calculated the ratio of the actinic power of each lamp per lux of output compared to a D65 standard. This measurement compares the effect on each species response or light pollution metric of an additional lux of each lamp type, compared with an additional lux of daylight (the D65 standard). We also calculated ratio of the actinic power of each lamp compared with the total power of the lamp. This measurement indicates how much of the energy output of the lamp will affect each species or light pollution metric.

To illustrate the tradeoffs between minimizing effects on different groups of wildlife and optimizing performance for outdoor lighting, we calculated mean values for each lamp, consisting of: 1) animal response by taxonomic group (insect mean, sea turtle mean, Newell's

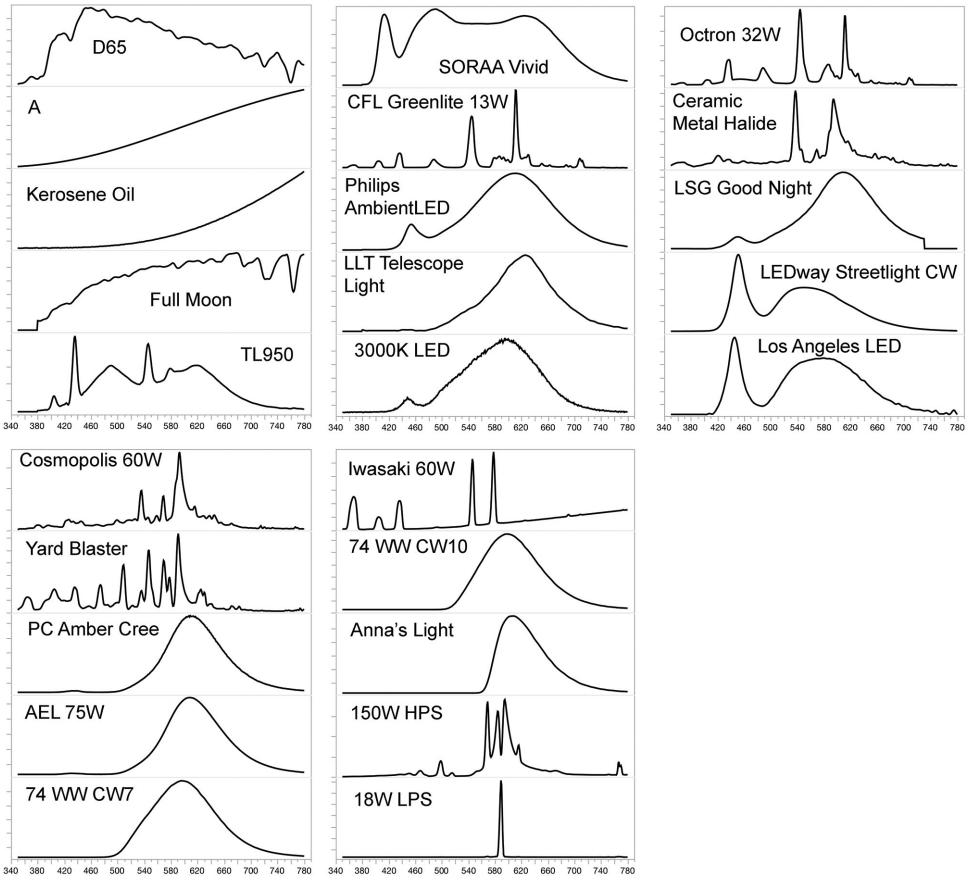

FIGURE 1 Spectral power distributions of light sources investigated. The five panels are in order of decreasing CRI from top left to lower middle

TABLE 2 Organismal response spectra

Taxon	Response	Format	Notes and Source
Moths (Lepidoptera)	Behavioral	Digitized by CIE	(Cleve, 1964)
Bee (Hymenoptera)	Behavioral	Digitized by CIE	(Menzel & Greggers, 1985)
Insects (Class Insecta)	Behavioral	Modeled	Composite metric for all Insecta (Donners et al., 2018)
Green turtle hatchlings (*Chelonia mydas*)	Behavioral	Digitized	(Witherington, 1992)
Green turtle adults (*Chelonia mydas*)	Visual sensitivity	Digitized	(Midolo, 2011) See also (Levenson, Eckert, Cognale, Deegan, & Jacobs, 2004)
Loggerhead hatchlings (*Caretta caretta*)	Behavioral	Digitized	(Witherington, 1992)
Juvenile Atlantic salmon (*Salmo salar*)	Visual sensitivity	Digitized	(Hawryshyn, Ramsden, Betke, & Sabbah, 2010)
Newell's shearwater (*Puffinus newelli*)	Visual sensitivity	Digitized	(Reed, 1986)
Photosynthesis (Plantae)	Physiological	Digital	(DIN, 2016)

shearwater, juvenile salmon, or the mean of all four), 2) Star Light Index, 3) melatonin suppression, and 4) visual performance. For visual performance, we assumed that CRI greater than 75 was acceptable and assigned values as follows:

$$\text{If}\begin{pmatrix}\text{CRI} > 75 \Rightarrow 1\\ \text{else} \quad \Rightarrow \quad 1 - \dfrac{(75 - \text{CRI})}{150}\end{pmatrix}.$$

This approach is necessary to account for the −44 CRI of low pressure sodium lamps so that all values of the index range 0–1. We calculated which lamps performed best as an average of the four categories, running the average once for each of the organismal responses (to match a scenario where that species or species group was most important) and for all organismal responses with a weight of 1 for each of the major taxonomic groups. For comparison with a ranking that considers only environmental factors, we

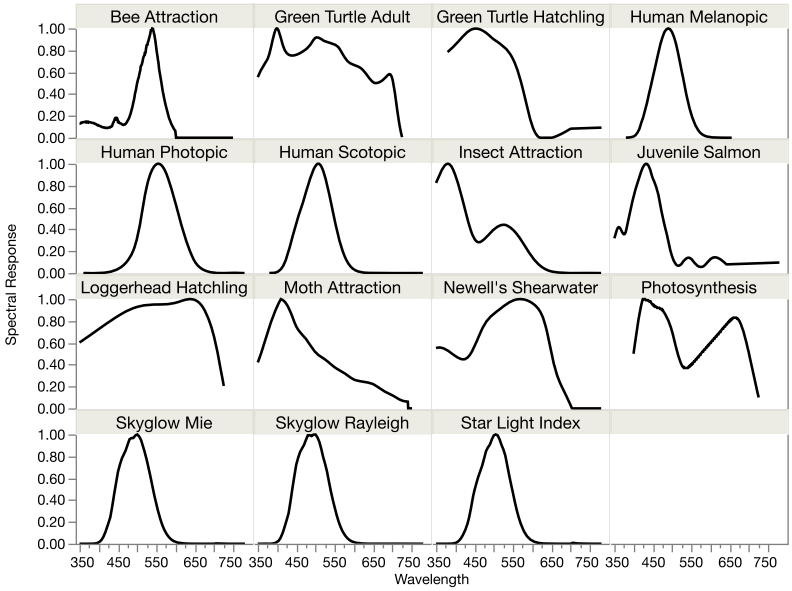

FIGURE 2 Response curves that can be used to estimate influence of light sources [Color figure can be viewed at wileyonlinelibrary.com]

calculated performance for each lamp in the same manner but without incorporating CRI.

To test this approach with experimental data, we compared the results of the light hazard for shearwaters in an experiment comparing light attraction of short-tailed shearwaters for metal halide, high pressure sodium, and 4536 K LED lamps (Rodríguez et al., 2017a). We modeled relative attraction using the same approach of generalized linear mixed models with night as a random factor and actinic power, lamp type, brightness, and CCT each in separate models as an independent factor. We compared models using Akaike's Information Criterion and visualized the fit using scatterplots. Pearson Product-Moment Correlation between responses and photometric indices, and all other statistics were calculated using JMP Pro 13 (SAS, Inc., Cary, NC).

All of the calculations and visualization of the intersection of light spectrum and human and animal response curves can be viewed at a website (https://github.com/herf/ecological) that will be updated with new lamp spectra and response curves and will allow users to submit spectra for analysis.

3 | RESULTS

Actinic power as a percent of total power describes the amount of energy from each lamp spectrum that affects the various species and photometric indices. For some lamps this proportion is relatively high for most action spectra, and for some species responses the proportion is high for most lamps (Table 3). For example, a high proportion of the power from all lamp types is calculated to influence loggerhead hatchlings, while few lamps concentrate their power in the areas of the spectrum most attractive to juvenile salmon (Table 3).

Actinic power per lux compared with daylight calculates the effect on species of increasing or decreasing illumination (in lux). For example, each additional lux of light from a low pressure sodium lamp has 20% of the effect on moths as would an additional lux of daylight, while an additional lux of a mercury vapor lamp would have 72% of the effect of an additional lux of daylight (Table 4).

The tested lamp types ranged in CRI from −44 (low pressure sodium) to 99, and CCT from 1193 (Anna's light) to 6270 (LEDway Streetlight). CCT and CRI were significantly but not strongly correlated (95% CI = 0.10–0.73). The variation in relative actinic power for lamps varied most for juvenile salmon (range, 0.15–1), substantially for insects (range, 0.33–1.16) and sea turtles (range, 0.38–1.02), and least for Newell's shearwaters (range, 0.65–1). For three of the four species groups tested, narrow band lamps with restricted emissions in the shorter wavelengths had the lowest actinic power relative to daylight. Only for Newell's shearwater did one narrow spectrum lamp (CWES Anna's Light) score higher than full spectrum lamps (Figure 3).

Composite assessments that gave equal weight to a wildlife group response, melatonin suppression, and Star Light Index showed lowest effects for lamps with low emissions in the shorter wavelengths (Figure 4a), with low pressure sodium showing the lowest impacts. When CRI was included as a factor, low pressure sodium lamp did not perform as well (Figure 4b), despite low actinic power for wildlife, because of its low CRI. Instead, PC Amber and two filtered LEDs scored lowest overall.

Correlations between photometric values for lamps and resulting light pollution effects were positive and strongest for CCT and both melanopic effect and Star Light Index, positive but weak for CRI and other metrics and modestly strong and positive for CCT and equally weighted wildlife effects (Table 5). Most importantly to our approach, although CCT has a high correlation with the aggregate wildlife effects (95% CI = 0.57–0.90), the correlation between CRI and wildlife effects is lower (95% CI = 0.43–0.86). The same is true for nearly all of the individual responses; CCT predicts wildlife effects more than CRI, with higher CCT values more likely to have higher effects on the wildlife assessed in this study than higher CRI values.

TABLE 3 Actinic power as a percent of total power for each of the taxonomic-specific responses

Light source	Photosynthesis	Moth	Bee	Insect index	Green turtle behavior	Green turtle visual	Loggerhead behavior	Salmon	Shearwater
D65	56	43	22	30	50	66	78	30	60
A	44	22	12	11	23	45	62	14	41
Kerosene Oil	34	13	4.9	4.6	12	31	47	10	25
Full moon	53	31	19	19	37	57	74	20	54
TL950	65	42	27	26	52	72	90	26	75
SORAA Vivid	65	43	25	27	51	71	88	27	70
LLT Telescope Light	61	26	14	13	19	61	90	11	69
CFL Greenlite 13 W	58	38	30	27	40	72	91	22	81
Philips AmbientLED	61	30	20	17	31	65	90	15	72
3000K LED	57	35	25	24	39	67	87	18	73
OCTRON 32 W	62	43	32	29	52	74	91	28	81
Metal Halide 70W	56	37	25	27	39	68	87	22	73
Ceramic Metal Halide 70 W	56	37	25	27	39	68	87	22	73
LSG Good Night 2016	62	30	18	17	27	66	93	13	75
LEDway Streetlight CW 54W	65	45	32	28	61	75	91	31	79
Los Angeles LED	64	41	29	26	51	72	91	27	77
Cosmopolis 60W	58	38	24	27	41	70	90	21	79
Yard Blaster	56	47	28	37	53	75	87	29	76
PC Amber Cree	61	25	12	13	17	61	92	11	73
AEL 75W	61	25	12	13	17	61	91	10	72
CWES 74 WW CW7	58	28	23	18	27	66	93	10	80
Iwasaki 60W	41	30	17	24	29	51	65	20	48
CWES 74 WW CW10	59	27	18	16	22	64	93	10	78
CWES Anna's Light	64	23	3.8	8.7	8.4	59	92	10	71
150 W HPS	57	30	15	19	29	65	89	14	82
LPS 18 W	55	28	13	20	25	68	95	8.7	97

The reanalysis of shearwater grounding data shows that actinic power per lux provides at least an equally valid model (AICc 546.83, effect 95% CI 3.69–61.84) as a categorical analysis with lamp type (AICc 547.59, LED effect 95% CI −1.07 to 0.45, MH 95% CI 0.20–1.72) (Figure 5). The model for CCT had a higher AICc (549.13) with an effect 95% CI intersecting 0, while the model for brightness had a still higher AICc (551.44) and a 95% CI for effect also intersecting 0.

4 | DISCUSSION

Our effort extends the approach presented by Aubé et al. (2013) to develop a method to calculate indices for any organismal response to lighting spectrum assuming equal visual light intensity to humans. These calculations can be easily repeated and updated with additional organismal response curves or with additional lighting products. We included the ultraviolet part of the spectrum because many other light sources do include ultraviolet and it is important for animal responses, although it is not a significant issue for most LEDs used for outdoor lighting.

The approach described here establishes appropriate units for measuring ecological responses to light that are consistent with international standards and thereby provides a basis for comparison that is replicable and testable. Quantification of actinic power can be used to develop hypotheses to test in the field, such as the comparison of lamp types undertaken by Rodríguez et al. (2017a) that we revisited. Furthermore, it allows the rapid and easily updatable comparison of new lamp types so that the most promising spectral configurations for a particular situation can be identified and tested in the field.

Our approach is, however, only as accurate as the action spectra and as applicable as the number of different species groups for which action spectra are available. These response curves are scatted in the literature and although many physiological response curves could be calculated from, for example, peak opsin sensitivities (Davies et al., 2013), behavioral response curves derived from field and laboratory tests are more rare. In at least one instance (loggerhead sea turtle hatchlings) there may be behavioral response differences between

TABLE 4 Actinic power per lux of each lamp type, compared with a lux of daylight (D65)

Light source	Photosynthesis	Moth	Bee	Insect index	Green turtle behavior	Green turtle visual	Loggerhead behavior	Salmon	Shearwater
D65	1	1	1	1	1	1	1	1	1
A	1	0.639	0.681	0.482	0.588	0.865	1.010	0.587	0.867
Kerosene Oil	1.360	0.673	0.494	0.340	0.558	1.050	1.340	0.754	0.924
Full moon	0.922	0.704	0.821	0.597	0.72	0.841	0.917	0.642	0.874
TL950	0.827	0.691	0.858	0.611	0.736	0.774	0.815	0.618	0.876
SORAA Vivid	0.927	0.793	0.891	0.711	0.822	0.860	0.894	0.720	0.920
LLT Telescope Light	0.772	0.425	0.458	0.306	0.275	0.660	0.818	0.259	0.812
CFL Greenlite 13 W	0.573	0.487	0.746	0.490	0.445	0.606	0.648	0.410	0.748
Philips AmbientLED	0.716	0.464	0.593	0.375	0.408	0.648	0.756	0.33	0.785
3000K LED	0.647	0.522	0.714	0.515	0.497	0.655	0.714	0.392	0.778
OCTRON 32 W	0.632	0.573	0.847	0.556	0.599	0.648	0.670	0.534	0.773
Metal Halide 70W	0.656	0.568	0.732	0.576	0.512	0.673	0.723	0.481	0.788
Ceramic Metal Halide 70 W	0.656	0.568	0.732	0.576	0.512	0.673	0.723	0.481	0.788
LSG Good Night 2016	0.696	0.431	0.526	0.343	0.343	0.625	0.743	0.284	0.779
LEDway Streetlight CW 54W	0.715	0.645	0.900	0.574	0.748	0.697	0.713	0.629	0.800
Los Angeles LED	0.688	0.579	0.782	0.510	0.614	0.657	0.700	0.545	0.771
Cosmopolis 60W	0.603	0.519	0.644	0.518	0.485	0.622	0.668	0.415	0.764
Yard Blaster	0.646	0.701	0.821	0.783	0.686	0.729	0.717	0.624	0.816
PC Amber Cree	0.718	0.387	0.361	0.273	0.223	0.613	0.768	0.232	0.792
AEL 75W	0.711	0.383	0.366	0.274	0.225	0.609	0.762	0.229	0.785
CWES 74 WW CW7	0.542	0.342	0.539	0.309	0.283	0.530	0.624	0.178	0.695
Iwasaki 60W	0.771	0.731	0.806	0.822	0.613	0.817	0.869	0.715	0.827
CWES 74 WW CW10	0.581	0.342	0.446	0.285	0.246	0.540	0.653	0.186	0.715
CWES Anna's Light	0.876	0.414	0.131	0.221	0.129	0.681	0.898	0.266	0.898
150 W HPS	0.529	0.368	0.365	0.335	0.307	0.517	0.593	0.243	0.705
LPS 18 W	0.375	0.254	0.221	0.254	0.193	0.393	0.462	0.112	0.615

populations of the same species (Fritsches, 2012), meaning that caution should be used in universally applying action spectra. The emergence of highly configurable outdoor lighting demonstrates the need for research to produce more action spectra and to compile them in a repository. This is a central research need from experimental zoologists to provide the information necessary for lighting designers and especially regulators to act quickly in response to new lighting technologies. Peak opsin sensitivity provides a first pass on behavioral responses, and indeed, behavioral response curves can be calibrated from opsin response curves (Donners et al., 2018). Workers in the field and with captive animals should, however, prioritize research to obtain behavioral response information for sensitive species and to test the generalizable patterns in responses within clades where visual systems are conserved.

We are aware of the limitations of using spectral information that may only be applicable within a certain range of intensity values. Some species respond to spectrum differently depending on its intensity (Wiltschko, Stapput, Thalau, & Wiltschko, 2010). Also, mitigation schemes that depend on spectrum can be undermined by brightness. Any approach to reduce ecological effects of lights must keep intensity to a minimum and can then perhaps further reduce adverse effects through tuning of the spectrum used.

We also note that the influence of lamps of different spectra will be affected by atmospheric conditions that influence the amount and nature of reflection and scattering of light (Aubé, Kocifaj, Zamorano, Lamphar, & de Miguel, 2016; Kyba, Ruhtz, Fischer, & Hölker, 2011). Our wildlife response assessments do not include any shifts in spectral distribution of light that would result from scattering in the atmosphere and therefore are most relevant to situations where direct effects are being evaluated (e.g., local attraction and disorientation). Additional calculations could be added to our approach to address different propagation patterns of light under varying weather conditions.

Our use of CRI as a metric for performance of lamps for human vision should not be taken as a blanket endorsement of CRI as an excellent metric, which it is not (Galadí-Enríquez, 2018). It is, however, widely understood and used in the lighting design community and therefore provides a means to incorporate human design preferences into a composite metric of lighting performance. Furthermore,

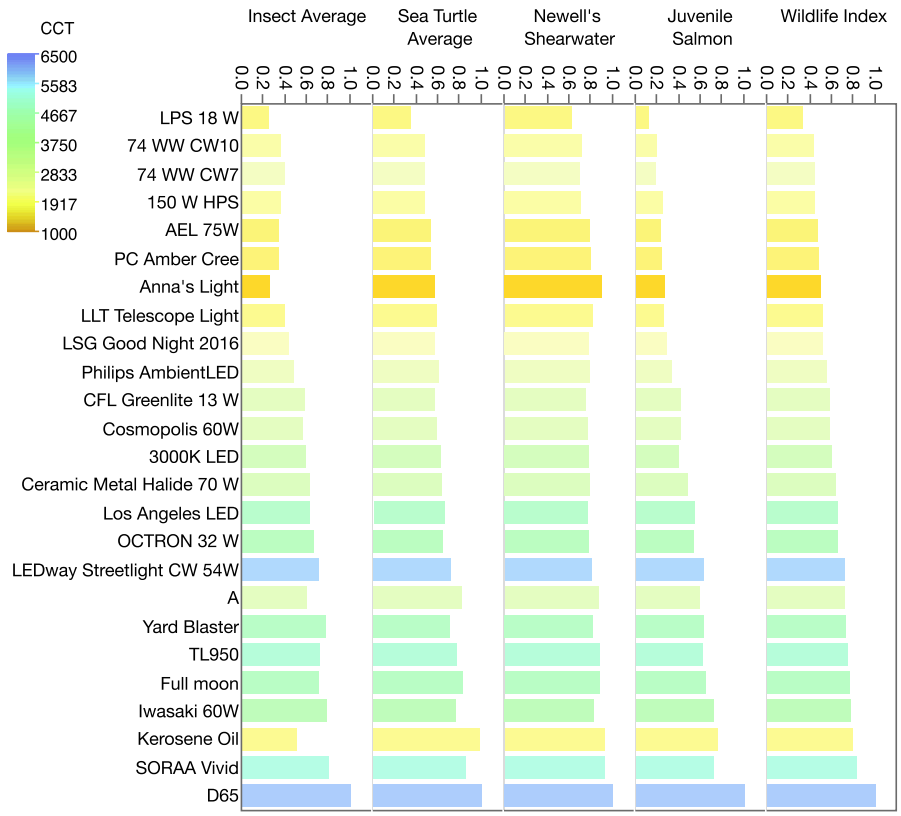

FIGURE 3 Relative modeled impact on insects, sea turtles, shearwaters, and juvenile salmon per additional lux from different light spectra compared with a D65 (6500 K) standard. Colors indicate CCT from low (orange) to high (blue) [Color figure can be viewed at wileyonlinelibrary.com]

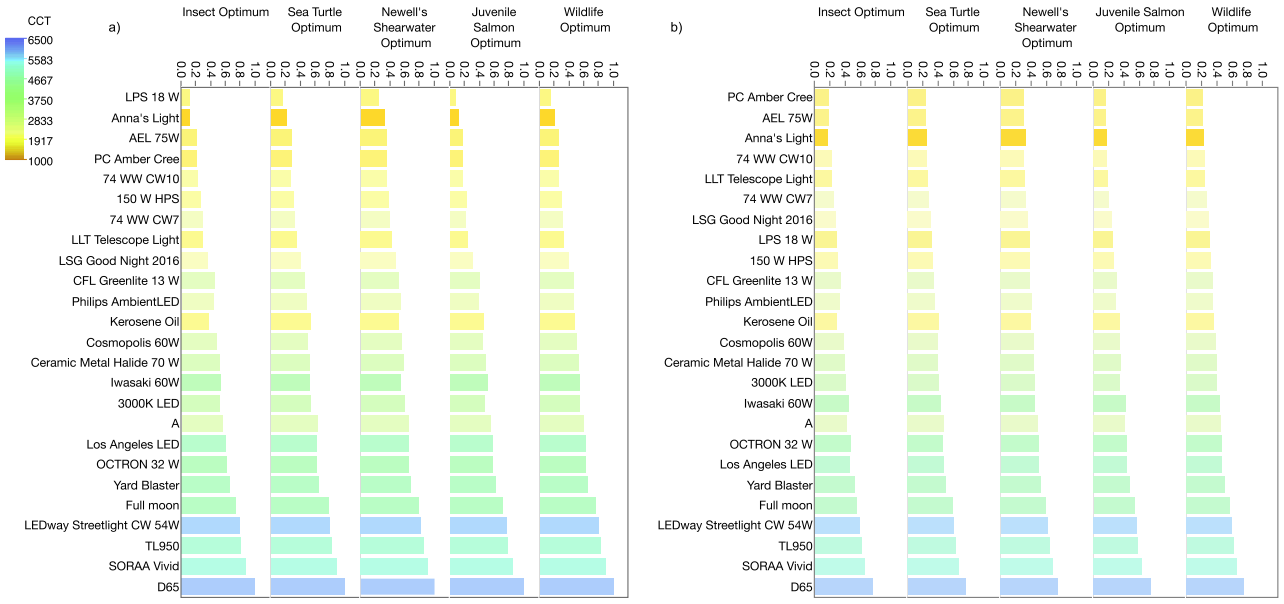

FIGURE 4 Nighttime light performance index balancing Star Light Index, melatonin suppression, and a wildlife impact score (a) and incorporating CRI (b) for equal lux from different light spectra compared with a D65 (6500K) standard. Lower values indicate lower predicted impacts and greater CRI. Colors indicate CCT from low (orange) to high (blue) [Color figure can be viewed at wileyonlinelibrary.com]

this approach can be updated to use other metrics as desired by an end user.

As a conservation tool, our assessments assume that it is a valuable approach to minimize the intersection between the wavelengths that affect sensitive wildlife species and the output of lamps and that it is worthwhile to balance those adverse effects against desirable characteristics of outdoor lighting for human use. Lamps that perform well in this assessment would represent a conservation compromise—no light on a sea turtle nesting beach, on a penguin colony, or on the route a fledgling seabird takes to the sea would be optimal, but if there is

TABLE 5 Pearson's product moment correlation between CCT, CRI, Star Light index, Melanopic response, and average wildlife response. Above diagonal, correlation estimates. Below diagonal, 95% confidence intervals

	CCT	CRI	Star light index	Melanopic	Wildlife
CCT	–	0.48	0.94	0.94	0.78
CRI	0.10–0.73	–	0.64	0.67	0.71
Star Light Index	0.87–0.97	0.40–0.84	–	1.00	0.85
Melanopic	0.87–0.97	0.33–0.83	0.99–1.00	–	0.85
Wildlife	0.57–0.90	0.43–0.86	0.69–0.93	0.69–0.93	–

to be a light nearby, minimizing the wavelengths in the part of the spectrum to which turtles or seabirds are most sensitive is preferable (Rodríguez et al., 2017b, 2018), so long as intensity is also minimized. Such hierarchical minimizing approaches might ignore other more complete solutions such as embedded roadway lighting, which provides guidance to drivers and virtually no light on nearby beaches (Bertolotti & Salmon, 2005), but they do provide guidance for reducing adverse effects from existing lighting infrastructure, which will be replaced with full-spectrum lights in the absence of guidance from ecologists and consideration of wildlife responses.

Given the rapid pace of replacement of street and other outdoor lighting motivated by energy savings (Hecht, 2016), an approach to minimize the adverse effects of lighting through choice of spectrum that is endorsed by conservation scientists is desperately needed. Laws available to reduce the ecological effects from light pollution that are in place around the world are focused predominantly on the direction and intensity of lighting; very few legislators saw the dramatic change in color on the technological horizon. Those jurisdictions that have taken steps to use energy efficient lighting with a spectrum designed to minimize adverse environmental effects have been motivated mostly by particular species protection laws (e.g., the Endangered Species Act in the United States) and by the economic considerations associated with astronomical observatories.

The State of Florida requires that new coastal construction limit lighting near beaches to sources that emit wavelengths only greater than 560 nm to protect sea turtles. Our calculations suggest that several of the filtered LEDs that we assessed would be less attractive to hatchling sea turtles than existing HPS lamps, but none of the filtered

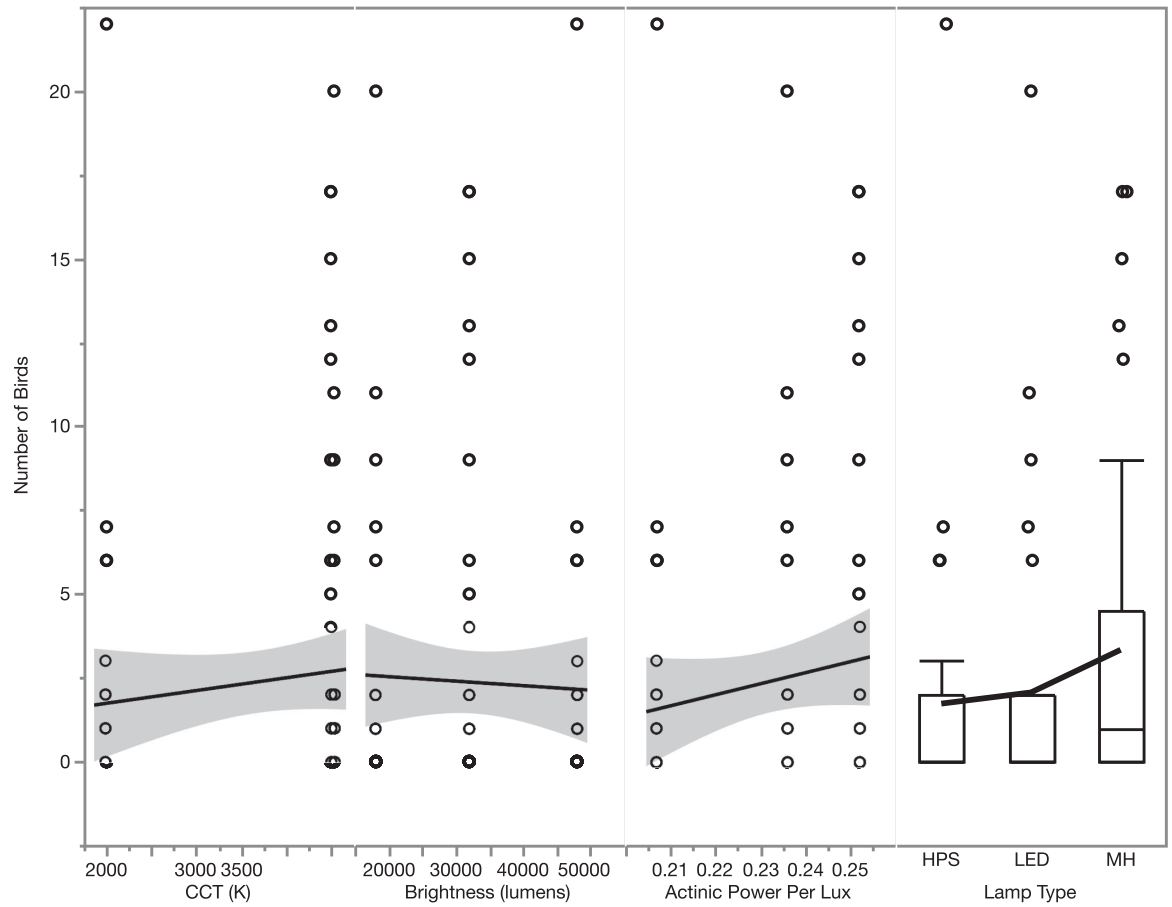

FIGURE 5 Analysis of birds grounded from Rodríguez et al. (2017a), comparing Actinic Power per Lux with CCT, brightness, and lamp type as explanatory variables

lamps meets the 560 nm cutoff. This raises the interesting regulatory question of whether it might be acceptable to modify the strict 560 nm cutoff in favor of a whole-spectrum assessment that we have proposed here, which would lead to approving lamps for street and outdoor lighting (e.g., at ports) that we predict would be less disruptive to turtles, increase color rending when replacing existing HPS, and save significant energy. Of course, to fully address outdoor light management, additional techniques to control light intensity, direction, and duration would need to be employed (Longcore and Rich, 2017), such as use of shields, baffles, and louvers to reduce spill light (Mizon, 2002).

Decision-making power for new lighting types is often vested in street lighting agencies and departments of transportation. When regulations exist to control lighting to reduce harms to certain species, these agencies must comply with relevant laws. They also answer to public opinion on the aesthetics of lighting, as has been shown for many LED projects around the USA that have raised the ire of local residents because the high CCT lamps produce significant glare and were displeasing to residents (Hecht, 2016). For those governmental actors trying to balance considerations for wildlife, the night sky, and safety, clear advice on spectrum is needed to navigate the many available choices. This information is also necessary for regulators facing these issues.

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Special Topic - Environment:

Hazard or Hope? LEDs and Wildlife

Special Excerpt

Hazard or Hope? LEDs and Wildlife

The introduction and widespread uptake of LEDs as outdoor lighting has caused no small amount of concern amongst conservation biologists. The prevailing impression that LEDs are always blue-white is well founded as adoption of LEDs for streetlights were invariably high color temperatures and with the deterioration of phosphors the blue wavelengths penetrated even more. But LEDs do have characteristics that differentiate them from other light sources and may allow for the reduction of environmental effects of lighting on species and habitats: direction, duration, intensity, and spectrum. Travis Longcore, Assistant Professor at the University of Southern California's School of Architecture, sheds light on all these aspects.

Outdoor lighting sources that have been in use for the better part of a century or more are rapidly being phased out in favor of LEDs. The industry has delivered consistent improvements in efficiency extending across a wide spectral range and with control capabilities unimaginable to previous generations of lighting designers. Yet, the introduction and widespread uptake of LEDs as outdoor lighting has caused no small amount of concern amongst conservation biologists. Leading bat researchers wondered if LEDs were "conserving energy at the cost of biodiversity" [1]. Another group investigating insects declared "LED lighting increases the ecological impact of light pollution" [2]. A horizon scan of threats to urban ecosystems listed LEDs and the associated profusion of bright white light [3]. Most of these concerns, however, are based on the experience of the general public that LEDs used in outdoor lighting can only be blue-white - or on studies of instances where the switch to LEDs is in fact to high color temperature whites [4,5].

The prevailing impression that LEDs are always blue-white is well-founded. Early adoption of LEDs for streetlights was invariably high color temperatures as a result of their higher efficiency during that phase of technological development. As these products aged and the phosphors deteriorated, the blue wavelengths penetrated even more. It is no surprise that the public, and wildlife researchers included, perceived high color temperatures to be an inherent attribute of LEDs. This misconception continues today, even though a wider range of spectral configurations of LEDs are competitive and installed across the world.

It seems possible, as well, that LED professionals are unfamiliar with the concerns about the effects of outdoor lighting that motivate conservation biologists to regard LEDs with suspicion. The purpose of this essay is to reconcile these two realms by addressing the question of whether LEDs pose a risk or opportunity to wildlife conservation. LEDs do have characteristics that differentiate them from other light sources. The influence of these characteristics fall into the four major attributes that have been identified as important to reducing environmental effects of lighting on species and habitats: direction, duration, intensity, and spectrum [6].

Direction

LEDs as currently deployed in street lighting tend to be quite directional, casting most light on the ground and little light at the horizontal or higher. In this regard they can be an improvement over other lamp types that have drop lenses resulting in more light scattering to locations where it is not useful. With the use of microlens arrays, the focus of LED streetlights on the street and adjacent pedestrian zones could be nearly perfect [7]. So long as lights are not pointing downward into a sensitive habitat (e.g., a wetland [8]), the directionality of LED streetlights can be an improvement in terms of wildlife impacts. Bulb-type LED lamps, however, offer no such benefit and their deployment in unshielded fixtures presents the same challenges as previous technologies.

Duration

One of the most effective ways to reduce the unintended adverse effects of lighting is to turn lights off when they are not needed. For most lamp types previously used for municipal outdoor lighting, turning the lamp on and off comes with an energetic penalty or warmup period. In contrast, LEDs can easily be extinguished and illuminated without delay. Consequently, LEDs are suited to the use of controls that use either timing or motion/heat detection to extinguish lights when they are not needed.

Intensity

Intensity of light is easily controlled in LEDs, they are dimmable without difficulty. So from the perspective of reducing lighting levels to the minimum needed for required tasks, they are ideal. Yet, the tendency is for designers and end users to use more light with LEDs because they are so energy efficient [9]. This phenomenon is well-known in environmental economics, known as the “rebound effect” [10]. It seems that users find that it is preferable to use a brighter bulb when the energy savings are great. LEDs represent an era of cheap light and when a product is inexpensive, the tendency is to overconsume. Just as cheap (fast) food has resulted in an obesity epidemic in the United States and elsewhere [11], cheap light has the potential to result in unnecessarily bright nights.

Spectrum

The flexibility of LEDs when it comes to spectrum, contrasts dramatically with the perception that LEDs used for outdoor lighting are intrinsically bluish white. Rather, the rapid development of a range of spectral combinations offers many possible options that could be exploited to reduce impacts on wildlife and the environment.

Insect attraction to LEDs is lower across the board when compared with lamps that emit ultraviolet light. Both “warm” and “cold” LEDs have been compared with metal halide and mercury vapor lamps and found to attract less than a tenth of the number of insects, a finding that is attributable to the difference in ultraviolet emissions [12]. Conversely, most broad spectrum LEDs used in outdoor lighting do have a potential to adversely impact the perception of daylength (and thus seasonality)

Figure 1:
A hatchling loggerhead sea turtle crawls toward a high-pressure sodium luminaire on the Florida coast (Photo Credits: Blair Witherington)

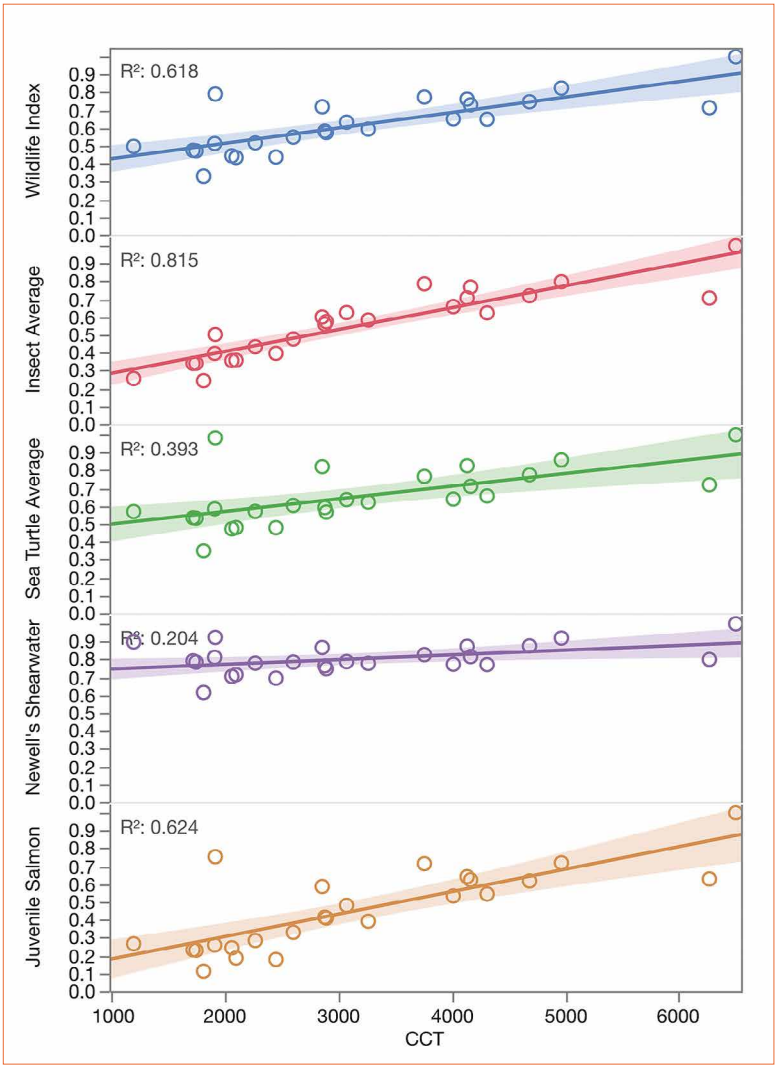


Figure 2: Relationship of modeled effect of lamps on different wildlife species or groups (juvenile salmon, Newell's shearwater, sea turtles, insects, and their average) with Correlated Color Temperature (CCT) of the lamps. Data from [14]

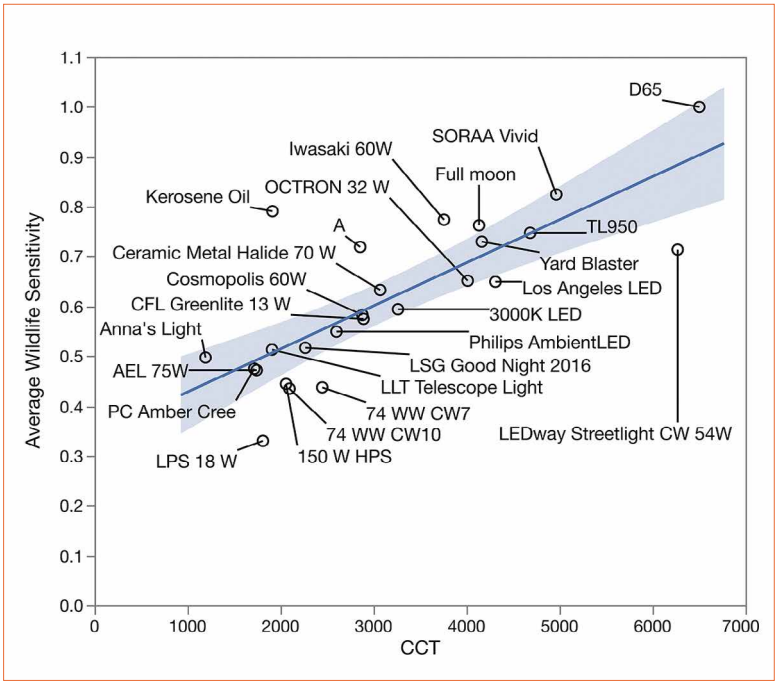


Figure 3: Relationship of correlated color temperature to average wildlife sensitivity with lamps and illuminants labelled. Data from [14]

in plants, because the peak sensitivity of the phytochromes that detect daylength are in range of LED peak emissions for most full-spectrum LEDs.

Beyond these two examples, the combination of tunable LEDs, filters combined with LEDs, and colored LEDs such as PC Amber offer unique opportunities. Spectrum can be controlled by combining different colored diodes in many configurations (red, blue, green, and perhaps also white, amber with white). The number of combinations far outstrips previous technologies, where the spectral output of high pressure sodium, low pressure sodium, metal halide, xenon, fluorescent, and incandescent lamps were well-known and inflexible.

Choosing Spectrum to Reduce Wildlife Disruption

To take advantage of the range of possibilities from LEDs, the quantal flux at different wavelengths can be compared with the behavioral responses of wildlife across those wavelengths. A generalized response curve for all insects was just published [13] and curves exist for other species [14]. The intersection of the response curves with the spectral power distribution of the lamps (converted to photons) can be compared with the same calculations for an equal lux of a standard illuminant to provide a comparison of the effects of different light sources [14]. Response curves for insects (averaging three curves in the literature), sea turtle (averaging three curves in the literature), juvenile salmon, and a visual response curve for the endangered seabird Newell's Shearwater were used to construct a composite metric of wildlife impacts and compared with a range of lamp types and standard illuminants. Plotting the results relative to Correlated Color Temperature (CCT) reveals two characteristics of the impacts of lights (Figure 2). First, on average and for each species or group, lower CCTs had lower predicted effects. Second, the slope of the relationship between CCT and wildlife influence was greater for some groups than others, indicating that spectrum could be a more effective tool to reduce impacts on insects and juvenile salmon than on Newell's Shearwater.

Figure 4:
Ranking of lighting sources that equally weighs wildlife response, melanopic response, astronomical light pollution (Star Light Index [15]), and Color Rendering Index. Reprinted from [14]. Shorter bars represent a combination of lower wildlife responses and higher CRI

CCT is not a perfect predictor of effects on wildlife, but it is a reasonable rule of thumb that lower CCT will be less disruptive to wildlife (and we already know that it will be less disruptive for circadian rhythms and astronomical observation [15]). The lamps with the lowest projected influence on wildlife overall were low-pressure sodium (which is being phased out), high-pressure sodium, PC amber LEDs, and filtered LEDs (Figure 3).

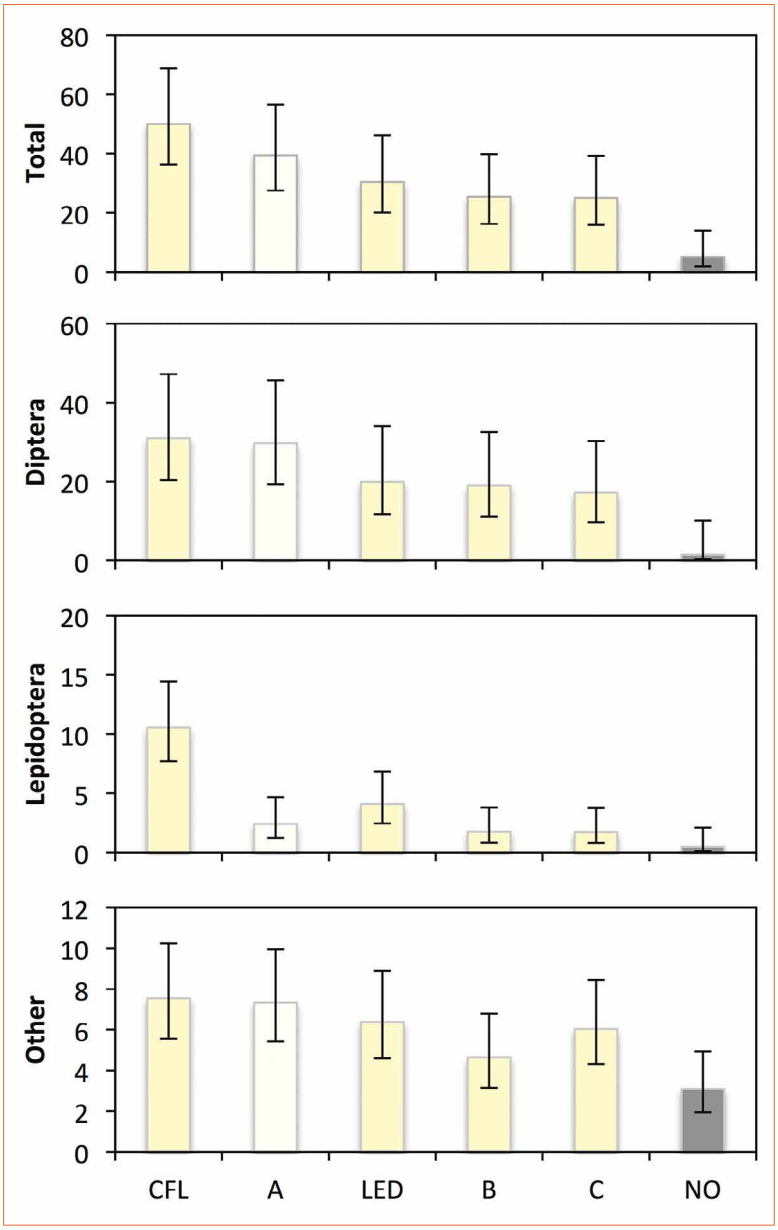
Figure 3: Thus far, the results represent the predicted effects of the lamps on wildlife. To account for preferences in outdoor lighting, another ranking was created that incorporated a penalty for low color rendering index (CRI). Any lamp with a CRI over 75 was assumed to have adequate color rendering, while those with lower CRI were penalized in the overall index. The resulting ranking of lamps is notable in that low pressure sodium ranks lower because of its extremely low CRI, while PC Amber and filtered LEDs rank the highest, balancing both lower wildlife impacts with reasonable if not high CRIs (Figure 4).

As a rule of thumb, CCT can be used as an indicator of wildlife effects, but this may not hold true across all applications. Migrating birds cannot orient under red light and therefore solid red lights are to be avoided on communication towers [16]. Green light has support for minimizing attraction of nocturnal migrant birds [17]. Other special cases exist and would require consultation with experts on a particular taxonomic group or species at risk.

Tuning Within the Same CCT

An additional useful feature of LED lamps is that they can be configured to produce the same CCT with different spectral outputs. To demonstrate this approach to minimize insect attraction, the spectral response curves for bees and moths were used to choose between configurations of two 2700 K LEDs (produced with a prototype tunable lamp with RGB diodes) and one 3000 K LED in a manner predicted to reduce insect attraction. The custom configurations were then compared in a field study with an off-the-shelf 2700 K LED and 2700 K fluorescent lamp [18].

The results of this field experiment showed that a tunable LED attracted 20-21% fewer insects than a similar LED not designed with minimizing



Figures 5:
Comparison of attraction of insects, and subsets of flies (Diptera), moths (Lepidoptera), and other insects to 2700 K compact fluorescent (CFL), custom 3000 K LED (A), off-the-shelf 2700K LED, two custom 2700 K LEDs (B and C), and a control (NO). Average catch per night with 95% confidence intervals (see [18] for details)

insect attraction as an objective (Figure 5). This effect was large for moths, similar to the findings when comparing different CCT lamps. These results are especially important for the choice of indoor lighting in the tropics, where glass and screens on windows is not common. Using indoor light that provides adequate color rendering for work while reducing insect attraction would reduce the probability of exposure to phototactic insect vectors of disease [18]. LEDs offer this possibility because of the spectral flexibility in their design.

Certainly, conservation scientists have more work to do on spectral responses. The number of species response curves available needs to be increased, which requires experts across taxonomic groups to engage the topic. The relationship between light intensity and spectral responses is largely unknown and needs research across nearly all wildlife groups. Even the perception of light by different groups of wildlife species is not fully described and taxonomic-specific metrics of both radiance and irradiance are needed. Nevertheless, a “no regrets” approach can be taken to guide the choice of spectrum that LEDs make possible, which is to reduce blue content. With amber and filtered products on the market, low color temperatures ≤2200 K are feasible and desirable to minimize adverse impacts.

Conclusions

The efficiency benefits of LEDs and the resulting economic incentives will drive further conversion of outdoor and indoor lighting to the technology. If the tendency to light more when light is cheaper can be overcome, the other attributes of LEDs hold significant promise for reducing environmental effects. Realizing that promise requires designers and manufacturers to learn about and embrace the guidance that wildlife scientists can provide. In some instances it will be challenging - resisting the desire to up-light, using no more light than necessary, and educating clients on the benefits of spectral choices that do not look like daylight. In other contexts, environmental regulations are likely to dictate lighting choices and offer an opportunity if the industry is prepared to seize it. On each of the mitigation approaches - duration, direction, intensity, and spectrum - LEDs will inherently or can be designed to perform well. Whether they do in practice will be up to the LED professional. ■

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Habitat-Specific Light Pollution Measurements in the Santa Monica Mountains National Recreation Area and Channel Island National Park

Final Report – August 2018

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Executive Summary

Artificial light at night is a stressor for species because it interrupts the regular patterns of light and darkness that allow for rest and repair, govern predator-prey relations, and create a predictable environment for spatial orientation. Direct glare from lights, in addition to the artificial glow of lights scattered in the atmosphere, can increase light levels well beyond the natural range of variation. Direct and indirect impacts have been recorded across all major species groups. Despite many well-known impacts (e.g., mortality of migratory birds at lighted towers), the appropriate metrics for measuring light in wildlife studies have not been well established. Furthermore, many assessments of light pollution (e.g., from space or for astronomical studies) do not have the spatial resolution necessary to investigate local impacts. We used a newly developed camera and software system, which is calibrated for precise astronomical measurements (Sky Quality Camera, Euromix Ltd.), to take full-sky hemispherical photograms that can be used to assess lighting levels in different habitat types across a transect of artificial night sky brightness in the Santa Monica Mountains National Recreation Area and Channel Island National Park. We acquired and analyzed 136 images of the whole sky and under vegetation to demonstrate the range of illumination experienced by wildlife. Scalar illuminance ranged from 0.349–181.00 mlux at individual locations and was influenced by cloud cover, which results in lower measurements in areas with low sky glow and higher measurements in brighter areas). The results demonstrate the value of this new, rapid sampling technique and provide baseline measurements for within-habitat lighting values as influenced by local and distant light sources, thereby providing a possible standard for wildlife impacts by incorporating both total illumination, which influences foraging and predator-prey relations, and directionality of lighting sources, which influences spatial orientation.

Habitat-Specific Light Pollution Measurements in the Santa Monica Mountains National Recreation Area and Channel Island National Park

1 Introduction

Many National Parks such as Death Valley, Bryce Canyon, and Glacier have adopted the slogan, "Half the park is after dark," and have begun promoting their dark, starry skies as attractions just as worthwhile as the rest of the park visible during the day (Manning et al. 2015). Unfortunately, national parks find themselves increasingly threatened by light pollution, which affects species and habitats (Bennie et al. 2015; Davies et al. 2016; Longcore and Rich 2004), astronomical observation (Riegel 1973), and cultural resources (Lyytimäki 2013). The National Park Service established a Night Sky Team in 2000 and it both conducts and supports research on the extent and impacts of light pollution in its parks (Moore 2001; Duriscoe, Luginbuhl, and Moore 2007; Manning et al. 2015). Recently, the Mediterranean Coast Network of parks (MEDN) released a report assessing trends in light pollution for 20 years (1992–2012) from satellite data (Gillespie et al. 2016).

The National Park Service's Night Sky Team has taken ground-level measurements of light pollution across the national park system, including in the MEDN parks (Duriscoe, Luginbuhl, and Moore 2007). These measurements are, however, usually taken from open locations and during clear skies. Organisms that might be affected by lighting, however, live in all different habitats and experience many weather conditions. Cloud cover and fog increase the degree to which lighting is scattered and reflected in the atmosphere and consequently the degree to which it affects species living nearby (Kyba et al. 2011). For locations in and around urban areas, such as the MEDN, the artificial night sky brightness is high (Duriscoe 2016) and certainly within the range that would affect wildlife behaviors (Gaston et al. 2014; Longcore and Rich 2017; Rich and Longcore 2006; Longcore and Rich 2016).

Notwithstanding widespread interest in the influences of artificial night lighting on species and ecosystems, the range of variation of illumination in light polluted habitats is remarkably little known. Few studies quantify light pollution *in situ* in a replicable, quantifiable way, especially under different weather conditions. A notable exception is the all-night quantification of illumination levels under the canopy of an eastern deciduous forest by (Buchanan 2006), which is used as a basis to understand the natural conditions experienced by forest amphibians and the effects of elevated lighting levels on those species (Wise 2007; Perry et al. 2008).

Several elements of the light environment are important in wildlife studies and standard techniques to measure them have not yet been accepted across disciplines. First is the amount of irradiance that is available to make items in the landscape visible. This would optimally be measured in taxonomically-adjusted measures of irradiance but frequently the human-adjusted measurement (lux) is used instead. Total illumination from all directions (scalar illumination) is preferable over directional illumination (vertical or horizontal) because light from all directions can aid in image-forming by the eye and it is the most accurate description of total light in the

environment (Duriscoe 2016). Second, a measure of the spectrum of light in the environment can be important, given the wide variation in responses to spectrum in nature and the variation in the spectral composition of light sources (Thums et al. 2016; Longcore et al. 2015; Gaston et al. 2012; Davies et al. 2013). Third, wildlife behavioral responses that are related to orientation and wayfinding respond to the spatial distribution of light sources in the environment and consequently require metrics that incorporate the directionality of both direct glare and sky glow. The orientation of hatchling sea turtles illustrates this effect, but other disorientation, attraction, and repulsion phenomena depend on measuring intensity of light from all directions and assessing their brightness compared to surroundings (Frank 2006; Pendoley and Kamrowski 2015; Thums et al. 2016).

No standard technique has been developed that can measure these features of light in the environment in a repeatable and consistent manner. Sea turtle researchers have developed use of hemispherical digital photography (Thums et al. 2016; Pendoley et al. 2012), which can be used to extract measurements of illumination, spectrum, and directionality in the light environment. The same approach is used in astronomical measurements such as those taken by the NPS Night Sky Team (Duriscoe 2016), and a growing array of international researchers (Jechow et al. 2018; Jechow et al. 2017; Pendoley et al. 2012; Luginbuhl et al. 2009). One purpose of the proposed project is to demonstrate the usefulness of such an approach to ecological studies, using a lower-cost and more portable monitoring camera, lens, and software combination that is just now coming to market.

The correspondence between on-the-ground light measurements taken within habitats, especially those with significant vegetative cover, and remotely sensed data is not well known. The reasons for this are several. First, the upward radiance measured by satellite provides information about the light sources within the range of single pixels (e.g., 500-m squares) but this measurement does not provide an estimate of sky glow without modeling the contribution of the lights surrounding the site in a 300-km radius (Duriscoe, White, and Meadows 2016). Artificial night sky brightness is more easily obtained from pre-processed datasets such as the World Atlas of Artificial Night Sky Brightness, which has been recently updated to incorporate the higher resolution measured by the Suomi NPP VIIRS Day-Night Band (Falchi et al. 2016). Second, the resolution of the night sky brightness data although impressive (500-m pixels), incorporates substantial variation on the landscape. Third, upward radiance only partially incorporates the brightness of lights pointed down within habitats, which may be quite important for wildlife in those environments. Fourth, upward radiance does not address the amplification of light by clouds and fog, and the spectral consequences of such local scattering (Kyba et al. 2011; Kyba et al. 2012). Nevertheless, local variation in upward radiance indicates a first pass at the variation in nocturnal lighting conditions that might be found in protected lands (**Error! Reference source not found.**), while the range of local conditions indicated by these measurements merits study.

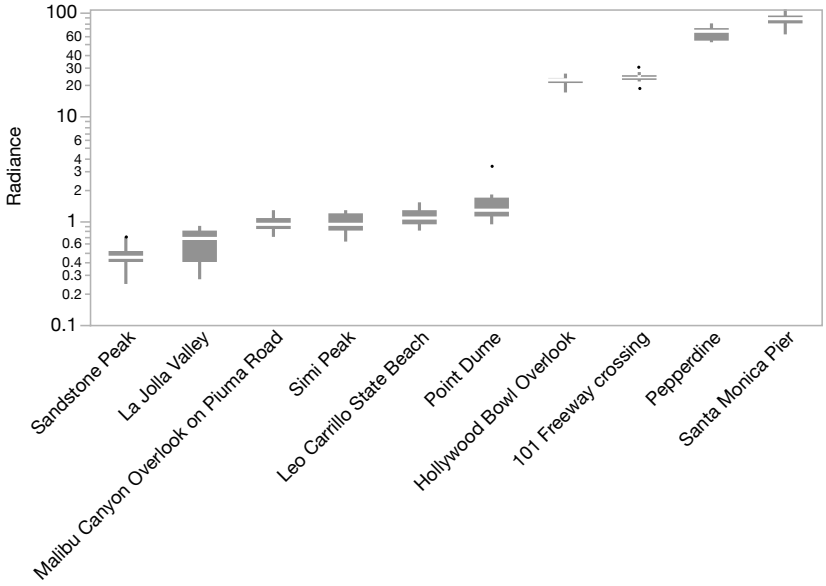

Figure 1. Distribution of annual upward radiance at selected locations in the Santa Monica Mountains National Recreation Area. Box plots show distribution of monthly composite measurements from VIIRS Day-Night Band, 2014–2016 (unpublished analysis).

These issues merit local study because of the potential impacts of night lighting on a range of sensitive species that are found in these parks. For example, the movement of mountain lions has been hypothesized to be influenced by the spatial distribution of nighttime lights as an animal moves through the landscape (Beier 1995, 2006). Endangered red-legged frogs have been reintroduced into the Santa Monica Mountains National Recreation Area, and frogs are highly sensitive to night lighting as an influence on their breeding behavior (Buchanan 2006; Perry et al. 2008; Hall 2016) and larval development (Wise 2007). Threatened western snowy plovers roost on beaches in two of the park units and increased illumination may subject them to additional predation risk. Finally, nesting seabirds on the offshore islands are vulnerable to lighting caused by local and distance sources. In general, seabirds are less active during moonlit nights, and those that are active suffer more predation during those times (Watanuki 1986; Nelson 1989; Keitt, Tershy, and Croll 2004). Seabird chicks are directly affected by lighting levels; they are far less likely to be fed by adults during bright nights (Riou and Hamer 2008). In each of these instances, management of the resources in these National Park units would be enhanced by greater understanding of the degree to which the nocturnal environment is affected by light pollution.

The purpose of this study was: 1) to demonstrate the use of an easily portable DLSR camera and lens night sky monitoring setup provide useful data to monitor light pollution across wildland landscapes; 2) Document the range and central tendency of scalar illuminance experienced in different native habitats across a range of calculated artificial night sky brightness (Falchi et al. 2016); and 3) Evaluate the degree to which calculated artificial night sky brightness (Falchi et al. 2016) correlates with field measurements of scalar illuminance across habitats.

2 Research Design and Methodology

2.1 Equipment and Software

We took hemispherical photographs at night, capturing the full sky from horizon to horizon in each photograph using a Canon Rebel T6S DSLR camera and a Sigma 4.5mm/F2.8 EX DC circular fisheye lens. The camera/lens system was calibrated in the field and paired with custom software that together is known as a Sky Quality Camera (Euromix Ltd., Ljubljana, Slovenia). Euromix Ltd. calibrated the camera and provided the custom calibration file. The Dark Sky Camera software extracts a range of quantitative data from the photographs, including cosine adjusted illuminance, scalar illuminance, cosine corrected color temperature, scalar color temperature, full sky brightness map, full sky color temperature map, and summary statistics (e.g., brightness, correlated color temperature) by elevational band from the horizon to the zenith. To take the images, the camera is mounted on a tripod and leveled with the top of the camera oriented due north. Aperture is set at 2.8 f and ISO speed at 1600. Ideally, exposure time would be 120 seconds, but because of the high levels of light pollution we took the image with the longest possible exposure time without causing more than trace saturation of the image, which can be assessed after each exposure by viewing the histogram of the colors on the camera's screen.

2.2 Sample Timing

All samples were taken either during the new moon, or during a period of the night when the moon was not in the horizon. Images were acquired during cloud cover to obtain information confirming the relationship between clouds and sky glow (Kyba et al. 2011) and to document the range of conditions experienced by wildlife in these settings. To maximize the number of images obtained, photographs were taken starting after astronomical twilight as early as 8:30 P.M. and extending to 3:00 A.M.

2.3 Sampling Locations

The samples extended along a transect that is informed by the World Atlas of Artificial Night Sky Brightness, starting at the brightest location in the east (Hollywood Bowl Overlook) and working westward through the Santa Monica Mountains and out onto the Channel Islands (Figure 2). Exact locations were limited by permissions, access, and travel logistics to the islands. We obtained scientific collecting permits from Santa Monica Mountains National Recreation (SAMO-00169) and Channel Islands National Recreation Area (CHIS-00190).

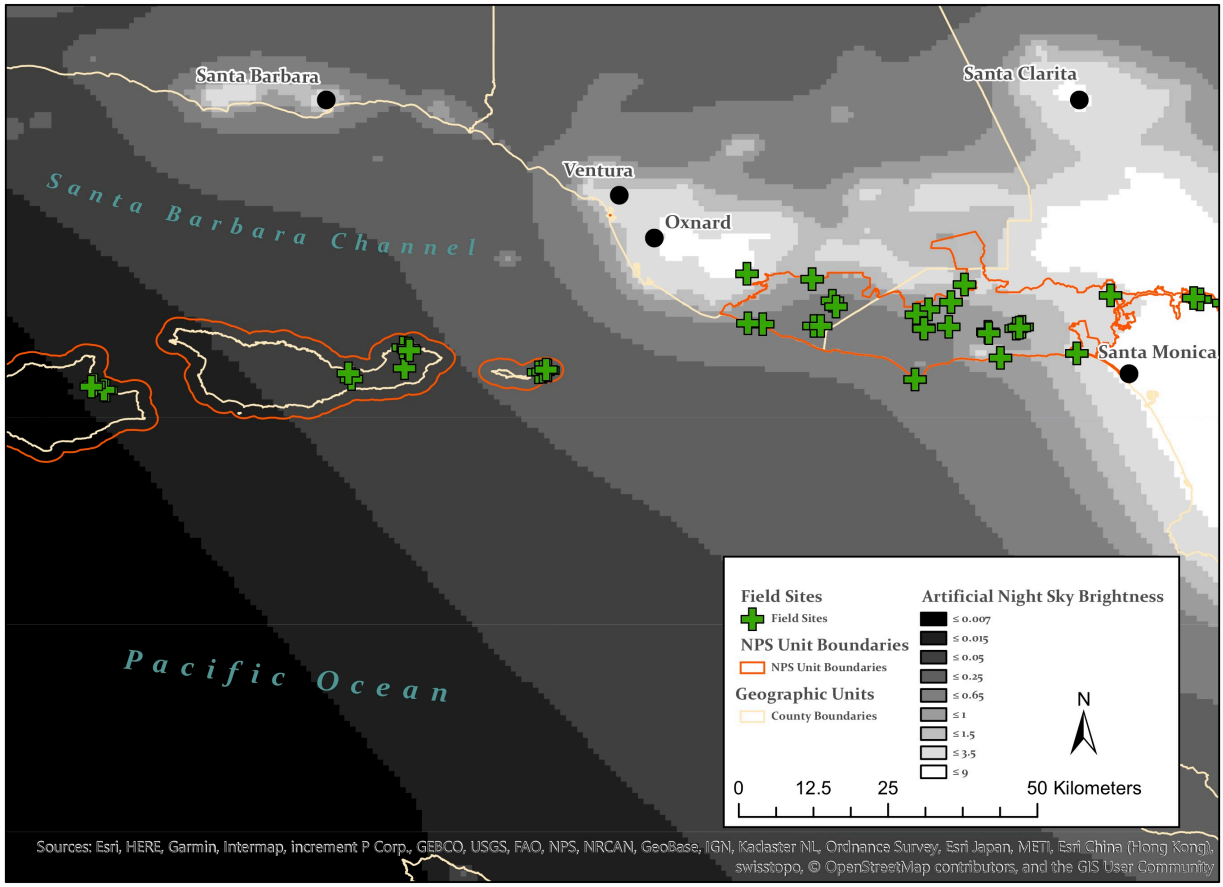

Figure 2. Channel Islands National Park and Santa Monica Mountains National Recreation Area mapped over the light pollution (zenith radiance in mcd/m^2) estimated by the New World Atlas of Artificial Night Sky Brightness (Falchi et al. 2016) (see http://cires.colorado.edu/Artificial-light).

Wherever feasible, we took images in open areas as well as in a location with canopy cover from native vegetation (usually coast live oaks) to provide a first description of the artificial brightness in such habitats. Multiple images on different dates were taken at a subset of locations to capture a range of conditions.

Data were then mapped using ArcMap 10.5 (Esri, Redlands) and visualized and analyzed using JMP Pro 12 (Cary, NC). We used linear regression and multiple regression to investigate the relationship between modeled artificial night sky brightness (Falchi et al. 2016), scalar illuminance, and cloud cover.

3 Results

Photographs were taken at 37 locations from Hollywood Bowl overlook westward to Santa Rosa Island (Table 1). Multiple images at different exposure times were obtained and later analyzed in Sky Quality Camera software. The images were analyzed both with and without the horizon excluded in the SQC software, which either includes or excludes light reflected from the

surrounding habitat in the final results. Because our intention was to evaluate the conditions experienced by wildlife, we included the horizon and any reflected light in the final analyses. The final dataset for analysis had 51 images. Of these, 45 were in open locations with 6 taken under nearby tree canopy cover for comparison. Scalar illuminance ranged from 0.349–172.6 mlux and the SQM (Bortle) scale measurements ranged 17.34–22.83.

Table 1. Locations measured with Sky Quality Camera, May 18, 2017 to August 12, 2017.

CHIS_AN_1- Anacapa Island Inspiration Point
CHIS_AN_2- Anacapa Island campground bluff
CHIS_AN_3- Anacapa Island lighthouse cove
CHIS_SC_1- Santa Cruz water tower overlook
CHIS_SC_2- Santa Cruz Del Norte Campground
CHIS_SC_3- Santa Cruz Montanon Ridge
CHIS_SC_4- Santa Cruz Potato Harbor Road
CHIS_SC_5- Santa Cruz Potato Harbor Road
CHIS_SC_6- Santa Cruz Scorpion Campground
CHIS- Santa Rosa Airstrip Junction
CHIS- Santa Rosa Torrey Pines
CHIS- Santa Rosa Water Canyon Picnic Area
SAMO_1- Hollywood Bowl Overlook
SAMO_2- Laurel Canyon Dog Park
SAMO_3- Deadman Overlook at Fryman Canyon
SAMO_4- San Vicente Peak
SAMO_5- PCH and Porto Marina Way
SAMO_6- Malibu Pier Beach
SAMO_7- Lois Ewen Overlook on Stunt Road
SAMO_8- Saddle Peak Oak Tree
SAMO_9- Malibu Canyon Overlook
SAMO_10- Corral Canyon Trailhead
SAMO_11- Point Dume
SAMO_12- Paramount Ranch
SAMO_13- Agoura Hills Meadow
SAMO_14- Cadenhorn Drive
SAMO_16- Backbone Trail off of Latigo Canyon Road
SAMO_18- Potero Road on the Oxnard Plain
SAMO_19- Satwiwa Cultural Center Grasslands
SAMO_20- Private Land off of Yerba Buena Rd
SAMO_21- Point Mugu Rock parking area
SAMO_21- Private Land off of Yerba Buena Road
SAMO_22- La Jolla Canyon low water bridge
SAMO_24- Saddle Peak East Summit
SAMO_25- Malibu Canyon Overlook
SAMO_26- Sandstone Peak Summit
SAMO_27- Sandstone Peak Trailhead

The scalar (total) illuminance varied across the sample sites as would be expected from the World Atlas of Artificial Night Sky Brightness (Figure 3), and with a higher degree of spatial resolution than the atlas. The measurement of scalar illumination is also more comprehensible in terms of impacts on wildlife because it incorporates all light sources from throughout the sky and horizon instead of only the zenith brightness that is reported in the atlas (Falchi et al. 2016).

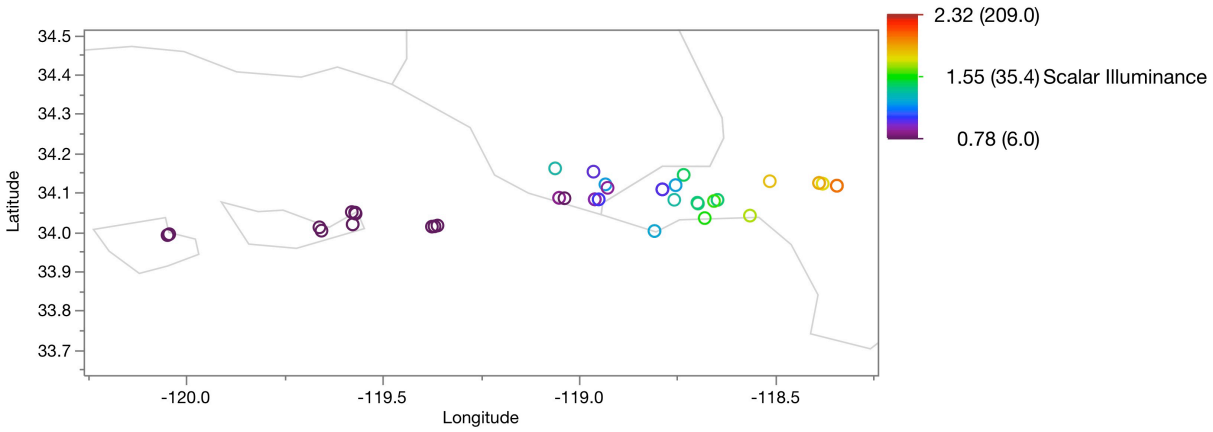

Figure 3. Scalar illuminance (mlux) of sites across Santa Monica Mountains National Recreation Area and Channel Islands National Park.

We found that scalar illuminance was correlated with zenith brightness (r^2 = 0.83) and, as would be expected, cosine illuminance, which emphasizes illumination from the zenith, had a higher correlation (r^2 = 0.87) (Figure 4). The relation between modeled zenith brightness and illumination was greatest in the darkest locations (which would have little direct glare and illumination on the horizon) and lowest in the brightest locations (e.g., Hollywood Bowl Overlook). Furthermore, cloud cover influenced illuminance difference along a gradient of zenith (Kyba et al. 2011; Ribas et al. 2016). At the lowest zenith brightness levels, increased cloud cover resulted in lower overall illumination (Figure 5) and indeed the darkest conditions recorded were under cloudy skies on Santa Rosa Island. In contrast, increased cloud cover close to urban Los Angeles resulted in dramatically higher measures of illumination (Figure 5). A threshold appears in the data at 0.5 mcd/m^2 [artificial night sky brightness from Falchi et al. (2016)], with locations having greater than this zenith brightness showing an increase in illumination with increasing cloud cover, while sites dimmer than 0.5 mcd/m^2 had lower illumination with increasing cloud cover.

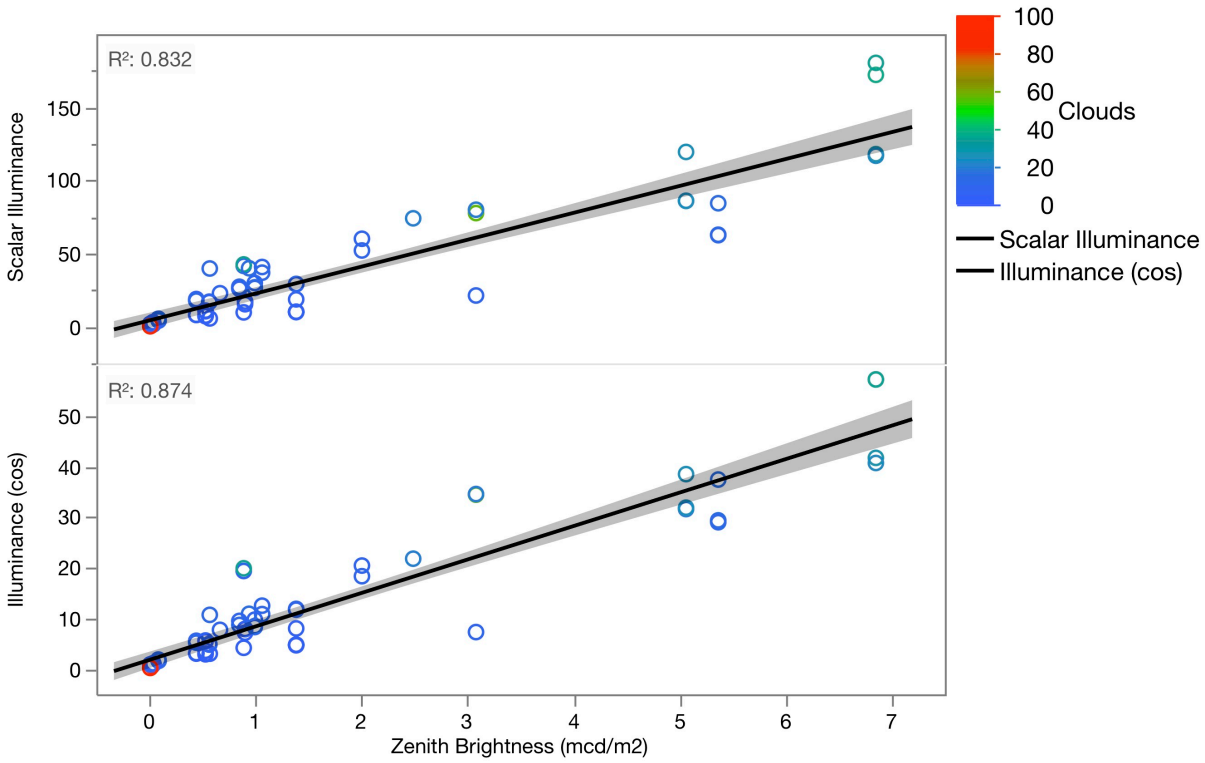

Figure 4. Linear regression of on-ground scalar illuminance and cosine illuminance by zenith brightness as calculated in the new world atlas of artificial night sky brightness (Falchi et al. 2016). Cloud cover is visualized as a co-variate.

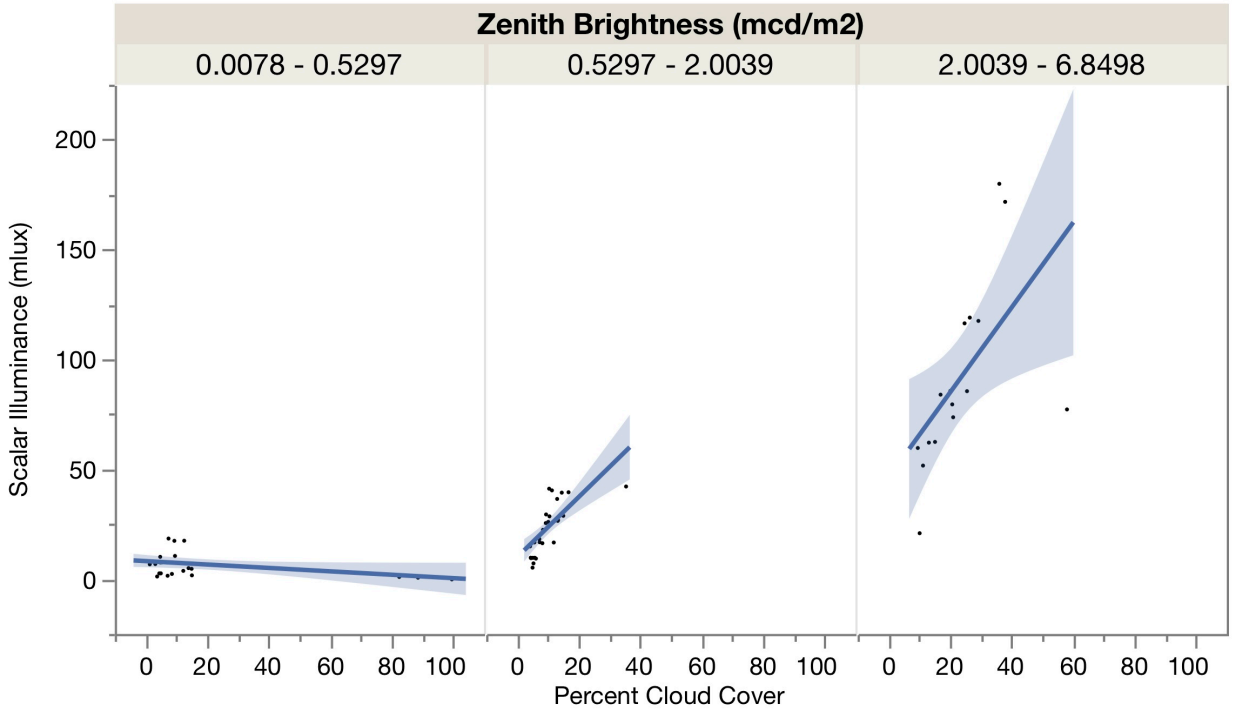

Figure 5. Influence of cloud cover on scalar illuminance at different ranges of zenith brightness.

3.1 Habitat Measures

We obtained measurements under roughly 50% tree canopy within four areas across the study area. These fell along the brightness gradient Saddle Peak, Corral Canyon, Mugu Wetlands/La Jolla Canyon, Santa Rosa Island. The scalar illumination under vegetation canopy was always lower than nearby exposed sites, but the amount of decrease in illumination corresponded with the brightness of the sites (Figure 6). Those sites with the highest sky glow showed greater reductions under canopy than those with the lowest (Santa Rosa Island).

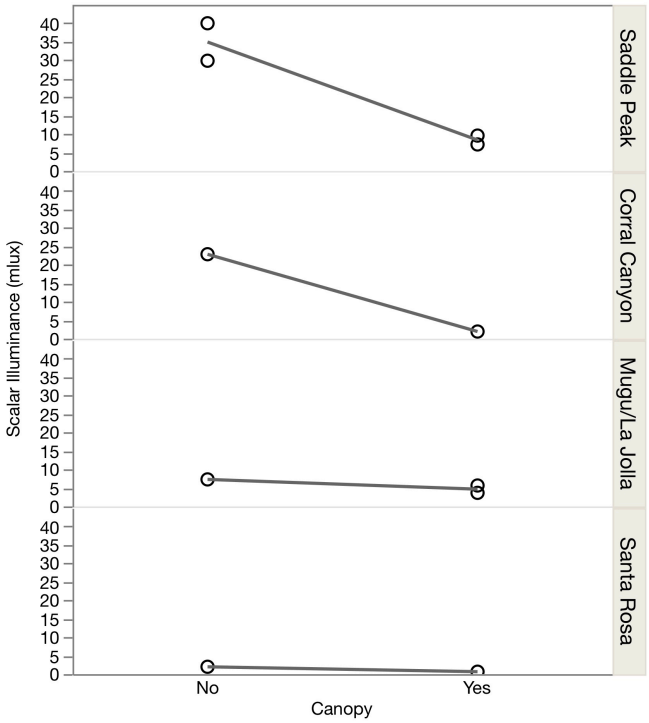

Figure 6. Difference in scalar illuminance at open sites compared with nearby sites under vegetation canopy (e.g., oak trees).

3.2 Squid Boats

We opportunistically took measurements from two locations on Anacapa Island close to each other that allowed for a comparison of conditions with and without a squid light boat on the horizon. Squid boats have been identified as a prominent source of lighting along coastlines when the light-induced fishery is open (Gillespie et al. 2016; Gillespie et al. 2017; Maxwell et al. 2004). The squid boat is prominent on the horizon (Figure 7). Analysis of the images demonstrates the difference in distribution of lighting around the horizon and scalar illumination increased from 4.8 to 5.1 mlux with the addition of the single squid light boat in the distance (Figure 8; Figure 9).

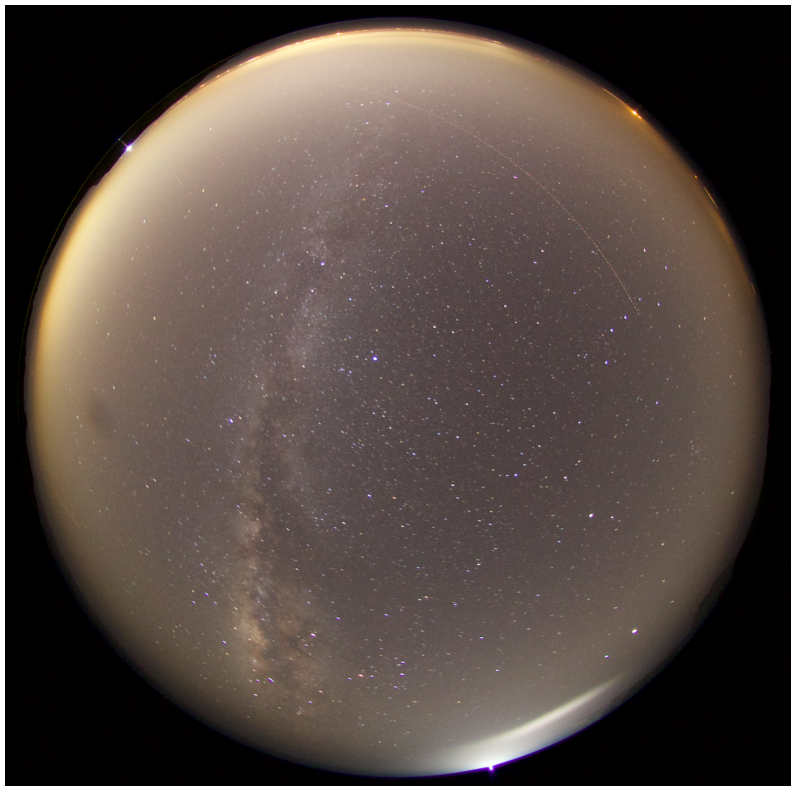

Figure 7. Hemispherical image of Anacapa Island Inspiration Point showing a lighter boat associated with the squid fishery at the bottom of the image.

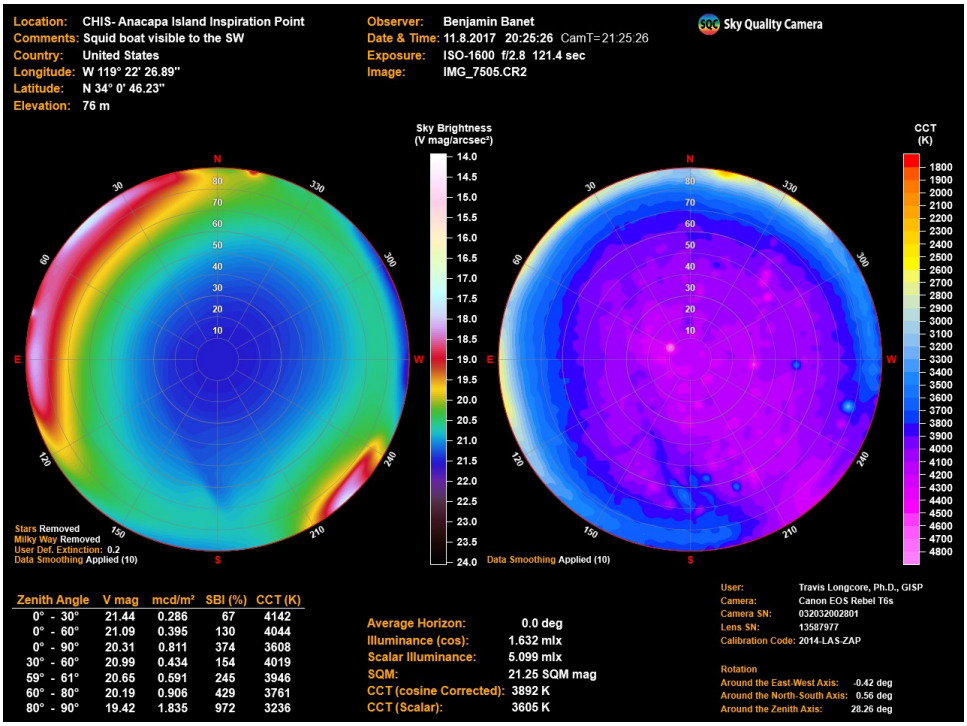

Figure 8. Sky Quality Camera analysis of Anacapa Island Inspiration Point, August 11, 2017.

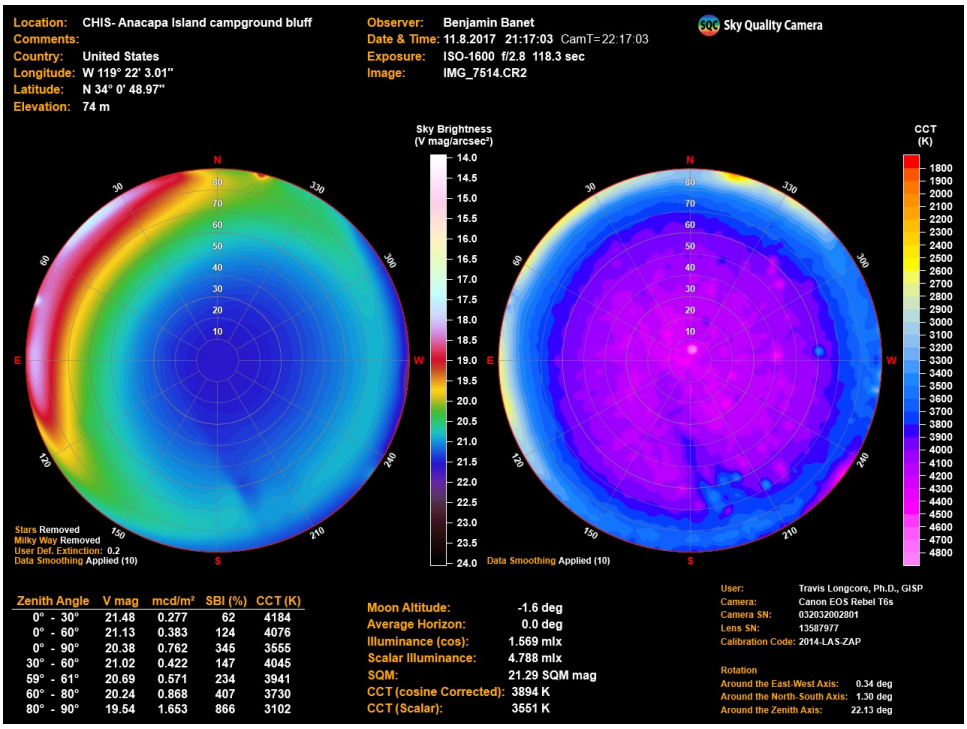

Figure 9. Sky Quality Camera analysis of Anacapa Island campground bluff, August 11, 2017.

4 Discussion

The number of sites visited during a relatively short fieldwork period and with a range of logistical constraints demonstrates the usefulness of hemispherical photography with the Sky Quality Camera for monitoring conditions in natural habitats characteristic of the National Park system. Hemispherical photography is rapidly emerging as a preferred ground-based monitoring technique for measurement of astronomical light pollution (Jechow et al. 2017; Jechow et al. 2018; Duriscoe, Luginbuhl, and Moore 2007; Duriscoe 2016; Duriscoe, White, and Meadows 2016) and for ecological applications (Pendoley and Kamrowski 2015; Thums et al. 2016; Pendoley et al. 2012).

Our findings are consistent with the literature regarding the influence of clouds on light pollution and the highest scalar and cosine illuminance values recorded at Hollywood Bowl Overlook (0.057 lux (cos) and 0.180 scalar lux) are close to the illumination of a typical full moon (Kyba, Mohar, and Posch 2017). Our findings were consistent with Ribas et al. (2017) in that cloud cover increased brightness in urban areas and decreased it in dark, rural ones.

We were able to collect sufficient data to evaluate the ranges of illumination experienced under vegetation canopy by taking photographs under oak trees. The resulting measurements are the first to record the illumination levels in these conditions from light pollution and provide some insight into the potentially increasing importance of shadows as refuge from predators aided by additional light as light pollution increases.

We also found that the light produced by a single squid boat can change illumination at an onshore receptor with an increase of around 5 mlux, demonstrating that the impacts of this

fishery to onshore light conditions can be measured with appropriate equipment. These lighting levels (5 mlux) are biologically relevant and influence animal behavior and physiology (See Table 1 in Longcore and Rich 2016).

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Batinica, Meighan

From: Lana Lundin <Lana.Lundin.61209921@p2a.co>
Sent: Friday, March 08, 2019 4:12 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Lana Lundin
825 Vista Arriago
Camarillo, CA 93012

Batinica, Meighan

From: szpairport@gmail.com
Sent: Friday, March 08, 2019 4:14 PM
To: Wildlife Corridors
Cc: info@ci.santa-paula.ca.us; Long, Kelly; ClerkoftheBoard, ClerkoftheBoard
Subject: Comment from Santa Paula Airport
Attachments: WildlifeCorridor.pdf

Please find attached comment letter from Santa Paula Airport regarding the proposed Wildlife Corridor to be discussed Tuesday March, 12th.

Thank you
Rowena Mason
President, SPAA

Santa Paula Airport Association, Ltd.
800 E. Santa Maria Street
28 Wright Taxiway
Santa Paula, CA 93061

szpairport@gmail.com
Ph: 805-933-1155

March 8, 2019

Ventura County Planning Division
Attn: Wildlife Corridors
800 S. Victoria Ave.
Ventura, CA 93009-1740

Honorable members of the Ventura County Planning Division:

Santa Paula Airport was founded in 1930 and sits directly adjacent to the Santa Clara River in Santa Paula, CA. The Airport is currently home to over 300 based aircraft and multiple business entities that serve the general aviation community with an estimated gross sales figure of 5 million dollars. There are over 100 people employed at the airport in various local business entities.

Santa Paula Airport has served as an emergency base for fire operations on more than one occasion, shutting down our operations for weeks at a time in support of our community.

We are very concerned about the impact "the proposed Habitat Connectivity" may have on Santa Paula Airport, our ability to provide a safe environment for flight and the impact on our business entities and employees.

We have been a good steward to our environment and a good neighbor and certainly over my time here as the President of the Airport Association we have strived to provide a good balance between the needs of our adjacent wilderness and our obligations as a public use airport to provide a safe environment for flight.

The Santa Paula Airport is deed restricted as "Airport Use" in-perpetuity as part of an airport grant obtained in 2008. We will continue to live up to our grant obligations to provide a safe airport for general aviation use as well as serve our local community in any way we can. We take great pride in our service to our community.

We urge the Planning Commission as well as the Board of Supervisors to reject any new regulations regarding property in zones you have designated as Habitat or Wildlife Corridors until a comprehensive study can be made regarding the effect this may have on the safety of the general public in and around areas such as the Santa Paula Airport. We do not feel that anyone has addressed these impacts or thought through the effects of more burdensome regulations on not just Santa Paula Airport but all property owners in these areas.

Thank you for your consideration

Rowena Mason
President, SPAA

Cc: Ventura County Board of Supervisors
Santa Paula City Council
Kelly Long

Batinica, Meighan

From: Tamara Mccready <Tamara.Mccready.37430751@p2a.co>
Sent: Friday, March 08, 2019 4:46 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Tamara Mccready
6278 Cynthia St
Simi Valley, CA 93063

Batinica, Meighan

From: Catherine McDonough <Catherine.McDonough.150146373@p2a.co>
Sent: Friday, March 08, 2019 2:42 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Catherine McDonough
1045 S Orange Grove Blvd
Pasadena, CA 91105

Batinica, Meighan

From: Gary Meisels <Gary.Meisels.150232881@p2a.co>
Sent: Friday, March 08, 2019 7:13 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Gary Meisels
674 Blue Oak Ave.
Thousand Oaks, CA 91320

Batinica, Meighan

From: Veronica Miranda <Veronica.Miranda.150142458@p2a.co>
Sent: Friday, March 08, 2019 2:27 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Veronica Miranda
2558 Pirate Cove
Port Hueneme, CA 93041

Batinica, Meighan

From: Diana Moore <Diana.Moore.150201740@p2a.co>
Sent: Friday, March 08, 2019 5:41 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Diana Moore
4062 Brindisi Pl
Moorpark, CA 93021

Batinica, Meighan

From: Sharon Moore <Sharon.Moore.150250818@p2a.co>
Sent: Friday, March 08, 2019 9:01 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Sharon Moore
809 Laurel Park Cir
Camarillo, CA 93012

Batinica, Meighan

From: Janet Murtha <Janet.Murtha.149932444@p2a.co>
Sent: Friday, March 08, 2019 1:39 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Categories: Blue category

Dear Ventura County Supervisors,

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Thank you,

Janet Murtha
1010 Janetwood Drive
Oxnard, CA 93030

Batinica, Meighan

From: Jeremy Neill <Jeremy.Neill.150074265@p2a.co>
Sent: Friday, March 08, 2019 11:04 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Jeremy Neill
6540 El Colegio Rd
Goleta, CA 93117

Batinica, Meighan

From: mary nelson <mary.nelson.150098313@p2a.co>
Sent: Friday, March 08, 2019 1:08 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

mary nelson
31 taormina lane
Ojai, CA 93023

Batinica, Meighan

From: Brandy Nightingale <Brandy.Nightingale.150257082@p2a.co>
Sent: Friday, March 08, 2019 10:14 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Brandy Nightingale
1129 Maricopa Hwy #B110
Ojai, CA 93023

Batinica, Meighan

From: Doug Off <doug@ojaioil.com>
Sent: Friday, March 08, 2019 4:40 PM
To: Wildlife Corridors
Cc: Guizar, Ramon
Subject: Wildlife overlay corridors

Board of Supervisors
Ventura County, CA

March 8, 2019

Re: Wildlife Corridors
APNs: 0300240045
0300160075
0300160045
0300240065
Approximately 58 acres

Dear Board of Supervisors:

Ojai Oil Company has been producing crude oil and gas from our 58 acre property since 1912. We have agriculture that has been in grapes producing wine and trees producing olives for oil. There are two homes and associated corrals with horses, oil production tanks, oil wells (13) and lines, 3 water wells and associated lines throughout the property. We are, and have been for four years, in the process of increasing our agricultural acreage and ability to grow on the property. There are dirt and paved roads connecting homes and agriculture throughout in order to carry out our industry.

We request that this property be given a thorough inspection prior to overlaying it with restrictions which will severly hamper our operations and growth. We would appreciate a reply.

Thank you.

Douglas Off
Ojai Oil Company
400 W. Ventura Blvd., Ste 100
Camarillo, CA 93010
Wk: 805 388 5858
Cell: 805 377 7713
doug@ojaioil.com

Batinica, Meighan

From: Scott Orlosky <Scott.Orlosky.150069234@p2a.co>
Sent: Friday, March 08, 2019 10:41 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Thank you,

Scott Orlosky
3805 Center Ave
Santa Barbara, CA 93110

P.O. Box 1244
Ventura, CA 93002-1244
Phone: 1-805-643-7044

Km 11.4 Carretera a Masaya
Res. Villas del Prado N° 07
Managua, Nicaragua
Phone: +505 2279 5077

PASO PACÍFICO
Making connections for conservation

March 8. 2019

Dear Board of Supervisors,

I am writing on behalf of Paso Pacifico, a Ventura-based wildlife conservation organization with 13 years' experience designing and implementing wildlife corridors in Central America. We draw support from hundreds of individual donors throughout Ventura County, people who value wildlife and believe in the habitat protection.
As you know, designing effective and acceptable wildlife corridors is a difficult process. Not only does the corridor need to meet the needs of sensitive wildlife, it must be acceptable to diverse community members and landowners. We applaud the planners for their efforts to involve a wide range of stakeholders in the planning process.

We fully support this wildlife corridor proposal and ask that you give your approval. Our organization has reviewed the proposed plan and has been an observer throughout the design process. We are impressed by the quality of scientific review and are confident that this corridor plan is not only feasible, but vital for safeguarding the future of our county. Not only will the corridor support vulnerable wildlife, the habitat areas will increase the resilience of the county to climate change impacts, and place the county at the forefront of integrated land use planning.

One important detail that **we urge you to consider before approval is the need for a minimum of 200 feet riparian areas along waterways.** Habitat needs vary by species, but birds and larger mammals need greater amounts of habitat. When one considers the recent rains, it is easy to see that riparian habitat can shift many tens if not hundreds of feet, quickly transforming and even wiping out habitat. Without sufficient riparian vegetation, there will not be sufficient area to ensure habitat throughout time and the changing seasons. Further, greater riparian habitat width can reduce the risk of flooding and debris flow. <u>This co-benefit of habitat protection and reduced flood risk creates a win-win for wildlife and the residents of the county.</u>

We are hopeful that wildlife and people can enjoy this beautiful county for generations to come. Thank you for your consideration of our request.

Sincerely,

Sarah Otterstrom, Ph.D.
Executive Director
sarah@pasopacifico.org

Batinica, Meighan

From: Bliss Page <Bliss.Page.150087289@p2a.co>
Sent: Friday, March 08, 2019 12:17 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Bliss Page
724 1/2 S Rice Rd
Ojai, CA 93023

Batinica, Meighan

From: Cuma Pineau <Cuma.Pineau.150149875@p2a.co>
Sent: Friday, March 08, 2019 2:59 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Cuma Pineau
820 S E St. Apt 68
Oxnard, CA 93030

A

Batinica, Meighan

From: Bob Poole <bpoole@wspa.org>
Sent: Friday, March 08, 2019 1:36 PM
To: Sussman, Shelley
Subject: RE: Ventura County Proposed Regional Habitat Linkages Project
Attachments: WSPA Comments on Ventura County Proposed Regional Habitat Linkages 3 12 19 Final.pdf

Shelley,

Please see attached WSPA's latest comment letter dated March 12th, 2019 relaying our ongoing concerns with the County's proposed Regional Wildlife Habitat Linkages project.

I also plan to attend the upcoming hearing next Tuesday and recap our concerns during verbal comments.

Please let me know if you have any questions, comments etc.

Best regards,

Bob

Bob Poole
Director, Production, State and Coastal Issues

WSPA

1415 L Street, Suite 900 Sacramento, CA 95814
C 805.833.9760
P 916.325.3085
bpoole@wspa.org

Bob Poole
Director, Production

March 12, 2019

Shelley Sussman
Senior Planner
Planning Division
Resource Management Agency
Ventura County
800 S. Victoria Ave. L #1740
Ventura, CA 93009-1740

sent via email: shelley.sussman@ventura.org

RE: WSPA Comments on Ventura County Proposed Regional Habitat Linkages Ordinance

Dear Ms. Sussman,

Thank you again for the opportunity to review and comment on the draft proposed Regional Habitat Linkages Ordinance relating to wildlife habitat corridors. The Western States Petroleum Association (WSPA) represents 25 companies that explore for, develop, refine, market and transport petroleum and petroleum products in the western United States, including those representing the majority of domestic oil and gas production capacity in California.

This letter is submitted on behalf of our members who hold longstanding vested rights recognized by Ventura County to conduct oil operations in the County. WSPA's members have a strong interest in ensuring that regulatory programs affecting oil and gas operations in the state are administered in a manner that takes into consideration the need for regulatory transparency, certainty and efficiency. Building on previous comments submitted, we hope that the comments and concerns expressed in this letter, and in any letters submitted directly to you by our members, are addressed and incorporated as part of the development of the Regional Habitat Linkages project proposed by Planning staff.

As previously stated, our members operate in locations that are outside of urban development. Wildlife, including endangered and threatened species such as the California condor, has co-existed alongside oil field operations for many decades. As you are aware, our members work cooperatively with the natural resource agencies to ensure these species will continue to enjoy the ability to roam freely and thrive on these leases and beyond.

On behalf of our members, I want to again share our appreciation for the continuing efforts by County Staff to work collaboratively addressing many of the specific concerns brought forward both in previous WSPA comment letters (e.g., WSPA letters dated August 31, 2018 and January 30, 2019) and in direct ongoing engagement with our individual company members. Progress has been made to help make this proposed ordinance better able to achieve its stated objectives while addressing issues critical to our members' day to day operations.

However, several overarching and specific issues still remain unresolved which WSPA continues to share our members' profound concerns with. In our view, as previously stated these issues continue to call into question the legal legitimacy of the ordinance based on the following:

- Inadequacy of the County's environmental review of this proposed ordinance;
- Inappropriateness/lack of compelling justification for the County's need to consider this ordinance ahead of and outside of the currently underway VC2040 General Plan updating process; and, most significantly
- Interpretation of the legal basis for the environmental review exemptions and reasoning the County is citing as justification for not addressing these concerns which are shared not only by WSPA and our members, but also by many other stakeholders falling under the regulations proposed in this ordinance.

CEQA Compliance:

Contrary to County staff's assertion this proposed project is exempt from CEQA review, the California Public Resources Code requires the County to conduct a comprehensive CEQA review of this project. The County inappropriately relies on two categorical exemptions from the California Public Resources Code**, Section 21083 and section 21084**; however, Sections 21065 and 21001.1 set forth the necessity for **the County to conduct a comprehensive CEQA review of this project.**

First, WSPA believes that the draft ordinance qualifies as a "project" under the California Environmental Quality Act (CEQA) and thus, needs to comply with CEQA and its review process. Pursuant to **California Public Resources Code Section 21065,** "project" is defined as:

> "An activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment and which is any of the following: (a) An activity directly undertaken by any public agency. (b) An Activity undertaken by a person which is supported, in whole or in part, through contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies. (c) An activity that involves the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies."

The draft ordinance should be considered a "project" under CEQA, as it is an activity being directly undertaken by a public agency (Ventura County) and its actions could have the potential, directly or ultimately, to result in a physical change to the environment. Therefore, at a minimum, an initial review of the project and its environmental effects should be conducted.

WSPA members' operations involving minerals clearly fall under the category of "environment" as defined in California's Public Resources Code **Section 21060.5** and should be fully considered as such with regard to the proposed ordinance. Section 21060.5 specifically defines "environment" as:

> "Environment" means the physical conditions that exist within the area which will be affected by a proposed project, Including land, air, water, minerals, flora, fauna, noise, or objects of historic or aesthetic significance."

Here, the actions related to this ordinance have the potential to result in a physical change to the environment. In short, the ordinance would create two overlay zones in the **Non-Coastal Zoning Ordinance (NCZO).** If passed, the ordinance would include changes to outdoor night-time lighting, buffers around surface water features, and buffers around wildlife crossing structures, in addition to other changes. Given these developments, there is potential for significant impacts on the environment for which the County is obligated

to analyze pursuant to CEQA. These potential impacts include issues related to aesthetics, public services, utilities, noise, population and housing, mineral resources, and cumulative impacts, all of which are factors that must be analyzed under CEQA. (*See* CEQA Guidelines, Appendix G.)

Second, WSPA believes the County's reliance on exemptions from CEQA analysis of the proposed ordinance is inappropriate and because it is a public agency project, must undergo the appropriate environmental review. California's Public Resources Code Section 21001.1 specifically states:

> "The Legislature further finds and declares that it is the policy of the state that projects to be carried out by public agencies be subject to the same level of review and consideration under this division as that of private projects required to be approved by public agencies."

Additionally, the County may also be obligated to analyze the impacts that result from the revision of the **NCZO** through this draft ordinance, as well.

Finally, while the draft ordinance does set forth the requirement of conducting a **"least damaging alternative analysis,"** this does not minimize the need for a CEQA analysis for the reasons described above.

Proposed Least Damaging Alternative Analysis:

The proposed ordinance states that any planned development permit shall include an approved **"Least Damaging Alternative Analysis". (Section 8109-4.9.7.)** While this analysis would assist in identifying project design alternatives that minimize impacts on biological resources, there is too much emphasis placed at the discretion of the county's biologist regarding this determination. The ordinance serves to self-appoint the county biologist, as sole discretionary approval, without allowance for applicant input/interaction and the ability to challenge the decision. Additionally, while a **Least Damaging Alternative Analysis** would be similar to part of what is required under CEQA, (*i.e.*, a project alternative analysis), it is only subject to the county's biologist opinion which is inappropriate and furthermore does not meet the requirements set forth by California Public Records Code. In short, CEQA review should be conducted for this proposed ordinance and as such, CEQA would preempt this **Least Damaging Alternative Analysis.**

Compliance with ESA and CESA:

Take of endangered fish or wildlife is prohibited by **Section 9 of the Endangered Species Act (ESA) (50 CFR § 17.21).** "**Take**" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" **(16 USC § 1532)**. **"Harass"** is further defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns" **(16 USC § 1532; 50 CFR § 17.3)**. "**Take"** of threatened and endangered species is also prohibited under the **California Endangered Species Act (CESA) (Fish and Game Code § 2080). "Take"** is defined as to "hunt, pursue, catch, capture, or kill" or any attempt to do so **(Fish and Game Code § 86).**

No information has been disclosed by Ventura County to indicate that the proposed ordinance has been adequately evaluated to determine if **"take"** or **"harassment"** of listed wildlife could occur as a result of the proposed project. Specifically, the proposed ordinance has the potential to bring wildlife in closer proximity

to homes, businesses, highways, and other features which could result in injury, death, or exposure of wildlife to pesticides, herbicides, rodenticides or other potentially harmful materials.

WSPA suggests that County Planning consult with both the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife (CDFW) to ensure that potential impacts to wildlife, including the potential for take, have been adequately assessed.

Ordinance-Specific Concerns:

What follows below are recommendations also submitted by our members on additional specific issues which WSPA wishes to reinforce in this comment letter:

Proposed corridor boundary and requirement concerns:

Throughout the entire process, WSPA has agreed with our members and other stakeholders in voicing concerns about the lack of up-to-date, field-verified data used to establish the proposed corridor boundaries and the methodology used to create the corridor map layer.

It is our understanding the County is relying primarily on the South Coast Missing Linkages Reports (Report) as the baseline for the overlay map for the proposed ordinance and the boundary lines developed by the Report were created through a pre-2005 landscape permeability analysis, a GIS modeling effort, but still have not been subjected to a thorough field verification effort or even a land use evaluation using up-to-date aerial photography.

It is our further understanding the original GIS modeling effort was based in part upon data and mapping that was known even at the time to be incomplete and inaccurate. Hence, WSPA shares the view this is troubling because current land use, development, changes to the landscape, and other potential impediments over the last 15+ years to the proposed corridor area have not been evaluated or considered in developing the draft ordinance and the maps do not represent the current, real time state of the habitats that are intended to be the focus of this very proposed ordinance.

To identify "Surface Water Feature" buffers (feature) within the proposed overlay maps, it is also our understanding the County relied exclusively on the National Wetlands Inventory maps. We are concerned these maps contain many known data issues – even to the extent of misidentifying swimming pools (Thatcher School), horse riding arenas (Soule Road, Ojai), mulch piles (Soule Road, Ojai) and concrete foundations (throughout map) as "surface waters". While the new draft does outline a process for appealing the County's mislabeling and misidentification of features, WSPA agrees that process is both costly and time consuming, and with the exception of the "first hour of staff time", all costs must be fully borne by the land owner.

At the January 31, 2019 Planning Commission hearing, the Planning Commission expressed concern about the costs to landowners to correct misidentified water features, opining that correcting agency errors should not create a hardship for the public. We acknowledge the current draft ordinance makes an attempt to address the Planning Commission's concern by making the first hour of Planning Staff time available to landowners at no cost. However, the costs of obtaining the required biological assessment report, all subsequent Planning Staff time, and any other studies or data that the Planning Staff may demand (hydrology studies, historical land use studies, geological surveys, additional biological surveys, etc.) will be assessed exclusively on the landowner. These costs are substantial and can quickly add up into the tens of thousands of dollars. WSPA

does not believe that the intent of the concern expressed by the Planning Commission has been addressed adequately in the proposed ordinance.

WSPA also shares the concern that several of the requirements outlined in the proposed ordinance are lacking in supporting data, biological analysis and studies. For example, the requirement to install 24-inch wide vertical gaps every 50-feet in a fence line in order to meet the "non-wildlife impervious fencing" definition appears arbitrary. Our member reviewed the South Coast Missing Linkages reports and was unable to find any data or references to any studies that have attempted to quantify appropriate gap size and spacing. WSPA sides with our member in asking if the County conducted studies or obtained data from outside studies and surveys that indicate that 24-inch gaps are appropriate? Additionally, is every 50-feet sufficient and are there studies that support gaps of other sizes and spacing? And, most importantly, do gaps of similar size and spacing in fencing create security hazards for landowners?

Recommendations: WSPA supports the recommendation of our members and other stakeholders that the County re-evaluate the corridor boundaries using current land use and site information. Furthermore, the criteria and supporting data (such as, but not limited to tracking and population studies, biologist field notes, data modeling analysis, and contemporary aerial photographs) used to establish the proposed corridor boundaries should be shared in a public forum to promote better land owner understanding and application of the requirements of the proposed ordinance.

To ensure that the proposed ordinance requirements (such as fencing gap size and spacing, and maximum lighting limits) are truly effective and supported by existing science, WSPA also requests that the County disclose to the public the criteria and supporting data (as referenced in the paragraph above) used to establish such requirements. In particular, WSPA also requests that the County disclose any discussions and recommendations made by law enforcement in regards to both lighting restrictions and fencing gap spacing and frequency requirements so that potential safety and security impacts to private property can be fully evaluated.

With regards to water features, WSPA also recommends that the County utilize their own existing "Red line Channel" maps as the basis for identifying these features. We concur this would alleviate the burden on many landowners to correct the multitude of errors in the National Wetlands Inventory map.

Outdoor lighting concerns:

It is our understanding Section 8109-4.8.2.4(b)(5)(ii) contains an error. The ordinance states "if *security lighting* is installed within **200 feet** of a *surface water feature*, it shall be programmed to turn off no more than five minutes after activation". However, we see the proposed ordinance has set the buffers at 100'.

Section 8109-4.8.2.4(b)(11) states that lighting used for oil and gas production may deviate from the standards required in the new draft ordinance, as long as a "lighting plan" is approved by the County "during the discretionary permitting process for the subject facility or operation." We share the concern the draft ordinance does not clarify how existing, on-going oil and gas operations operating under pre-existing discretionary permitting will comply with this Section.

Recommendation: WSPA also requests that Section 8109-4.8.2.4(b)(5)(ii) be corrected to reflect the 100' feature buffers.

Additionally, WSPA recommends that the language regarding "lighting plans" for Oil and Gas operations be clarified to ensure that existing Oil and Gas operations operating under an pre-existing discretionary permit be exempted from this requirement.

Wildlife Crossing Structures:

Section 8109-4.8.3 outlines the requirements of areas located within the 200' buffer of "wildlife crossing structures" (structures). Some of these structures are drainage culverts that are used to convey stormwater and prevent flooding on private property. While agency-owned and -maintained culverts may be exempt from the requirements of the draft ordinance, we share the concern the ordinance does not clearly specify any exemptions to maintain, repair and operate drainage culverts on private land. A drain culvert that cannot be cleared of vegetation, debris and sediment and that cannot be repaired as necessary without extensive discretionary permitting will cause flooding and damage to upstream areas.

Recommendation: WSPA joins our members and stakeholders in recommending that the draft ordinance be amended to include exemptions to allow landowners to conduct necessary maintenance and repairs to drainage culverts, to ensure that these culverts operate as designed and as intended and prevent upstream flooding and damage to property, roads, and other structures.

In closing, given the critical nature of the overarching concerns stated above, the specific supporting comments and citations which accompany them and the additional problematic items immediately following, ***WSPA continues to request that the County immediately delay further public hearings on this proposed ordinance until such time these and the many other stakeholder concerns received by the County can be addressed adequately and appropriately, in terms of process, disclosure and legally complying with CEQA, CSEA and ESA statutes and procedures.***

We appreciate the opportunity to provide these comments on behalf of our members for your consideration of this draft ordinance and we look forward to continuing to work together with County Staff to address our concerns. Should you or your staff have any questions, please do not hesitate to contact me directly at (805) 833-9760 or via email at bpoole@wspa.org.

Respectfully,

Robert W. Poole

Batinica, Meighan

From: Pamela Prince <Pamela.Prince.98332645@p2a.co>
Sent: Friday, March 08, 2019 12:14 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Pamela Prince
2728 E Ojai Ave
Ojai, CA 93023

Batinica, Meighan

From: CAROLE RAINES <CAROLE.RAINES.150242204@p2a.co>
Sent: Friday, March 08, 2019 7:55 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

CAROLE RAINES
5278 Aurora Drive
Ventura, CA 93003

Batinica, Meighan

From: Sarah Raskin <Sarah.Raskin.150247461@p2a.co>
Sent: Friday, March 08, 2019 8:27 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Sarah Raskin
617 Country Dr
Ojai, CA 93023

Batinica, Meighan

From: Tracey Rch <Tracey.Rch.149995661@p2a.co>
Sent: Friday, March 08, 2019 7:30 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Tracey Rch
2500 San Marcos Pass Rd
Santa Barbara, CA 93105

Batinica, Meighan

From: Linda Ronske <Linda.Ronske.150170033@p2a.co>
Sent: Friday, March 08, 2019 4:11 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Linda Ronske
147 Greenmeadow Dr
Thousand Oaks, CA 91320

Batinica, Meighan

From: Debbie Rudell <ddrudell@gmail.com>
Sent: Friday, March 08, 2019 10:52 AM
To: Wildlife Corridors
Subject: Wildlife Corridors

I am a frequent hiker in the County open spaces.
I support wildlife corridors as necessary for human and wildlife preservation.
Debbie Rudell
262 Mesa Dr
Camarillo, CA 93010

--

Batinica, Meighan

From: Shapiro, Kerry <KS4@JMBM.com>
Sent: Friday, March 08, 2019 8:01 PM
To: Wildlife Corridors; Bennett, Steve; Long, Kelly; Zaragoza, John; Parks, Linda; Supervisor Huber; CountyExecutiveOfficer; Sussman, Shelley
Subject: Habitat Connectivity and Wildlife Corridor Project (Project PL16-0127)--Comments of CalCIMA
Attachments: Cal-CIMA 3.8.19 Comment Letter re Habitat Connectivity and Wildlife Corridor Project.PDF; Ex. A to Cal-CIMA 3.8.19 Comment Letter re Habitat Connectivity and Wildlife Corridor Project.PDF

Dear Honorable Members of the Board of Supervisors,

Attached are the written comments of the California Construction and Industrial Materials Association (CalCIMA) regarding the Ventura County Habitat Connectivity and Wildlife Corridor Project (Project PL16-0127), which is scheduled for public hearing before the Board of Supervisors on **Tuesday, March 12, 2019**. Thank you.

--Kerry Shapiro

Kerry Shapiro | Partner
Jeffer Mangels Butler & Mitchell LLP | JMBM
Two Embarcadero Center, 5th Floor, San Francisco, CA 94111
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Ref: 72889-0007

March 8, 2019

BY EMAIL

Supervisor Steve Bennett
Ventura County Board
800 S. Victoria Ave., L-1900
Ventura, California 93009
steve.bennett@ventura.org

Supervisor Linda Parks
Ventura County Board
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Thousand Oaks, California 91360
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Supervisor Kelly Long
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kelly.long@ventura.org

Supervisor Bob Huber
Ventura County Board
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Simi Valley, California 93065
supervisor.huber@ventura.org

Supervisor John C. Zaragoza
Ventura County Board
800 S. Victoria Ave., L-1860
Ventura, California 93009
john.zaragoza@ventura.org

Rosa Gonzalez
Chief Deputy Clerk of the Board
800 S. Victoria Ave.
Ventura, California 93009
CountyExecutiveOfficer@ventura.org

Re: Opposition to Habitat Connectivity and Wildlife Corridor Project

Dear Honorable Members of the Board:

As attorneys for and on behalf of the California Construction and Industrial Materials Association ("CalCIMA"), we hereby submit the following comments for project "PL16-0127", through which the County of Ventura ("County") proposes to amend its General Plan and Non-Coastal Zoning Ordinance to establish (i) a Habitat Connectivity and Wildlife Corridors Overlay Zone, and (ii) a Critical Wildlife Passage Areas Overlay Zone ("Project"). Please place a copy of this letter in the administrative record for the Project.

CalCIMA is a trade association for the construction and industrial materials industries in California, which include aggregate, industrial minerals, and ready mixed concrete producers. These producers provide people and businesses with cement, concrete, and other materials used to build and repair California's homes, schools, roads, airports, bridges and other public infrastructure. CalCIMA serves its members and the public by providing information on aggregates, industrial minerals, and ready mixed concrete; supplying safety, technical, and compliance training; and addressing legislative, regulatory, and judicial matters that affect the

building materials industry. CalCIMA has members who operate mines in the County and hold title to valuable mining properties and rights in the County.

The County's apparent willingness to disregard the Project's potential impacts to thousands of acres of mineral resources that have been classified and designated by the state in accordance with the Surface Mining and Reclamation Act ("SMARA") is of serious concern to CalCIMA. Perhaps most concerning is the County's assertion that the Project is exempt from environmental review in accordance with the California Environmental Quality Act ("CEQA"). The County's approval of the Project based on an exemption would undermine decades of important state policy presently implemented through SMARA and CEQA. Accordingly, CalCIMA is committed to challenging the County's proposed action. As discussed below, there is no reasonable basis for the Project to be excluded from the County's comprehensive General Plan update.

I. SUMMARY OF CALCIMA'S JANUARY 2019 LETTER

CalCIMA previously submitted a 31-page letter to the Planning Commission, dated January 28, 2019, with supporting exhibits. A copy of that letter is attached as Exhibit A.[1] As discussed therein, CalCIMA is concerned the Project could affect (i) the future development of mineral resources, and (ii) the operation and expansion of existing mining operations in the following ways:

- generally speaking, the Project, which would implement habitat corridor overlay zones intended to prevent surface disturbances and the development of land included therein, could serve as a de facto ban on surface mining activities, which require land disturbances and the removal of native vegetation;

- the Project could impair, delay, or even preclude the operation and expansion of existing and future surface mining operations, which could also unreasonably increase the costs of such activities;

- the Project's buffer areas that would preclude land disturbance adjacent to and within "surface water features," such as streams and rivers, could impede the use of water from these sources in surface mining operations, and could also preclude river and in-stream mining;

- the Project's lighting restrictions could impede nighttime operations, which often occur to reduce daytime transportation impacts;

[1] The exhibits to the CalCIMA January 28, 2019 letter are not attached here, but are attached to the Board of Supervisors Staff Report as "SR Exhibit D."

- the Project's restrictions on the removal of native vegetation could serve as a barrier to surface mining, which requires the removal of such vegetation;

- the Project's inclusion of thousands of acres of mineral resources that have been classified and designated by the state could impede the County's ability to develop local sources of mineral resources for future use in local and regional projects.

In the January 2019 letter, CalCIMA also raised the following substantive and procedural deficiencies regarding the County's processing of the Project and the lack of CEQA review:

- the County's approval of the Project would violate and be inconsistent with SMARA, including sections 2762(d)(1) and 2763, which require lead agencies to consult with the California Geological Survey prior to legislative zoning actions that would affect mineral resources that have been classified or designated by the state;

- the County's approval of the Project would violate the Government Code, including section 65860, which requires zoning ordinances to be consistent with applicable provisions of a lead agency's general plan;

- the County's approval of the Project would violate CEQA because the evidence shows the Project will have significant and cumulatively significant environmental impacts to mineral resources and other protected resource categories such as transportation, air quality and greenhouse gas emissions, land use, and wildfires;

- the County's assertion that the Project is exempt from CEQA is arbitrary and capricious and lacks evidentiary support, and, even if it were exempt, would be subject to multiple exceptions, including the unusual circumstances exception.

II. THE COUNTY HAS NOT ADDRESSED THE MAJORITY OF CALCIMA'S COMMENTS

CalCIMA has reviewed the revised version of the Project Ordinance attached to the Board of Supervisors Staff Report and it seems that the County has ignored the majority of CalCIMA's concerns discussed above. Although CalCIMA understands that (i) surface mining operations have been proposed by planning staff for exemption from certain lighting restrictions and lighting standards, on a "temporary or intermittent" basis, and (ii) the 200-foot surface water feature buffer area has been proposed for reduction to 100 feet, the County has largely ignored the majority of the issues previously raised by CalCIMA.

Accordingly, CalCIMA again requests that the County either (i) revise the Project to avoid any overlap onto and impacts to mineral resources previously identified by the state or County, and all mining properties; or (ii) complete the following actions prior to approval of the Project:

- exclude existing and future surface mining activities, in entirety, from the surface water feature land disturbance buffer areas;
- exclude existing and future surface mining activities, in entirety, from the restrictions regarding the removal of native vegetation;
- exclude existing and future surface mining activities, in entirety, from lighting restrictions, and not just on a limited "temporary or intermittent" basis;
- analyze the Project as a component of the County's ongoing General Plan update, which will include the preparation of an environmental impact report ("EIR");
- consult with the California Geological Survey during the General Plan update CEQA process regarding the Project's potential impacts to classified and designated mineral resources.

CalCIMA notes that its comments have been omitted from the summary of issues presented to the Planning Commission in conjunction with the January 31, 2019 public hearing, as discussed on pages 5-6 of the Board of Supervisors Staff Report. CalCIMA also notes the County has not provided any written analysis of the Project's potential impacts to mineral resources, or the Project's inclusion of thousands of acres of classified and designated mineral resources. Accordingly, the County has failed to rectify many of the substantive and procedural deficiencies previously discussed in CalCIMA's January 2019 letter, which therefore continue to preclude the County from lawfully approving the Project, as further discussed below.

III. THE COUNTY MUST CONSIDER THE PROJECT'S IMPACTS TO MINERAL RESOURCES

The County has finally acknowledged that the purpose of the Project is to "discourage" the development of land located within the wildlife corridors, a fact known to CalCIMA since it first heard of the Project:

> Here, to the extent the project affects the environment, the effect is expected to be beneficial since **the proposed project is intended to** protect biological resources by **discouraging** and requiring

additional environmental review regarding certain **development** that could impair wildlife movement.[2]

As discussed below, the County's approval of the Project would do more than merely "discourage" the development of mineral resources and would instead constitute a de facto ban. Such an action would violate SMARA, CEQA, and the Government Code, and would also be inconsistent with the portions of the County's General Plan and Resources Appendix adopted for the purpose of safeguarding future access to mineral resources.

The County's General Plan discusses the significant mineral resource areas located in the County. These areas were identified by the State Division of Mines and Geology (renamed the California Geological Survey in 2006) in accordance with SMARA. "The County's primary mechanism for carrying out SMARA's objective of safeguarding access to mineral resources is the designation of appropriate areas as a Mineral Resource Area on the Resource Protection Maps."[3] The Resource Protection Maps are depicted on pages 29-30 of the General Plan.

In order to protect these mineral resource areas, the County has included in the General Plan "Goals, Policies and Programs" for mineral resources.[4] The County's Resources Appendix also includes land use policies and procedures to safeguard future access to these Mineral Resource Areas.[5]

The Resources Appendix also includes a summary of the efforts undertaken by the Division of Mines and Geology that led to the classification of "MRZ-2" areas throughout the County.[6] MRZ-2 areas are areas of land in which known economic mineral deposits are located.[7] The Resources Appendix also summarizes the subsequent designation of 10 sectors of those MRZ-2 areas as "regionally significant" Mineral Resource Areas by the State Mining and Geology Board (Sectors A-J).[8] The State Mining and Geology Board prepared an EIR in conjunction with its designation of these 10 sectors.

The County subsequently used the data and information prepared by the state during the classification and designation processes as the basis for an important analysis in the Resources Appendix. There, the County concluded "that there is relatively little land within the County which is known to have significant deposits of construction grade aggregate" (those classified as MRZ-2)", adding that, "MRZ-2 areas have been 'designated' by the State as areas

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[2] Board Staff Report, p. 15.
[3] General Plan Goals, Policies, and Programs, p. 16, § 1.4 [Mineral Resources].
[4] General Plan Goals, Policies, and Programs, pp. 16-17, §§ 1.4.1, 1.4.2, 1.4.3.
[5] General Plan Resources Appendix, § 1.4, pp. 25-38 [Mineral Resources].
[6] General Plan Resources Appendix, § 1.4, p. 25; CalCIMA January 2019 letter, **Exhibit 1**.
[7] CalCIMA January 2019 letter, **Exhibit 2**.
[8] General Plan Resources Appendix, § 1.4, p. 25; CalCIMA January 2019 letter, **Exhibits 3**, **4**.

that should be subject to special management regulations through the General Plan of local jurisdictions."[9]

As detailed in the memorandum from ECORP Consulting, Inc. ("ECORP") attached as **Exhibit 5** to the CalCIMA January 2019 letter, the Project would include thousands of acres of mineral resources that the state has previously (1) classified as MRZ-2 areas; and (2) designated as regionally significant mineral resource sectors. Additionally, the Project will include multiple mining properties.

As explained in the General Plan, "most of the [sand and gravel] extraction sites are located in and along the Santa Clara River bed."[10] Figure 1.4.1 of the Resources Appendix depicts the County's aggregate resources, including its state-designated areas located in and along the Santa Clara River bed.[11] The proposed Santa Madre-Santa Monica corridor, one of the two corridors proposed for implementation through the Project, would be located *directly on top of* multiple Mineral Resource Areas, as depicted on the Resource Protection Maps.[12] Thus, the Project would implement an overlay zone intended to prevent the disturbance of wildlife habitat, directly on top of areas already designated by the state and acknowledged by the County as having significant and valuable aggregate resources.

But mineral resources are of no value if they cannot be extracted, and those minerals will not extracted if such development is "discouraged".[13] Furthermore, the conservation of wildlife habitat and corridors is inherently incompatible with the development of mineral resources, which requires surface disturbances prior to the extraction of mineral resources located thereunder. Accordingly, the Project would be in direct conflict with the Mineral Resource overlay zones and the County's Goals, Policies and Programs for mineral resources, the purpose of which is to (1) identify critical mineral resources necessary for future development, and (2) safeguard future access to those resources.

The mineral resources located in the County are protected under SMARA, CEQA, and the provisions of the County's General Plan and Resources Appendix. Because the extraction of mineral resources requires surface disturbance, the implications of the County's approval of the Project are significant. Any mine operator seeking permission to extract the valuable sand and gravel from the Mineral Resource Areas located within a wildlife corridor would be met with stark opposition from the public, the effect of which would likely stop a project. That's why the County must carefully consider the Project's impacts to these designated and protected mineral resources prior to approval. Without engaging in a CEQA process, the

[9] General Plan Resources Appendix, p. 29.
[10] General Plan Goals, Policies, and Programs, p. 16, § 1.4
[11] General Plan Resources Appendix, p. 44.
[12] General Plan Goals, Policies, and Programs, p. 30.
[13] Board Staff Report, p. 15.

County has not provided any analysis regarding how the Project could potentially impact mineral resources.

The County should either (1) revise the Project to avoid any overlap onto and impacts to mineral resources previously identified by the state or County, and all mining properties; or (2) refrain from considering the Project at this time, and, instead, analyze the Project's environmental impacts in an EIR, as other agencies have analyzed other similar habitat conservation projects.

IV. COMMENTS

A. The Board's Approval of the Project would Violate SMARA

If a local agency proposes to approve a project that would include mineral resources that have been classified or designated by the state, the agency *must* prepare an environmental document in accordance with CEQA and a statement of reasons for the project, both of which must be forwarded to the State Geologist for review.[14] These are not optional requirements, and the County has not yet complied with these requirements. Accordingly, the County's approval of the Project would violate SMARA. Notably, the County CEQA Guidelines also require consultation with the Division of Mines and Geology under the circumstances presented by the Project.[15]

CalCIMA encourages the Board of Supervisors to carefully consider the legislative findings and declarations of SMARA, many of which have been incorporated into the County General Plan and Resources Appendix.[16]

B. The Board's Approval of the Project would Violate CEQA

One of CEQA's fundamental purposes is to inform government decision-makers and the public about the potential significant environmental effects of proposed projects and to disclose to the public the reasons for approval of a project that may have significant environmental effects.[17]

Similarly, the purpose of the County CEQA Guidelines is "to inform the public [and] County staff of the threshold criteria and standard methodology used in determining whether or not a project (individually or cumulatively with other projects) could have a significant effect on the environment. Furthermore, these Guidelines provide instructions for

[14] Pub. Res. Code §§ 2762(d)(1), 2763.
[15] County CEQA Guidelines, p. 22, § E.
[16] Pub. Res. Code § 2711; General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources]; General Plan Resources Appendix, § 1.4, pp. 25-38 [Mineral Resources]; *see also* County CEQA Guidelines, pp. 21-22, § 3a.
[17] 14 CCR §§ 15002(a)(1), 15002(a)(4) ("CEQA Guidelines").

completing the Initial Study and determining the type of environmental document for individual projects."[18]

The County has already acknowledged that the Project is subject to CEQA.[19] Further, as the County explains in its "CEQA Public Information Brochure", the "environment" that "will be affected by a proposed project" includes "minerals".[20] Thus, the County must analyze the Project's impacts on mineral resources. To assist with this evaluation, the state has promulgated CEQA Guidelines that include thresholds of significance drafted with specific regard to mineral resources, which ask whether a project would:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Result in the loss of availability of a locally-important mineral resources recovery site delineated on a local general plan, specific plan, or other land use plan?[21]

The County also has CEQA Guidelines that include thresholds of significance for use in analyzing a project's impacts to mineral resources, which provide as follows:

1. Any land use or project activity which is proposed to be located on or immediately adjacent to land zoned Mineral Resources Protection (MRP) overlay zone, or adjacent to a principal access road to an existing aggregate Conditional Use Permit (CUP), and which has the potential to hamper or preclude extraction of or access to the aggregate resources, shall be considered to have a significant adverse impact on the environment.

2. A project would have a cumulative impact on aggregate resources if when considered with other pending and recently approved projects in the area, hampers or precludes extraction or access to identified resources.[22]

As explained in great detail in the CalCIMA January 2019 letter, the answer to items a) and b), above, is "yes." CalCIMA also explained why the Project falls within the criteria listed in items 1. and 2., above. Accordingly, the County must prepare some type of

[18] County CEQA Guidelines [Forward].
[19] Planning Commission Staff Report, p. 32, § B., ¶ 1 ["Accordingly, the proposed GP and NCZO amendments are considered a CEQA 'project'."]
[20] County "CEQA Public Information Brochure" (https://docs.vcrma.org/images/pdf/planning/brochures/ceqa_3-08.pdf).
[21] CEQA Guidelines, App. G, § XII(a)-(b) [Mineral Resources].
[22] County CEQA Guidelines, p. 21, § D(1)-(2) [Threshold of Significance Criteria] (emphasis added).

CEQA document to quantify, analyze, and potentially mitigate the Project's impacts to mineral resources.

Importantly, item 1. of the County CEQA Guidelines, above, *presumes* that a project "*shall* be considered to have a *significant adverse impact* on the environment" (*i.e.*, mineral resources) if the project "is proposed to be located on or immediately adjacent to land zoned Mineral Resources Protection (MRP) overlay zone". Here, the Project is proposed for location *directly on top of* the County's Mineral Resources Protection overlay zone and would include thousands of acres of state-classified MRZ-2 areas, much of which is designated as having regional significance.

In an apparent effort to avoid the preparation of even an initial study, the results of which would highlight the obvious need for the County to prepare some type of a CEQA document, the County asserts the Project is appropriate for approval based on an exemption because "the effect is expected to be beneficial".[23] But the Project's potential benefits to wildlife does not allow the County to ignore the Project's potential impacts to mineral resources, which, like wildlife, is also a resource protected by CEQA.

If the County intends to override the Project's impacts to mineral resources, it can do so, but it must prepare and adopt the necessary documents and findings in accordance with CEQA, and also inform the California Geological Survey in accordance with SMARA, as discussed above.

1. The County's Analysis of CEQA Exemptions is not Supported by Substantial Evidence

The County's assertion that the Project is exempt from CEQA is not supported by substantial evidence.[24]

First, the "common sense" exemption requires a lead agency to conclude "with certainty that there is no possibility that the activity in question may have a significant effect on the environment".[25] "[W]hether a particular activity qualifies for the common sense exemption presents an issue of fact, that the agency invoking the exemption has the burden of demonstrative it applies."[26] "[T]he agency's exemption determination must be supported by evidence in the

[23] Board Staff Report, p. 15 [Environmental Review]; Planning Commission Staff Report, p. 33, ¶ 2.
[24] Board Staff Report, pp. 15-16 [Environmental Review].
[25] CEQA Guidelines § 15061(b)(3).
[26] *Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 386 ("*Muzzy Ranch*").

record demonstrating that the agency considered possible environmental impacts in reaching its decision."[27] The agency's determination must be supported by "substantial evidence".[28]

"An agency's obligation to produce substantial evidence supporting its exemption decision is all the more important where the records shows, as it does here, that opponents of the project have raised arguments regarding possible significant environmental impacts."[29] "An agency obviously cannot declare 'with certainty that there is no possibility that the activity in question may have a significant effect on the environment' if it has not considered the facts of the matter."[30]

As discussed above, and in CalCIMA's January 2019 letter, the "environment" that "will be affected by a proposed project" includes "minerals".[31] However, the County has not responded to the concerns raised in CalCIMA's January 2019 letter regarding how the Project may affect the environment, including mineral resources. Nor has the County discussed mineral resources, at all, in either the Planning Commission Staff Report, or the Board of Supervisors Staff Report. Similarly, the County has not discussed how or why the Project—which is intended to "discourage" development in the wildlife corridors[32]–could be consistent with applicable provisions of the General Plan. Thus, based on the evidence in the record, it appears the County has chosen to simply ignore CalCIMA and its concerns regarding mineral impacts.

Furthermore, the County's conclusion that, "no substantial evidence exists establishing that the project would have a significant effect on the environment" lacks any related analysis and therefore, fails to respond to the extensive discussion in CalCIMA's January 2019 letter and the supporting evidence attached thereto. As CalCIMA discussed therein, when it comes to the transportation of mineral resources, "distance matters." Thus, the County's imposition of a wildlife corridor on thousands of acres of designated mineral resources for the purpose of "discouraging" the extraction of those resources could require the importation of such resources from other jurisdictions. This, in turn, would cause increased emissions of greenhouse gas emissions and criteria pollutants, among other things, such as truck trips. The potential for this cumulatively significant sequence of events is well-researched and even discussed in the County's Resources Appendix.[33]

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[27] *Davidon Homes v. City of San Jose* (1997) 54 Cal.App.4th 106, 117 ("*Davidon*").
[28] *CREED-21 v. City of San Diego* (2015) 234 Cal.App.4th 488, 511.
[29] *Davidon* at 117.
[30] *Muzzy Ranch* at 387 (internal citation omitted).
[31] CEQA Guidelines Appendix G; County "CEQA Public Information Brochure" (https://docs.vcrma.org/images/pdf/planning/brochures/ceqa_3-08.pdf).
[32] Board Staff Report, p. 15.
[33] *See, e.g.*, General Plan Resources Appendix, p. 31 ["Transporting the material raises costs. It also contributes to traffic impacts, particularly if surface streets must be used. Energy consumption rises and with it air pollution"].

Second, the County's proposed invocation of the exemptions for Actions by Regulatory Agencies at CEQA Guidelines §§ 15307 and 15308 also lacks substantial evidence.[34] The County bases its invocation of these two exemptions on its conclusion that the Project "is intended to benefit the environment".[35] However, as CalCIMA explained in its January 2019 letter, a project that benefits the environment may nevertheless have a significant environment impact that requires the preparation of an EIR.[36]

Assuming for the sake of argument that the County had supported with substantial evidence its assertion that the Project is exempt from CEQA, the unusual circumstances exception would nevertheless preclude the application of an exemption. As discussed in CalCIMA's January 2019 letter, the Project's inclusion of thousands of acres of mineral resources that have been classified and designated by the state presents unusual circumstances that requires CEQA review and careful consideration by the County. The County cannot just ignore the extensive investigation and proceedings undertaken by the state in the 1980s for the purpose of classifying and designating the mineral resources located in the County, for the purpose of safeguarding future access to those resources.

Again, if the County wants to approve the Project and override the Project's impacts to mineral resources, it can do so, but it must prepare and adopt the necessary documents and findings in accordance with CEQA, and also inform the California Geological Survey in accordance with SMARA.

C. <u>The Approval of the Project would Violate the Government Code</u>

As explained in the General Plan, a zoning ordinance "shall be consistent" with the general plan, including the applicable objectives and policies.[37] The General Plan Goals, Policies and Programs for mineral resources states that:

- All *General Plan amendments, zone changes, and discretionary developments shall be evaluated for their individual and cumulative impacts* on access to and extraction of recognized mineral resources, in compliance with the California Environmental Quality Act."

- "*Discretionary* development within a Mineral Resource Area (see Resource Protection Map) shall be subject to the provisions of the Mineral Resource

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[34] Board Staff Report, pp. 15-16.
[35] Board Staff Report, p. 15.
[36] *Wildlife Alive v. Chickering* (1976) 17 Cal.3d 190; *Dunn-Edwards Corp. v. Bay Area Air Quality Management Dist.* (1992) 9 Cal.App.4th 644; *California Unions for Reliable Energy v. Mojave Desert Air Quality Management Dist*. (2009) 178 Cal.App.4th 1225.
[37] General Plan Goals, Policies, and Programs, p. 3 [Determining Consistency with General Plan] (citing Gov. Code § 65860).

Protection (MRP) Overlay Zone, and is *prohibited* if the use will significantly hamper or preclude access to or the extraction of mineral resources."[38]

The Project is a "discretionary development within a Mineral Resource Area". The Project also requires a general plan amendment and zone change.[39] Thus, the Project falls squarely within the General Plan Goals, Policies and Programs for mineral resources listed above, which states that such projects "*shall be evaluated for their individual and cumulative impacts* on access to and extraction of recognized mineral resources, in compliance with the California Environmental Quality Act."

The County has expended substantial time and effort to ensure that mineral resources are appropriately considered and protected during future legislative actions and project approvals. The County's efforts include: (1) the adoption of Goals, Policies and Programs for mineral resources in the General Plan; (2) the adoption of a section of its Resources Appendix for the specific purpose of safeguarding access to its mineral resources areas; (3) the implementation of Mineral Resources overlay zones and Mineral Resource Areas, as depicted on Resource Protection Maps; and (4) the adoption of County CEQA Guidelines specifically devoted to protecting mineral resources from incompatible land uses.

On what basis is the County choosing to ignore the consideration of these requirements? Has the County concluded the Project is somehow consistent with the Goals, Policies and Programs for mineral resources, as required by the Government Code? Has the County decided the Project's impacts to mineral resources do not matter?

There are no answers to these questions in the record because the County's discussion of the Project's consistency with the General Plan is limited to a one-sentence, perfunctory finding.[40]

D. The County is Improperly Piecemealing its Review of the Project

CalCIMA encourages the Members of the Board to step back and consider the Project not as the imposition of fencing or lighting restrictions, but rather as a sweeping legislative action to rezone hundreds of thousands of acres of land. A general plan amendment and zone change of this scope and magnitude should be considered in a general plan update, where it would be properly considered in the context of other significant legislative and zoning actions being contemplated by the County.

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[38] General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources].
[39] Planning Commission Staff Report, p. 32, § B., ¶ 1 ["Accordingly, the proposed GP and NCZO amendments are considered a CEQA 'project'."]
[40] Board Staff Report, p. 2.

Despite the fact that the County is presently processing an update of its General Plan,[41] which will include the preparation of an EIR, the County has proposed to separately approve this Project without any CEQA review. However, there is no reasonable basis to exclude the Project from the comprehensive General Plan update. This piecemeal type of review constitutes poor planning and violates CEQA. The County should analyze the Project as a component of its General Plan update, as it previously said it would.[42]

Furthermore, the Project, as proposed, is incomplete. As explained in the Board of Supervisors Staff Report and Draft Ordinance, the Project proposes to amend the (i) County General Plan and (ii) Non-Coastal Zoning Ordinance ("NCZO").[43] Noticeably absent from the Staff Report and Draft Ordinance, however, is a proposed amendment of the Coastal Zoning Ordinance ("CZO"). In fact, neither the Staff Report, nor the Draft Ordinance even mention the CZO.

The potential reason why the County avoided discussion of the CZO may be because the amendment of the CZO would require the subsequent approval of the California Coastal Commission ("Commission"). Thus, the coastal areas located in the CZO are not a part of the Project. However, the County has nevertheless included those areas in the Project-related maps being shared with the public—that is a misrepresentation of the Project's scope. The "whole of the action" should be concurrently analyzed and evaluated.

V. CONCLUSION

CEQA requires lead agencies to thoughtfully consider the impacts that a project may have upon the 20 categories of resources set forth within Appendix G of the CEQA Guidelines. If an agency determines, after careful consideration and analysis based on technical and scientific data, and the evaluation of project alternatives and potential mitigation measures that could reduce a project's impacts, that the approval of a project is warranted notwithstanding any significant impacts that will be caused by the project, the agency can decide to adopt a statement of overriding considerations.

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[41] January 14, 2019 Notice of Preparation of Draft EIR for Ventura County 2040 General Plan Update (https://vc2040.org/images/VC2040_Notice_of_Preparation.pdf).

[42] County Board of Supervisors January 24, 2017 Report, p. 2, § A, ¶ 1 [The [Project] will be determined through a process that includes technical reviews, preparation of text amendments, an extensive public outreach program involving a range of stakeholder groups, environmental review, and public hearings (emphasis added).] (http://bosagenda.countyofventura.org/sirepub/cache/2/enjsojmqyc2zav2ywggpp3pk/10206630118201909161582.PDF).

[43] Board of Supervisors Staff Report, p. 1 [Subject].

However, none of this has occurred here. If the County desires to approve the Project notwithstanding the related impacts to mineral resources, the County must do so in accordance with the rules of CEQA and cannot rely on an exemption.

Based on the foregoing, CalCIMA urges the County to consider how the Project may impact mineral resources, including impacts on the extraction of state-designated mineral resources located within the overall Project area, as CalCIMA initially requested in its January 28, 2019 letter. CalCIMA also requests that the County consult with the California Geological Survey and the State Mining and Geology Board, as required by SMARA and the County CEQA Guidelines.

Very truly yours,

KERRY SHAPIRO of
Jeffer Mangels Butler & Mitchell LLP

cc: California Geological Survey
State Mining and Geology Board
Gary W. Hambly, CalCIMA

EXHIBIT A

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January 28, 2019

BY EMAIL

Ventura County Planning Commission
Hall of Administration
Resource Management Agency/Planning Division
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Ventura, CA 93009-1740
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Re: Habitat Connectivity and Wildlife Corridor project

Dear Ms. Batinica:

As attorneys for and on behalf of the California Construction and Industrial Materials Association ("CalCIMA"), we hereby submit the following comments for project "PL16-0127", through which the County of Ventura ("County") proposes to amend its General Plan and Non-Coastal Zoning Ordinance to establish (i) a Habitat Connectivity and Wildlife Corridors Overlay Zone, and (ii) a Critical Wildlife Passage Areas Overlay Zone ("Project").

CalCIMA is a trade association for the construction and industrial material industries in California, which include aggregate, industrial minerals, and ready mixed concrete producers. These producers provide people and businesses with cement, concrete, and other materials used to build and repair California's homes, schools, roads, airports, bridges and other public infrastructure. CalCIMA serves its members and the public by providing information on aggregates, industrial minerals, and ready mixed concrete; supplying safety, technical, and compliance training; and addressing legislative, regulatory, and judicial matters that affect the building materials industry. CalCIMA has members who operate mines in the County and hold title to valuable mining properties and rights in the County.

As discussed below, the County's proposed approval of the Project absent any environmental review in accordance with the California Environmental Quality Act ("CEQA"), based on certain asserted CEQA exemptions, would constitute an abuse of discretion because:

- the "unusual circumstances" exception precludes the County's use of such CEQA exemptions;

- the evidence shows the Project will result in significant environmental impacts;
- the County's approval of the Project would violate the Surface Mining and Reclamation Act ("SMARA") and the Government Code;
- the County's conclusion regarding the "common sense" CEQA exemption lacks evidentiary support;
- the County improperly concludes that a project with an "expected environmental benefit" does not require environmental review; and
- the cumulative impacts exception precludes the County's use of a CEQA exemption.

Accordingly, the County should either (1) revise the Project to avoid any overlap onto and impacts to mineral resources previously identified by the state or County, and all mining properties; or (2) refrain from considering the Project at this time, and, instead, analyze the Project's environmental impacts in an environmental impact report ("EIR"). Please place a copy of this letter in the administrative record for the Project.

I. THE PROJECT MAY IMPACT THE COUNTY'S MINERAL RESOURCES

In 1981, multiple areas of the County were classified as MRZ-2 areas by the California Division of Mines and Geology,[1] renamed the California Geological Survey in 2006.[2] MRZ-2 areas are areas of land in which known economic mineral deposits are located.[3]

In 1982, 10 "sectors" of the County's MRZ-2 areas were designated as regionally significant mineral resource areas by the California State Mining and Geology Board (Sectors A-

[1] Special Report 145, Mineral Land Classification of Ventura County, Parts I-III (January 1981) (https://www.conservation.ca.gov/cgs/mineral-resources/mineral-land-classification-smara, ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR_145/SR_145_Text.pdf, ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR_145/) ("**Exhibit 1**").
[2] https://www.conservation.ca.gov/cgs/about/history.
[3] California Surface Mining and Reclamation Policies and Procedures, Guidelines for Classification and Designation of Mineral Lands (https://www.conservation.ca.gov/smgb/Guidelines/Documents/ClassDesig.pdf) ("**Exhibit 2**").

J), which led to the preparation of maps depicting the locations of these areas.[4] An EIR was certified in conjunction with the designation of these 10 sectors.[5]

The County's classified and designated mineral resources are protected under SMARA.[6] These resources are also protected by "Goals, Policies and Programs" for mineral resources in the County's General Plan[7] and the County's Resource Protection Map and Mineral Resources Protection Overlay Zones.[8]

As detailed in the attached memorandum from ECORP Consulting, Inc. ("ECORP"), the Project would include vast acreages of mineral resources that have been both classified and designated by the state. For example, the ECORP memorandum identifies approximately 13,987 acres of state-classified MRZ-2 areas that will be included within the Project.[9] This amounts to approximately 41% of the County's supply of classified MRZ-2 areas. Moreover, the Project will also include portions of these MRZ-2 areas that have been designated as regionally significant mineral resource sectors.[10] Additionally, the Project will include multiple mining properties.[11]

The inclusion of these classified and designated mineral resources and mining properties in the Project has the potential to significantly impair and unreasonably delay the

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[4] SMARA Designation Report No. 2, Designation of Regionally Significant Construction Aggregate Resources Areas in the Western Ventura County and Simi Production-Consumption Regions (March 1982) (https://www.conservation.ca.gov/smgb/reports/Pages/Designation-Reports.aspx, https://www.conservation.ca.gov/smgb/reports/Documents/Designation_Reports/SMARA%20Designation%20Report%20No.%202.pdf, https://www.conservation.ca.gov/smgb/reports/Documents/Designation_Reports/DR2_82-1_Plate1.pdf, https://www.conservation.ca.gov/smgb/reports/Documents/Designation_Reports/DR2_82-1_Plate2.pdf) ("**Exhibit 3**"); *see also* Map Sheet 52, Aggregate Sustainability in California (Updated 2018) (https://www.conservation.ca.gov/cgs/Documents/Publications/MS_52_California_Aggregates_Map_201807.pdf, https://www.conservation.ca.gov/cgs/Documents/Publications/MS_52_California_Aggregates_Report_201807.pdf) ("**Exhibit 4**").

[5] Exhibit 3, p. 7.

[6] Pub. Res. Code §§ 2710 et seq.

[7] General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources].

[8] General Plan Goals, Policies, and Programs, p. 30, Figure 1b [Resources Protection Map (South Half)].

[9] ECORP Memorandum, p. 2, Table 1 ("**Exhibit 5**").

[10] Exhibit 3, § C. pp. 7-11 and Exhibits 1-2 attached thereto [depicting Sectors A-J].

[11] Exhibit 5, p. 6, Table 2 and Figure 4.

extraction of these resources, in addition to the operation and expansion of mining properties, thereby increasing the overall costs of developing mineral resources. For example, the Project's lighting restrictions could affect nighttime mining operations, which often occur at night to reduce daytime transportation impacts. Furthermore, the Project's restrictions on the removal of vegetation could also serve as a limitation, if not a de facto ban, on development of these important mineral resources, which requires surface disturbance, including the removal of native vegetation. Additionally, the Project's extensive restrictions on "surface water features" could impair both river and in-stream mining activities, as well as mineral resources that include such features.

Perhaps most importantly, the Project could significantly impair and potentially preclude the extraction of the County's classified and designated mineral resources, and the operation and expansion of mining properties, because the purpose of the Project—*i.e.*, the conservation of wildlife habitat, including wildlife habitat and corridors—is inherently incompatible with the development of mineral resources, which requires surface disturbances prior to the extraction of mineral resources located thereunder.

As further discussed below, the Project appears similar to the Riverside County Multiple Species Habitat Conservation Plan ("Riverside MSHCP") and other similar projects, all of which were subjected to a detailed public review process that included the preparation of an EIR in accordance with CEQA. Importantly, the EIR for the Riverside MSHCP concluded that impacts to mineral resources, including the rezoning of MRZ-2 areas for conservation purposes, constituted a cumulatively significant impact.[12]

Similarly, here, the Project could also result in significant and cumulative impacts to mineral resources that warrant careful analysis and consideration by the County. This consideration must be completed in accordance with CEQA.

Notably, the County General Plan plainly states that, "All General Plan amendments, zone changes, and discretionary developments shall be evaluated for their individual and cumulative impacts on access to and extraction of recognized mineral resources, in compliance with the California Environmental Quality Act."[13] Thus, there should be no dispute that the Project, which proposes a General Plan amendment and the rezoning of approximately 520,000 acres of land for conservation purposes,[14] requires environmental review in accordance with CEQA.

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[12] Riverside MSHCP, EIR/EIR, Section 5., Cumulative Impacts, p. 5.1-9 (http://wrcrca.conserveriverside.com/wrcrca/Permit_Docs/MSHCP_Docs/volume4/Vol4-Sec5.pdf) ("**Exhibit 6**").
[13] General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources].
[14] Staff Report, p. 7, § C.

II. COMMENTS

A. The County's Assertion that the Project is Exempt from CEQA is Arbitrary and Capricious and not Supported by Substantial Evidence

The Staff Report for the Project acknowledges that project "PL16-0127" constitutes a "project" under CEQA.[15] However, the County nevertheless asserts that the Project is exempt from CEQA.[16] The County cites three exemptions in support of its conclusion. Those three exemptions are:

1) The "common sense" exemption (15061(b)(3));[17]

2) Actions by Regulatory Agencies to Protect Natural Resources (14 CCR § 15307);[18] and

3) Actions by Regulatory Agencies to Protect Environment (14 CCR § 15308).[19]

In addition, the County also asserts that the "unusual circumstances" exception to CEQA exemptions does not apply.[20] However, as discussed below, the County's conclusions that (i) the Project is exempt from CEQA, and (ii) that the unusual circumstances exception does not apply, are not supported by the evidence.

B. The Unusual Circumstances Exception Precludes the County's Use of a CEQA Exemption

"A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances."[21] The "unusual circumstances" exception is set forth at 14 CCR § 15300.2(c) ("CEQA Guidelines" or "Guidelines") and was examined by the California Supreme Court in *Berkeley Hillside Preservation v. City of Berkeley* (2016) 60 Cal.4th 1086 ("*Berkeley Hillside*").

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[15] Staff Report, p. 32, § B., ¶ 1 ["Accordingly, the proposed GP and NCZO amendments are considered a CEQA 'project'."]
[16] Staff Report, pp. 32-33, § B.
[17] Staff Report, pp. 32-33; *see also Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 380 [referring to 15061(b)(3) as the "common sense exemption".]
[18] Staff Report, p. 33, ¶ 2.
[19] Staff Report, p. 33, ¶ 2.
[20] Staff Report, p. 33, ¶ 3.
[21] 14 CCR § 15300.2(c); *Berkeley Hillside Preservation v. City of Berkeley* (2016) 60 Cal.4th 1086 ("*Berkeley Hillside*").

As the Court explained in *Berkeley Hillside*, there are two approaches that can be used to show unusual circumstances. If unusual circumstances are demonstrated, the lead agency cannot proceed based on a CEQA exemption.

The first approach utilizes a two-part test that requires a party to show: (1) the project has some feature that distinguishes it from others in the exempt class, such as its size or location; and (2) a reasonable possibility of a significant effect due to that unusual circumstance.[22] This approach will be referred to herein as the "Two-Part Test".

The second approach only requires a party to show that a project will have a significant environmental effect.[23] This approach will be referred to herein as the "One-Part Test".

As discussed below, the evidence shows that the unusual circumstances exception applies here, under both the One-Part Test and the Two-Part Test, referenced above. Accordingly, the County is precluded from approving the Project based on a CEQA exemption.

1. The Project Presents Unusual Circumstances

The first part of the Two-Part Test requires a party to show a project the project has some feature that distinguishes it from others in the exempt class, such as its size or location.[24]

Here, the County proposes to rezone approximately 520,000 acres of land for conservation purposes.[25] The proposed rezoning of such a massive amount of land, without completing any environmental review in accordance with CEQA, is, on its face, unusual. Additionally, the County's inclusion in the Project of approximately 13,897 acres of valuable mineral deposits that have previously been (i) classified by the California State Geologist as "MRZ-2" areas and (ii) designated as having regional significance, constitutes an unusual circumstance pursuant to Guidelines § 15300.2(c).

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[22] *Berkeley Hillside*, 60 Cal.4th at 1105 ["A party invoking the exception may establish an unusual circumstance without evidence of an environmental effect, by showing that the project has some feature that distinguishes it from others in the exempt class, such as its size or location. In such a case, to render the exception applicable, the party need only show a reasonable possibility of a significant effect due to that unusual circumstance."]

[23] *Berkeley Hillside*, 60 Cal.4th at 1105 ["Alternatively, under our reading of the guideline, a party may establish an unusual circumstances with evidence that the project will have a significant environmental effect. That evidence, if convincing, necessarily also establishes 'a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.' (Guidelines, § 15300.2, subd. (c).)" (Emphasis added).]

[24] *Berkeley Hillside*, 60 Cal.4th at 1105.

[25] Staff Report, p. 7, § C.

Furthermore, these unusual circumstances are exacerbated by the County's use of informal reports as a basis for the Project and its improper piecemealing of the Project from its ongoing General Plan update.

a) The Inclusion of State-Classified MRZ-2 Areas and State-Designated Mineral Resource Sectors Within the Project would Conflict with the Surface Mining and Reclamation Act and Constitutes an Unusual Circumstance

If approved, the Project has the potential to significantly impair and unreasonably delay the extraction of these resources and the operation and expansion of mining properties, thereby increasing the costs of developing mineral resources. Additionally, the Project may even preclude the extraction of the County's classified and designated mineral resources, and the operation and expansion of mining properties, because the purpose of the Project—*i.e.*, the conservation of wildlife habitat, including wildlife habitat and corridors—is inherently incompatible with the development of mineral resources, which requires surface disturbances prior to the extraction of mineral resources located thereunder.

(1) The Project Includes Approximately 13,987 Acres of State-Classified MRZ-2 Areas and Portions of State-Designated Mineral Resource Sectors

Through the enactment of the SMARA, the Legislature declared as follows:

- "the extraction of minerals is essential to the economic well-being of the state and to the needs of the society";
- "the production and development of local mineral resources that help maintain a strong economy and that are necessary to build the state's infrastructure are vital to reducing transportation emissions that result from the distribution of hundreds of millions of tons of construction aggregates that are used annually in building and maintaining the state;"
- the state "needs … to provide local governments, metropolitan planning organizations, and other relevant planning agencies with the information necessary to identify and protect mineral resources within general plans"; and
- "the state's mineral resources are vital, finite, and important natural resources and the responsible protection and development of these mineral resources is vital to a sustainable California".[26]

[26] Pub. Res. Code § 2711(a).

In recognition of the foregoing, "the [California State Mining and Geology Board] may, by regulation adopted after a public hearing, designate specific geographic areas of the state as areas of statewide or regional significance and specify the boundaries designation shall be included as a part of the state policy and shall indicate the reason for which the particular area designated is of significance to the state or region, the adverse effects that might result from premature development of incompatible land uses, the advantages that might be achieved from extraction of the minerals of the area, and the specific goals and policies to protect against the premature incompatible development of the area."[27]

The reference to "areas of statewide or regional significance" in the excerpt above is defined as follows:

- "'Area of regional significance' means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in a particular region of the state within which the minerals are located and which, if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local significance."[28]

- "'Area of statewide significance' means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in the state and which, if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local or regional significance."[29]

As previously discussed, multiple areas of the County were classified as MRZ-2 areas by the California Division of Mines and Geology in 1981.[30] The County discusses the importance of safeguarding these areas in the County Initial Study Assessment Guidelines ("County CEQA Guidelines"):

> Mineral Resource Zone 2 (MRZ-2) – Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists. This zone shall be applied to known mineral deposits or where well-developed lines of reasoning, based upon economic

[27] Pub. Res. Code § 2790.
[28] Pub. Res. Code § 2726.
[29] Pub. Res. Code § 2727.
[30] Exhibit 1.

geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is high.[31]

Thereafter, in 1982, 10 "sectors" of the County's MRZ-2 areas were designated as regionally significant mineral resource areas by the California State Mining and Geology Board (Sectors A-J), which led to the preparation of maps depicting the locations of these areas.[32] An EIR was adopted in conjunction with the designation of these 10 sectors.[33]

As detailed in the attached memorandum from ECORP Consulting, Inc. ("ECORP"), the Project would include vast acreages of mineral resources that have been both classified and designated by the state. As shown in Table 1, below, approximately 13,987 acres of state-classified MRZ-2 areas will be included within the Project.[34] This amounts to approximately 41% of the County's supply of classified MRZ-2 areas.

Table 1 - Ventura County Mineral Resource Zones Area Impacted by Proposed Wildlife Corridors

Proposed Wildlife Corridor	MRZ-1 Acres	MRZ-2 Acres	MRZ-3 Acres	MRZ-3a Acres	MRZ-4 Acres	Not MRZ	Grand Total
Santa Monica—Sierra Madre	26,634	13,897	61,503	5,518	3,705	1,131	112,388
Sierra Madre--Castaic	30,378	--	17,699	2,561	5,411	260,017	316,066
Ventura River	--	-	20	612	--	2	634
Total Within Wildlife Corridors	57,012	13,897	79,222	8,691	9,116	261,150	429,088
Outside Wildlife Corridor	149,900	19,816	153,386	31,742	34,817	--	389,661
County Grand Total	206,912	33,713	232,608	40,433	43,932	261,150	818,748

Source: ECORP GIS (11/2018)

Moreover, the Project will also include portions of MRZ-2 sectors that have been designated as regionally significant mineral resource areas.[35] Accordingly, the Project's impacts to mineral resources warrant careful analysis and consideration by the County—consideration must be completed in accordance with CEQA—and present unusual circumstances.

(2) The Project is Inconsistent with the Surface Mining and Reclamation Act

As explained in the County CEQA Guidelines, SMARA "was enacted in 1975 … to safeguard access to mineral resources of regional and statewide significance in the face of

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[31] County CEQA Guidelines, p. 21, § B.
[32] Exhibit 3; *see also* General Plan Resources Appendix, p. 25 ["Hearings were held in January of 1982 and the official maps identifying the areas so designated were sent to the County in June of 1982."]
[33] Exhibit 3, p. 7.
[34] Exhibit 5, p. 2, Table 1.
[35] Exhibit 3, § C. pp. 7-11 and Exhibits 1-2 attached thereto [depicting Sectors A-J].

competing land uses and urban expansion."[36] Despite the County's recognition of the importance of safeguarding mineral resources from incompatible uses, in accordance with the underlying principles of SMARA, the County is proposing to overlay vast swaths of classified and designated mineral resources without even considering the consequences.

However, the County's plan to summarily disregard the Project's potential impacts to approximately 41% of the County's supply of classified MRZ-2 areas, some of which have been designated as regionally significant mineral resource sectors, along with the related local and regional implications would violate SMARA. Accordingly, the Project presents unusual circumstances that preclude the County's use of a CEQA exemption.

Indeed, once a significant mineral resource sector has been designated, SMARA requires a lead agency with jurisdiction over the sector to "Emphasize the conservation and development of the identified mineral deposits", among other things.[37] Despite this legislative mandate, it appears the County has decided to place the conservation of wildlife corridors above the conservation of mineral resources. If so, the County must first analyze and disclose the potential implications of its decision in a public process.

(3) The Project is Inconsistent with the County's General Plan Policies Intended to Protect Mineral Resources

As the County explains in its General Plan, a zoning ordinance "shall be consistent" with the general plan, including the applicable objectives and policies.[38] The General Plan "Goals, Policies and Programs" for mineral resources provide as follows:

- "Aggregates represent the other significant type of mineral resource extracted within the County. Aggregates include sand, gravel and rock which are used for fill, construction-grade concrete and riprap, among others. Although many sand and gravel sites exist throughout the County, most of the extraction sites are located in and along the Santa Clara River bed. Transportation, being a major cost in this industry, dictates that extraction sites be in close to areas of use and demand. For this reason, it is important to utilize close-in aggregate resources before urbanization precludes their extraction."

- "The aggregate resource areas (see the Resources Appendix) are based on Mineral Resource Zone maps developed by the State Division of Mines and Geology. These maps were prepared in response to the Surface

[36] County CEQA Guidelines, p. 21, § B; Pub. Res. Code §§ 2710 et seq.
[37] Pub. Res. Code § 2762(a)(3).
[38] General Plan Goals, Policies, and Programs, p. 3 [Determining Consistency with General Plan] (citing Gov. Code § 66473.5).

Mining and Reclamation Act of 1975 (SMARA). This Act mandated that aggregate resources throughout the State be mapped so that local governments could make land use decisions in light of the presence of the resources and the need to preserve access to them. SMARA's basic objectives are to ensure proper reclamation of mineral land and safeguard access to mineral resources of regional and statewide significance in the face of competing land uses and urban expansion. Its initial focus was on aggregate necessary for construction grade concrete."

- "Manage mineral resources in a manner which effectively plans for the access to, development and conservation of mineral resources for existing and future generations."

- "All General Plan amendments, zone changes, and discretionary developments shall be evaluated for their individual and cumulative impacts on access to and extraction of recognized mineral resources, in compliance with the California Environmental Quality Act."

- "Discretionary development within a Mineral Resource Area (see Resource Protection Map) shall be subject to the provisions of the Mineral Resource Protection (MRP) Overlay Zone, and is prohibited if the use will significantly hamper or preclude access to or the extraction of mineral resources."[39]

As mentioned in the bullet point immediately above, the General Plan includes a Resource Protection Map and a Mineral Resources Protection Overlay Zone.[40] The General Plan also includes a Resources Appendix, which provides as follows:

- "A review of Figure 1.4.1 reveals that there is relatively little land within the County which is known to have significant deposits of construction grade aggregate (those classified as MRZ2). MRZ-2 areas have been 'designated' by the State as areas that should be subject to special management regulations through the General Plan of local jurisdictions."

- "Ventura County contains valuable aggregate and petroleum resources which are vital to the physical and economic development of the County. These resources warrant protection to ensure their continued availability.

[39] General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources].
[40] General Plan Goals, Policies, and Programs, p. 30, Figure 1b [Resources Protection Map (South Half)]; *see also* County CEQA Guidelines, p. 21, § B.

> Identification of these resources and adoption of a mineral resource protection zone could provide this protection."[41]

As previously discussed, the attached memorandum from ECORP includes several figures that depict the locations of the state-classified MRZ-2 areas, some of which have been designated as regionally significant mineral resource sectors.[42] Those figures also depict the areas of mineral resources that would be overlaid with wildlife corridors, if the Project were approved. Thus, the approval of the Project could impair and unreasonably delay the extraction of approximately 41% of MRZ-2 areas in the entire County, because the development of mineral resources is inherently incompatible with the purpose of a wildlife corridor. Accordingly, the approval of the Project would be contrary to the County's General Plan policies, goals, and objectives listed above, which were the result of detailed technical studies, including studies and research performed by the State Geologist and the State Mining and Geology Board.

(4) The County CEQA Guidelines Require the County to Consult with the Department of Conservation California Geological Survey

The County CEQA Guidelines prescribe a "methodology" for use by the County when considering a project's impacts to MRZ-2 areas. The methodology provides as follows:

> If the subject property is located on or adjacent to land zoned [Mineral Resource Protection (MRP) overlay zone] or containing an aggregate CUP, then the Division of Mines and Geology should be consulted and should review the project application. Significance must be determined on a case-by-case basis by the Planning Director.[43]

The Staff Report does not indicate whether the County has consulted with the Division of Mines and Geology (renamed the California Geological Survey in 2006), as required by the County CEQA Guidelines. Such a consultation is certainly necessary here, given that the County proposes to overlay approximately 41% of its MRZ-2 areas with a wildlife corridor.

Similarly, because the Project would include the rezoning of state-designated mineral resource sectors for wildlife conservation purposes, the County must first provide to the Department of Conservation a statement specifying its proposed reasons for approving the Project.[44]

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[41] General Plan Resources Appendix, pp. 29, 42.
[42] Exhibit 3, § C. pp. 7-11 and Exhibits 1-2 attached thereto [depicting Sectors A-J].
[43] County CEQA Guidelines, p. 22, § E.
[44] Pub. Res. Code § 2762(d)(1).

b) The Environmental Impacts of Other Similar Wildlife Corridor Projects have been Analyzed in an EIR Prior to Approval

The Project appears similar to the Riverside County Multiple Species Habitat Conservation Plan ("Riverside MSHCP"). For example, one of the goals of the Riverside MSHCP was to develop "critical linkages".[45] Similarly, here, the Project is intended to protect "missing linkages".[46]

However, a significant distinction between the Project and the Riverside MSHCP is that the Riverside MSHCP was the result of a detailed public process that was subjected to environmental review in accordance with CEQA and supported by detailed scientific and technical studies.[47] Indeed, the Riverside MSHCP EIR included a thorough evaluation of the impacts to mineral resources, including the loss of MRZ-2 areas that were to be incorporated into the MSHCP, which were determined to be cumulatively significant.[48] Here, no such analysis has occurred. Rather, the impetus for the Project is a 2001 report, Missing Linkages: Restoring Connectivity to the California Landscape;[49] but, that report is neither a regulatory document, nor a technical report.

Although the report suggests the creation of certain wildlife corridors in various cities and counties, it does not alleviate a local agency's obligation under CEQA to consider the related environmental impacts. Accordingly, it would be arbitrary and capricious for the County to utilize a CEQA exemption in support of its proposed legislative action, which would rezone and encumber "approximately 7,395 parcels totaling approximately 520,000 acres" with wildlife corridors.[50] The Project, which the County acknowledges is a "project" under CEQA,[51] should be based on relevant technical and scientific studies and subjected to environmental review and public comment in accordance with CEQA, just like the Riverside MSHCP, the San Diego Multiple Species Conservation Plan,[52] the Orange County Central and Coastal Subregion Natural Community Conservation Plan,[53] and other similar plans.

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[45] Discover the Natural Wonders of Riverside County, p. 5 (https://www.wrc-rca.org/archivecdn/Permit_Docs/Discover_the_Wonders.pdf) ("**Exhibit 7**").
[46] *See, e.g.*, Staff Report, pp. 2-5, § 5.
[47] *See* Riverside MSHCP environmental documents, including the EIR, mitigation nexus analysis, and species surveys, among other things ("**Exhibit 8**").
[48] Exhibit 6, p. 5.1-9.
[49] Staff Report, p. 3, § B.
[50] Staff Report, p. 7, § C.
[51] Staff Report, p. 32, § B, ¶ 1.
[52] https://www.sandiegocounty.gov/content/sdc/pds/mscp/sc.html.
[53] https://occonservation.org/about-ncc/ ("**Exhibit 9**").

Moreover, the County's discussion in the Staff Report of a second report, South Coast Missing Linkages ("SCML"), which the County states was "incorporated" into a third report, California Essential Habitat Connectivity Project ("CEHCP"), does not support the County's use of a CEQA exemption.[54] Nor does the County's discussion of other projects that have "incorporated" and "included" aspects of SCML and CEHCP, as the County suggests.[55] To the contrary, the County's references to these other projects shows why the County must prepare an EIR.

For example, the County references the County of Los Angeles Significant Ecological Areas ("SEA") and states that the County of Los Angeles "included" the SCML in the SEA.[56] However, there, the County of Los Angeles approved the SEA project after first analyzing its environmental impacts in an EIR pursuant to CEQA; the EIR prepared in conjunction with its general plan update.[57] Furthermore, any linkage or corridor allegedly "included" into the SEA was limited to land subject to the jurisdiction of the County of Los Angeles—not land located within the County of Ventura.

Similarly, the County also discusses the 2012-2035 Regional Transportation Project/Sustainable Communities Strategy ("RTP/SCS") of the Southern California Association of Governments ("SCAG") and states that SCAG "incorporated" the SCML into the RTP/SCS.[58] However, there, SCAG completed environmental review in accordance with CEQA and certified an EIR for the RTP/SCS.[59]

In addition, in the Staff Report, the County discusses the Resources Management Plans of the following four National Forests: Los Padres, Angeles, San Bernardino, and Cleveland.[60] However, these National Forests all adopted environmental impact statements in accordance with the National Environmental Policy Act ("NEPA") for their respective Resources Management Plans.[61]

After the County's discussion of the projects approved by the County of Los Angeles, SCAG, and the National Forests (all of whom completed full environmental review in accordance with CEQA and NEPA), the County references page 18 of its General Plan in an apparent effort to suggest that the County previously analyzed the environmental impacts of

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[54] Staff Report, pp. 4-5.
[55] Staff Report, pp. 4-5, three bullet points.
[56] Staff Report, pp. 4-5, bullet point 1.
[57] Addendum to EIR, ¶ 1-2 (http://planning.lacounty.gov/site/sea/wp-content/uploads/2018/09/H-ADDENDUM.pdf) ("**Exhibit 10**").
[58] Staff Report, p. 5, bullet point 2.
[59] Final EIR (http://rtpscs.scag.ca.gov/Pages/Final-2012-PEIR.aspx) ("**Exhibit 11**").
[60] Staff Report, p. 5, bullet point 3.
[61] https://www.fs.usda.gov/main/sbnf/landmanagement/planning ("**Exhibit 12**").

establishing wildlife corridors in the County.[62] However, the County's citation to one sentence from page 18 of the General Plan has no relevance to the County's legal obligation to analyze the impacts of its proposed legislative action to rezone land and create wildlife corridors. Furthermore, if the County were proposing to "tier" from some other previously certified environmental document, it would have to inform the public and comply with the applicable provisions of CEQA.

Any purported "incorporation" or "inclusion" of the SCML or the CEHCP into projects approved by the County of Los Angeles, SCAG, and the National Forests, as suggested by the County, relates only to activities—such as the establishment of a wildlife corridor—that occurred within areas of land subject to the jurisdiction of those agencies. Thus, the approval of those projects does not constitute an approval of a wildlife corridor in the County of Ventura. Nor does the fact that several non-regulatory reports previously recommended the creation of a wildlife corridor, because those reports are not environmental documents certified in accordance with CEQA and are not a substitute for the same. Furthermore, the fact that the agencies discussed above prepared the highest level of environmental documents under CEQA and NEPA, as opposed to relying on an exemption, demonstrates that the County should too.

The County's attempt to rely upon informal reports, instead of detailed scientific and technical studies subjected to public review in accordance with CEQA, constitutes an unusual circumstance pursuant to Guidelines § 15300.2(c).

c) The County is Improperly Piecemealing this Project from its Ongoing General Plan Update

As the County acknowledges in the Staff Report, the County Board of Supervisors originally contemplated the creation of wildlife corridors in 2015, in conjunction with a "comprehensive General Plan Update".[63] The General Plan update is presently ongoing.[64] Furthermore, in January 2017, the County Board of Supervisors added that:

> The [Project] will be determined through a process that includes technical reviews, preparation of text amendments, an extensive public outreach program involving a range of stakeholder groups, environmental review, and public hearings.[65]

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[62] Staff Report, p. 5.
[63] Staff Report, p. 9, § d.
[64] January 14, 2019 Notice of Preparation of Draft EIR for Ventura County 2040 General Plan Update (https://vc2040.org/images/VC2040_Notice_of_Preparation.pdf).
[65] County Board of Supervisors January 24, 2017 Report, p. 2, § A, ¶ 1 (emphasis added) (http://bosagenda.countyofventura.org/sirepub/cache/2/enjsojmqyc2zav2ywggpp3pk/10206630118201909161582.PDF).

Despite what the County previously told the public, it is now trying to segment the wildlife corridors from the larger "project" under CEQA—*i.e.*, the General Plan update—into a smaller project, even though the General Plan update is ongoing.

As the California Supreme Court has explained, "environmental considerations do not become submerged by chopping a large project into many little ones—each with minimal potential impact on the environment—which cumulatively may have disastrous consequences."[66] Here, the piecemealing of the Project from the General Plan update, so that the County can attempt to approve the Project based on a CEQA exemption, separate and apart from the ongoing General Plan update, is a violation of CEQA.

The County's deliberate segmentation of the wildlife corridors from its ongoing General Plan update, after previously representing to the public that the corridors would be "comprehensively" analyzed as a component of the General Plan update, constitutes poor planning. Similarly, the County's action also constitutes an unusual circumstance pursuant to Guidelines § 15300.2(c) that precludes the County's use of a CEQA exemption and also suggests that the Project is being rushed forward for political motives.[67]

2. The Evidence Shows the Project will have Significant Environmental Effects

Appendix G of the CEQA Guidelines sets forth the 20 categories of resources protected under CEQA.[68] Thus, during the CEQA environmental review process, a lead agency must consider the impacts a project will have on each of those 20 categories. To assist agencies with that process, Appendix G provides thresholds of significance for each of the 20 categories. Additionally, the County has developed its own CEQA Guidelines, which also include thresholds of significance.[69]

As previously discussed, there are two approaches that can be used to show unusual circumstances, which are being referred to herein as the "Two-Part Test" and the "One-Part Test". The second-part of the Two-Part Test requires a party to show a reasonable possibility that a project will have a significant effect as a result of an unusual circumstance.[70]

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[66] *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 396 (citing *Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 283-284).
[67] In addition to constituting unusual circumstances, the issues discussed in the foregoing section also constitute separate and independent violations of CEQA.
[68] The CEQA Guidelines thresholds of significance discussed below reflect the recent changes adopted by the California Natural Resources Agency, which went into effect on December 28, 2018 (http://resources.ca.gov/ceqa/docs/2018_CEQA_FINAL_TEXT_122818.pdf).
[69] https://docs.vcrma.org/images/pdf/planning/ceqa/current_ISAG.pdf
[70] *Berkeley Hillside*, 60 Cal.4th at 1105 ["A party invoking the exception may establish an unusual circumstance without evidence of an environmental effect, by showing that the project

The One-Part Test only requires a party to show that a project will have a significant environmental effect.[71]

As discussed below, the evidence shows the Project will have significant environmental effects, including significant environmental effects as a result of the Project's unusual circumstances, discussed above, including the Project's inclusion of approximately 41% of the County's supply of classified MRZ-2 areas.[72]

a) Mineral Resources

In recognition of the underlying policies and purpose of SMARA, the CEQA Guidelines provide the following two thresholds of significance for mineral resources, which ask whether a project would:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Result in the loss of availability of a locally-important mineral resources recovery site delineated on a local general plan, specific plan, or other land use plan?[73]

Similarly, the County CEQA Guidelines provide the following two thresholds of significance for mineral resources:

1. Any land use or project activity which is proposed to be located on or immediately adjacent to land zoned Mineral Resources Protection (MRP) overlay zone, or adjacent to a principal access road to an existing aggregate Conditional Use Permit (CUP), and which has the potential to hamper or preclude extraction of or access to the aggregate resources, shall be considered to have a significant adverse impact on the environment.

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has some feature that distinguishes it from others in the exempt class, such as its size or location. In such a case, to render the exception applicable, the party need only show a reasonable possibility of a significant effect due to that unusual circumstance."]

[71] *Berkeley Hillside*, 60 Cal.4th at 1105 ["Alternatively, under our reading of the guideline, a party may establish an unusual circumstances with evidence that the project will have a significant environmental effect. That evidence, if convincing, necessarily also establishes 'a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.' (Guidelines, § 15300.2, subd. (c).)" (Emphasis added).]

[72] This discussion is not intended to constitute an exhaustive analysis of every potential impact the Project will cause.

[73] CEQA Guidelines, App. G, § XII(a)-(b) [Mineral Resources].

2. A project would have a cumulative impact on aggregate resources if when considered with other pending and recently approved projects in the area, hampers or precludes extraction or access to identified resources.[74] [75]

A total of 154,683 acres of the proposed Santa Monica-Sierra Madre and Sierra Madre-Castaic Regional Wildlife Corridors are within state-classified MRZs. Further, Approximately 13,500 acres of the proposed Wildlife corridors are within the County's Mineral Resources Protection overlay zone. These areas correspond with the State Mineral Land Classification of MRZ-2 areas. An additional 82,404 acres of the proposed corridors overlay MRZ-3 areas, which contain known or inferred mineral resources. The analysis of available mineral resources in the County is set forth in Section 1.4 of the General Plan Resources Appendix.

Included therein is the County's analysis of its local sources of aggregate and the estimated demand for aggregate over the next 50 years. That analysis considered and relied upon the sections of state-classified and designated mineral resources located within the County. Accordingly, the County must consider how the rezoning of those mineral resources for wildlife conservation purposes would affect the County's prior conclusions regarding supply and demand.

As previously discussed above, the Project has the potential to impair and unreasonably delay the extraction of these resources and the operation and expansion of mining properties, thereby increasing the costs of developing mineral resources (which itself can cause impair the development of mineral resources).[76] Additionally, the Project may even preclude the extraction of the County's classified and designated mineral resources, and the operation and expansion of mining properties, because the purpose of the Project—*i.e.*, the conservation of wildlife habitat, including wildlife habitat and corridors—is inherently incompatible with the development of mineral resources, which requires surface disturbances prior to the extraction of mineral resources located thereunder.[77] As discussed below, these impacts to mining and the extraction of mineral resources will causes significant environmental effects.

First, regarding CEQA Guidelines threshold of significance a), above, the Project could result in the loss of availability of a known mineral resource that would be of value to the region. Specifically, the Project could result in the loss of availability of approximately 41% of

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[74] County CEQA Guidelines, p. 21, § D(1)-(2) [Threshold of Significance Criteria] (emphasis added).
[75] County "CEQA Public Information Brochure" [explaining that the "environment" that "will be affected by a proposed project" includes "minerals"] (https://docs.vcrma.org/images/pdf/planning/brochures/ceqa_3-08.pdf).
[76] Permitting, Economic Value and Mining in the United States, SNL Metals & Mining ("**Exhibit 13**").
[77] Exhibit 5, p. 7 [Conclusions].

the County's supply of classified MRZ-2 areas,[78] some of which have been designated as significant mineral resource sectors,[79] because the development and extraction of mineral resources is inherently incompatible with the goal of preserving wildlife habitat.[80]

Second, regarding CEQA Guidelines threshold of significance b), above, the Project could result in the loss of availability of a locally-important mineral resources recovery site delineated on a local general plan, specific plan, or other land use plan. Specifically, the Project could result in the loss of availability of mineral resources presently protected by the County's Resource Protection Map and Mineral Resources Protection Overlay Zones—*i.e.*, local land use plans.[81] The Project may also result in the loss of availability of mineral resources delineated on Map Sheet 52.[82]

Third, regarding County CEQA Guidelines threshold of significance 1., above, the Project would (i) be located on or immediately adjacent to land zoned Mineral Resources Protection overlay zone, (ii) be adjacent to a principal access road to an existing aggregate Conditional Use Permit, and (iii) potentially hamper or preclude extraction of or access to the aggregate resources. As discussed in the attached ECORP memorandum, the Project would overlay multiple mining properties (and their principal access roads), including properties that have conditional use permits.[83] Accordingly, under the County CEQA Guidelines, the Project is *presumed* to have a significant impact: "Any land use or project activity which is proposed to be located on or immediately adjacent to land zoned Mineral Resources Protection (MRP) overlay zone … shall be considered to have a significant adverse impact on the environment."[84]

Fourth, regarding County CEQA Guidelines threshold of significance 2., above, the Project could have a cumulative impact on aggregate resources because it would hamper or preclude extraction or access to identified resources. As the County explains in the General Plan Resources Appendix, "there is relatively little land within the County which is known to have significant deposits of construction grade aggregate (those classified as MRZ2). MRZ-2 areas have been 'designated' by the State as areas that should be subject to special management regulations through the General Plan of local jurisdictions."[85] Accordingly, because the Project

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[78] Exhibit 5, p. 2, Table 1.
[79] Exhibit 4.
[80] *See* January 19, 2017 letter from CalCIMA to the County, respectfully requesting that the County consider how the Project may impact mineral resources, including the ability to extract the state-designated mineral resources located within the overall area of the Project.
[81] General Plan Goals, Policies, and Programs, p. 30, Figure 1b [Resources Protection Map (South Half)]; *see also* County CEQA Guidelines, p. 21, § B.
[82] Exhibit 3; *see also* Exhibit 4.
[83] Exhibit 5, p. 6, Table 2 [mining property CUPs overlaid by Project] and Figure 4.
[84] County CEQA Guidelines, p. 21, § D(1) [Threshold of Significance Criteria] (emphasis added).
[85] General Plan Resources Appendix, pp. 29, 42.

could hamper the extraction of designated MRZ-2 areas, the Project could result in a significant cumulative impact on mineral resources.

Fifth, the Project could impair the operation and expansion of existing mining properties in the County.[86] For example, the Project's imposition of nighttime lighting restrictions would impair nighttime operations, which often occur at night to reduce transportation impacts. Similarly, the Project's restrictions on the removal of vegetation would serve as a barrier to mining, which requires surface disturbance, including the removal of native vegetation. Additionally, the Project's restrictions on "surface water features" could potentially impair or preclude river and in-stream mining activities.

The General Plan "Goals, Policies and Programs" for mineral resources states that: "All General Plan amendments, zone changes, and discretionary developments shall be evaluated for their individual and cumulative impacts on access to and extraction of recognized mineral resources, in compliance with the California Environmental Quality Act."[87] Here, the County recognizes the Project is a discretionary "project" under CEQA. Furthermore, the Project proposes a General Plan amendment and the rezoning of approximately 520,000 acres of land that includes approximately 13,987 acres of state-classified "MRZ-2" areas. Accordingly, CEQA review "shall" be required.[88] [89]

b) Transportation

For transportation, the CEQA Guidelines provides four thresholds of significance, including the following:

> b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision(b)?[90]

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[86] *See* "Project Objective", p. 3, ¶ 1.4, stating that a "critical" purpose of the project is to "minimize impacts of mining … operations and other large scale operations with the [Habitat Conservation Overlay Zone] by avoiding disturbance to significant connectivity features" (http://bosagenda.countyofventura.org/sirepub/cache/2/fpmxnlsec1gkqknwuhq0wr5a/102066801272019120557729.PDF).

[87] General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources] (emphasis added).

[88] Although the discussion of mineral resources herein focuses on aggregate, the discussion applies equally to oil and gas and the Project's impacts to the County's oil and gas resources.

[89] CalCIMA hereby incorporates by this reference the comments set forth in the October 9, 2018 letter submitted by the Pacific Legal Foundation, including those comments regarding unconstitutional takings.

[90] CEQA Guidelines, App. G, § XVII(b) [Transportation].

CEQA Guidelines §15064.3(b) reflects the state's recent shift towards assessing transportation impacts in terms of vehicle miles traveled ("VMT") and directs a lead agency to consider whether a project would increase the "amount and distance of automobile travel attributable to a project."[91]

As explained in the General Plan Resources Appendix, the impairment of the extraction of local mineral resources can cause significant transportation impacts.[92] CalCIMA recognizes the importance of this concept, which it refers to as "Distance Matters".

The idea of Distance Matters is that, "Transporting from shorter distances protects the environment and reduces traffic."[93] The benefits of transporting aggregates shorter distances include the following:

- "CalTrans estimates a current average hauling distance of 50 miles. If the trip length can be reduced by even 15 miles, then diesel fuel consumption can be reduced by 44 million gallons annually, and truck emissions by 835 tons per year. Traffic congestion would be reduced. And an estimated $705 million per year would be saved on material transportation costs."

- "Most aggregates are transported by truck. The cost of trucking aggregates increases 15 cents per ton for every mile hauled. Given that even one mile of a six lane highway requires over 110,000 tons of aggregates, each mile of transport would add one-half million dollars to the base cost of the aggregates for such a project."[94]

As discussed in the General Plan Resources Appendix, a local shortage of aggregate could require the transport of aggregate from other state jurisdictions, such as Kern, Los Angeles, or San Bernardino Counties, or even beyond state lines Arizona or Nevada.[95]

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[91] CEQA Guidelines, §15064.3.
[92] General Plan Resources Appendix, pp. 31-33 [Hauling Impacts] ["Transporting the material raises costs. It also contributes to traffic impacts, particularly if surface streets must be used."]
[93] http://www.distancematters.org/whydistancematters.asp ("**Exhibit 14**").
[94] Exhibit 14; *see also* March 2018 Memorandum from the California Department of Transportation re: 2018 Aggregate Resource Policy Statement and Tools (http://www.calcima.org/files/c_1_aggregate%20resources_policy.pdf) ("**Exhibit 15**"); A Note on the Environmental Costs of Aggregates, Working Paper 994, P. Berck, Department of Agricultural and Resources Economics and Policy Division of Agriculture and Natural Resources, University of California at Berkeley (January 2005) http://www.academia.edu/3155445/A_Note_on_the_Environmental_Costs_of_Aggregates) ("**Exhibit 16**").
[95] Exhibit 5, p. 7.

This, in turn, could cause increased traffic impacts. Here, the Project calls for the rezoning of approximately 41% of the County's supply of classified MRZ-2 areas, to allow for the establishment of wildlife corridors. Because the purpose of the corridors is to preserve natural habitat, the Project could preclude the access to and development of mineral resources located within those corridors. If so, aggregate would have to be transported to the County from other jurisdictions. Accordingly, the Project could increase the "amount and distance of automobile travel attributable" to the Project, thereby causing a significant environmental impact.[96]

c) Greenhouse Gas Emissions and Air Quality

For (i) greenhouse gas emissions and (ii) air quality, the CEQA Guidelines provide two and four thresholds of significance, respectively, including the following which ask whether the project would:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?[97]

b) Result in a cumulatively considerable new increase of any net pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

c) Expose sensitive receptors to substantial pollutant concentrations?

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?[98]

For greenhouse gas emissions, the County CEQA Guidelines refer to the CEQA Guidelines for greenhouse gas emissions, including threshold (a), shown above.[99] For air quality, the County CEQA Guidelines utilize the Ventura County Air Pollution Control District Air Quality Assessment Guidelines,[100] which are similar to thresholds of significance set forth in the CEQA Guidelines, including (b)-(d), shown above.[101]

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[96] CEQA Guidelines, §15064.3.
[97] CEQA Guidelines, App. G, § XIII(a) [Greenhouse Gas Emissions].
[98] CEQA Guidelines, App. G, § III(b)-(d) [Air Quality].
[99] County CEQA Guidelines, p. 136, § B [Threshold of Significance Criteria].
[100] County CEQA Guidelines, p. 7, § C [Threshold of Significance Criteria].
[101] Ventura County Air Pollution Control District Air Quality Assessment Guidelines, pp. 3-1—3-7, § 3 [Air Quality Significance Thresholds] (http://www.vcapcd.org/environmental-review.htm#What_are_the_Ventura_County_Air_Quality_Assessment_Guidelines_,http://www.vcapcd.org/pubs/Planning/VCAQGuidelines.pdf).

As explained in the General Plan Resources Appendix, the impairment of the extraction of local mineral resources can also cause significant impacts cause impacts to air quality.[102] This concept is another component of Distance Matters:

- "California's infrastructure projects have a carbon footprint. Construction materials that build California's roads, mass transit, single family homes and high-density smart growth--all depend on large quantities of construction aggregates (sand and gravel) transported to job sites by heavy-duty trucks. Reducing the distances these trucks travel is a key strategy in reducing greenhouse gases and reducing the state's carbon footprint."

- "Decreasing the distance aggregate is shipped by an average of 15 miles across the state, saving 44 million gallons of diesel fuel, would also reduce tail pipe emissions by 835.4 tons a year of pollutants regulated by the state Air Resources board that are linked to incidents of cancer, asthma and other serious health problems. (Sources: CalTrans analysis, based on the California Air Resources Board emission factors estimates and assuming an average 55 to 60 miles per hour speed and a reduction of 282 million miles of truck travel.)"[103]

As discussed in the preceding section, the Project could require the transport of aggregate from sources located in other jurisdictions, which, in turn, could cause significant transportation impacts. This could also result in significant impacts to air quality and greenhouse gas impacts caused by the transport of aggregate by truck across longer distances. Accordingly, the Project has the potential to cause significant air quality and greenhouse gas impacts.

d) Land Use and Planning

For land use and planning, the CEQA Guidelines provide two thresholds of significance, including the following which asks whether the project would:

b) Would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose or avoiding or mitigating an environmental effect?[104]

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[102] General Plan Resources Appendix, pp. 31-33 [Hauling Impacts] ["Transporting the material raises costs. It also contributes to traffic impacts, particularly if surface streets must be used. Energy consumption rises and with it air pollution"; "The problem, however, would be the costs of hauling aggregate over such long distances and the attendant impacts from its transport."]
[103] Exhibit 14.
[104] CEQA Guidelines, App. G, § XI(b) [Land Use and Planning].

Although the County CEQA Guidelines do not provide specific thresholds of significance for land use and planning, the General Plan recognizes that a zoning ordinance "shall be consistent" with the general plan, including the applicable objectives and policies.[105]

As previously discussed, the General Plan includes "Goals, Policies and Programs" for mineral resources, which include goals and programs intended to safeguard access to and the extraction of mineral resources.[106] Because the Project calls for the rezoning of land presently protected by the County's Resource Protection Map and Mineral Resources Protection Overlay Zones, to allow for establishment of wildlife protection corridors, the Project appears inconsistent with these "Goals, Policies and Programs". Such an inconsistency would constitute a significant impact under the thresholds of significance referenced above.

Furthermore, as stated in the County CEQA Guidelines, a zoning ordinance "shall be consistent" with applicable General Plan objectives and policies.[107] Here, the County has made no effort to consider the Project's consistency with applicable provisions of the General Plan. Nor has the County considered the Project's consistency with SMARA.

Instead, the County has limited its consideration to only "General Plan goals and policies intended to promote the protection of biological resources and wildlife connectivity in particular."[108] However, the County's ignorance of applicable goals and policies, except goals and policies related to biological resources, constitutes a violation of CEQA, SMARA, and the Government Code.

e) Wildfires

For wildfire impacts, the CEQA Guidelines, as of December 28, 2018, now provides the following four thresholds of significance, including the following which ask whether a project would:

> b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

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[105] General Plan Goals, Policies, and Programs, p. 3 [Determining Consistency with General Plan] (citing Gov. Code § 66473.5).
[106] General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources].
[107] General Plan Goals, Policies, and Programs, p. 3 [Determining Consistency with General Plan] (citing Gov. Code § 66473.5).
[108] Staff Report, pp. 35-36, § 3 ["The proposed amendment is consistent with the Ventura County General Plan"].

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result, as a result of run-off, post-fire slope instability, or drainage changes.[109]

Similarly, the County CEQA Guidelines for wildlife provide as follows:

> Ventura County Building Code, Article III Section 702A identifies High Fire Hazard Areas/Fire Hazard Severity Zones as "geographical areas in unincorporated Ventura County designated by the Ventura County Fire Protection District pursuant to California Public Resources Codes Sections 4201 through 4204 and classified as Very High, High, or Moderate in State Responsibility Areas or as Local Agency Very High Fire Hazard Severity Zones designated pursuant to California Government Code, Sections 51175 through 51189. See California Fire Code Article 86. The California Code of Regulations, Title 14, Section 1280, entitles the maps of these geographical areas as "Maps of the Fire Hazard Severity Zones in the State Responsibility Area of California."
>
> The Fire Code also defines Hazardous Watershed Fire Areas as a location within 500 feet of a forest or brush, grass, or grain covered land, exclusive of small individual lots or parcels of land located outside of a brush, forest, or grass coved area.
>
> Projects located within High Fire Hazard Areas/Fire Hazard Severity Zones or Hazardous Watershed Fire Areas may have a significant fire hazard impact. The fire hazard impact can be mitigated by compliance with Building and Safety requirements for structures and the Fire Protection District Hazard Abatement program which calls for the clearing of brush, flammable vegetation, or combustible growth located within 100 feet of structures or buildings. Projects not located within High Fire Hazard Areas/Fire Hazard Severity Zones or Hazardous Watershed Fire Areas will not have a significant impact.[110]

After the recent wildfires that have ravaged the County, one would expect the County to consider the Project's potential impacts to wildfire. However, the County has not completed such an analysis.

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[109] CEQA Guidelines, App. G, § XX(b), (d) [Wildfire].
[110] County CEQA Guidelines, pp. 105-106, § D [Threshold of Significance Criteria].

f) Cumulative Impacts

For cumulative impacts, the CEQA Guidelines provide the following thresholds of significance:

> b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probably future projects)[111]

For cumulative impacts, the County CEQA Guidelines refer to the CEQA Guidelines.[112]

As previously discussed, the County is in the process of updating its General Plan. As a part of that process, the County will complete an EIR.[113] Within that EIR is where the County should analyze the full scope of the Project's environmental impacts, including potential cumulative impacts, and how those impacts may be affected or increased when coupled with the range of other activities and changes proposed in the update. Instead, the County is improperly piecemealing the Project from the ongoing update, which forecloses the consideration of the Project's potential cumulative impacts. This constitutes a violation of CEQA.

Furthermore, for the reasons set forth above, the Project will cause significant cumulative impacts to multiple categories of resources included in Appendix G of the CEQA Guidelines, including mineral resources, transportation, air quality, and greenhouse gas emissions.[114]

3. The County Must Acknowledge that there is a Reasonable Possibility of an Environmental Effect and Prepare an EIR for the Project

As previously discussed, there are two approaches that can be used to show unusual circumstances, which are being referred to herein as the "Two-Part Test" and the "One-Part Test". If the unusual circumstances exception applies, a lead agency is precluded from invoking a CEQA exemption.

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[111] CEQA Guidelines, App. G, § XXI(b) [Mandatory Findings of Significance]; *see also* CEQA Guidelines § 15355.
[112] County CEQA Guidelines, p. 217, § B [Threshold of Significance Criteria].
[113] January 14, 2019 Notice of Preparation of Draft EIR for Ventura County 2040 General Plan Update (https://vc2040.org/images/VC2040_Notice_of_Preparation.pdf).
[114] In addition to the information discussed above, CalCIMA hereby incorporates by this reference the two separate ECORP Memoranda, dated January 28, 2019, submitted to the County on behalf of the Ventura County Coalition of Labor, Agriculture, and Business ("CoLAB").

The Two-Part Test requires a party to show: (1) the project has some feature that distinguishes it from others in the exempt class, such as its size or location; and (2) a reasonable possibility of a significant effect due to that unusual circumstance.[115]

The One-Part Test only requires a party to show that a project will have a significant environmental effect.[116] The party only needs to present a "fair argument".[117]

First, there is a fair argument that the Project will have a significant environmental effect, as previously above. When considering this information, the County should not seek to "resolve conflicts" in the evidence; rather, the agency should merely inquire whether the record "reveals a fair argument".[118] This information is sufficient to show at least one significant environmental effect that will be caused by the Project, which precludes the County's use of a CEQA exemption.

Second, and to the extent it is necessary, the evidence shows that the Project presents unusual circumstances. As previously discussed above, the Project would include approximately 13,501 acres of state-classified MRZ-2 areas, which constitutes approximately 41% of all MRZ-2 areas in the County. The Project would also include critical mineral resource sectors that have been designated by the State Mining and Geology Board.[119] This information is sufficient to demonstrate unusual circumstances.

CalCIMA disagrees with the County's conclusion that "there is no substantial evidence identified by staff … to support a finding of unusual circumstances".[120] Furthermore, the County's conclusion is specious, given that the County's (i) General Plan, (ii) General Plan Resources Appendix, and (iii) CEQA Guidelines, all discuss various actions the County has previously taken for the specific purpose of protecting mineral resources, such as (i) the adoption of a Mineral Resource Protection overlay zone to protect mineral resources, and (ii) the creation of Goals, Policies and Programs" for mineral resources, none of which is discussed in the Staff Report.

The evidence shows that the Project will have significant environmental effects, including environmental effects as a result of the Project's unusual circumstances. Accordingly,

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[115] *Berkeley Hillside*, 60 Cal.4th at 1105.
[116] *Berkeley Hillside*, 60 Cal.4th at 1105.
[117] *Berkeley Hillside*, 60 Cal.4th at 1115 (citing CEQA Guidelines § 15300.2(c)) ["Accordingly, where there are 'unusual circumstances,' it is appropriate for agencies to apply the fair argument standard in determining whether 'there is a reasonable possibility of a significant effect on the environment due to unusual circumstances.'"]
[118] *Berkeley Hillside* at 1104; *see also* County Administrative Supplement to County CEQA Guidelines, p. 19, § 8.1.
[119] Exhibit 3.
[120] Staff Report, p. 33, ¶ 3.

the County is precluded from approving the Project based on any of the three exemptions cited in the Staff Report.[121]

C. The County's Conclusion Regarding the "Common Sense" Exemption Lacks Evidentiary Support

As previously discussed, the County has acknowledged that the Project constitutes a "project" under CEQA;[122] but, the County asserts that the Project is exempt from CEQA.[123] The County cites three exemptions in support of its conclusion, including the "common sense" exemption set forth in CEQA Guidelines § 15061(b)(3)).[124]

The "common sense" exemption is set forth at CEQA Guidelines § 15061(b)(3) and requires a lead agency to "conclude with certainty that there is no possibility that the activity in question may have a significant effect on the environment".

"[W]hether a particular activity qualifies for the common sense exemption presents an issue of fact, that the agency invoking the exemption has the burden of demonstrative it applies."[125] "[T]he agency's exemption determination must be supported by evidence in the record demonstrating that the agency considered possible environmental impacts in reaching its decision."[126] The agency's determination must be supported by "substantial evidence".[127]

"An agency's obligation to produce substantial evidence supporting its exemption decision is all the more important where the records shows, as it does here, that opponents of the project have raised arguments regarding possible significant environmental impacts."[128] "An agency obviously cannot declare 'with certainty that there is no possibility that the activity in question may have a significant effect on the environment' if it has not considered the facts of the matter."[129]

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[121] Staff Report, pp. 32-33, ¶ 2 [citing the exemptions set forth at the following sections of the CEQA Guidelines (i) 15061(b)(3); (ii) 15307; and (iii) 15308].
[122] Staff Report, p. 32, § B., ¶ 1 ["Accordingly, the proposed GP and NCZO amendments are considered a CEQA 'project'."]
[123] Staff Report, pp. 32-33, § B.
[124] Staff Report, pp. 32-33; *see also Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 380 [referring to 15061(b)(3) as the "common sense exemption".]
[125] *Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 386 ("*Muzzy Ranch*").
[126] *Davidon Homes v. City of San Jose* (1997) 54 Cal.App.4th 106, 117 ("*Davidon*").
[127] *CREED-21 v. City of San Diego* (2015) 234 Cal.App.4th 488, 511.
[128] *Davidon* at 117.
[129] *Muzzy Ranch* at 387 (internal citation omitted).

As previously discussed above, when the Project is considered in the context of the thresholds of significance set forth in the CEQA Guidelines and the County CEQA Guidelines, the evidence shows the Project will, or, at the least, a reasonable possibility the Project will, have an environmental effect. Furthermore, the above discussion shows that the County has not seriously considered the potential impacts of the Project. Accordingly, the County's reliance on the common sense exemption would constitute an abuse of discretion.

D. The County has Incorrectly Concluded that a Project Intended to Benefit the Environmental Cannot also Have a Significant Environmental Effect

In addition to the "common sense" exemption, the County also asserts that the Project is exempt from CEQA based on the exemptions set forth in CEQA Guidelines §§ 15307 and 15308, entitled "Actions by Regulatory Agencies to Protect Natural Resources" and "Actions by Regulatory Agencies to Protect Environment", respectively.[130]

The County bases its invocation of these two exemptions based on its conclusion that, "the effect is expected to be beneficial".[131] However, the County incorrectly concludes that a project is exempt from CEQA merely because of an "expected benefit." As courts have explained, a project that benefits the environment may nevertheless have a significant environment impact that requires the preparation of an EIR.

For example, in *Wildlife Alive v. Chickering* (1976) 17 Cal.3d 190 ("*Wildlife Alive*"), the California Supreme Court struck down the invocation of the common sense exemption by the California Fish and Game Commission ("Commission"). The Commission invoked the exemption in conjunction with its approval of a hunting season intended to protect black bears. As the Court explained, "We conclude that the setting of hunting and fishing seasons has the potential for a significant environmental impact, both favorable and unfavorable. There inheres in the fixing of hunting seasons and the issuance of hunting permits a serious risk of overkill and depletion of the affected species. When the impact may be either adverse or beneficial, it is particularly appropriate to apply CEQA which is carefully conceived for the purpose of increasing the likelihood that the environmental effects will be beneficial rather than adverse."[132]

In *Dunn-Edwards Corp. v. Bay Area Air Quality Management Dist.* (1992) 9 Cal.App.4th 644, the invocation of the common sense exemption by the Bay Area Air Quality Management District ("BAAQMD") was struck down in conjunction with its approval of regulations tightening emission standards for volatile organic compounds. Similarly, in *California Unions for Reliable Energy v. Mojave Desert Air Quality Management Dist.* (2009) 178 Cal.App.4th 1225, the invocation of the common sense exemption by the Mojave Desert Air

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[130] Staff Report, p. 33, ¶ 2.
[131] Staff Report, p. 33, ¶ 2.
[132] *Wildlife Alive* at 206.

Quality Management District ("MDAQMD") was struck down in conjunction with its approval of a plan to reduce air pollution.

Furthermore, the cases discussed above demonstrate that the exemptions set forth in CEQA Guidelines §§ 15307 and 15308, entitled "Actions by Regulatory Agencies to Protect Natural Resources" and "Actions by Regulatory Agencies to Protect Environment", are reserved for state "regulatory agencies" such as the Commission, BAAQMD, and MDAQMD. Accordingly, it would be inappropriate for the County to rely upon either of these exemptions.

Notwithstanding any potential benefits that the Project may have, the evidence discussed above, demonstrates the Project will have an environmental effect. Accordingly, the County is precluded from relying upon the exemptions set forth in CEQA Guidelines §§ 15307 and 15308.

E. The Cumulative Impacts Exception also Precludes the Use of a CEQA Exemption

The County's findings in the Staff Report do not mention the cumulative impacts exception to CEQA exemptions.[133] The cumulative impacts exception is set forth at CEQA Guidelines § 15300.2(b) and renders an exemption "inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant."

As previously discussed above, the Project could result in cumulatively significant impacts. Accordingly, the County is precluded from relying on a CEQA exemption.

III. CONCLUSION

CEQA requires lead agencies to thoughtfully consider the impacts that a project may have upon the 20 categories of resources set forth within Appendix G of the CEQA Guidelines. If an agency determines, after careful consideration and analysis based on technical and scientific data, and the evaluation of project alternatives and potential mitigation measures that could reduce a project's impacts, that the approval of a project is warranted notwithstanding any significant impacts that will be caused by the project, the agency can decide to adopt a statement of overriding considerations.

However, none of this has occurred here. If the County desires to approve the Project notwithstanding the related impacts to mineral resources, the County must do so in accordance with the rules of CEQA and cannot rely on an exemption.

Based on the foregoing, CalCIMA urges the County to consider how the Project may impact mineral resources, including impacts on the extraction of state-designated mineral resources located within the overall area of the Project, as CalCIMA previously requested in its

[133] Staff Report, p. 32-33.

January 19, 2017 letter. CalCIMA also requests that the County consult with the California Geological Survey and the State Mining and Geology Board, as required by the County CEQA Guidelines.[134]

Very truly yours,

KERRY SHAPIRO of
Jeffer Mangels Butler & Mitchell LLP

Attachments

cc: California Geological Survey
State Mining and Geology Board
Gary W. Hambly, CalCIMA

[134] County CEQA Guidelines, p. 22, § E.

Index of Exhibits to
CalCIMA Comment Letter

January 28, 2019

Exhibit	Description
1.	Special Report 145, Mineral Land Classification of Ventura County, Parts I-III (January 1981)
2.	California Surface Mining and Reclamation Policies and Procedures, Guidelines for Classification and Designation of Mineral Lands
3.	SMARA Designation Report No. 2, Designation of Regionally Significant Construction Aggregate Resources Areas in the Western Ventura County and Simi Production-Consumption Regions (March 1982)
4.	Map Sheet 52, Aggregate Sustainability in California (Updated 2018)
5.	ECORP Memorandum
6.	Riverside MSHCP, EIR/EIR, Section 5., Cumulative Impacts
7.	Discover the Natural Wonders of Riverside County
8.	Riverside MSHCP environmental documents, including EIR, mitigation nexus analysis, and species surveys, among other things
9.	Orange County Central and Coastal Subregion Natural Community Conservation Plan
10.	County of Los Angeles Significant Ecological Areas, Addendum to EIR
11.	SCAG 2012-2035 Regional Transportation Project/Sustainable Communities Strategy, Final EIR
12.	National Forests, Resource Management Plans
13.	Permitting, Economic Value and Mining in the United States, SNL Metals & Mining
14.	CALCIMA_ Distance Matters_ Why Distance Matters
15.	March 2018 Memorandum from the California Department of Transportation re: 2018 Aggregate Resource Policy Statement and Tools
16.	A Note on the Environmental Costs of Aggregates, Working Paper 994, P. Berck, Department of Agricultural and Resources Economics and Policy Division of Agriculture and Natural Resources, University of California at Berkeley (January 2005)

Batinica, Meighan

From: Sara Shields <Sara.Shields.150113694@p2a.co>
Sent: Friday, March 08, 2019 1:39 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Sara Shields
1746 S Victoria Ave F419
Ventura, CA 93003

Batinica, Meighan

From: Tracy sotelo <Tracy.sotelo.150089782@p2a.co>
Sent: Friday, March 08, 2019 12:30 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Thank you,

Tracy sotelo
496 Cedar St
Ventura, CA 93001

Batinica, Meighan

From: Julie Talbott <Julie.Talbott.150161303@p2a.co>
Sent: Friday, March 08, 2019 3:46 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Julie Talbott
2632 Wordsworth Ct
Thousand Oaks, CA 91362

Batinica, Meighan

From: Michelle Thomas <Michelle.Thomas.150070980@p2a.co>
Sent: Friday, March 08, 2019 12:42 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

Please protect our ecosystem. We need these animals and plants in order to have a healthy environment.. I want to ensure that that animals are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

-Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Michelle Thomas
1125 Del Prado Ct
Ojai, CA 93023

Batinica, Meighan

From: Rosemary Thompson <Rosemary.Thompson.140231379@p2a.co>
Sent: Friday, March 08, 2019 9:48 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Rosemary Thompson
4634 Mint Lane
Santa Barbara, CA 93110

Batinica, Meighan

From: Cynthia Tokar <Cynthia.Tokar.150146265@p2a.co>
Sent: Friday, March 08, 2019 2:41 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Cynthia Tokar
191 Bucknell Ave
Ventura, CA 93003

Batinica, Meighan

From: Cynthia Weirick <Cynthia.Weirick.150074517@p2a.co>
Sent: Friday, March 08, 2019 11:05 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Cynthia Weirick
107 E Aliso St
Ojai, CA 93023

Batinica, Meighan

From: Ganga White <Ganga.White.150013217@p2a.co>
Sent: Friday, March 08, 2019 8:30 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Ganga White
2500 San Marcos Pass
Santa Barbara, CA 93105

Batinica, Meighan

From: danira wiseman <danira.wiseman.150231008@p2a.co>
Sent: Friday, March 08, 2019 7:05 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

danira wiseman
239 N. Arnaz St.
Ojai, CA 93023

Batinica, Meighan

From: Alan Woodbury <Alan.Woodbury.115567032@p2a.co>
Sent: Friday, March 08, 2019 3:14 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Alan Woodbury
PO Box 2631
Santa Barbara, CA 93120

Batinica, Meighan

From: rose zbyzenski <rose.zbyzenski.117851638@p2a.co>
Sent: Friday, March 08, 2019 5:13 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

rose zbyzenski
1334 Cruzero St
Ojai, CA 93023

Batinica, Meighan

From: Steve Zermeno <Steve.Zermeno.150225528@p2a.co>
Sent: Friday, March 08, 2019 6:47 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Steve Zermeno
34 Sycamore Dr
Ventura, CA 93001

Batinica, Meighan

From: Paige Ziehler-Martin <Paige.ZiehlerMartin.150126681@p2a.co>
Sent: Friday, March 08, 2019 1:59 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Paige Ziehler-Martin
910 Ocean View Ave Unit A
Monrovia, CA 91016

Wildlife Ordinance Comment Letters received March 09, 2019			
Last Name	**First Name**	**Organization**	**Title**
Anderson	Shirin		
Brickley	Nichole		
Brown	Janet		
Chapman	Scott		
DeRossett	Alan		
Dows	Wena		
Efross	Natasha		
Girvetz	William		
Glaza	Kim		
Godinez	Judy		
Hastings	Rebecca		
Hunt	Star		
Ingram	Trudy		
Kinsler	Denise		
Klimbal	Nancy		
Kuklenski	Lisa		
Lowery	James		
Madsen	Jessica		
Menefee	Lynn		
Miller	Nancy		
Odom	Terri		
Plesetz	Amy		
Selm	Kathryn		
Simmons	Kay		
Webster	Leone		

Batinica, Meighan

From: Shirin Anderson <Shirin.Anderson.150359331@p2a.co>
Sent: Saturday, March 09, 2019 5:08 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Thank you,

Shirin Anderson
5141 W Wooley Rd
Oxnard, CA 93035

Batinica, Meighan

From: Nichole Brickley <Nichole.Brickley.150298852@p2a.co>
Sent: Saturday, March 09, 2019 8:03 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Nichole Brickley
3098 Channel Dr
Ventura, CA 93003

Batinica, Meighan

From: Janet Brown <Janet.Brown.11581185@p2a.co>
Sent: Saturday, March 09, 2019 1:06 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Janet Brown
1223 Owens Ave
Ventura, CA 93004

Batinica, Meighan

From: scott chapman <scott.chapman.90586110@p2a.co>
Sent: Saturday, March 09, 2019 4:20 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I whole heartedly support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Thank you,

scott chapman
pob 13043
San Luis Obispo, CA 93406

Batinica, Meighan

From: Alan DeRossett <Alan.DeRossett.150321495@p2a.co>
Sent: Saturday, March 09, 2019 10:39 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Alan DeRossett
2087 Wetstone Ct
Thousand Oaks, CA 91362

Batinica, Meighan

From: Wena Dows <Wena.Dows.150318543@p2a.co>
Sent: Saturday, March 09, 2019 10:08 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Wena Dows
10681 Ranch Road
Culver City, CA 90230

Batinica, Meighan

From: Natasha Efross <Natasha.Efross.150275956@p2a.co>
Sent: Saturday, March 09, 2019 5:56 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Natasha Efross
12607 Sisar Rd
Ojai, CA 93023

Batinica, Meighan

From: William Girvetz <wmgrtz@gmail.com>
Sent: Saturday, March 09, 2019 11:54 AM
To: Wildlife Corridors

To the Board of Supervisors:

I am very much hoping that the corridor zoning as recommended by the Planning Commission in January will be adopted at your coming meeting. The need seems to me very apparent, not just in the overconfinement and proximity to urban areas of Mountain Lions in the Santa Monica Mountains area but elsewhere too where, due to increasing but preventable blockages of various sorts, conditions threaten to deteriorate for wildlife generally.

Very qualified and extended study has gone into the mapping of the corridors, and it is clear that great care has been taken so that the proposed regulations do not infringe on fire prevention and security needs nor on agriculture. In my view they fully deserve your support.

William Girvetz, Ojai

Batinica, Meighan

From: Glaza <kghorsemanship@hotmail.com>
Sent: Saturday, March 09, 2019 7:46 AM
To: Wildlife Corridors
Subject: Private Property

Board of Supervisors:

I am a property owner in Ventura County and oppose the way the current wildlife corridor ordinance is written.

As the current ordinance is currently written it encompasses properties that should be excluded as it is reaches far beyond the stated purpose.

The general and specific purposes of this proposed ordinance are stated in Section 8104-7.7.

> *Section 8104-7.7 - Habitat Connectivity and Wildlife Corridors Overlay Zone*
>
> > *The general purposes of the Habitat Connectivity and Wildlife Corridors overlay zone are to preserve functional connectivity for wildlife and vegetation throughout the overlay zone by minimizing direct and indirect barriers, minimizing loss of vegetation and habitat fragmentation and minimizing impacts* ***to those areas that are narrow, impacted or otherwise tenuous with respect to wildlife movement****.*
> >
> > The proposed ordinance is very clear in its stated purpose: to maintain "functional connectivity for wildlife and vegetation" and maintain "wildlife movement" in "areas that are narrow, impacted or otherwise tenuous."

The fact that the proposed ordinance includes Mutau Flats, Lockwood Valley and ALL private property within and surrounded by the National Forest is in opposition to its stated purpose. All these properties are NOT in "areas that are narrow, impacted or otherwise tenuous." In fact, the opposite is true. These properties are wholly surrounded by massive amounts of National Forest as well as Wilderness. They are but a mere speck of land surrounded by hundreds and hundreds of thousands of National Forest land. To completely understand this issue, view a map with the private properties at issue and the entire Forest that stretches up to 40 miles around it and it is clear that there is an abundance of land for the wildlife and plants to migrate, mate, and feed.

We love and value the wildlife that crosses our property, we don't need our property to be included in this ordinance.

Kim Glaza

Batinica, Meighan

From: judy godinez <judy.godinez.150320027@p2a.co>
Sent: Saturday, March 09, 2019 10:24 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

judy godinez
6588 Partridge Dr ventura CA
Ventura, CA 93003

Batinica, Meighan

From: Rebecca Hastings <Rebecca.Hastings.150345390@p2a.co>
Sent: Saturday, March 09, 2019 2:43 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Thank you,

Rebecca Hastings
29022 Acanthus Ct
Agoura Hills, CA 91301

Batinica, Meighan

From: Star Hunt <Star.Hunt.150297880@p2a.co>
Sent: Saturday, March 09, 2019 7:58 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Star Hunt
25 Camino De Vida
Santa Barbara, CA 93111

Batinica, Meighan

From: Trudy Ingram <Trudy.Ingram.150300353@p2a.co>
Sent: Saturday, March 09, 2019 8:16 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Trudy Ingram
478 S Evergreen Dr
Ventura, CA 93003

Batinica, Meighan

From: Batinica, Meighan
Sent: Saturday, March 09, 2019 9:19 AM
To: Wildlife Corridors
Subject: Fw: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

{0}
Title
Company

From: Wildlife Corridors
Sent: Saturday, March 9, 2019 7:02:12 AM
To: Batinica, Meighan
Subject: FW: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

This is 10:23 pm

From: Denise Kinsler <Denise.Kinsler.150257523@p2a.co>
Sent: Friday, March 08, 2019 10:23 PM
To: Wildlife Corridors <Wildlife.Corridors@ventura.org>
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Denise Kinsler
1641 Addax Cir
Ventura, CA 93003

Batinica, Meighan

From: Nancy Klimbal <Nancy.Klimbal.150380058@p2a.co>
Sent: Saturday, March 09, 2019 10:03 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Nancy Klimbal
785 Santa Ana Blvd
Oak View, CA 93022

Batinica, Meighan

From: Lisa Kuklenski <Lisa.Kuklenski.150285298@p2a.co>
Sent: Saturday, March 09, 2019 6:15 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Lisa Kuklenski
1801 Savannah Ave
Ventura, CA 93004

Batinica, Meighan

From: James Lowery <James.Lowery.82724188@p2a.co>
Sent: Saturday, March 09, 2019 4:20 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

Through my work training wildlife biologists in tracking, I am aware of the importance of wildlife corridors to allow animals to disperse, especially when wildfires can destroy whole sections of habitat in a short time. Genetic diversity is critical for the health of species. And in my field work I consistently see the impact of human development on wildlife travel routes.

So, please vote in favor of a strong ordinance and reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Thank you,

James Lowery
1113 Cougar Ct
Frazier Park, CA 93225

Batinica, Meighan

From: Jessica Madsen <Jessica.Madsen.150315582@p2a.co>
Sent: Saturday, March 09, 2019 9:42 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Jessica Madsen
205 E Collins St
Oxnard, CA 93036

Batinica, Meighan

From: Lynn Menefee <Lynn.Menefee.37169798@p2a.co>
Sent: Saturday, March 09, 2019 9:44 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Lynn Menefee
2823 Verde Vista Dr
Santa Barbara, CA 93105

Batinica, Meighan

From: Nancy Miller <Nancy.Miller.150333519@p2a.co>
Sent: Saturday, March 09, 2019 12:44 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Nancy Miller
65 Richford Ln
Oak View, CA 93022

Batinica, Meighan

From: Terri Odom <Terri.Odom.150373489@p2a.co>
Sent: Saturday, March 09, 2019 8:04 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Terri Odom
8620 Nye Road
Ventura, CA 93001

Batinica, Meighan

From: Amy Plesetz <Amy.Plesetz.150352004@p2a.co>
Sent: Saturday, March 09, 2019 3:54 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Amy Plesetz
1035 Palmetto Way
Carpinteria, CA 93013

Batinica, Meighan

From: Kathryn Selm <krselm@alumni.unca.edu>
Sent: Saturday, March 09, 2019 7:32 PM
To: Wildlife Corridors
Subject: Wildlife corridors

Dear Board of Supervisors,

I am writing to express my support for the proposed Habitat Connectivity Overlay Zone.

Maintaining our few remaining wildlife corridors is critical to having healthy wildlife populations in our local natural areas. Over time conversion of natural areas to urban and agricultural uses has resulted in a patchwork of remaining green spaces. Unfortunately, most of these natural areas are simply too small to support their native wildlife. Without connections to large open spaces like the National Forests they will lose key species and the ability to function as nature intended.

Conservation groups and government agencies have invested years of work and millions of dollars to maintain important wildlife corridors in the California. A network of linkages is being protected across the state. Here in Ventura places like Ahmanson Ranch and Rocky Peak Park were acquired for public recreation and to protect wildlife corridors. More recently nearly 400 acres of Alamos Canyon were acquired including a large wildlife crossing under the 118 Freeway. The result allows wildlife traveling on an existing key corridor to safely cross under the freeway. We need to protect our investment by maintaining these corridors.

We now need to ensure that our open spaces and farmlands continue to allow wildlife passage between our protected areas. Wildlife movement is compatible with farms and ranching. We can ensure both will continue thrive with a common sense based solution. I believe that the proposed overlay zone is an excellent solution to the problem and does so with a light regulatory touch.

Thank you for considering this important proposed overlay zone.

Sincerely,
Kathryn Selm

Batinica, Meighan

From: kay930@roadrunner.com
Sent: Saturday, March 09, 2019 5:27 PM
To: Wildlife Corridors

Please keep wildlife corridors open so that we can allow the wildlife that is part of our habitat to continue to live here. Save for generations to come. LETS DO THIS!!! Sincerely, Kay Simmons kay930@roadrunner.com

Kay

Batinica, Meighan

From: Leone Webster <Leone.Webster.150310695@p2a.co>
Sent: Saturday, March 09, 2019 8:59 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Leone Webster
1580 Garst Lane
Ojai, CA 93023

Wildlife Ordinance Comment Letters received March 10, 2019			
Last Name	**First Name**	**Organization**	**Title**
Clough	Heather		
Colman	George		
Coulson	Amanda		
De Buiser	Shannon		
Dorris	Sherry		
Farrell	Pam		
Fraser	Renee		
Green	Jamie		
Grizard	Kevin		
Heidrich-Klein	Shiona		
Josefsson	Carl		
Kleiner	Beverly		
Krumm	Jennifer		
Laine	Terri		
MacGregor	Kathleen		
Mahan	Ralph		
McIntire	Marsha		
Parkes	Susan		
Penrod	Kristeen	SC Wildlands	Director
Pratt	Beth	California National Wildlife Federation	Regional Executive Director
Raives	Bryan		
Sama	Karen		
Samusick	Christine		
Sandek	India		
Shubert	Lois		
Stevens	JC		
Strait	Logan		
Stratton	Marcia		
Tash	Debra		
Taylor	Melissa		
Taylor	Paul		
Weinberg	Harvey		
Windinwood	Rebecca		

Batinica, Meighan

From: Heather Clough <Heather.Clough.150478870@p2a.co>
Sent: Sunday, March 10, 2019 8:11 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Heather Clough
7187 Lemur St.
Ventura, CA 93003

Batinica, Meighan

From: George Colman <gcolman@sacfirm.com>
Sent: Sunday, March 10, 2019 11:11 AM
To: Wildlife Corridors
Cc: Kathi Colman; Parks, Linda
Subject: Re: Habitat Connectivity and Wildlife Corridor Project

Board of Supervisors ..what a wonderful way to start National Wildlife Week (3/12-3/19) ..A VOTE TO APPROVE !!!

Sent from my iPhone

On Mar 6, 2019, at 11:25 AM, George Colman <gcolman@sacfirm.com> wrote:

> Board of Supervisors Ventura County ..hearing 3/12/19 ..In Favor : For over 6 years we have been Members of the Advisory Group for Save LA Cougars .org and we are personally committed to raising funds to build the Wildlife Crossing at Liberty Canyon in Agoura Hills. This is an effort that certainly partners with the Habitat Connectivity and Wildlife Corridor Project . We thoroughly and enthusiastically support it. It is critical to preserving our environment as the third largest Mediterranean Climate in the world ;unique in flora and fauna. We are obligated to facilitate the movement of plants and animals through migration and to promote bio- diversity .....George and Kathi Colman 56 76 Colodny Drive, Agoura Hills ,Ca

Batinica, Meighan

From: Amanda Coulson <Amanda.Coulson.150464866@p2a.co>
Sent: Sunday, March 10, 2019 5:49 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Amanda Coulson
1209 Lomita Ln
Carpinteria, CA 93013

Batinica, Meighan

From: Shannon De Buiser <shannondebuiser@gmail.com>
Sent: Sunday, March 10, 2019 9:16 PM
To: Wildlife Corridors
Cc: Zaragoza, John; Bennett, Steve; Long, Kelly; Supervisor Huber; Parks, Linda
Subject: Please DO NOT force wildlife corridors on helpless landowners!!

To whom it may concern,

I am contacting you in opposition to the proposed wildlife corridor project as it currently stands.

We have several issues with the project:
The maps and research appear to be based on studies that are over a decade old - in particular the riparian data is not even close to existing conditions in our area, especially in the wake of the devastating fires that are likely to have completely rerouted the travel routes of the remaining wildlife.

Reading through the data associated with the study shows many inconsistencies and conflicting data that shows that the entire project has been rushed to completion. The amount of landowners that would be affected with zero compensation for their troubles is astounding, unfair and bordering on socialist.

For a county that prides itself on our agriculture and history this proposal severely restricts the ability for agriculture to be conducted in a profitable manner and would destroy the contributions of several farming families to our heritage.

If you are going to pursue such a significant project, please take more time and do it right.

Sincerely,

Shannon DeBuiser

Batinica, Meighan

From: Sherry Dorris <Sherry.Dorris.150471877@p2a.co>
Sent: Sunday, March 10, 2019 6:57 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Sherry Dorris
2596 Cabin Cove
Port Hueneme, CA 93041

Batinica, Meighan

From: Pam Farrell <p23pfarrell@aol.com>
Sent: Sunday, March 10, 2019 11:25 PM
To: Wildlife Corridors
Subject: Public Hearing March12 2019 Wildlife Corridors Forced Compliance

Webster's Dictionary defines civil liberties as those guaranteed to individuals by law, which include thinking, speaking and taking actions, except when affecting the public welfare. I do not see where the public welfare is affected by not taking any actions or not creating unnecessary regulations against individuals living out in places shown on your maps.

As near as I have determined, none of the Planning Commission or the County Supervisors live out of a city limit. You do not know the extra expenses required of living out or other problems involved. We live out for a reason, to be free of city ordinances restricting our land uses. Now you want to restrict what we do with our land for the welfare of animals, not the public welfare, and to tax us to boot. The whole plan should be dropped and tell those bearded trespassing State funded grant ecologists that Ventura County will not comply. Let's be the only county in California that will let things be like Tierra Rejada Valley. Even if you are not in my district, I will go to war against any of you the next time you run for election.

Pamela Farrell
Happy Camp Area
Moorpark

Batinica, Meighan

From: Renee Fraser <Renee.Fraser.150461229@p2a.co>
Sent: Sunday, March 10, 2019 5:06 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Renee Fraser
4503 Adam Road
Simi Valley, CA 93063

Batinica, Meighan

From: Jamie Green <Jamie.Green.149251747@p2a.co>
Sent: Sunday, March 10, 2019 6:50 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Jamie Green
9727 Sweetwater Ln
Ventura, CA 93004

Batinica, Meighan

From: Diane Grizard <kevin_and_diane@msn.com>
Sent: Sunday, March 10, 2019 8:54 PM
To: Wildlife Corridors; Supervisor Huber; Long, Kathy; Bennett, Steve; Zaragoza, John; Parks, Linda
Subject: Wildlife corridors project

We are contacting you in opposition to the proposed wildlife corridor project as it currently stands.

We have several issues with the project:
The maps and research appear to be based on studies that are 20 years old - in particular the riparian data is not even close to existing conditions in our area.

Reading through the data associated with the study shows many inconsistencies and conflicting data that shows that the entire project has been rushed to completion.

For a county that prides itself on our agriculture and history this proposal severely restricts the ability for agriculture to be conducted in a profitable manner and would destroy the contributions of several farming families to our heritage.

If you are going to pursue such a significant project, please take more time and do it right.

Sincerely,

Kevin Grizard

Batinica, Meighan

From: Shiona Heidrich-Klein <Shiona.HeidrichKlein.150397302@p2a.co>
Sent: Sunday, March 10, 2019 7:18 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Thank you,

Shiona Heidrich-Klein
6873 Fortuna Rd
Goleta, CA 93117

Batinica, Meighan

From: Carl Josefsson <Carl.Josefsson.150431619@p2a.co>
Sent: Sunday, March 10, 2019 12:13 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Carl Josefsson
5608 Roundtree Pl
Westlake Village, CA 91362

Batinica, Meighan

From: Beverly Kleiner <Beverly.Kleiner.150487898@p2a.co>
Sent: Sunday, March 10, 2019 10:46 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Beverly Kleiner
628 Lincoln Blvd, Apt B
Santa Monica, CA 90402

Batinica, Meighan

From: Jennifer Krumm <Jennifer.Krumm.150405267@p2a.co>
Sent: Sunday, March 10, 2019 8:30 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Jennifer Krumm
571 Oldstone Pl
Simi Valley, CA 93065

Batinica, Meighan

From: Terri Laine <Terri.Laine.43807927@p2a.co>
Sent: Sunday, March 10, 2019 10:18 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Terri Laine
169 Ashby Ct
Oak View, CA 93022

Batinica, Meighan

From: Kathleen MacGregor <Kathleen.MacGregor.150446532@p2a.co>
Sent: Sunday, March 10, 2019 2:32 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Kathleen MacGregor
137 W El Roblar Dr
Ojai, CA 93023

Batinica, Meighan

From: Ralph Mahan <rdmahan@aol.com>
Sent: Sunday, March 10, 2019 4:12 PM
To: Wildlife Corridors
Subject: Wildlife Corridor meeting on March 12, 2019

My name is Ralph Mahan and I live at 5006 Read Road, Moorpark. I have lived in the Somis-Moorpark area for the last 80 years and have several citrus and avocado ranches. In 1995 I purchased the 400 acre parcel that is on the north side of Tierra Rejada Road. The property has a 183 acre golf course as well as many acres of beautiful avocados. I have given over fifty acres of this land in the form of conservation easements to protect wildlife. My family came to Pleasant Valley in 1867 (now Camarillo) while the area was still a part of Santa Barbara County and remained in that County until 1873 when John Mahan along with 816 other men voted to create Ventura County (his wife Rebecca had to wait another fifty years before she and other women got the right to vote.) There have been seven generations of Mahans since 1867 many of which had a great amount to do with helping create this beautiful land we live on today.
I probably have done as much as anyone to see that wildlife exists in our area.

For instance on February 4th, 1974 I created the 4,000 acre Happy Camp Regional Park. I seriously doubt that any other person knew what I was doing other than Senator Robert Lagomarsino and William Penn Mott (Reagan's Director of State Parks). It was a fine thing to do, for growing up we knew that the most secure place to protect deer was in the Happy Camp area of the Strathearn 12,000 acre ranch. In fact in 1950, Mrs. Strathearn said that she parked her car in one spot and counted 56 deer without moving. Today you could drive over the entire parcel and never see a deer. There are many reasons why the corridor should not be created and they will be discussed here today.

As you know the Golf Course and my ranch front on the north side of the four lane Tierra Rejada Road for over one mile. To attempt to force wildlife to cross this dangerous high speed road is something no one should ever contemplate.

Batinica, Meighan

From: Marsha mcintire <Marsha.mcintire.150485494@p2a.co>
Sent: Sunday, March 10, 2019 9:52 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Marsha mcintire
866 Vereda del Ciervo
Goleta, CA 93117

Batinica, Meighan

From: Susan Parkes <Susan.Parkes.150413600@p2a.co>
Sent: Sunday, March 10, 2019 9:37 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Susan Parkes
192 Little John Ln
Westlake Village, CA 91361

Batinica, Meighan

From: kristeen@scwildlands.org
Sent: Sunday, March 10, 2019 3:15 PM
To: Wildlife Corridors
Cc: Paul Edelman; Seth Riley; Remson, E.
Subject: Board of Supervisors 3/12 Support of HCWCOZ
Attachments: SCWildlands_BOSVenturaHCWCOZSupport.pdf

Please provide the attached letter of support to the Board of Supervisors in support of the Habitat Connectivity & Wildlife Corridor Overlay Zone.

Many thanks,
Kristeen Penrod, Director
SC Wildlands
www.scwildlands.org
626-497-6492

SC Wildlands
PO Box 1052
Fair Oaks, California 95628
626-497-6492 www.scwildlands.org

March 10, 2019

Ventura County Board of Supervisors
Board Chambers, Hall of Administration
800 S. Victoria, Ventura
Submitted via email: Wildlife.Corridors@ventura.org

Subject: Support of the Habitat Connectivity & Wildlife Corridor Overlay Zone

South Coast Missing Linkages was a highly collaborative inter-agency effort to identify and conserve the highest-priority linkages in the South Coast Ecoregion. The project lead was Science & Collaboration for Connected Wildlands (SC Wildlands; formerly South Coast Wildlands). The primary project partners that launched the South Coast Missing Linkages project with SC Wildlands include National Park Service, U.S. Forest Service, California State Parks, The Wildlands Conservancy, The Resources Agency, California State Parks Foundation, The Nature Conservancy, Santa Monica Mountains Conservancy, Resources Legacy Foundation, Conservation Biology Institute, San Diego State University Field Stations Program, Environment Now, Mountain Lion Foundation, and the Zoological Society of San Diego's Conservation and Research for Endangered Species, among others. Cross-border alliances were also formed with Pronatura, Universidad Autonoma de Baja California, Terra Peninsular, and Conabio, in recognition of our shared vision for ecological connectivity across the border into Baja. Maintaining and restoring these linkage is essential to allow natural ecological and evolutionary process to continue operating as they have for millennia.

The rigorous scientific approach for the South Coast Missing Linkages effort was developed by conservation biologists who specialize in wildlife connectivity. The South Coast Missing Linkages approach was described in a peer reviewed chapter in a book published by Cambridge University Press (Beier, Penrod, Luke, Spencer, Cabañero. 2006. South Coast Missing Linkages: restoring connectivity to wildlands in the largest metropolitan area in the United States. Pages 555-586 In KR. Crooks and MA Sanjayan, editors, Connectivity conservation. Cambridge U Press) and in a peer-reviewed paper in the leading journal in the field of conservation (Beier, Majka, Spencer. 2008. Forks in the road: choices in procedures for designing wildlife linkages. Conservation Biology 22:836-851). The latter paper has been cited 391 times, and is probably the most-cited paper on design of wildlife linkages. South Coast Missing Linkages has also been cited in numerous other scientific journal articles.

The County's Habitat Connectivity & Wildlife Corridor Overlay Zone is based on two of the South Coast Missing Linkages designs, the Santa Monica-Sierra Madre Connection (Penrod et al. 2006) and the Sierra Madre-Castaic Connection (Penrod et al. 2005). The Santa Monica-Sierra Madre Linkage design report was coauthored by Kristeen Penrod, Clint Cabanero, Paul Beier, Claudia Luke, Wayne Spencer, Esther Rubin, Ray Sauvajot, Seth Riley, and Denise Kamradt. The report was produced by SC Wildlands in collaboration with

National Park Service, Santa Monica Mountains Conservancy, California State Parks, and The Nature Conservancy. The Sierra Madre-Castaic Linkage report was coauthored by Kristeen Penrod, Clint Cabanero, Paul Beier, Claudia Luke, Wayne Spencer, and Esther Rubin. The coauthors of these two reports collectively have many decades of experience in designing and implementing wildlife movement corridors.

Dr. Paul Beier is one of the world's leading experts on wildlife movement corridors and connectivity science. Some 30 years ago, Paul Beier documented that young mountain lions find and use habitat corridors between mountain ranges in urban southern California. He has over 25 years of experience in the designing wildlife corridors, with over 30 publications on corridor design, animal movement, and estimates of resistance, plus 70 linkage designs including the South Coast Missing Linkages, which are being implemented around the world. Beier coauthored several linkage conservation plans in collaboration with SC Wildlands, a non-profit that Beier co-founded in 2001 (serving as President 2008-2017). He was President of the Society for Conservation Biology during 2011-2013. He is currently Regents' Professor of Conservation Biology at Northern Arizona University in Flagstaff, Arizona.

Dr. Wayne Spencer is a wildlife conservation biologist with over 30 years of professional experience in biological research and conservation planning. He specializes in the practical application of ecological and conservation science to resources management, design of nature reserves, and recovery of endangered species. He has conducted numerous field studies on rare and sensitive mammals, with particular focus on forest carnivores (e.g., martens and fishers) and endangered rodents (e.g., Pacific pocket mouse and Stephens' kangaroo rat). He is currently serving as Principle Investigator for California's Mammal Species of Special Concern project. Dr. Spencer also collaborates with other researchers and planners to develop and apply methods for identifying and conserving wildlife movement corridors and maintaining ecological connectivity in the face of climate change and habitat loss and fragmentation. He has provided scientific guidance for several large-scale habitat connectivity plans, including the South Coast Missing Linkages Project and the California Essential Habitat Connectivity Project. Because he has both research and real-world conservation planning experience, Dr. Spencer is often asked to lead science advisory processes to provide guidance for regional conservation and recovery plans, such as the California Desert Renewable Energy Conservation Plan and the Sacramento-San Joaquin Bay Delta Conservation Plan. He served on SC Wildlands board of directors from 2002 to 2017.

Dr. Esther Rubin's dissertation was on the Ecology of Desert Bighorn Sheep (*Ovis canadensis*) in the Peninsular Ranges of California. She conducted field studies on bighorn sheep in the Peninsular Ranges, California, to determine distribution, abundance, recruitment, survivorship, and causes of mortality. She prepared a draft Federal recovery plan (subsequently adopted by the US Fish and Wildlife Service) for Peninsular bighorn sheep, a Federally endangered population. She conducted research on habitat use, social behavior, and mountain lion predation of bighorn sheep in the Peninsular Ranges, California. She also served as an Independent Science Advisor to the County of San Diego for their East County Multiple Species Conservation Plan. Dr. Rubin also cofounded SC Wildlands in 2001 and continues to serve on the Board of Directors.

Dr. Claudia Luke, Director, Center for Environmental Inquiry, has over 20 years of experience directing field stations for the University of California and California State University systems. At Sonoma State University, she serves as Director for three SSU Preserves (Fairfield Osborn Preserve, Galbreath Wildlands Preserve, and Los Guillicos Preserve) which support career development opportunities and innovative research on environmental topics. Claudia has worked extensively with partners and collaborators to build regional research and management collaborations in the areas of watershed management, habitat connectivity, habitat restoration, and environmental education. She currently serves as Coordinator for the WATERS Collaborative, a management-research collaboration that creates professional research training opportunities in watershed management. Dr. Luke served on the Board of Directors for SC Wildlands from roughly 2002 to 2012.

Dr. Raymond Sauvajot leads the National Park Services' Natural Resource Stewardship and Science (NRSS) Directorate. Sauvajot leads 720 scientists, technicians and managers who expand scientific knowledge of the air, water, biological, physical, and geological resources that the National Park Service is responsible for preserving and protecting. Sauvajot is a 25-year veteran of science-focused work in the National Park Service. Prior to joining the NRSS directorate in Washington, Sauvajot was the Pacific West Region Natural Resource Program chief. The Pacific West Region includes national parks in California, Oregon, Washington, Nevada, Idaho and the Pacific Islands. Previous to that position, Sauvajot served as ecologist, senior science advisor and chief of planning, science and resource management at Santa Monica Mountains National Recreation Area. Sauvajot has held adjunct faculty positions in biology, ecology and environmental science at the University of California at Berkeley, UCLA, and California State University Northridge. Dr. Sauvajot helped develop the approach for the project, participated in several of the workshops, ranked model criteria and reviewed the results of the analyses, and coauthored the report for the Santa Monica-Sierra Madre Linkage.

Dr. Seth Riley is a wildlife ecologist for the National Park Service. For the past 18 years, Dr. Riley has worked at the Santa Monica Mountains National Recreation Area. His research focuses on the ecology and conservation of wildlife in fragmented urban landscapes. Specifically, this includes the behavior and ecology of wide-ranging mammalian carnivores such as mountain lions and bobcats, the effects of fragmentation and roads on the population genetic structure of wildlife (including carnivores, reptiles, and birds), and the effects of urbanization on the diversity and abundance of reptile and amphibian communities. Seth is also interested in conservation and management of wildlife in National Parks, and in the effective long-term monitoring of National Park resources. Seth helped develop the approach for the project, participated in several of the workshops, ranked model criteria and reviewed the results of the analyses, and coauthored the report for the Santa Monica-Sierra Madre Linkage.

Clint Cabanero of SC Wildlands and Denise Kamradt of the National Park Service are specialists in Geographic Information Systems (GIS). Clint is a GIS Developer and Analyst and was the primary GIS person for the South Coast Missing Linkages effort. Denise assisted with the Santa Monica-Sierra Madre Linkage.

Kristeen Penrod got her start in linkage conservation planning by coordinating California's statewide Missing Linkages conference in November of 2000 at the San Diego Zoo. This groundbreaking conference (Missing Linkages: Restoring Connectivity to the California Landscape) and the conference proceedings (Penrod et al. 2001) helped bring landscape connectivity to the forefront of conservation thinking in the state. That same year, she founded SC Wildlands, whose mission is to protect and restore systems of connected wildlands that support native wildlife and the ecosystems upon which they rely. Kristeen has led several connectivity planning efforts, including the South Coast Missing Linkages Project, Connectivity Planning for Selected Focal Species in the Carrizo Plain, California Essential Habitat Connectivity Project, A Linkage Network for the California Deserts, and Critical Linkages: Bay Area & Beyond.

Although the linkage design analyses and reports were completed in 2005 and 2006, the analytical techniques and methodical approach used by the project are still entirely sound, and the linkages are still viable. Recent connectivity assessments in 2010 and 2018 identify virtually the same linkages, providing further justification for the County's proposed Habitat Connectivity and Wildlife Corridor Overlay Zone. The California Essential Habitat Connectivity Project (Spencer et al. 2010), commissioned by Caltrans and California Department of Fish and Wildlife, identifies an Essential Connectivity Area that largely coincides with the Santa Monica-Sierra Madre Linkage. In 2018, The Nature Conservancy completed a statewide connectivity assessment that includes a climate component (Schloss and Cameron in prep 2019), which also highlights the importance of the HCWCOZ for maintaining and restoring connectivity, especially in an era of climate change. These analyses also highlight the importance of the addition of the Santa Susana Field Lab conservation easement to keep the HCWCOZ viable. The Nature Conservancy has created a web-based tour of the analysis that provides information on theoretical underpinnings of the approach and steps through the input data, intermediate output,

and final data layers, which is available at https://omniscape.codefornature.org/#/analysis-tour. In addition, The Nature Conservancy also developed a 2-D webmap that allows comparison of this data with the California Essential Habitat Connectivity data and the South Coast Missing Linkages data, available at http://tnc.maps.arcgis.com/apps/webappviewer/index.html?id=3cbb9454372e43ffac44b9dda07b5551. Furthermore, looking at the County's Interactive map showing Habitat Connectivity and Wildlife Corridors with recent imagery as the basemap shows that the great majority of land in the overlay zone is still permeable, http://rma.maps.arcgis.com/apps/webappviewer/index.html?id=92c5352af22a44a3a99dd41aa1b8d567. Although there has been further subdivision of parcels in some areas, particularly in the Critical Wildlife Passage Areas, many of these subdivided parcels remain undeveloped, and continue to provide live-in and move-through habitat for wildlife.

The South Coast Missing Linkages have been integrated into numerous local, regional, state, and federal plans, and are largely considered the backbone of a regional conservation strategy for southern California. The linkage designs were included in the State's most recent Areas of Conservation Emphasis 3.0, which was released in 2018 (https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=150835&inline). The South Coast Missing Linkages are also identified as a priority in the State Wildlife Action Plan (California Department of Fish and Wildlife 2015; https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109212&inline). The boundaries of the National Park Service's Rim of the Valley Corridor (2015) are largely based on the South Coast Missing Linkages, which the report calls "the most thorough and specific" habitat connectivity planning effort (http://npshistory.com/publications/samo/srs.pdf). The South Coast Missing Linkage plans are also highlighted in the Wildlife Conservation Board's (WCB) Strategic Plan of 2014, as a scientific and technical foundation for the WCB project selection process (https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=88552&inline). South Coast Missing Linkages are also included in two alternatives assessed in the South Coast Resource Management Plan Draft Resource Management Plan and Environmental Impact Statement (Bureau of Land Management 2011). The South Coast Missing Linkages were also integrated into the Open Space Element of the Southern California Association of Governments Regional Comprehensive Plan in 2008, which guides public policy on over 8 million acres (https://www.scag.ca.gov/Documents/f2008RCP_Complete.pdf). The U.S. Forest Service (2005) called out the importance of the South Coast Missing Linkages in the joint Resource Management Plan for the Angeles, Cleveland, Los Padres, and San Bernardino National Forests, stating "Virtually all of the 15 priority linkages are critical to the Forest Service in meeting long-term biodiversity goals". The South Coast Missing Linkages have also been integrated into city and county general plans. The linkages were included in the Open Space or Natural Resource elements of the City of Simi Valley General Plan https://www.simivalley.org/home/showdocument?id=6867, City of Thousand Oaks General Plan https://www.toaks.org/home/showdocument?id=342, City of Agoura Hills General Plan http://www.ci.agoura-hills.ca.us/home/showdocument?id=14678 , and the City of Calabasas General Plan https://www.cityofcalabasas.com/pdf/documents/gpac/CalabasasFinalGeneralPlan.pdf. The linkage designs have also been integrated into the Significant Ecological Areas of Los Angeles County's General Plan. Passage of the Ventura County Habitat Connectivity & Wildlife Corridor Overlay Zone would be consistent with the general plans of surrounding jurisdictions, as well as, the resource management plans of the agencies that manage habitat and open space in the region.

There have been tremendous conservation investments in the South Coast Missing Linkages network of linkage designs. Well over 350,000 acres in the linkage network have been conserved through fee title or conservation easements. Caltrans has also made significant investments to make the transportation network more permeable to wildlife movement. Directional fencing has been installed all along State Route 23 to direct wildlife to existing crossing structures. Caltrans lead a working group for State Route 118 and has funded many wildlife movement studies along this transportation route. Caltrans, National Park Service and others have been working on a wildlife overpass over the 10-lane Interstate 101 at Liberty Canyon, which is now in the final engineering

stage, and is expected to break ground as early as 2022. Passage of the Ventura County Habitat Connectivity & Wildlife Corridor Overlay Zone would help maintain these significant conservation investments.

The Ventura County Planning Commissioners suggested changes to the ordinance when they unanimously passed it on January 31, 2019. SC Wildlands strongly believes that two of these suggested changes should be reversed. The Tierra Rejada Valley Critical Wildlife Passage Area should be maintained as proposed in the draft ordinance circulated for the January 31st meeting. It is essential to have two north-south connections, through the Tierra Rejada Valley and the Simi Hills, in order to provide movement opportunities for the full range of native species that need these corridors to persist. Many species have limited dispersal and/or movement capabilities, and simply can't travel 4 or 5 miles east to the Simi Hills CWPA; many species may not even travel that distance in their lifetimes. We also urge the Board of Supervisors to maintain the 200-foot buffer around surface water features and riparian corridors. Riparian zones are known movement corridors for countless native species.

Passage of the Ventura County Habitat Connectivity & Wildlife Corridor Overlay Zone would help maintain our natural and cultural heritage. Working lands provide numerous benefits, such as water infiltration, groundwater recharge, carbon sequestration, a local supply of food and fiber, and live-in and move-through habitat for countless species. Keeping ranchers ranching and farmers farming is vital to maintaining connectivity across the landscape. These working lands should be maintained and enhanced for all of the values they afford us. Maintaining habitat connectivity, can and should support, not hinder the livelihood of farmers and ranchers. SC Wildlands respectfully requests that the Board of Supervisors pass the Habitat Connectivity & Wildlife Corridor Overlay Zone and associated ordinances to help protect our cultural heritage and our natural resource legacy.

Respectfully Submitted,

Kristeen Penrod, Director
SC Wildlands
www.scwildlands.org
626-497-6492

Literature Cited

Beier, P., D. Majka, and W.D. Spencer. 2008. Forks in the road: choices in procedures for designing wildlife linkages. Conservation Biology 22:836-851.

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Bureau of Land Management. 2011. South Coast Resource Management Plan Draft Resource Management Plan and Environmental Impact Statement, Volume 1. Prepared by US Department of the Interior Bureau of Land Management California Desert District Palm Springs-South Coast Field Office California. Pp. 421.

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Batinica, Meighan

From: Beth Pratt <prattb@nwf.org>
Sent: Sunday, March 10, 2019 7:30 PM
To: Wildlife Corridors
Subject: Letter of support for Proposed Habitat Connectivity and Wildlife Movement Corridors ordinance
Attachments: Wildlife Corridor Ventura Letter 031019.pdf

Beth Pratt
Regional Executive Director, California, National Wildlife Federation
Leader, #SaveLACougars Campaign
Author, *When Mountain Lions Are Neighbors: People and Wildlife Working It Out in California*

Email: prattb@nwf.org
Cell: (209) 620-6271 Office: (209) 966-2623
www.nwf.org/california
Be sure to connect with NWF California on Facebook and Twitter!

Uniting all Americans to ensure wildlife thrive in a rapidly changing world

#SAVELACOUGARS

March 10, 2019

Chair Bennett
Ventura County Board of Supervisors
800 S Victoria Ave # 1920
Ventura, CA 93009-1740

Subject: Proposed Habitat Connectivity and Wildlife Movement Corridors ordinance

Dear Chair Bennett and Members of the Board:

On behalf of the National Wildlife Federation, I would like express support for the Habitat Connectivity and Wildlife Movement Corridors ordinance. The Federation is one of the oldest and largest wildlife conservation groups in the country, with 6 million supporters nationwide. Our organization provides a voice for wildlife, and is dedicated to protecting wildlife and habitat, and inspiring future generations of conservationists.

"Nature doesn't work without connection," said author Mary Ellen Hannibal, and the science is now clear that wildlife need large landscape connectivity in order to have a future. Our organization has identified reconnecting fragmented habitat as one of the priority areas of focus for our strategic plan, and noted urban sprawl, land use changes, and roads and freeways as significant threats to wildlife nationwide. As the number one threat to wildlife worldwide is a loss of habitat, it's simply not enough to set aside protected open space—we must also look at how to make our human spaces accommodate wildlife and wildlife movement where appropriate.

In California, the Federation works on a number of conservation projects, and our work throughout the state focuses on restoring habitat, connectivity and corridors for wildlife. We are also one of the primary partners in building the wildlife crossing at Liberty Canyon, which will restore a key linkage for wildlife in the area. This measure would undoubtedly complement and enhance the impact of this effort toward improving connectivity.

Given the increasing and significant threats to wildlife such as development and urbanization, climate change and its related impacts like fire and drought, ordinances such as this proposed one will be key to ensuring a sustainable future for the region's wildlife.

Thank you for your consideration of this important matter for the wildlife of California.

Beth Pratt

California Regional Executive Director
National Wildlife Federation
(209) 620-6271 prattb@nwf.org

Batinica, Meighan

From: Bryan Raives <bryanraives@yahoo.com>
Sent: Sunday, March 10, 2019 9:23 PM
To: Wildlife Corridors
Cc: Zaragoza, John; Bennett, Steve; Long, Kelly; Supervisor Huber; Parks, Linda
Subject: We DO NOT SUPPORT the wildlife cooridors!

To whom it may concern:

I am contacting you in opposition to the proposed wildlife corridor project as it currently stands.

We have several issues with the project:
The maps and research appear to be based on studies that are over a decade old - in particular the riparian data is not even close to existing conditions in our area, especially in the wake of the devastating fires that are likely to have completely rerouted the travel routes of the remaining wildlife.

Reading through the data associated with the study shows many inconsistencies and conflicting data that shows that the entire project has been rushed to completion. The amount of landowners that would be affected with zero compensation for their troubles is astounding, unfair and bordering on socialist.

For a county that prides itself on our agriculture and history this proposal severely restricts the ability for agriculture to be conducted in a profitable manner and would destroy the contributions of several farming families to our heritage.

If you are going to pursue such a significant project, please take more time and do it right.

Sincerely,

Bryan Raives
Born & raised in Newbury Park

Batinica, Meighan

From: Karen Sama <Karen.Sama.150473361@p2a.co>
Sent: Sunday, March 10, 2019 7:59 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

I, Karen Sama, agree with all of the above and strongly urge passage of this ordinance.

Thank you,

Karen Sama
617 Highland Dr
Ojai, CA 93023

Batinica, Meighan

From: Christine Samusick <Christine.Samusick.150479257@p2a.co>
Sent: Sunday, March 10, 2019 8:19 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Christine Samusick
260 W Harrison Ave
Ventura, CA 93001

Batinica, Meighan

From: India Sandek <India.Sandek.123920634@p2a.co>
Sent: Sunday, March 10, 2019 12:57 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

India Sandek
1296 Baldwin Ranch Rd
Big Bear, CA 92314

Batinica, Meighan

From: Lois Shubert <Lois.Shubert.150444886@p2a.co>
Sent: Sunday, March 10, 2019 2:18 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Lois Shubert
1167 Baywood Ct.
Camarillo, CA 93010

Batinica, Meighan

From: JC Stevens <stevens.mail@mail.com>
Sent: Sunday, March 10, 2019 7:06 PM
To: ClerkoftheBoard, ClerkoftheBoard; Wildlife Corridors
Subject: Supporting the Wildlife Corridor

To The Ventura County Board of Supervisors:

Thank you, Board of Supervisors, for considering a wildlife corridor. Becoming more wildlife-friendly will not only help wildlife, it will help the people of this county.

I grew up in Ventura, and moved back last year after a long absence. For me, the soul of Ventura County is in its ocean, hills, mountains, open space, parks, fields and orchards. Its green hills, snow-dusted mountains and fertile agricultural lands are particularly beautiful at this time of year. They've been a powerful healing force for me, and I know others feel the same.

Last summer I visited Theodore Roosevelt National Park in North Dakota and toured a little cabin where Teddy Roosevelt lived after his young wife died, followed closely by his mother. The great American outdoors brought him back from his deep grief and gave him the courage to continue on and eventually become our 26th president.

As you know, he was an enthusiastic advocate for our national forests. I believe this project presents you with an opportunity to do for Ventura County what Teddy Roosevelt did for America – set aside places where wildlife can survive so future generations can see and enjoy them.

When shortsighted communities think only of accommodating population growth, allowing a never-ending landscape of structures and roadways, they hurt both people and wildlife by decreasing the groundwater supply we all rely on. But they also decrease the beauty that nourishes our souls, and that has the potential to endanger our society.

Will we become like the mountain lions described by the National Park Service representative at the Planning Commission meeting — harming our own species because of environmental stress? Or will we grow peacefully and sustainably, preserving the priceless beauty that led us to make Ventura County our home? When I look up at those gorgeous green hills, I feel hope. Thank you for your consideration.

Jan Stevens

P.O. Box 6818

Ventura, CA 93006

Batinica, Meighan

From: Logan Strait <Logan.Strait.150489201@p2a.co>
Sent: Sunday, March 10, 2019 11:31 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Logan Strait
1431 Underwood Road
Mckinleyville, CA 95519

Batinica, Meighan

From: MARCIA STRATTON <MARCIA.STRATTON.150393658@p2a.co>
Sent: Sunday, March 10, 2019 6:37 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

MARCIA STRATTON
1980 CHANNEL DRIVE
Ventura, CA 93001

A

Batinica, Meighan

From: Debra Tash <debratash@gmail.com>
Sent: Sunday, March 10, 2019 8:43 PM
To: Sussman, Shelley; Uhlich, Kim; Prillhart, Kim; ClerkoftheBoard, ClerkoftheBoard
Cc: Buehner, Charmaine; Pettit, Mike; 'George Tash'; Wildlife Corridors
Subject: URGENT PLEASE OPEN Wildlife Ordinance - Letter to be placed in the record for the Board of Supervisors Meeting
Attachments: Wildlife.Ordinance.Tash.Letter.Protest.3.12.2019.pdf

Importance: High

To the Clerk of the Board

Please place the attached letter in the Board packet so it will be included in the record, regarding the proposed Wildlife Ordinance on the Supervisors' agenda, March 12, 2019.

Thank you and with my sincerest regards,
Debra Tash

George and Debra Tash

5777 Balcom Canyon Rd.
Somis Ca 93066
voice mail: (805)529-8108
cell: (805)432-4701
e-mail: debratash@gmail.com

March 10, 2019

To the Board of Supervisors

RE: Wildlife Corridor, March 12th Board of Supervisors Agenda

Please be advised that I have studied the revised Wildlife Ordinance which came out just this Friday, March 8, 2019. On February 28, 2019, I met with Ms. Shelley Sussman, the head planner, and County Consul, on the issue of existing biological easements under the new regulations. After my review of the latest version of the Ordinance this issue has yet to be addressed in a satisfactory manner. There is no process in place for effectively reviewing these existing easements. This lack of a fair and streamline mechanism for such review is just another flaw in what is a very troubling document.

I do appreciate staff's work and their effort to correct the flaws in the Ordinance sited by the Planning Commission. They did their best in a very limited time. Yet for something this overreaching, that will affect countless property owners of hundreds of thousands of acres, our issue along with others, highlights that this regulatory document remains far from complete. I, like many, question the push to enact this as it stands now. It should be voted against and sent back to Planning so issues such as ours and others can be fully considered and addressed properly.

I do this with the utmost respect for Ms. Sussman and her team. However I and my husband are going on record against this Ordinance because our issue is still outstanding and has not been dealt with correctly.

Sincerely

Debra Tash

Batinica, Meighan

From: Melissa Taylor <Melissa.Taylor.150485502@p2a.co>
Sent: Sunday, March 10, 2019 9:52 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Melissa Taylor
4416 Skyglen Ct
Moorpark, CA 93021

Batinica, Meighan

From: Paul Taylor <Paul.Taylor.150438450@p2a.co>
Sent: Sunday, March 10, 2019 1:14 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Paul Taylor
1101 Sunnyglenn Av
Ojai, CA 93023

Batinica, Meighan

From: Harvey Weinberg <Harvey.Weinberg.11579287@p2a.co>
Sent: Sunday, March 10, 2019 8:07 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Harvey Weinberg
660 N. Olive St.
Ventura, CA 93001

Batinica, Meighan

From: Rebecca Windinwood <Rebecca.Windinwood.150488554@p2a.co>
Sent: Sunday, March 10, 2019 11:08 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Rebecca Windinwood
1202 Loma Drive, #75
Ojai, CA 93023

Wildlife Ordinance Comment Letters received
March 11, 2019

Last Name	First Name	Organization	Title
Anderson	Shirin		
Auerbach	Cassandra		
Baker	Bryant	Los Padres ForestWatch	Conservation Director
Black	Elizabeth		
Borchart	Chuck		
Bremer	Kathy		
Brown	Carri		
CA Dept. of Conservation	Acting State Geologist		
Campos	Elizabeth		
Canavarro -Gomez	Kimberly		
Canfield	Cathy		
Chrisman	Joseph C.		
Clark	Heather		
Clarke	Brendan		
Craig	Heather		
Cristea	Brad		
Diamond	Debbie		
Dziwak	James		
Ebener	Patricia		
Filipelli	Deborah		
Gill	Lauren		
Gold	Ken		
Graham	Danielle		
Grizard	Kevin & Diane		
Halsey	Richard	CA. Chaparral Instiute	Director
Hasely	Valerie		
Hatch	EK		
Holder	Terri and Tim		
Ives	Jon R.		
Kaper	Ingrid		
Kempster	Steve		
Kiceniuk	Katherine		
Krankl	Elaine & Manfred		
LaMore	Linda		

Wildlife Ordinance Comment Letters received
March 11, 2019

Last Name	First Name	Organization	Title
Lamorie	Kimberly	Las Virgenes Homeowners Federation, Inc.	
Marks	Karen		
Masteller	John Quincy	Thomas Aquinas College	General Counsel
Moore	Angie		
Motyka	Gail		
Newell	Michele		
Newton	John	Underwood Family	Consultant
O'Riley	Robert		
Quach	Joleen		
Roth	Jamie		
Rowe	Teal		
Sanchez	Anna		
Shakman	Robert		
Shapiro	Kerry	JMBM	
Silver	Amy		
Silver	Dan		
Sloan	A.E. "Bud"	Ventura Cattlemen's Assoc.	Director
Smith	Jade		
Spraggins	Charles	Save our /Water Ventura	
Spraggins	Eugenia		
Spring	Michele		
Stull	Eric		
Torres	Louis		
Triem	Judy		
Van Den Berg	Arount		
Warner	Judy		
Wiesbrock	Mary		
Willard	Robert		
Williams	Gerry		
Zingerman	Michael		

Batinica, Meighan

From: Shirin Anderson <Shirin.Anderson.150359331@p2a.co>
Sent: Monday, March 11, 2019 12:45 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Shirin Anderson
5141 W Wooley Rd
Oxnard, CA 93035

Batinica, Meighan

From: ClerkoftheBoard, ClerkoftheBoard
Sent: Monday, March 11, 2019 12:11 PM
To: Sussman, Shelley; Hall, Anna
Subject: FW: I support the Wildlife Corridor Zone!

Categories: Orange category

Comment letter Wildlife corridor

Lori

From: Cassandra Auerbach <cassandra1444@verizon.net>
Sent: Monday, March 11, 2019 11:57 AM
To: ClerkoftheBoard, ClerkoftheBoard <ClerkoftheBoard@ventura.org>
Subject: I support the Wildlife Corridor Zone!

Dear Clerk,

Please note my long-term committed support of open space, agricultural lands, and wildlife in Ventura County.

My family has lived in Ventura County since 1984. In all these years, I have been a consistent advocate for open space areas and the continued productivity of our agricultural lands. Biodiversity is the key to long-term survival on this planet, as has been proven over and over in the last few million years. Without a robust and productive use of rich farmland, we will end up unable to feed ourselves, a more short-term killer of past civilizations.

Paving over these areas and making it difficult for other species to survive is long-term suicide for humans. And, given the current levels of toxins and other environmental factors, maybe not so very long-term at all.

Please vote to make the Wildlife Corridor Zone a reality.

It is truly the least we can do.

Best,

Cassandra Auerbach

Batinica, Meighan

From: Cassandra Auerbach <Cassandra.Auerbach.150614472@p2a.co>
Sent: Monday, March 11, 2019 11:31 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Cassandra Auerbach
1444 Fordham Ave.
Thousand Oaks, CA 91360

Batinica, Meighan

From: Bryant Baker <bryant@lpfw.org>
Sent: Monday, March 11, 2019 11:10 AM
To: ClerkoftheBoard, ClerkoftheBoard; Wildlife Corridors
Cc: Parks, Linda; Bennett, Steve; Zaragoza, John; Supervisor Huber; Long, Kelly
Subject: BOS Hearing, March 12: Agenda Item #4 - Organization Support for Wildlife Corridor Proposal
Attachments: 20190311_Wildlife Corridors_Organizational Support Letter.pdf

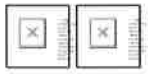
Good morning,

Please find attached a letter signed by 40 land, water, and wildlife conservation organizations in support of strong protections for wildlife corridors.

Thank you,

Bryant Baker, Conservation Director
Los Padres ForestWatch
PO Box 831, Santa Barbara, CA 93102
805.617.4610 x3 • Direct: 805.770.7456

Protecting the Los Padres National Forest, the Carrizo Plain National Monument, and other public lands along California's Central Coast. Join us today at LPFW.org.



LOS PADRES FORESTWATCH
CALIFORNIA CHAPARRAL INSTITUTE • CALIFORNIA NATIVE PLANT SOCIETY
CALIFORNIA STATE PARKS FOUNDATION • CALIFORNIA TROUT
CALIFORNIA WILDERNESS COALITION • CENTER FOR BIOLOGICAL DIVERSITY
CENTER FOR REGENERATIVE AGRICULTURE • CHANNEL ISLANDS RESTORATION
CITIZENS FOR RESPONSIBLE OIL & GAS • CONEJO OAK TREE ADVOCATES
CONEJO VALLEY AUDUBON SOCIETY • DEFENDERS OF WILDLIFE • EARTHJUSTICE
FOOD AND WATER WATCH • FRIENDS OF THE SANTA CLARA RIVER
FRIENDS OF THE VENTURA RIVER • GREENLATINOS • KEEP SESPE WILD
MATILIJA COALITION • MOUNTAIN LION FOUNDATION
NATIONAL PARKS CONSERVATION ASSOCIATION • NORTH RANCH MOUNTAIN BIKERS
OJAI RAPTOR CENTER • OJAI VALLEY GREEN COALITION • ONCE UPON A WATERSHED
PASO PACIFICO • POISON FREE MALIBU • PUBLIC LAND ALLIANCE NETWORK
SAVE OPEN SPACE AND AGRICULTURAL RESOURCES (SOAR)
SAVE OPEN SPACE/SANTA MONICA MOUNTAINS • SIERRA CLUB, LOS PADRES CHAPTER
SURFRIDER FOUNDATION, VENTURA COUNTY CHAPTER
TEMESCAL CANYON ASSOCIATION • THE NATURE CONSERVANCY
VENTURA AUDUBON SOCIETY • VENTURA CITIZENS FOR HILLSIDE PRESERVATION
VENTURA COUNTY WILDLIFE TRACKERS • WILDEARTH GUARDIANS
WILDLIFE CARE OF SOUTHERN CALIFORNIA

March 11, 2019

Ventura County Board of Supervisors
800 S. Victoria Ave.
Ventura, CA 93009

Re: Support for Habitat Connectivity and Wildlife Movement Corridor Ordinance
Agenda Item #4, Board of Supervisors Hearing, March 12, 2019

Dear Chair Bennett and Members of the Board:

We applaud the County of Ventura for its multi-year effort to identify wildlife corridors and develop a set of standards to protect our local wildlife as the county continues to grow. The protection of wildlife corridors will safeguard animals and their habitat within key travel ways that connect the Los Padres

National Forest, Santa Monica Mountains National Recreation Area, and other open space throughout the county.

Scientists have long studied population dynamics of local wildlife species, the decline of which has been attributed to habitat loss and fragmentation throughout our region. Animals that exemplify Ventura County's rugged nature and reflect its residents' strong will and tenacity depend on the conservation of connected habitat in order to survive long into the future. This proposal will encourage smarter development practices that will undoubtedly protect mountain lions, bears, bobcats, foxes, coyotes, badgers, birds, aquatic species, and other wildlife for generations to come.

Our region's wildlife are increasingly impacted by non-native plant infestations, outdoor night lighting, wildlife impermeable fencing, and development in sensitive areas such as along streams and across critical animal movement pathways. The proposed ordinance would substantially reduce these effects by prohibiting the intentional planting of invasive species near streams, limiting the amount and type of lighting that can be used at night, reducing the cumulative area of wildlife impermeable enclosures, and discouraging sprawling development—especially in sensitive areas. Without these standards, wildlife that live in and traverse Ventura County will continue to be negatively affected.

Importantly, the proposal benefits wildlife without placing excessive burdens on landowners. The ordinance contains dozens of exemptions designed for agricultural producers, livestock managers, and other landowners. It does not prohibit activities and development but rather relies on the County's existing permitting process to improve the mitigation of environmental impacts. For example, the ordinance will make some types of development subject to discretionary permitting rather than ministerial near surface water features. This is something already employed by neighboring counties such as Santa Barbara.

Contrary to the talking points of well-financed opponents of this proposal, the ordinance contains exemptions allowing landowners to continue creating and maintaining defensible space around their structures to protect them from wildfire. The County Fire Chief stated in a letter dated January 8, 2019 that "there are sufficient accommodations and exemptions in the ordinance to allow the Ventura County Fire Department the ability to maintain vegetation management and fuel treatments in the proposed wildlife corridors," and the Ventura County Fire Protection District stated numerous times during the January 31, 2019 Planning Commission hearing that wildfire mitigation would not be impacted by the ordinance.

Unfortunately, the draft ordinance before you now is less robust than the version that County staff presented to the Planning Commission in January 2019. We urge you to reject some of the changes which serve to weaken the ordinance's goal of protecting wildlife habitat connectivity and movement. The ordinance is already the result of significant compromise—it should not be diminished further. Specifically, the Board should approve the ordinance and reject the following amendments:

- exclusion of large areas from the overlay zones, especially the Tierra Rejada Valley; and

- reduction of surface water feature setbacks from 200 feet to 100 feet that would allow development to further encroach on sensitive riparian zones—buffer areas that help to protect all water resources downstream.

The forethought of this proposal and the Board's original direction cannot be understated. Adoption of a strong ordinance will position Ventura County as a leader in wildlife protection not only throughout the state but throughout the nation as well. This major step forward will ensure that our children and their children will get to experience both the wonder of our local wildlife and the critical benefits that wildlife provide to the healthy ecosystems on which we rely.

Sincerely,

Bryant Baker
Conservation Director
Los Padres ForestWatch
bryant@lpfw.org

Richard Halsey
Director
California Chaparral Institute
rwh@californiachaparral.org

Nicholas Jensen
Southern California Conservation Analyst
California Native Plant Society
njensen@cnps.org

Rachel Norton
Executive Director
California State Parks Foundation
kate@calparks.org

Russell Marlow
Santa Clara River Steelhead Coalition Chair
California Trout
rmarlow@caltrout.org

Matthew Sayles
Central Coast Conservation Director
California Wilderness Coalition
msayles@calwild.org

J.P. Rose
Staff Attorney
Center for Biological Diversity
jrose@biologicaldiversity.org

David White
Executive Director
Center for Regenerative Agriculture
david@ojaicra.org

Ken Owen
Executive Director
Channel Islands Restoration
ken@cirweb.org

Robin Gerber
Board Chair
Citizens for Responsible Oil & Gas
ed@cfrog.org

Bonnie Clarfield-Bylin
Founding Member
Conejo Oak Tree Advocates
Bonnie@conejooaktreeadvocates.org

Frank DeMartino
President
Conejo Valley Audubon Society
president@conejovalleyaudubon.org

Kim Delfino
California Program Director
Defenders of Wildlife
kdelfino@defenders.org

Marjorie Mulhall
Legislative Director for Lands, Wildlife, and Oceans
Earthjustice
mmulhall@earthjustice.org

Ana Rosa Rizo-Centino
Senior Organizer
Food and Water Watch
arizocentino@fwwatch.org

James Danza
Chair
Friends of the Santa Clara River
contact@fscr.org

Paul Jenkin
Coordinator
Friends of the Ventura River
pjenkin@surfrider.org

Jessica Loya
National Policy Director
GreenLatinos
jessicaloya@greenlatinos.org

Alasdair Coyne
Conservation Director
Keep Sespe Wild
sespecoyne@gmail.com

Paul Jenkin
Coordinator
Matilija Coalition
pjenkin@surfrider.org

Lynn Cullens
Executive Director
Mountain Lion Foundation
LCullens@mountainlion.org

Dennis Arguelles
Los Angeles Program Manager
National Parks Conservation Association
darguelles@npca.org

Tamara Napier
Leadership Team
North Ranch Mountain Bikers
MtnBykGirl@yahoo.com

Kimberly Stroud
Executive Director
Ojai Raptor Center
raptorcenter@roadrunner.com

Deborah Pendrey
Acting Executive Director
Ojai Valley Green Coalition
deb@ojaivalleygreencoalition.org

David White
Project Director
Once Upon a Watershed
david@onceuponawatershed.org

Sarah Otterstrom
Executive Director
Paso Pacifico
sarah@pasopacifico.org

Kian Schulman
Director
Poison Free Malibu
PoisonFreeMalibu@gmail.com

Carla Bollinger
Director
Public Land Alliance Network
planopenspace@gmail.com

Richard Francis
Board Member
Save Open Space and Agricultural Resources
info@soarvc.org

Mary Wiesbrock
Chair
Save Open Space/Santa Monica Mountains
marywiesbrock@sbcglobal.net

Katie Davis
Chair
Sierra Club, Los Padres Chapter
kdavis2468@gmail.com

Laura Oergel
Chair
Surfrider Foundation, Ventura County Chapter
chair@ventura.surfrider.org

Gilbert Dembo
President
Temescal Canyon Association
temcanyonassoc@gmail.com

E.J. Remson
Senior Project Director
The Nature Conservancy
eremson@tnc.org

Bruce Schoppe
President
Ventura Audubon Society
bschoppe6698@sbcglobal.net

Diane Underhill
President
Ventura Citizens for Hillside Preservation
dunderhill@sbcglobal.net

Wyatt Harris
President
Ventura County Wildlife Trackers
vcwildlifetrackers@gmail.com

Taylor Jones
Endangered Species Advocate
WildEarth Guardians
tjones@wildearthguardians.org

Anna Reams
Director
Wildlife Care of Southern California
Annareams@gmail.com

Batinica, Meighan

From: Bryant Baker <bryant@lpfw.org>
Sent: Monday, March 11, 2019 11:10 AM
To: ClerkoftheBoard, ClerkoftheBoard; Wildlife Corridors
Cc: Parks, Linda; Bennett, Steve; Zaragoza, John; Supervisor Huber; Long, Kelly
Subject: BOS Hearing, March 12: Agenda Item #4 - Business Support for Wildlife Corridor Proposal
Attachments: 20190311_Wildlife Corridors_Business Support.pdf

Categories: Orange category

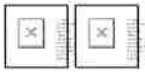
Good morning,

Please find attached a letter signed by 16 local businesses in support of strong protections for wildlife corridors.

Thank you,

Bryant Baker, Conservation Director
Los Padres ForestWatch
PO Box 831, Santa Barbara, CA 93102
805.617.4610 x3 • Direct: 805.770.7456

Protecting the Los Padres National Forest, the Carrizo Plain National Monument, and other public lands along California's Central Coast. Join us today at LPFW.org.



CAROL GRAVELLE GRAPHIC DESIGN

DELICATE PRODUCTIONS

ECOLOGIC LIFE

FLETCHER CHOUINARD DESIGNS

GARY BULLA'S FLYFISHING ADVENTURES

GREYFOX INVESTORS LLC

LOACOM

MCCONNELL'S FINE ICE CREAM OF VENTURA

OJAI NATURALIST

PATAGONIA

RINCON-VITOVA INSECTARIES

THE MOB SHOP

THE OJAI RETREAT

THE REFILL SHOPPE

TIMOTHY TEAGE PHOTOGRAPHY

March 11, 2019

Ventura County Board of Supervisors
800 S. Victoria Ave.
Ventura, CA 93009

Re: Business Support for Habitat Connectivity and Wildlife Movement Corridor Ordinance
Agenda Item #31, Board of Supervisors Hearing, March 12, 2019

Dear Chair Bennett and Members of the Board:

The long-term survival of wildlife in Ventura County is critical to the success of our beautiful and ecologically-diverse region as it continues to grow and develop. The proposed protections for wildlife corridors you are considering are an important step forward for both the wildlife and the people who call Ventura County home.

Wildlife help ensure that our local ecosystems are healthy. We rely on the places that provide habitat for local plants and animals for clean air, pure water, opportunities for outdoor recreation, and the aesthetic that makes Ventura County such an incredible place in which to live and work. When these ecosystems are functioning properly, we humans—and the companies we represent—reap health and economic benefits.

In short, healthy ecosystems are good for business, good for our employees and their families, and good for the community in which we live, work, and play. We therefore urge you to adopt a strong and effective ordinance that protects wildlife and their habitat throughout Ventura County. This forward-thinking action will ensure that our area's rich natural heritage is preserved for current and future generations.

Sincerely,

Carol Gravelle
Owner/Designer
Carol Gravelle Graphic Design
Camarillo
clgravelle@gmail.com

Nathan Wallace
Owner
Greyfox Investors LLC
Ojai
nathan@greyfoxinvestors.com

Christopher Smyth
Chief Financial Officer
Delicate Productions
Camarillo
smoother@delicate.com

Eric Cardenas
Chief Operations Officer
LOACOM
Santa Barbara
eric@loacom.com

Cynthia Grier
Consultant
EcoLogic Life
Ojai
cynthia@ecologiclife.com

Jimmy Young
President
McConnell's Fine Ice Cream of Ventura
Ventura
jimboyoung@aol.com

Mitchell Johnson
Environmental Point Person
Fletcher Chouinard Designs
Ventura
mitchell.johnson@patagonia.com

Bruce Vincent
Owner/Operator
Ojai Naturalist
Ojai
backwoodsbruce1@yahoo.com

Gary Bulla-Richards
Owner
Gary Bulla's Flyfishing Adventures
Santa Paula
gary@garybulla.com

Alison Huyett
Environmental Campaigns and Advocacy Mgr.
Patagonia
Ventura
alison.huyett@patagonia.com

Jan Dietrick
President
Rincon-Vitova Insectaries
Ventura
bugnet@rinconvitova.com

Tim Rhone
Co-Owner
The Mob Shop
Ojai
tim@themobshop.com

Ulrich Brugger
General Manager
The Ojai Retreat
Ojai
info@ojairetreat.org

Michelle Stevens
Founder
The Refill Shoppe
Ventura
hello@therefillshoppe.com

Timothy Teague
Owner
Timothy Teague Photography
Ojai
tteaguephotography@gmail.com

Hall, Anna

From: ClerkoftheBoard, ClerkoftheBoard
Sent: Monday, March 11, 2019 1:45 PM
To: Hall, Anna
Subject: FW: Wildlife corridor

One more

Lori

-----Original Message-----
From: Liz <piperstan@sbcglobal.net>
Sent: Monday, March 11, 2019 1:17 PM
To: ClerkoftheBoard, ClerkoftheBoard <ClerkoftheBoard@ventura.org>
Subject: Wildlife corridor

I totally support the wildlife corridor, but cannot attend the meeting.

Elizabeth H. Black
221 Brentwood Ave
Ventura 93003

Sent from my iPad

CAROL GRAVELLE GRAPHIC DESIGN

DELICATE PRODUCTIONS

ECOLOGIC LIFE

FLETCHER CHOUINARD DESIGNS

GARY BULLA'S FLYFISHING ADVENTURES

GREYFOX INVESTORS LLC

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THE MOB SHOP

THE OJAI RETREAT

THE REFILL SHOPPE

TIMOTHY TEAGE PHOTOGRAPHY

March 11, 2019

Ventura County Board of Supervisors
800 S. Victoria Ave.
Ventura, CA 93009

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Agenda Item #31, Board of Supervisors Hearing, March 12, 2019

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In short, healthy ecosystems are good for business, good for our employees and their families, and good for the community in which we live, work, and play. We therefore urge you to adopt a strong and effective ordinance that protects wildlife and their habitat throughout Ventura County. This forward-thinking action will ensure that our area's rich natural heritage is preserved for current and future generations.

Sincerely,

Carol Gravelle
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Ojai
nathan@greyfoxinvestors.com

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Camarillo
smoother@delicate.com

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eric@loacom.com

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cynthia@ecologiclife.com

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McConnell's Fine Ice Cream of Ventura
Ventura
jimboyoung@aol.com

Mitchell Johnson
Environmental Point Person
Fletcher Chouinard Designs
Ventura
mitchell.johnson@patagonia.com

Bruce Vincent
Owner/Operator
Ojai Naturalist
Ojai
backwoodsbruce1@yahoo.com

Gary Bulla-Richards
Owner
Gary Bulla's Flyfishing Adventures
Santa Paula
gary@garybulla.com

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alison.huyett@patagonia.com

Jan Dietrick
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Rincon-Vitova Insectaries
Ventura
bugnet@rinconvitova.com

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The Mob Shop
Ojai
tim@themobshop.com

Ulrich Brugger
General Manager
The Ojai Retreat
Ojai
info@ojairetreat.org

Michelle Stevens
Founder
The Refill Shoppe
Ventura
hello@therefillshoppe.com

Timothy Teague
Owner
Timothy Teague Photography
Ojai
tteaguephotography@gmail.com

Batinica, Meighan

From: Kathy Bremer <kcbremer@gmail.com>
Sent: Monday, March 11, 2019 11:42 AM
To: Long, Kelly; Zaragoza, John; Bennett, Steve; Parks, Linda; Supervisor Huber; Wildlife Corridors
Subject: Wildlife Corridors, March 12, Item 31, 1:00p

RE: Support for Habitat Connectivity Overlay Zone

Dear Board of Supervisors,

I am writing to you in support of the proposed Habitat Connectivity Overlay Zone.

Since I will not be in town Tuesday I cannot attend the Board meeting to speak on item 31, the General Plan Amendment to establish a Habitat Connectivity and Wildlife Corridors Overlay Zone, Critical Wildlife Passage Areas Overlay Zone, and to Adopt Regulations for management of these areas.

This proposal derived from years of scientific study that generated the South Coast Missing Linkages Report that identified our wildlife corridors that have been disrupted by various human uses and how we can repair the damage to ensure the present and future health of Southern California's wildlife. We have taken some important steps. Ahmanson Ranch and Rocky Peak Park were acquired for public recreation and to protect wildlife corridors. Another nearly 400 acres of Alamos Canyon were acquired for this purpose, along with a wildlife crossing under the 118 Freeway to allow wildlife to travel safely and not be injured or killed attempting to cross the freeway. This proposed overlay zone will ensure that the steps we've taken will be connected in meaningful ways to protect wildlife.

We know that we must take action and this proposal takes the least restrictive steps necessary to accomplish the goal of providing necessary corridors for our wildlife to remain healthy and avoid extinction.

Yes, there will be different regulations upon passage of this proposal, but they will not preclude landowners from use of their land as I've heard some people claim. It will however allow wildlife to travel through our open spaces and farmlands without risking their lives in interactions with humans and their vehicles.

Thank you for considering this proposed overlay zone.

Sincerely,
Kathy Bremer
Ventura

Hall, Anna

From: ClerkoftheBoard, ClerkoftheBoard
Sent: Monday, March 11, 2019 11:51 AM
To: Sussman, Shelley; Hall, Anna
Subject: FW: I support the Wildlife Corridor Zone!

Lori

-----Original Message-----
From: Kathy Broesamle <kbroesamle@att.net>
Sent: Monday, March 11, 2019 11:03 AM
To: ClerkoftheBoard, ClerkoftheBoard <ClerkoftheBoard@ventura.org>
Subject: I support the Wildlife Corridor Zone!

Please count me among those who support the wildlife corridor zone. Preserving our physical environment and its living creatures is important to me. This measure will help guard against the extinction of yet more native wildlife.
Kathy Broesamle

Batinica, Meighan

From: Carri Brown <carriellenbrown@yahoo.com>
Sent: Monday, March 11, 2019 11:26 AM
To: Wildlife Corridors
Subject: NO on the wildlife corridors

Hello,

My name is Carri Brown. I am from and living in Moorpark and I absolutely oppose the wildlife corridors. Homeowners have the right to build a fence around their OWN property to keep intruders out and their OWN animals in (over 2 acres or otherwise). I find it disgusting that the county is looking to take that right away from us. You have not done your due diligence in terms of financial impact such as loss in values of homes, land and businesses.

People are asking us to think in terms of the animals, but what about our right to privacy and security by being able to fence our own properties?

Thank you,
Carri Brown

Batinica, Meighan

From: Chuck Borchart <chuck.cgmctrips@gmail.com>
Sent: Monday, March 11, 2019 12:37 PM
To: Wildlife Corridors; Zaragoza, John
Cc: Kevin Grizard
Subject: Wildlife Corridors Project

We are contacting you in opposition to the proposed wildlife corridor project as it currently stands.

We have several issues with the project:
The maps and research appear to be based on studies that are 20 years old - in particular the riparian data is not even close to existing conditions in our area.

Reading through the data associated with the study shows many inconsistencies and conflicting data that shows that the entire project has been rushed to completion.

For a county that prides itself on our agriculture and history this proposal severely restricts the ability for agriculture to be conducted in a profitable manner and would destroy the contributions of several farming families to our heritage.

If you are going to pursue such a significant project, please take more time and do it right.

Sincerely,
Herbert Borchart & Mary Ellen Borchart
Newbury Park, CA 91320

MCCRINK, TIM

California
Department of Conservation
California Geological Survey

Gavin Newsom, Governor
David Bunn, Director

March 7, 2019

Ventura County Board of Supervisors
Hall of Administration
Attn: Mr. Steve Bennett
800 S. Victoria Avenue
Ventura, CA 93009
E-mail: Steve.Bennett@ventura.org

Re: Ventura County Habitat Connectivity and Wildlife Corridor
Project PL16-0127

Dear Mr. Bennett:

As the acting California State Geologist with the California Geological Survey, I submit this letter in response to the County of Ventura's (County) proposal to amend its General Plan and its Non-Coastal Zoning Ordinance, which would establish a Habitat Connectivity and Wildlife Corridors Overlay Zone and a Critical Wildlife Passage Areas Overlay Zone, both hereinafter referred to as the "Project." If the Project is approved, additional permitting restrictions would apply to certain proposed development projects within the Project's Overlay Zones.

Because the Project's Overlay Zones include areas that have been both classified by the California Geological Survey (CGS) and designated by the State Mining and Geology Board (SMGB) as containing mineral deposits having "regional or statewide significance" (also referred to as "MRZ-2 Zones") under Public Resources Code section 2761, subdivision (b)(2), CGS is concerned that the additional permitting restrictions do not appear to protect and conserve mineral resources but may threaten the potential to extract minerals in the Project's Overlay Zones.

Before a lead agency permits a use that would threaten the potential to extract minerals in a classified MRZ-2 Zone, a lead agency is required to provide "a statement specifying its reasons for permitting the proposed use and shall forward a copy to the State Geologist and the board for review." However, CGS has not received any statement or notice from the County regarding the Project. In addition, CGS has inquired with the SMGB to determine if the SMGB has received any statement or notice regarding the approval of the Project as it concerns those areas designated by the SMGB as an MRZ-2 Zone, and they indicate they have not.

Mr. Steve Bennett
March 7, 2019

It is the recommendation of CGS that prior to the approval of the Project, the County consider the impacts of the proposed Project on the County's Minerals Management Policies and provide the appropriate statement of reasons for approval pursuant to Public Resources Code sections 2762 and 2763 in light of the Project's impacts affecting those areas within the Project that have been classified and designated as MRZ-2 Zones.

If you have any questions, please contact me at 916-324-2549.

Sincerely,

Timothy McCrink
Acting State Geologist

Cc: Jeffrey Schmidt, State Mining Geology and Board
Fred Gius, CGS

Batinica, Meighan

From: Elizabeth Campos <Elizabeth.Campos.150512394@p2a.co>
Sent: Monday, March 11, 2019 9:51 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.
And the fiture generation depend on passage of this ordinance and depend on you.

Thank you,

Elizabeth Campos
P.o. box 1654
Ventura, CA 93002

Batinica, Meighan

From: Kimberly Canavarro Gomez <kimcgomez@gmail.com>
Sent: Monday, March 11, 2019 11:11 AM
To: Wildlife Corridors
Subject: Delay Vote Request

Hello,

My name is Kimberly Gomez and i live in Moorpark, CA. As a citizen of Moorpark I am concerned about the wildlife corridor being presented for vote tomorrow. No financial impact study has been presented to the community. I am concerned about losing the values of our homes, land and businesses, that will affect Moorpark's local fragile economy. I ask that this vote be delayed and the citizens of Moorpark be presented with a financial analysis and more information.

Thank you,
Kimberly Gomez

Batinica, Meighan

From: Cathy Canfield <Cathy.Canfield.150637918@p2a.co>
Sent: Monday, March 11, 2019 12:31 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Cathy Canfield
21 E. Anapamu St., Apartment 4
Santa Barbara, CA 93101

CHRISMAN, JOSEPH

Batinica, Meighan

From: Seth Shapiro <sshapiro@hathawaylawfirm.com>
Sent: Monday, March 11, 2019 8:46 AM
To: Uhlich, Kim; Sussman, Shelley
Subject: Proposed Wildlife Corridor Proposed Ordinance, Unanswered Planning Commission Correspondence and Follow Up Hearing by the by the Board of Supervisors on March 12, 2019, at 1:00 p.m.
Attachments: Corres. to Kim Uhlich and Shelley Sussman re Proposed Wildlife Corridor.pdf; Corres. to Ventura County Planning Division re Wildlife Corridor Notice.pdf; WCF-TR Aerial APN and Acreage Map.pdf; Proposed Wildlife Corridors Map.pdf

Dear Ms. Uhlich and Ms. Sussman:

I am an associate of Joseph C. Chrisman. I am writing to follow up on the attached correspondence. My office has not yet received any response. Thank you for your attention to this matter.

Very Truly Yours,

Hathaway Perrett Webster
Powers Chrisman & Gutierrez
A Professional Corporation

Seth P. Shapiro
5450 Telegraph Road, Suite 200 - Ventura, CA 93003
TEL: 805-644-7111 FAX: 805-644-8296
www.hathawaylawfirm.com

LAW OFFICES OF

HATHAWAY, PERRETT, WEBSTER, POWERS, CHRISMAN & GUTIERREZ

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AMY J. CANNON
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**CERTIFIED SPECIALIST
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DEBRA D. ACEVEDO
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JENNIFER A. ROLLAG
BONNIE P. RYAN
CERTIFIED PARALEGALS

January 30, 2019

Via E-Mail

PRIVILEGED AND CONFIDENTIAL

Ventura County Planning Division
800 S. Victoria Avenue,
Ventura, CA 93009-1740

Attn: Wildlife Corridors

Re: The Wood-Claeyssens Foundation , the Taylor Ranch and Questions and Comments in Response to Notice from the Planning Division and Kim L. Prillhart dated January 14, 2019

Ladies and Gentlemen:

The undersigned represents The Wood-Claeyssens Foundation ("Foundation"), the owner of the Taylor Ranch which is adjacent to the Ventura River. The Taylor Ranch is slightly more than 8,000 acres. A small portion near W. Main Street is in the City of Ventura. Portions are in the Coastal Zone. Most of the ranch is in the Non Coastal Zone and County of Ventura. Approximately 400 or 500 acres of the Ranch north of W. Main Street and west of Ventura River are in commercial agriculture. The Foundation's farm tenants are raising lemons, avocados, strawberries and a few other crops. A large portion of the Ranch is involved with oil and gas production. Aera Energy has the Taylor Lease on the easterly side of the Ranch near its entrance on Shell Road off the Ventura Avenue. California Resources Corporation has the Grubb Lease on the westerly side a portion of the Ranch and is entered off Pacific Coast Highway at San Miguelito Road. The Foundation has cell towers and range land on Red Mountain and its northerly parcels.

The purpose of this letter is not to interfere with any inquiries made by Aera Energy or California Resources Corporation about the Proposed Ordinance. Rather and with respect to the proposed Wildlife Corridor Ordinance, the Foundation and I have a number of questions, concerns and comments about the provisions of the Proposed Ordinance as they relate to and impact the Ranch and in some instances how they may apply. Topics addressed by the Ordinance as highlighted in the Notice include outdoor night-lighting, invasive plants, fencing, protecting areas around surface water features, and the Critical Wildlife Passage Areas. My client and I are

encouraged that the ordinance will not affect any structures or uses that currently exist including existing fencing. However, prejudice and injury to the Foundation from misunderstanding the impact of and/or applicability of the Proposed Ordinance would be substantial and the Foundation and I want to avoid that consequence.

I am enclosing a map of the 8,000 acre plus Taylor Ranch. The map reflects the Assessor parcels and acreages. While past, present and future uses of the entire Ranch are potentially impacted by the Wildlife Corridor Ordinance, the following APNs are of particular concern to the Foundation and/or its agricultural tenants:

1. 060-0-310-235
2. 060-0-300-045
3. 060-0-310-165
4. 060-0-310-175
5. 060-0-310-185
6. 060-0-320-195
7. 060-0-320-255
8. 068-0-141-015
9. 071-0-120-075

The Taylor Ranch Welty Parcel (APN 060-0-320-195) and
Taylor Ranch Parcels or Portions therein in the Coastal Zone

A major concern is the applicability of the Proposed Ordinance to the Taylor Ranch Welty parcel that adjoins W. Main Street and includes portions of the Ventura River. On the map attached, it is identified as APN 060-0-320-195 and is labeled parcel 21. The parcel is in the Coastal Zone and City of Ventura and is 105 acres, more or less. In recent years, approximately 65 acres of the parcel has been commercially farmed in strawberries. The farmed acreage has fencing along W. Main Street and the westerly border with the rest of the Taylor Ranch and on the easterly side to protect the strawberry field and the farming activities from the transient and trespassing population that lives in the Ventura River bottom that the Foundation patrols and the wildlife that will consume the strawberries, damage the plants and contaminate the field. Your map of the Wildlife Corridor - - a copy of which is attached - - covers a portion of the Welty parcel that is currently being farmed. There is an historic road on the easterly side referred to as the SP Milling Road. Most, if not all, of the Welty parcel is in the Coastal Zone. My first concern and question is whether the Proposed Ordinance applies to the parcel at all. Secondly, I am not sure if the map inadvertently covers portions of the historically farmed parcel or not. If existing ag is to be protected, any Wildlife Corridor should begin east - - and on the Ventura River side - - of the SP Milling Road.

Fire Breaks and Constant Fire Hazard

The Foundation and its tenants are very concerned about fire hazard on the Taylor Ranch. The Thomas Fire burned across a good portion of the Taylor Ranch during 2017. During 2015, portions of the Ranch were burned by the Solimar Fire. Periodic fires over time are a common event. Finally, the transients, homeless and trespassers intentionally and unintentionally set fires in the Ventura river bottom including several parcels owned by the Foundation. The Foundation patrols the Taylor Ranch portion of the Ventura river bottom to keep the trespassers, transients and homeless out and to remove their trash and debris. Likewise, the Foundation works very closely with law enforcement regarding this problem and with the Ventura County Fire Department personnel regarding fire abatement protocols. The likelihood that the Proposed Ordinance will create additional risks for the current uses of the Taylor Ranch are unacceptable as presently written. It is possible some of the concerns the Foundation, its ag, oil and gas tenants have are answerable and not the problem we believe. However, until we have had a chance to work through the particular concerns at the Taylor Ranch with you, we must oppose this Ordinance.

We look forward to working with you. We would ask that the Proposed Ordinance in its current form be continued for further discussion, further workshops and a rescheduled Planning Commission hearing date. I look forward to hearing from you regarding my questions, concerns and comments.

Very truly yours,

Joseph C Chrisman

JOSEPH C. CHRISMAN

JCC/js
Enclosures

LAW OFFICES OF

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OFFICE MANAGER

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JENNIFER A ROLLAG
BONNIE P RYAN
CERTIFIED PARALEGALS

March 1, 2019

Via E-Mail and Regular U.S. Mail

PRIVILEGED AND CONFIDENTIAL

Ventura County Planning Division
800 S. Victoria Avenue
Ventura, CA 93009-1740

Attn: Kim Uhlich and Shelley Sussman

Re: Proposed Wildlife Corridor Proposed Ordinance, Unanswered Planning Commission Correspondence and Follow Up Hearing by the by the Board of Supervisors on March 12, 2019, at 1:00 p.m.

Dear Kim and Shelley:

The undersigned represents The Wood-Claeyssens Foundation, the owner of the Taylor Ranch which is adjacent to the Ventura River. The Taylor Taylor Ranch is slightly more than 8,000 acres. A small portion near West Main Street is in the City of Ventura. Portions are in the coastal zone. Most of the Ranch is in the noncoastal zone and County of Ventura.

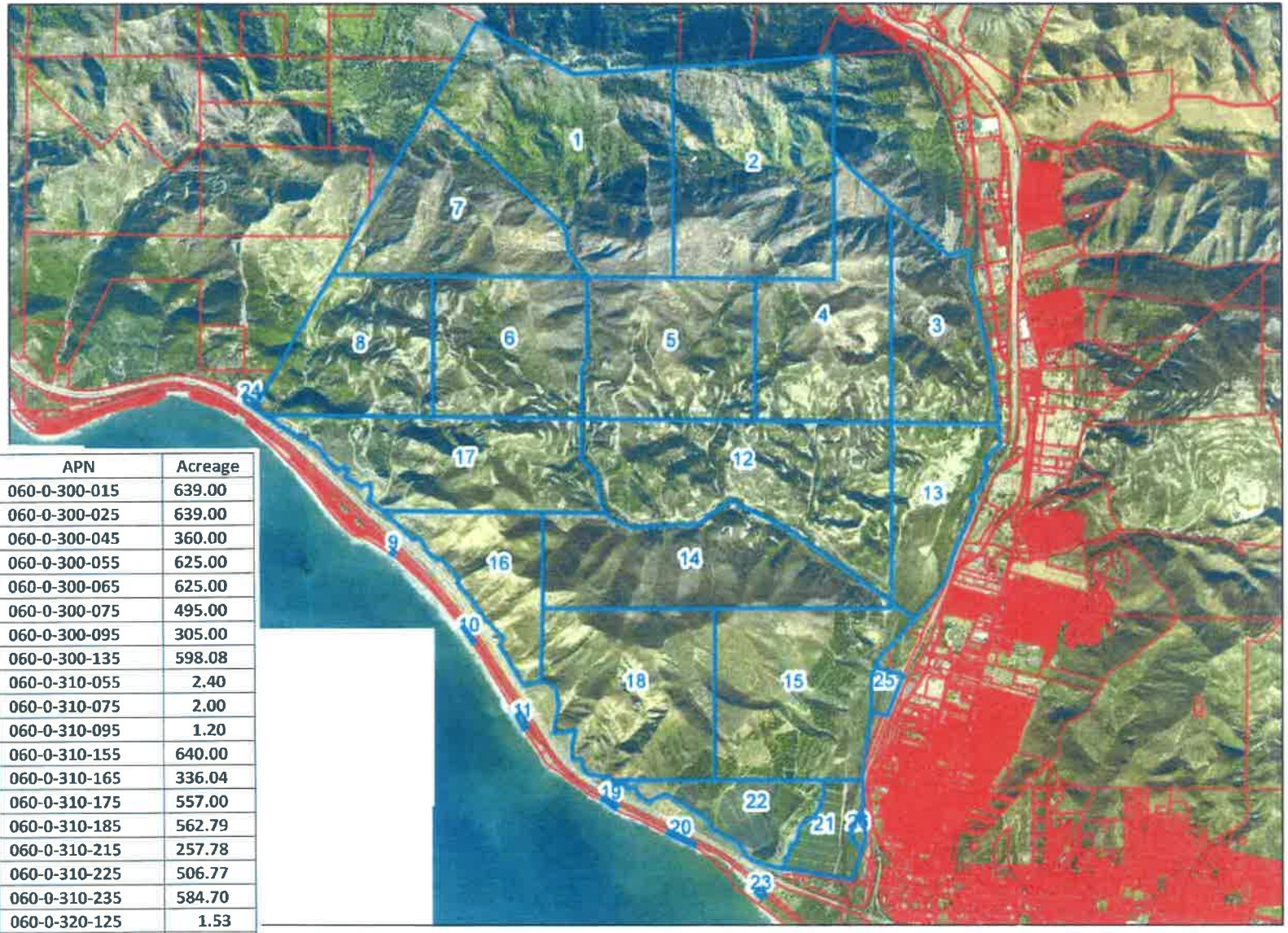
I forwarded correspondence to the Ventura County Planning Division, consistent with a Notice from the Planning Division and Kim L. Prillhart dated January 14, 2019. My correspondence dated January 30, 2019, remains unanswered. Louise Lampara with Aera Energy recommended I contact the two of you as you had been responsive to her inquiries in the past. I am enclosing another copy of my correspondence for your information and file. Please contact me after you have had an opportunity to review my correspondence. If I am not in for some reason, please ask for Seth Shapiro. Your courtesy and cooperation in this matter is appreciated.

Very truly yours,

JOSEPH C. CHRISMAN

JCC/js
Enclosures

Wood-Clayessens Foundation/Taylor Ranch APN & Acreage Map



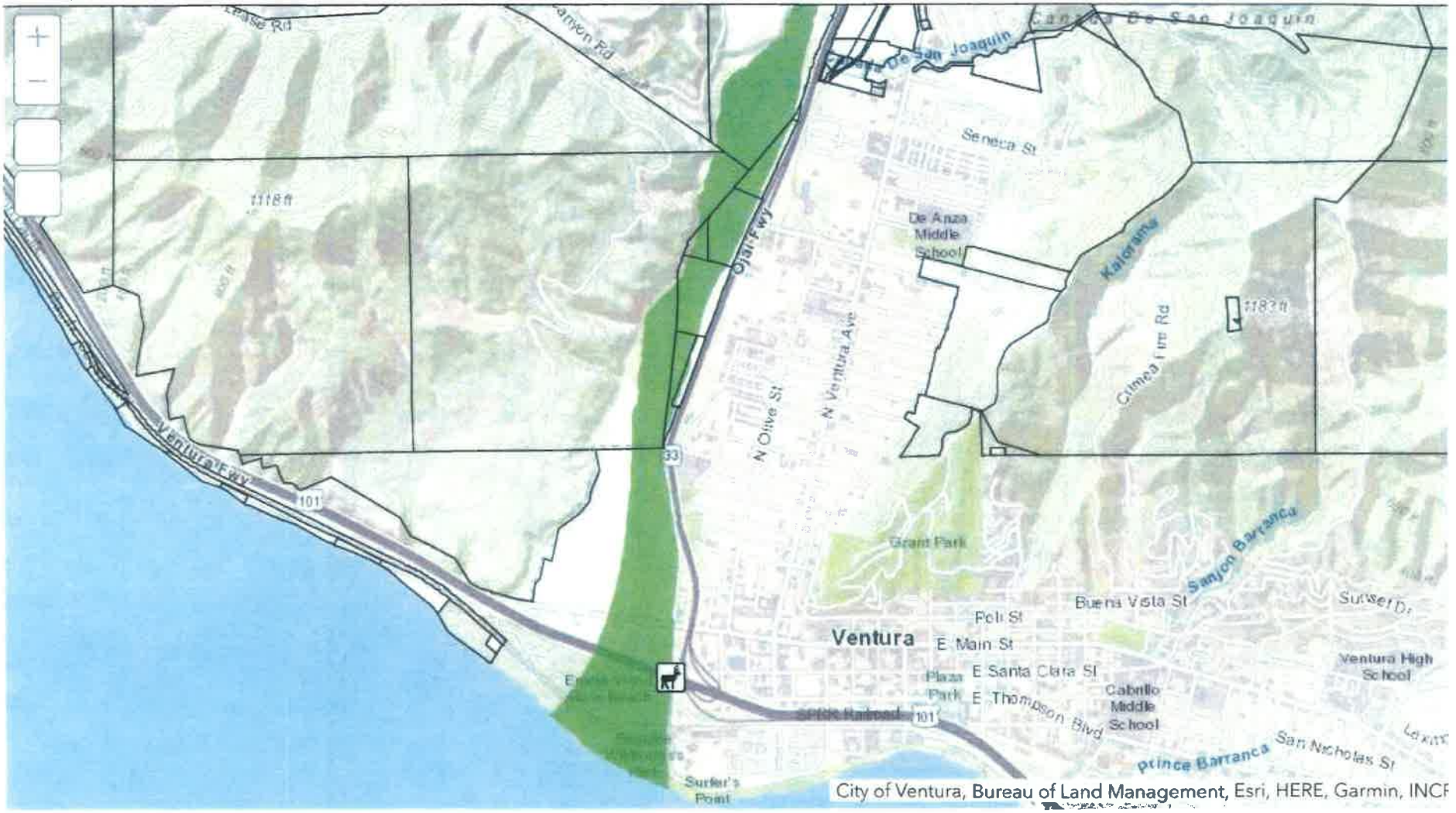
Label	APN	Acreage
1	060-0-300-015	639.00
2	060-0-300-025	639.00
3	060-0-300-045	360.00
4	060-0-300-055	625.00
5	060-0-300-065	625.00
6	060-0-300-075	495.00
7	060-0-300-095	305.00
8	060-0-300-135	598.08
9	060-0-310-055	2.40
10	060-0-310-075	2.00
11	060-0-310-095	1.20
12	060-0-310-155	640.00
13	060-0-310-165	336.04
14	060-0-310-175	557.00
15	060-0-310-185	562.79
16	060-0-310-215	257.78
17	060-0-310-225	506.77
18	060-0-310-235	584.70
19	060-0-320-125	1.53
20	060-0-320-135	1.07
21	060-0-320-195	105.12
22	060-0-320-255	220.17
23	060-0-320-265	1.08
24	060-0-380-065	1.65
25	068-0-141-015	21.86
26	071-0-120-075	5.51

0 1,950 3,900 7,800 11,700 15,600 Feet

Updated

Taylor Ranch Total Acreage: 8,085.75

Proposed Wildlife Corridors Map



0.6mi

Batinica, Meighan

From: Heather Clark <Heather.Clark.150493378@p2a.co>
Sent: Monday, March 11, 2019 3:19 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Heather Clark
1001 Gilbert Ln
Ventura, CA 93003

Batinica, Meighan

From: Brendan Clarke <Brendan.Clarke.150552246@p2a.co>
Sent: Monday, March 11, 2019 9:33 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Thank you,

Brendan Clarke
613 Canada St
Ojai, CA 93023

Batinica, Meighan

From: Heather Craig <Heather.Craig.150539827@p2a.co>
Sent: Monday, March 11, 2019 8:35 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Thank you,

Heather Craig
754 S 7th St
Grover Beach, CA 93433

Batinica, Meighan

From: Brad Cristea <Brad.Cristea.150603753@p2a.co>
Sent: Monday, March 11, 2019 11:08 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Brad Cristea
90 E Avenida de las Flores
Thousand Oaks, CA 91360

Batinica, Meighan

From: Debbie Diamond <Debbie.Diamond.150641319@p2a.co>
Sent: Monday, March 11, 2019 12:41 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Debbie Diamond
3045 Grove Street
Ventura, CA 93003

Batinica, Meighan

From: James Dziwak <James.Dziwak.150637792@p2a.co>
Sent: Monday, March 11, 2019 12:31 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

James Dziwak
324 Calle Higuera
Camarillo, CA 93010

Batinica, Meighan

From: Patricia Ebener <Patricia.Ebener.150612726@p2a.co>
Sent: Monday, March 11, 2019 11:28 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Patricia Ebener
35 ESTABAN DR
Camarillo, CA 93010

Batinica, Meighan

From: Deborah Filipelli <Deborah.Filipelli.150604293@p2a.co>
Sent: Monday, March 11, 2019 11:34 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

The following represents my position in support of an ordinance to protect wildlife corridors connecting the Santa Monica Mountains and the Los Padres National Forest.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

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Thank you,

Deborah Filipelli
p.o. box 341
The Sea Ranch, CA 95497

Batinica, Meighan

From: Lauren Gill <Lauren.Gill.150592341@p2a.co>
Sent: Monday, March 11, 2019 10:48 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Lauren Gill
859 Deer Willow Ct
Thousand Oaks, CA 91320

Batinica, Meighan

From: Ken Gold <Ken.Gold.150619512@p2a.co>
Sent: Monday, March 11, 2019 11:43 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Ken Gold
6 Buckskin Ct
Bell Canyon, CA 91307

Batinica, Meighan

From: Danielle Graham <danichica@hotmail.com>
Sent: Monday, March 11, 2019 11:40 AM
To: Wildlife Corridors; Zaragoza, John
Subject: Wildlife corridors project

Good Morning,

I am in opposition to the proposed wildlife corridor project as it currently stands. There are a few significant issues that concern me with this project.

The impact on the property owners in Ventura County is profound and life threatening. Have you forgotten the wild fires that have been plaguing California for the last decade. This proposition is in direct opposition to the safety of peoples lives and property in Ventura County.

The data associated with the study is based on studies that are over 20 years old and shows conflicting data with inconclusive results.

Please do more due diligence and consider the safety of the people when considering this proposal.

Sincerely,
Danielle Graham

Batinica, Meighan

From: bill grizard <billtrudy@hotmail.com>
Sent: Monday, March 11, 2019 11:38 AM
To: Wildlife Corridors
Subject: Fwd: PLEASE HELP!! Wildlife Corridor Vote is Tomorrow!!

Begin forwarded message:

From: Kevn Grizard <grizardk@gmail.com>
Date: March 11, 2019 at 10:59:54 AM PDT
To: Undisclosed recipients:;
Subject: PLEASE HELP!! Wildlife Corridor Vote is Tomorrow!!

The Ventura County Board Of Supervisors is voting tomorrow on passing the ordinance that has severe impacts on 1/3 of the land in Ventura County, and directly affects our home. If it passes, we will lose the right to half of our property WITH NO COMPENSATION - effectively giving it to the government but still having to pay the property taxes on it. The scariest part is that we would not be able to do any fire prevention work, as the property would have to be allowed to return to its native state. Our son's wedding that we had here last summer would no longer be allowed under the new laws.

Please help us by sending the following opposition notice to the Board of Supervisors today, modified as you see fit. And please share this with your friends, as this would set a precedence that could affect everyone.

Every statement helps, as the County is being bombarded by electronic messaging organized by national environmental groups urging them to enact these privately owned property restrictions.

Thanks for listening!

Kevin and Diane

To: "wildlife.corridors@ventura.org" <wildlife.corridors@ventura.org>,"john.zaragoza@ventura.org" <john.zaragoza@ventura.org>,
Subject: Wildlife corridors project

We are contacting you in opposition to the proposed wildlife corridor project as it currently stands.

We have several issues with the project:
The maps and research appear to be based on studies that are 20 years old - in particular the riparian data is not even close to existing conditions in our area.

Reading through the data associated with the study shows many inconsistencies and

conflicting data that shows that the entire project has been rushed to completion.

For a county that prides itself on our agriculture and history this proposal severely restricts the ability for agriculture to be conducted in a profitable manner and would destroy the contributions of several farming families to our heritage.

If you are going to pursue such a significant project, please take more time and do it right.

Sincerely,

Batinica, Meighan

From: rwh@californiachaparral.org
Sent: Monday, March 11, 2019 11:03 AM
To: Wildlife Corridors; Parks, Linda
Cc: Osterhaven, Jan
Subject: Support of Wildlife Corridors
Attachments: Wildlife Corridors Ventura County BOS.pdf

Dear Members of the Board,

Please find attached our written testimony support the establishment of wildfire corridors in Ventura County.

Sincerely,

Richard W. Halsey
Director

Get back into Nature, be mindful, form connections

California Chaparral Institute
PO Box 545
Escondido, CA 92033
www.californiachaparral.org
760-746-0025

CALIFORNIA
CHAPARRAL
INSTITUTE
...the voice of the chaparral

Ventura County Board of Supervisors
800 S. Victoria Ave.
Ventura, CA 93009

March 11, 2019

Re: Habitat Connectivity & Wildlife Movement Corridors

Dear Members of the Board,

One of the primary factors leading to the ignition of wildfires is the presence of non-native grasses and weeds (Syphard and Keeley 2015), which increase wherever soil disturbance occurs. Grasses are considered fine fuels that dry out quickly, providing a ready source for ignition. Many of California's most devastating wildfires have started in grassy fuels, such as the 2017 Tubbs Fire in Santa Rosa and the 2007 Witch Creek Fire in San Diego County.

Grazing, fuel break/road construction, and type conversion from native shrubland to grassland due to increased fire frequency are the main causes of non-native grass and weed spread.

Wildlife corridors, on the other hand, can assist in preventing the spread of flammable, non-native grasses and weeds by protecting native shrublands from disturbance. Interestingly, there are a significant number of grass-fueled wildfires that have stopped spreading when they reached mature chaparral stands (due to the shrubs' high fuel moisture), in particular the western edge of the 2003 Cedar Fire in San Diego County. Much of the 2017 Thomas Fire was grass-fueled.

We strongly support the establishment of wildlife corridors for not only their value in preserving the ability of native animal species to move across the landscape, but also for their potential role in reducing wildfire risk.

Sincerely,

Richard W. Halsey
Director

A Primer on Wildland Fire in California

1. Fuel treatments are often ineffective in stopping wind-driven fires and can create more flammable conditions by type-converting native chaparral shrublands to highly-flammable, non-native weedy grasslands.

There are dozens of anecdotal stories about fires stopping at previous fire scars. There is no doubt that happens. However, when assessing the use of scarce resources, government agencies must consider the cost/benefit of every action to ensure they are not spending money on efforts that are less effective than others.

As evidenced in Fig. 1, recent prescribed burn treatments (shown in blue) were not helpful in preventing the spread of the 2017 Thomas Fire.

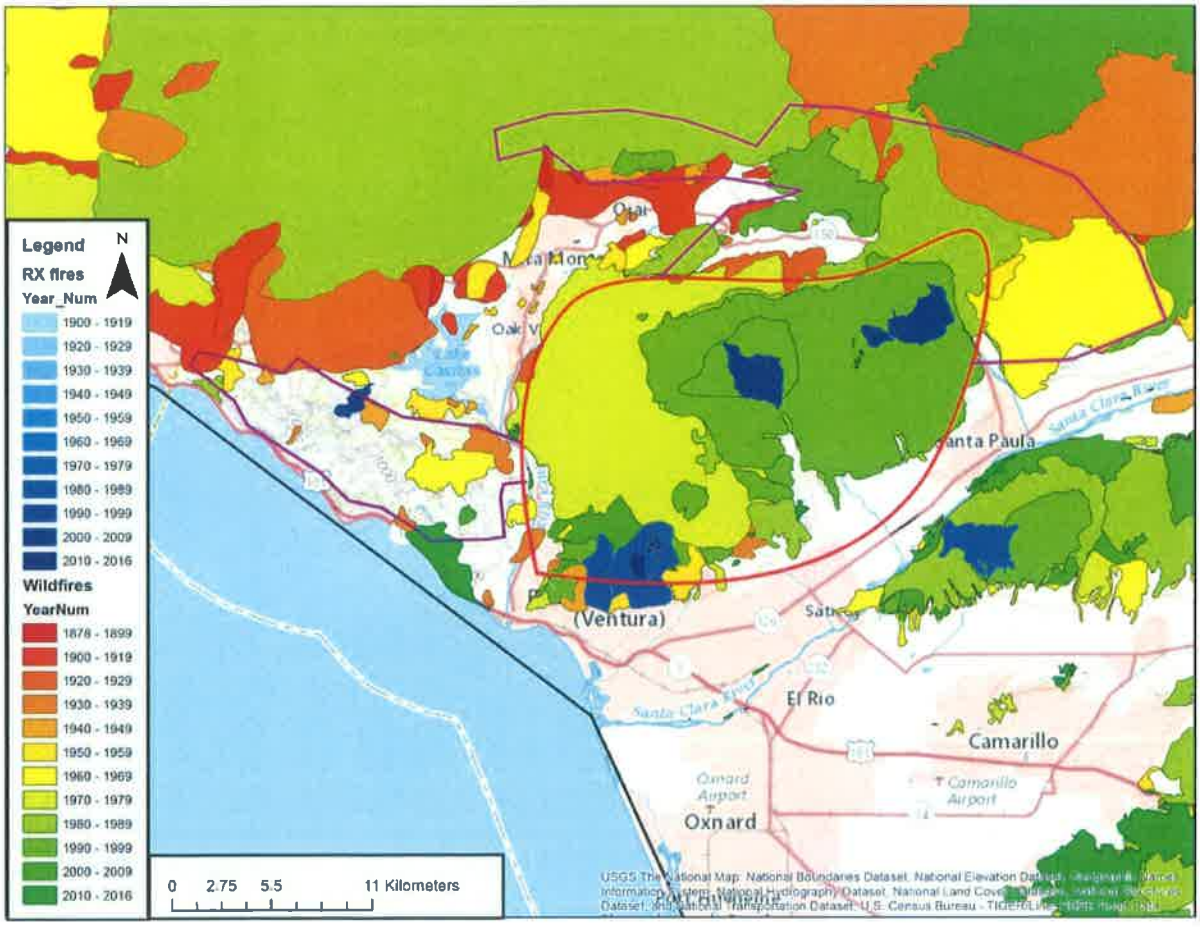


Figure 1. Prescribed Burns Within the Thomas Fire. The blue polygons show recent prescribed burns conducted by the Ventura County Fire Department. The red outline shows the rough perimeter of the 2017 Thomas Fire during its first hours. Source: USGS.

The easternmost prescribed burn in Fig. 1 is off Salt Marsh Road, downwind of the probable origin of the Thomas Fire. The middle burn is in Aliso Canyon. Neither of these appear to have provided anchor points for fire suppression activities.

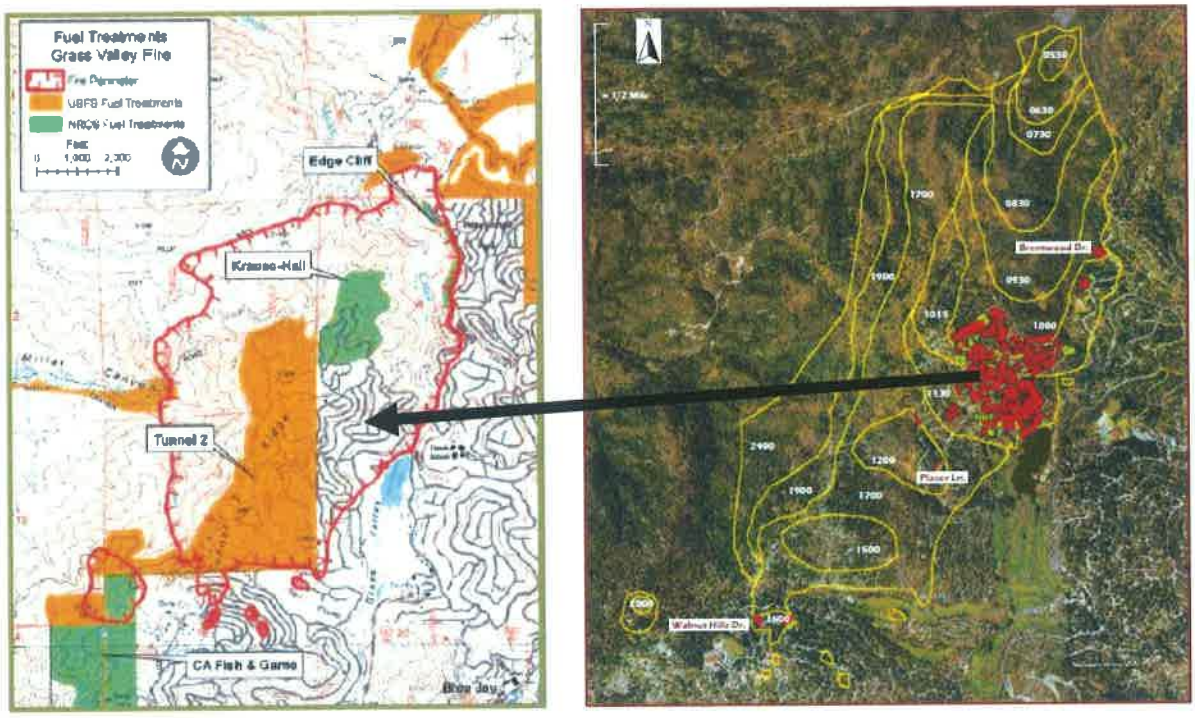
The burns near the southern edge of the fire, in Hall, Barlow, and Sexton Canyons, have existed for many years and were intended to create opportunities for controlling a fire; however, they did little to stem fire spread.

Initially, the head fire spread 14 miles from its origin outside of Santa Paula to downtown Ventura in about five hours, with spot fires ignited by embers along the entire way. This kind of fire behavior would likely defeat any fuel break.

Further research is needed to determine all the factors involved in the Thomas Fire's spread, but the consequences are clear from the damage assessment shown in Fig. 2 below. The prescribed burns did little to protect the community. This is especially the case for the southernmost prescribed burn just above the northern edge of Ventura.

Figure 2. Home Losses from the Thomas Fire, Ventura. Burned homes are indicated by orange dots. A prescribed burn was conducted just above the burned homes in the center middle of the image.

In the 2007 Grass Valley Fire, the US Forest Service and the Natural Resource Conservation Service had created several fuel treatments in the forest (e.g., thinning trees, clearing understory shrubs) around the community of Lake Arrowhead (Fig. 3). Reportedly, the fuel treatments performed as expected by allowing firefighters to engage the fire directly and reducing the rate of spread and intensity (Rogers et al. 2008). However, the end result for the community was much less positive: 174 homes were lost, the majority of structures in the hillside neighborhood of about 90 acres (Fig. 4).



Figures 3 and 4. The 2007 Grass Valley Fire, Lake Arrowhead, California. Map on the left shows forest fuel treatments as orange and green polygons (Rogers et al. 2008). Map on the right shows location of 174 homes burned in the fire (Cohen and Stratton 2008).

The comprehensive analysis of the Grass Valley Fire by US Forest Service scientists (Cohen and Stratton 2008) concluded that,

> Our post-burn examination revealed that most of the destroyed homes had green or unconsumed vegetation bordering the area of destruction. Often the area of home destruction involved more than one house. This indicates that home ignitions did not result from high intensity fire spread through vegetation that engulfed homes. The home ignitions primarily occurred within the HIZ (*Home Ignition Zone*) due to surface fire contacting the home, firebrands accumulating on the home, or an adjacent burning structure.

Home ignitions due to the wildfire were primarily from firebrands igniting homes directly and producing spot fires across roads in vegetation that could subsequently spread to homes.

The 2013 Silver Fire near Banning, California (Fig. 5) challenged the fundamental assumption of that treating older vegetation is an effective way to prevent devastating wildfires. Most of the fire burned through invasive weeds and young, desert chaparral that was recovering from the deadly 2006 Esperanza Fire that killed five US Forest Service firefighters. **Twenty-six homes were lost in the 2013 fire that was fueled by seven-year-old vegetation.**

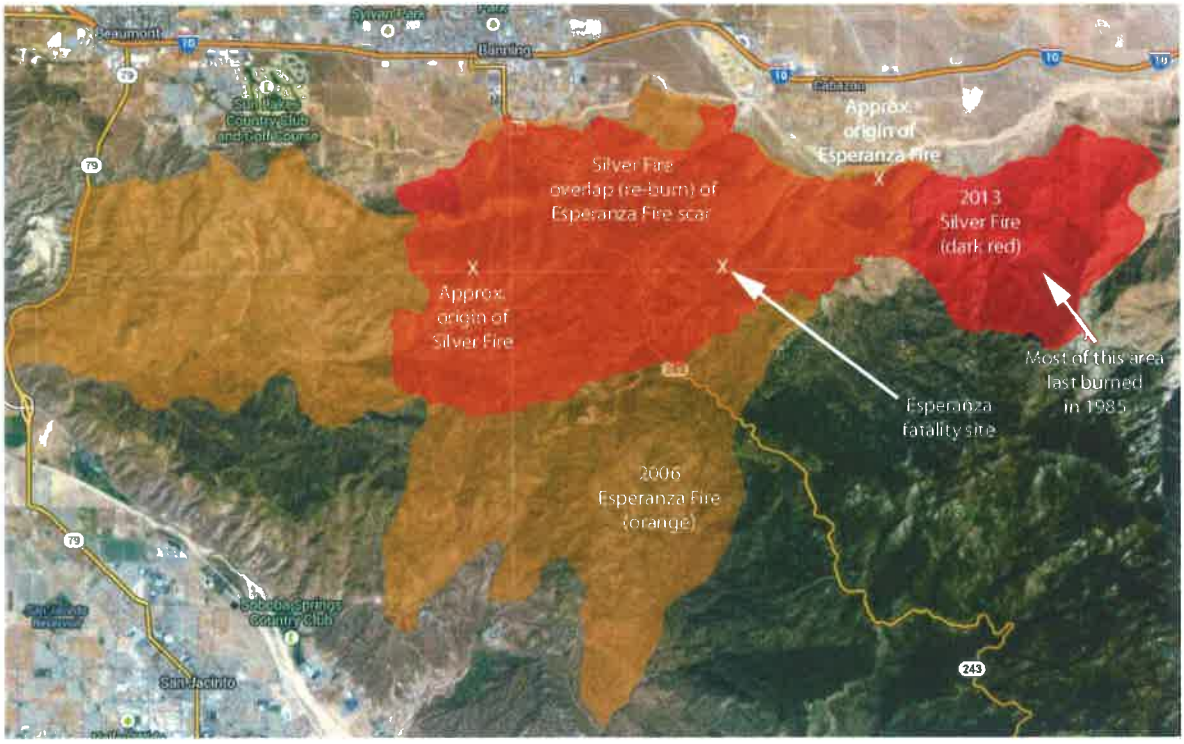


Figure 5. Reburned After Seven Years. The 2013 Silver Fire reburned almost entirely within the deadly 2006 Esperanza Fire scar near Banning, California.

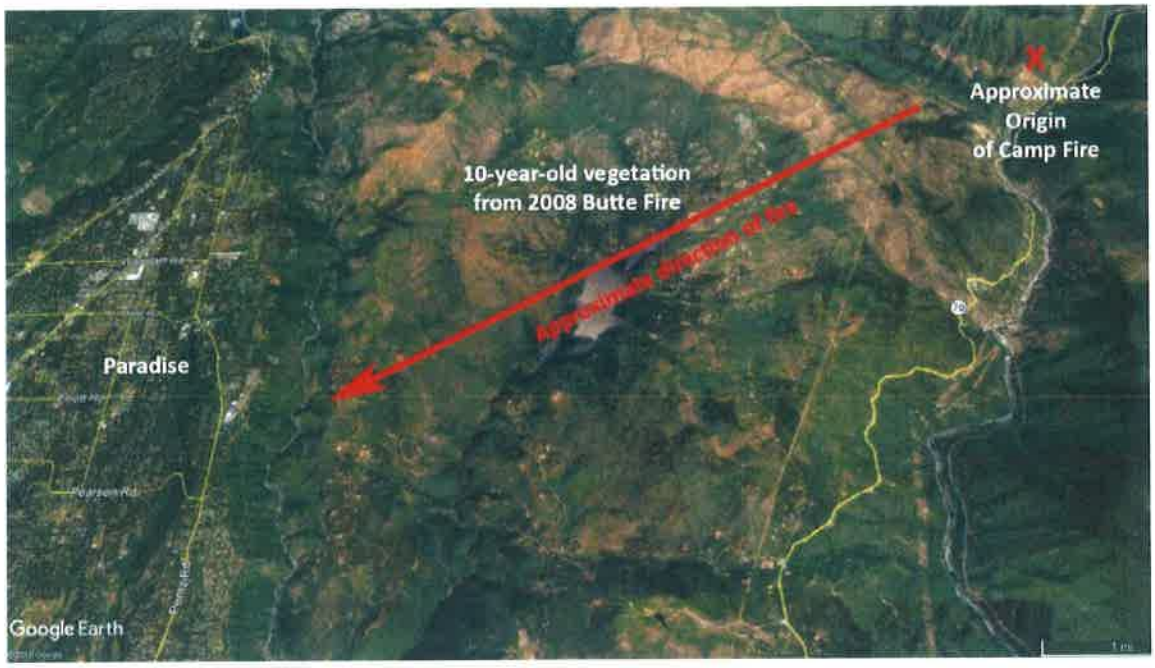


Figure 6. The wind-driven 2018 Camp Fire had to move through approximately seven miles of 10-year-old fuels plus fuel management zones before igniting Paradise with a rain of embers.

The 2018 Camp Fire that devastated the town of Paradise provides another example of how younger fuels typically fail to stop fire spread or assist fire suppression efforts during wind-driven wildfires. Before reaching Paradise, the Camp Fire had to burn through more than 30,000 acres that had burned ten years before during the 2008 Butte Fire (Fig. 6). In addition, much of the area burned in 2008 had been salvaged logged, a strategy that many have incorrectly claimed is necessary to reduce fire risk. Again, the primary reason for the devastation was wind-driven embers that can travel a mile or more ahead of the fire front.

There are numerous other examples and a number of solid research papers explaining why and how homes burn. Cohen and Stratton (2008) summarized their study of multiple wildfires by writing:

> These incidents remind us to focus attention on the principal factors that contribute to a wildland-urban fire disaster—the home ignition zone.

We are not arguing whether fuel modification can be a tool that can help control non-wind-driven wildfires. Under non-extreme fire weather conditions, fuel treatments can assist fire suppression efforts. But again, these are not the fires that cause the most damage to our communities. The nearly exclusive financial and time focus on fuel modification is failing us. How else can we account for the loss of so many lives and homes in the 2017 and 2018 wildfires?

2. Exterior Sprinklers

Exterior sprinklers have been proven to play a significant role in reducing home loss during wildfires (Mitchell 2005) (Fig. 7).

Exterior sprinklers, coupled with an independent water supply (swimming pool or water tank) and an independent power source should be required for all homes within very high fire hazard zones. Clusters of homes could be served by a community water tank and should be a required retrofit for communities already built in fire-prone areas. Each house should also be required to maintain a gas-powered pump to support the sprinkler system when regional power systems fail.

Figure 7. Exterior Sprinklers. As a wildfire approaches, exterior sprinklers wet the structure at risk, the surrounding environment, and increase humidity to prevent ignition. Photo: Platypus Fire Pty Ltd.

Some California residents have retrofitted their homes with exterior sprinkler systems to protective effect. For example, under-eave misters on the Conniry/Beasley home played a critical role in allowing the structure to survive the 2003 Cedar Fire in San Diego County. The home was located in a canyon where many homes and lives were lost (Halsey 2008).

The effectiveness of exterior fire sprinklers was proven during the 2007 wind-driven Ham Lake Fire in Cook County, Minnesota. In 2001, exterior sprinklers had been installed on 188 properties, including homes and a number of resorts. **All 188 properties survived.** More than 100 neighboring properties were destroyed.

The cost of the Cook County program was covered by a FEMA hazard mitigation grant. The program was finished on time and on budget by Wildfire Protection Systems (WPS), costing $764,255. Minnesota U.S. Senator Amy Klobuchar credited the program with saving over $42 million in property value. The grant paid 75% of the cost of the sprinklers. Individual property owners covered the balance.

The sprinklers were so successful that a $3 million FEMA pre-disaster mitigation grant was awarded in 2008 to install additional wildfire sprinkler systems throughout Cook County. In 2013, another grant was awarded to install the systems in two additional counties, including properties with low-water resources. FEMA pre-disaster grants have also been used in Big Bear and Idyllwild, California to retrofit homes with non-flammable roofing and ember-resistant attic vents.

Canadians have successfully utilized exterior sprinklers too, with the implementation of portable sprinkler kits placed in the path of wildfires. The kits can tap into nearby water sources, pools, or local water tanks. These kits have protected over $2 billion in property value over the past 20 years in Canada, according to Morris Douglas, a retired advisor to various Ministries of Natural Resources.

Exterior sprinklers work by creating an environment that extinguishes embers (spotting firebrands) that are the primary cause of building ignition. The sprinklers do this by 1) **hydrating potential fuels**, thus making them less susceptible to ignition, 2) **increasing humidity**, and 3) **creating a cooler microclimate** around the home.

3. FEMA Pre-disaster Grants

Mountain communities can use federal grants to install ember-resistant vents and eliminate wood roofs, vital to reducing home loss during wildfires

In 2013, David Yegge, a fire official with the Big Bear Fire Department, submitted his fourth grant proposal to the FEMA pre-disaster mitigation grant program to pay up to 70% of the cost of re-roofing homes with fire-safe materials in the Big Bear area of San Bernardino County. Yegge also has assisted Idyllwild and Lake Tahoe in applying for grants, including the costs of installing ember-resistant attic vents.

Yegge's first $1.3 million grant in 2008 retrofitted all but 67 of 525 wooden-roofed homes needing retrofits in Big Bear Lake. A forward-thinking, "no-shake-roof" ordinance passed by the Big Bear City Council in 2008 required roofing retrofits for all homes by this year. San Bernardino County passed a similar ordinance in 2009 for all mountain communities, with compliance required by next year. Such "future effect clause" ordinances can be models for other local governments that have jurisdiction over high fire hazard areas.

To qualify for a FEMA grant, a cost/benefit analysis must be completed. "Our analysis indicated that $9.68 million would be saved in property loss for every $1 million awarded in grant funds," Yegge said. "FEMA couldn't believe the numbers until they saw the research conducted by then Cal Fire Assistant Chief Ethan Foote in the 1990s. There's a 51% reduction in risk by removing wooden roofs."

"The FEMA application process is challenging, but well worth it," said Edwina Scott, Executive Director of the Idyllwild Mountain Communities Fire Safe Council. "More than 120 Idyllwild homes are now safer because of the re-roofing program."

Additional Information

In California, the state agency that manages the grants is the Governor's Office of Emergency Services (Cal OES), Hazard Mitigation Grants Division. Cal OES is the administrative agency and decides what grant proposals are funded based on priorities established by the State Hazard Mitigation Plan.

The Mountain Area Safety Taskforce re-roofing program:
http://www.thinisin.org/shake/

The San Bernardino County re-roofing ordinance:
http://www.thinisin.org/shake/images/DOWNLOADS/ORDINANCES/ord_4059.pdf

FEMA grant program:
http://www.fema.gov/pre-disaster-mitigation-grant-program

4. The Impact of Improper Vegetation Treatments/Clearance Activities

Creating large areas of clearance with little or no vegetation creates a **"bowling alley" for embers** (Fig. 8). Without the interference of thinned, lightly irrigated vegetation, the house becomes the perfect ember catcher. To make matters worse, when a fire front hits a bare fuel break or clearance area, a shower of embers is often released (Koo et al. 2012).

After investigating why homes burn in wildfires, research scientists Syphard et al. (2012) concluded, "We're finding that geography is most important – where is the house located and where are houses placed on the landscape."

Syphard and her coauthors gathered data on 700,000 addresses in the Santa Monica Mountains and part of San Diego County. They then mapped the structures that had burned in those areas between 2001 and 2010, a time of devastating wildfires in the region.

Figure 8. Three-hundred Feet of Clearance. Such bare ground can create a potential "bowling alley" effect, directing embers directly at the structure.

Buildings on steep slopes, in Santa Ana/sundowner wind corridors, and in low-density developments intermingled with wild lands had the highest probability of burning. **Nearby vegetation was not an important factor in home destruction.**

The authors also concluded that **the exotic grasses that often sprout in areas cleared of native habitat like chaparral could be more of a fire hazard than the shrubs.** "We ironically found that homes that were surrounded mostly by grass actually ended up burning more than homes with higher fuel volumes like shrubs," Syphard said.

5. Excessive Fuel Treatments Can Destroy Native Habitats and Create More Flammable Landscapes

As shown in Fig. 9 below, a rich, old-growth stand of chaparral has been systematically compromised by clearance activities funded by a local Fire Safe chapter in the community of Painted Cave, Santa Barbara County. The foreground represents the impact of mastication, showing significant soil disturbance. In the background, the longer-term impact of earlier treatments shows the invasion and spread of highly flammable, non-native weeds and grasses. This process has increased the ignitability of this area with the addition of flashy fuels. Since the focus of wildfire risk reduction has

been on the surrounding landscape, comparably little has been done to reduce the flammability of the Painted Cave community itself. In a recently proposed Community Wildfire Protection Plan for the area, the only attempt to address home ignition is the suggested production of an educational brochure.

Figure 9. The invasion of non-native weeds resulting from significant soil disturbance caused by an improper vegetation treatment project above the community of Painted Cave, Santa Barbara County.

6. Native Chaparral Shrublands Are Threatened by Too Much Fire

Chaparral is California's most extensive native plant community. However, its continued existence in many areas is threatened by the increasing number of fires. Fire frequency greater than the chaparral's natural fire return interval of 30 to 150 years or more can type convert chaparral to highly-flammable, non-native grasslands (Fig. 10). Such grasslands played a significant role in spreading the 2017 Tubbs, Nuns, Atlas, and Thomas fires.

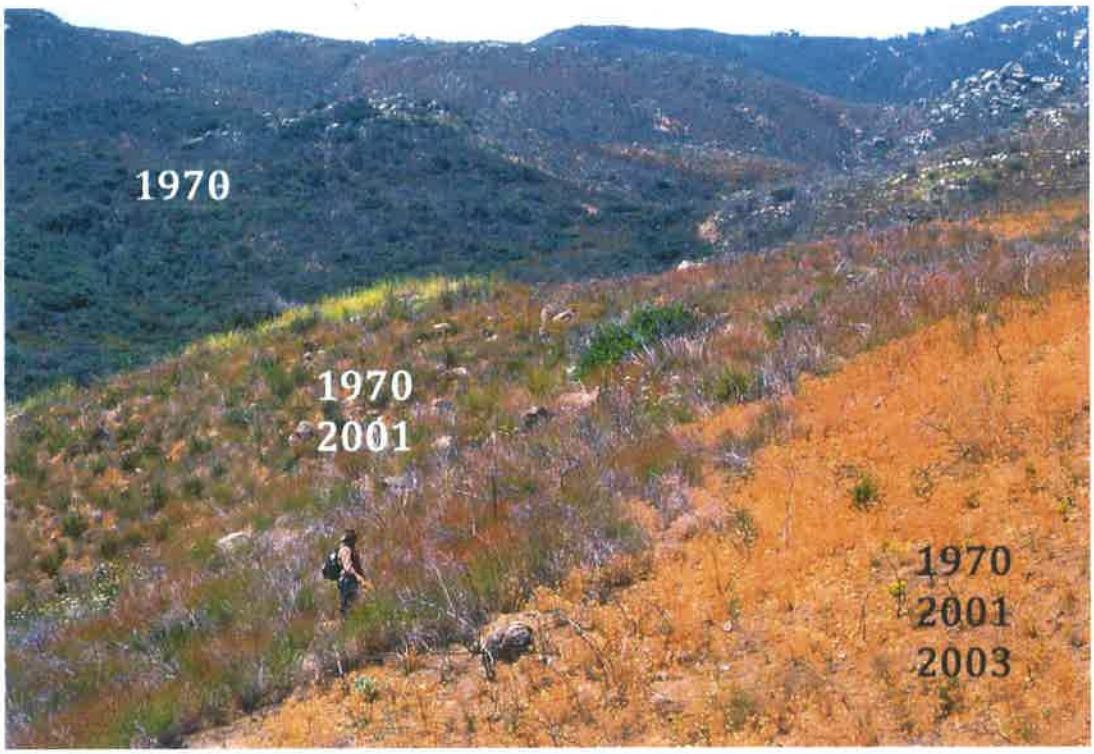


Figure 10. The Impact of Excessive Fire on Chaparral. This area has been subjected to three wildfires. The first, the 1970 Laguna Fire, burned the entire area shown in the photograph. The far left shows mature chaparral that has grown since 1970. The middle area is recovering after being burned again in the 2001 Viejas Fire. It is composed primarily of native shrubs such as chamise, deerweed, and several other species. To the right is a portion that was burned a third time during the 2003 Cedar Fire. The interval between the 2001 and 2003 fires was too short for the chaparral to properly recover. Consequently, the majority of the resprouting shrubs were killed and the area was overwhelmed by non-native grasses. Since this photo was taken (2004), the area has been restudied in 2018. It remains compromised by non-native grasses, with significant areas of bare ground and lower biodiversity compared to the adjacent area burned in 2001. Location: east of Alpine off Interstate 8, San Diego County. From Halsey and Syphard (2015).

The threat of excessive fire to native shrublands is statewide but is especially extreme in the southern portion (Fig. 11). As shown in the map below, most of the plant communities within the four national forests of southern California are threatened by too much fire (shown in red to yellow colors).

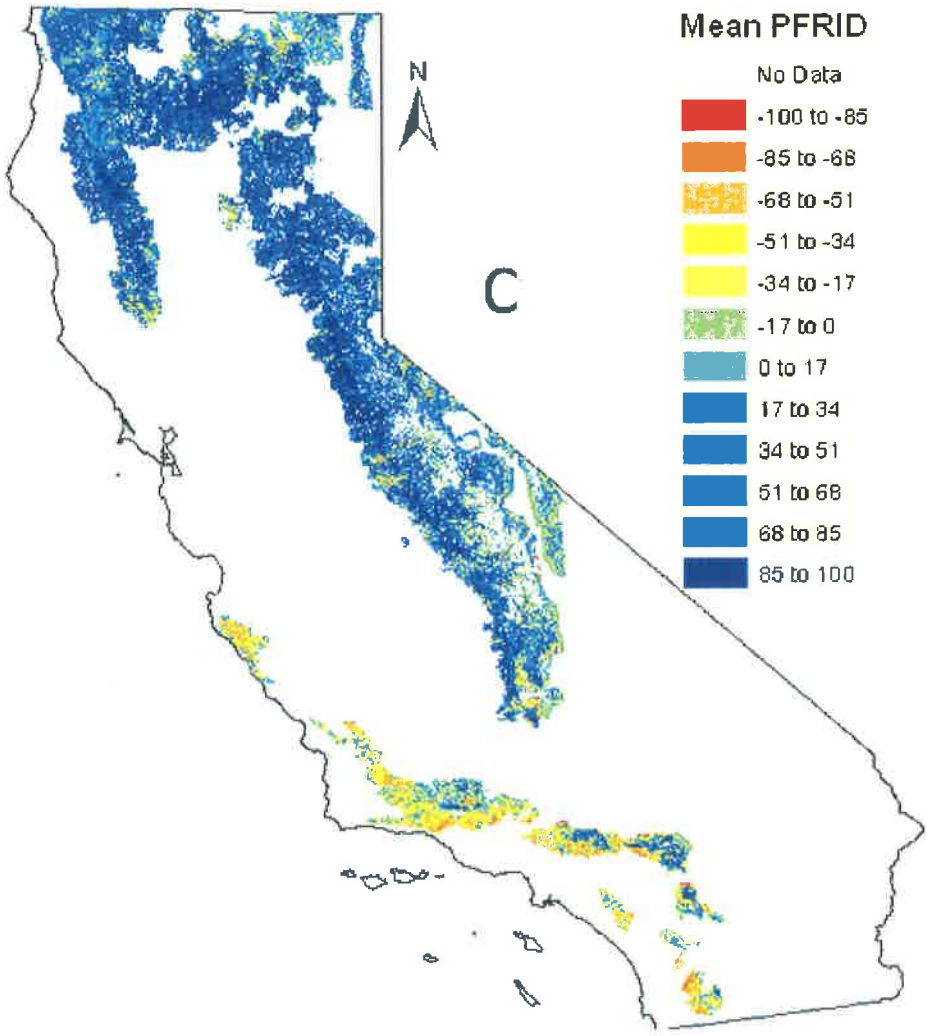


Figure 11. A Tale of Two Californias. Most chaparral in California is threatened by too much fire as shown by the map's color variations representing the Fire Return Interval Departure percentages (PFRID) for national forest lands in California. Note the color differences between the southern California national forests which are dominated by chaparral (yellows), and the conifer dominated forests in the Sierra Nevada (blues). The warm colors identify areas where the current fire return interval is shorter than pre-European settlement (negative PFRID), threatening native plant communities. Cool colors represent current fire return intervals that are longer than pre-European settlement (positive PFRID), indicating a fire deficit in higher elevation forests. From Safford and Van de Water (2014).

As climate change continues to impact California, it is predicted that the loss of chaparral will accelerate in the southern and central parts of the state. The ecosystem will also begin to lose ground further north (Fig. 12). Some regions may become more suitable for chaparral, but considering the speed at which the climate is changing, it is difficult to

predict what vegetation communities will ultimately develop in those areas. Such changes need to be considered when developing fire and development plans. Unfortunately, the current draft of the California Board of Forestry's (and Cal Fire's) Vegetation Treatment Program fails to properly account for these predicted changes and calls for "treatment" of chaparral in northern California for "ecological purposes." Rather than "treating" chaparral, the Board of Forestry should develop strategies to protect its further loss.

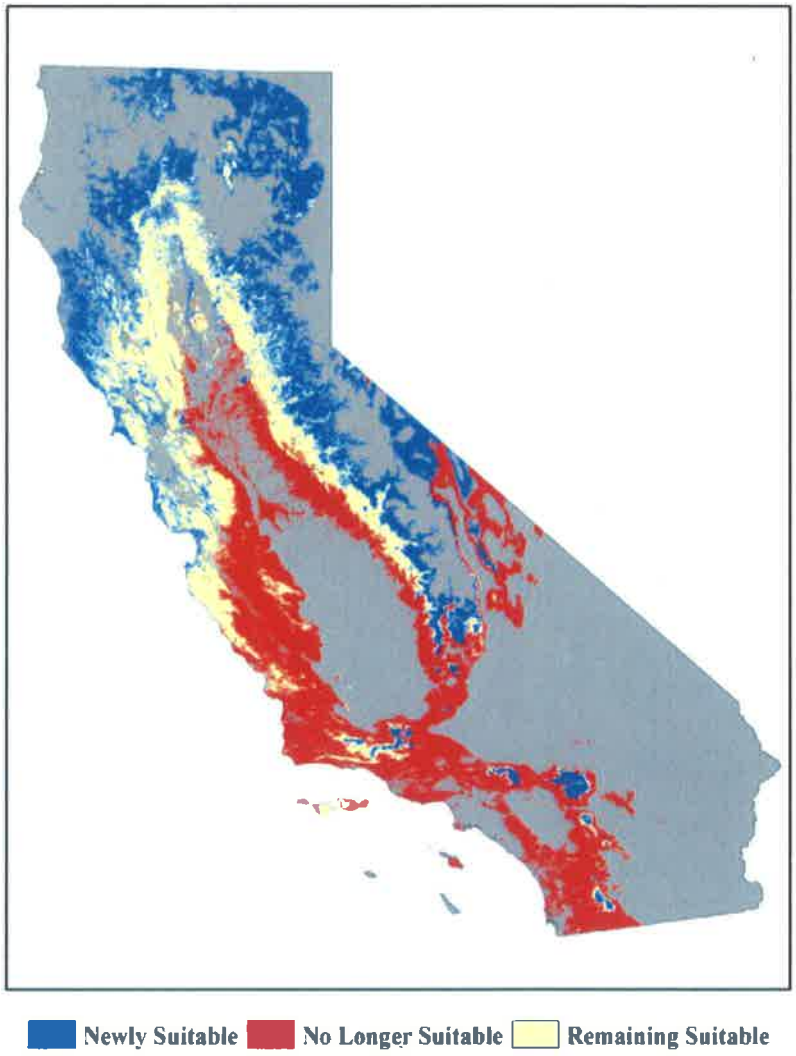


Figure 12. Potential Loss of Chaparral. Predicted end-of-century chaparral distribution change under a continued high carbon emissions and hot/dry climate change scenario. From Thorne et al. (2016).

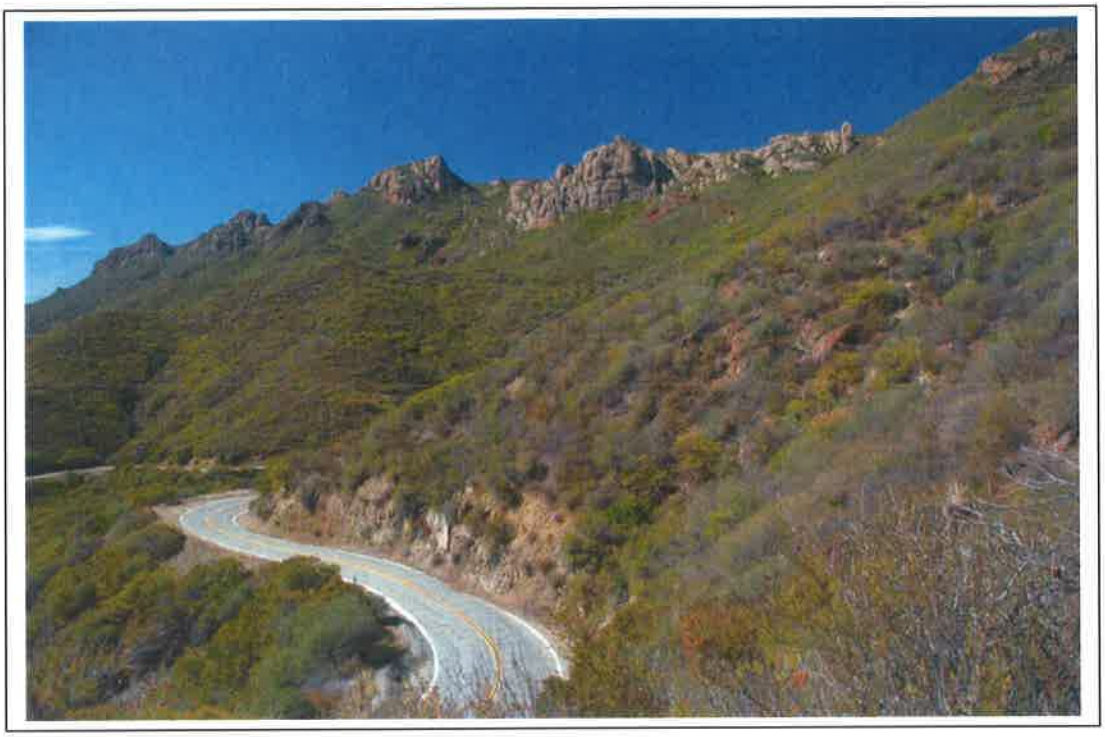


Figure 13. Mixed chaparral in the Santa Monica Mountains. The natural fire return interval for chaparral is 30 to 150 years or more. Increasing fire frequencies either through prescribed burning or accidental wildfire leads to the eventual elimination of chaparral, California's most extensive ecosystem.

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"Overall, vegetation type was more important in the Santa Monica Mountains than in San Diego County, with grass being the most common vegetation type for all ignition causes. In San Diego, ignitions occurred most frequently in grass or forest vegetation types."

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Batinica, Meighan

From: Valerie Hasely <Valerie.Hasely.53382504@p2a.co>
Sent: Monday, March 11, 2019 8:16 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Valerie Hasely
405 Court Pl
Montecito, CA 93108

Batinica, Meighan

From: ekhatch@aol.com
Sent: Monday, March 11, 2019 11:22 AM
To: Wildlife Corridors

I live in the Ventura county not far from the Tierra Rejada proposed wildlife corridor and cannot believe that animals come first before a human...animals will find a way to survive..people need protection from other people, not animals..!!!!!!!

Sent from my iPhone

March 11, 2019

RE: Opposition to proposed Wildlife Corridor ordinance

Partial: 001-0-190-120

Dear Meighan Batinica and Rosa Gonzales:

We are writing this letter in opposition of the proposed Wildlife Corridor ordinance. The regulation as written is an intrusive overreach by the county government that undermines the economic vitality of our county, threatens the safety of residents in the unincorprated areas and violates the rights of property owners to enjoy and use their property.

There already exists several regulations and zoning requirements on our private property. Fencing and exterior lighting are necessary for us to protect our domestic animals as well as protecting our home from vandals.

As you can see from the map, our entire property is in this Critical Wildlife Passage area and the new ordinance is unnecessary. We already are governed by the State of California, the county of Ventura as well as the Los Padres National Forest all of whom do their job to protect the wildlife in our area.

We are asking you to REJECT this unnecessary, enormous overreach of government and private property intrusion and allow us and any potential new landowners to continue enjoying our private property in the respectful manner we have for years to come.

Respectfully submitted,

Timothy J Holder

Terri Holder

Tim and Terri Holder

31541 Maricopa Hwy, Maricopa, CA

Hall, Anna

From: ClerkoftheBoard, ClerkoftheBoard
Sent: Monday, March 11, 2019 2:10 PM
To: Hall, Anna
Subject: FW: Wildlife Corridor Protection

Lori

From: Jon R. Ives <jonives@roadrunner.com>
Sent: Monday, March 11, 2019 2:07 PM
To: ClerkoftheBoard, ClerkoftheBoard <ClerkoftheBoard@ventura.org>
Subject: Wildlife Corridor Protection

We support the proposed protection of wildlife corridors in Ventura County through zoning.

Jon and Ann Ives

~~~~~~~~~~~~~~~~~~~~

Jon R. Ives
3080 Bayshore Avenue
Ventura, CA 93001-4125
805-642-6748
~~~~~~~~~~~~~~~~~~~~

Batinica, Meighan

From: Ingrid Kaper <ingkaping@gmail.com>
Sent: Monday, March 11, 2019 11:20 AM
To: Wildlife Corridors
Subject: Fwd: Wildlife Corridor

Sent from my iPhone
Live well
Laugh often
Love much

Begin forwarded message:

> **From:** Ingrid Kaper <ingkaping@gmail.com>
> **Date:** March 11, 2019 at 11:17:56 AM PDT
> **To:** wildlife.corridor@ventura.org, john.zarago@ventura.org
> **Subject: Re: Wildlife Corridor**
>
> Sent from my iPhone
> Live well
> Laugh often
> Love much
>
> On Mar 11, 2019, at 11:16 AM, Ingrid Kaper <ingkaping@gmail.com> wrote:
>
> **Subject: Wildlife corridors project**
>
> We are contacting you in opposition to the proposed wildlife corridor project as it currently stands.
>
> We have several issues with the project:
> The maps and research appear to be based on studies that are 20 years old - in particular the riparian data is not even close to existing conditions in our area.
>
> Reading through the data associated with the study shows many inconsistencies and conflicting data that shows that the entire project has been rushed to completion.
>
> For a county that prides itself on our agriculture and history this proposal severely restricts the ability for

agriculture to be conducted in a profitable manner and would destroy the contributions of several farming families to our heritage.

If you are going to pursue such a significant project, please take more time and do it right.

Sincerely,

Ingrid Kaper

Batinica, Meighan

From: ClerkoftheBoard, ClerkoftheBoard
Sent: Monday, March 11, 2019 12:18 PM
To: Hall, Anna; Sussman, Shelley
Subject: FW: Wild Life Corridors

Comment letter Wildlife corridors item.

Lori

From: Steven Kempster <pacgnath@sbcglobal.net>
Sent: Monday, March 11, 2019 12:12 PM
To: ClerkoftheBoard, ClerkoftheBoard <ClerkoftheBoard@ventura.org>
Subject: Wild Life Corridors

Would like to show my support for the concept of protecting the wild life corridors.

Steve Kempster

Batinica, Meighan

From: Katherine kiceniuk <Katherine.kiceniuk.150514068@p2a.co>
Sent: Monday, March 11, 2019 7:30 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Katherine kiceniuk
976 La Vuelta Pl
Santa Paula, CA 93060

KRANKL, ELAINE & MANFRED

Batinica, Meighan

From: Remillard, Ashley J. <aremillard@nossaman.com>
Sent: Monday, March 11, 2019 11:18 AM
To: Bennett, Steve; Long, Kelly; Zaragoza, John; Parks, Linda; Supervisor Huber; Wildlife Corridors
Cc: ClerkoftheBoard, ClerkoftheBoard; Prillhart, Kim; Smith, Leroy; Barnes, Jeffrey; Sussman, Shelley; Pellman, Lloyd W.; Remillard, Ashley J.; Taylor, Amy R.
Subject: Comments on the Proposed Wildlife Corridor Ordinance
Attachments: Comment Letter re Wildlife Ordinance - 3-11-19.pdf

Categories: Orange category

Dear Chairperson Bennett and the Honorable Members of the Board,

On behalf of Elaine and Manfred Krankl, please find attached comments on the proposed wildlife corridor ordinance. We appreciate your consideration of the attached comments. Please don't hesitate to contact us with questions.

Thanks,

Ashley

Ashley J. Remillard
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VIA E-MAIL

March 11, 2019

Supervisor Steve Bennett, Chair
Supervisor Kelly Long, Vice Chair
Supervisor Linda Parks
Supervisor Robert Huber
Supervisor John Zaragoza
Ventura County Board of Supervisors
800 S. Victoria Avenue
Ventura, CA 93009-1740

Re: Comments on the Proposed Amendments to the Ventura County Ordinance Code, Non-Coastal Zoning Ordinance to Regulate Development within the Habitat Connectivity and Wildlife Corridors and Critical Wildlife Passage Areas Overlay Zones

Dear Chairperson Bennett and the Honorable Members of the Board:

We submit this letter on behalf of Elaine and Manfred Krankl, homeowners with property located in the areas impacted by the proposed Habitat Connectivity and Wildlife Corridor overlay and Critical Wildlife Passage Areas overlay zones that the Ventura County Board of Supervisors ("Board") will consider for adoption as part of a set of amendments to the Ventura County ("County") General Plan and Non-Coastal Zoning Ordinance ("Proposed Ordinance"). As set forth in further detail below, we have significant concerns regarding the necessity, scope, and legality of the Proposed Ordinance, particularly as applied to the Krankls property ("Property").[1] Specifically, it appears that: (1) inclusion of the Property within the boundaries of the Proposed Ordinance is not necessary to achieve the County's objectives, (2) there is no reliable scientific justification for including the Property within the scope of the Proposed Ordinance, and (3) the Proposed Ordinance will result in an unlawful taking of the Property. Based on these factual and legal deficiencies, and others identified below, we request that the Board exclude and/or exempt the Property from the Proposed Ordinance. While we recognize that commerce must peacefully coexist with protections of the environment, the specific circumstances relating to the Property do not warrant its inclusion within the scope of the Proposed Ordinance.

In addition, we incorporate by reference, as if fully set forth herein, the comments of the January 28, 2019 letter from the Ventura County Coalition of Labor, Agriculture and Business ("CoLAB") to the Ventura County Planning Commission, the February 28, 2019 letter from

[1] The Property is comprised of Assessor Parcel Numbers 0600150185, 0600150195, 0600150215, 0600150255, 0600150205, 0600150225, 0600150235, 0600150265, 0600150245, 0600170105.

CoLAB to the Board, and the March 6, 2019 letter from CoLAB to the County Resource Management Agency Director and the Board.[2] If the Board declines to exclude and/or exempt the Property from the Proposed Ordinance, we alternatively request that the Board decline to adopt the Proposed Ordinance altogether for the reasons set forth in the CoLAB letters and herein.

1. The Unique Attributes of the Property Warrant Excluding and/or Exempting it from The Proposed Ordinance.

The Property has many unique attributes that make it unnecessary to include within the Proposed Ordinance. For example, as we have previously communicated to the County (and as the County is likely already aware, given its duties), the Property is primarily operated as a vineyard and winery engaging in limited production of high quality wines. It appears to be the only winery in the County that does not have a tasting room or any other on-site customer serving facilities or activities. The development of the winery and vineyard by the Krankl's has significantly increased the value of the Property, which has undoubtedly resulted in increased tax revenues for the County. Yet, because the winery has no tasting room or other customer contact activities, it does not attract traffic or otherwise impede wildlife movement. Rather, the Property is designed (and is regulated by a Conditional Use Permit) to maintain the agricultural and open space nature of the area, resulting in reduced vehicular traffic and compatibility with the flow of any wildlife.

The Property is also located adjacent to the Lake Casitas Recreation Area, which creates unique safety and public access issues that do not arise elsewhere. For purposes of the security of both the occupants of the Property and the safety of the public generally, the area needs to have wildlife impermeable fencing to deter people from the adjacent Lake Casitas Recreation Area from traversing the Property.

Furthermore, there are no wildlife crossing structures located on the Property. There are also no natural water features on the Property that wildlife would need to access. In fact, as reflected by the analysis above, the Property could be completely enclosed with wildlife impermeable fencing and yet would not impede the movement of wildlife through the corridor, as sufficient area exists around the Property to accommodate such movement.

In sum, the wildlife movement goals that the County seeks to achieve can be reached without including the Property within the scope of the Proposed Ordinance. For these reasons alone, and in order to reach a mutually agreeable solution that does not involve litigation, we request that the Property be excluded and/or exempted from the Proposed Ordinance.

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[2] The CoLAB letters are available at http://bosagenda.countyofventura.org/sirepub/cache/2/ikzam5uous1fjg4jkejys0ts/130507503072019091333485.PDF; http://colabvc.org/wp-content/uploads/2019/03/JMBM-CoLAB-2-28-19-Wildlife-Corridor-Comment-Letter-Board-of-Supervisors.pdf; and https://files.constantcontact.com/589483b7501/3f97782d-15f0-4293-bd5a-d3ac98f279c1.pdf, respectively.

2. The Inclusion of the Property Within the Proposed Ordinance Lacks Scientific Justification.

As the Board is aware, the Proposed Ordinance contemplates two overlay zones: the Habitat Connectivity and Wildlife Corridors ("HCWC") Overlay Zone and the Critical Wildlife Passage Areas ("CWPA") Overlay Zone. The HCWC zone is allegedly intended to preserve functional connection of regional habitats by minimizing the effects of barriers, habitat fragmentation and corridor chokepoints. Proposed Ordinance, Section 8104-7.7. The HCWC Overlay Zone includes hundreds of thousands of acres, and has five primary conditions on development or use within the zone: (1) surface water feature buffers, (2) outdoor night lighting restrictions, (3) wildlife crossing structures, (4) invasive plant species restrictions, and (5) wildlife impermeable fencing restrictions. *Id.* at 8109-4.8. The CWPA Overlay Zone is even more restrictive and is allegedly designed to address habitat fragmentation by requiring, in addition to the HCWC restrictions, that structures be situated in "compact development" patterns within individual lots, for the alleged goal of preserving more space for species movement. *Id.* at 8104-7.8; 8109-4.9. Consequently, most property owners whose property is within the CWPA zone will only be allowed to build on 50% of their property, a significant property restriction that without just compensation likely constitutes an unconstitutional taking of property, as described below.

As applied here, the Property falls within both the HCWC Overlay Zone and the CWPA Overlay Zone, thus triggering the most intensive regulatory regime possible under the Proposed Ordinance. Yet, there appears to be no scientific justification for subjecting the Property to such restrictions. The alleged justifications for the overlay zones contained within the Proposed Ordinance appear to be based on a thirteen-year-old study entitled "South Coast Missing Linkage Project: A Linkage Design for the Sierra Madre—Castaic Connection" ("Report"); *see also* March 12, 2019 Letter to the Board from RMA Director K. Prillhart at 3, 6 (expressly referencing the Report as providing the basis for the mapping underlying the Proposed Ordinance).[3] The Report is premised on the unsupported presumption that agricultural uses are at odds with the habitat ecologies the Report and the Proposed Ordinance purport to protect. *See* Report at 1 (noting "Habitat Conversion" is a "consequence" of "urban and *agricultural uses*") (emphasis added); *see id.* at 1-2 (claiming that a reason for "habitat loss" is in part due to "agricultural fields"). Indeed, Table 2 of the Report inexplicably and curiously ranks "Agriculture" as among the highest non-permeable parameters for many of the species studied, ranking "Agriculture" almost as impermeable to species as "Urban" zones (an assumption that is inconsistent with the everyday observations of farmers and ranchers of wildlife on their property). Report at 10. However, no explanation is given regarding how or why these conclusions were reached, and no analysis or data is offered to support the underlying numbers or conclusions. *See id.*

The County's analysis has not advanced since the Report and, if anything, appears to have proceeded without consistent data categories or control questions. To the contrary, it appears that the County had preconceived ideas concerning precise locations and widths for

[3] The Report is available for download at http://www.scwildlands.org/; the March 12, 2019 Letter is available at http://bosagenda.countyofventura.org/sirepub/cache/2/sqil21iqpljhthxp0q0kupy0/13050490308201910262987O.PDF.

wildlife corridors, and sought evidentiary support for those corridors only after the fact, evidencing an unsound and unscientific method. This shortcoming is clearly reflected in the Report itself, which clearly demonstrates there is no need to include the Property within the scope of the Proposed Ordinance. Indeed, the Report's own permeability studies show a near absence of any need to include the Property in the CWPA Overlay Zone. The Report makes this amply evident. For its "Landscape Permeability Analysis" that allegedly justifies the Proposed Ordinance's choice of corridors and zoning regulation, the Report identifies five species: mountain lion, American badger, mule deer, Pacific kangaroo rat and California spotted owl. *See* Report at 16-24. These species' possible ranging areas are then mapped to show allegedly desirable wildlife corridor areas justifying the CWPA Overlay Zone.

Notably, the Property is not included in four out of five of these mapped areas. *See* Report at Figure 10 (mapping the desirable corridor for mountain lion, which does not include the Property); *id.* at Figure 11 (mapping the desirable corridor for American badger, which does not include the Property); *id.* at Figure 13 (mapping the desirable corridor for kangaroo rat, which does not include the Property); *id.* at Figure 14 (mapping the desirable corridor for California spotted owl, which does not include the Property). It is also notable that each of these maps show both that the "Suitable Habitat" for each of these for species is well north of, and nowhere near, the Property and that the most "Highly Permeable" corridors for each of the four species connecting "Suitable Habitat" is also well north of the Property. *See id.* at Figures 10, 11, 13, 14. As a consequence, the data on these species does not support inclusion of the Property within the CWPA Overlay Zone. The County's proposal to include the Property in the zone is therefore arbitrary and scientifically unsupported.

The same Report and data show that the only possible benefit of including the Property in the CWPA Overlay Zone is related to the fifth named species in the study, mule deer. *See* Report at Figure 12. But again, the "Suitable Habitat" for mule deer is well north of the Property, as are the most "Highly Permeable" corridors that would connect "Suitable Habitat" north of the Property with other "Suitable Habitat" in the Castaic Range. *See id.* Indeed, the area included in the Report shows that the Property, at best, contains "Less Permeable" areas and no "Suitable Habitat" for mule deer. *See id.* Consequently, there is no scientific justification for including the Property within the scope of the Proposed Ordinance. The County's proposal to include the Property in the zone is therefore arbitrary and unsupported.

Next, the Report inexplicably adds the Property to a final proposed corridor and gives little to no explanation or justification for the addition. Report at Figure 15 (adding Property). This final corridor is perhaps intended to account for non-target species, identifying "potential suitable habitat" for the acorn woodpecker, mountain kingsnake, bear sphinx moth, rain beetle, Monterey salamander, western pond turtle, and two-striped garter snake. *See id.* Yet, the Report's analysis of these species does not support the addition of the Property. For example, the analysis relating to the mountain lion merely adds areas that could be suitable at some future time, but have no relationship to the "Suitable Habitat" that is in fact the focus of the Report. *Compare* Figure 10 with Figure 16 and Figure 17; *see also* Figures 22 & 23 (same for kangaroo rat); Figure 24 (showing no potential or suitable "core" "patches" for California spotted owl near the Property. The final proposed corridor is non-essential, as expressly recognized by the Report. It therefore fails to scientifically justify including the Property within the scope of the

Proposed Ordinance. The County's proposal to include the Property in the zone is therefore arbitrary and unsupported.

In sum, the Report—based on 13-year old data—indicates that the Property has no "Suitable Habitat" for four of the five target species; substandard habitat for one species, and non-essential habitat for all other species. Consequently, the Report does not support the position that the Property will meaningfully help achieve improved wildlife movement within the proposed wildlife corridors. As such, because there is no scientific justification for including the Property within the scope of the Proposed Ordinance, it should be excluded and/or exempted.

3. Failure to Exclude and/or Exempt the Property from the Proposed Ordinance will Result in an Unconstitutional Taking.

"The Takings Clause of the Fifth Amendment provides that private property shall not 'be taken for public use, without just compensation.'" *Murr v. Wisconsin*, —— U.S. ——, 137 S.Ct. 1933, 1942 (2017) (quoting U.S. Const. Amend. V.). The Takings Clause largely "operates as a conditional limitation, permitting the government to do what it wants so long as it pays the charge." *Kelo v. City of New London, Conn.*, 545 U.S. 469, 487 n.19 (2005) (quoting *Eastern Enterprises v. Apfel*, 524 U.S. 498, 545 (1998) (Kennedy, J., concurring in judgment and dissenting in part)). Such governmental power is limited by the Fifth Amendment to the United States Constitution and extends to the states and their municipal subdivisions by operation of the Due Process Clause of the Fourteenth Amendment. *See Chicago, B. & Q.R. Co. v. City of Chicago*, 166 U.S. 226 (1897).

Although other types of takings exist, the category that is relevant here is referred to as "a regulatory taking." Specifically, the Supreme Court has long acknowledged that "if regulation goes too far it will be recognized as a taking." *Penn. Coal Co. v. Mahon*, 260 U.S. 393, 415 (1922) (Holmes, J.). More than fifty years after Justice Holmes introduced the "too far" standard in *Penn Coal*, the Supreme Court in *Penn Central Transportation Co. v. New York City* set forth a three-part test to determine if a regulation has gone "too far." 438 U.S. 104 (1978). Under this "ad hoc" test, a court must assess (1) the "economic impact of the regulation," (2) "the extent to which the regulation has interfered with distinct investment-backed expectations," and (3) the "character of the government action." 438 U.S. at 124. In other words, the goal in any regulatory takings case is to determine whether regulatory actions "are functionally equivalent to the classic taking in which government directly appropriates private property." *MHC Fin. Ltd. P'ship v. City of San Rafael*, 714 F.3d 1118, 1127 (9th Cir. 2013) (quoting *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 539 (2005)).

a. Economic Impact

In considering the economic impact of an alleged taking, courts "compare the value that has been taken from the property with the value that remains in the property." *Keystone Bituminous Coal Ass'n v. DeBenedictis*, 480 U.S. 470, 497 (1987). *Penn Central* stresses that, "[i]n deciding whether a particular governmental action has effected a taking, this Court focuses rather both on the character of the action and on the nature and extent of the interference with rights in the parcel as a whole." 438 U.S. at 130–31. If "an owner possesses a full 'bundle' of property rights, the destruction of one 'strand' of the bundle is not a taking, because the aggregate must be viewed in its entirety." *Andrus v. Allard*, 444 U.S. 51, 65–66 (1979).

Generally, under Supreme Court and Ninth Circuit takings precedent, economic impact is determined by comparing the total value of the affected property before and after the government action. *See MHC Fin.*, 714 F.3d at 1127. Projected income streams can contribute to a method for determining the post-deprivation value of property, but the severity of the loss can be determined only by comparing the post-deprivation value to pre-deprivation value. *Id.* Although valuation methods vary, case law suggests that discounted future cash flows produced by an income-producing property can provide an appropriate valuation methodology. *See, e.g.*, *Cienega Gardens v. United States*, 503 F.3d 1266, 1282 (Fed. Cir. 2007) (determining economic impact by "compar[ing] the lost net income due to the restriction (discounted to present value at the date the restriction was imposed) with the total net income without the restriction over the entire useful life of the property (again discounted to present value)"). Similarly, a real estate valuation that shows the post-deprivation (i.e. post-Proposed Ordinance) drop in value would also be a straight-forward method of showing economic loss. *See, e.g.*, *Colony Cove Properties, LLC v. City of Carson*, 888 F.3d 445, 452 (9th Cir. 2018).

As applied here, there is no doubt that the Proposed Ordinance would cause a diminution in value sufficient to satisfy the economic impact element of the regulatory takings test. For example, as described above, the Property is primarily operated as a vineyard and winery engaging in production of high quality wines. The Krankls expect, and have taken steps to, expand the vineyard to include an additional six acres of working and producing land, which would result in approximately $2 million in annual revenue. The development of these six acres would be effectively precluded under the Proposed Ordinance.

Other impacts of the Proposed Ordinance include: (1) the diminution in value due to the restrictions on wildlife impermeable fencing, (2) the diminution in value due to the Krankl home and much of the Property being subject to "Surface Water Feature" restrictions,[4] (3) the diminution in Property value attributable to outdoor lighting restrictions, (4) the diminution in value due to the moratorium on development of any structures on the Property within a "Surface Water Feature" without a "Planning Director-approved Development Permit," (5) the diminution in value due to the moratorium on plant removal, which presumably would increase fire danger, (6) the diminution in value due to the impact of wildlife impermeable fencing exceeding 10% of the Property becoming potentially zoning nonconforming, (7) the diminution in value due to the moratorium on replacing without a specific permit any wildlife impermeable fencing that is lost due to fire or natural disaster, (8) the diminution in value due to the restrictions on rebuilding structures destroyed by fire or natural disaster, and (9) the costs associated with zoning clearances and permitting for development supporting the "production of commercially grown agricultural products[,]" which would presumably apply to the planned additional six acres of vineyard. The map that is attached hereto as Exhibit 1 approximately illustrates at least some of the potential adverse impacts of the Proposed Ordinance on the Property. As the map readily demonstrates, they are significant. *See* Ex. 1.

We note that it has been difficult to generate reliable depreciation estimates within the short time frame in which the Proposed Ordinance has been considered and continuously

[4] Notably, within the last week, the County has revised the "Surface Water Feature" mapping, which has greatly impacted the Property. Currently, the required surface water feature buffers will impact multiple structures on the Property, including the Krankl's personal residence.

amended. At this time, efforts to develop a comprehensive economic analysis of the above-referenced issues, as well as relating to values associated with total property depreciation, adverse impacts to the winery's brand, and expected diminution in current annual revenue, are ongoing. However, preliminary estimates indicate losses of well over 50% of the Property's value, plus a large reduction or elimination of the winery income stream, which satisfies the typical economic impact of the regulatory takings standard. *E.g., CCA Assocs. v. United States*, 667 F.3d 1239, 1246 (Fed. Cir. 2011).

b. Distinctive Investment-Backed Expectations

To form the basis for a takings claim, a purported distinct investment-backed expectation must be objectively reasonable. *CCA Assocs. v. United States*, 667 F.3d 1239, 1247 (Fed. Cir. 2011); *see also Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1035 (1992) (Kennedy, J., concurring in the judgment) (noting that investment-backed "expectations protected by the Constitution are based on objective rules and customs that can be understood as reasonable by all parties involved"); *Chancellor Manor v. United States*, 331 F.3d 891, 907 (Fed. Cir. 2003) (holding that courts must use "an objective analysis to determine the reasonable investment-backed expectations of the Owners").

As described above, the Property is primarily used as a vineyard and winery. As such, the Krankls had, and continue to have, an objectively reasonable investment-backed expectation that they would be able to continue to use the Property for these purposes without significant interference. Thus, this element of the takings standard is satisfied.

c. Character of the Government Action

Penn Central instructs that "[a] 'taking' may more readily be found when the interference with property can be characterized as a physical invasion by government than when interference arises from some public program adjusting the benefits and burdens of economic life to promote the common good." 438 U.S. at 124 (citation omitted). The Supreme Court also stressed that the first two *Penn Central* factors are the most important. *See Lingle*, 544 U.S. at 538–39 ("Primary among those factors are the economic impact of the regulation on the claimant and, particularly, the extent to which the regulation has interfered with distinct investment-backed expectations." (internal quotation marks and brackets omitted)). However, when—as here—the inclusion of a particular property within a regulation is arbitrary and lacks justification, little "common good" is advanced. As described above, the Proposed Ordinance's objectives can be achieved without including the Property, and the inclusion of the Property within the Proposed Ordinance sorely lacks scientific support. Accordingly, in this instance, the character of the County's action is illogical and arbitrary, and therefore does not justify the extent of the regulatory taking on the Property.

Consequently, imposition of the Proposed Ordinance on the Property will result in a regulatory taking. We therefore request that the Property be excluded and/or exempted from the Proposed Ordinance, in order to safeguard the constitutionally protected rights of the Krankls and avoid costly litigation.

4. Conclusion

Based on the foregoing, the Property has unique features that allow the objectives of the Proposed Ordinance to be achieved even if the Property is excluded and/or exempted, the County lacks any scientific justification to include the Property within the boundaries of the Proposed Ordinance (including the HCWC and CWPA Overlay Zones), and, as drafted, the Proposed Ordinance results in an unlawful taking of the Property. In addition, as described above, we reiterate all of the comments and concerns previously submitted by CoLAB relating to the Proposed Ordinance. We therefore request that the Proposed Ordinance be revised to exclude and/or exempt the Property or that the Board decline to adopt the Proposed Ordinance altogether.

Please do not hesitate to contact me with questions or to discuss any of the foregoing.

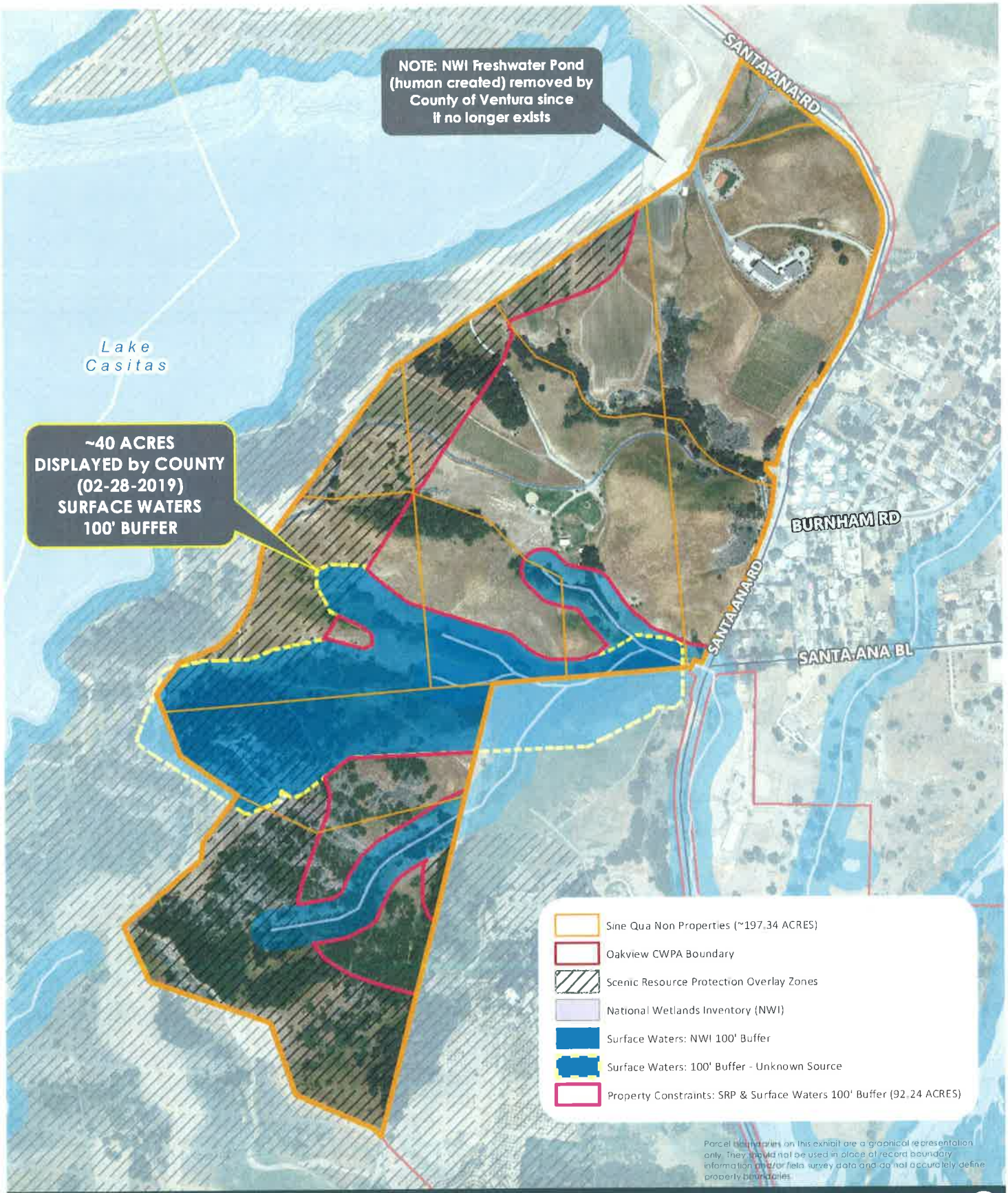
Sincerely,

Ashley J. Remillard
Nossaman LLP

Attachments

cc: Leroy Smith, County Counsel
Jeffrey Barnes, Assistant County Counsel
Kim Prillhart, Resource Management Agency Planning Director
Shelley Sussman, Planning Division
Rosa Gonzalez, Chief Deputy Clerk of the Board

EXHIBIT 1



PROPERTY CONSTRAINTS MAP: SRP & SURFACE WATERS 100' BUFFER 1 inch = 650 feet

Path: J:\DR01 4335\GIS\Wildlife Corridor\2019_HCWC_Constraints_Map.mxd

JENSEN DESIGN & SURVEY, INC.

SINE QUA NON WINERY PROPERTY

Batinica, Meighan

From: Linda LaMore <Linda.LaMore.150624877@p2a.co>
Sent: Monday, March 11, 2019 11:57 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Linda LaMore
948 Dunbar Ln
Thousand Oaks, CA 91360

Las Virgenes Homeowners Federation, Inc.
Post Office Box 353, Agoura Hills, California 91301
The voice and conscience of the Santa Monica Mountains since 1968

March 11, 2019

Via electronic mail

Ventura County Board of Supervisors
800 South Victoria Avenue
Ventura, CA 93009

Dear Chairperson Bennett and Honorable Supervisors:

SUPPORT AGENDA ITEM #31

General Plan Amendment to Establish Habitat Connectivity and Wildlife Corridors Overlay Zone, Critical Wildlife Passage Overlay Zone and Adoption of Regulations

The Las Virgenes Homeowners Federation, Inc., (Federation) of the Santa Monica Mountains strongly urges you to vote yes in SUPPORT of the above referenced agenda item and adopt these regulations.

The Federation is the largest and oldest umbrella organization – of homeowner organizations, private property owners, and thousands of stakeholders and activists who **dwell** in and adjacent to the Santa Monica Mountains National Recreation Area. For more than 50 years, we have supported smart, balanced, pro-wildlife and pro-stakeholder planning regulations. And, this expertly written package of wildlife preservation policies personifies that.

Implementing these habitat connectivity, wildlife corridor and passage strategies, now, is critical to the survival and long-term protection of our precious and threatened wildlife. And, they similarly will benefit and enrich local residential quality of life and enhance property values, while providing the greatest possible public benefit.

We further commend Ventura County for its extended and comprehensive public outreach efforts -- for vetting of these proposals and for taking and incorporating considerable public input.

These amendments to the General Plan will improve and preserve habitat connectivity by minimizing habitat fragmentation, maintaining corridor widths, enhancing corridor chokepoints to facilitate species movement between valuable natural areas, and by minimizing physical and indirect barriers to wildlife movement – including but not limited to lighting impacts.

The Federation lobbied strongly in support of [our] LA County's Dark Skies Rural Outdoor Lighting District Ordinance, which was adopted in 2012. Residents of Los Angeles County's unincorporated rural areas, especially those in the Antelope Valley, Santa Clarita Valley, and the Santa Monica Mountains highly value preserving our nighttime dark skies.

When light falls where it is not wanted, needed, or intended, it trespasses and causes unwanted light pollution hurting the environment, wasting energy, and disrupting the health and comfort of nearby neighbors.

The fact is the Dark Skies Ordinance has been a substantial win-win for our rural and suburban neighborhoods. The city of Calabasas long ago adopted similar regulation, as has the city of Malibu recently too. All of our communities have embraced darker skies for the healthier enjoyment of residents and wildlife, while still permitting reasonable uses of outdoor lighting for safety.

We are all only too familiar with the reality of intense development pressure and urban sprawl that will continue to eat away into our natural wild areas -- carving out and fragmenting habitat that can no longer ultimately sustain wildlife -- unless we do something about it. It is incumbent therefore upon us, especially those of us living in this special urban wildland interface, to not leave any of this to chance. The risk is far too great.

Permanent habitat connectivity must be assured for survival of our irreplaceable wildlife and for the benefit of all stakeholders and future generations.

Adopting and implementing these new rules will guarantee a future for what we hold as so precious that it can only be deemed as priceless. Otherwise, once pathways and connectivity are gone, they're gone forever.

The opportunity to save them is now. The time is now. And now we have the excellent planning regulations and tools to do it.

Please SUPPORT Agenda Item #31 - the General Plan Amendment to Establish Habitat Connectivity and Wildlife Corridors Overlay Zone, Critical Wildlife Passage Overlay Zone and Adoption of the Regulations.

Sincerely,

Kim Lamorie
President
Las Virgenes Homeowners Federation, Inc., of the Santa Monica Mountains
www.lvhf.org

Batinica, Meighan

From: Karen Marks <Karen.Marks.150624101@p2a.co>
Sent: Monday, March 11, 2019 11:55 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Karen Marks
411 Mission Dr
Camarillo, CA 93010

March 1, 2019

Ms. Kim Prillhart
Agency Director
Resource Management Agency
County of Ventura
800 S. Victoria Avenue
Ventura, CA 93009

Dear Kim,

Thank you and Shelley for meeting with Mark Kretschmer and me last week to discuss the concerns of Thomas Aquinas College about the impact of the proposed Wildlife Corridor ordinance on the College. Mark and I greatly appreciate your interest in knowing specifically the College's concerns and then our wide-ranging discussion of the language in the draft ordinance and where the language could be reviewed to address our concerns. In this letter I would like to restate the College's concerns in light of our discussion and suggest modifications to the draft ordinance that could address those concerns.

1. Exclusion.

As you know, Thomas Aquinas College is in the middle of a 6-mile wide corridor that already is primarily Open Space and land in the Los Padres National Forest. We already have regular and numerous sightings of wildlife on, near and around our campus including deer, mountain lions and bobcats. We believe, therefore, that the Wildlife Corridor protections simply are not needed for our 128 acre core campus and will impose costly and administrative burdens on our small staff. For this reason the College is requesting that the College's core campus be excluded from the proposed Wildlife Corridor ordinance. The College's remaining 713 acre land surrounding the core campus would not need to be excluded from the ordinance because our concerns do not relate to that land.

If the College cannot be excluded from the proposed ordinance, our concerns center on the issues of our Security Lighting and on the proposed restrictions of brush clearance in the buffer areas of Surface Water Features in the proposed ordinance.

2. Security Lighting.

As we discussed, Thomas Aquinas College engaged a security expert several years ago to provide a comprehensive review of our campus security and recommend changes that would bring the College's security level up to industry best practices to provide maximum security for

our 375 resident students. The College has implemented the security recommendations including the placement and lumen output of our campus security lighting. As a result, all of our security lighting on our parking lot poles, walkway poles, and buildings exceed the proposed ordinance's maximum output of 2600 lumens as set forth in Section 8109-4.8.2.4 (b)(5). While it appears that our security lighting in our parking areas may be governed exclusively by current ordinance Sections 8106-8.6 and 8108-5.12 and not subject to the proposed ordinance's 2600 lumen maximum output, the remaining security lighting that the College has installed to protect our students violates this maximum lumen output standard even though the security lighting on our walkway poles are the exact same luminaires as used in our parkway areas. This result is incongruous.

The proposed ordinance also diminishes the security of our students by limiting the definition of "essential luminaires" in Section 8109-4.8.2.4 (b) (5) (iv). We would recommend that the following language be placed at the end of that definition: "and all outside doors of buildings". Our current security lighting at all outside doors of our dormitories (note: not all are doorways are entrances) and other buildings are well illuminated for the safety of our students and must remain on all night.

Moreover, while there is some kind of relief in proposed Section 8109-4.8.2.5 from this standard, the proposed language is somewhat ambiguous as to what would constitute "substantial evidence" and "functional equivalent". Most importantly, any relief that the College could obtain would finally be discretionary with officials in the Planning Department. Despite this we trust both of you to interpret and enforce the language of the proposed ordinance for the good of the College. Our concern lies in the unknown future where a new regime would not share your concern for protecting the security of our students and may have an alternative higher interest.

Therefore, and in order to eliminate our expressed concerns, the College would request and recommend that the proposed draft Wildlife Ordinance exempt Security Lighting from the operation of the proposed ordinance. Specifically, we propose new language, being an addition, to **Section 8109-4.8.2.2 – Exemptions**, as follows:

"l. Security lighting."

3. Brush Clearance in SWF Development Buffer Area.

As we discussed, the College's Wallace Neff Hacienda, the President's home, and its Gate House are in or contiguous to the 100 foot development buffer area of Santa Paula Creek, a Surface Water Feature under the proposed ordinance. The draft ordinance's current restrictions on clearing brush in the buffer puts the Hacienda in extreme risk during a wildfire. During the Thomas Fire, the Santa Paula Creek buffer area and forest burned and severely threatened to

burn down the Hacienda. Previous brush clearance well in addition to the 100 feet around the Hacienda that was required by the Fire Department helped save that building. The College had cleared brush right up to the lip of the Santa Paula Creek bank 175 feet away. This brush clearance that saved the Hacienda from the Thomas Fire would not be possible under the current language of the proposed ordinance. Again, excluding the College from the proposed ordinance would allow the College to continue to take all necessary brush clearance measures to protect the Hacienda.

We believe that fire prevention should take precedence when there is a conflict between the development buffer area restrictions and best fire prevention practices of landowners to protect their structures. We agree with retired Ventura County Fire Chief Bob Roper who stated at the Planning Commission Hearing that in certain fire prevention situations, a landowner is free under existing County fire regulations to clear up to 300 feet from a structure for fire defensible space. We recommend that the proposed ordinance follow this policy and allow a landowner with a structure in or near the 100 foot development buffer area to clear brush up to 300 feet from the structure for fire prevention purposes notwithstanding the restrictions in the ordinance.

We also discussed making some accommodation for historical structures that sit in SFW's like the Wallace Neff Hacienda and Gate House, and we would recommend that these structures, even if not listed on the Registry of Historic Buildings, be wholly exempted from the brush clearing restrictions. Also, we are concerned that if the Hacienda, or any other historic building, is more than 50% damaged or destroyed by fire, that it be allowed to be rebuilt to its original state and in its original location. We recommend that Section 8109-4.8.3.2 (d) be amended to accommodate this situation.

Thank you again for meeting with us. We appreciate your concern for Thomas Aquinas College and our students.

Sincerely,

John Quincy Masteller
General Counsel
Thomas Aquinas College

cc: Supervisor Steve Bennett
Supervisor Linda Parks
Supervisor Kelly Long
Supervisor Bob Huber
Supervisor John C. Zaragoza

Batinica, Meighan

From: Angie Moore <Angie.Moore.150642354@p2a.co>
Sent: Monday, March 11, 2019 12:45 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Angie Moore
6585 Bayberry Street
Oak Park, CA 91377

Batinica, Meighan

From: Gail Motyka <Gail.Motyka.150538198@p2a.co>
Sent: Monday, March 11, 2019 8:27 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Gail Motyka
309b S Montgomery St
Ojai, CA 93023

NEWELL, MICHELE

Batinica, Meighan

From: Offerman, Steve
Sent: Monday, March 11, 2019 11:02 AM
To: Sussman, Shelley
Subject: FW: VCEDA Wildlife Corridor Ordinance - Letter of Opposition
Attachments: VCEDA_WCO-Opposition-Letter_03.11.19.pdf

From: Carmela Carreno <carmela@visionalitypartners.com>
Sent: Monday, March 11, 2019 10:59 AM
To: Long, Kelly <kelly.long@ventura.org>; Zaragoza, John <John.Zaragoza@ventura.org>; Parks, Linda <Linda.Parks@ventura.org>; Supervisor Huber <Supervisor.Huber@ventura.org>; Bennett, Steve <Steve.Bennett@ventura.org>
Cc: Prillhart, Kim <Kim.Prillhart@ventura.org>; ClerkoftheBoard, ClerkoftheBoard <ClerkoftheBoard@ventura.org>
Subject: VCEDA Wildlife Corridor Ordinance - Letter of Opposition

Dear Ventura County Board of Supervisors,

Please accept VCEDA's letter of opposition to the proposed Wildlife Corridor ordinance, submitted on behalf of our Board Chair, Michele Newell.

Respectfully,
Carmela

Carmela Carreño
Project Manager, VISIONALITY

(805) 500-6610 ext. 108 | office
(805) 698-3223 | mobile

Carmela@VISIONALITYpartners.com

VISIONALITY
partnering with organizations to
transform VISION into REALITY

www.
VISIONALITYpartners
.com

Since 1949
VCEDA
Leadership • Advocacy • Intelligence • Networking

The voice of business since 1949!

VCEDA's Mission Statement: To advocate for policies, legislation and programs that stimulate business and a vital economy as the foundation for a vibrant quality of life in Ventura County.

March 11, 2019

Ventura County Board of Supervisors
800 S. Victoria Ave.
Ventura, CA 93003

RE: OPPOSITION to proposed Wildlife Corridor ordinance

Dear Ventura County Board of Supervisors,

For 69 years, the Ventura County Economic Development Association (VCEDA) has served as the unified regional voice of business on issues affecting the economy of Ventura County. As such, please accept this letter in opposition to the proposed County of Ventura's Wildlife Corridor ordinance currently under consideration.

Local residents, businesses and the ag community peacefully co-exist with a number of species that enjoy the ability to roam freely throughout their property and beyond. While we appreciate the County's efforts to provide additional "areas of contiguous natural habitat" for wildlife as well as the efforts of Planning staff to address the concerns of stakeholders during the comment process, we continue to have significant concerns with this ordinance as written.

This ordinance subjects more than 400,000 acres of unincorporated county lands to a host of new regulations by turning regional wildlife corridors into an overlay zone. Much of this zone includes private properties within the unincorporated areas of Ventura County. Nearly 200 of these stakeholders attended the January 31, 2019 Planning Commission hearing and voiced their concerns which should not go unrecognized.

This ordinance places yet another layer of regulations and zoning requirements on lands – ignoring standards already in place to protect operations, workers and nearby communities. It contradicts those existing requirements and standards meant to ensure best management practices currently in place. Equally, after a full review of the draft ordinance, VCEDA believes the ordinance is subject to the California Environmental Quality Act (CEQA). As such, Ventura County is required to analyze and disclose to the public potential environmental impacts which could occur as a result of the project, including cumulative impacts. VCEDA believes that the proposed draft ordinance may result in significant effects on the environment and would ask the County study those impacts to ensure the results they are looking to achieve by drafting this ordinance.

Because the draft ordinance has the potential for significant environmental impacts, VCEDA strongly recommends that Ventura County prepare an Environmental Impact Report (EIR). It should be noted that, while the draft ordinance requires an analysis of individual projects/activities, VCEDA believes the County is obligated to analyze how this proposed ordinance impacts the NCZO. Furthermore, Ventura County has an obligation to disclose potential impacts of the NCZO amendment to members of the public.

Sincerely,

Michele Newell,
Board Chair, Ventura County Economic Development Association

CC: Supervisor Steve Bennett, Supervisor Bob Huber, Supervisor Kelly Long, Supervisor Linda Parks, Supervisor John Zaragoza, RMA Director Kim Prillhart, Clerk of the Board Rosa Gonzales

John W. Newton & Associates, Inc.
Professional Consultants
159 Moonsong Court
Post Office Box 471
Moorpark, California 93021

Broker Lic. 00925471
Telephone (805) 529-3494
Fax No. (805) 529-7604
newtoncnslt@msn.com

Supervisor Linda Parks, District 1
Supervisor Steve Bennett, District 2
Supervisor Kelly Long, District 3
Supervisor Bob Huber, District 4
Supervisor John Zaragoza, District 5

February 28, 2019

Re: Proposed Habitat Connectivity, Wild life Corridors, Critical Wildlife Passage Areas, Overlay Zone & Regulations – CEQA Exempt.

Dear Supervisors:

On behalf of Rick Brecunier and family, Tierra Rejada Farms, and Craig Underwood and family, Underwood Family Farms, please consider the following requests for changes/amendments to the above-referenced County initiated project, and recommendations, during your March 12, 2019 public hearing:

AGRICULTURAL PROMOTION: Request all agriculture operations, including accessory uses at Underwood Family Farms, be exempt. In addition, request that the Events uses at Tierra Rejada Farms Walnut Grove for agriculture promotion, weddings and community benefit events be exempt. Both of these properties were previously Agriculture Promotion use sites. Both were recently re-approved CUP's to continue these operations which are the absolutely necessary uses that provide the financial resources to sustain farming operations. Both properties and their approved uses are now severely threatened by the proposed new regulations.

Tierra Rejada Farms would lose 30 acres due to the 200' setback requirement from Tierra Rejada Creek, including the Walnut Grove events center, their main ranch residence, farm worker residences, barns & maintenance shop. Underwood Family Farms would lose 6 acres of farm equipment storage area, approved festival parking area & row crop acreage. See the attached creek setback exhibit.

In support of these exemption requests, please clarify that the exemptions apply to the entire TRF 120 acre and UFF 50 acre properties, not just the 4 acre events activity area at TRF or the 6 acre Ag. Promotion activity area at UFF.

NON-CONFORMING USES: Request that the proposed overlay zone & regulations, if adopted, do not render any of the existing approved uses, structures or accessory uses "Non-Conforming" and subject to the more than 50% destruction ordinance prohibiting rebuilding or reestablishment of the use if destroyed by flood, fire, earthquake, etc. Perhaps the best way of accomplishing this is to exempt the two TRF & UFF properties as requested.

CRITICAL WILDLIFE PASSAGE AREA: Request the Tierra Rejada Valley be removed from the "Critical" designation which would result in a 50% "taking" of any future parcel proposed for any type of development, including agriculture. Study conclusions and expert testimony at the recent Planning Commission hearing January 31, 2019 confirmed that wildlife does not have any passage problems/restrictions in TR Valley, except for the SR23 Freeway, which the HCWC proposal can do nothing about.

CEQA ECONOMIC ANALYSIS: Request that the proposed HCWC be subjected to an Economic Analysis as provided for by CEQA and numerous case law determinations, to analyze the effects upon the general welfare of the affected property owners, the citizens of Ventura County, and the County's General Fund Property Tax Revenue that supports important public services; due to the reduction of property values for the 420,000 acres to be restricted.

You are being asked to adopt a finding that The General Welfare of the County citizenry is not negatively impacted. We submit that it will be and that you cannot make that finding.

DISCRETIONARY VS. MINISTERIAL: Request deletion of any change to the existing ministerial permit process upgrading it to discretionary, should the HCWC be adopted in some form. Changing building permits, minor watercourse & grading permits, and minor zone changes to a "discretionary" determination requiring more extensive approval processes, higher fees, biological studies, etc., is punitive and unreasonable.

RECOMMENDATION: Due to the significant controversy generated by this proposal, either deny approval of this proposed ordinance, continue its consideration pending a thorough CEQA Economic Analysis, or approve the HCWC as an "Informational Study" only, to be included in the Land Use Section in the General Plan. The information could then be utilized in CEQA analyses for future proposed discretionary uses in the HCWC mapped areas of Ventura

County, including the appropriate and reasonable application of mitigation measures. In this fashion, wildlife corridors and passages can be prevented from future erosion, the apparent ultimate objective of the HCWC.

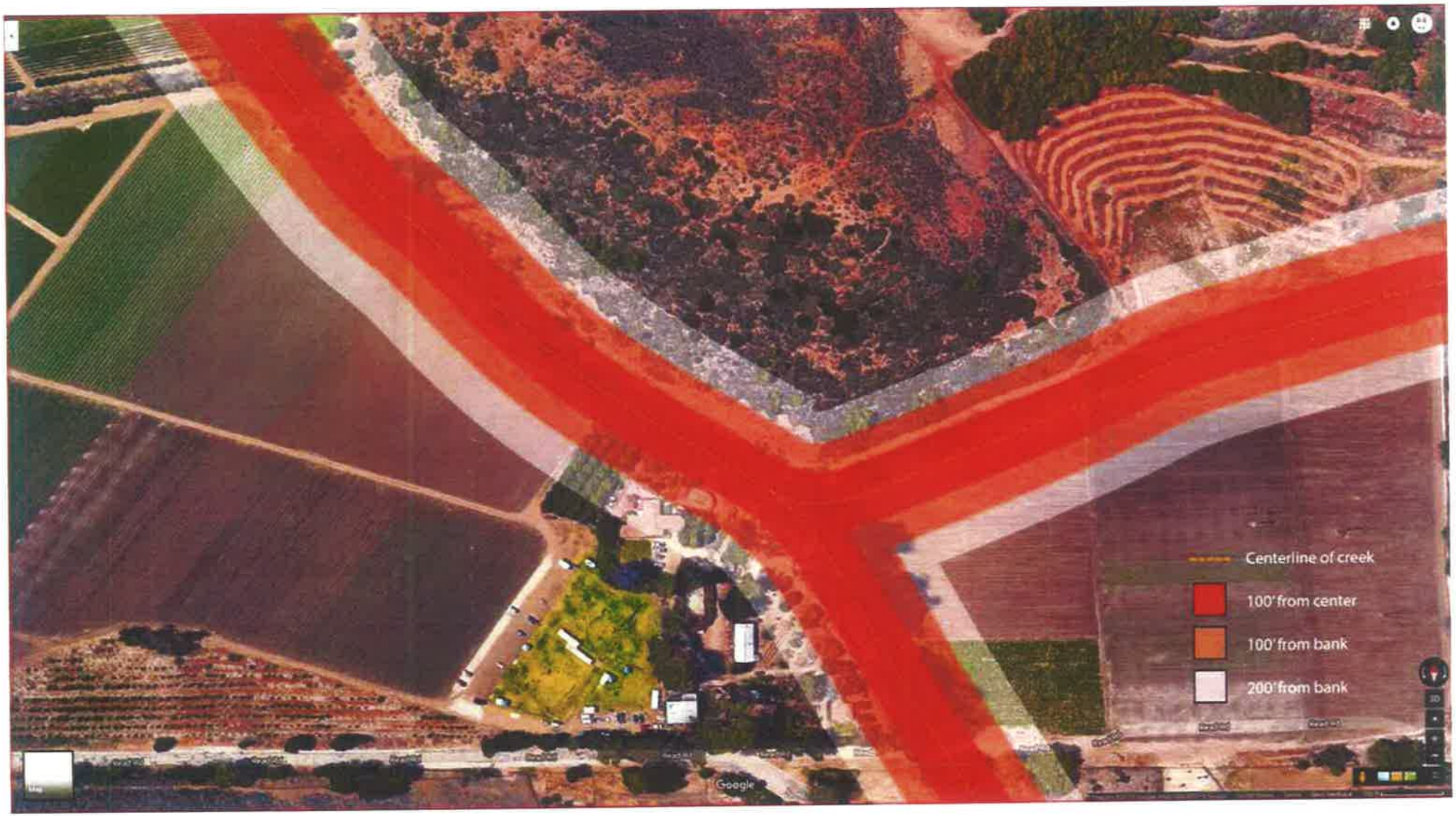
Thank you for your consideration of these requests for amendment, clarifications, and of our recommendations.

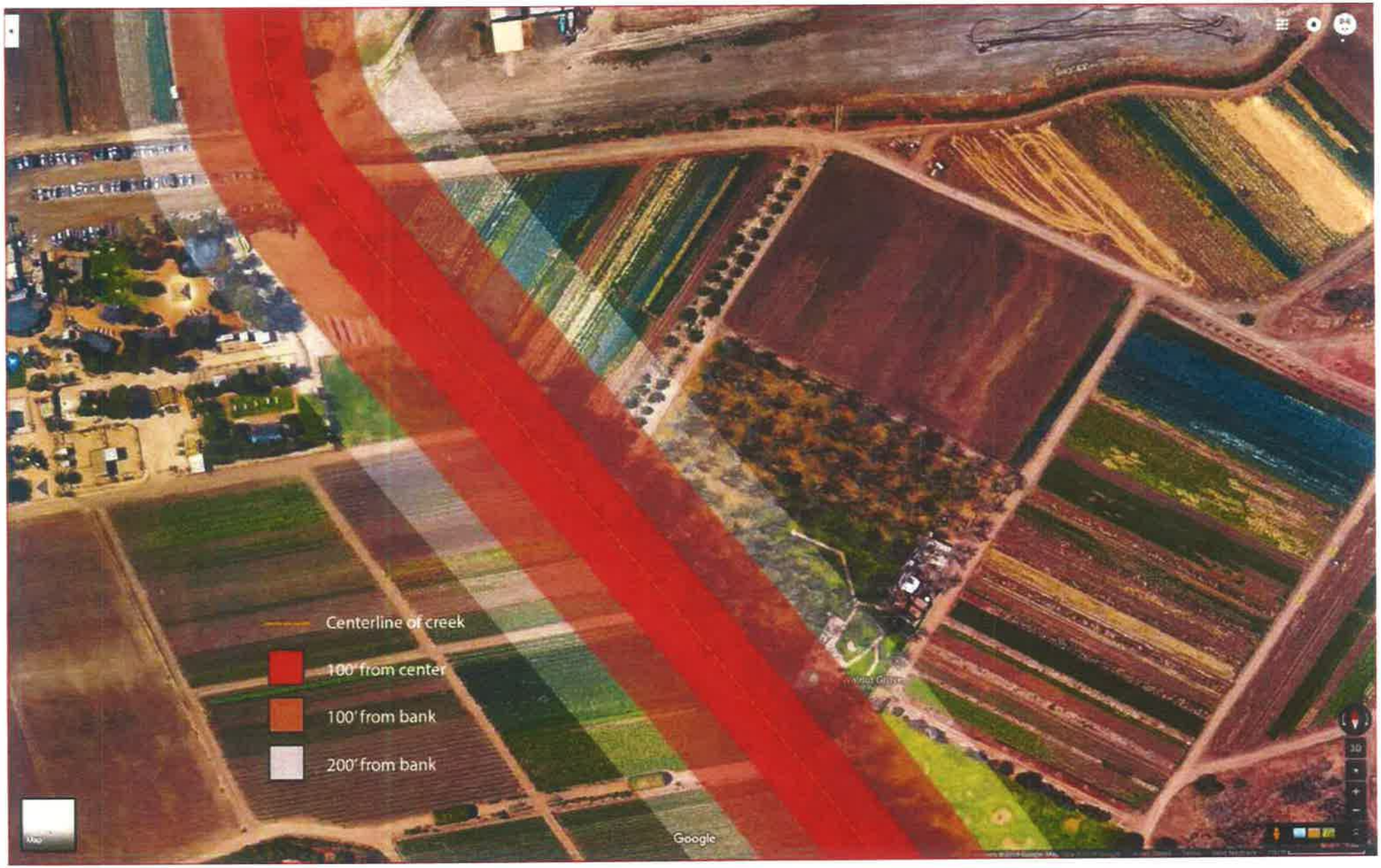
Sincerely,

John W. Newton
Land Use Consultant
TRF & UFF Property Owners' Representative

Attachment

cc: Michael Powers, County Executive
Kim Prillhart, RMA Director
Richard Brecunier, TRF
Craig Underwood, UFF


Centerline of creek
100' from center
100' from bank
200' from bank
Google


Centerline of creek
100' from center
100' from bank
200' from bank
Google

Batinica, Meighan

From: Robert ORiley <Robert.ORiley.150598147@p2a.co>
Sent: Monday, March 11, 2019 10:58 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Robert ORiley
3045 Grove St
Ventura, CA 93003

Batinica, Meighan

From: Joleen Quach <joleenquach@gmail.com>
Sent: Monday, March 11, 2019 12:50 PM
Subject: Proposed Wildlife Corridor Project

Hello,
I am contacting you in opposition to the proposed wildlife corridor project as it currently stands.

I have several issues with the project:
The maps and research appear to be based on studies that are 20 years old - in particular the riparian data is not even close to existing conditions in our area.

Reading through the data associated with the study shows many inconsistencies and conflicting data that shows that the entire project has been rushed to completion.

For a county that prides itself on our agriculture and history this proposal severely restricts the ability for agriculture to be conducted in a profitable manner and would destroy the contributions of several farming families to our heritage.

If you are going to pursue such a significant project, please take more time and do it right.

Sincerely,
Joleen Kim

Batinica, Meighan

From: Jamie Roth <Jamie.Roth.150561714@p2a.co>
Sent: Monday, March 11, 2019 10:11 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Jamie Roth
406 South Signal St.
Ojai, CA 93023

Batinica, Meighan

From: Teal Rowe <Teal.Rowe.150547864@p2a.co>
Sent: Monday, March 11, 2019 9:13 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Teal Rowe
1113 N Signal St
Ojai, CA 93023

Batinica, Meighan

From: Anna Sanchez <Anna.Sanchez.150628774@p2a.co>
Sent: Monday, March 11, 2019 12:06 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

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Thank you,

Anna Sanchez
124 Green St
Santa Paula, CA 93060

Batinica, Meighan

From: Robert Shakman <Robert.Shakman.150634740@p2a.co>
Sent: Monday, March 11, 2019 12:23 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

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Thank you,

Robert Shakman
3248 Island View Dr
Ventura, CA 93003

SHAPIRO, KERRY

JMBM Jeffer Mangels Butler & Mitchell LLP

jmbm.com

Kerry Shapiro
kshapiro@jmbm.com

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www.jmbm.com

Ref: 72889-0007

March 8, 2019

BY EMAIL

Supervisor Steve Bennett
Ventura County Board
800 S. Victoria Ave., L-1900
Ventura, California 93009
steve.bennett@ventura.org

Supervisor Linda Parks
Ventura County Board
625 West Hillcrest Drive
Thousand Oaks, California 91360
linda.parks@ventura.org

Supervisor Kelly Long
Ventura County Board
1203 Flynn Road, Suite 220
Camarillo, California 93012
kelly.long@ventura.org

Supervisor Bob Huber
Ventura County Board
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Simi Valley, California 93065
supervisor.huber@ventura.org

Supervisor John C. Zaragoza
Ventura County Board
800 S. Victoria Ave., L-1860
Ventura, California 93009
john.zaragoza@ventura.org

Rosa Gonzalez
Chief Deputy Clerk of the Board
800 S. Victoria Ave.
Ventura, California 93009
CountyExecutiveOfficer@ventura.org

Re: Opposition to Habitat Connectivity and Wildlife Corridor Project

Dear Honorable Members of the Board:

As attorneys for and on behalf of the California Construction and Industrial Materials Association ("CalCIMA"), we hereby submit the following comments for project "PL16-0127", through which the County of Ventura ("County") proposes to amend its General Plan and Non-Coastal Zoning Ordinance to establish (i) a Habitat Connectivity and Wildlife Corridors Overlay Zone, and (ii) a Critical Wildlife Passage Areas Overlay Zone ("Project"). Please place a copy of this letter in the administrative record for the Project.

CalCIMA is a trade association for the construction and industrial materials industries in California, which include aggregate, industrial minerals, and ready mixed concrete producers. These producers provide people and businesses with cement, concrete, and other materials used to build and repair California's homes, schools, roads, airports, bridges and other public infrastructure. CalCIMA serves its members and the public by providing information on aggregates, industrial minerals, and ready mixed concrete; supplying safety, technical, and compliance training; and addressing legislative, regulatory, and judicial matters that affect the

building materials industry. CalCIMA has members who operate mines in the County and hold title to valuable mining properties and rights in the County.

The County's apparent willingness to disregard the Project's potential impacts to thousands of acres of mineral resources that have been classified and designated by the state in accordance with the Surface Mining and Reclamation Act ("SMARA") is of serious concern to CalCIMA. Perhaps most concerning is the County's assertion that the Project is exempt from environmental review in accordance with the California Environmental Quality Act ("CEQA"). The County's approval of the Project based on an exemption would undermine decades of important state policy presently implemented through SMARA and CEQA. Accordingly, CalCIMA is committed to challenging the County's proposed action. As discussed below, there is no reasonable basis for the Project to be excluded from the County's comprehensive General Plan update.

I. SUMMARY OF CALCIMA'S JANUARY 2019 LETTER

CalCIMA previously submitted a 31-page letter to the Planning Commission, dated January 28, 2019, with supporting exhibits. A copy of that letter is attached as Exhibit A.[1] As discussed therein, CalCIMA is concerned the Project could affect (i) the future development of mineral resources, and (ii) the operation and expansion of existing mining operations in the following ways:

- generally speaking, the Project, which would implement habitat corridor overlay zones intended to prevent surface disturbances and the development of land included therein, could serve as a de facto ban on surface mining activities, which require land disturbances and the removal of native vegetation;
- the Project could impair, delay, or even preclude the operation and expansion of existing and future surface mining operations, which could also unreasonably increase the costs of such activities;
- the Project's buffer areas that would preclude land disturbance adjacent to and within "surface water features," such as streams and rivers, could impede the use of water from these sources in surface mining operations, and could also preclude river and in-stream mining;
- the Project's lighting restrictions could impede nighttime operations, which often occur to reduce daytime transportation impacts;

[1] The exhibits to the CalCIMA January 28, 2019 letter are not attached here, but are attached to the Board of Supervisors Staff Report as "SR Exhibit D."

- the Project's restrictions on the removal of native vegetation could serve as a barrier to surface mining, which requires the removal of such vegetation;

- the Project's inclusion of thousands of acres of mineral resources that have been classified and designated by the state could impede the County's ability to develop local sources of mineral resources for future use in local and regional projects.

In the January 2019 letter, CalCIMA also raised the following substantive and procedural deficiencies regarding the County's processing of the Project and the lack of CEQA review:

- the County's approval of the Project would violate and be inconsistent with SMARA, including sections 2762(d)(1) and 2763, which require lead agencies to consult with the California Geological Survey prior to legislative zoning actions that would affect mineral resources that have been classified or designated by the state;

- the County's approval of the Project would violate the Government Code, including section 65860, which requires zoning ordinances to be consistent with applicable provisions of a lead agency's general plan;

- the County's approval of the Project would violate CEQA because the evidence shows the Project will have significant and cumulatively significant environmental impacts to mineral resources and other protected resource categories such as transportation, air quality and greenhouse gas emissions, land use, and wildfires;

- the County's assertion that the Project is exempt from CEQA is arbitrary and capricious and lacks evidentiary support, and, even if it were exempt, would be subject to multiple exceptions, including the unusual circumstances exception.

II. THE COUNTY HAS NOT ADDRESSED THE MAJORITY OF CALCIMA'S COMMENTS

CalCIMA has reviewed the revised version of the Project Ordinance attached to the Board of Supervisors Staff Report and it seems that the County has ignored the majority of CalCIMA's concerns discussed above. Although CalCIMA understands that (i) surface mining operations have been proposed by planning staff for exemption from certain lighting restrictions and lighting standards, on a "temporary or intermittent" basis, and (ii) the 200-foot surface water feature buffer area has been proposed for reduction to 100 feet, the County has largely ignored the majority of the issues previously raised by CalCIMA.

Accordingly, CalCIMA again requests that the County either (i) revise the Project to avoid any overlap onto and impacts to mineral resources previously identified by the state or County, and all mining properties; or (ii) complete the following actions prior to approval of the Project:

- exclude existing and future surface mining activities, in entirety, from the surface water feature land disturbance buffer areas;
- exclude existing and future surface mining activities, in entirety, from the restrictions regarding the removal of native vegetation;
- exclude existing and future surface mining activities, in entirety, from lighting restrictions, and not just on a limited "temporary or intermittent" basis;
- analyze the Project as a component of the County's ongoing General Plan update, which will include the preparation of an environmental impact report ("EIR");
- consult with the California Geological Survey during the General Plan update CEQA process regarding the Project's potential impacts to classified and designated mineral resources.

CalCIMA notes that its comments have been omitted from the summary of issues presented to the Planning Commission in conjunction with the January 31, 2019 public hearing, as discussed on pages 5-6 of the Board of Supervisors Staff Report. CalCIMA also notes the County has not provided any written analysis of the Project's potential impacts to mineral resources, or the Project's inclusion of thousands of acres of classified and designated mineral resources. Accordingly, the County has failed to rectify many of the substantive and procedural deficiencies previously discussed in CalCIMA's January 2019 letter, which therefore continue to preclude the County from lawfully approving the Project, as further discussed below.

III. THE COUNTY MUST CONSIDER THE PROJECT'S IMPACTS TO MINERAL RESOURCES

The County has finally acknowledged that the purpose of the Project is to "discourage" the development of land located within the wildlife corridors, a fact known to CalCIMA since it first heard of the Project:

> Here, to the extent the project affects the environment, the effect is expected to be beneficial since **the proposed project is intended to** protect biological resources by **discouraging** and requiring

additional environmental review regarding certain **development** that could impair wildlife movement.[2]

As discussed below, the County's approval of the Project would do more than merely "discourage" the development of mineral resources and would instead constitute a de facto ban. Such an action would violate SMARA, CEQA, and the Government Code, and would also be inconsistent with the portions of the County's General Plan and Resources Appendix adopted for the purpose of safeguarding future access to mineral resources.

The County's General Plan discusses the significant mineral resource areas located in the County. These areas were identified by the State Division of Mines and Geology (renamed the California Geological Survey in 2006) in accordance with SMARA. "The County's primary mechanism for carrying out SMARA's objective of safeguarding access to mineral resources is the designation of appropriate areas as a Mineral Resource Area on the Resource Protection Maps."[3] The Resource Protection Maps are depicted on pages 29-30 of the General Plan.

In order to protect these mineral resource areas, the County has included in the General Plan "Goals, Policies and Programs" for mineral resources.[4] The County's Resources Appendix also includes land use policies and procedures to safeguard future access to these Mineral Resource Areas.[5]

The Resources Appendix also includes a summary of the efforts undertaken by the Division of Mines and Geology that led to the classification of "MRZ-2" areas throughout the County.[6] MRZ-2 areas are areas of land in which known economic mineral deposits are located.[7] The Resources Appendix also summarizes the subsequent designation of 10 sectors of those MRZ-2 areas as "regionally significant" Mineral Resource Areas by the State Mining and Geology Board (Sectors A-J).[8] The State Mining and Geology Board prepared an EIR in conjunction with its designation of these 10 sectors.

The County subsequently used the data and information prepared by the state during the classification and designation processes as the basis for an important analysis in the Resources Appendix. There, the County concluded "that there is relatively little land within the County which is known to have significant deposits of construction grade aggregate" (those classified as MRZ-2)", adding that, "MRZ-2 areas have been 'designated' by the State as areas

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[2] Board Staff Report, p. 15.
[3] General Plan Goals, Policies, and Programs, p. 16, § 1.4 [Mineral Resources].
[4] General Plan Goals, Policies, and Programs, pp. 16-17, §§ 1.4.1, 1.4.2, 1.4.3.
[5] General Plan Resources Appendix, § 1.4, pp. 25-38 [Mineral Resources].
[6] General Plan Resources Appendix, § 1.4, p. 25; CalCIMA January 2019 letter, **Exhibit 1**.
[7] CalCIMA January 2019 letter, **Exhibit 2**.
[8] General Plan Resources Appendix, § 1.4, p. 25; CalCIMA January 2019 letter, **Exhibits 3, 4**.

that should be subject to special management regulations through the General Plan of local jurisdictions."[9]

As detailed in the memorandum from ECORP Consulting, Inc. ("ECORP") attached as **Exhibit 5** to the CalCIMA January 2019 letter, the Project would include thousands of acres of mineral resources that the state has previously (1) classified as MRZ-2 areas; and (2) designated as regionally significant mineral resource sectors. Additionally, the Project will include multiple mining properties.

As explained in the General Plan, "most of the [sand and gravel] extraction sites are located in and along the Santa Clara River bed."[10] Figure 1.4.1 of the Resources Appendix depicts the County's aggregate resources, including its state-designated areas located in and along the Santa Clara River bed.[11] The proposed Santa Madre-Santa Monica corridor, one of the two corridors proposed for implementation through the Project, would be located *directly on top of* multiple Mineral Resource Areas, as depicted on the Resource Protection Maps.[12] Thus, the Project would implement an overlay zone intended to prevent the disturbance of wildlife habitat, directly on top of areas already designated by the state and acknowledged by the County as having significant and valuable aggregate resources.

But mineral resources are of no value if they cannot be extracted, and those minerals will not extracted if such development is "discouraged".[13] Furthermore, the conservation of wildlife habitat and corridors is inherently incompatible with the development of mineral resources, which requires surface disturbances prior to the extraction of mineral resources located thereunder. Accordingly, the Project would be in direct conflict with the Mineral Resource overlay zones and the County's Goals, Policies and Programs for mineral resources, the purpose of which is to (1) identify critical mineral resources necessary for future development, and (2) safeguard future access to those resources.

The mineral resources located in the County are protected under SMARA, CEQA, and the provisions of the County's General Plan and Resources Appendix. Because the extraction of mineral resources requires surface disturbance, the implications of the County's approval of the Project are significant. Any mine operator seeking permission to extract the valuable sand and gravel from the Mineral Resource Areas located within a wildlife corridor would be met with stark opposition from the public, the effect of which would likely stop a project. That's why the County must carefully consider the Project's impacts to these designated and protected mineral resources prior to approval. Without engaging in a CEQA process, the

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[9] General Plan Resources Appendix, p. 29.
[10] General Plan Goals, Policies, and Programs, p. 16, § 1.4
[11] General Plan Resources Appendix, p. 44.
[12] General Plan Goals, Policies, and Programs, p. 30.
[13] Board Staff Report, p. 15.

County has not provided any analysis regarding how the Project could potentially impact mineral resources.

The County should either (1) revise the Project to avoid any overlap onto and impacts to mineral resources previously identified by the state or County, and all mining properties; or (2) refrain from considering the Project at this time, and, instead, analyze the Project's environmental impacts in an EIR, as other agencies have analyzed other similar habitat conservation projects.

IV. COMMENTS

A. The Board's Approval of the Project would Violate SMARA

If a local agency proposes to approve a project that would include mineral resources that have been classified or designated by the state, the agency *must* prepare an environmental document in accordance with CEQA and a statement of reasons for the project, both of which must be forwarded to the State Geologist for review.[14] These are not optional requirements, and the County has not yet complied with these requirements. Accordingly, the County's approval of the Project would violate SMARA. Notably, the County CEQA Guidelines also require consultation with the Division of Mines and Geology under the circumstances presented by the Project.[15]

CalCIMA encourages the Board of Supervisors to carefully consider the legislative findings and declarations of SMARA, many of which have been incorporated into the County General Plan and Resources Appendix.[16]

B. The Board's Approval of the Project would Violate CEQA

One of CEQA's fundamental purposes is to inform government decision-makers and the public about the potential significant environmental effects of proposed projects and to disclose to the public the reasons for approval of a project that may have significant environmental effects.[17]

Similarly, the purpose of the County CEQA Guidelines is "to inform the public [and] County staff of the threshold criteria and standard methodology used in determining whether or not a project (individually or cumulatively with other projects) could have a significant effect on the environment. Furthermore, these Guidelines provide instructions for

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[14] Pub. Res. Code §§ 2762(d)(1), 2763.
[15] County CEQA Guidelines, p. 22, § E.
[16] Pub. Res. Code § 2711; General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources]; General Plan Resources Appendix, § 1.4, pp. 25-38 [Mineral Resources]; *see also* County CEQA Guidelines, pp. 21-22, § 3a.
[17] 14 CCR §§ 15002(a)(1), 15002(a)(4) ("CEQA Guidelines").

completing the Initial Study and determining the type of environmental document for individual projects."[18]

The County has already acknowledged that the Project is subject to CEQA.[19] Further, as the County explains in its "CEQA Public Information Brochure", the "environment" that "will be affected by a proposed project" includes "minerals".[20] Thus, the County must analyze the Project's impacts on mineral resources. To assist with this evaluation, the state has promulgated CEQA Guidelines that include thresholds of significance drafted with specific regard to mineral resources, which ask whether a project would:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Result in the loss of availability of a locally-important mineral resources recovery site delineated on a local general plan, specific plan, or other land use plan?[21]

The County also has CEQA Guidelines that include thresholds of significance for use in analyzing a project's impacts to mineral resources, which provide as follows:

1. Any land use or project activity which is proposed to be located on or immediately adjacent to land zoned Mineral Resources Protection (MRP) overlay zone, or adjacent to a principal access road to an existing aggregate Conditional Use Permit (CUP), and which has the potential to hamper or preclude extraction of or access to the aggregate resources, shall be considered to have a significant adverse impact on the environment.

2. A project would have a cumulative impact on aggregate resources if when considered with other pending and recently approved projects in the area, hampers or precludes extraction or access to identified resources.[22]

As explained in great detail in the CalCIMA January 2019 letter, the answer to items a) and b), above, is "yes." CalCIMA also explained why the Project falls within the criteria listed in items 1. and 2., above. Accordingly, the County must prepare some type of

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[18] County CEQA Guidelines [Forward].
[19] Planning Commission Staff Report, p. 32, § B., ¶ 1 ["Accordingly, the proposed GP and NCZO amendments are considered a CEQA 'project'."]
[20] County "CEQA Public Information Brochure" (https://docs.vcrma.org/images/pdf/planning/brochures/ceqa_3-08.pdf).
[21] CEQA Guidelines, App. G, § XII(a)-(b) [Mineral Resources].
[22] County CEQA Guidelines, p. 21, § D(1)-(2) [Threshold of Significance Criteria] (emphasis added).

CEQA document to quantify, analyze, and potentially mitigate the Project's impacts to mineral resources.

Importantly, item 1. of the County CEQA Guidelines, above, *presumes* that a project "*shall* be considered to have a *significant adverse impact* on the environment" (*i.e.*, mineral resources) if the project "is proposed to be located on or immediately adjacent to land zoned Mineral Resources Protection (MRP) overlay zone". Here, the Project is proposed for location *directly on top of* the County's Mineral Resources Protection overlay zone and would include thousands of acres of state-classified MRZ-2 areas, much of which is designated as having regional significance.

In an apparent effort to avoid the preparation of even an initial study, the results of which would highlight the obvious need for the County to prepare some type of a CEQA document, the County asserts the Project is appropriate for approval based on an exemption because "the effect is expected to be beneficial".[23] But the Project's potential benefits to wildlife does not allow the County to ignore the Project's potential impacts to mineral resources, which, like wildlife, is also a resource protected by CEQA.

If the County intends to override the Project's impacts to mineral resources, it can do so, but it must prepare and adopt the necessary documents and findings in accordance with CEQA, and also inform the California Geological Survey in accordance with SMARA, as discussed above.

1. The County's Analysis of CEQA Exemptions is not Supported by Substantial Evidence

The County's assertion that the Project is exempt from CEQA is not supported by substantial evidence.[24]

First, the "common sense" exemption requires a lead agency to conclude "with certainty that there is no possibility that the activity in question may have a significant effect on the environment".[25] "[W]hether a particular activity qualifies for the common sense exemption presents an issue of fact, that the agency invoking the exemption has the burden of demonstrative it applies."[26] "[T]he agency's exemption determination must be supported by evidence in the

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[23] Board Staff Report, p. 15 [Environmental Review]; Planning Commission Staff Report, p. 33, ¶ 2.
[24] Board Staff Report, pp. 15-16 [Environmental Review].
[25] CEQA Guidelines § 15061(b)(3).
[26] *Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 386 ("*Muzzy Ranch*").

record demonstrating that the agency considered possible environmental impacts in reaching its decision."[27] The agency's determination must be supported by "substantial evidence".[28]

"An agency's obligation to produce substantial evidence supporting its exemption decision is all the more important where the records shows, as it does here, that opponents of the project have raised arguments regarding possible significant environmental impacts."[29] "An agency obviously cannot declare 'with certainty that there is no possibility that the activity in question may have a significant effect on the environment' if it has not considered the facts of the matter."[30]

As discussed above, and in CalCIMA's January 2019 letter, the "environment" that "will be affected by a proposed project" includes "minerals".[31] However, the County has not responded to the concerns raised in CalCIMA's January 2019 letter regarding how the Project may affect the environment, including mineral resources. Nor has the County discussed mineral resources, at all, in either the Planning Commission Staff Report, or the Board of Supervisors Staff Report. Similarly, the County has not discussed how or why the Project—which is intended to "discourage" development in the wildlife corridors[32]–could be consistent with applicable provisions of the General Plan. Thus, based on the evidence in the record, it appears the County has chosen to simply ignore CalCIMA and its concerns regarding mineral impacts.

Furthermore, the County's conclusion that, "no substantial evidence exists establishing that the project would have a significant effect on the environment" lacks any related analysis and therefore, fails to respond to the extensive discussion in CalCIMA's January 2019 letter and the supporting evidence attached thereto. As CalCIMA discussed therein, when it comes to the transportation of mineral resources, "distance matters." Thus, the County's imposition of a wildlife corridor on thousands of acres of designated mineral resources for the purpose of "discouraging" the extraction of those resources could require the importation of such resources from other jurisdictions. This, in turn, would cause increased emissions of greenhouse gas emissions and criteria pollutants, among other things, such as truck trips. The potential for this cumulatively significant sequence of events is well-researched and even discussed in the County's Resources Appendix.[33]

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[27] *Davidon Homes v. City of San Jose* (1997) 54 Cal.App.4th 106, 117 ("*Davidon*").
[28] *CREED-21 v. City of San Diego* (2015) 234 Cal.App.4th 488, 511.
[29] *Davidon* at 117.
[30] *Muzzy Ranch* at 387 (internal citation omitted).
[31] CEQA Guidelines Appendix G; County "CEQA Public Information Brochure" (https://docs.vcrma.org/images/pdf/planning/brochures/ceqa_3-08.pdf).
[32] Board Staff Report, p. 15.
[33] *See, e.g.*, General Plan Resources Appendix, p. 31 ["Transporting the material raises costs. It also contributes to traffic impacts, particularly if surface streets must be used. Energy consumption rises and with it air pollution"].

Second, the County's proposed invocation of the exemptions for Actions by Regulatory Agencies at CEQA Guidelines §§ 15307 and 15308 also lacks substantial evidence.[34] The County bases its invocation of these two exemptions on its conclusion that the Project "is intended to benefit the environment".[35] However, as CalCIMA explained in its January 2019 letter, a project that benefits the environment may nevertheless have a significant environment impact that requires the preparation of an EIR.[36]

Assuming for the sake of argument that the County had supported with substantial evidence its assertion that the Project is exempt from CEQA, the unusual circumstances exception would nevertheless preclude the application of an exemption. As discussed in CalCIMA's January 2019 letter, the Project's inclusion of thousands of acres of mineral resources that have been classified and designated by the state presents unusual circumstances that requires CEQA review and careful consideration by the County. The County cannot just ignore the extensive investigation and proceedings undertaken by the state in the 1980s for the purpose of classifying and designating the mineral resources located in the County, for the purpose of safeguarding future access to those resources.

Again, if the County wants to approve the Project and override the Project's impacts to mineral resources, it can do so, but it must prepare and adopt the necessary documents and findings in accordance with CEQA, and also inform the California Geological Survey in accordance with SMARA.

C. The Approval of the Project would Violate the Government Code

As explained in the General Plan, a zoning ordinance "shall be consistent" with the general plan, including the applicable objectives and policies.[37] The General Plan Goals, Policies and Programs for mineral resources states that:

- All *General Plan amendments, zone changes, and discretionary developments shall be evaluated for their individual and cumulative impacts* on access to and extraction of recognized mineral resources, in compliance with the California Environmental Quality Act."

- "*Discretionary* development within a Mineral Resource Area (see Resource Protection Map) shall be subject to the provisions of the Mineral Resource

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[34] Board Staff Report, pp. 15-16.
[35] Board Staff Report, p. 15.
[36] *Wildlife Alive v. Chickering* (1976) 17 Cal.3d 190; *Dunn-Edwards Corp. v. Bay Area Air Quality Management Dist.* (1992) 9 Cal.App.4th 644; *California Unions for Reliable Energy v. Mojave Desert Air Quality Management Dist.* (2009) 178 Cal.App.4th 1225.
[37] General Plan Goals, Policies, and Programs, p. 3 [Determining Consistency with General Plan] (citing Gov. Code § 65860).

Protection (MRP) Overlay Zone, and is *prohibited* if the use will significantly hamper or preclude access to or the extraction of mineral resources."[38]

The Project is a "discretionary development within a Mineral Resource Area". The Project also requires a general plan amendment and zone change.[39] Thus, the Project falls squarely within the General Plan Goals, Policies and Programs for mineral resources listed above, which states that such projects "*shall be evaluated for their individual and cumulative impacts* on access to and extraction of recognized mineral resources, in compliance with the California Environmental Quality Act."

The County has expended substantial time and effort to ensure that mineral resources are appropriately considered and protected during future legislative actions and project approvals. The County's efforts include: (1) the adoption of Goals, Policies and Programs for mineral resources in the General Plan; (2) the adoption of a section of its Resources Appendix for the specific purpose of safeguarding access to its mineral resources areas; (3) the implementation of Mineral Resources overlay zones and Mineral Resource Areas, as depicted on Resource Protection Maps; and (4) the adoption of County CEQA Guidelines specifically devoted to protecting mineral resources from incompatible land uses.

On what basis is the County choosing to ignore the consideration of these requirements? Has the County concluded the Project is somehow consistent with the Goals, Policies and Programs for mineral resources, as required by the Government Code? Has the County decided the Project's impacts to mineral resources do not matter?

There are no answers to these questions in the record because the County's discussion of the Project's consistency with the General Plan is limited to a one-sentence, perfunctory finding.[40]

D. The County is Improperly Piecemealing its Review of the Project

CalCIMA encourages the Members of the Board to step back and consider the Project not as the imposition of fencing or lighting restrictions, but rather as a sweeping legislative action to rezone hundreds of thousands of acres of land. A general plan amendment and zone change of this scope and magnitude should be considered in a general plan update, where it would be properly considered in the context of other significant legislative and zoning actions being contemplated by the County.

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[38] General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources].
[39] Planning Commission Staff Report, p. 32, § B., ¶ 1 ["Accordingly, the proposed GP and NCZO amendments are considered a CEQA 'project'."]
[40] Board Staff Report, p. 2.

Despite the fact that the County is presently processing an update of its General Plan,[41] which will include the preparation of an EIR, the County has proposed to separately approve this Project without any CEQA review. However, there is no reasonable basis to exclude the Project from the comprehensive General Plan update. This piecemeal type of review constitutes poor planning and violates CEQA. The County should analyze the Project as a component of its General Plan update, as it previously said it would.[42]

Furthermore, the Project, as proposed, is incomplete. As explained in the Board of Supervisors Staff Report and Draft Ordinance, the Project proposes to amend the (i) County General Plan and (ii) Non-Coastal Zoning Ordinance ("NCZO").[43] Noticeably absent from the Staff Report and Draft Ordinance, however, is a proposed amendment of the Coastal Zoning Ordinance ("CZO"). In fact, neither the Staff Report, nor the Draft Ordinance even mention the CZO.

The potential reason why the County avoided discussion of the CZO may be because the amendment of the CZO would require the subsequent approval of the California Coastal Commission ("Commission"). Thus, the coastal areas located in the CZO are not a part of the Project. However, the County has nevertheless included those areas in the Project-related maps being shared with the public—that is a misrepresentation of the Project's scope. The "whole of the action" should be concurrently analyzed and evaluated.

V. CONCLUSION

CEQA requires lead agencies to thoughtfully consider the impacts that a project may have upon the 20 categories of resources set forth within Appendix G of the CEQA Guidelines. If an agency determines, after careful consideration and analysis based on technical and scientific data, and the evaluation of project alternatives and potential mitigation measures that could reduce a project's impacts, that the approval of a project is warranted notwithstanding any significant impacts that will be caused by the project, the agency can decide to adopt a statement of overriding considerations.

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[41] January 14, 2019 Notice of Preparation of Draft EIR for Ventura County 2040 General Plan Update (https://vc2040.org/images/VC2040_Notice_of_Preparation.pdf).

[42] County Board of Supervisors January 24, 2017 Report, p. 2, § A, ¶ 1 [The [Project] will be determined through a process that includes technical reviews, preparation of text amendments, an extensive public outreach program involving a range of stakeholder groups, environmental review, and public hearings (emphasis added).] (http://bosagenda.countyofventura.org/sirepub/cache/2/enjsojmqyc2zav2ywggpp3pk/102066301820190916158 2.PDF).

[43] Board of Supervisors Staff Report, p. 1 [Subject].

However, none of this has occurred here. If the County desires to approve the Project notwithstanding the related impacts to mineral resources, the County must do so in accordance with the rules of CEQA and cannot rely on an exemption.

Based on the foregoing, CalCIMA urges the County to consider how the Project may impact mineral resources, including impacts on the extraction of state-designated mineral resources located within the overall Project area, as CalCIMA initially requested in its January 28, 2019 letter. CalCIMA also requests that the County consult with the California Geological Survey and the State Mining and Geology Board, as required by SMARA and the County CEQA Guidelines.

Very truly yours,

KERRY SHAPIRO of
Jeffer Mangels Butler & Mitchell LLP

cc: California Geological Survey
State Mining and Geology Board
Gary W. Hambly, CalCIMA

EXHIBIT A

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January 28, 2019

BY EMAIL

Ventura County Planning Commission
Hall of Administration
Resource Management Agency/Planning Division
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Re: Habitat Connectivity and Wildlife Corridor project

Dear Ms. Batinica:

As attorneys for and on behalf of the California Construction and Industrial Materials Association ("CalCIMA"), we hereby submit the following comments for project "PL16-0127", through which the County of Ventura ("County") proposes to amend its General Plan and Non-Coastal Zoning Ordinance to establish (i) a Habitat Connectivity and Wildlife Corridors Overlay Zone, and (ii) a Critical Wildlife Passage Areas Overlay Zone ("Project").

CalCIMA is a trade association for the construction and industrial material industries in California, which include aggregate, industrial minerals, and ready mixed concrete producers. These producers provide people and businesses with cement, concrete, and other materials used to build and repair California's homes, schools, roads, airports, bridges and other public infrastructure. CalCIMA serves its members and the public by providing information on aggregates, industrial minerals, and ready mixed concrete; supplying safety, technical, and compliance training; and addressing legislative, regulatory, and judicial matters that affect the building materials industry. CalCIMA has members who operate mines in the County and hold title to valuable mining properties and rights in the County.

As discussed below, the County's proposed approval of the Project absent any environmental review in accordance with the California Environmental Quality Act ("CEQA"), based on certain asserted CEQA exemptions, would constitute an abuse of discretion because:

- the "unusual circumstances" exception precludes the County's use of such CEQA exemptions;

- the evidence shows the Project will result in significant environmental impacts;
- the County's approval of the Project would violate the Surface Mining and Reclamation Act ("SMARA") and the Government Code;
- the County's conclusion regarding the "common sense" CEQA exemption lacks evidentiary support;
- the County improperly concludes that a project with an "expected environmental benefit" does not require environmental review; and
- the cumulative impacts exception precludes the County's use of a CEQA exemption.

Accordingly, the County should either (1) revise the Project to avoid any overlap onto and impacts to mineral resources previously identified by the state or County, and all mining properties; or (2) refrain from considering the Project at this time, and, instead, analyze the Project's environmental impacts in an environmental impact report ("EIR"). Please place a copy of this letter in the administrative record for the Project.

I. THE PROJECT MAY IMPACT THE COUNTY'S MINERAL RESOURCES

In 1981, multiple areas of the County were classified as MRZ-2 areas by the California Division of Mines and Geology,[1] renamed the California Geological Survey in 2006.[2] MRZ-2 areas are areas of land in which known economic mineral deposits are located.[3]

In 1982, 10 "sectors" of the County's MRZ-2 areas were designated as regionally significant mineral resource areas by the California State Mining and Geology Board (Sectors A-

[1] Special Report 145, Mineral Land Classification of Ventura County, Parts I-III (January 1981) (https://www.conservation.ca.gov/cgs/mineral-resources/mineral-land-classification-smara, ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR_145/SR_145_Text.pdf, ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR_145/) ("**Exhibit 1**").
[2] https://www.conservation.ca.gov/cgs/about/history.
[3] California Surface Mining and Reclamation Policies and Procedures, Guidelines for Classification and Designation of Mineral Lands (https://www.conservation.ca.gov/smgb/Guidelines/Documents/ClassDesig.pdf) ("**Exhibit 2**").

J), which led to the preparation of maps depicting the locations of these areas.[4] An EIR was certified in conjunction with the designation of these 10 sectors.[5]

The County's classified and designated mineral resources are protected under SMARA.[6] These resources are also protected by "Goals, Policies and Programs" for mineral resources in the County's General Plan[7] and the County's Resource Protection Map and Mineral Resources Protection Overlay Zones.[8]

As detailed in the attached memorandum from ECORP Consulting, Inc. ("ECORP"), the Project would include vast acreages of mineral resources that have been both classified and designated by the state. For example, the ECORP memorandum identifies approximately 13,987 acres of state-classified MRZ-2 areas that will be included within the Project.[9] This amounts to approximately 41% of the County's supply of classified MRZ-2 areas. Moreover, the Project will also include portions of these MRZ-2 areas that have been designated as regionally significant mineral resource sectors.[10] Additionally, the Project will include multiple mining properties.[11]

The inclusion of these classified and designated mineral resources and mining properties in the Project has the potential to significantly impair and unreasonably delay the

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[4] SMARA Designation Report No. 2, Designation of Regionally Significant Construction Aggregate Resources Areas in the Western Ventura County and Simi Production-Consumption Regions (March 1982) (https://www.conservation.ca.gov/smgb/reports/Pages/Designation-Reports.aspx, https://www.conservation.ca.gov/smgb/reports/Documents/Designation_Reports/SMARA%20Designation%20Report%20No.%202.pdf, https://www.conservation.ca.gov/smgb/reports/Documents/Designation_Reports/DR2_82-1_Plate1.pdf, https://www.conservation.ca.gov/smgb/reports/Documents/Designation_Reports/DR2_82-1_Plate2.pdf) ("**Exhibit 3**"); *see also* Map Sheet 52, Aggregate Sustainability in California (Updated 2018) (https://www.conservation.ca.gov/cgs/Documents/Publications/MS_52_California_Aggregates_Map_201807.pdf, https://www.conservation.ca.gov/cgs/Documents/Publications/MS_52_California_Aggregates_Report_201807.pdf) ("**Exhibit 4**").

[5] Exhibit 3, p. 7.

[6] Pub. Res. Code §§ 2710 et seq.

[7] General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources].

[8] General Plan Goals, Policies, and Programs, p. 30, Figure 1b [Resources Protection Map (South Half)].

[9] ECORP Memorandum, p. 2, Table 1 ("**Exhibit 5**").

[10] Exhibit 3, § C. pp. 7-11 and Exhibits 1-2 attached thereto [depicting Sectors A-J].

[11] Exhibit 5, p. 6, Table 2 and Figure 4.

extraction of these resources, in addition to the operation and expansion of mining properties, thereby increasing the overall costs of developing mineral resources. For example, the Project's lighting restrictions could affect nighttime mining operations, which often occur at night to reduce daytime transportation impacts. Furthermore, the Project's restrictions on the removal of vegetation could also serve as a limitation, if not a de facto ban, on development of these important mineral resources, which requires surface disturbance, including the removal of native vegetation. Additionally, the Project's extensive restrictions on "surface water features" could impair both river and in-stream mining activities, as well as mineral resources that include such features.

Perhaps most importantly, the Project could significantly impair and potentially preclude the extraction of the County's classified and designated mineral resources, and the operation and expansion of mining properties, because the purpose of the Project—*i.e.*, the conservation of wildlife habitat, including wildlife habitat and corridors—is inherently incompatible with the development of mineral resources, which requires surface disturbances prior to the extraction of mineral resources located thereunder.

As further discussed below, the Project appears similar to the Riverside County Multiple Species Habitat Conservation Plan ("Riverside MSHCP") and other similar projects, all of which were subjected to a detailed public review process that included the preparation of an EIR in accordance with CEQA. Importantly, the EIR for the Riverside MSHCP concluded that impacts to mineral resources, including the rezoning of MRZ-2 areas for conservation purposes, constituted a cumulatively significant impact.[12]

Similarly, here, the Project could also result in significant and cumulative impacts to mineral resources that warrant careful analysis and consideration by the County. This consideration must be completed in accordance with CEQA.

Notably, the County General Plan plainly states that, "All General Plan amendments, zone changes, and discretionary developments shall be evaluated for their individual and cumulative impacts on access to and extraction of recognized mineral resources, in compliance with the California Environmental Quality Act."[13] Thus, there should be no dispute that the Project, which proposes a General Plan amendment and the rezoning of approximately 520,000 acres of land for conservation purposes,[14] requires environmental review in accordance with CEQA.

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[12] Riverside MSHCP, EIR/EIR, Section 5., Cumulative Impacts, p. 5.1-9 (http://wrcrca.conserveriverside.com/wrcrca/Permit_Docs/MSHCP_Docs/volume4/Vol4-Sec5.pdf) ("**Exhibit 6**").
[13] General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources].
[14] Staff Report, p. 7, § C.

II. COMMENTS

A. The County's Assertion that the Project is Exempt from CEQA is Arbitrary and Capricious and not Supported by Substantial Evidence

The Staff Report for the Project acknowledges that project "PL16-0127" constitutes a "project" under CEQA.[15] However, the County nevertheless asserts that the Project is exempt from CEQA.[16] The County cites three exemptions in support of its conclusion. Those three exemptions are:

1) The "common sense" exemption (15061(b)(3));[17]

2) Actions by Regulatory Agencies to Protect Natural Resources (14 CCR § 15307);[18] and

3) Actions by Regulatory Agencies to Protect Environment (14 CCR § 15308).[19]

In addition, the County also asserts that the "unusual circumstances" exception to CEQA exemptions does not apply.[20] However, as discussed below, the County's conclusions that (i) the Project is exempt from CEQA, and (ii) that the unusual circumstances exception does not apply, are not supported by the evidence.

B. The Unusual Circumstances Exception Precludes the County's Use of a CEQA Exemption

"A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances."[21] The "unusual circumstances" exception is set forth at 14 CCR § 15300.2(c) ("CEQA Guidelines" or "Guidelines") and was examined by the California Supreme Court in *Berkeley Hillside Preservation v. City of Berkeley* (2016) 60 Cal.4th 1086 ("*Berkeley Hillside*").

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[15] Staff Report, p. 32, § B., ¶ 1 ["Accordingly, the proposed GP and NCZO amendments are considered a CEQA 'project'."]
[16] Staff Report, pp. 32-33, § B.
[17] Staff Report, pp. 32-33; *see also Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 380 [referring to 15061(b)(3) as the "common sense exemption".]
[18] Staff Report, p. 33, ¶ 2.
[19] Staff Report, p. 33, ¶ 2.
[20] Staff Report, p. 33, ¶ 3.
[21] 14 CCR § 15300.2(c); *Berkeley Hillside Preservation v. City of Berkeley* (2016) 60 Cal.4th 1086 ("*Berkeley Hillside*").

As the Court explained in *Berkeley Hillside*, there are two approaches that can be used to show unusual circumstances. If unusual circumstances are demonstrated, the lead agency cannot proceed based on a CEQA exemption.

The first approach utilizes a two-part test that requires a party to show: (1) the project has some feature that distinguishes it from others in the exempt class, such as its size or location; and (2) a reasonable possibility of a significant effect due to that unusual circumstance.[22] This approach will be referred to herein as the "Two-Part Test".

The second approach only requires a party to show that a project will have a significant environmental effect.[23] This approach will be referred to herein as the "One-Part Test".

As discussed below, the evidence shows that the unusual circumstances exception applies here, under both the One-Part Test and the Two-Part Test, referenced above. Accordingly, the County is precluded from approving the Project based on a CEQA exemption.

1. The Project Presents Unusual Circumstances

The first part of the Two-Part Test requires a party to show a project the project has some feature that distinguishes it from others in the exempt class, such as its size or location.[24]

Here, the County proposes to rezone approximately 520,000 acres of land for conservation purposes.[25] The proposed rezoning of such a massive amount of land, without completing any environmental review in accordance with CEQA, is, on its face, unusual. Additionally, the County's inclusion in the Project of approximately 13,897 acres of valuable mineral deposits that have previously been (i) classified by the California State Geologist as "MRZ-2" areas and (ii) designated as having regional significance, constitutes an unusual circumstance pursuant to Guidelines § 15300.2(c).

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[22] *Berkeley Hillside*, 60 Cal.4th at 1105 ["A party invoking the exception may establish an unusual circumstance without evidence of an environmental effect, by showing that the project has some feature that distinguishes it from others in the exempt class, such as its size or location. In such a case, to render the exception applicable, the party need only show a reasonable possibility of a significant effect due to that unusual circumstance."]

[23] *Berkeley Hillside*, 60 Cal.4th at 1105 ["Alternatively, under our reading of the guideline, a party may establish an unusual circumstances with evidence that the project will have a significant environmental effect. That evidence, if convincing, necessarily also establishes 'a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.' (Guidelines, § 15300.2, subd. (c).)" (Emphasis added).]

[24] *Berkeley Hillside*, 60 Cal.4th at 1105.

[25] Staff Report, p. 7, § C.

Furthermore, these unusual circumstances are exacerbated by the County's use of informal reports as a basis for the Project and its improper piecemealing of the Project from its ongoing General Plan update.

a) The Inclusion of State-Classified MRZ-2 Areas and State-Designated Mineral Resource Sectors Within the Project would Conflict with the Surface Mining and Reclamation Act and Constitutes an Unusual Circumstance

If approved, the Project has the potential to significantly impair and unreasonably delay the extraction of these resources and the operation and expansion of mining properties, thereby increasing the costs of developing mineral resources. Additionally, the Project may even preclude the extraction of the County's classified and designated mineral resources, and the operation and expansion of mining properties, because the purpose of the Project—*i.e.*, the conservation of wildlife habitat, including wildlife habitat and corridors—is inherently incompatible with the development of mineral resources, which requires surface disturbances prior to the extraction of mineral resources located thereunder.

(1) The Project Includes Approximately 13,987 Acres of State-Classified MRZ-2 Areas and Portions of State-Designated Mineral Resource Sectors

Through the enactment of the SMARA, the Legislature declared as follows:

- "the extraction of minerals is essential to the economic well-being of the state and to the needs of the society";
- "the production and development of local mineral resources that help maintain a strong economy and that are necessary to build the state's infrastructure are vital to reducing transportation emissions that result from the distribution of hundreds of millions of tons of construction aggregates that are used annually in building and maintaining the state;"
- the state "needs … to provide local governments, metropolitan planning organizations, and other relevant planning agencies with the information necessary to identify and protect mineral resources within general plans"; and
- "the state's mineral resources are vital, finite, and important natural resources and the responsible protection and development of these mineral resources is vital to a sustainable California".[26]

[26] Pub. Res. Code § 2711(a).

In recognition of the foregoing, "the [California State Mining and Geology Board] may, by regulation adopted after a public hearing, designate specific geographic areas of the state as areas of statewide or regional significance and specify the boundaries designation shall be included as a part of the state policy and shall indicate the reason for which the particular area designated is of significance to the state or region, the adverse effects that might result from premature development of incompatible land uses, the advantages that might be achieved from extraction of the minerals of the area, and the specific goals and policies to protect against the premature incompatible development of the area."[27]

The reference to "areas of statewide or regional significance" in the excerpt above is defined as follows:

- "'Area of regional significance' means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in a particular region of the state within which the minerals are located and which, if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local significance."[28]

- "'Area of statewide significance' means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in the state and which, if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local or regional significance."[29]

As previously discussed, multiple areas of the County were classified as MRZ-2 areas by the California Division of Mines and Geology in 1981.[30] The County discusses the importance of safeguarding these areas in the County Initial Study Assessment Guidelines ("County CEQA Guidelines"):

> Mineral Resource Zone 2 (MRZ-2) – Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists. This zone shall be applied to known mineral deposits or where well-developed lines of reasoning, based upon economic

[27] Pub. Res. Code § 2790.
[28] Pub. Res. Code § 2726.
[29] Pub. Res. Code § 2727.
[30] Exhibit 1.

geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is high.[31]

Thereafter, in 1982, 10 "sectors" of the County's MRZ-2 areas were designated as regionally significant mineral resource areas by the California State Mining and Geology Board (Sectors A-J), which led to the preparation of maps depicting the locations of these areas.[32] An EIR was adopted in conjunction with the designation of these 10 sectors.[33]

As detailed in the attached memorandum from ECORP Consulting, Inc. ("ECORP"), the Project would include vast acreages of mineral resources that have been both classified and designated by the state. As shown in Table 1, below, approximately 13,987 acres of state-classified MRZ-2 areas will be included within the Project.[34] This amounts to approximately 41% of the County's supply of classified MRZ-2 areas.

Table 1 - Ventura County Mineral Resource Zones Area Impacted by Proposed Wildlife Corridors

Proposed Wildlife Corridor	MRZ-1 Acres	MRZ-2 Acres	MRZ-3 Acres	MRZ-3a Acres	MRZ-4 Acres	Not MRZ	Grand Total
Santa Monica—Sierra Madre	26,634	13,897	61,503	5,518	3,705	1,131	112,388
Sierra Madre--Castaic	30,378	--	17,699	2,561	5,411	260,017	316,066
Ventura River	--	-	20	612	--	2	634
Total Within Wildlife Corridors	57,012	13,897	79,222	8,691	9,116	261,150	429,088
Outside Wildlife Corridor	149,900	19,816	153,386	31,742	34,817	--	389,661
County Grand Total	206,912	33,713	232,608	40,433	43,932	261,150	818,748

Source: ECORP GIS (11/2018)

Moreover, the Project will also include portions of MRZ-2 sectors that have been designated as regionally significant mineral resource areas.[35] Accordingly, the Project's impacts to mineral resources warrant careful analysis and consideration by the County—consideration must be completed in accordance with CEQA—and present unusual circumstances.

(2) The Project is Inconsistent with the Surface Mining and Reclamation Act

As explained in the County CEQA Guidelines, SMARA "was enacted in 1975 … to safeguard access to mineral resources of regional and statewide significance in the face of

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[31] County CEQA Guidelines, p. 21, § B.
[32] Exhibit 3; *see also* General Plan Resources Appendix, p. 25 ["Hearings were held in January of 1982 and the official maps identifying the areas so designated were sent to the County in June of 1982."]
[33] Exhibit 3, p. 7.
[34] Exhibit 5, p. 2, Table 1.
[35] Exhibit 3, § C. pp. 7-11 and Exhibits 1-2 attached thereto [depicting Sectors A-J].

competing land uses and urban expansion."[36] Despite the County's recognition of the importance of safeguarding mineral resources from incompatible uses, in accordance with the underlying principles of SMARA, the County is proposing to overlay vast swaths of classified and designated mineral resources without even considering the consequences.

However, the County's plan to summarily disregard the Project's potential impacts to approximately 41% of the County's supply of classified MRZ-2 areas, some of which have been designated as regionally significant mineral resource sectors, along with the related local and regional implications would violate SMARA. Accordingly, the Project presents unusual circumstances that preclude the County's use of a CEQA exemption.

Indeed, once a significant mineral resource sector has been designated, SMARA requires a lead agency with jurisdiction over the sector to "Emphasize the conservation and development of the identified mineral deposits", among other things.[37] Despite this legislative mandate, it appears the County has decided to place the conservation of wildlife corridors above the conservation of mineral resources. If so, the County must first analyze and disclose the potential implications of its decision in a public process.

(3) The Project is Inconsistent with the County's General Plan Policies Intended to Protect Mineral Resources

As the County explains in its General Plan, a zoning ordinance "shall be consistent" with the general plan, including the applicable objectives and policies.[38] The General Plan "Goals, Policies and Programs" for mineral resources provide as follows:

- "Aggregates represent the other significant type of mineral resource extracted within the County. Aggregates include sand, gravel and rock which are used for fill, construction-grade concrete and riprap, among others. Although many sand and gravel sites exist throughout the County, most of the extraction sites are located in and along the Santa Clara River bed. Transportation, being a major cost in this industry, dictates that extraction sites be in close to areas of use and demand. For this reason, it is important to utilize close-in aggregate resources before urbanization precludes their extraction."

- "The aggregate resource areas (see the Resources Appendix) are based on Mineral Resource Zone maps developed by the State Division of Mines and Geology. These maps were prepared in response to the Surface

[36] County CEQA Guidelines, p. 21, § B; Pub. Res. Code §§ 2710 et seq.
[37] Pub. Res. Code § 2762(a)(3).
[38] General Plan Goals, Policies, and Programs, p. 3 [Determining Consistency with General Plan] (citing Gov. Code § 66473.5).

Mining and Reclamation Act of 1975 (SMARA). This Act mandated that aggregate resources throughout the State be mapped so that local governments could make land use decisions in light of the presence of the resources and the need to preserve access to them. SMARA's basic objectives are to ensure proper reclamation of mineral land and safeguard access to mineral resources of regional and statewide significance in the face of competing land uses and urban expansion. Its initial focus was on aggregate necessary for construction grade concrete."

- "Manage mineral resources in a manner which effectively plans for the access to, development and conservation of mineral resources for existing and future generations."

- "All General Plan amendments, zone changes, and discretionary developments shall be evaluated for their individual and cumulative impacts on access to and extraction of recognized mineral resources, in compliance with the California Environmental Quality Act."

- "Discretionary development within a Mineral Resource Area (see Resource Protection Map) shall be subject to the provisions of the Mineral Resource Protection (MRP) Overlay Zone, and is prohibited if the use will significantly hamper or preclude access to or the extraction of mineral resources."[39]

As mentioned in the bullet point immediately above, the General Plan includes a Resource Protection Map and a Mineral Resources Protection Overlay Zone.[40] The General Plan also includes a Resources Appendix, which provides as follows:

- "A review of Figure 1.4.1 reveals that there is relatively little land within the County which is known to have significant deposits of construction grade aggregate (those classified as MRZ2). MRZ-2 areas have been 'designated' by the State as areas that should be subject to special management regulations through the General Plan of local jurisdictions."

- "Ventura County contains valuable aggregate and petroleum resources which are vital to the physical and economic development of the County. These resources warrant protection to ensure their continued availability.

[39] General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources].
[40] General Plan Goals, Policies, and Programs, p. 30, Figure 1b [Resources Protection Map (South Half)]; *see also* County CEQA Guidelines, p. 21, § B.

> Identification of these resources and adoption of a mineral resource protection zone could provide this protection."[41]

As previously discussed, the attached memorandum from ECORP includes several figures that depict the locations of the state-classified MRZ-2 areas, some of which have been designated as regionally significant mineral resource sectors.[42] Those figures also depict the areas of mineral resources that would be overlaid with wildlife corridors, if the Project were approved. Thus, the approval of the Project could impair and unreasonably delay the extraction of approximately 41% of MRZ-2 areas in the entire County, because the development of mineral resources is inherently incompatible with the purpose of a wildlife corridor. Accordingly, the approval of the Project would be contrary to the County's General Plan policies, goals, and objectives listed above, which were the result of detailed technical studies, including studies and research performed by the State Geologist and the State Mining and Geology Board.

(4) The County CEQA Guidelines Require the County to Consult with the Department of Conservation California Geological Survey

The County CEQA Guidelines prescribe a "methodology" for use by the County when considering a project's impacts to MRZ-2 areas. The methodology provides as follows:

> If the subject property is located on or adjacent to land zoned [Mineral Resource Protection (MRP) overlay zone] or containing an aggregate CUP, then the Division of Mines and Geology should be consulted and should review the project application. Significance must be determined on a case-by-case basis by the Planning Director.[43]

The Staff Report does not indicate whether the County has consulted with the Division of Mines and Geology (renamed the California Geological Survey in 2006), as required by the County CEQA Guidelines. Such a consultation is certainly necessary here, given that the County proposes to overlay approximately 41% of its MRZ-2 areas with a wildlife corridor.

Similarly, because the Project would include the rezoning of state-designated mineral resource sectors for wildlife conservation purposes, the County must first provide to the Department of Conservation a statement specifying its proposed reasons for approving the Project.[44]

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[41] General Plan Resources Appendix, pp. 29, 42.
[42] Exhibit 3, § C. pp. 7-11 and Exhibits 1-2 attached thereto [depicting Sectors A-J].
[43] County CEQA Guidelines, p. 22, § E.
[44] Pub. Res. Code § 2762(d)(1).

b) The Environmental Impacts of Other Similar Wildlife Corridor Projects have been Analyzed in an EIR Prior to Approval

The Project appears similar to the Riverside County Multiple Species Habitat Conservation Plan ("Riverside MSHCP"). For example, one of the goals of the Riverside MSHCP was to develop "critical linkages".[45] Similarly, here, the Project is intended to protect "missing linkages".[46]

However, a significant distinction between the Project and the Riverside MSHCP is that the Riverside MSHCP was the result of a detailed public process that was subjected to environmental review in accordance with CEQA and supported by detailed scientific and technical studies.[47] Indeed, the Riverside MSHCP EIR included a thorough evaluation of the impacts to mineral resources, including the loss of MRZ-2 areas that were to be incorporated into the MSHCP, which were determined to be cumulatively significant.[48] Here, no such analysis has occurred. Rather, the impetus for the Project is a 2001 report, Missing Linkages: Restoring Connectivity to the California Landscape;[49] but, that report is neither a regulatory document, nor a technical report.

Although the report suggests the creation of certain wildlife corridors in various cities and counties, it does not alleviate a local agency's obligation under CEQA to consider the related environmental impacts. Accordingly, it would be arbitrary and capricious for the County to utilize a CEQA exemption in support of its proposed legislative action, which would rezone and encumber "approximately 7,395 parcels totaling approximately 520,000 acres" with wildlife corridors.[50] The Project, which the County acknowledges is a "project" under CEQA,[51] should be based on relevant technical and scientific studies and subjected to environmental review and public comment in accordance with CEQA, just like the Riverside MSHCP, the San Diego Multiple Species Conservation Plan,[52] the Orange County Central and Coastal Subregion Natural Community Conservation Plan,[53] and other similar plans.

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[45] Discover the Natural Wonders of Riverside County, p. 5 (https://www.wrc-rca.org/archivecdn/Permit_Docs/Discover_the_Wonders.pdf) ("**Exhibit 7**").
[46] *See, e.g.*, Staff Report, pp. 2-5, § 5.
[47] *See* Riverside MSHCP environmental documents, including the EIR, mitigation nexus analysis, and species surveys, among other things ("**Exhibit 8**").
[48] Exhibit 6, p. 5.1-9.
[49] Staff Report, p. 3, § B.
[50] Staff Report, p. 7, § C.
[51] Staff Report, p. 32, § B, ¶ 1.
[52] https://www.sandiegocounty.gov/content/sdc/pds/mscp/sc.html.
[53] https://occonservation.org/about-ncc/ ("**Exhibit 9**").

Moreover, the County's discussion in the Staff Report of a second report, South Coast Missing Linkages ("SCML"), which the County states was "incorporated" into a third report, California Essential Habitat Connectivity Project ("CEHCP"), does not support the County's use of a CEQA exemption.[54] Nor does the County's discussion of other projects that have "incorporated" and "included" aspects of SCML and CEHCP, as the County suggests.[55] To the contrary, the County's references to these other projects shows why the County must prepare an EIR.

For example, the County references the County of Los Angeles Significant Ecological Areas ("SEA") and states that the County of Los Angeles "included" the SCML in the SEA.[56] However, there, the County of Los Angeles approved the SEA project after first analyzing its environmental impacts in an EIR pursuant to CEQA; the EIR prepared in conjunction with its general plan update.[57] Furthermore, any linkage or corridor allegedly "included" into the SEA was limited to land subject to the jurisdiction of the County of Los Angeles—not land located within the County of Ventura.

Similarly, the County also discusses the 2012-2035 Regional Transportation Project/Sustainable Communities Strategy ("RTP/SCS") of the Southern California Association of Governments ("SCAG") and states that SCAG "incorporated" the SCML into the RTP/SCS.[58] However, there, SCAG completed environmental review in accordance with CEQA and certified an EIR for the RTP/SCS.[59]

In addition, in the Staff Report, the County discusses the Resources Management Plans of the following four National Forests: Los Padres, Angeles, San Bernardino, and Cleveland.[60] However, these National Forests all adopted environmental impact statements in accordance with the National Environmental Policy Act ("NEPA") for their respective Resources Management Plans.[61]

After the County's discussion of the projects approved by the County of Los Angeles, SCAG, and the National Forests (all of whom completed full environmental review in accordance with CEQA and NEPA), the County references page 18 of its General Plan in an apparent effort to suggest that the County previously analyzed the environmental impacts of

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[54] Staff Report, pp. 4-5.
[55] Staff Report, pp. 4-5, three bullet points.
[56] Staff Report, pp. 4-5, bullet point 1.
[57] Addendum to EIR, ¶ 1-2 (http://planning.lacounty.gov/site/sea/wp-content/uploads/2018/09/H-ADDENDUM.pdf) ("**Exhibit 10**").
[58] Staff Report, p. 5, bullet point 2.
[59] Final EIR (http://rtpscs.scag.ca.gov/Pages/Final-2012-PEIR.aspx) ("**Exhibit 11**").
[60] Staff Report, p. 5, bullet point 3.
[61] https://www.fs.usda.gov/main/sbnf/landmanagement/planning ("**Exhibit 12**").

establishing wildlife corridors in the County.[62] However, the County's citation to one sentence from page 18 of the General Plan has no relevance to the County's legal obligation to analyze the impacts of its proposed legislative action to rezone land and create wildlife corridors. Furthermore, if the County were proposing to "tier" from some other previously certified environmental document, it would have to inform the public and comply with the applicable provisions of CEQA.

Any purported "incorporation" or "inclusion" of the SCML or the CEHCP into projects approved by the County of Los Angeles, SCAG, and the National Forests, as suggested by the County, relates only to activities—such as the establishment of a wildlife corridor—that occurred within areas of land subject to the jurisdiction of those agencies. Thus, the approval of those projects does not constitute an approval of a wildlife corridor in the County of Ventura. Nor does the fact that several non-regulatory reports previously recommended the creation of a wildlife corridor, because those reports are not environmental documents certified in accordance with CEQA and are not a substitute for the same. Furthermore, the fact that the agencies discussed above prepared the highest level of environmental documents under CEQA and NEPA, as opposed to relying on an exemption, demonstrates that the County should too.

The County's attempt to rely upon informal reports, instead of detailed scientific and technical studies subjected to public review in accordance with CEQA, constitutes an unusual circumstance pursuant to Guidelines § 15300.2(c).

c) The County is Improperly Piecemealing this Project from its Ongoing General Plan Update

As the County acknowledges in the Staff Report, the County Board of Supervisors originally contemplated the creation of wildlife corridors in 2015, in conjunction with a "comprehensive General Plan Update".[63] The General Plan update is presently ongoing.[64] Furthermore, in January 2017, the County Board of Supervisors added that:

> The [Project] will be determined through a process that includes technical reviews, preparation of text amendments, an extensive public outreach program involving a range of stakeholder groups, environmental review, and public hearings.[65]

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[62] Staff Report, p. 5.
[63] Staff Report, p. 9, § d.
[64] January 14, 2019 Notice of Preparation of Draft EIR for Ventura County 2040 General Plan Update (https://vc2040.org/images/VC2040_Notice_of_Preparation.pdf).
[65] County Board of Supervisors January 24, 2017 Report, p. 2, § A, ¶ 1 (emphasis added) (http://bosagenda.countyofventura.org/sirepub/cache/2/enjsojmqyc2zav2ywggpp3pk/10206630118201909161582.PDF).

Despite what the County previously told the public, it is now trying to segment the wildlife corridors from the larger "project" under CEQA—*i.e.*, the General Plan update—into a smaller project, even though the General Plan update is ongoing.

As the California Supreme Court has explained, "environmental considerations do not become submerged by chopping a large project into many little ones—each with minimal potential impact on the environment—which cumulatively may have disastrous consequences."[66] Here, the piecemealing of the Project from the General Plan update, so that the County can attempt to approve the Project based on a CEQA exemption, separate and apart from the ongoing General Plan update, is a violation of CEQA.

The County's deliberate segmentation of the wildlife corridors from its ongoing General Plan update, after previously representing to the public that the corridors would be "comprehensively" analyzed as a component of the General Plan update, constitutes poor planning. Similarly, the County's action also constitutes an unusual circumstance pursuant to Guidelines § 15300.2(c) that precludes the County's use of a CEQA exemption and also suggests that the Project is being rushed forward for political motives.[67]

2. The Evidence Shows the Project will have Significant Environmental Effects

Appendix G of the CEQA Guidelines sets forth the 20 categories of resources protected under CEQA.[68] Thus, during the CEQA environmental review process, a lead agency must consider the impacts a project will have on each of those 20 categories. To assist agencies with that process, Appendix G provides thresholds of significance for each of the 20 categories. Additionally, the County has developed its own CEQA Guidelines, which also include thresholds of significance.[69]

As previously discussed, there are two approaches that can be used to show unusual circumstances, which are being referred to herein as the "Two-Part Test" and the "One-Part Test". The second-part of the Two-Part Test requires a party to show a reasonable possibility that a project will have a significant effect as a result of an unusual circumstance.[70]

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[66] *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 396 (citing *Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 283-284).
[67] In addition to constituting unusual circumstances, the issues discussed in the foregoing section also constitute separate and independent violations of CEQA.
[68] The CEQA Guidelines thresholds of significance discussed below reflect the recent changes adopted by the California Natural Resources Agency, which went into effect on December 28, 2018 (http://resources.ca.gov/ceqa/docs/2018_CEQA_FINAL_TEXT_122818.pdf).
[69] https://docs.vcrma.org/images/pdf/planning/ceqa/current_ISAG.pdf
[70] *Berkeley Hillside*, 60 Cal.4th at 1105 ["A party invoking the exception may establish an unusual circumstance without evidence of an environmental effect, by showing that the project

The One-Part Test only requires a party to show that a project will have a significant environmental effect.[71]

As discussed below, the evidence shows the Project will have significant environmental effects, including significant environmental effects as a result of the Project's unusual circumstances, discussed above, including the Project's inclusion of approximately 41% of the County's supply of classified MRZ-2 areas.[72]

a) Mineral Resources

In recognition of the underlying policies and purpose of SMARA, the CEQA Guidelines provide the following two thresholds of significance for mineral resources, which ask whether a project would:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Result in the loss of availability of a locally-important mineral resources recovery site delineated on a local general plan, specific plan, or other land use plan?[73]

Similarly, the County CEQA Guidelines provide the following two thresholds of significance for mineral resources:

1. Any land use or project activity which is proposed to be located on or immediately adjacent to land zoned Mineral Resources Protection (MRP) overlay zone, or adjacent to a principal access road to an existing aggregate Conditional Use Permit (CUP), and which has the potential to hamper or preclude extraction of or access to the aggregate resources, shall be considered to have a significant adverse impact on the environment.

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has some feature that distinguishes it from others in the exempt class, such as its size or location. In such a case, to render the exception applicable, the party need only show a reasonable possibility of a significant effect due to that unusual circumstance."]

[71] *Berkeley Hillside*, 60 Cal.4th at 1105 ["Alternatively, under our reading of the guideline, a party may establish an unusual circumstances with evidence that the project will have a significant environmental effect. That evidence, if convincing, necessarily also establishes 'a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.' (Guidelines, § 15300.2, subd. (c).)" (Emphasis added).]

[72] This discussion is not intended to constitute an exhaustive analysis of every potential impact the Project will cause.

[73] CEQA Guidelines, App. G, § XII(a)-(b) [Mineral Resources].

2. A project would have a cumulative impact on aggregate resources if when considered with other pending and recently approved projects in the area, hampers or precludes extraction or access to identified resources.[74] [75]

A total of 154,683 acres of the proposed Santa Monica-Sierra Madre and Sierra Madre-Castaic Regional Wildlife Corridors are within state-classified MRZs. Further, Approximately 13,500 acres of the proposed Wildlife corridors are within the County's Mineral Resources Protection overlay zone. These areas correspond with the State Mineral Land Classification of MRZ-2 areas. An additional 82,404 acres of the proposed corridors overlay MRZ-3 areas, which contain known or inferred mineral resources. The analysis of available mineral resources in the County is set forth in Section 1.4 of the General Plan Resources Appendix.

Included therein is the County's analysis of its local sources of aggregate and the estimated demand for aggregate over the next 50 years. That analysis considered and relied upon the sections of state-classified and designated mineral resources located within the County. Accordingly, the County must consider how the rezoning of those mineral resources for wildlife conservation purposes would affect the County's prior conclusions regarding supply and demand.

As previously discussed above, the Project has the potential to impair and unreasonably delay the extraction of these resources and the operation and expansion of mining properties, thereby increasing the costs of developing mineral resources (which itself can cause impair the development of mineral resources).[76] Additionally, the Project may even preclude the extraction of the County's classified and designated mineral resources, and the operation and expansion of mining properties, because the purpose of the Project—*i.e.*, the conservation of wildlife habitat, including wildlife habitat and corridors—is inherently incompatible with the development of mineral resources, which requires surface disturbances prior to the extraction of mineral resources located thereunder.[77] As discussed below, these impacts to mining and the extraction of mineral resources will causes significant environmental effects.

First, regarding CEQA Guidelines threshold of significance a), above, the Project could result in the loss of availability of a known mineral resource that would be of value to the region. Specifically, the Project could result in the loss of availability of approximately 41% of

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[74] County CEQA Guidelines, p. 21, § D(1)-(2) [Threshold of Significance Criteria] (emphasis added).
[75] County "CEQA Public Information Brochure" [explaining that the "environment" that "will be affected by a proposed project" includes "minerals"] (https://docs.vcrma.org/images/pdf/planning/brochures/ceqa_3-08.pdf).
[76] Permitting, Economic Value and Mining in the United States, SNL Metals & Mining ("**Exhibit 13**").
[77] Exhibit 5, p. 7 [Conclusions].

the County's supply of classified MRZ-2 areas,[78] some of which have been designated as significant mineral resource sectors,[79] because the development and extraction of mineral resources is inherently incompatible with the goal of preserving wildlife habitat.[80]

Second, regarding CEQA Guidelines threshold of significance b), above, the Project could result in the loss of availability of a locally-important mineral resources recovery site delineated on a local general plan, specific plan, or other land use plan. Specifically, the Project could result in the loss of availability of mineral resources presently protected by the County's Resource Protection Map and Mineral Resources Protection Overlay Zones—*i.e.*, local land use plans.[81] The Project may also result in the loss of availability of mineral resources delineated on Map Sheet 52.[82]

Third, regarding County CEQA Guidelines threshold of significance 1., above, the Project would (i) be located on or immediately adjacent to land zoned Mineral Resources Protection overlay zone, (ii) be adjacent to a principal access road to an existing aggregate Conditional Use Permit, and (iii) potentially hamper or preclude extraction of or access to the aggregate resources. As discussed in the attached ECORP memorandum, the Project would overlay multiple mining properties (and their principal access roads), including properties that have conditional use permits.[83] Accordingly, under the County CEQA Guidelines, the Project is *presumed* to have a significant impact: "Any land use or project activity which is proposed to be located on or immediately adjacent to land zoned Mineral Resources Protection (MRP) overlay zone … shall be considered to have a significant adverse impact on the environment."[84]

Fourth, regarding County CEQA Guidelines threshold of significance 2., above, the Project could have a cumulative impact on aggregate resources because it would hamper or preclude extraction or access to identified resources. As the County explains in the General Plan Resources Appendix, "there is relatively little land within the County which is known to have significant deposits of construction grade aggregate (those classified as MRZ2). MRZ-2 areas have been 'designated' by the State as areas that should be subject to special management regulations through the General Plan of local jurisdictions."[85] Accordingly, because the Project

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[78] Exhibit 5, p. 2, Table 1.
[79] Exhibit 4.
[80] *See* January 19, 2017 letter from CalCIMA to the County, respectfully requesting that the County consider how the Project may impact mineral resources, including the ability to extract the state-designated mineral resources located within the overall area of the Project.
[81] General Plan Goals, Policies, and Programs, p. 30, Figure 1b [Resources Protection Map (South Half)]; *see also* County CEQA Guidelines, p. 21, § B.
[82] Exhibit 3; *see also* Exhibit 4.
[83] Exhibit 5, p. 6, Table 2 [mining property CUPs overlaid by Project] and Figure 4.
[84] County CEQA Guidelines, p. 21, § D(1) [Threshold of Significance Criteria] (emphasis added).
[85] General Plan Resources Appendix, pp. 29, 42.

could hamper the extraction of designated MRZ-2 areas, the Project could result in a significant cumulative impact on mineral resources.

Fifth, the Project could impair the operation and expansion of existing mining properties in the County.[86] For example, the Project's imposition of nighttime lighting restrictions would impair nighttime operations, which often occur at night to reduce transportation impacts. Similarly, the Project's restrictions on the removal of vegetation would serve as a barrier to mining, which requires surface disturbance, including the removal of native vegetation. Additionally, the Project's restrictions on "surface water features" could potentially impair or preclude river and in-stream mining activities.

The General Plan "Goals, Policies and Programs" for mineral resources states that: "All General Plan amendments, zone changes, and discretionary developments shall be evaluated for their individual and cumulative impacts on access to and extraction of recognized mineral resources, in compliance with the California Environmental Quality Act."[87] Here, the County recognizes the Project is a discretionary "project" under CEQA. Furthermore, the Project proposes a General Plan amendment and the rezoning of approximately 520,000 acres of land that includes approximately 13,987 acres of state-classified "MRZ-2" areas. Accordingly, CEQA review "shall" be required.[88] [89]

b) Transportation

For transportation, the CEQA Guidelines provides four thresholds of significance, including the following:

> b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision(b)?[90]

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[86] *See* "Project Objective", p. 3, ¶ 1.4, stating that a "critical" purpose of the project is to "minimize impacts of mining … operations and other large scale operations with the [Habitat Conservation Overlay Zone] by avoiding disturbance to significant connectivity features" (http://bosagenda.countyofventura.org/sirepub/cache/2/fpmxnlsec1gkqknwuhq0wr5a/102066801272019120557729.PDF).

[87] General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources] (emphasis added).

[88] Although the discussion of mineral resources herein focuses on aggregate, the discussion applies equally to oil and gas and the Project's impacts to the County's oil and gas resources.

[89] CalCIMA hereby incorporates by this reference the comments set forth in the October 9, 2018 letter submitted by the Pacific Legal Foundation, including those comments regarding unconstitutional takings.

[90] CEQA Guidelines, App. G, § XVII(b) [Transportation].

CEQA Guidelines §15064.3(b) reflects the state's recent shift towards assessing transportation impacts in terms of vehicle miles traveled ("VMT") and directs a lead agency to consider whether a project would increase the "amount and distance of automobile travel attributable to a project."[91]

As explained in the General Plan Resources Appendix, the impairment of the extraction of local mineral resources can cause significant transportation impacts.[92] CalCIMA recognizes the importance of this concept, which it refers to as "Distance Matters".

The idea of Distance Matters is that, "Transporting from shorter distances protects the environment and reduces traffic."[93] The benefits of transporting aggregates shorter distances include the following:

- "CalTrans estimates a current average hauling distance of 50 miles. If the trip length can be reduced by even 15 miles, then diesel fuel consumption can be reduced by 44 million gallons annually, and truck emissions by 835 tons per year. Traffic congestion would be reduced. And an estimated $705 million per year would be saved on material transportation costs."

- "Most aggregates are transported by truck. The cost of trucking aggregates increases 15 cents per ton for every mile hauled. Given that even one mile of a six lane highway requires over 110,000 tons of aggregates, each mile of transport would add one-half million dollars to the base cost of the aggregates for such a project."[94]

As discussed in the General Plan Resources Appendix, a local shortage of aggregate could require the transport of aggregate from other state jurisdictions, such as Kern, Los Angeles, or San Bernardino Counties, or even beyond state lines Arizona or Nevada.[95]

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[91] CEQA Guidelines, §15064.3.
[92] General Plan Resources Appendix, pp. 31-33 [Hauling Impacts] ["Transporting the material raises costs. It also contributes to traffic impacts, particularly if surface streets must be used."]
[93] http://www.distancematters.org/whydistancematters.asp ("**Exhibit 14**").
[94] Exhibit 14; *see also* March 2018 Memorandum from the California Department of Transportation re: 2018 Aggregate Resource Policy Statement and Tools (http://www.calcima.org/files/c_1_aggregate%20resources_policy.pdf) ("**Exhibit 15**"); A Note on the Environmental Costs of Aggregates, Working Paper 994, P. Berck, Department of Agricultural and Resources Economics and Policy Division of Agriculture and Natural Resources, University of California at Berkeley (January 2005) http://www.academia.edu/3155445/A_Note_on_the_Environmental_Costs_of_Aggregates) ("**Exhibit 16**").
[95] Exhibit 5, p. 7.

This, in turn, could cause increased traffic impacts. Here, the Project calls for the rezoning of approximately 41% of the County's supply of classified MRZ-2 areas, to allow for the establishment of wildlife corridors. Because the purpose of the corridors is to preserve natural habitat, the Project could preclude the access to and development of mineral resources located within those corridors. If so, aggregate would have to be transported to the County from other jurisdictions. Accordingly, the Project could increase the "amount and distance of automobile travel attributable" to the Project, thereby causing a significant environmental impact.[96]

c) Greenhouse Gas Emissions and Air Quality

For (i) greenhouse gas emissions and (ii) air quality, the CEQA Guidelines provide two and four thresholds of significance, respectively, including the following which ask whether the project would:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?[97]

b) Result in a cumulatively considerable new increase of any net pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

c) Expose sensitive receptors to substantial pollutant concentrations?

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?[98]

For greenhouse gas emissions, the County CEQA Guidelines refer to the CEQA Guidelines for greenhouse gas emissions, including threshold (a), shown above.[99] For air quality, the County CEQA Guidelines utilize the Ventura County Air Pollution Control District Air Quality Assessment Guidelines,[100] which are similar to thresholds of significance set forth in the CEQA Guidelines, including (b)-(d), shown above.[101]

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[96] CEQA Guidelines, §15064.3.
[97] CEQA Guidelines, App. G, § XIII(a) [Greenhouse Gas Emissions].
[98] CEQA Guidelines, App. G, § III(b)-(d) [Air Quality].
[99] County CEQA Guidelines, p. 136, § B [Threshold of Significance Criteria].
[100] County CEQA Guidelines, p. 7, § C [Threshold of Significance Criteria].
[101] Ventura County Air Pollution Control District Air Quality Assessment Guidelines, pp. 3-1—3-7, § 3 [Air Quality Significance Thresholds] (http://www.vcapcd.org/environmental-review.htm#What_are_the_Ventura_County_Air_Quality_Assessment_Guidelines_,http://www.vcapcd.org/pubs/Planning/VCAQGuidelines.pdf).

As explained in the General Plan Resources Appendix, the impairment of the extraction of local mineral resources can also cause significant impacts cause impacts to air quality.[102] This concept is another component of Distance Matters:

- "California's infrastructure projects have a carbon footprint. Construction materials that build California's roads, mass transit, single family homes and high-density smart growth--all depend on large quantities of construction aggregates (sand and gravel) transported to job sites by heavy-duty trucks. Reducing the distances these trucks travel is a key strategy in reducing greenhouse gases and reducing the state's carbon footprint."

- "Decreasing the distance aggregate is shipped by an average of 15 miles across the state, saving 44 million gallons of diesel fuel, would also reduce tail pipe emissions by 835.4 tons a year of pollutants regulated by the state Air Resources board that are linked to incidents of cancer, asthma and other serious health problems. (Sources: CalTrans analysis, based on the California Air Resources Board emission factors estimates and assuming an average 55 to 60 miles per hour speed and a reduction of 282 million miles of truck travel.)"[103]

As discussed in the preceding section, the Project could require the transport of aggregate from sources located in other jurisdictions, which, in turn, could cause significant transportation impacts. This could also result in significant impacts to air quality and greenhouse gas impacts caused by the transport of aggregate by truck across longer distances. Accordingly, the Project has the potential to cause significant air quality and greenhouse gas impacts.

d) Land Use and Planning

For land use and planning, the CEQA Guidelines provide two thresholds of significance, including the following which asks whether the project would:

b) Would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose or avoiding or mitigating an environmental effect?[104]

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[102] General Plan Resources Appendix, pp. 31-33 [Hauling Impacts] ["Transporting the material raises costs. It also contributes to traffic impacts, particularly if surface streets must be used. Energy consumption rises and with it air pollution"; "The problem, however, would be the costs of hauling aggregate over such long distances and the attendant impacts from its transport."]
[103] Exhibit 14.
[104] CEQA Guidelines, App. G, § XI(b) [Land Use and Planning].

Although the County CEQA Guidelines do not provide specific thresholds of significance for land use and planning, the General Plan recognizes that a zoning ordinance "shall be consistent" with the general plan, including the applicable objectives and policies.[105]

As previously discussed, the General Plan includes "Goals, Policies and Programs" for mineral resources, which include goals and programs intended to safeguard access to and the extraction of mineral resources.[106] Because the Project calls for the rezoning of land presently protected by the County's Resource Protection Map and Mineral Resources Protection Overlay Zones, to allow for establishment of wildlife protection corridors, the Project appears inconsistent with these "Goals, Policies and Programs". Such an inconsistency would constitute a significant impact under the thresholds of significance referenced above.

Furthermore, as stated in the County CEQA Guidelines, a zoning ordinance "shall be consistent" with applicable General Plan objectives and policies.[107] Here, the County has made no effort to consider the Project's consistency with applicable provisions of the General Plan. Nor has the County considered the Project's consistency with SMARA.

Instead, the County has limited its consideration to only "General Plan goals and policies intended to promote the protection of biological resources and wildlife connectivity in particular."[108] However, the County's ignorance of applicable goals and policies, except goals and policies related to biological resources, constitutes a violation of CEQA, SMARA, and the Government Code.

e) Wildfires

For wildfire impacts, the CEQA Guidelines, as of December 28, 2018, now provides the following four thresholds of significance, including the following which ask whether a project would:

> b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

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[105] General Plan Goals, Policies, and Programs, p. 3 [Determining Consistency with General Plan] (citing Gov. Code § 66473.5).
[106] General Plan Goals, Policies, and Programs, pp. 16-17, § 1.4 [Mineral Resources].
[107] General Plan Goals, Policies, and Programs, p. 3 [Determining Consistency with General Plan] (citing Gov. Code § 66473.5).
[108] Staff Report, pp. 35-36, § 3 ["The proposed amendment is consistent with the Ventura County General Plan"].

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result, as a result of run-off, post-fire slope instability, or drainage changes.[109]

Similarly, the County CEQA Guidelines for wildlife provide as follows:

> Ventura County Building Code, Article III Section 702A identifies High Fire Hazard Areas/Fire Hazard Severity Zones as "geographical areas in unincorporated Ventura County designated by the Ventura County Fire Protection District pursuant to California Public Resources Codes Sections 4201 through 4204 and classified as Very High, High, or Moderate in State Responsibility Areas or as Local Agency Very High Fire Hazard Severity Zones designated pursuant to California Government Code, Sections 51175 through 51189. See California Fire Code Article 86. The California Code of Regulations, Title 14, Section 1280, entitles the maps of these geographical areas as "Maps of the Fire Hazard Severity Zones in the State Responsibility Area of California."
>
> The Fire Code also defines Hazardous Watershed Fire Areas as a location within 500 feet of a forest or brush, grass, or grain covered land, exclusive of small individual lots or parcels of land located outside of a brush, forest, or grass coved area.
>
> Projects located within High Fire Hazard Areas/Fire Hazard Severity Zones or Hazardous Watershed Fire Areas may have a significant fire hazard impact. The fire hazard impact can be mitigated by compliance with Building and Safety requirements for structures and the Fire Protection District Hazard Abatement program which calls for the clearing of brush, flammable vegetation, or combustible growth located within 100 feet of structures or buildings. Projects not located within High Fire Hazard Areas/Fire Hazard Severity Zones or Hazardous Watershed Fire Areas will not have a significant impact.[110]

After the recent wildfires that have ravaged the County, one would expect the County to consider the Project's potential impacts to wildfire. However, the County has not completed such an analysis.

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[109] CEQA Guidelines, App. G, § XX(b), (d) [Wildfire].
[110] County CEQA Guidelines, pp. 105-106, § D [Threshold of Significance Criteria].

f) Cumulative Impacts

For cumulative impacts, the CEQA Guidelines provide the following thresholds of significance:

> b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probably future projects)[111]

For cumulative impacts, the County CEQA Guidelines refer to the CEQA Guidelines.[112]

As previously discussed, the County is in the process of updating its General Plan. As a part of that process, the County will complete an EIR.[113] Within that EIR is where the County should analyze the full scope of the Project's environmental impacts, including potential cumulative impacts, and how those impacts may be affected or increased when coupled with the range of other activities and changes proposed in the update. Instead, the County is improperly piecemealing the Project from the ongoing update, which forecloses the consideration of the Project's potential cumulative impacts. This constitutes a violation of CEQA.

Furthermore, for the reasons set forth above, the Project will cause significant cumulative impacts to multiple categories of resources included in Appendix G of the CEQA Guidelines, including mineral resources, transportation, air quality, and greenhouse gas emissions.[114]

3. The County Must Acknowledge that there is a Reasonable Possibility of an Environmental Effect and Prepare an EIR for the Project

As previously discussed, there are two approaches that can be used to show unusual circumstances, which are being referred to herein as the "Two-Part Test" and the "One-Part Test". If the unusual circumstances exception applies, a lead agency is precluded from invoking a CEQA exemption.

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[111] CEQA Guidelines, App. G, § XXI(b) [Mandatory Findings of Significance]; *see also* CEQA Guidelines § 15355.
[112] County CEQA Guidelines, p. 217, § B [Threshold of Significance Criteria].
[113] January 14, 2019 Notice of Preparation of Draft EIR for Ventura County 2040 General Plan Update (https://vc2040.org/images/VC2040_Notice_of_Preparation.pdf).
[114] In addition to the information discussed above, CalCIMA hereby incorporates by this reference the two separate ECORP Memoranda, dated January 28, 2019, submitted to the County on behalf of the Ventura County Coalition of Labor, Agriculture, and Business ("CoLAB").

The Two-Part Test requires a party to show: (1) the project has some feature that distinguishes it from others in the exempt class, such as its size or location; and (2) a reasonable possibility of a significant effect due to that unusual circumstance.[115]

The One-Part Test only requires a party to show that a project will have a significant environmental effect.[116] The party only needs to present a "fair argument".[117]

First, there is a fair argument that the Project will have a significant environmental effect, as previously above. When considering this information, the County should not seek to "resolve conflicts" in the evidence; rather, the agency should merely inquire whether the record "reveals a fair argument".[118] This information is sufficient to show at least one significant environmental effect that will be caused by the Project, which precludes the County's use of a CEQA exemption.

Second, and to the extent it is necessary, the evidence shows that the Project presents unusual circumstances. As previously discussed above, the Project would include approximately 13,501 acres of state-classified MRZ-2 areas, which constitutes approximately 41% of all MRZ-2 areas in the County. The Project would also include critical mineral resource sectors that have been designated by the State Mining and Geology Board.[119] This information is sufficient to demonstrate unusual circumstances.

CalCIMA disagrees with the County's conclusion that "there is no substantial evidence identified by staff … to support a finding of unusual circumstances".[120] Furthermore, the County's conclusion is specious, given that the County's (i) General Plan, (ii) General Plan Resources Appendix, and (iii) CEQA Guidelines, all discuss various actions the County has previously taken for the specific purpose of protecting mineral resources, such as (i) the adoption of a Mineral Resource Protection overlay zone to protect mineral resources, and (ii) the creation of Goals, Policies and Programs" for mineral resources, none of which is discussed in the Staff Report.

The evidence shows that the Project will have significant environmental effects, including environmental effects as a result of the Project's unusual circumstances. Accordingly,

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[115] *Berkeley Hillside*, 60 Cal.4th at 1105.
[116] *Berkeley Hillside*, 60 Cal.4th at 1105.
[117] *Berkeley Hillside*, 60 Cal.4th at 1115 (citing CEQA Guidelines § 15300.2(c)) ["Accordingly, where there are 'unusual circumstances,' it is appropriate for agencies to apply the fair argument standard in determining whether 'there is a reasonable possibility of a significant effect on the environment due to unusual circumstances.'"]
[118] *Berkeley Hillside* at 1104; *see also* County Administrative Supplement to County CEQA Guidelines, p. 19, § 8.1.
[119] Exhibit 3.
[120] Staff Report, p. 33, ¶ 3.

the County is precluded from approving the Project based on any of the three exemptions cited in the Staff Report.[121]

C. The County's Conclusion Regarding the "Common Sense" Exemption Lacks Evidentiary Support

As previously discussed, the County has acknowledged that the Project constitutes a "project" under CEQA;[122] but, the County asserts that the Project is exempt from CEQA.[123] The County cites three exemptions in support of its conclusion, including the "common sense" exemption set forth in CEQA Guidelines § 15061(b)(3)).[124]

The "common sense" exemption is set forth at CEQA Guidelines § 15061(b)(3) and requires a lead agency to "conclude with certainty that there is no possibility that the activity in question may have a significant effect on the environment".

"[W]hether a particular activity qualifies for the common sense exemption presents an issue of fact, that the agency invoking the exemption has the burden of demonstrative it applies."[125] "[T]he agency's exemption determination must be supported by evidence in the record demonstrating that the agency considered possible environmental impacts in reaching its decision."[126] The agency's determination must be supported by "substantial evidence".[127]

"An agency's obligation to produce substantial evidence supporting its exemption decision is all the more important where the records shows, as it does here, that opponents of the project have raised arguments regarding possible significant environmental impacts."[128] "An agency obviously cannot declare 'with certainty that there is no possibility that the activity in question may have a significant effect on the environment' if it has not considered the facts of the matter."[129]

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[121] Staff Report, pp. 32-33, ¶ 2 [citing the exemptions set forth at the following sections of the CEQA Guidelines (i) 15061(b)(3); (ii) 15307; and (iii) 15308].
[122] Staff Report, p. 32, § B., ¶ 1 ["Accordingly, the proposed GP and NCZO amendments are considered a CEQA 'project'."]
[123] Staff Report, pp. 32-33, § B.
[124] Staff Report, pp. 32-33; *see also Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 380 [referring to 15061(b)(3) as the "common sense exemption".]
[125] *Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 386 ("*Muzzy Ranch*").
[126] *Davidon Homes v. City of San Jose* (1997) 54 Cal.App.4th 106, 117 ("*Davidon*").
[127] *CREED-21 v. City of San Diego* (2015) 234 Cal.App.4th 488, 511.
[128] *Davidon* at 117.
[129] *Muzzy Ranch* at 387 (internal citation omitted).

As previously discussed above, when the Project is considered in the context of the thresholds of significance set forth in the CEQA Guidelines and the County CEQA Guidelines, the evidence shows the Project will, or, at the least, a reasonable possibility the Project will, have an environmental effect. Furthermore, the above discussion shows that the County has not seriously considered the potential impacts of the Project. Accordingly, the County's reliance on the common sense exemption would constitute an abuse of discretion.

D. The County has Incorrectly Concluded that a Project Intended to Benefit the Environmental Cannot also Have a Significant Environmental Effect

In addition to the "common sense" exemption, the County also asserts that the Project is exempt from CEQA based on the exemptions set forth in CEQA Guidelines §§ 15307 and 15308, entitled "Actions by Regulatory Agencies to Protect Natural Resources" and "Actions by Regulatory Agencies to Protect Environment", respectively.[130]

The County bases its invocation of these two exemptions based on its conclusion that, "the effect is expected to be beneficial".[131] However, the County incorrectly concludes that a project is exempt from CEQA merely because of an "expected benefit." As courts have explained, a project that benefits the environment may nevertheless have a significant environment impact that requires the preparation of an EIR.

For example, in *Wildlife Alive v. Chickering* (1976) 17 Cal.3d 190 ("*Wildlife Alive*"), the California Supreme Court struck down the invocation of the common sense exemption by the California Fish and Game Commission ("Commission"). The Commission invoked the exemption in conjunction with its approval of a hunting season intended to protect black bears. As the Court explained, "We conclude that the setting of hunting and fishing seasons has the potential for a significant environmental impact, both favorable and unfavorable. There inheres in the fixing of hunting seasons and the issuance of hunting permits a serious risk of overkill and depletion of the affected species. When the impact may be either adverse or beneficial, it is particularly appropriate to apply CEQA which is carefully conceived for the purpose of increasing the likelihood that the environmental effects will be beneficial rather than adverse."[132]

In *Dunn-Edwards Corp. v. Bay Area Air Quality Management Dist.* (1992) 9 Cal.App.4th 644, the invocation of the common sense exemption by the Bay Area Air Quality Management District ("BAAQMD") was struck down in conjunction with its approval of regulations tightening emission standards for volatile organic compounds. Similarly, in *California Unions for Reliable Energy v. Mojave Desert Air Quality Management Dist.* (2009) 178 Cal.App.4th 1225, the invocation of the common sense exemption by the Mojave Desert Air

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[130] Staff Report, p. 33, ¶ 2.
[131] Staff Report, p. 33, ¶ 2.
[132] *Wildlife Alive* at 206.

Quality Management District ("MDAQMD") was struck down in conjunction with its approval of a plan to reduce air pollution.

Furthermore, the cases discussed above demonstrate that the exemptions set forth in CEQA Guidelines §§ 15307 and 15308, entitled "Actions by Regulatory Agencies to Protect Natural Resources" and "Actions by Regulatory Agencies to Protect Environment", are reserved for state "regulatory agencies" such as the Commission, BAAQMD, and MDAQMD. Accordingly, it would be inappropriate for the County to rely upon either of these exemptions.

Notwithstanding any potential benefits that the Project may have, the evidence discussed above, demonstrates the Project will have an environmental effect. Accordingly, the County is precluded from relying upon the exemptions set forth in CEQA Guidelines §§ 15307 and 15308.

E. The Cumulative Impacts Exception also Precludes the Use of a CEQA Exemption

The County's findings in the Staff Report do not mention the cumulative impacts exception to CEQA exemptions.[133] The cumulative impacts exception is set forth at CEQA Guidelines § 15300.2(b) and renders an exemption "inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant."

As previously discussed above, the Project could result in cumulatively significant impacts. Accordingly, the County is precluded from relying on a CEQA exemption.

III. CONCLUSION

CEQA requires lead agencies to thoughtfully consider the impacts that a project may have upon the 20 categories of resources set forth within Appendix G of the CEQA Guidelines. If an agency determines, after careful consideration and analysis based on technical and scientific data, and the evaluation of project alternatives and potential mitigation measures that could reduce a project's impacts, that the approval of a project is warranted notwithstanding any significant impacts that will be caused by the project, the agency can decide to adopt a statement of overriding considerations.

However, none of this has occurred here. If the County desires to approve the Project notwithstanding the related impacts to mineral resources, the County must do so in accordance with the rules of CEQA and cannot rely on an exemption.

Based on the foregoing, CalCIMA urges the County to consider how the Project may impact mineral resources, including impacts on the extraction of state-designated mineral resources located within the overall area of the Project, as CalCIMA previously requested in its

[133] Staff Report, p. 32-33.

January 19, 2017 letter. CalCIMA also requests that the County consult with the California Geological Survey and the State Mining and Geology Board, as required by the County CEQA Guidelines.[134]

Very truly yours,

KERRY SHAPIRO of
Jeffer Mangels Butler & Mitchell LLP

Attachments

cc: California Geological Survey
State Mining and Geology Board
Gary W. Hambly, CalCIMA

[134] County CEQA Guidelines, p. 22, § E.

Index of Exhibits to
CalCIMA Comment Letter

January 28, 2019

Exhibit	Description
1.	Special Report 145, Mineral Land Classification of Ventura County, Parts I-III (January 1981)
2.	California Surface Mining and Reclamation Policies and Procedures, Guidelines for Classification and Designation of Mineral Lands
3.	SMARA Designation Report No. 2, Designation of Regionally Significant Construction Aggregate Resources Areas in the Western Ventura County and Simi Production-Consumption Regions (March 1982)
4.	Map Sheet 52, Aggregate Sustainability in California (Updated 2018)
5.	ECORP Memorandum
6.	Riverside MSHCP, EIR/EIR, Section 5., Cumulative Impacts
7.	Discover the Natural Wonders of Riverside County
8.	Riverside MSHCP environmental documents, including EIR, mitigation nexus analysis, and species surveys, among other things
9.	Orange County Central and Coastal Subregion Natural Community Conservation Plan
10.	County of Los Angeles Significant Ecological Areas, Addendum to EIR
11.	SCAG 2012-2035 Regional Transportation Project/Sustainable Communities Strategy, Final EIR
12.	National Forests, Resource Management Plans
13.	Permitting, Economic Value and Mining in the United States, SNL Metals & Mining
14.	CALCIMA_ Distance Matters_ Why Distance Matters
15.	March 2018 Memorandum from the California Department of Transportation re: 2018 Aggregate Resource Policy Statement and Tools
16.	A Note on the Environmental Costs of Aggregates, Working Paper 994, P. Berck, Department of Agricultural and Resources Economics and Policy Division of Agriculture and Natural Resources, University of California at Berkeley (January 2005)

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February 28, 2019

VIA ELECTRONIC MAIL

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Re: Comment Letter to Habitat Connectivity and Wildlife Corridor Ordinance

Honorable Members of the Board:

This office is counsel to the Ventura County Coalition of Labor, Agriculture, and Business ("CoLAB"), a non-profit membership organization formed in 2010 to support land-based and industrial businesses including farming, ranching, oil, mining, and service, and to promote sensible and rational local government. CoLAB identifies and researches issues that impact businesses, and works with regulatory agencies, organizes stakeholders and proposes solutions to problems that impact Ventura County ("County"). CoLAB advocates for businesses through local regulation, providing expertise, research and educational campaigns to inform the public.

I. INTRODUCTION

CoLAB supports reasonable efforts to minimize impacts to wildlife movement within the County. However, many of the regulations in the proposed Amendments to the Ventura County General Plan and Articles 2, 3, 4, 5, 9, and 18 of the Ventura County Non-Coastal Zoning Ordinance, PL 16-0127 ("Ordinance") are legally flawed and scientifically unsupported, unwarranted, and unnecessary. CoLAB provided the Planning Commission with extensive comments regarding the legal and public policy defects of the Ordinance, which we attach as Exhibit 1 and incorporate by reference. We will not repeat them here, except to briefly note the following key points:

- **CEQA requires review of the Ordinance, but the County failed to comply:**
  - None of the three exemptions cited by the staff report apply to the Ordinance.
  - The potentially significant impacts regarding fire hazards, mineral resources, agricultural resources, air quality, greenhouse gases, community character, and traffic and circulation impacts render inapplicable the exemptions for "Common Sense" and actions by regulatory agencies for protection of natural resources and the environment.
  - Separating the Ordinance from the General Plan Update to avoid CEQA review constitutes classic—and impermissible—piecemealing, particularly given the County's prior acknowledgment of the requirement for CEQA review when the General Plan encompassed the Ordinance, and CEQA review of other wildlife corridor projects.
- **The County has failed to acknowledge the potentially significant environmental impacts of the Ordinance, listed above.** These impacts are discussed in detail in our Planning Commission comment letter.
- **The Ordinance is legally flawed and violates the U.S. Constitution.**
  - The Ordinance violates equal protection and substantive due process requirements guaranteed by the U.S. Constitution. The Ordinance lacks any administrative appeal provisions, placing undue cost burdens on property owners seeking to challenge specific designations or determinations.
  - The Ordinance constitutes a regulatory taking of property without just compensation, and does not provide for an adequate amortization period.
- **Scientific modeling errors render the Ordinance unsupported and unsupportable.**
  - The evidence for the Ordinance comprises studies over 13 years old, with no updates, rendering the resulting regulations questionable at best. As the older studies relate both to roads and biological resources their inaccuracy is necessarily fatal.
  - Numerous errors mar the mapping and require substantial correction: these include water features, vegetation classifications, and general overlay zone boundaries.
  - No evidence even purports to support requiring a 200 foot buffer around water features, rather than the current County-wide 100 foot buffer.
  - The compact development standards in the Critical Wildlife Passage Areas ("CWPAs") provide minimal to no conservation value due to adjacent already-developed lots preventing functional corridors from being created.

Although CoLAB insists that CEQA review is necessary in this case, and that the County address the remaining issues raised in its Planning Commission comment letter (Exhibit 1), we write to emphasize the following three points:

First, we urge the Board of Supervisors (the "Board") to adopt the recommendations made by the Planning Commission, addressed below. Although these do not address—let alone solve—all of the legal flaws of the Ordinance, they could go a long way to addressing many of them, such as mapping errors, security concerns, conservation easements, and fire hazards. Of course this would require Board action to direct Planning staff to implement the Planning Commission's recommendations with particularity. We address the Planning Commission's recommendations, and the legal reasons compelling their adoption, in **Section II** below.

Second, beyond the Planning Commission recommendations described above, some problems with the Ordinance are important enough to bear particular emphasis here. Chief among them is the compact development standards in the CWPA overlay zones. These compact development siting standards do nothing to assist wildlife movement, and also represent a severe overreach of the County's regulatory authority. The restrictions in the CWPA zones, although the most egregious example of poor planning and execution of the Ordinance, are not unique. Indeed, the entire concept of the proposed overlay zones and restrictions have little or no factual or scientific basis. Rather, recently discovered emails obtained by CoLAB through the Public Records Act demonstrate the opposite: ***County consultants and staff working on the Ordinance held certain preconceived and apparently immutable ideas of corridor locations and widths, and only sought evidentiary support for the proposed regulations after completion of the drafting and just prior to the public hearings***. Rather than gathering the scientific evidence first, and developing the overlay zones on that basis, the County did the precise opposite. Staff identified the protection zones first, and then only later tried to find scientific evidence to fit those zones retroactively. This is anathema to any scientifically or factually rigorous method, to the planning process, and to sound public policy, and highlights the need and importance of conducting the appropriate CEQA review in this case, when the planning effort can respond to and incorporate environmental concerns. The issues with the CWPA overlay zone, and the additional issues with the Ordinance that bear further emphasis, are the subject of **Section III** below.

Third, CoLAB requests that the March 12, 2019 hearing date be continued at least 1 month. A Public Records Act request was submitted on CoLAB's behalf in September 2018 to obtain documents that would better explain the process by which the County arrived at the seemingly unsupported regulations contained in the Ordinance. ***The County delayed its response by more than 5 months***, providing a very sparse and incomplete response on February 15, 2019—after the Planning Commission hearing on the Ordinance.

Because the responsive documents were provided after the Planning Commission hearing and less than 1 month before the Board hearing, CoLAB has not had enough time to review and analyze the documents it has received. Importantly, the Public Records Act documents contain critical evidence relating to the lack of scientific support for the overlay zones and proposed regulations

in the Ordinance, some of which are discussed below. The County's failure to continue the hearing will deprive CoLAB, and the broader public, of the ability to review the documents provided to date—as well as those the County has not yet provided but must—and provide meaningful comment.

Prudent, informed, and effective regulations improving wildlife corridor connectivity is a shared goal among CoLAB members and the County. The current Ordinance is none of those things; however, the County still has time to create and adopt effective, legally defensible regulations. To do so, the Board must: 1) conduct thorough CEQA review (the subject of Exhibit 1); 2) implement the recommendations from the Planning Commission into the Ordinance (Section II below); and 3) make additional, crucial modifications beyond the Planning Commission's recommendations (Section III below). In addition, the March 12, 2019 hearing date should be continued at least one month.

II. THE BOARD SHOULD ADOPT THE PLANNING COMMISSION RECOMMENDATIONS IN FULL.

During the administrative hearing process before the Planning Commission, hundreds of interested parties and stakeholders expressed their concerns with the Ordinance, both in written and oral comments. Many of these comments (such as the comment letter submitted by CoLAB attached as Exhibit 1) included constructive criticism and concrete recommendations regarding how to improve the Ordinance. These included ensuring the accuracy of the mapping process and data; guaranteeing an appeals process to address remaining inaccuracies in the mapping and any lack of fit of the regulations to a specific property or area; and clarifying and correcting certain problems in the Ordinance relating to fire hazards, security lighting, and water features.

The Planning Commission, to its credit, took its advisory role in this process very seriously, and upon review and analysis of the Ordinance, its flaws, and the substantial public comments, the Planning Commission adopted 11 concrete recommendations for improvements. CoLAB is in favor of these recommendations[1], and urges the Board to adopt them. While these recommendations do not completely cure the Ordinance of its multiple legal flaws, they do improve the Ordinance considerably. Furthermore, if the Board ***does not*** adopt these recommendations, the Ordinance will be in even greater legal jeopardy, as discussed below.

Each of the Planning Commission's recommendations are set forth verbatim in the headings below, followed by a brief legal and practical analysis of their importance. Some related recommendations have been combined for expediency and brevity.

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[1] Of the 11 recommendations made by the Planning Commission, there is one recommendation that CoLAB does not opine on: "Consider including the entire Boeing, Santa Susanna Field Lab land in the HCWC overlay zone and adding exemptions for temporary cleanup actions." Thus, CoLAB actively supports 10 of the 11 recommendations, and has no opinion on this 11th recommendation.

A. The program needs to have a clearly communicated appeals process for resolving the inevitable complications of individual properties and also have mechanisms for revisions to the program.

The Planning Commission recognized, due to overwhelming evidence presented to it in public comment, that there are flaws with the ways that the Ordinance identifies many water features, vegetation, and overlay zone boundaries. Yet, the Ordinance does not provide an administrative appeal process that feasibly allows a property owner to address errors or circumstances specific to that property.

As to surface water features, for example, property owners seeking reconsideration of those designations are responsible for all costs. Also, the decision is made by "the Planning Director or designee without a public hearing. The decision shall be final and not subject to administrative appeal." In addition to shifting the burden and cost to the property owner to have improperly designated features to be properly designated, the lack of administrative appeals deprives property owners of due process. It also fails to provide a route for recurring policy or regulatory problems to achieve adequate exposure to elected decisionmakers.

CoLAB provided two concrete suggestions to alleviate this fundamental due process problem: 1) make the Planning Director decision appealable to the Planning Commission; and 2) lower the cost-burden on property owners seeking re-designation.

The Planning Commission's recommendation is sound, as it addresses both the appeals process, and having some sort of mechanism to simplify revisions to the program that will inevitably arise when this is implemented on a property-by-property basis. CoLAB emphasizes that the burden of bearing the cost to hire a biologist to convince the County that its designations are wrong (or that they need modification) will be prohibitive for many property owners, and recommends that this cost-burden should be replaced by a low fixed fee. County Planning staff acknowledged this issue of high costs at the Planning Commission hearing, in response to public comment. Staff stated that the Planning Director would be able to correct certain designations using photographic evidence (and without the need to hire a biologist). The Ordinance must be modified to reflect this ability to change designations without involvement of a biologist.

B. Request the Ventura County Sheriff to review security issues regarding the program's lighting standards.

The security of County residents and their properties is, and should be, of utmost importance to the Board. This recommendation for the Sheriff to review the security lighting is not controversial, and corresponds with the County's duty to protect the safety and welfare of its residents. The Board should give due consideration to recommendations from the Sheriff regarding how to improve the security lighting issues.

Sheriff input is important because records received in response to CoLAB's Public Records Act request showed no reports from a lighting consultant to validate the lighting regulations in the Ordinance. Rather, County Planning staff just visited a Lowe's home improvement store to view lighting options (see slide 25 from staff presentation at Planning Commission), and did not consult any experts or hire a professional lighting consultant to review the lighting regulations. The Planning staff did not seek input from the County Sheriff prior to submitting the Ordinance to the Planning Commission.

Rather, per testimony from former Resident Deputy Sheriff Matthew Caezza from the Lockwood Valley, "when your home gets burglarized, put up lights, more lights"... "Motion lighting is a great idea... How often does it really work? You have to get that sensor set just right so it doesn't pick up every critter that runs around through your yard."

The Planning Commission's recommendation relating to security lighting should be adopted, and input from the County Sheriff should be implemented.

C. Clarify the effect of the program on properties that have granted conservation easements; Modify vegetation modification exemption to include all bona fide conservation efforts.

Properties throughout the County already have recorded conservation easements, restrictive covenants, or other property-specific, conservation-related restrictions. To add additional regulatory restrictions from these overlay zones, without taking into consideration the existing conservation easements on site could present several legal issues. For example, if properties are left with little or no economically usable space, then the regulations would constitute a compensable regulatory taking. Also, property owners effected in this way would have serious equal protection and substantive due process claims, as they end up being effected much differently than similarly situated properties within the overlay zones. From a practical and public policy perspective, the Ordinance will ruin the prospects for conservation easements currently in negotiation at many properties, and would discourage future conservation easements as well.

As such, properties that have existing conservation easements or other similar designations should be exempted from the zones and/or should be given a streamlined mechanism by which to appeal and modify the designations on their properties. Without such a safety valve, the Ordinance risks imposing doubly burdensome overlay requirements on top of existing conservation easement restrictions, and multiple lawsuits from multiple property owners effected by both an existing conservation easement/designation and the Ordinance.

D. Clarify what effect the vegetation modification regulations have on the Fire Department brush clearance requirements and fire risk; Revise vegetation modification exemption to state "as allowed by" instead of "as required by" the Fire Department.

The Planning Commission recommendations relating to fire risks go to the heart of why the Ordinance should have undergone CEQA review. Such a review would have considered the recent tragic fires, and analyzed how best to account for those areas.

Over 135,000 acres of the proposed corridors are within High and Very High Fire Hazard Areas/Fire Hazard Severity Zones or Hazardous Watershed Fire Areas. Also, over 115,000 acres of the corridor burned in the Thomas, Hill and Woolsey fires. To allow for vast areas of high fire hazard areas to be regulated without environmental review, would not only be irresponsible, it would be outright dangerous. The entire region has been devastated by recent fires that have effected homes, businesses, communities, and even the very wildlife that the Ordinance is designed to protect. Yet, the Ordinance itself does not account for the fact that its provisions can lead to even more severe fires in the future, and tragically, prevent homeowners and first responders to protect their homes and properties.

While there is no substitute for CEQA review as to this issue, the Planning Commission recommendations could lead to steps in the right direction to alleviate some of the fire hazard risks.

E. Clarify stream bed mapping where it may be incorrect; Reduce set back of waterways from 200 to 100 feet in order to assist ranchers and farmers.

The Planning Commission was presented with overwhelming evidence during the public comment period (including CoLAB's comment letter, attaching a biology report from ECorp) that showed that the stream bed mapping and water features shown in the Ordinance were inaccurate, and identified several features it should not have (e.g., surface water features that no longer exist or man-made water features). The recommendation to correct the stream bed mapping should be entirely uncontroversial, and the need to do so is further proof that the project should have undergone CEQA review, during which such errors could be identified and corrected as part of the process.

Furthermore, the Ordinance imposes a 200' buffer onto a flawed and outdated Fish and Wildlife map with no biological studies to support the need for restrictions on brush clearance, structures, fencing, and uses. No evidence has been presented that a 200' buffer is necessary, or better than a 100' buffer. There is no evidence supporting the need for a 200' buffer. The County General Plan currently recognizes the need for a general 100' setback to streams. Blueline and redline streams are within the jurisdiction of California Department Fish and Wildlife, which has been the state-wide standard for the approval of structures. Now thousands of existing legally permitted structures will become non-conforming uses with their future uncertain. The Planning Commission's recommendation to change the buffer back to 100', is a start, but to reconcile it with

the County General Plan, it would need to substitute the redline and blueline stream mapping for the National Wetlands Inventory maps. This would be logical, and the only buffer that is currently supported by any evidence. It should be adopted by the Board.

These recommendations would significantly lessen the number of appeals, thereby saving costs for the County and property owners. They also go hand in hand with the recommendation for the ability to appeal, and the cost-shifting proposals recommended in Section II.A above, as they would provide affected property owners a viable and cost-effective remedy.

F. Remove Tierra Rejada from CWPA overlay zone; Remove Lockwood Valley from the entire ordinance.

The County went about drafting the Ordinance in the exact opposite way that it should have, which resulted in several inaccuracies and problems with how the boundaries of the overlay zones were drawn. The way the County staff came up with the overlay zones was to first designate areas that it wanted to protect, based on no evidence that appears in the record. Then, staff attempted to locate evidence to support the decisions that it had already made. Finally, regardless of whether or not the science supported the original decisions, those original designations were adopted into the Ordinance.

Sadly, this is not merely speculation on CoLAB's part. This methodology has been confirmed by emails recently uncovered through a Public Records Act request submitted on CoLAB's behalf.[2]

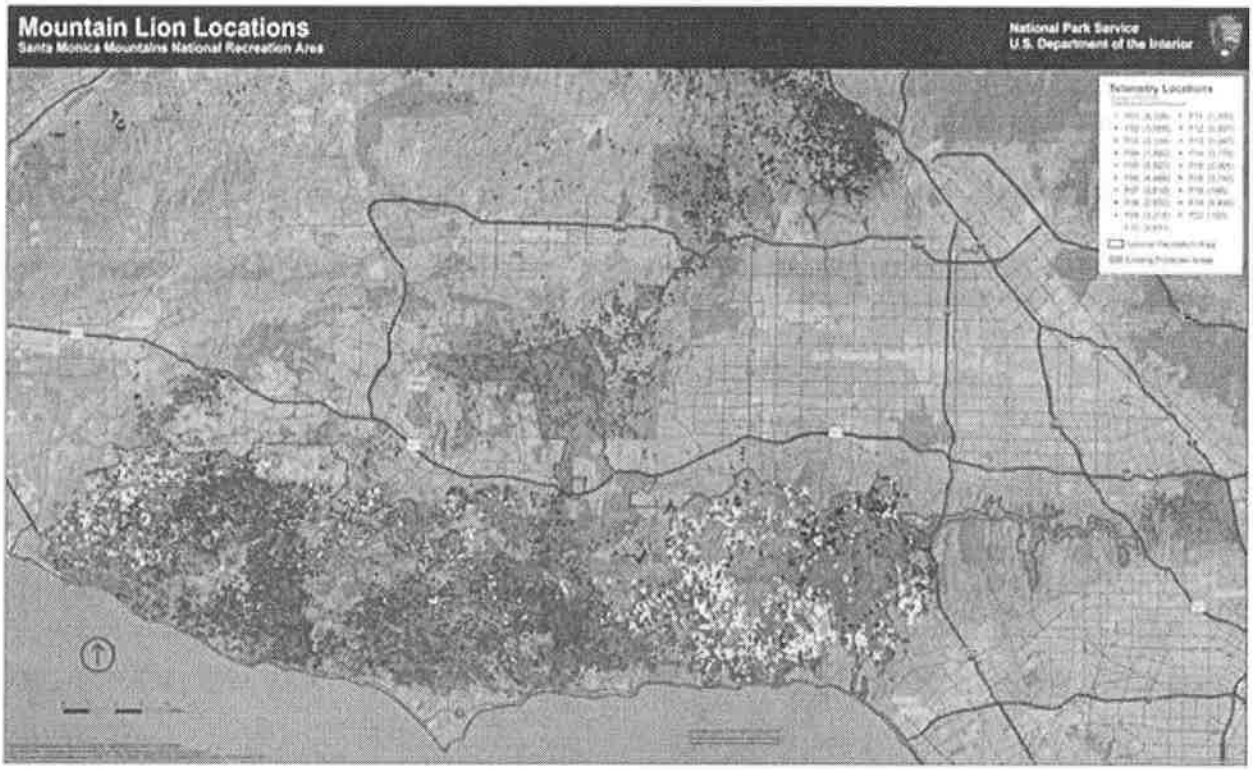
One such email from County staff to a Wildlife Ecologist at the National Park Service provides, in relevant part:

> ...I am still working on the Ventura County Wildlife Corridor Project as a consultant (yay!). I am writing the Staff Report for the Planning Commission Hearing that I believe is scheduled for May. In reading the research available online, **it's obvious the biggest obstacle to movement are the freeways which the County has no control over**. But, **I'm hopeful that by showing that animal movement is happening in VC that we can convince the Board that small increases in regulations on fencing, lighting, buffers from streams and roadway crossings and the clustering of development in certain critical areas are justified**. We are still trying to finalize the ordinance—but I am hoping you can help me with some info/data needs for the report. NPS has great info online on the mountain lions moving mostly through LA County. I seemed to remember that in your presentation to the Planning Division, you had animal movement data specific to Ventura County.

[2] It is worth noting that it took over 5 months for CoLAB to obtain a response to its Public Records Act Request, and even then, the County's response was sparse and incomplete, depriving CoLAB of the ability to properly analyze the County-provided documents. CoLAB will likely pursue litigation to ensure the production of all relevant documents requested.

Can we discuss using some of your data? Ideally if we could use your spatial data to make our own maps, this would be easiest and best. But if you don't feel comfortable sharing your GPS data, maybe you can share images/figures of maps with animal point observations you/NPS has made? **I'd like to reference or even show this data as a justification for the regulations in the ordinance. I'd like to show the animal movement that is happening in Ventura County—specifically in the Tierra Rejada Valley, Bell Canyon, Box Canyon, and the Santa Susana Knolls if possible. Do you know of animal movement data in the Oak View area?** These are the areas we have pinpointed as being critical to movement within the County unincorporated areas.

...This figure mainly shows movement in LA County and eastern VC. Do you have data that shows north-south movement through the Tierra Rejada Valley for any wildlife?



(Emphasis supplied; full email string attached as Exhibit 2).

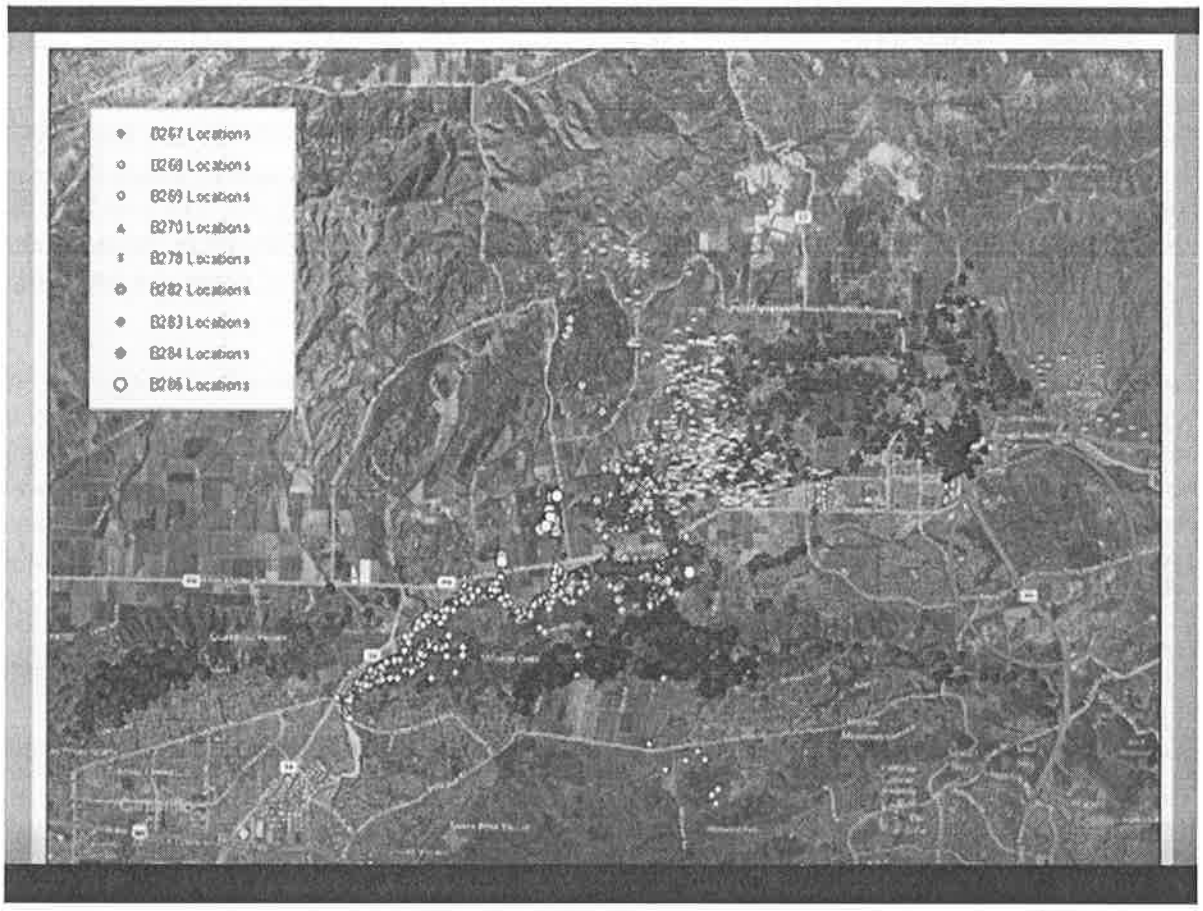
This email is remarkable for three reasons.

First, it is a blatant admission that County consultants and/or staff (the same person who drafted the staff report) drafted the Ordinance—including the boundaries of the overlay zones—first, and then tried to provide a **post-hoc rationalization**.

Second, it acknowledges that development of individual properties does not constitute a primary barrier to animal movement: "**it's obvious the biggest obstacle to movement are the freeways which the County has no control over**." The email admits that the measures that are the heart of the current Ordinance do nothing to address the real problem; rather, they are just secondary or tertiary considerations that they hope to "convince" the Board are "justified." This email makes clear that the measures are not "justified" on the basis of any evidence in the record, which confirm the "obvious" fact that the freeways (which the County cannot control) are the real barrier to wildlife movement. Rather, the staff was forced to propose measures that are both more restrictive on property owners, and less effective to promote wildlife movement.

Third, it is evident from the map attached to the email that the Tierra Rejada valley does not contain mountain lions. It is also obvious that the County staff had no evidence regarding Tierra Rejada, and was hoping that this outside consultant from the National Park Service would be able to help provide something staff could use as a justification after the fact. ***That evidentiary support either did not exist or was never provided***, and the Tierra Rejada area must be removed from the CWPA, as the Planning Commission recommends.

Indeed, at the Planning Commission hearing, the County showed another map that confirms that there are no mountain lions crossing through the Tierra Rejada Valley – shown in the orange circle on the right side of the image below:



Regarding Lockwood Valley, it is surrounded by the Los Padres National Forest, and as was confirmed by numerous speakers at the Planning Commission hearing, safety and security issues raised by the Ordinance preclude the ability to live safely in these areas with the proposed regulations on lighting, fencing, stream buffers and vegetation management for fire safety. Indeed, all private property in the Los Padres National Forest (even beyond Lockwood Valley) should be exempted from the Ordinance.

Failure to remove these areas from the overlay zones opens up the County to serious legal claims regarding the legitimacy of the scientific methodology, failure of the Ordinance to be supported by substantial evidence. Further, this exposes the County to substantial risk of equal protection, due process, and takings claims from property owners within those areas.

III. EVEN IF ALL OF THE PLANNING COMMISSION'S RECOMMENDATIONS ARE ADOPTED, THE ORDINANCE IS STILL LEGALLY AND SCIENTIFICALLY FLAWED, AND REQUIRES FURTHER REVISIONS

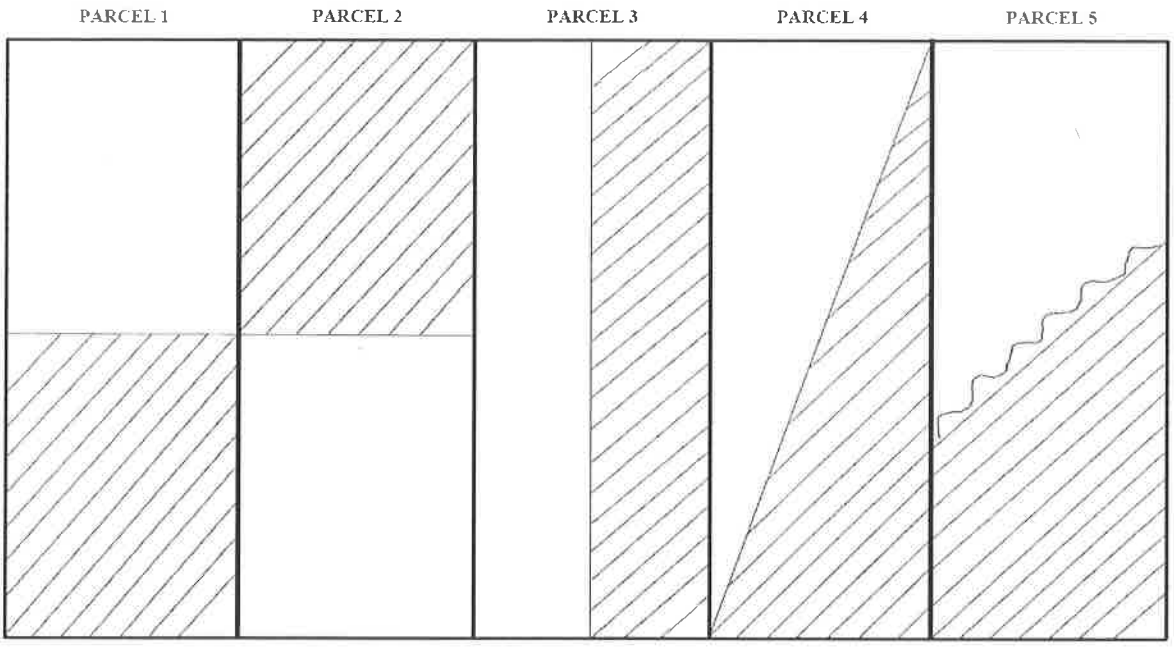
In the words of the County staff/consultants who drafted the Ordinance: "**it's obvious the biggest obstacle to movement are the freeways which the County has no control over**. But, **I'm hopeful that by showing that animal movement is happening in VC that we can convince the Board that small increases in regulations on fencing, lighting, buffers from streams and roadway crossings and the clustering of development in certain critical areas are justified**." (Exhibit 2.)

Note that the Ordinance's biggest proponents are the same ones who acknowledge that its regulations relating to fencing, lighting, buffers, and clustered development are ineffective in solving the real problem of animal movement, which would necessarily involve doing something about the freeways. But to make matters worse, the way that the Ordinance has been drafted, even those measures have been formulated in an evidentiary vacuum and, as drafted, will not achieve their purported primary purpose, and will not assist wildlife movement as effectively as they could, with even fewer (but better) regulations.

A. The Compact Development Siting Standards Within the CWPA are Too Restrictive, and More Wildlife Movement Could be Promoted through Fewer, but Smarter Regulations.

The compact development standards, as written, allow property owners to simply designate 50% of their property for use, without any regard or consideration for how the neighboring parcels have divided their properties. A simple illustration shows that the regulations do nothing to promote wildlife movement:

COMPACT DEVELOPMENT PROBLEM



The above 5 parcels all comply with the Ordinance's compact development restrictions. However, if a terrestrial animal desired to move from the west side of the above 5 parcels to the east side, it could not do so. In other words, the Ordinance's regulations do nothing to promote wildlife movement. This is because the Ordinance emphasizes big (and convenient) round numbers rather than intelligent and effective rules.

If the Ordinance instead was actually aimed at helping animals move through these 5 representative parcels, this could be accomplished through minimal regulations that were cohesive in nature. For example, if organized in a cohesive, smart way, a simple strip of property no more than 2-3% in width across the top or bottom of the parcels would be a much more effective animal movement regulation than an ad-hoc 50% rule that does no such thing, and only serves to restrict property rights.

Furthermore, the way that these CWPA overlay zones have been drawn ignore the overall scheme of the mountain reserves that the corridors are trying to connect. It is unnecessary to have parcels that are in the middle of these overlay zones (i.e. surrounded entirely by other parcels in the zone) to be included, or restricted in any way. The safe passage of animals should hew to the zones that need to be protected and connected, and inclusion of properties that are several parcels deep into the zone would do nothing to promote that safe passage.

Finally, the compact development regulations, as written, may also be interpreted to apply to commercial agricultural uses (i.e., preventing famers from growing on more than 50% of their land). If the County intends to permit agriculture to continue, exemptions for agriculture within the Ordinance must be clear and unmistakable.

The compact development regulations within the CWPA zones, as written, are nonsensical, and will not accomplish anything. They have no scientific basis, have not been shown to be effective in promoting wildlife movement and, according to the staff who drafted the Ordinance, would not meaningfully address the primary barrier to wildlife movement. Therefore, the compact development regulations should be stricken from the Ordinance.

B. The Ordinance's Exacerbation of Fire Risks is Dangerous, and Puts Lives and Structures at Greater Risk

The Planning Commission's recommendations regarding fire safety are important and should be implemented. However, they do not go far enough.

The lack of any analysis regarding fire hazards is the one area of analysis that screams for CEQA review more than any other. The Governor's Office of Planning and Research adopted, in 2018, comprehensive updates to the CEQA Guidelines and Appendices. This update included adding new impact categories to the checklist in Appendix G of CEQA. Notably, the most significant change to Appendix G is the addition of Wildfire as an environmental impact category. The new Wildfire section includes four questions pertaining to new development in Very High Fire Hazard Severity Zones. These questions focus on whether a project would exacerbate wildfire risk, impair emergency response or evacuation plans, or risk exposing people or structures to floods and landslides. The Ordinance has the potential to do ***all of these things***. And without the benefit of substantive CEQA analysis, the County, through the adoption of this untested Ordinance, will place lives and structures at greater risk.

In order to adequately address the fire risks, CEQA review of the Ordinance is absolutely necessary. There is no other lesser-scale recommendation or proposal that would be able to analyze or mitigate the fire hazards that are posed by the Ordinance. Each of the questions posed in the CEQA Guidelines (and the County's own Initial Study Guidelines) is there for a reason. Those questions must be posed, reviewed, analyzed, and addressed by a qualified professional so that the fire hazards are properly mitigated, as necessary. Failure to do so squarely places the blame for the Ordinance's exacerbation of any future wildfire in, around, or near the overlay zones on the County's shoulders.

C. Agricultural Exemptions Must be Applied in both the HCWC and CWPA Overlay Zones, and the Ordinance Must be Clarified to Reconcile the Differences Between the Two Overlay Zones

The HCWC overlay zone contains important exemptions for agriculture relating to "Surface Water Features, Vegetation Modification, Wildlife Crossing Structures, and Wildlife Impermeable Fencing." (Section 8109-4.8.3; 8109-4.8.3.2.) Specifically, Section 8109-4.8.3.2, "General Exemptions," contains the following exemption: "Planting or harvesting of crops or orchards that will be commercially sold, including vegetation modification necessary to construct or maintain a driveway or road internal to a lot that is utilized for such a commercial agricultural activity." (Section 8109-4.8.3.2.f.)

Furthermore, Wildlife Impermeable Fencing enclosing commercially grown agricultural crops for commercial sale are exempt from the fencing regulations in the Ordinance in the HCWC zones:

> Sec. 8109-4.8.3.6 does not apply to wildlife impermeable fencing that forms an enclosed area when: ... It is used to enclose commercially grown agricultural crops or products. For purposes of this Section 8109-4.8.3.6.1 the phrase "commercially grown agricultural crops or products" means any crop or plant product (including orchard, food, plant fiber, feed, ornamentals, or forest), that will be commercially sold.

(Section 8109-4.8.3.7.b.)

Yet, these exemptions for agricultural uses (either by design, or by mistake) are missing from the CWPA zone, both in terms of the agricultural use in general, and the Wildlife Impermeable Fencing Requirements. (See Section 8109-4.9.1-2.) This cannot be allowed to stand.

Failure to exempt agricultural uses from Wildlife Impermeable Fencing and compact development standards in the CWPA zone means that farmers cannot put a fence around their crops for commercial sale. This effectively bans farming in the CWPA zone, because fencing commercial crops is absolutely necessary to prevent substantial contamination or other damage to crops and to the County's agricultural industry as a whole. Wildlife Impermeable Fencing is essential for the survival of crops and the farmers who raise them. Suppliers may refuse to buy from farms who cannot fence their farms, and whose crops are susceptible to animal feces, animal-borne bacteria, etc.

The CWPA zone must be modified to specifically and unambiguously exempt all agricultural uses and/or agricultural zones (similar to how commercial and residential zones were exempted in Section 8109-4.9.2.a-b). It is unclear whether the failure to exempt agricultural uses was by design, or by mistake, but in any event, the language of Sections 8109-4.9.1-2 should be clarified to ensure that commercial agricultural uses are clearly exempt in the CWPA zones.

D. The Ordinance Must Implement Non-Discretionary Exemptions to the 10% Restriction for Wildlife Impermeable Fencing Enclosures.

Currently, the Ordinance requires property owners seeking to enclose more than 10% of their properties with wildlife impermeable fencing to seek a costly, discretionary, and time-consuming Planned Development Permit. The exemptions to this rule are limited, and do not account for properties that are located near public access (trails and parks), natural hazards such as rock slides, busy roads or other legitimate safety concerns. Such properties need a fencing exemption to protect their properties and families from intrusion and harm.

This is supported by language from the joint letter by The Nature Conservancy and CoLAB submitted to the County on 5-26-17: "Chain link and other types of fencing along public roads and recreational trails is often desired by farmers and landowners to prevent trespassing, vandalism and theft. A notable example of agricultural lands along a major highway is Highway 126. Public trespassing onto cultivated agricultural lands can conflict with federal food safety laws. In addition, public trails that allow access to private property may need fencing for protection. This fencing could avert wildlife from crossing roads at grade and divert them to safer passage under road crossings, such as bridges and culverts."

The Ordinance should therefore be modified to add an exemption for safety-related fencing. Also, the Ordinance should institute an administrative, ministerial process for fencing exemptions (as opposed to the discretionary Planned Development Permit), so that property owners with such safety-related conditions on their properties can quickly and cheaply establish their need for wildlife impermeable fencing, and get it approved efficiently. This would lower the burden on both the County and the property owners seeking the exemption to this stringent requirement.

This can be achieved by two methods, which are not mutually exclusive:

1. Specifically drafting an exemption for safety-related issues that would necessitate wildlife impermeable fencing, to be added to Section 8109–4.8.3.7. This would be the easiest mechanism to implement, because once such safety-related fences are exempted, there would be no need for any application process whatsoever (ministerial or discretionary). This would be most effective fix for the County, as it would eliminate the need to process such applications entirely.
2. Replacing the Planned Development Permit mechanism with an administrative ministerial application process akin to a building permit. This would be a simple modification to the Ordinance, which would apply to any property owner seeking an exemption. Again, this lowers the administrative costs and timing for both the County and the property owners seeking exemptions.

CoLAB requests that the Board adopt a modification to the Ordinance that would implement both options 1 and 2, as this would do the most to promote public health and safety. However, adoption of either of these options would be a significant improvement to the Ordinance, and in addition to

the public health and safety benefits, would also save the County money and resources by replacing costly discretionary permits with simpler ministerial processes.

IV. CONCLUSION

For the foregoing reasons, the County should, at a minimum, conduct the mandated CEQA analysis prior to taking any further action on the Ordinance. To the extent that County decides to move forward with the Ordinance in spite of its lack of CEQA review and evidentiary support, the County should adopt the modifications to the Ordinance listed in CoLAB's letter to the Planning Commission, as well as those described in Sections II and III above. However, even if the Board adopts these modifications, the County's legal obligations or responsibilities under CEQA or the principles of common law would remain, and CoLAB reserves all rights in that regard.

Finally, CoLAB requests that the March 12, 2019 hearing on this matter be postponed at least one month, to allow time for the County to provide—and CoLAB to examine—additional responsive documents that were the subject of its September 13, 2018 Public Records Act request, and for CoLAB and others to submit additional comments accordingly.

Very truly yours,

BENJAMIN M. REZNIK
SEENA M. SAMIMI of
Jeffer Mangels Butler & Mitchell LLP

cc: Kim Prillhart (via e-mail; kim.prillhart@ventura.org)

Exhibits:

Exhibit 1: 1/28/19 Comment Letter from CoLAB to Planning Commission (without exhibits)
Exhibit 2: 3/14/18 Email from County Consultant, Whitney Wilkinson

Batinica, Meighan

From: Amy Silver <asilvertoca@gmail.com>
Sent: Monday, March 11, 2019 12:05 PM
To: Wildlife Corridors
Subject: Comments for March 12, 2019, Public Hearing

March 11, 2019

Board of Supervisors
County of Ventura
800 South Victoria Avenue
Ventura, CA 93009

To: The Ventura County, Board of Supervisors

Re: The Ventura County Board of Supervisors Hearing for the Habitat Connectivity and Wildlife Corridor Project

I support adoption of the proposed county ordinance, which would establish standards to improve habitat connectivity and wildlife movement corridors within the non-coastal, unincorporated areas of Ventura County. The proposed objectives of this ordinance, e.g.s minimizing habitat fragmentation; enhancing corridor chokepoints; and minimizing direct and indirect physical barriers to wildlife movement, should be effective in promoting habitat connectivity and wildlife movement.

This proposed county ordinance combined with the CalTrans approved 165-foot-wide, 200-foot-long wildlife overpass near Liberty Canyon Road would greatly improve habitat connectivity and wildlife movement through the Santa Monica Mountains on the south with the Simi Hills and Santa Susana Mountains.

Conservation biologists have demonstrated that gene pool fragmentation is bad for a species's chance of survival, due to inbreeding and genetic drift. (See the results of the Thousand Oaks Bobcat study conducted by Serieys et al. (2015)). These two factors intensify in areas where wildlife migration corridors are cut-off by highways and urban development. Protecting these corridors, combined with the building of the animal land bridge at Liberty Canyon over the 101, will help mitigate the adverse effects of inbreeding and genetic drift.

I believe that the voters in Ventura County endorsed these concepts by renewing the SOAR initiatives in November 2016, by extending their expiration date to 2050.

Please vote for this project and help preserve these lands and the plant and animal species that live in these areas for future generations.

Respectfully,
Amy E. Silver, M.S.E.S.
Thousand Oaks, California

Batinica, Meighan

From: Dan Silver <Dan.Silver.150620114@p2a.co>
Sent: Monday, March 11, 2019 11:45 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Dan Silver
222 S Figueroa St #1611
Los Angeles, CA 90012

SLOAN, A. E. BUD

To: Ventura County RMA Director and the Ventura County Board of Supervisors

RMA Director Kim Prillhart via email to kim.prillhart@ventura.org
Supervisor Steve Bennett via email to steve.bennett@ventura.org
Supervisor Kelly Long via email to Kelly.long@ventura.org
Supervisor John Zaragoza via email to john.zaragoza@ventura.org
Supervisor Linda Parks via email to linda.parks@ventura.org
Supervisor Bob Huber via email to supervisor.huber@ventura.org
Rosa Gonzales via email to clerkoftheboard@ventura.org

RE: Comments on the Proposed Ventura County Wildlife Corridor Overlay Zones

Dear Director Prillhart and Members of the Board,

Ventura County Cattlemen's Association appreciate many of the changes made to the Proposed Wildlife Corridor Ordinance, however there are number of issues that are of grave concern to the Cattlemen's Association. Specifically we are concerned most about the ability to perform Range Management as an ongoing cultural practice of Livestock grazing. Gardens need tending and crops need care and nurturing. as part of any agricultural endeavor. Livestock grazing is absolutely no different than any other segment of commercial agriculture. From time to time our lands need to be cultivated and weeds, brush and invasive plants must be removed to promote our crop, native and non-native grasses and forbs for livestock consumption. Cattlemen convert non-digestible cellulose in this pasture crop to high quality protein utilizing the innate abilities of ruminants. We have for centuries utilized areas of land that were unsuitable for irrigated agriculture and commercially provided mankind with the highest quality protein in the world. Cattlemen and other livestock grazers deserve the same deference that other commercial agriculture entities receive; namely the freedom to tend our crop just as strawberry and lemon farmers do.

This Ordinance contains many restrictive and burdensome passages that we find untenable. The following is a list of those items we have found that would drastically hinder our ability to maintain an economic unit of agriculture in the lands covered by this Ordinance:

Section 8109-4.8.3.2 General Exemptions

Item (g) Add including forage crops.

Item(k) The idea that our rangelands could be tended without the use of heavy motorized equipment such as tractors towing discs, loaders dozers and forest mowers is ridiculous and naïve. I personally have over 225 acres within the 'water features' designated in the overlay map. Maintaining these areas in production is impossible with the use of equipment specifically for such jobs. There are over 40,000 acres between Santa Paula and Ventura actively used for grazing. There is no earthly way this and other lands in this county can be maintained in production using hand-operated tools alone. Such language needs to be stuck from the passage. Sub-item (2) should state: as allowed, instead of as required by Ventura County Fire Protection District.

Item (l) Livestock grazing including the cultivation of native and non-native vegetation to facilitate a forage crop for livestock grazing as performed as part of an individual's Range Management Plan.

Moving on to Section 8109-4.8.3.5 Surface Water Features-Setbacks and Permitting:

(a) & (b) The inability to maintain our pastures within the "Surface Water Features" is truly the substantive crux of the damage this Ordinance does to livestock grazing. As an example, I have said previously that I alone have over 225 acres within these so-called "Surface Water Features". The Livestock grazing community in Ventura County has thousands of acres within these features. Most of this is our bottom land where two peaks meet. Not only is this ground flatter than most of our lands but it is the most fertile since it is alluvial in nature, soil from the hills deposited by rains and natural deposition. These passages deprive us of our best and most usable areas. This concept alone will drive most livestock grazers out of business. What are marginal lands utilized by only grazers at this point will no longer be viable economic agricultural units. Just to point out a rather obvious fact to us is that nearly all of these "Water Features" run perpendicular to the Wildlife Corridors, making them a hindrance to wildlife passage rather than a promoting passage. Requiring a Planned Development Permit is onerous and unreasonable for routine management of pasture for grazing.

(d) While allowing the first hour of County staff time at no cost to applicant for reconsideration of *surface water features* Staff will still require the use of a qualified biologist per the ISAG as if this is a CEQA qualified event. This is still a very heavy burden for landowners to bear.

Ventura County Cattlemen's Association request that this proposed ordinance be delayed in its implementation until which time these and other major issues are addressed. Livestock grazers cannot be treated as if we were dealing with 5000 square foot lots. We are stewards of hundreds of thousands of acres and this ordinance does not consider the economic, cultural and safety aspects of our livelihoods and wellbeing.

Further discussions are necessary with *real* stakeholders to develop an ordinance that provides safe passage for wildlife and allows the owners and operators of our vast grazing lands freedom to ranch and farm as we see fit. As has been brought to our attention recently is the fact that even County Staff recognizes that the *real* determent to wildlife passage is the freeways and busy highways of the county not the farm and Ranch lands. We have stewarded the lands and animals for hundreds of years and for that we are being punished by those who have no investment of time, money or effort.

Respectfully submitted,

A.E.'Bud' Sloan, DVM

Director

Ventura County Cattlemen's Association

Batinica, Meighan

From: Jade Smith <Jade.Smith.69679102@p2a.co>
Sent: Monday, March 11, 2019 9:44 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

As we continue to develop, the wildlife are further threatened by our presence.

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

The proposed ordinance represents a reasonable compromise between property owners and wildlife that will enable them to co-exist and thrive for generations to come.

Please reject the recommendations made by the Planning Commission that would undermine the intent of the ordinance such as the reduction of surface water feature setbacks and the exclusion of large areas from the overlay zones. These recommendations only serve to weaken the proposed ordinance's ability to protect wildlife habitat and movement in Ventura County.

Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Jade Smith
815 Daly Rd
Ojai, CA 93023

SPRAGGINS, CHARLES

Batinica, Meighan

From: SaveOurWaterVentura /GD <sow.ventura@saveourwaterventura.org>
Sent: Monday, March 11, 2019 11:33 AM
To: Sussman, Shelley
Subject: 5/12/19 BOS Item 31 - Support Wildlife Corridor
Attachments: item0001.xml; props0002.xml; themedata.thmx; colorschememapping.xml

5/12/19 BOS Item 31 - Support Wildlife Corridor

TO: BOS

From: Charles Spraggins, 4666 Vanderbilt, Ventura, CA

We support this effort.

Diversity of wildlife species on earth is not evenly spread. Conservation International (www.conservation.org) has identified 35 hotspots worldwide where nature is most under pressure. The "California Floristic Province" is a hotspot where biodiversity is most threatened.

The **California Floristic Province** (CFP) is a **floristic province** with a Mediterranean-type climate located on the Pacific Coast of North America with a distinctive flora similar to other regions with a winter rainfall and summer drought climate like the Mediterranean Basin.

Batinica, Meighan

From: EugeniaCharles Spraggins <EugeniaCharles.Spraggins.150632995@p2a.co>
Sent: Monday, March 11, 2019 12:18 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Categories: Orange category

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

EugeniaCharles Spraggins
4666 Vanderbilt Ct
Ventura, CA 93003

Batinica, Meighan

From: Michele Spring <jmspringfamily@gmail.com>
Sent: Monday, March 11, 2019 11:42 AM
To: Wildlife Corridors
Subject: Delay the Vote for Wildlife Corridors!!!!!

Dear Supervisors,

Please consider, at the very least, delaying the vote tomorrow (Tuesday 3/12) regarding the Wildlife Corridor Project for the Tierra Rejada Valley in Moorpark. The project/ordinance you are proposing and voting on has not been properly planned and has not taken into account how much it will impact our community. From what I understand there has been no financial impact study that has taken place for our community either! Can you explain how will this corridor might affect future home values in this area? What about the impact on local land and businesses? We have local farming families that have owned their land for generations and already struggle economically trying to run their businesses with all of the current restrictions and regulations the county attaches to them. Your proposed corridor directly affects their land and their livelihood.

Please consider delaying this vote until all studies have been completed and the community has been properly informed of how this will affect them. I for one are in agreement that we need to protect our current wildlife however there needs to be a happy medium found where everyone can live in harmony. We simply cannot save wildlife while heavily impacting our own human community and livelihoods.

Sincerely,

Michele A. Spring
Simi Valley, CA (work in Moorpark, CA)
Tel: (805) 907-6141

Batinica, Meighan

From: Eric Stull <Eric.Stull.150553902@p2a.co>
Sent: Monday, March 11, 2019 9:46 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Eric Stull
2424 Calle Galicia
Santa Barbara, CA 93109

Batinica, Meighan

From: Louis Torres <Louis.Torres.150556684@p2a.co>
Sent: Monday, March 11, 2019 10:02 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Louis Torres
1035 Palmetto Way
Carpinteria, CA 93013

Batinica, Meighan

From: Judy Triem <Judy.Triem.150591928@p2a.co>
Sent: Monday, March 11, 2019 10:47 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Judy Triem
1328 Woodland Dr
Santa Paula, CA 93060

Batinica, Meighan

From: Arnout van den Berg <arnout777@gmail.com>
Sent: Monday, March 11, 2019 10:59 AM
To: Wildlife Corridors
Subject: comments for March 12, 2019 Public Hearing on wildlife corridor

I am a property owner in Simi Valley that owns parcels that are inside and outside of the proposed wildlife corridor.

Comment #1

These new wildlife regulations are intended to benefit the entire county by preserving nature. As such, all beneficiaries should bear the cost. It's not fair that only the few land owners that own property in the new wildlife corridor pay the entire cost for the benefit of the entire county. These proposed land use regulations will decrease the value of the parcels in the wildlife corridor and in some areas appear to make the land completely unbuildable thereby taking away all of land value.

There are two obvious solutions to this injustice. (1) not to implement these new regulations on existing communities and only implement it on land currently designated as open space. This would still allow the county to implement most of the plan. (2) calculate the lost value that this plan would cause to each of the parcels and create a proposition asking the citizens of the county to pay for the cost of the program. If the citizens of the county find value in the wildlife corridor then they should be willing to pay the costs.

Comment #2

If my first comment is ignored, then at the very least the definition of a "Surface Water Feature" should be cleared up. The current proposed definition reads as follows:

> "Surface Water Feature - An area containing a stream, river, wetland, seep, or pond, the riparian habitat area associated with the feature, as well as a development buffer area that is 200 feet as measured from the farthest extent of the surface water feature and its associated riparian area. The data used to designate the areas is obtained from the United States Fish and Wildlife Service National Wetlands Inventory Dataset. Areas designated as surface water features are shown on the 'Surface Water Feature Buffer' map within the Planning GIS Wildlife Corridor layer of the County of Ventura – County View Geographic information System (GIS), as may be amended by the Planning Director. The term surface water feature does not include ponds, lakes, marshes, wetlands or agricultural water impoundments or associated riparian habitat areas that are human-made."

There are many things that could be considered a surface water feature. The definition of a surface water feature is left completely open for interpretation of the Planning Director. As such, there are many lots that could be completely unbuildable if the Planning Director decided to include more water features. Water features are not changing so if the County wants to include a particular water feature then it should be clearly identified as part of proposed regulation. As such, the definition should be rewritten to only include the water features that are currently shown on the 'Surface Water Feature Buffer' map within the Planning GIS Wildlife Corridor layer of the County of Ventura – County View Geographic information System (GIS).

Sincerely,
Arnout van den Berg

Ventura County Board of Supervisors
March 9, 2019

From **Darrell L. Wallace**
Oak View, CA

On January 31, 2019, the Ventura County Planning Commission "considered" the HCWC, Wildlife Corridor Overlay Zone). What a joke. There was no consideration what so ever. Their minds were made up before the meeting even started. The outcry of the public was loud and clear. We do NOT want this. Why would anyone want a program bogged down with restrictions and red tape?

We elect our Board of Supervisors to represent US and not to cave in to special interest groups. I live in this area and know it like the back of my hand. We are 5 generations of Ventura County and I've spent most of my life in the back country. I know it from the ocean to well past the mountains.

From the ocean to the hill range in Ventura heading north, that connects with the Sulphur Mountain range, makes its own corridor clear to Upper Ojai, turns west and ends up in the Los Padres National Forest.

The Red Mountain hill range runs from the ocean to the mountains of the Los Padres National Forest on the west side of Highway 33 heading north, Wildlife has traveled these pathways for years without problems.

The low point of these pathways is the Ventura River, also running north and south. There are 5 bridges between the ocean and Los Padres National Forest. These bridges are open and offer pathways under or around. There isn't one cross fence blocking the Ventura River as it runs north and south.

In my lifetime there has never been a problem with passage for wildlife in these areas.

I have considered all the things listed as concerns of the HCWC. We must remember that 90% of this wildlife has been born here and has adapted to the present conditions. If you think lighting and noise affects this wildlife, think again. They are born into it, just as we are.

If you want to protect wildlife, you need to start saving our farms and & ranches. These people are the true stewards of the Earth. The farmer and rancher have done more for wildlife than any other group of people. When you fail to listen to these people, that's when problems start.

You might want to check what the state of Utah has done to protect both wildlife and domestic animals along highways. Highway 15, for example has miles of extra high fencing to direct animals to the corridors of both under and overpasses. This is a case of using more fencing rather than less.

We are animal people and have enjoyed things just as they are. We don't need more red tape which this project will bring.

Sincerely;
Darrell L. Wallace
(805)-798-7034
Resident in the Proposed HCWC

Darrell L. Wallace

Diana Jean Damian

530 Riverside Rd.
Oak View CA 93022

943 Crown Hill Drive
Simi Valley, CA 93063

Batinica, Meighan

From: ClerkoftheBoard, ClerkoftheBoard
Sent: Monday, March 11, 2019 12:10 PM
To: Sussman, Shelley
Subject: FW: Wildlife Corridot

Comment letter Wildlife Corridor

Lori

-----Original Message-----
From: Judy Warner <judywarner@charter.net>
Sent: Monday, March 11, 2019 12:05 PM
To: ClerkoftheBoard, ClerkoftheBoard <ClerkoftheBoard@ventura.org>
Subject: Wildlife Corridot

Hoping the Supervisors support the zoning for the corridor

Sent from my iPhone

Batinica, Meighan

From:	Mary Wiesbrock <marywiesbrock@sbcglobal.net>
Sent:	Monday, March 11, 2019 11:37 AM
To:	Sussman, Shelley
Subject:	Save Open Space/for the record/ Habitat Connectivity and Wildlife Corridors Overlay/Board of Supervisors
Attachments:	Board of Supervisors, SOS letter sent in March 11, 2019 Habitat Connectivity & Wildlife Corridors Overlay Zoning.pdf

Letter attached for the official record on tomorrow's Agenda Item 31: Habitat Connectivity and Wildlife Corridors Overlay.

Mary Wiesbrock, Save Open Space/Santa Monica Mountains

Batinica, Meighan

From: Robert Willard <Robert.Willard.150633219@p2a.co>
Sent: Monday, March 11, 2019 12:18 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Robert Willard
222 Palm Drive Apt. B
Oxnard, CA 93030

Batinica, Meighan

From: Gerry Williams <Gerry.Williams.150601322@p2a.co>
Sent: Monday, March 11, 2019 11:27 AM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Categories: Orange category

Dear Ventura County Supervisors,

I STRONGLY support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

Please adopt a strong and effective wildlife corridor ordinance that would establish reasonable limits on fencing, lighting, and development in key wildlife corridors that will protect wildlife habitat and movement throughout the County.

I care about the future of our local wildlife and other benefits that maintaining an intact ecosystem provide, such as fresh water, clean air, and biodiversity—all of which ensure a healthy and vibrant future for Ventura County's economy and quality of life.

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Please vote to pass this innovative ordinance and propel Ventura County to the forefront of wildlife protection in California. Our human and wildlife communities depend on it.

Thank you,

Gerry Williams
3024 Potter Ave
Thousand Oaks, CA 91360

Batinica, Meighan

From: Michael Zingerman <Michael.Zingerman.150626587@p2a.co>
Sent: Monday, March 11, 2019 12:01 PM
To: Wildlife Corridors
Subject: Please vote YES on Habitat Connectivity and Wildlife Movement Corridors

Dear Ventura County Supervisors,

I support the protection of our local wildlife and want to ensure that they are able to survive in an increasingly developed landscape.

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Thank you,

Michael Zingerman
1533 Picasso Ln
Oxnard, CA 93033