

# ATTACHMENT C

September 14, 2022

Ms. Carmen Borg  
Shute, Mihaly & Weinberger LLP  
396 Hayes Street  
San Francisco, CA 94102-4421

Dear Ms. Borg:

I am writing to you regarding the proposed mining activities on the Sargent ranch in southern Santa Clara County, and its potential impact on the mountain lion population in this region. I am a professor of wildlife ecology at the University of California, Santa Cruz and principal investigator of the Santa Cruz Puma Project, a research partnership between UC Santa Cruz and the California Department of Fish and Wildlife. I have been studying mountain lions in this area for 15 years. My comments are based on review of the draft EIR, as well as all 25+ peer reviewed publications on mountain lions in the area (available at [wildlife.ucsc.edu/publications](http://wildlife.ucsc.edu/publications)), and a site visit to the proposed project site area.

The proposed Project is sited in a wildlife movement corridor connecting the Santa Cruz Mountains to the Gabilan mountains (Penrod et al. 2013). Populations of mountain lions in both ranges are now provisionally listed as a state threatened species in California. Gustafson et al (2018) conducted a statewide genetics analysis of mountain lions and found them to be dangerously low in genetic diversity. The study found that mountain lions in the Santa Cruz Mountains have an effective population size of only 16 individuals whereas 50-500 individuals are required to avoid extinction (Soule et al 1986).

The draft EIR does not adequately address potential impacts to mountain lions. This is a serious omission. Protecting and restoring the corridor between the Santa Cruz Mountains and the Gabilan range represents the best, and possibly only, opportunity to restore genetic connectivity and to save mountain lions from eventual extinction in the Santa Cruz Mountains. To this end, Caltrans is in the early stages of scoping out possible construction of a wildlife bridge or tunnel to allow for safe movement of animals across the freeway in this region. Importantly, suitable habitat on both sides of the freeway will be necessary for the corridor to function appropriately.

What analysis the DEIR does provide is cursory. For example, the analysis fails to account for the fact that the Santa Cruz Mountains only supports an effective populations size of about 16 mountain lions. With such a limited population, ANY impacts to this species ability to travel to and from linkages to the east could be detrimental to the species' survival.

In addition, the DEIR fails to provide evidence that the mitigation measures relied upon to support the conclusion that impacts to mountain lions would be less than significant. Specifically, DEIR relies on Mitigation Measure 3.4-11 to minimize impacts on mountain lions. This mitigation measure provides that the Applicant shall implement three aforementioned measures: Measures 3.4-4c, 3.4-5b and 3.4-15. Mitigation Measures 3.4-4c addresses impacts to California red-legged frog and Mitigation Measure 3.4-5b addresses impacts to California tiger salamander. The DEIR explains that these measures, which may include compensation through the preservation, management, and enhancement of habitat that is already occupied by the California red-legged frog and California tiger salamander. DEIR at pgs. S-22, S-24, 3.4-66 to 67, and 3.4-72 to 73. However, even if these measures were sufficient to address impacts to amphibian species, they would not necessarily be protective to mountain lions. As the measures specify, the compensatory habitat would be targeted toward the amphibian species. Id. Because the project would impact a critical wildlife corridor, merely providing some riparian habitat for amphibians, will do nothing to provide genetic connectivity for mountain lions that use the broader landscape. I did not see any discussion about how corridor habitat will be provided elsewhere as mitigation for the activities proposed in the EIR.

Mitigation Measure 3.4-15 addresses designing fencing to allow animals easier passage through the area. While this measure might reduce barriers for some wildlife species, it does nothing to address the fact that the project would construct a loud industrial operation that would drastically alter the topography and ecological function of the project site. Given the Project's location in an important mountain lion corridor, the presence of increased vehicle traffic, people, lights and substantial noise at this location, combined with proposed developments elsewhere in the corridor, are likely to significantly impede the ability of mountain lions to safely move between the Gabilan and Santa Cruz Mountain ranges. Future restoration of connectivity between the Santa Cruz Mountains and the Diablo range along the Pajaro creek corridor would also be blocked.

The San Benito/Santa Clara County border, where this project is based, is in the midst of proposing numerous other developments along the stretch of Highway 101 that intersects this important wildlife corridor, including the Searl road, Betabel and Strada Verde developments. Without considering the impact of this Project in concert with other proposed (or soon to be proposed) developments on this important wildlife corridor, there is a substantial risk that the ability of animals to traverse this area will be interrupted for a long time, causing or contributing to the extinction of mountain lions in the Santa Cruz Mountains and possibly other species as well over the long term.

In sum, development of the mine at Sargent ranch, without considering it together with other proposed developments, is likely to have significant adverse impacts on mountain lion populations in this important wildlife corridor.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Wilmers". The signature is fluid and cursive, with a prominent flourish at the end.

Chris Wilmers

## Attachments

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## Curriculum Vitae

September 14, 2022 (last update 8/17/2022)



## Christopher Wilmers

Professor of Environmental Studies

cwilmers@ucsc.edu

wildlife.ucsc.edu

santacruzpumas.org

### RESEARCH INTERESTS

Wildlife ecology, climate change biology, coupled human and natural systems, conservation biology, applied technology, ecological modeling and statistics.

### TEACHING INTERESTS

Conservation biology, animal ecology, ecological modeling and statistics, field methods.

### EMPLOYMENT HISTORY

2017-present	Professor - Environmental Studies, UC Santa Cruz
2011-present	Affiliated Professor - Ecology and Evolutionary Biology, UC Santa Cruz
2012-2017	Associate Professor - Environmental Studies, UC Santa Cruz
2007-2012	Assistant Professor - Environmental Studies, UC Santa Cruz
2005-2006	NSF Postdoctoral Fellow in Bioinformatics, UC Davis
2004-2005	Postdoctoral Fellow - Department of Biology, Penn State University
2001-2004	Environmental Protection Agency STAR Graduate Fellow, Dept of Environmental Science and Policy, UC Berkeley
2003	Graduate Student Instructor, Wildlife Ecology, UC Berkeley
2002	Graduate Student Instructor, Natural Resource Modeling, UC Berkeley
2000	Visiting Scholar, Santa Fe Institute
1996-2000	Research Assistant, Gulf of the Farallons National Marine Sanctuary, Point Reyes National Seashore, Muir Woods National Monument

### EDUCATION

2004	PhD - Environmental Science, Policy and Management - UC Berkeley
2000	Complex Systems Summer School - Santa Fe Institute
1995	BA - Physics with Thesis Honors - Wesleyan University
1992	National Outdoor Leadership School

### HONORS AND AWARDS

2014	<b>Award:</b> Conservationist of the Year – Santa Cruz Land Trust
2005	<b>Fellowship:</b> NSF Biological Informatics Postdoctoral Fellowship - \$120,000
2004	<b>Award:</b> UCB Outstanding Student Instructor Award
2001	<b>Fellowship:</b> EPA STAR Graduate Fellowship - \$100,000
2000	<b>Fellowship:</b> Santa Fe Institute Complex Systems Summer School Fellowship
1999	<b>Scholarship:</b> Irvine Memorial Scholarship - \$15,000
1998	<b>Fellowship:</b> UC Regent Fellowship - \$15,000

### Grants

2022-2024	: UC Santa Cruz Puma Project: Mitigating human impacts on pumas in the Santa Cruz Mountains – <i>Orange County Community Foundation</i> . \$150,000
2020-2022	UC Santa Cruz Puma Project: Mitigating human impacts on pumas in the Santa Cruz Mountains – <i>Orange County Community Foundation</i> . \$150,000
2020-2025	Principal Investigator, Human Mountain Lion Interaction Study – <i>The Mid Peninsula Regional Open Space District</i> . \$500,000
2019-2020	Principal Investigator, Santa Cruz Puma Project General Support – <i>The Barkley Fund</i> . \$50,000

- 2018-2019 Principal Investigator, Mitigating Human Impacts on Pumas in the Santa Cruz Mountains – *The Resources Legacy Fund*. \$50,000
- 2018-2019 Principal Investigator, Southern Santa Cruz Mountains Bobcat Connectivity Study – *The Land Trust of Santa Cruz County*. \$100,000
- 2017-2019 Principal Investigator, Coyote Valley Puma Connectivity – *Peninsula Open Space Trust*. \$298,000
- 2017-2019 Principal Investigator, Coyote valley bobcat and gray fox connectivity – *Peninsula Open Space Trust*. \$189,152
- 2016-2020 Principal Investigator, Mule deer population assessment in Siskiyou County, California – *CA Dept. of Fish and Wildlife*. \$1,979,675
- 2014-2018 Principal Investigator, Human impacts on mountain lion reproduction, dispersal and genetic isolation – *Gordon and Betty Moore Foundation*. \$349,975
- 2014-2016 Principal Investigator, UC Santa Cruz Puma Project – *CA Dept. of Fish and Wildlife LAG grant*. \$75,000
- 2013-2016 Principal Investigator, Energy Scavenging Collar for Animal Physiology and Ecology (ESCAPE) – *National Science Foundation*. \$749,986
- 2013-2104 Principal Investigator, Web-based citizen science program for tracking wildlife – UCSC seed funding. \$6,000
- 2012-2013 Principal Investigator, ROA: Expanding the field-testing of a new instrument package for wild mammals – *National Science Foundation*. \$19,375
- 2011-2012 Principal Investigator, Mountain lion collaring and dispersal tracking in the Central Coast, California – *The Nature Conservancy*. \$15,000
- 2011-2012 Principal Investigator, Carnivore Cam Social Game - *UCSC Committee on Research*. \$5,000
- 2010-2013 Principal Investigator, Habitat fragmentation impacts on puma energetics, behavior and ecology - *Gordon and Betty Moore Foundation (PI)*. \$450,000
- 2010-2011 Principal Investigator, Can predators reduce atmospheric CO2 through trophic cascades? *UCSC Committee on Research Award*. \$7,000
- 2010-2013 Principal Investigator, ANIMA (Accelerometer Network Integrator for Mobile Animals), a New Instrument Package for Integrating Behavior, Physiology and Ecology of Wild Mammals - *National Science Foundation*. \$820,383
- 2010-2011 Principal Investigator, Climate change impacts on plant phenology and animal movement in Yellowstone - *Yellowstone Association*. \$15,000
- 2009-2013 Principal Investigator, Santa Cruz Mountains Puma Project - *Midpeninsula Regional Open Space District*. \$25,000
- 2009-2010 Co-Principal Investigator, Collaborative remotely sensed science and technology – *University Affiliated Research Center's Aligned Research Program*. \$300,000
- 2008-2009 Principal Investigator, Advancing techniques for the conservation of large predators – *UCSC Junior Faculty Research Grant*. \$25,000
- 2007-2008 Principal Investigator, A pilot study on the ecological and physiological performance of a large ambush predator - *UCSC Committee on Research Award*. \$20,000
- 2007-2009 Principal Investigator, The role of species interactions on community response to climate change - *National Science Foundation*. \$50,000
- 2007-2010 Co-Principal Investigator, Trophic mismatch and its consequences for the dynamics of an Arctic herbivore - *National Science Foundation*. \$195,051

## SCHOLARLY AND CREATIVE WORK

### Contributions to Books

- 2020 Stahler, D. R., Wilmers, C. C., Tallian, A., Anton, C. B., Metz, M. C., Ruth, T. K., Smith, D. W., Gunther, K. A., & MacNulty, D. R. "Competition and coexistence among Yellowstone's meat eaters." Pages 223-241 in D. W. Smith, D. R. MacNulty, and D. R. Stahler, editors. *Yellowstone wolves. Science and discovery in the world's first national park*. University of Chicago Press, Chicago. PEER REVIEWED
- 2013 Wilmers, C. C., Ram, K., Watson, F. G. R., White, P. J., Smith, D. W., and Levi, T. "Climate and Vegetation Phenology," pages 147-163 in *Yellowstone's Wildlife in Transition*, P. J. White, R. A. Garrott, and G. E. Plumb, editors. Harvard University Press, Boston. PEER REVIEWED
- 2012 Kerby, J. T., Wilmers, C. C., and Post, E. "Climate Change, Phenology and the Nature of Consumer-resource Interactions: Advancing the Match/Mismatch Hypothesis," in *Trait-mediated Indirect Interactions: Ecological and Evolutionary Perspectives*, T. Ohgushi, O. J. Schmitz, and R. D. Holt, editors. Cambridge University Press, Chicago. PEER REVIEWED
- 2012 Wilmers, C. C., Darimont, C. T., and Hebblewhite, M. "Restoring Predators as a Hedge Against Climate Change," page 416 in *Wildlife Conservation in a Changing Climate*, J. F. Brodie, E. S. Post, and D. F. Doak, editors. University of Chicago Press, Chicago. PEER REVIEWED

### Journal Articles

- 2022 Cristescu, B., Elbroch, L. M., Forrester, T. D., Allen, M. L., Spitz, D. B., Wilmers, C. C., & Wittmer, H. U. "Standardizing protocols for determining the cause of mortality in wildlife studies." *Ecology and Evolution* 12:e9034. PEER REVIEWED
- 2022 Broekman, M. J. E., Hilbers, J. P., Huijbregts, M. A. J., Mueller, T., Ali, A. H., Andrén, H., Altmann, J., Aronsson, M., Attias, N., Bartlam-Brooks, H. L. A., van Beest, F. M., Belant, J. L., Beyer, D. E., Bidner, L., Blaum, N., Boone, R. B., Boyce, M. S., Brown, M. B., Cagnacci, F., Černe, R., Chamailé-Jammes, S., Dejid, N., Dekker, J., L. J. Desbiez, A., Díaz-Muñoz, S. L., Fennessy, J., Fichtel, C., Fischer, C., Fisher, J. T., Fischhoff, I., Ford, A. T., Fryxell, J. M., Gehr, B., Goheen, J. R., Hauptfleisch, M., Hewison, A. J. M., Hering, R., Heurich, M., Isbell, L. A., Janssen, R., Jeltsch, F., Kaczensky, P., Kappeler, P. M., Krofel, M., LaPoint, S., Latham, A. D. M., Linnell, J. D. C., Markham, A. C., Mattisson, J., Medici, E. P., de Miranda Mourão, G., Van Moorter, B., Morato, R. G., Morellet, N., Mysterud, A., Mwiu, S., Odden, J., Olson, K. A., Ornicāns, A., Pagon, N., Panzacchi, M., Persson, J., Petroelje, T., Rolandsen, C. M., Roshier, D., Rubenstein, D. I., Saïd, S., Salemgareyev, A. R., Sawyer, H., Schmidt, N. M., Selva, N., Sergiel, A., Stabach, J., Stacy-Dawes, J., Stewart, F. E. C., Stiegler, J., Strand, O., Sundaresan, S., Svoboda, N. J., Ullmann, W., Voigt, U., Wall, J., Wikelski, M., Wilmers, C. C., Zięba, F., Zwiłacz-Kozica, T., Schipper, A. M., & Tucker, M. A. "Evaluating expert-based habitat suitability information of terrestrial mammals with gps-tracking data." *Global Ecology and Biogeography* 31:1526-1541. PEER REVIEWED
- 2022 Nisi, A. C., Benson, J. F., & Wilmers, C. C. "Puma responses to unreliable human cues suggest an ecological trap in a fragmented landscape." *Oikos* e09051. PEER REVIEWED
- 2022 Reilly, C. M., Suraci, J. P., Smith, J. A., Wang, Y., & Wilmers, C. C. "Mesopredators retain their fear of humans across a development gradient." *Behavioral Ecology* 32:428–435. PEER REVIEWED
- 2022 Cristescu, B., Elbroch, L. M., Dellinger, J. A., Binder, W., Wilmers, C. C., & Wittmer, H. U. "Kill rates and associated ecological factors for an apex predator." *Mammalian Biology* 102:291–305. PEER REVIEWED
- 2021 Nisi, A. C., Suraci, J. P., Ranc, N., Frank, L. G., Oriol-Cotterill, A., Ekwanga, S., Williams, T. M., & Wilmers, C. C. "Temporal scale of habitat selection for large carnivores: Balancing energetics, risk and finding prey." *Journal of Animal Ecology* 91:182– 195. PEER REVIEWED
- 2021 Sebastián-González, E., Morales-Reyes, Z., Botella, F., Naves-Alegre, L., Pérez-García, J. M., Mateo-Tomás, P., Olea, P. P., Moleón, M., Barbosa, J. M., Hiraldo, F., Arrondo, E.,

- Donázar, J. A., Cortés-Avizanda, A., Selva, N., Lambertucci, S. A., Bhattacharjee, A., Brewer, A. L., Abernethy, E. F., Turner, K. L., Beasley, J. C., DeVault, T. L., Gerke, H. C., Rhodes Jr, O. E., Ordiz, A., Wikenros, C., Zimmermann, B., Wabakken, P., Wilmers, C. C., Smith, J. A., Kendall, C. J., Ogada, D., Frehner, E., Allen, M. L., Wittmer, H. U., Butler, J. R. A., du Toit, J. T., Margalida, A., Oliva-Vidal, P., Wilson, D., Jerina, K., Krofel, M., Kostecka, R., Inger, R., Per, E., Ayhan, Y., Sancı, M., Yilmazer, Ü., Inagaki, A., Koike, S., Samson, A., Perrig, P. L., Spencer, E. E., Newsome, T. M., Heurich, M., Anadón, J. D., Buechley, E. R., Gutiérrez-Cánovas, C., Elbroch, L. M., & Sánchez-Zapata, J. A. "Functional traits driving species role in the structure of terrestrial vertebrate scavenger networks." *Ecology* 102:e03519. PEER REVIEWED
- 2021 Snider, M. H., Athreya, V. R., Balme, G. A., Bidner, L. R., Farhadinia, M. S., Fattebert, J., Gompper, M. E., Gubbi, S., Hunter, L. T. B., Isbell, L. A., Macdonald, D. W., Odden, M., Owen, C. R., Slotow, R., Spalton, J. A., Stein, A. B., Steyn, V., Vanak, A. T., Weise, F. J., Wilmers, C. C., & Kays, R. "Home range variation in leopards living across the human density gradient." *Journal of Mammalogy* 102:1138-1148. PEER REVIEWED
- 2021 Kraberger, S., Serieys, L. E., Richet, C., Fountain-Jones, N. M., Baele, G., Bishop, J. M., Nehring, M., Ivan, J. S., Newkirk, E. S., Squires, J. R., Lund, M. C., Riley, S. P., Wilmers, C. C., van Helden, P. D., Van Doorslaer, K., Culver, M., VandeWoude, S., Martin, D. P., & Varsani, A. (2021). "Complex evolutionary history of felid anelloviruses." *Virology*, 562, 176–189. PEER REVIEWED
- 2021 Wilmers, C. C., Nisi, A. C., & Ranc, N. "Covid-19 suppression of human mobility releases mountain lions from a landscape of fear." *Current Biology* 31:1-4. PEER REVIEWED
- 2021 Suraci, J. P., Gaynor, K. M., Allen, M. L., Alexander, P., Brashares, J. S., Cendejas-Zarelli, S., Crooks, K., Elbroch, L. M., Forrester, T., Green, A. M., Haight, J., Harris, N. C., Hebblewhite, M., Isbell, F., Johnston, B., Kays, R., Lendrum, P. E., Lewis, J. S., McInturff, A., McShea, W., Murphy, T. W., Palmer, M. S., Parsons, A., Parsons, M. A., Pendergast, M. E., Pekins, C., Prugh, L. R., Sager-Fradkin, K. A., Schuttler, S., Şekercioğlu, Ç. H., Shepherd, B., Whipple, L., Whittington, J., Wittemyer, G., & Wilmers, C. C. "Disturbance type and species life history predict mammal responses to humans." *Global Change Biology* 27:3718-3731. PEER REVIEWED
- 2021 Nickel, B. A., Suraci, J. P., Nisi, A. C., & Wilmers, C. C. "Energetics and fear of humans constrain the spatial ecology of pumas." *Proceedings of the National Academy of Sciences* 118 (5) e2004592118. PEER REVIEWED
- 2021 Yovovich, V., Thomsen, M., & Wilmers, C. C. "Pumas' fear of humans precipitates changes in plant architecture." *Ecosphere* 12:e03309. PEER REVIEWED
- 2021 Serieys, L. E. K., Rogan, M. S., Matsushima, S. S., & Wilmers, C. C. "Road-crossings, vegetative cover, land use and poisons interact to influence corridor effectiveness." *Biological Conservation* 253:108930. PEER REVIEWED
- 2020 Levi, T., Hilderbrand, G. V., Hocking, M. D., Quinn, T. P., White, K. S., Adams, M. S., Armstrong, J. B., Crupi, A. P., Darimont, C. T., Deacy, W., Gilbert, S. L., Ripple, W. J., Shakeri, Y. N., Wheat, R. E., & Wilmers, C. C. "Community ecology and conservation of bear-salmon ecosystems." *Frontiers in Ecology and Evolution* 8. PEER REVIEWED
- 2020 Dunford, C. E., Marks, N. J., Wilmers, C. C., Bryce, C. M., Nickel, B., Wolfe, L. L., Scantlebury, D. M., & Williams, T. M. "Surviving in steep terrain: A lab-to-field assessment of locomotor costs for wild mountain lions (puma concolor)." *Movement Ecology* 8:34. PEER REVIEWED
- 2020 Anton, C. B., Smith, D. W., Suraci, J. P., Stahler, D. R., Duane, T. P., & Wilmers, C. C. "Gray wolf habitat use in response to visitor activity along roadways in Yellowstone National Park." *Ecosphere* 11 (6):e03164. PEER REVIEWED
- 2020 Yovovich, V., Allen, M. L., Macaulay, L. T., & Wilmers, C. C. "Using spatial characteristics of apex carnivore communication and reproductive behaviors to predict responses to future human development." *Biodiversity and Conservation* 29:2589–2603. PEER REVIEWED
- 2020 Suraci, J. P., Nickel, B. A., & Wilmers, C. C. "Fine-scale movement decisions by a large carnivore inform conservation planning in human-dominated landscapes." *Landscape Ecology* 35:1635–1649. PEER REVIEWED
- 2020 Stears, K., Schmitt, M. H., Wilmers, C. C., & Shrader, A. M. "Mixed-species herding levels the landscape of fear." *Proceedings of the Royal Society B: Biological Sciences* 287:20192555. PEER REVIEWED



- 2020 Sebastián-González, E., Morales-Reyes, Z., Botella, F., Naves-Alegre, L., Pérez-García, J. M., Mateo-Tomás, P., Olea, P. P., Moleón, M., Barbosa, J. M., Hiraldo, F., Arrondo, E., Donázar, J. A., Cortés-Avizanda, A., Selva, N., Lambertucci, S. A., Bhattacharjee, A., Brewer, A. L., Abernethy, E. F., Turner, K. L., Beasley, J. C., DeVault, T. L., Gerke, H. C., Rhodes Jr, O. E., Ordiz, A., Wikenros, C., Zimmermann, B., Wabakken, P., Wilmers, C. C., Smith, J. A., Kendall, C. J., Ogada, D., Frehner, E., Allen, M. L., Wittmer, H. U., Butler, J. R. A., du Toit, J. T., Margalida, A., Oliva-Vidal, P., Wilson, D., Jerina, K., Krofel, M., Kostecke, R., Inger, R., Per, E., Ayhan, Y., Ulusoy, H., Vural, D., Inagaki, A., Koike, S., Samson, A., Perrig, P. L., Spencer, E., Newsome, T. M., Heurich, M., Anadón, J. D., Buechley, E. R., & Sánchez-Zapata, J. A. "Network structure of vertebrate scavenger assemblages at the global scale: Drivers and ecosystem functioning implications." *Ecography* 43:1143-1155. PEER REVIEWED
- 2020 Wilmers, C. C., Metz, M. C., Stahler, D. R., Kohl, M. T., Geremia, C., & Smith, D. W. "How climate impacts the composition of wolf-killed elk in northern Yellowstone National Park." *Journal of Animal Ecology* 89:1511– 1519. PEER REVIEWED
- 2020 Nickel, B. A., Suraci, J. P., Allen, M. L., & Wilmers, C. C. "Human presence and human footprint have non-equivalent effects on wildlife spatiotemporal habitat use." *Biological Conservation* 241:108383. PEER REVIEWED
- 2020 Dellinger, J. A., Cristescu, B., Ewanyk, J., Gammons, D. J., Garcelon, D., Johnston, P., Martins, Q., Thompson, C., Vickers, T. W., Wilmers, C. C., Wittmer, H. U., & Torres, S. G. "Using mountain lion habitat selection in management." *The Journal of Wildlife Management* 84:359-371. PEER REVIEWED
- 2019 Weiss-Penzias, P. S., Bank, M. S., Clifford, D. L., Torregrosa, A., Zheng, B., Lin, W., & Wilmers, C. C. "Marine fog inputs appear to increase methylmercury bioaccumulation in a coastal terrestrial food web." *Scientific Reports* 9:17611. PEER REVIEWED
- 2019 Saremi, N. F., Supple, M. A., Byrne, A., Cahill, J. A., Coutinho, L. L., Dalén, L., Figueiró, H. V., Johnson, W. E., Milne, H. J., O'Brien, S. J., O'Connell, B., Onorato, D. P., Riley, S. P. D., Sikich, J. A., Stahler, D. R., Villela, P. M. S., Vollmers, C., Wayne, R. K., Eizirik, E., Corbett-Detig, R. B., Green, R. E., Wilmers, C. C., & Shapiro, B. "Puma genomes from North and South America provide insights into the genomic consequences of inbreeding." *Nature Communications* 10:4769. PEER REVIEWED
- 2019 Smith, J.A., Duane, T.P. & Wilmers, C.C. "Moving through the matrix: Promoting permeability for large carnivores in a human-dominated landscape," *Landscape and Urban Planning* 183:50-58. PEER REVIEWED
- 2019 Suraci, J. P., Frank, L. G., Oriol-Cotterill, A., Ekwanga, S., Williams, T. M., & Wilmers, C. C. "Behavior-specific habitat selection by african lions may promote their persistence in a human-dominated landscape," *Ecology* 100:e02644 PEER REVIEWED
- 2019 Sebastián-González, E., Barbosa, J. M., Pérez-García, J. M., Morales-Reyes, Z., Botella, F., Olea, P. P., Mateo-Tomás, P., Moleón, M., Hiraldo, F., Arrondo, E., Donázar, J. A., Cortés-Avizanda, A., Selva, N., Lambertucci, S. A., Bhattacharjee, A., Brewer, A., Anadón, J. D., Abernethy, E., Rhodes Jr, O. E., Turner, K., Beasley, J. C., DeVault, T. L., Ordiz, A., Wikenros, C., Zimmermann, B., Wabakken, P., Wilmers, C. C., Smith, J. A., Kendall, C. J., Ogada, D., Buechley, E. R., Frehner, E., Allen, M. L., Wittmer, H. U., Butler, J. R. A., du Toit, J. T., Read, J., Wilson, D., Jerina, K., Krofel, M., Kostecke, R., Inger, R., Samson, A., Naves-Alegre, L., & Sánchez-Zapata, J. A. "Scavenging in the anthropocene: Human impact drives vertebrate scavenger species richness at a global scale," *Global Change Biology* 25:3005-3017. PEER REVIEWED
- 2019 Suraci, J.P., Clinchy, M., Zanette, L.Y. & Wilmers, C.C. "Fear of humans as apex predators has landscape-scale impacts from mountain lions to mice," *Ecology Letters* PEER REVIEWED
- 2019 Suraci, J. P., Smith, J. A., Clinchy, M., Zanette, L. Y., and Wilmers, C. C. "Humans, but not their dogs, displace pumas from their kills: An experimental approach," *Scientific Reports* 9:12214. PEER REVIEWED
- 2018 Van Cleave, E.K., Bidner, L.R., Ford, A.T., Gaillard, D., Wilmers, C.C. & Isbell, L.A. "Diel patterns of movement activity and habitat use by leopards (*Panthera pardus pardus*) living in a human-dominated landscape in central Kenya," *Biological Conservation* 226:224-237. PEER REVIEWED

- 2018 Smith, J.A., Thomas, A.C., Levi, T., Wang, Y. and Wilmers, C.C. "Human activity reduces niche partitioning among three widespread mesocarnivores," *Oikos* 00:1-12. PEER REVIEWED
- 2018 Tucker et al. "Moving in the Anthropocene: Global reductions in terrestrial mammalian movements," *Science* 359: 466-469. PEER REVIEWED
- 2018 Schmitz, O.J., Wilmers, C.C., Leroux, S.J., Doughty, C.E., Atwood, T.B., Galetti, M., Davies, A.B. & Goetz, S.J. "Animals and the zoogeochemistry of the carbon cycle" *Science* 362:1-10. PEER REVIEWED
- 2018 Gustafson, K.D., Gagne, R.B., Vickers, T.W., Riley, S.P.D., Wilmers, C.C., Bleich, V.C., Pierce, B.M., Kenyon, M., Drazenovich, T.L., Sikich, J.A., Boyce, W.M. & Ernest, H.B. "Genetic source–sink dynamics among naturally structured and anthropogenically fragmented puma populations," *Conservation Genetics* PEER REVIEWED
- 2018 O'Brien, T.G., Kinnaird, M.F., Ekwanga, S., Wilmers, C., Williams, T., Oriol-Cotterill, A., Rubenstein, D. & Frank, L.G. "Resolving a conservation dilemma: Vulnerable lions eating endangered zebras" *Plos One*:1-15. PEER REVIEWED
- 2017 Allen, M. L., Wang, Y., and Wilmers, C. C. "Exploring the adaptive significance of five types of puma (*puma concolor*) vocalizations," *Canadian Field-Naturalist* 130:289-294. PEER REVIEWED
- 2017 Suraci, J. P., Clinchy, M., Mugerwa, B., Delsey, M., Macdonald, D. W., Smith, J. A., Wilmers, C. C., and Zanette, L. Y. "A new automated behavioral response system to integrate playback experiments into camera trap studies," *Methods in Ecology and Evolution* 8:957-964. PEER REVIEWED
- 2017 Wheat, R. E., Lewis, S. B., Wang, Y., Levi, T., and Wilmers, C. C. "To migrate, stay put, or wander? Varied movement strategies in bald eagles (*Haliaeetus leucocephalus*)," *Movement Ecology* 5:1-10. PEER REVIEWED
- 2017 Wilmers, C. C., Isbell, L. A., Suraci, J. P., and Williams, T. M. "Energetics-informed behavioral states reveal the drive to kill in african leopards," *Ecosphere* 8:1-12. PEER REVIEWED
- 2017 Smith, J. A., Suraci, J. P., Clinchy, M., Crawford, A., Roberts, D., Zanette, L. Y., and Wilmers, C. C. "Fear of the human 'super predator' reduces feeding time in large carnivores," *Proceedings of the Royal Society B* 284:1-5. PEER REVIEWED
- 2017 Bryce, C.M., Wilmers, C.C. and Williams, T.M. "Energetics and evasion dynamics of large predators and prey: pumas vs. hounds," *PeerJ*:1-23. PEER REVIEWED
- 2017 Jessen, T., Wang, Y. and Wilmers, C.C. "Habitat fragmentation provides a competitive advantage to an invasive tree squirrel, *Sciurus carolinensis*," *Biological Invasions*:1-12. PEER REVIEWED
- 2017 Wang, Y., Smith, J.A. and Wilmers, C.C. "Residential development alters behavior, movement, and energetics in an apex predator, the puma," *Plos One* 12:1-17. PEER REVIEWED
- 2016 Allen, M. L., Yovovich, V., and Wilmers, C. C. "Evaluating the Responses of a Territorial Solitary Carnivore to Potential Mates and Competitors," *Scientific Reports* 6:27257. PEER REVIEWED
- 2016 Allen, M.L., Gunther, M.S. and Wilmers, C.C. "The scent of your enemy is my friend? The acquisition of large carnivore scent by a smaller carnivore," *Journal of Ethology*. PEER REVIEWED
- 2016 Wheat, R.E., Allen, J.M., Miller, S.D.L., Wilmers, C.C. and Levi, T. "Environmental DNA from Residual Saliva for Efficient Noninvasive Genetic Monitoring of Brown Bears (*Ursus arctos*)," *Plos One* 11:e0165259. PEER REVIEWED
- 2016 Wilmers, C.C. and Schmitz, O.J. "Effects of gray wolf-induced trophic cascades on ecosystem carbon cycling," *Ecosphere* 7:1-10. PEER REVIEWED
- 2016 Allen, M. L., Wilmers, C. C., Elbroch, L. M., Golla, J. M., and Wittmer, H. U. "The Importance of Motivation, Weapons and Foul Odors in Driving Encounter Competition in Carnivores," *Ecology* 97: 1905-1912. PEER REVIEWED
- 2016 Wheat, R. E. and Wilmers, C. C. "Habituation Reverses Fear-based Ecological Effects in Brown Bears (*Ursus arctos*)," *Ecosphere* 7:1-11. PEER REVIEWED

- 2016 Smith, J. A., Wang, Y., and Wilmers, C. C. "Spatial Characteristics of Residential Development Shift Large Carnivore Prey Habits," *Journal of Wildlife Management* DOI: 10.1002/jwmg.21098. PEER REVIEWED
- 2016 Gray, M., Wilmers, C. C., Reed, S. E., and Merenlender, A. M. "Landscape Feature-based Permeability Models Relate to Puma Occurrence," *Landscape and Urban Planning* 147:50-58. PEER REVIEWED
- 2015 Levi, T., Kilpatrick, A. M., Barfield, M., Hold, R. D., Mangel, M., and Wilmers, C. C. "Threshold Levels of Generalist Predation Determine Consumer Response to Resource Pulses," *Oikos*. PEER REVIEWED
- 2015 Allen, M. L., Elbroch, L. M., Wilmers, C. C., and Wittmer, H. U. "The Comparative Effects of Large Carnivores on the Acquisition of Carrion by Scavengers," *The American Naturalist*. PEER REVIEWED
- 2015 Wang, Y., Nickel, B., Rutishauser, M., Bryce, C., Williams, T. M., Elkaim, G., and Wilmers, C. C. "Movement, Resting, and Attack Behaviors of Wild Pumas are Revealed by Tri-axial Accelerometer Measurements," *Movement Ecology* 3. PEER REVIEWED
- 2015 Allen, M. L., Wallace, C. F., and Wilmers, C. C. "Patterns in Bobcat (*Lynx rufus*) Scent Marking and Communication Behaviors," *Journal of Ethology*. PEER REVIEWED
- 2015 Smith, J. A., Wang, Y., and Wilmers, C. C. "Top Carnivores Increase Their Kill Rates on Prey as a Response to Human-induced Fear," *Proceedings of the Royal Society B* 282. PEER REVIEWED
- 2015 Wang, Y., Allen, M. L., and Wilmers, C. C. "Mesopredator Spatial and Temporal Responses to Large Predators and Human Development in the Santa Cruz Mountains of California," *Biological Conservation* 190:23-33. PEER REVIEWED
- 2015 Wilmers, C. C., Nickel, B., Bryce, C. M., Smith, J. A., Wheat, R. E., and Yovovich, V. "The Golden Age of Biologging: How Animal-borne Sensors are Advancing the Frontiers of Ecology," *Ecology* 96:1741-1753. PEER REVIEWED
- 2015 Levi, T., Wheat, R. E., Allen, J. M., and Wilmers, C. C. "Differential Use of Salmon by Vertebrate Consumers: Implications for Conservation," *PeerJ* 3:e1157. PEER REVIEWED
- 2015 Allen, M. L., Wittmer, H. U., Houghtaling, P., Smith, J. A., Elbroch, L. M., and Wilmers, C. C. "The Role of Scent Marking in Mate Selection by Female Pumas (*Puma concolor*)," *Plos One*: 1-12. PEER REVIEWED
- 2014 Schmitz, O. J., Raymond, P. A., Estes, J. A., Kurz, W. A., Holtgrieve, G. W., Ritchie, M. E., Schindler, D. E., Spivak, A. C., Wilson, R. W., Bradford, M. A., Christensen, V., Deegan, L., Smetacek, V., Vanni, M. J., and Wilmers, C. C. "Animating the Carbon Cycle," *Ecosystems* 17:344-359. PEER REVIEWED
- 2014 Ripple, W. J., Estes, J. A., Beschta, R. L., Wilmers, C. C., Ritchie, E. G., Hebblewhite, M., Berger, J., Elmhagen, B., Letnic, M., Nelson, M. P., Schmitz, O. J., Smith, D. W., Wallach, A. D., and Wirsing, A. J. "Status and Ecological Effects of the World's Largest Carnivores," *Science* 343:151. PEER REVIEWED
- 2014 Allen, M. L., Wittmer, H. U., and Wilmers, C. C. "Puma Communication Behaviours: Understanding Functional Use and Variation Among Sex and Age Classes," *Behaviour* 151: 819-840. PEER REVIEWED
- 2014 Allen, M. L., Elbroch, M. L., Wilmers, C. C., and Wittmer, H. U. "Trophic Facilitation or Limitation? Comparative Effects of Pumas and Black Bears on the Scavenger Community," *Plos One* 9. PEER REVIEWED
- 2014 Schmitt, M. H., Stears, K., Wilmers, C. C., and Shrader, A. M. "Determining the Relative Importance of Dilution and Detection for Zebra Foraging in Mixed-species Herds," *Animal Behaviour* 96: 151-158. PEER REVIEWED
- 2014 Tallis, H. et al. "A Call for Inclusive Conservation," *Nature* 515: 27-28. PEER REVIEWED
- 2014 Williams, T. M., Wolfe, L., Davis, T., Kendall, T., Richter, B., Wang, Y., Bryce, C., Elkaim, G. H., and Wilmers, C. C. "Instantaneous Energetics of Puma Kills Reveal Advantage of Felid Sneak Attacks," *Science* 81: 81-85. PEER REVIEWED
- 2013 Wilmers, C. C., Wang, Y., Nickel, B., Houghtaling, P., Shakeri, Y., Allen, M. L., Kermish-Wells, J., Yovovich, V., and Williams, T. "Scale Dependent Behavioral Responses to Human Development by a Large Predator, The Puma," *Plos One* 8:e60590. PEER REVIEWED

- 2013 Reid, R. E. B., Greenwald, E. N., Wang, Y., and Wilmers, C. C. "Dietary Niche Partitioning by Sympatric *Peromyscus Boylii* and *P. Californicus* in a Mixed Evergreen Forest," *Journal of Mammalogy* 94:1248-1257. PEER REVIEWED
- 2013 Ripple, W. J., Wirsing, A. J., Wilmers, C. C., and Letnic, M. "Widespread Mesopredator Effects After Wolf Extirpation," *Biological Conservation* 160:70-79. PEER REVIEWED
- 2013 Wilmers, C. C. and Levi, T. "Do Irrigation and Predator Control Reduce the Productivity of Migratory Ungulate Herds?" *Ecology* 94:1264-1270. PEER REVIEWED
- 2012 Levi, T., Darimont, C. T., McDuffee, M., Mangel, M., Paquet, P. C., and Wilmers, C. C. "Using Grizzly Bears to Assess Harvest-Ecosystem Tradeoffs in Salmon Fisheries," *PLoS Biology* 10. PEER REVIEWED
- 2012 Levi, T. and Wilmers, C. C. "Wolves-Coyotes-Foxes: A Cascade Among Carnivores," *Ecology* 93: 921-929. **Authors contributed equally.** PEER REVIEWED
- 2012 Levi, T., Kilpatrick, A. M., Mangel, M., and Wilmers, C. C. "Deer, Predators, and the Emergence of Lyme Disease," *Proceedings of the National Academy of Sciences* 109: 10942-10947. PEER REVIEWED
- 2012 Wilmers, C. C., Estes, J. A., Laidre, K. L., Edwards, M., and Konar, B. "Do Trophic Cascades Affect the Storage and Flux of Atmospheric Carbon? An Analysis for Sea Otters and Kelp Forests," *Frontiers in Ecology and the Environment* 10: 409-415. PEER REVIEWED
- 2011 Levi, T., Shepard, G., Ohi-Schacherer, J., Wilmers, C. C., Peres, C., and Yu, D. "Spatial Tools for Modeling the Sustainability of Subsistence Hunting in Tropical Forests," *Ecological Applications* 21: 1802-1818. PEER REVIEWED
- 2011 Rutishauser, M., Petkov, V. V., Boice, J., Obraczka, K., Mantey, P., Williams, T. M., and Wilmers, C. C. "Carnivore: A Disruption-Tolerant System for Studying Wildlife," *EURASIP Journal on Wireless Communications and Networking*. PEER REVIEWED
- 2010 Darimont, C. T., Bryan, H. M., Carlson, S. M., Hocking, M. D., MacDuffee, M., Paquet, P. C., Price, M. H. H., Reimchen, T. E., Reynolds, J. D., and Wilmers, C. C. "Salmon for Terrestrial Protected Areas," *Conservation Letters* 3: 379-389. PEER REVIEWED
- 2009 Zavaleta, E., Pasari, J., Moore, J., Hernandez, D., Suttle, K. B., and Wilmers, C. C. "Ecosystem Responses to Community Disassembly," *Year in Ecology and Conservation Biology* 2009 1162: 311-333. PEER REVIEWED
- 2009 Kinnison, M. T., Palkovacs, E. P., Darimont, C. T., Carlson, S. M., Paquet, P. C., and Wilmers, C. C. "Some Cautionary Notes on Fisheries Evolutionary Impact Assessments," *Proceedings of the National Academy of Sciences* 106: E115. PEER REVIEWED
- 2009 Post, E., Brodie, J., Hebblewhite, M., Anders, A. D., Maier, J. A. K., and Wilmers, C. C. "Global Population Dynamics and Hot Spots of Response to Climate Change," *Bioscience* 59: 489-497. PEER REVIEWED
- 2009 Darimont, C. T., Carlson, S. M., Kinnison, M. T., Paquet, P. C., Reimchen, T. E., and Wilmers, C. C. "Reply to Koons: Harvest Related Trait Change in an Increasingly Variable World," *Proceedings of the National Academy of Sciences* 106: E33 PEER REVIEWED
- 2009 Darimont, C. T., Carlson, S. M., Kinnison, M. T., Paquet, P. C., Reimchen, T. E., and Wilmers, C. C. "Human Predators Outpace Other Agents of Trait Change in the Wild," *Proceedings of the National Academy of Sciences of the United States of America* 106: 952-954 PEER REVIEWED
- 2008 Post, E. S., Pedersen, C., Wilmers, C. C., and Forchhammer, M. C. "Phenological Sequences Reveal Aggregate Life History Response to Climatic Warming," *Ecology* 89: 363-370. PEER REVIEWED
- 2008 Post, E. S., Pedersen, C., Wilmers, C. C., and Forchhammer, M. C. "Phenological Sequences Reveal Aggregate Life History Response to Climatic Warming," *Ecology* 89: 363-370. PEER REVIEWED
- 2007 Getz, W. M., Formann-Roe, S., Cross, P. C., Lyons, A. J., Ryan, S. J., and Wilmers, C. C. "LoCoH: Nonparameteric Kernel Methods for Constructing Home Ranges and Utilization Distributions," *Plos One*: e207. 1-11. PEER REVIEWED
- 2007 Wilmers, C. C. "Understanding Ecosystem Robustness," *Trends in Ecology & Evolution* 22: 504-506. PEER REVIEWED
- 2007 Wilmers, C. C., Post, E., and Hastings, A. "The Anatomy of Predator-Prey Dynamics in a Changing Climate," *Journal of Animal Ecology* 76: 1037-1044. PEER REVIEWED

- 2007 Wilmers, C. C., Post, E., and Hastings, A. "A Perfect Storm: The Combined Effects on Population Fluctuations of Auto-Correlated Environmental Noise, Age Structure, and Density Dependence," *American Naturalist* 169: 673-683 PEER REVIEWED
- 2007 Wilmers, C. C., Post, E., Peterson, R. O., and Vucetich, J. A. "Predator Disease Outbreak Modulates Top-Down, Bottom-Up and Climatic Effects on Herbivore Population Dynamics," *Ecology Letters* 9: 383-389. PEER REVIEWED
- 2006 Wilmers, C. C. and Post, E. "Predicting the Influence of Wolf-provided Carrion on Scavenger Community Dynamics Under Climate Change Scenarios," *Global Change Biology* 12: 403-409. PEER REVIEWED
- 2005 Wilmers, C. C. and Getz, W. M. "Gray Wolves as Climate Change Buffers in Yellowstone," *PLoS Biology* 3: 571-576. PEER REVIEWED
- 2004 Wilmers, C. C. and Getz, W. M. "Simulating the Effects of Wolf-Elk Population Dynamics on Resource Flow to Scavengers," *Ecological Modelling* 177: 193-208. PEER REVIEWED
- 2004 Getz, W. M. and Wilmers, C. C. "A Local Nearest-Neighbor Convex-Hull Construction of Home Ranges and Utilization Distributions," *Ecography* 27: 489-505 PEER REVIEWED
- 2003 Wilmers, C. C., Stahler, D. R., Crabtree, R. L., Smith, D. W., and Getz, W. M. "Resource Dispersion and Consumer Dominance: Scavenging at Wolf- and Hunter-killed Carcasses in Greater Yellowstone," *Ecology Letters* 6: 996-1003. PEER REVIEWED
- 2003 Wilmers, C. C., Crabtree, R. L., Smith, D. W., Murphy, K. M., and Getz, W. M. "Trophic Facilitation by Introduced Top Predators: Gray Wolf Subsidies to Scavengers in Yellowstone National Park," *Journal of Animal Ecology* 72: 909-916. PEER REVIEWED
- 2002 Wilmers, C. C., Sinha, S., and Brede, M. "Examining the Effects of Species Richness on Community Stability: An Assembly Model Approach," *Oikos* 99: 364-368 PEER REVIEWED
- 2002 Wilmers, C. C. and Stahler, D. R. "Constraints on Active-Consumption Rates in Gray Wolves, Coyotes and Grizzly Bears," *Canadian Journal of Zoology* 80: 1256-1261 PEER REVIEWED

### Other Publications

- 2021 **Report:** Wittmer, H. U., Cristescu, B., Spitz, D. B., Nisi, A. C., & Wilmers, C. C. "Final report Siskiyou deer-mountain lion study (2015-2020)." *California Department of Fish and Wildlife*. 71pp.
- 2019 **Report:** Serieys, L. E. K., & Wilmers, C. C. "Coyote valley bobcat habitat preference and connectivity report," *Peninsula Open Space Trust, Santa Clara Valley Open Space Authority*.
- 2019 **Report:** Serieys, L. E. K., Matsushima, S., & Wilmers, C. C. "Aromas hills bobcat habitat preference and connectivity report." *Land Trust of Santa Cruz County*.
- 2002 **Popular Press:** Diary (on Yellowstone wolves). *London Review of Books* 24: 33.

### PROFESSIONAL ACTIVITIES

#### Public Lecture or Forum Participation

- 2022 Large carnivore behavior and ecology in a human dominated world, *Slugs and Steins*, INVITED
- 2021 Pumas in the Santa Cruz Mountains, *Henry Cowell State Park*, INVITED
- 2021 The Santa Cruz Puma Project, *Rotary Club* INVITED
- 2021 Under the Redwoods: Pumas in the Santa Cruz Mountains, *Sempervirens*, INVITED
- 2021 Science Pub From Home: Humans and Mountain Lions in California, *Santa Barbara Natural History Museum*, INVITED
- 2020 The Santa Cruz Puma Project, *Cal Academy*, INVITED
- 2020 The Santa Cruz Puma Project, *Stevens Creek County Park*, INVITED
- 2020 The Santa Cruz Puma Project, *Mid Peninsula Regional Open Space District*, INVITED
- 2020 How humans shape the behavior and survival of mountain lions in the Santa Cruz mountains of California, *Cal Poly Swanton*, INVITED
- 2020 The importance of habitat and connectivity for mountain lions in CA. *CDFW Listing Presentation*, INVITED

- 2020 Insights on Wildlife Connectivity and Management in the Santa Cruz Mountains, *Mid Peninsula Regional Open Space District*, INVITED
- 2020 Mountain lions of Peninsula and South Bay, *Peninsula Open Space Trust*, INVITED
- 2020 The Santa Cruz Puma Project, *Santa Lucia Preserve*, INVITED
- 2019 Santa Cruz Puma Project Update, *CA Mountain Lion Annual Meeting* INVITED
- 2019 How the fear of humans shapes mountain lion behavior and their associated food web in the Santa Cruz mountains of California, *Sempirvirens Meeting* INVITED
- 2019 The Mountain Lions of the Santa Cruz Mountains: Results from a 10-year study in a mountain biking mecca, *Santa Clara County Wildlife Corridor Technical Working Group* INVITED
- 2019 The Santa Cruz Puma Project, *UCSC Office of Sponsored Projects Retreat* INVITED
- 2019 How fear and energetics structure the behavior and ecology of large terrestrial predators, *Iowa State University* INVITED
- 2018 The Santa Cruz Puma Project, *Westlake Elementary School* INVITED
- 2018 The Santa Cruz Puma Project, *UCSC Registrars retreat* INVITED
- 2018 Using theory and data to address the conservation and management of wildlife in the Santa Cruz Mountains, *Spotlight Stewardship Program* INVITED
- 2018 The Santa Cruz Puma Project, *Quail Hollow County Park* INVITED
- 2018 Building Connections for Wildlife in the Santa Cruz Mountains and Beyond, *Land Trust of Santa Cruz County* INVITED
- 2018 Building Connections for Wildlife in the Santa Cruz Mountains and Beyond, *San Jose Rotary Club* INVITED
- 2017 The Santa Cruz Puma Project, *Rural Bonny Doon Association* INVITED
- 2017 The Santa Cruz Puma Project, *Westlake Elementary School* INVITED
- 2017 The Santa Cruz Puma Project, *Rotary Club Conference* INVITED
- 2017 The Santa Cruz Puma Project, *Santa Cruz County Animal Shelter* INVITED
- 2017 The Santa Cruz Puma Project, *Sunrise Rotary* INVITED
- 2017 The Santa Cruz Puma Project, *Skype a Scientist* INVITED
- 2016 "Lions, Leopards and Pumas oh my! Insights into the Ecology and Conservation of Large Carnivores from Santa Cruz to Kenya," Rio Theatre for the Santa Cruz Museum of Natural History.
- 2016 "Who Knew There Was a Puma in My Backyard!" Santa Cruz Land Trust – Campbell.
- 2016 "Living in Mountain Lion County," Loma Prieta Community.
- 2016 "Who Knew There Was a Puma in My Backyard!" Laser Talk - Santa Cruz Museum of Art and History.
- 2016 The Santa Cruz Puma Project, *Elkhorn Slough National Estuarine Research Reserve* INVITED
- 2015 "Living in Mountain Lion County," UC Alumni Woodside.
- 2015 "Living in Mountain Lion County," Portola Valley Conservation Center.
- 2015 "The Santa Cruz Puma Project," ABOG Conference for UCSC Staff.
- 2015 "Human Impacts on Mountain Lion Energetics, Behavior, Ecology and Conservation," London Zoological Society.
- 2014 "The Santa Cruz Puma Project," Island Conservation.
- 2014 "The Santa Cruz Puma Project," Santa Cruz Land Trust.
- 2014 "The Santa Cruz Puma Project," CA State Parks, Sea Cliff.
- 2014 "Mountain Lions and People in the Santa Cruz Mountains," Sierra Club Santa Cruz.
- 2013 "The Santa Cruz Puma Project," Jasper Ridge.
- 2013 "Mountain Lions and People in the Santa Cruz Mountains," Sierra Club Santa Cruz.
- 2013 "Yellowstone Past, Present and Future," Yellowstone Wolf Project Meeting.
- 2013 "The Santa Cruz Puma Project," Gordon and Betty Moore Foundation.
- 2013 "Mountain Lions and People in the Santa Cruz Mountains," Bonny Doon Elementary School.

- 2013 "Mountain Lions and People in the Santa Cruz Mountains," Santa Cruz Horseman's Association.
- 2013 "Mountain Lions and Us," Peninsula Open Space Trust.
- 2012 "Mountain Lions and Us," Santa Cruz High School.
- 2012 "Sea Otters and Carbon," Alaska Center for Climate Assessment and Policy.
- 2012 "Large Predator Responses to Human Activity from Grizzly Bears in Alaska to Mountain Lions in the Bay Area," USGS Western Region Colloquium, Menlo Park, CA.
- 2012 "Mountain Lion Behavioral Responses to Habitat Fragmentation," California Naturalists Program, Santa Cruz, CA.
- 2012 "The Puma in a Human Dominated Landscape," Santa Cruz Land Trust Event, Santa Cruz, CA.
- 2012 "Mountain Lions Technology and People," UCSC public forum.
- 2012 "Mountain Lions Technology and People," Cal Poly Swanton Pacific Ranch, Davenport, CA.
- 2011 "Pumas and Habitat Fragmentation," The Nature Conservancy, Santa Cruz, CA
- 2011 "Hwy 17 Connectivity Analysis," Midpeninsula Regional Open Space District, Los Altos, CA.
- 2011 "The Santa Cruz Puma Project," Santa Clara Parks, San Jose, CA.
- 2011 "The Santa Cruz Puma Project," Quail Hollow Ranch County Park, Felton, CA.
- 2011 "The Santa Cruz Puma Project," Rotary Club, Santa Cruz, CA.
- 2011 "The Santa Cruz Puma Project," Peninsula Open Space Trust, Palo Alto, CA.
- 2011 "The Santa Cruz Puma Project," Natural History Museum, Pacific Grove, CA.
- 2011 "Do Sea Otters Reduce Atmospheric Carbon Levels?" Monterey Bay Aquarium, CA.
- 2010 "The Santa Cruz Puma Project," Scotts Creek Research Symposium, Swanton, CA.
- 2010 "The Santa Cruz Puma Project," Dominican Oaks Retirement Community, Santa Cruz, CA.
- 2010 "The Santa Cruz Puma Project," Santa Cruz County State Parks, Santa Cruz, CA.
- 2010 "The Santa Cruz Puma Project," Sierra Club, San Carlos, CA.
- 2009 "The Santa Cruz Puma Project," Año Nuevo State Park, Año Nuevo, CA.
- 2009 "The Santa Cruz Puma Project," San Bernardino County Fish and Game, Hollister, CA.
- 2009 "The Santa Cruz Puma Project," Midpeninsula Regional Open Space District Board of Directors, Los Altos, CA.
- 2009 "The Santa Cruz Puma Project," Felton Horseman's Association, Felton, CA.
- 2009 "The Santa Cruz Puma Project," Calvary Church, Santa Cruz, CA.
- 2009 "The Santa Cruz Puma Project," Rural Bonny Doon Association, Bonny Doon, CA.
- 2009 "The Santa Cruz Puma Project," CA State Parks Annual Conference, Point Reyes, CA.
- 2009 "The Santa Cruz Puma Project," Santa Cruz County Fish and Game, Santa Cruz, CA.
- 2008 "The Santa Cruz Puma Project," Swanton Pacific Ranch, Cal Poly, Swanton, CA.
- 2008 "The Santa Cruz Puma Project," Wildlife Society Bay Area Chapter, Los Gatos, CA.

### **Papers Presented at Professional Meetings**

- 2019 How the fear of humans shapes mountain lion behavior and their associated food web in the Santa Cruz mountains of California. *The Wildlife Society Annual Meeting*. INVITED
- 2019 How fear, terrain and energetics impact the spatial ecology of mountain lions (Poster). *Gordon Research Conference on Movement Ecology*
- 2017 Why Conserving Animals is Important for Regulating the Carbon Cycle. *Ecological Society of America Annual Meeting*
- 2017 **Organized Symposium:** Animating the Carbon Cycle. *Co-Organized symposium at Ecological Society of America Annual Meeting with Os Schmitz.*
- 2016 "The Energetic Ecology of Leopards," Gordon Predator-Prey Conference.
- 2014 "Idiosyncratic Effects of Gray Wolf-induced Trophic Cascades on Ecosystem Carbon Cycling," Ecological Society of America Annual Meeting.

- 2013 "Behavior, Species Interactions and Conservation of Suburban Cougars: Carnivore Responses to Environmental Change," Zoological Society of London. INVITED
- 2013 "Carnivores and Global Change," Large Carnivores in Terrestrial Ecosystems: Bridging Theory and Natural History to Inform Management, Yale University. INVITED
- 2013 "Yellowstone Research: Past, Present and Future," Yellowstone wolf project collaborators meeting, Mammoth Hot Springs, WY. INVITED
- 2010 "Considering Predators in Climate Change Adaptation and Mitigation Strategies," Bloodbad conference, Sweden. INVITED
- 2010 "The Santa Cruz Puma Project," Bloodbad conference, Sweden. INVITED
- 2010 "Wolves, Scavengers and Ungulates in a Changing Climate," 10th Biennial Scientific Conference on the Greater Yellowstone Ecosystem, Mammoth Hot Springs, WY.
- 2010 "Can Predators Reduce Atmospheric Carbon Levels?" Society for Conservation Biology Annual Meeting, Edmonton, Canada. INVITED
- 2009 "Do Wolves Buffer Ecological Communities from Anthropogenic Climate Change?" Defenders of Wildlife Carnivore Conference: Carnivore Conservation in a Changing World, Denver, CO. INVITED
- 2009 "Wolves, Scavengers and Climate Change," European Congress of Conservation Biology, Prague, Czechoslovakia. INVITED
- 2009 "Can Predators Reduce Atmospheric Carbon Levels?" Ecological Society of America Annual Meeting, Albuquerque, NM.
- 2008 "The Energetics, Behavior and Conservation of Cougars in the Santa Cruz Mountains," Central Coast Biodiversity Workshop, STEPS Institute for Innovation in Environmental Research, Santa Cruz, CA. INVITED
- 2007 "Climate Change in a Top-down World," Wildlife Society Annual Meeting, Tuscon, AR. INVITED
- 2007 "Trophic Interactions and Climate Change," 5th Annual Species Interaction Workshop, Stanford University, Palo Alto, CA. INVITED
- 2007 "Do Predators Buffer Ecological Communities from Climate Change?" Global Population Dynamics Workshop, University of Aarhus, Denmark. INVITED
- 2006 "Disease-mediated Switch from Top-down to Bottom-up Control Increases Moose Population Response to Climate," Ecological Society of America Annual Meeting, Memphis, TN.
- 2006 "Climate Change in a Top-down World," Biology of Extinction Conference, National Institute for Basic Biology, Okazaki, Japan. INVITED
- 2004 "Predators as Climate Change Buffers," Ecological Society of America Annual Meeting, Portland, OR.
- 2003 "Trophic Facilitation by Introduced Top Predators," Society for Conservation Biology Annual Meeting, Duluth, MN.
- 2003 "Wolves, Scavengers and Climate Change in Yellowstone National Park," World Wolf Congress, Banff, Canada.
- 2002 "Modeling Gray Wolf Impacts on Scavenger Biodiversity," Meeting of the Natural Resource Modeling Society, Lesvos, Greece.
- 2002 "From Community Assembly to Ecosystem Stability in Ecological Networks," Dynamics of Networks and Spatially Extended Systems Conference, Saha Institute for Nuclear Physics, Calcutta, India. INVITED
- 2002 "The Gray Wolf, Scavenger Complex in Yellowstone National Park," Defenders of Wildlife Carnivore Biology and Conservation Meeting, Monterey, CA.

#### **Memberships or Activities in Professional Associations**

- 2006 - Present **Member:** Wildlife Society
- 2000 - Present **Member:** Ecological Society of America
- 2000 - Present **Member:** Society for Conservation Biology

#### **Service**

- 2022 - Present **Board member:** CA Trust for Public Lands



- 2020 - Present **Advisor:** CA Trust for Public Lands. Helped TPL develop a Central Coast Program focused on ecological connectivity and open land access equity
- 2020 - Present **Advisor:** Helping the Wildlife Conservation Network conceive, develop and implement a California wide program to reconnect landscapes for people and wildlife.
- 2017 - Present **Consultation:** Consulting with Peninsula Open Space Trust and Land Trust of Santa Cruz County to enhance connectivity for wildlife across highway 101 in the Coyote Valley and Aromas areas.
- 2012 - Present **Consultation:** Peninsula Open Space Trust (POST), Midpeninsula Regional Open Space District, Caltrans and Santa Clara Open Space Authority on effort to enhance connectivity across highway 17 at the Lexington Reservoir.
- 2012 - Present **Consultation:** Land Trust of Santa Cruz County on effort to enhance connectivity across highway 17 at Laurel Curve.
- 2012 - Present **Scientific Advisory Council:** Sempervirens Fund
- 2009 - 2012 **Steering Committee:** Conservation Blueprint for Santa Cruz County, Santa Cruz County Land Trust. Funded by Packard Foundation.

### Editorial Services

- 2010 - 2019 **Subject Editor:** *Ecology*
- 2010 - 2012 **Handling Editor:** *Population Ecology*

### Review/Referee Grants, Proposals and Publications

- 2003 - Present **Reviewer:** *American Naturalist, Annales Zoologici Fennici, Biological Conservation, Canadian Journal of Zoology, Ecological Applications, Ecology, Ecology Letters, Environmental Management, Journal of Animal Ecology, Journal of Applied Ecology, Journal of Australian Zoology, Journal of Biological Dynamics, Journal of Mathematical Biology, Journal of Theoretical Biology, Nature, NSF, Oecologia, Population Ecology, Proceedings of the Royal Society, Proceedings of the National Academy of Sciences, Science* and others.
- 2010 **Panel Member:** National Science Foundation, Dimensions of Biodiversity Program.

### Talks and Presentations at Colleges and Universities

- 2021 Animals and the carbon cycle, *Wesleyan University*, INVITED
- 2020 How fear and energetics structure the behavior and ecology of large terrestrial predators, *UC Santa Barbara*, INVITED
- 2020 How fear and energetics structure the behavior and ecology of large terrestrial predators, *Duke University Big Cats Initiative Class* INVITED
- 2019 How fear and energetics structure the behavior and ecology of large terrestrial predators, *Duke University Big Cats Initiative Class* INVITED
- 2019 How fear and energetics structure the behavior and ecology of large terrestrial predators, *Iowa State University* INVITED
- 2018 The Santa Cruz Puma Project, *Cal Poly Swanton Reserve* INVITED
- 2018 How fear shapes the energetics and ecology of large predators, *Oregon State University* INVITED
- 2017 The physiology, behavior and indirect effects of large predators in a human dominated world, *UCSC Emeritus* INVITED
- 2017 The physiology, behavior and indirect effects of large predators in a human dominated world, *UC Berkeley* INVITED
- 2017 The physiology, behavior and indirect effects of large predators in a human dominated world, *San Francisco State University* INVITED
- 2016 "Large Carnivore Energetics and Ecology in a Landscape of Fear," UC Davis.
- 2015 "Puma Energetics, Behavior and Ecology in a Landscape of Fear," MBARI.
- 2015 "Fear and Predators: How Predators Fear of Humans Shapes Their Behavior and Our Ecosystems," Research Frontiers, UCSC.
- 2015 "Puma Energetics, Behavior, Ecology in a Landscape of Fear," Oxford.
- 2014 "The Santa Cruz Puma Project," UCSC Arboretum.

- 2013 "Mountain Lions and Habitat Fragmentation," Hopkins Marine Lab, Monterey CA.
- 2012 "Understanding the Impacts of Global Change on Wildlife the Environmental Studies Way," UC Santa Cruz Board of Councilors.
- 2012 "Mountain Lion Behavioral Response to Habitat Fragmentation and Sea Otter Impacts on the Carbon Cycle," University of California, Berkeley.
- 2012 "Mountain Lion Behavioral Responses to Habitat Fragmentation," San Francisco State University, San Francisco, CA.
- 2011 "Predators and Global Change," EEB Seminar Series, UCSC.
- 2011 "The Santa Cruz Puma Project," Life Long Learners, UCSC.
- 2010 "The Santa Cruz Puma Project," UCSC Staff luncheon, Santa Cruz, CA.
- 2010 "Can Predators Mitigate Climate Change Impacts?" UCLA, Los Angeles, CA.
- 2009 "The Santa Cruz Puma Project," De Anza College, Cupertino, CA.
- 2009 "The Santa Cruz Puma Project," University of California, Berkeley.
- 2008 "Climate Change and Predators: Lessons from Yellowstone, Isle Royale and Matlab," University of Montana, Missoula, MT.
- 2008 "Climate Change and Predators," San Jose State University, San Jose, CA.
- 2006 "The Effects of Climate Change and Habitat Use on the Conservation of Vertebrate Communities," UC Santa Cruz, Santa Cruz, CA.
- 2005 "Predators as Climate Change Buffers: Lessons from Isle Royale and Yellowstone," University of California, Davis, CA.
- 2005 "Relating Climate and Space to Consumer Resource Dynamics," University of Colorado, Boulder, CO.
- 2005 "The Gray Wolf, Scavenger Complex in Yellowstone National Park," University of Washington, Seattle, WA.
- 2004 "Consumer-resource Dynamics in Space and Time," University of British Columbia, Vancouver, Canada.
- 2004 "Wolves, Scavengers and Climate Change in Yellowstone National Park," Penn State University, State College, PA.
- 2002 "Trophic Facilitation by Introduced Top Predators," Imperial College, London, UK.

## **UNIVERSITY SERVICE**

### **Academic Senate Service**

2010 - 2013 Senate Committee on Computing and Telecommunications

### **Service to the Division**

2011 - 2013 Social Science Division Committee on Computing

### **Service to the Department**

2020 - 2022 Member - Personnel Committee  
 2019 - 2020 Director - Center for Integrated Spatial Research (CISR)  
 2019 - 2020 Chair - Field Conservation Ecologist Search Committee  
 2016 - 2018 Member - Environmental Studies Curriculum Committee  
 2016 - 2017 Chair - Quantitative Environmental Scientist Search Committee  
 2015 - 2017 Organizer - Environmental Studies Seminar Series  
 2010 - 2014 Chair - Environmental Studies Grant Committee  
 2009 - 2014 Organizer - ENVS Senior Poster Symposium  
 2009 - 2014 Co-director - Center for Integrated Spatial Research  
 2007 - 2010 Member - Environmental Studies Curriculum Committee

### **Other Service to the Campus**

2021 - 2022 Outside Member - EEB Quantitative Ecologist Search Committee  
 2018 - Present Faculty representative - Santa Cruz Mountains Stewardship Network

2017 - Present Natural Reserves Advisory Committee - Ad hoc faculty member in charge of creating a Santa Cruz Mountains wide landscape scale UC reserve

2008 Jean H. Langenheim Fellowship Committee

## MENTORING AND STUDENT ADVISING

### Postdoctoral Scholars

Dates	Relationship	Degree Year	Name and Activities
2021 - 2022	Primary Supervisor		Asia Murphy
2020 - 2021	Primary Supervisor		Nathan Ranc
2020 - 2021	Primary Supervisor		Kasim Rafiq
2019 - 2020	Primary Supervisor		Derek Spitz
2016 - 2020	Primary Supervisor		Bogdan Cristescu
2016 - 2020	Primary Supervisor		Justin Suraci
2015 - 2019	Primary Supervisor		Laurel Serieys
2015 - 2016	Primary Supervisor		Max Allen
2007 - 2012	Primary Supervisor		Chris Darimont - 2007 NSERC Postdoctoral Fellowship.
2009 - 2011	Primary Supervisor		Karthik Ram
2012 - 2014	Co Supervisor		Viorel Popescu - Smith Fellowship
2010 - 2012	Co Supervisor		Winifred Frick - 2009 NSF Biological Informatics Postdoctoral Fellowship.
2010 - 2011	Co Supervisor		Kristen Ruegg

### Doctoral Students

Dates	Relationship	Degree Year	Name and Activities
2019 - Present	Primary Supervisor		John Morgan
2018 - Present	Primary Supervisor		Whitney Hanson
2015 - 2021	Primary Supervisor	2021	Anna Nisi - NSF Graduate Fellowship
2014 - 2020	Primary Supervisor	2020	Colby Anton - NSF Graduate Fellowship
2011 - 2019	Primary Supervisor	2019	Barry Nickel
2011 - 2017	Primary Supervisor	2017	Justine Smith - NSF Graduate Fellowship
2011 - 2016	Primary Supervisor	2016	Rachel Wheat - NSF Graduate Fellowship
2009 - 2016	Primary Supervisor	2016	Veronica Yovovich - NSF Graduate Fellowship Honorable Mention
2014 - 2015	Primary Supervisor	NA	Paola Bouley
2007 - 2014	Primary Supervisor	2014	Yiwei Wang - 2007 NSF Graduate Fellowship Honorable Mention, Super Fellowship.
2007 - 2012	Primary Supervisor	2012	Taal Levi - 2007 NSF Graduate Fellowship, STEPS Fellowship, Cota Robles Fellowship.
2010 - 2014	Co Supervisor	2014	Max Allen
2021 - Present	Other Advisor		Abby Cunniff - Pre-qual Committee and Qual
2019 - Present	Other Advisor		Azucena Lucatero - Pre-qual Committee and Qual
2016 - 2020	Other Advisor		Allison Skidmore - Pre-qual and Qual Committee
2012 - 2018	Other Advisor		Sarah Skikne - Pre-qual and Qual Committee
2014 - 2017	Other Advisor		Caleb Bryce - Pre-qual and Qual Committee
2013 - 2016	Other Advisor		Jeffrey Jenkins - Pre-qual and Qual Committee

And others but I wasn't keeping track of non-primary advisees before 2016.