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Assistant Professor

School for Environment and Sustainability
University of Michigan
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RESEARCH INTERESTS

Spatial ecology, landscape ecology, wildlife management and policy, wildlife ecology and conservation, human dimensions of wildlife management, complexity of coupled human and natural systems, and sustainability science

APPOINTMENTS

University of Michigan, Ann Arbor, MI

Assistant Professor, School for Environment and Sustainability **2019 –**

Boise State University, Boise, ID

Assistant Professor, Human-Environment Systems **2015 – 2019**

PROFESSIONAL PREPARATION

National Socio-Environmental Synthesis Center, Annapolis, MD

Postdoctoral Fellow (advisor: Dr. Simon Levin at Princeton University) **2013 – 2015**

Complexity of improving human well-being and conserving biodiversity

Michigan State Univ., Lansing, MI

Ph.D. from Department of Fisheries and Wildlife (advisor: Dr. Jianguo Liu) **2013**

Dissertation: "Coupled Human and Natural System Approach to Tiger Conservation in Chitwan National Park, Nepal and Beyond"

Univ. of Michigan, Ann Arbor, MI

M.S. in Terrestrial Ecology from School of Natural Resources and Environment (advisor: Dr. Daniel Brown) **2007**

Thesis: "Predicting the Ecological and Social Suitability of Black Bear Habitat in Michigan's Lower Peninsula"

Univ. of California San Diego, San Diego, CA

B.S. in Ecology, Behavior, and Evolution **2003**

RESEARCH ACTIVITIES

PEER-REVIEWED JOURNAL ARTICLES AND BOOK CHAPTERS

Underlined names are current or former graduate students or postdocs in my research group

2020

- (43) Lute, M.L., **Carter, N.H.**, López-Bao, J.V. and Linnell, J.D., 2020. Conservation professionals' views on governing for coexistence with large carnivores. *Biological Conservation*, 248, p.108668.
- (42) Easter, T., Bouley, P., and **N.H. Carter**. 2020. Intraguild dynamics of understudied carnivores in a human-altered landscape. *Ecology and Evolution*. <https://doi.org/10.1002/ece3.6290>
- (41) Dominoni DM, W Halfwerk, E Baird, RT Buxton, E Fernandez-Juricic, KM Frstrup, MF McKenna, DJ Mennit, EK Perkin, BM Seymoure, DC Stoner, JB Tennessen, CA Toth, LP Tyrell, A Wilson, CD Francis, **NH Carter** & JR Barber. 2020. Why conservation biology can benefit from sensory ecology. *Nature Ecology and Evolution*. <https://doi.org/10.1038/s41559-020-1135-4>
- (40) **Carter, N.H.**, Killion, A., Easter, T., Brandt, J., and Ford, A. 2020. Road development in Asia: range-wide risks to tigers. *Science Advances*. DOI: 10.1126/sciadv.aaz9619.
- (39) Belote, T., Faurby, S, Brennan, A, **Carter, N**, Dietz, M, Hahn, B, McShea, WJ, and Gage, J. 2020. Mammal species composition reveals new insights into Earth's remaining wilderness. *Frontiers in Ecology and the Environment*. <https://doi.org/10.1002/fee.2192>
- (38) Lute, M.L. and **N.H. Carter**. 2020. Are We Coexisting with Carnivores in the American West? *Frontiers in Ecology and Evolution*. 8:48. doi:10.3389/fevo.2020.00048
- (37) **Carter, N.H.**, Baeza, A., and N. Magliocca. 2020. Emergent conservation outcomes of shared risk perception in human-wildlife systems. *Conservation Biology*. DOI:10.1111/cobi.13473.
- (36) **Carter, N.H.**, Williamson, M.A., Gilbert, S., Lischka, S., Prugh, L.R., Lawler, J., Metcalf, A.L., Jacob, A., Beltran, B.J., Castro, A.J., Sage, A., and M. Burnham. 2020. Integrated spatial analysis for human-wildlife coexistence in the American West. *Environmental Research Letters* 15: 021001
- (35) Marescot, L., Lyet, A., Singh, R., **Carter, N.** and Gimenez, O., 2020. Inferring wildlife poaching in Southeast Asia with multispecies dynamic occupancy models. *Ecography* 43: 239-250.

2019

- (34) Expósito-Granados, M., Castro, A.J., Lozano, J., Aznar-Sanchez, J.A., **Carter, N.H.**, Requena-Mullor, J.M., Malo, A.F., Olszańska, A., Morales-Reyes, Z., Moleón, M. and J.A. Sánchez-Zapata. 2019. Human-carnivore relations: conflicts, tolerance and coexistence in the American West. *Environmental Research Letters* 14: 123005.
- (33) Jones, K., Abrams, J., Belote T., Beltrán, B.J., Brandt, J., **Carter, N.H.**, Castro, A.J., Chaffin, B.C., Metcalf, A., Roesch-McNally, G, Wallen, K.E., and M.A. Williamson. 2019. The American West as a social-ecological region: Drivers, dynamics and implications for nested social-ecological systems. *Environmental Research Letters* 14: 115008
- (32) **Carter, N.H.**, Grimm, V., and S. Levin. 2019. Effects of human-induced prey depletion on large carnivores in protected areas: lessons from modelling tiger populations in stylized spatial scenarios. *Ecology and Evolution* 9: 11298-11313
- (31) **Carter, N.H.**, Bruskotter, J., Vucetich, J., Crabtree, R., Jaicks, H., Karns, G., Nelson, M.P., Smith, D., Linnell, J.D.C. 2019. Toward human-wildlife coexistence through the integration of human and natural systems: the case of grey wolves in the Rocky Mountains, USA. In "Human-Wildlife Interactions: Turning Conflict into Coexistence" edited by Frank, B., Glickman, J., and Marchini, S. for Cambridge University Press.
- (30) Easter, T., Bouley, P., and **N.H. Carter**. 2019. Opportunities for biodiversity conservation outside of Gorongosa National Park, Mozambique: A multispecies approach. *Biological Conservation* 232, 217-227.

- (29) Ceausu, S., Graves, R., Killion, A., Svenning, J., and **N.H. Carter**. 2018. Governing trade-offs in ecosystem services and disservices to achieve human-wildlife coexistence. *Conservation Biology*. <https://doi.org/10.1111/cobi.13241>. (Recommended by Faculty of 1000).
- (28) Killion, A., Lindquist, E., Melvin, T.A., and **N.H. Carter**. 2018. Tracking a half-century of media reporting on gray wolves. *Conservation Biology*. <https://doi.org/10.1111/cobi.13225>.
- (27) Bouyer, J., **Carter, N.H.**, Batavia, C., and M. Nelson. 2019. The ethics of eradicating harmful species – the case of the tsetse fly. *BioScience*. <https://doi.org/10.1093/biosci/biy155> (February cover issue).

2018

- (26) Bouley, P., M. Poulos, R. Branco, and **N.H. Carter**. 2018. Post-war recovery of the African lion in response to large-scale ecosystem restoration. *Biological Conservation* 227: 233-242.
- (25) Guerrero, A., Bennett, N., Wilson, K., **Carter, N.H.**, Gill, D., Mills, M., Ives, C., Selinske, M., Larrosa, C., Bekessy, S., Januchowski-Hartley, F., Travers, H., Wyborn, C., Nuno, A. 2018. Achieving the promise of integration in social-ecological research: A review and prospectus. *Ecology and Society* 23(3):38
- (24) Gaynor, K., Hohnowski, C.E., **Carter, N.H.**, Brashares, J.S. 2018. Human activity creates a more nocturnal natural world. *Science* 360: 1232-1235 (Recommended by Faculty of 1000)
- (23) **Carter, N.H.**, Bouley, P., Moore, S., Poulos, M., Bouyer, J., and S. Pimm. 2018. Climate change, disease range shifts, and the future of Africa lion. *Conservation Biology* DOI: 10.1111/cobi.13102
- (22) Easter, T., Killion, A., and **N.H. Carter**. 2018. Climate change, cattle, and the challenge of sustainability in a telecoupled system in Africa. *Ecology and Society* 23(1):10. <https://doi.org/10.5751/ES-09872-230110>.
- (21) Lute, M.L., **Carter, N.H.**, López-Bao, J.V. and Linnell, J.D. 2018. Conservation professionals agree on challenges to coexisting with large carnivores but not on solutions. *Biological Conservation* 218: 223-232
- (20) O'Bryan, C., Beyer, H.L., Brackowski, A.R., **Carter, N.H.**, Watson, J.E.M., and E. McDonald-Madden. 2018. The contribution of predators and scavengers to human health and well-being. *Nature Ecology and Evolution* 2: 229–236.

2017

- (19) Bruskotter, J.T., J.A. Vucetich, G. Karns, M.J. Manfredo, C. Wolf, K. Ard, **N.H. Carter**, J. Lopez-Bao, S. Gehrt, and W.J. Ripple. 2017. Modernization, risk and conservation of the world's largest carnivores. *BioScience* 67: 646-655.
- (18) **Carter, N.H.**, J.V. López-Bao, J.T. Bruskotter, M. Gore, G. Chapron, A. Johnson, M. Shrestha, J. Frank, O. Ohrens, and A. Treves. 2017. A conceptual framework for understanding illegal killing of large carnivores. *AMBIO* 46: 251-264. (April cover issue)
- (17) **Carter, N.H.** 2017. Evolution and complexity in biotic systems and human cultures. Review of Book "Complexity" in *BioScience* 67: 92-95.

2016

- (16) **Carter, N.H.** and J.D.C. Linnell. 2016. Mainstreaming Coexistence with Wildlife: Reply to Gallagher. *Trends in Ecology and Evolution*. <http://dx.doi.org/10.1016/j.tree.2016.08.007>.
- (15) **Carter, N.H.** and T. Allendorf. 2016. Gendered perceptions of tigers in Chitwan National Park, Nepal. *Biological Conservation* 202: 69-77.
- (14) **Carter, N.H.** and J.D.C. Linnell. 2016. Co-adaptation is key to coexistence with large carnivores. *Trends in Ecology and Evolution* 31: 575-578
- (13) Inskip, C., **N.H. Carter**, S.J. Riley, Z. Fahad, T. Roberts, and D. MacMillan. 2016. Towards human-carnivore coexistence: understanding tolerance for tigers in Bangladesh. *PLoS One*. DOI: 10.1371/journal.pone.0145913.

- (12) **Carter, N.**, An, L., and Liu, J. 2016. Cross-site synthesis of complexity in coupled human and natural systems, in: Liu, J., Hull, V., Yang, W., Viña, A., Ouyang, Z., and Zhang, H. (Eds.), *Pandas and People: Coupling Human and Natural Systems for Sustainability*. Oxford University Press, Oxford, p. 278.
- (11) Liu, J., Hull, V., Yang, W., Viña, A., An, L., **Carter, N.**, Chen, X., Liu, W., Ouyang, Z., and Zhang, H. 2016. Lessons from local studies for global sustainability, in: Liu, J., Hull, V., Yang, W., Viña, A., Ouyang, Z., and Zhang, H. (Eds.), *Pandas and People: Coupling Human and Natural Systems for Sustainability*. Oxford University Press, Oxford, p. 278.
- (10) Liu, J., Hull, V., **Carter, N.**, Viña, A., and Yang, W. 2016. Framing sustainability of coupled human and natural systems, in: Liu, J., Hull, V., Yang, W., Viña, A., Ouyang, Z., and Zhang, H. (Eds.), *Pandas and People: Coupling Human and Natural Systems for Sustainability*. Oxford University Press, Oxford, p. 278.

2015

- (9) **Carter, N.H.**, S. Levin, A. Barlow, and V. Grimm. 2015. Modeling tiger population and territory dynamics using an agent-based approach. *Ecological Modelling* 312: 347-362.
- (8) **Carter, N.H.**, M. Jasny, B. Gurung, and J. Liu. 2015. Impacts of people and tigers on leopard spatiotemporal activity patterns in a global biodiversity hotspot. *Global Ecology and Conservation*. <http://dx.doi.org/10.1016/j.gecco.2014.11.013>

2014

- (7) **Carter, N.H.**, A. Viña, V. Hull, W. McConnell, W. Axinn, D. Ghimire, and J. Liu. 2014. Coupled human and natural systems approach to wildlife research and conservation. *Ecology and Society* 19(3):43.
- (6) **Carter, N.H.**, S.J. Riley, A. Shortridge, B. Shrestha, and J. Liu. 2014. Spatial assessment of attitudes toward tigers in Nepal. *AMBIO* 43: 125-137. (March cover issue)

2013

- (5) **Carter, N.H.**, B. Gurung, A. Viña, H. Campa III, J. Liu, and J. Karki. 2013. Assessing spatiotemporal changes in tiger habitat across different land management regimes. *Ecosphere* 4:art124.
- (4) **Carter, N.H.**, B. Shrestha, J. Karki, N. Pradhan, and J. Liu. 2013. Reply to Goswami et al., Karanth et al., and Harihar et al.: Fine-scale interactions between tigers and people. *PNAS*. doi:10.1073/pnas.1217414110.

2012

- (3) **Carter, N.H.**, B. Shrestha, J. Karki, N. Pradhan, and J. Liu. 2012. Coexistence between wildlife and humans at fine spatial scales. *PNAS* 109: 15360-15365. (Highlight in Nature 489:181 and recommended by [Faculty of 1000](#)).
- (2) **Carter, N.H.**, S.J. Riley, J. Liu. 2012. Utility of a psychological framework for carnivore conservation. *Oryx* 46: 525-535.

2010

- (1) **Carter, N.H.**, Brown, D.G., Etter, D.R., and L.G. Visser. 2010. American black bear habitat selection in northern Lower Peninsula, Michigan, USA, using discrete-choice modeling. *URSUS* 21: 57-71.

OTHER PUBLICATIONS AND REPORTS

- Carter, N.H. 2020. [Endangered tigers face growing threats from an Asian road-building boom](#). The Conversation.
- O'Bryan, C., McDonald-Madden, E., Watson, J., and N.H. Carter. 2018. [Helping farmers and reducing car crashes: the surprising benefits of predators](#). The Conversation.

- Carter, N.H, Hengaju, K, and Pradhan, M. 2018. Reducing impacts of linear infrastructure on tiger's habitat in Nepal's Chitwan National Park- a UNESCO site. Final report for IUCN Rapid Response Facility Small Grant Program.
- Carter, N.H. 2012. Small Numbers – Large Impacts: Conserving Tigers in Nepal. Box 13.1, page 178 in Human Dimensions of Wildlife Management. Decker, D. J., Riley, S. J., & Siemer, W. F. (Eds.). Johns Hopkins Univ. Press.
- Carter, N.H. 2012. Coupled human and natural systems approach to tiger conservation in Chitwan National Park, Nepal and beyond. Final report for NASA Earth and Space Science Fellowship Program project No. NNX09AO34H.
- Carter, N.H., J. Liu. 2012. Coupled human and natural systems approach to tiger conservation in Chitwan National Park, Nepal and beyond. Final report for USFWS Rhinoceros and Tiger Conservation Fund project No. F10AP00320.
- Carter, N.H. 2011. Tiger Tales: Evaluating wildlife acceptance capacity in Nepal. MSU Fisheries and Wildlife [SPOTLIGHT](#). Issue 7. Pages 17 – 19.

CONFERENCE PRESENTATIONS AND POSTERS

- Carter, NH, M. Ditmer, D. Stoner, J. Forester, C. Francis, and J. Barber. 2020. Artificial nightlight alters predator-prey dynamics: cougars and deer in the southwestern United States. Ecological Society of America Annual Meeting (Salt Lake City, UT, USA: Virtual)
- Carter, N.H. 2020. Road development hampers tiger recovery: a cross-scale assessment of risks. North American Congress for Conservation Biology (Denver, CO, USA: Virtual)
- Carter, N.H. 2019. Spatially predicting impacts of anthropogenic nightlight and noise on wildlife habitat integrity across the contiguous United States. NASA Biodiversity and Ecological Forecasting Annual Meeting (Washington, DC).
- Carter, N.H., S. Levin, V. Grimm, A. Baeza-Castro, and N. Magliocca. 2018. Multi-model approach to understanding human-wildlife systems (poster). Boundary Spanning: Advances in Socio-Environmental Systems Research. An International Symposium (Annapolis, MD).
- Carter, N.H., A. Baeza-Castro, and N. Magliocca. 2018. Social contagion of risk perception in human-wildlife interactions. North American Congress for Conservation Biology (Toronto, CA)
- Gaynor, K., C. Hohnowski, N.H. Carter and J. Brashares. 2018. Human activity creates a more nocturnal natural world. North American Congress for Conservation Biology (Toronto, CA).
- Maescot, L., A. Lyet, R. Singh, N.H. Carter and O. Gimenez. 2018. Developing a multispecies dynamic patch-occupancy model to infer poaching in Southeast Asia. International Statistical Ecology Conference (St Andrews, UK).
- Carter, N.H., A. Baeza-Castro, and N. Magliocca. 2017. Mechanistic modeling of social-ecological systems for wildlife conservation. International Congress for Conservation Biology (Cartagena, Colombia).
- Carter, N.H. 2017. Behavioral responses of tigers to humans on shared landscapes: Implications for human-wildlife coexistence. International Association for Landscape Ecology (Baltimore, MD, USA).
- Carter, N.H., M.L. Lute, J.D.C. Linnell, and J.V. López-Bao. 2016. Does the conservation community agree on human-carnivore coexistence in the age of the Anthropocene? North American Congress for Conservation Biology (Madison, Wisconsin).
- Carter, N.H., S. Levin, and V. Grimm. 2016. Modeling the effects of different spatial distributions and magnitudes of human disturbance on tiger population dynamics inside protected areas. International Society for Ecological Modelling Global Conference (Towson, Maryland).
- Carter, N.H. 2015. Realizing coexistence between people and large carnivores in shared landscapes (poster). International Congress for Conservation Biology (Montpellier, France).

- Carter, N.H. 2014. The keys to coexistence: realizing the potential for integrating large carnivores into multi-use landscapes. North American Congress for Conservation Biology (Missoula, MT, USA).
- Carter, N.H., A. Viña, H. Campa III, and J. Karki. 2013. Effects of different land management regimes on wildlife habitat: the case of tigers in Nepal (poster). International Association of Landscape Ecology annual meeting (Austin, TX, USA).
- Carter, N.H., B. Shrestha, J. Karki, N. Pradhan, and J. Liu. 2012. Adaptation of tigers in space and time to high human densities in Nepal: implications for conservation across the tiger's range. The Wildlife Society annual meeting (Portland, OR, USA).
- Carter, N.H., A. Shortridge, S.J. Riley, and B. Shrestha, J. Liu. 2012. Evaluating the spatial distribution of local intolerance to tigers. Pathways to Success: Integrating Human Dimensions into Fisheries and Wildlife Management (Breckenridge, CO, USA).
- Carter, N.H., A. Shortridge, S.J. Riley, and B. Shrestha. 2012. Evaluating the spatial distribution of attitudes, beliefs, and perceptions towards tigers: implications for conservation in human-dominated regions. Association for Nepal and Himalayan Studies (Kalamazoo, MI, USA).
- Carter, N.H., A. Shortridge, S.J. Riley. 2012. Using geospatial models to map local attitudes, beliefs, and perceptions towards a conflict-prone predator. American Association for Geographers (New York, NY, USA).
- Carter, N.H., J. Liu, and H. Campa. 2011. Impacts of community-based natural resource management on large vertebrate habitat with implications on landscape scale conservation in Nepal. International Congress for Conservation Biology (Auckland, New Zealand).
- Carter, N.H. 2011. Acceptance capacity for tigers in Nepal: Implications for conservation of predators in human-dominated landscapes. Association for Nepal and Himalayan Studies (St. Paul, MN, USA).
- Carter, N.H., J. Liu, S.J. Riley, H. Campa, and A. Shortridge. 2011. Integrating natural and human dimensions to advance tiger conservation. Ecological Society of America (Austin, TX, USA).
- Carter, N.H., A. Viña, J. Liu, D. Dangol, B. Shrestha. 2011. Impacts of decentralized natural resource management on wildlife habitat around a protected area in Nepal. International Symposium on Society and Resource Management (Madison, WI, USA).
- Carter, N.H., J. Liu, S.J. Riley, H. Campa, and A. Shortridge. 2011. Coupled human and natural systems approach to tiger conservation (poster). American Association for the Advancement of Science Annual Meeting (Washington, DC, USA).
- Carter, N.H., S.J. Riley, and J. Liu. 2010. Local Acceptance Capacity towards Tigers. Midwest Fish and Wildlife Conference (Minneapolis, MN, USA).
- Carter, N.H., A. Viña, J. Liu, D. Dangol, and B. Shrestha. 2010. Evaluating the Impacts of Community Forests on Vegetation at Chitwan National Park, Nepal. Global Land Project Open Science Meeting (Tempe, AZ, USA).
- Carter, N.H., S.J. Riley, and J. Liu. 2010. Evaluating and Modeling Local Acceptance Capacity towards Tigers in Chitwan National Park, Nepal. Pathways to Success: Integrating Human Dimensions into Fisheries and Wildlife Management (Estes Park, CO, USA).
- Carter, N.H. 2010. Coupled Human and Natural System Approach to Tiger Conservation in Chitwan National Park, Nepal and Beyond. Annual meeting on the status of endangered species in Nepal (Kathmandu, Nepal).
- Carter, N.H., Brown, D.G., Etter, D.R., and L.G. Visser. 2009. Predicting Black Bear Habitat Suitability in Michigan's Lower Peninsula. American Association of Geographers (Las Vegas, NV, USA).
- Carter, N.H., Brown, D.G., Etter, D.R., and L.G. Visser. 2008. Predicting the Ecological Suitability of Black Bear Habitat in Michigan's Lower Peninsula. Midwest Fish and Wildlife Conference (Columbus, OH, USA).

ORGANIZED WORKSHOPS, SYMPOSIUMS, AND INVITED PRESENTATIONS

- June 2020: Invited [speaker](#) for National Park Service's Natural Resource Stewardship and Science Directorate Monthly Webinar. Presented "Light and Noise Pollution: Impacts on Wildlife and Tools for Large Landscape Conservation."

- February 2020: Invited [guest seminar](#) at Colorado State University for Spring Seminar Series on Human-Wildlife Interactions. Presented "Spatial dynamics of human dimensions of wildlife and their feedbacks on conservation."
- January 2020: Propelling Original Data Science (PODS) projects [launch meeting](#) (Michigan Institute for Data Science, University of Michigan). Presented "Probabilistic Methods to Infer Structure and Dynamics of Illicit Wildlife Trade Networks."
- December 2019: Invited [guest seminar](#) to the Center for the Study of Complex Systems at the University of Michigan. Presented "Complex adaptive systems and human-wildlife coexistence."
- October 2019: Participated in 2-day [Human-Wildlife Coexistence Summit](#) organized by Defenders of Wildlife in Pray, Montana.
- September 2019: Invited to speak at [Rethinking Animals Summit](#) in New York City. Presented "[The contribution of predators and scavengers to human well-being.](#)"
- August 2019: Co-organized 3-day [workshop](#) at the University of Alabama titled "Convergent Research Priorities, Data Sources, and Methodologies for Understanding the Socio-Environmental Impacts of Illicit Supply Networks."
- March 2019: Wildlife ecology in a brighter and louder world. Seminar to the School of Environmental and Forest Sciences at the University of Washington.
- March 2019: Interdisciplinary insights on living with tigers and grizzly bears. Presentation for San Diego Zoo Institute for Conservation Research.
- February 2019: Human activity creates a more nocturnal natural world. Presentation for Boise Rotary Club.
- February 2019: Human-Wildlife Coexistence. Presentation for Zoo Boise fund raising event.
- January 2019. Effects of artificial light at night on wildlife habitats: integrating science with decision-support tools. Invited public talk presented at the Consortium for Dark Skies Studies meeting.
- January 2019. A complex adaptive systems approach to understanding coexistence between humans and wildlife. Seminar to the School for Environment and Sustainability at the University of Michigan.
- May 2018: Co-developed and led 3-day workshop that brought together ~35 interdisciplinary scholars from 20 universities to discuss the "Social-Ecological Future of the American West." Products from the workshop are expected to be included in an ongoing Focus Collection in *Environmental Research Letters*.
- 2018. Modeling human-wildlife coexistence. Center for Modeling Complex Interactions, University of Idaho, Moscow, ID.
- 2018. Multi-model approach to understanding human-wildlife systems. Invited as part of symposium on agricultural and land-use policy trade-offs for wildlife connectivity. North American Congress for Conservation Biology (Toronto, Canada).
- 2017. Using multi-agent models to inform anti-poaching decision making. WWF conference on "Science and Law Enforcement". Phnom Penh, Cambodia.
- 2017. Human-Wildlife Coexistence. Zoo Boise Conservation Series (Boise, ID, USA).
- 2015. Approaching carnivore poaching with a global framework. USC Conference on Conservation, Computation, and Criminology (Washington, DC, USA).
- 2014. Understanding human-tiger conflict. World Wildlife Fund human-tiger conflict working group meeting in Chitwan, Nepal.
- Carter, N.H. and M. Lute (co-organizers). 2014. Symposium: "Human-Carnivore Coexistence? Integrating Science, Ethics, and Practice to Address a Major Conservation Challenge" for North American Congress for Conservation Biology (Missoula, MT, USA).
- 2014. Synthesizing social and environmental data and theories to advance tiger conservation. Helmholtz Centre for Environmental Research – UFZ (Leipzig, Germany).

- 2013. Integrating social and ecological sciences for coexistence. Carnivore Coexistence Lab, Nelson Institute for Environmental Studies, Univ. of Wisconsin (Madison, WI, USA).
- 2012. Bridging human and natural sciences to advance tiger conservation in Nepal and beyond. Wildlife Conservation Society headquarters (Bronx, NY, USA).

GRANTS

- McIntire-Stennis USDA Program (**\$144,882**): PI on "Forecasting effects of forestry responses to climate change on landscape-scale forest structure and wildlife habitats." **2021-2023**
- Michigan Institute for Data Science Propelling Original Data Science (PODS) grants (**\$55,294**): PI on "Probabilistic methods to infer structure and dynamics of illicit wildlife trade networks." **2020-2021**
- Future Investigators in NASA Earth and Space Science and Technology (**\$136,216**): PI on "Utilizing NASA's GEDI mission to characterize habitat structure for wildlife research." **2019-2022**
- USDA Idaho Conservation Innovation Grant (**\$73,744**): PI on "Co-developing decision-support tools to minimize risks from predation and improve wildlife habitats in grazinglands." **2018-2020**
- IUCN Rapid Response Facility (**\$28,620**): Co-PI on "Reducing impacts of linear infrastructure on tigers in Nepal's Chitwan National Park – a UNESCO site." **2018**
- Wood River Women's Foundation (**\$25,000**): Co-PI on "Corridors for Coexistence." **2018 – 2019**
- NASA Ecological Forecasting (**\$585,057**): PI on "Using NASA resources to better inform wildlife conservation in the Anthropocene: Spatially predicting impacts of anthropogenic nightlight and noise on wildlife habitat integrity across the contiguous United States." Co-PIs: Clinton Francis (CalPoly), Jesse Barber (BSU), Andrew Molthan (NASA), and David Stoner (USU). **2017 – 2021**
- MILES IWG grant (**\$8,395**): Co-PI on "The social-ecological dynamics of ecosystem service provision on private lands in the High Divide." Co-PIs: Vicken Hillis (PI), Bray Beltran, Jodi Brandt, and Morey Burnham. **2017**
- NASA Idaho Space Grant Consortium EPSCOR Research Initiation Grant (**\$27,500**): PI on "Using satellite sensors to investigate effects of artificial nightlight on large mammals along the wildland-urban interface of Boise, Idaho." Co-PIs: Jesse Barber (BSU), Nancy Glenn (BSU), and David Stoner (USU). **2016 – 2017**
- TOPFORSK Research Council of Norway (**\$3,073,292**): Non-funded research partner on "Developing heuristics for human-wildlife coexistence in the Anthropocene." Co-PIs: researchers from Norwegian Institute for Nature Research. **2016 – 2020**
- UK Department for Environment, Food, and Rural Affairs Darwin Initiative (**\$270,000**): Non-funded project advisor on "Living with Tigers in Nepal: poverty reduction for human-wildlife coexistence." **2016 – 2019**
- SESYNC Venture (**\$100,000**): PI on "New tools to predict and prevent human-wildlife conflicts." **2014 – 2016**
- The Biodiversity Foundation: Small Grants for Science and Conservation (**\$6,942**): Co-PI on "Building the foundations for conservation action: assessing human-tiger conflict research and management needs in the Terai, Nepal." **2014**

- U.S. Fish and Wildlife Service, Rhinoceros and Tiger Conservation Fund Grant (**\$42,859**): PI on "Coupled human and natural systems approach to tiger conservation in Chitwan, Nepal, and beyond." **2010 – 2012**
- Michigan Department of Natural Resources and Environment Research Grant (**\$10,000**): PI on "American black bear habitat in Northern Lower Peninsula, Michigan." **2007**

AWARDS AND FELLOWSHIPS

- NASA-MSU Professional Enhancement Award (\$600). Award provides travel support to the 2013 US-IALE annual meeting and networking opportunities **2013**
- Travel support (\$1,600) to International Congress for Conservation Biology from Michigan State Univ. **2011**
- CHANS-Net: International Network of Research on Coupled Human and Natural Systems fellowship. Fellowship included travel support to 2011 AAAS annual meeting (\$1,000) and networking opportunities. **2011**
- 2010 Global Land Project (GLP) travel support from GLP (funding through NSF and NASA) **2010**
- NASA Earth and Space Science Graduate Fellowship – 3 year duration (\$150,000) **2009 – 2012**
- Michigan State Univ. Pre-dissertation Travel Award (\$3,000) **2008**
- Michigan State Univ. Distinguished Fellowship – 2 year duration (\$100,000) **2007 – 2008**
- School of Natural Resources and Environment faculty elected Howard M. Wight Memorial Award for the Outstanding Wildlife Graduate Student **2007**
- Joseph G. Schotthoefer Memorial Student Award from Safari Club International (\$1,000) **2006**
- Univ. of Michigan Rackham Graduate School Discretionary Fund (\$1,500) **2006**

TEACHING AND MENTORSHIP

COURSES, LECTURING, AND TRAINING

Current – School for Environment and Sustainability, University of Michigan

- EAS 531/ENVIRON 411, Principles of Geographic Information Systems** **Winter**
The class provides students with a firm understanding of the conceptual approaches and uses (lecture), plus technical methods (lab) in GIS.
- EAS 501.007, Wildlife and Society** **Fall**
The class trains students to use a coupled natural-human systems approach to understand human-wildlife interactions and contemporary wildlife conservation issues from local to global scales.

Previous – Human-Environment Systems, Boise State University

- HES 497/597, Foundations in Human-Environment Systems Science** **Fall**
This course provided students with a foundational understanding of the theories, methods, and applications of HES science.
- HES 620, Agent-based Modeling of Human-Environment Systems** **Spring**

This course trained students to use spatial agent-based models to understand animal movements and habitat use, landscape and ecosystem changes, human decision making, and policy impacts.

HES 497/597, Research Design in Human-Environment Systems Science

Spring

This course trained graduate students to design HES research and introduce them to the variety of methods employed in HES science.

Guest Lectures

- 2018. HES 297, Complex Systems and Sustainability, Boise State University
- 2018. BIOL 497/597, Science and Society, Boise State University
- 2017. EEB 601, Principles in EEB, Boise State University
- 2017. BIOL 497/597, Science and Society, Boise State University
- 2017. BIOL 422, Conservation Biology, Boise State University
- 2016. BIOL 497/597, Science and Society, Boise State University
- 2012. FW 434, Human Dimensions of Fisheries and Wildlife Management, Michigan State University
- 2011. FW 434, Human Dimensions of Fisheries and Wildlife Management, Michigan State University

Training Workshops

Teaching Socio-Environmental Synthesis with Case Studies, National Socio-Environmental Synthesis Center, Maryland

2014

Discussed use of quantitative complex models to teach students about socio-environmental systems with a group of advanced graduate students, postdocs, and professors. Developed hands-on exercise and agent-based model along with lecture materials.

Introduction to Geographic Information Systems, Institute for Social and Environmental Research, Chitwan, Nepal

2010

Developed and taught 2-day training course to staff from wildlife conservation agencies and local Univ. students in environmental science.

Teaching Assistantships (GSI)

- 2006. Biology 390, Evolution, University of Michigan
- 2006. NRE 531, Principles of Geographic Information Systems, University of Michigan

MENTORSHIP

Postdoctoral Researchers

- Current (University of Michigan): Mark Ditmer (2018-2020)
- Past (Boise State University): Rose Graves (2017-2018), Michael Poulos (2016-2017)

Main Graduate Advisor

- Current: Alex Killion (PhD Candidate, SEAS), Tara Easter (PhD student, SEAS), Natalie Madden (MS student, SEAS, co-advised with Karen Alofs), Edward Trout (MS student, Boise State)
- Past: Tara Easter (MS, Boise State), Abigale Sage (MS, Boise State)

Committee Member

- Current (University of Michigan): Katrina Munsterman (PhD student-EEB), Kirby Mills (PhD student-EEB), Siria Gomez (MS student-EEB), Zijun Li (MS student-SEAS), and Wei Hu (MS student-SEAS).
- Past: Anna Levine (MS, University of Alabama), Maia Chicherio (MS, Idaho State University), Hunter Cole (MS, Boise State), Teague Scott (MS, Boise State), Mitch Levenhagen (MS, Boise State), Ellie Opdahl (MS, Boise State)

Undergraduate Mentorship

- Current: Elliott Smith (University of Michigan, PitE)
- Past: Chinmay Sonawane (Harvard University), Julie Ramirez (Boise State), Jessica Mueller (Boise State), Anna Roser (Boise State), Javier Luna (Boise State), Micah Jasny (Michigan State University), Randall Malcolm (Michigan State University)

Completed Degrees

- 2019 – Abigale Sage, MS in Biology (Boise State), Integrating social dimensions into spatial connectivity planning for grizzly bears
- 2018 - Tara Easter, MS in Biology (Boise State), Quantifying mammalian interactions and distributions to inform conservation planning in Mozambique

SERVICE AND OUTREACH ACTIVITIES

JOURNAL AND BOOK CHAPTER REVIEWS

- July 2019 – May 2020 (14): Conservation Biology, Science Advances, Biological Conservation, Journal of Applied Ecology, Conservation Science and Practice (2), Environmental Research Letters, Frontiers in Ecology and Evolution, Ecological Applications (2), Ecological Economics, Trends in Ecology and Evolution, Proceedings of the National Academy of Sciences, and Global Ecology and Conservation.
- Past Reviews: Journal of Applied Ecology, Ecological Economics, AMBIO, African Journal of Ecology, Ecological Modelling, Ecography, Conservation Letters, Ecological Applications, Global Ecology and Conservation, Conservation Biology, Diversity and Distributions, Biological Conservation, Biodiversity and Conservation, Human Dimensions of Wildlife, PeerJ, BioScience, Animal Conservation, PLoS One, Regional Environmental Change, Journal of Mammalogy, Conservation and Society, Landscape Ecology, Ecology and Society, Journal of Wildlife Management, Oryx, Ecosphere, Canadian Journal of Zoology, URSUS, Land, Michigan Journal of Sustainability, Serengeti IV: Sustaining biodiversity in a coupled human-natural system (Book)

SERVICE

- Guest Editor for Special Issue on “Methods for integrated assessment of human-wildlife interactions and coexistence in agricultural landscapes” in the journal *Conservation Science and Practice*. **2019-2020**
- Guest Editor for Focus Collection on The Social-Ecological Future of the American West” in the journal *Environmental Research Letters*. **2019-2020**
- Boise State mentor for the NSF Gateway Scholars Program **2018**
- On search committee for one faculty in Human-Environment System Center (College of Innovation and Design). We successfully hired Dr. Kelly Hopping. **2017**
- Elected member of Graduate Studies Committee for Ecology, Evolution, and Behavior PhD program **2017-2021**

- Key participant in NSF-EAGER grant titled "Aligning Stakeholders and Structures to Enable Risk Taking (ASSERT)" led by Will Hughes and Donna Llewellyn (Boise State). **2016-2017**
- On search committee for two faculty in Human-Environment Systems Center (College of Innovation and Design). We successfully hired Dr. Vicken Hillis. **2016**

IMPACTS AND OUTREACH

- 2020. *Science Advances* paper discussed in [The Conversation](#)
- 2020. [Thousands of miles of planned Asian roads threaten the heart of tiger habitat](#)
- 2020. *Nature Ecology and Evolution* paper discussed in [The Wildlife Society](#) bulletin
- 2020. [‘Sensory danger zones’: How sensory pollution impacts animal survival](#)
- 2019. [NASA Helps National Parks Track Impact of Noise, Lighting on Wildlife](#)
- 2018. *Science* paper covered in [NY Times](#), [Nature](#), [Scientific American](#), and over 100 other news outlets.
- 2018. Discussed *Science* paper on [NPR weekend edition](#).
- 2018. *Conservation Biology* paper featured in the Royal Geographical Society’s [Geographical magazine](#).
- 2018. *Nature Ecology and Evolution* paper discussed in [The Conversation](#)
- 2018. Research in *Nature Ecology and Evolution* mentioned in over 30 news outlets.
- 2018. Research in *Biological Conservation* featured in Boise State news update and [newswise](#).
- 2017. Presentation at the Foothills Learning Center about "[Predators of the Foothills](#)" with Tara Easter.
- 2017. Human-Environment Systems featured in the [Boise Arbiter](#)
- 2016. Human-Environment Systems featured in the [Idaho Statesman](#)
- 2016. Research on Gender, Attitudes, and Tigers highlighted in [Newswise Boise News Update](#), [Biosphere](#), and [Mongabay](#)
- 2016. Discussed research in interview on [Boise State NPR](#)
- 2016. Research on coexistence highlighted in "[takepart](#)" blog post
- 2016. Research on [tolerance to tigers](#) and [coexistence](#) highlighted in [Boise News Update](#)
- 2014. Presentation at Café Scientifique (49 West Coffee Shop) on "Integrating science, ethics, and practice to advance carnivore conservation in a human-dominated world".
- 2013. Research on community forestry and tiger habitat highlighted in [Yale e360](#)
- 2013. Presentation at Annapolis High School on "Tigers and Biodiversity Conservation"
- 2013. SESYNC Blog: [Protecting Predators, Protecting People](#)
- 2013. Research highlighted in [Conservation Magazine](#)
- 2012. Discussed research in interviews with [Science Update](#) and [Voice of America](#)
- 2012. Research highlighted in [BBC](#), [New York Times](#), Discovery Channel, AAAS, [Scientific American](#), NSF, *Nature* and *Science* magazines, [Conservation Magazine](#), and as comic called [Night Growl](#).
- 2011. Spartan Saga. "[Understanding the human-nature dance](#)".
- 2011. MSUToday show (No 26). "[Living with Tigers](#)".

RELEVANT TRAINING, EMPLOYMENT, AND ACTIVITIES

TRAINING AND CERTIFICATIONS

- 2011 – 2012. Awarded one of 20 competitive positions in Emerging Wildlife Conservation Leaders ([EWCL](#)) training and mentoring initiative.
EWCL provides intense training in conservation campaign development. My EWCL team and I developed a lion conservation and awareness campaign in Northern Kenya called [LION WATCH](#).
- 2008. Chemical immobilization of wildlife from Safe Capture International, Cleveland, OH
- 2008. Chemical immobilization of big cats from Henry Doorly Zoo, Omaha, NE
- 2005. Received GIS certification from San Diego Mesa Community College, San Diego, CA

RELEVANT EMPLOYMENT

World Bank, Sustainable Development Department, Washington, DC

Consultant

2014

I assisted in a research project examining the bioeconomic potential of the Ruaha-Rungwa region in Tanzania. My research entailed the development and coupling of models pertaining to African lion-prey dynamics and household economics and land-use decisions.

Environmental Spatial Analysis Lab, Univ. of Michigan, Ann Arbor, MI

Geographic Information Systems Research Assistant

2005

I assisted in a project, financed by NASA, which analyzed the feedback between human settlement and land-cover/land-use change around the Poyang Lake region in China. I also worked on a project that examined the relationship between obesity and landscape characteristics at 5 major cities.

City of San Diego Information Technology Department, San Diego, CA

Geographic Information Systems Intern

2004 - 2005

My duties included developing and maintaining geographic databases, testing software, map production for various departments using ESRI's ArcGIS desktop software, coordinating application development with City Departments, and business meeting support.

Center for Biological Diversity, San Diego, CA

Researcher

2004

I assisted project staff in research of conservation status of endangered species, project compliance with conservation laws and other duties. I helped write and publish two petitions to put local butterflies on the Endangered Species List.

RELATED ACTIVITIES

- 2007. Volunteered with Montana Cooperative Wildlife Research Unit to track and record the presence of wolves and wolf rendezvous sites in Idaho.
- 2006. Volunteered with United States National Park Service in the Upper Peninsula, Michigan, capturing black bears to obtain bear population information in the region.

PROFESSIONAL AFFILIATIONS AND MEMBERSHIPS (PAST AND PRESENT)

- International Association for Landscape Ecology
- American Association for the Advancement of Science
- Society for Conservation Biology
- Association of American Geographers
- Ecological Society of America
- The Wildlife Society
- International Association for Society and Natural Resources
- Coupled Human and Natural Systems Network (CHANS-Net.org)