

Neil Henderson Carter

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National Socio-Environmental Synthesis Center

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RESEARCH INTERESTS

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

PROFESSIONAL PREPARATION

National Socio-Environmental Synthesis Center, Annapolis, MD

Postdoctoral Fellow (advisor: Dr. Simon Levin at Princeton University)

2013 – present

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

Peking Univ., Beijing, China

Undergraduate junior year travel abroad

2002

Full time student for 13 months studying Chinese language, history, and culture

JOURNAL ARTICLES (PEER-REVIEWED)

- Bruskotter, J.T., G.R. Karns, K. Ard, C. Wolf, J. Vucetich, S.D. Gehrt, N.H. Carter, and W.J. Ripple. 2015. Modernization, human risk and the conservation of the world's largest carnivores. In review.
- Inskip, C., N.H. Carter, S.J. Riley, Z. Fahad, T. Roberts, and D. MacMillan. 2015. Towards human-carnivore coexistence: understanding tolerance for tigers in Bangladesh. In review.
- Carter, N.H., J.D.C. Linnell, M. Gore, A. Dickman, J. Baird Callicott, V. Athreya, and N. Lescureux. 2015. Realizing coexistence between people and large carnivores in shared landscapes. In review.
- 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.
- 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>
- 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.

- 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)
- 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.
- 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.
- 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](#)).
- Carter, N.H., S.J. Riley, J. Liu. 2012. Utility of a psychological framework for carnivore conservation. *Oryx* 46: 525-535.
- 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. 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, N.H. 2015. Realizing coexistence between people and large carnivores in shared landscapes (poster). International Congress on 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 SYMPOSIUMS AND INVITED PRESENTATIONS

- Carter, N.H., A. Treves, and M. Gore (co-organizers). 2016. Symposium: "Wildlife poaching in socio-environmental systems: integrated perspectives and tools to address a global conservation challenge" for Pathways Kenya (Nanyuki, Kenya).
- Carter, N.H. 2015. Approaching carnivore poaching with a global framework. USC Conference on Conservation, Computation, and Criminology (Washington, DC, USA).
- Carter, N.H. 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 on Conservation Biology (Missoula, MT, USA).
- Carter, N.H. 2014. Synthesizing social and environmental data and theories to advance tiger conservation. Helmholtz Centre for Environmental Research – UFZ (Leipzig, Germany).
- Carter, N.H. 2013. Integrating social and ecological sciences for coexistence. Carnivore Coexistence Lab, Nelson Institute for Environmental Studies, Univ. of Wisconsin (Madison, WI, USA).
- Carter, N.H. 2012. Bridging human and natural sciences to advance tiger conservation in Nepal and beyond. Wildlife Conservation Society headquarters (Bronx, NY, USA).

TEACHING EXPERIENCE

National Socio-Environmental Synthesis Center, Annapolis, MD, USA

Co-teacher – "Teaching Socio-Environmental Synthesis with Case Studies"

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.

- Fisheries and Wildlife, Michigan State Univ., East Lansing, USA*
Guest Lecturer – “FW 434, Human Dimensions of Fisheries and Wildlife Management” **2011, 2012**
Discussed the application of human dimensions research in Nepal
- Institute for Social and Environmental Research, Chitwan, Nepal*
Lecturer – “Introduction to Geographic Information Systems” **2010**
Developed and taught 2-day training course to staff from wildlife conservation agencies and local Univ. students in environmental science.
- School of Natural Resources, Univ. of Michigan, Ann Arbor, USA*
Graduate Student Instructor – “Biology 390, Evolution” **2006**
Organized and led weekly discussions on lecture topics, held office hours, and administered grades.
- School of Natural Resources, Univ. of Michigan, Ann Arbor, USA*
Graduate Student Instructor – “NRE 531, Principles of Geographic Information Systems” **2006**
Organized and led weekly laboratory sessions, held office hours, and administered grades.

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

MENTORSHIP

- Micah Jasny – Undergraduate at College of William and Mary. Mentored from May – August 2013
- Randall Malcolm – Undergraduate at Michigan State Univ. Mentored from May – Sept. 2010

JOURNAL AND BOOK CHAPTER REVIEWS

- Regional Environmental Change, Journal of Mammalogy, Conservation Biology, Biological Conservation, Conservation and Society, Landscape Ecology, Biodiversity and Conservation, Ecology and Society, Conservation Letters, Journal of Wildlife Management, Human Dimensions of Wildlife, Oryx, Ecosphere, Canadian Journal of Zoology, URSUS, Land, Michigan Journal of Sustainability, Serengeti IV: Sustaining biodiversity in a coupled human-natural system (Book)

AWARDS, FELLOWSHIPS, AND GRANTS

- 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**

- 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**
- U.S. Fish and Wildlife Service, Rhinoceros and Tiger Conservation Fund Grant – 2 year duration (\$42,859) **2010 – 2012**
- 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**
- Michigan Department of Natural Resources and Environment Research Grant (\$10,000) **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**

RELEVANT EMPLOYMENT

World Bank, Sustainable Development Department, Washington, DC

Consultant

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.

2014

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

Geographic Information Systems Research Assistant

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.

2005

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

Geographic Information Systems Intern

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.

2004 - 2005

Center for Biological Diversity, San Diego, CA

Researcher

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.

2004

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

- 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 , and Coupled Human and Natural Systems Network (CHANS-Net.org)

OUTREACH AND MEDIA

- 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 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"](#).