

Daniel S. Karp

Wildlife, Fish, and Conservation Biology
University of California, Davis
1071 Academic Surge
One Shields Ave
Davis, CA 95616-8627
office: (530) 752-2108 • cell: (530) 219-9868
email: dkarp@ucdavis.edu • website: <http://karp.ucdavis.edu>

CURRENT POSITION

2017-present Assistant Professor, University of California Davis
Department of Wildlife, Fish, & Conservation Biology

PREVIOUS POSITION

2015-2016 Killam Postdoctoral Fellow, The University of British Columbia
Institute for Resources, Environment, and Sustainability
Advisor: Kai Chan

2013-2015 NatureNet Science Fellow, The Nature Conservancy & UC Berkeley
Department of Environmental Science, Policy, and Management
Advisors: Claire Kremen, Mary Ruckelshaus, and Peter Kareiva

EDUCATION

2009-2013 PhD, Biology- Ecology and Evolution, Stanford University
GPA 4.25/4.00
Advisor: Gretchen Daily

2005-2009 BS, Biology- Ecology and Evolution Track, Stanford University
BS, Earth Systems- Biosphere Concentration, Stanford University
GPA 4.03/4.00
Advisors: Terry Root and Rodolfo Dirzo

CURRENT RESEARCH

Earth is experiencing more rapid changes now than at any time in the past ten thousand years. I am investigating the resulting trajectories of change in biodiversity and Earth's life-support systems. Looking forward, a key challenge for humanity is to increase food production, while at the same time securing other vital societal benefits from rural landscapes. Meeting this challenge requires improved understanding of how agricultural practices affect yields, biodiversity, and ecosystem services. My research thus focuses on developing methods for reconciling conservation activities with food production practices. My research program has four aspects. First, I develop and apply ecological theory to understanding and managing biodiversity in working landscapes. Second, I quantify the effects of alternative agricultural practices on biodiversity-mediated ecosystem services. Third, I investigate how identifying tradeoffs among biodiversity and ecosystem services can inform development of multifunctional landscapes. Finally, I work with international experts to synthesize science and guide policy.

TEACHING EXPERIENCE

2017 Instructor, Conservation Biology (WFC 198).
2017 Co-instructor, BioControl: Ecology & Applications (ECL 290, graduate seminar).

2010	Teaching Assistant, Human Evolution and the Environment (Bio 1).
2010	Teaching Assistant, Core Experimental Biological Laboratory (Bio 44Y).
2010	Teaching Assistant, Conservation Biology (Bio 144).
2009	Teaching Assistant, Biology of Birds (Bio 139).

MENTORING EXPERIENCE

2017-present	Alison Ke, PhD student (supervisor).
2017	Daniel Paredes, Visiting Postdoctoral Researcher, (supervisor).
2014	Sara Winesemias, field assistant.
2014	Mia Waters, field assistant.
2012-2013	Sarah Kaewert, undergraduate.
2012	Zoe Dubrow, undergraduate.
2012	Seth Judson, undergraduate.
2011-2012	Maesen Churchill, undergraduate.
2011-2012	Florence Rutsch, undergraduate.
2010-2011	Steve Scheele, undergraduate.

Student Committees

2015-present	Alejandra Echeverri Ochoa (dissertation committee)
2017	Michael Culshaw-Maurer (qualifying exam committee)
2017	Emelie Graves (qualifying exam committee)

SYNERGISTIC ACTIVITIES

2017-present	Co-Chair of Wildlife, Fish, and Conservation Biology Seminar Series , UC Davis. With Pernille Boving, created a bi-weekly seminar series for the department of Wildlife, Fish, and Conservation Biology. Engaged students, postdocs, and faculty to build community and enhance WFCB visibility.
2017-present	Faculty Advisor of the Graduate Group of Ecology's Diversity Committee , UC Davis. One of two faculty members of a committee charged with fostering diversity and promoting inclusivity in the UC Davis ecology community.
2016-present:	Science Advisory Board , The Nature Conservancy's Working Lands Program. Member of an advisory board tasked with reviewing the evidence that a variety of agricultural practices increase biodiversity, ecosystem services, and/or crop yields in Mediterranean ecosystems.
2014-present	Pest Control Working Group Co-Lead , National Socio-Environmental Synthesis Center (SESYNC). With Rebecca Chaplin-Kramer, organized international working group of ecologists, entomologists, economists, and sociologists to develop the first general, spatial model for biological control. Responsible for all team leadership activities, including securing funding and coordinating bi-annual meetings, research activities, syntheses of pest control data, dissemination of findings, and outreach.
2010-present	Ecosystem Services Working Group Member , Group on Earth Observations—Biodiversity Observation Network (GEO BON). Member of a working group designed to monitor and report changes in ecosystem services from local to global scales. Attended meetings in Monterey, Rome, Paris, and Potsdam. Helped write manuscripts and designed research aimed at reporting ecosystem services at national scales.
2010-present	Peer reviewer . Contributed peer reviews to >40 grants and academic articles for journals including <i>Nature</i> , <i>Ecology Letters</i> , <i>PNAS</i> , and others.
2012-2013	Rising Environmental Leaders Program , Woods Institute for the Environment. Trained in environmental leadership including crafting

policy-informative research, communication skills, and strategies for integrating research into policy with a cohort of 24 students. Attended meetings in California and in Washington, DC.

PRIOR RESEARCH EXPERIENCE

2006-2008	Ecology Research Assistant, Professor Terry Root's lab.
2006-2007	Bird Banding Volunteer, San Francisco Bay Bird Observatory.
2006	Bird Banding Intern, Klamath Bird Observatory.
2006	Ecology Research Assistant, Professor Gretchen Daily's lab.
2000-2004	Shift Supervisor and Interpretive Guide, Lindsay Wildlife Museum.

HONORS AND FELLOWSHIPS

2015	Killam Postdoctoral Research Fellowship, Killam Trusts Office.
2014	Hann Endowed Lecture of Ornithology, University of Michigan.
2014	Faculty of 1000, Nomination of 2012 Ecology Letters paper.
2014	Early Career Scientist Symposium, University of Michigan.
2013	Davidson-Cristoph Award, Organization for Tropical Studies
2013	NatureNet Science Fellowship, Inaugural class
2012	Best Talk Award, North American Congress for Conservation Biology
2010	Graduate Research Fellowship, NSF
2010	Excellence in Teaching Award, Biology Department-Stanford University
2009	JE Sterling Award for Scholastic Achievement, Stanford University
2009	Firestone Medal for Undergraduate Research, Stanford University
2009	Miller-Marsden Prize for Environmental Research, Stanford University
2009	Dean's Award for Academic Achievement, School of Earth Sciences
2009	Honorable Mention Graduate Research Fellowship, NSF
2007	Award for Excellence in Biological Laboratory, Stanford University
2006	President's Award for Academic Excellence, Stanford University
2004	Achievement in Environmental Change, Lindsay Wildlife Museum

GRANTS

2017-present	USDA Bioenergy, Natural Resources, and Environment Program (PI; \$500,000)
2017-present	National Geographic Committee for Research and Exploration (PI; \$20,850)
2015-2016	Killam Postdoctoral Research Fellowship (\$100,000)
2013-2014	NatureNet Science Fellow, The Nature Conservancy (\$200,000)
2013	Stanford BioSciences Travel Grant (\$500)
2013	Stanford Biology Department Travel Grant (\$600)
2012	NSF Doctoral Dissertation Improvement Grant (\$15,000)
2012	Stanford Biology Department Travel Grant (\$750)
2012	Organization for Tropical Studies Research Fellowship Program (\$3,650)
2012	Bat Conservation International Student Scholarship (\$3,600)
2012	SciFund Challenge (\$1,100)
2011-2013	NSF Graduate Research Fellowship (\$180,000)
2011	Vice Provost of Graduate Education SCORE grant (\$2,000)
2008	Tambopata Experienced Researcher Fellowship (\$5,000)
2008	Stanford University Major Grant (\$5,200)
2007	Tambopata Research Fellowship (\$5,000)
2007	Monica Miller Walsh Internship Grant (\$2,150)
2007	Stanford University Quarterly Grant (\$1,500)

PUBLICATIONS (* = shared first authorship)

- Karp, D.S.**, L.O. Frishkoff, A. Echeverri, J. Zook, P. Juárez, and K.M.A. Chan (In Press) Agriculture erases climate-driven β -diversity in Neotropical bird communities. *Global Change Biology*.
- Stegner, M.A., **D.S. Karp**, A.J. Rominger, and E.A. Hadly (2017) Can protected areas really maintain mammalian diversity? Insights from a nestedness analysis of the Colorado Plateau. *Biological Conservation* **209**: 546-553.
- Tscharntke, T., **D.S. Karp**, R. Chaplin-Kramer, P. Bártary, F. DeClerk, C. Gratton, L. Hunt, A. Ives, M. Jonsson, A. Larsen, E.A. Martin, A. Martínez-Salinas, T.D. Meehan, M. O'Rourke, K. Poveda, J.A. Rosenheim, A. Rusch, N. Schellhorn, T.C. Wanger, S. Wratten, and W. Zhang (2016) When natural habitat fails to enhance biological pest control- five hypotheses. *Biological Conservation* **204**: 449-458.
- Karp, DS**, R. Moses, S. Gennet, M. Jones, S. Joseph, L.K. M'Gonigle, L.C. Ponisio, W.E. Snyder, and C. Kremen. (2016) Agricultural practices for food safety threaten pest-control services to fresh produce. *Journal of Applied Ecology* **53**: 1402-1412.
- Turcotte, M.M., Araki, H., **Karp, D.S.**, Poveda, K., and Whitehead, S.R. The eco-evolutionary impacts of domestication and agricultural practices on wild species. (2016) *Philosophical Transactions of the Royal Society B* **372**: 20160033.
- Balvanera, P., S. Quijas, **D.S. Karp**, N. Ash, E. Bennett, R. Boumans, C. Brown, K. Chan, R. Chaplin-Kramer, B.S. Halpern, J. Honey-Roses, C.K. Kim, W. Cramer, M.J. Martínez-Harms, H. Mooney, T. Mwampamba, J. Nel, S. Polasky, B. Reyers, J. Roman, W. Turner, R.J. Scholes, H. Tallis, K. Thonicke, F. Villa, M. Walpole, and A. Walz. (2016) Ecosystem Services. In: GEO Handbook on Biodiversity Observation Networks. Springer pp. 39-78.
- Frishkoff, L.O., **D.S. Karp**, J.R. Flanders, J. Zook, E.A. Hadly, G.C. Daily, and L.K. M'Gonigle. (2016) Climate change and habitat conversion favour the same species. *Ecology Letters* **19**: 1081-1090.
- Baur, P., L. Driscoll, S. Gennet, and **D.S. Karp**. (2016) Inconsistent food safety pressures complicate environmental conservation for California produce growers. *California Agriculture* **70**: 142-151.
- Maas, B., **D.S. Karp**, J. S. Bumrungsri, K. Darras, C. Huang, C. Lindell, J. Maine, L. Mestre, N. Michel, E. Morrison, I. Perfecto, S. Philpott, C.H. Sekercioglu, R.M. Silva, T. Tscharntke, S. Van Bael, C.J. Whelan, K. Williams-Guillen (2016) Bird and bat predation services in tropical forests and agroforestry landscapes. *Biological Reviews*. 91: 1081-1101.
- Karp, D.S.***, P. Baur*, E.R. Atwill, K. DeMaster, S. Gennet, A. Iles, J. Nelson, A. Sciligo, and C. Kremen (2015) Unintended ecological and social impacts of food safety regulations in the California Central Coast. *BioScience* **65**: 1173-1183.
- Wood, S., **D.S. Karp**, F. DeClerke, C. Kremen, S. Naeem, and C. Palm (2015) A functional trait approach for understanding the impacts of biodiversity in agriculture. *Trends in Ecology and Evolution* **30**: 531-539.
- Karp, D.S.**, H. Tallis, R. Sachse, B. Halpern, K. Thonicke, W. Cramer, B. Tietjen, H. Mooney, S. Polasky, B. Tietjen, K. Waha, A. Walz, and S. Wolny. (2015) National indicators for

- observing ecosystem service change. *Global Environmental Change* **35**: 12-21.
- Karp, D.S.**, S. Gennet, C. Kilonzo, M. Partyka, N. Chaumont, E.R. Atwill, and C. Kremen. (2015) Co-managing agriculture for nature conservation and food safety. *Proceedings of the National Academy of Sciences* **112**: 11126-11131.
- Karp, D.S.**, C.D. Mendenhall, E. Callaway, L. Frishkoff, P.M. Kareiva, P.R. Ehrlich and G.C. Daily (2015) Confronting and resolving competing values behind conservation objectives. *Proceedings of the National Academy of Sciences* **112**: 11132-11137.
- Karp, D.S.**, C.D. Mendenhall, E. Callaway, L. Frishkoff, P.M. Kareiva, P.R. Ehrlich and G.C. Daily (2015) Reply to Kirchhoff: Homogenous and mutually exclusive conservation typologies are neither possible nor desirable. *Proceedings of the National Academy of Sciences* **112**: e5906.
- Daily, G.C. and **D.S. Karp** (2015) Nature's bounties: reliance on pollinators for health *The Lancet* **386**: 1925-1927.
- Tallis, H, J. Lubchenco,...**D.S. Karp**..., et al. (2014) A call for inclusive conservation. *Nature* **515**: 27-28.
- Karp, D.S.**, S. Judsen, E. Hadly, and G. Daily (2014) Molecular diagnosis of bird-mediated pest control across tropical countryside. *SpringerPlus* **3**: 630.
- Frishkoff, L.* , **D.S. Karp***, C.D. Mendenhall, L. M'Gonigle, J. Zook, C. Kremen, E.A. Hadly, and G.C. Daily. (2014) Loss of avian phylogenetic diversity in Neotropical agricultural systems. *Science* **345**: 1343-1346.
- Mendenhall, C.D., **D.S. Karp**, C.F.J. Meyer, E.A. Hadly, and G.C. Daily. (2014) Predicting biodiversity change and averting collapse in agricultural landscapes. *Nature* **509**: 213-217.
- Karp, D.S.** and G. Daily (2014) Cascading effects of insectivorous birds and bats in tropical coffee plantations. *Ecology* **95**: 1065-1074.
- Garbach, K., J.C. Milder, M. Montenegro, **D.S. Karp**, and F. DeClerke. (2014) Ecosystem Services in Agricultural Lands. In: The Encyclopedia of Agriculture.
- Karp, D.S.**, C.D. Mendenhall, R.F. Sandí, P.R. Ehrlich, E.A. Hadly, and G.C. Daily (2013) Forest bolsters bird abundance, pest control, and coffee yield. *Ecology Letters* **16**: 1339-1347.
- Pereira, H., S. Ferrier, M. Walters, G. Geller, R. Jongman, R. Scholes, M. Bruford, N. Brummit, S. Butchart, A. Cardoso, N. Coops, E. Dulloo, D. Faith, J. Freyhof, R. Gregory, C. Heip, R. Hoft, G. Hurtt, W. Jetz, **D.S. Karp**, M. McGeoch, D. Obura, Y. Onoda, N. Pettorelli, B. Reyers, R. Sayre, J. Scharlemann, S. Stuart, E. Turak, M. Walpole, and M. Wegmann. (2013) Essential biodiversity variables for global earth observation. *Science* **339**: 277-278.
- Karp, D.S.**, H. Moeller, and L. Frishkoff (2013) Nonrandom extinction patterns can modulate pest-control service decline. *Ecological Applications* **23**: 840-849.
- Anderegg, W.R.L, L. Anderegg, C. Sherman, and **D.S. Karp** (2012) Effects of widespread drought-induced aspen mortality on understory plants. *Conservation Biology* **26**: 1082-

1090.

Tallis, H., H. Mooney, S. Andelman, P. Balvanera, W. Cramer, **D.S. Karp**, S. Polasky, B. Reyers, T. Ricketts, S. Running, K. Thonicke, B. Tietjen, and A. Walz (2012) A global system for monitoring ecosystem service change. *BioScience* **62**: 977-986.

Karp, D.S., A.J. Rominger, J. Zook, J. Ranganathan, P.R. Ehrlich, and G.C. Daily (2012) Intensive agriculture erodes β -diversity at large scales. *Ecology Letters* **15**: 963-970.
Faculty of 1000.

Karp, D.S., G. Ziv, J. Zook, P.R. Ehrlich, and G.C. Daily (2011) Resilience and stability in bird guilds across tropical countryside. *Proceedings of the National Academy of Sciences* **108**: 21134-21139.

Karp, D.S. and R. Guevara (2011) Conversational noise reduction as a win-win for ecotourists and rainforest birds. *Biotropica* **43**: 122-130

Karp, D.S. and T. Root (2009) Sound the stressor: how hoatzins (*Opisthocomus hoazin*) react to ecotourist conversation. *Biodiversity and Conservation* **18**: 3733-3742.

POPULAR PUBLICATIONS

D.S. Karp, S. Gennet, and R. Kelsey (2014) Can we grow safe produce and conserve nature at the same time? *Cool Green Science*. The Nature Conservancy. <http://blog.nature.org/science/2014/12/15/safe-produce-conservation-nature-wildlife-ecoli-habitat-foodborne>

L.O. Frishkoff and **D.S. Karp** (2014) Preserving evolutionary history alongside tropical agriculture. *Landscapes Blog for People, Food, and Nature*. EcoAgricultural Partners. <http://peoplefoodandnature.org/blog/preserving-evolutionary-history-alongside-tropical-agriculture/>

D.S. Karp (2014) Discovering abundance in own backyard. *Field Notes*. Peninsula Open Space Trust. <http://blog.openspacetrust.org/2014/06/26/abundance-in-our-backyard/>

Keyes, S.M. and **D.S. Karp**. (2014) The Bard's Birds. *The Pacific Standard*. <http://www.psmag.com/navigation/nature-and-technology/shakespeare-fanatic-introduced-bards-birds-america-82279/>

Karp, D.S. (2012) Big farms, small farms, and biodiversity. *Landscapes Blog for People, Food, and Nature*. EcoAgricultural Partners. http://blog.ecoagriculture.org/2012/09/19/ccb_birds/

Karp, D.S. (2011) Birds, bats, and the berry borer: Conserving insectivores and pest control services in Costa Rican coffee plantations. *Amigos Newsletter* **N76**: 6-7.

Karp, D.S. (2011) Birds, bats, and la broca: valuing pest control in coffee plantations. *San Vito Bird Club Newsletter* **5**: 6-9

INVITED TALKS

2017	Wildlife, Fish, and Conservation Biology Seminar Series, UC Davis
2017	Wildlife Seminar Series, UC Berkeley
2016	Canada Wildlife Service, Environment and Climate Change Canada

2016	Institute for Resources, Environment, & Sustainability Seminar Series, University of British Columbia
2016	Centro Agronómico Tropical de Investigación y Enseñanza (CATIE)
2016	Way Cool Seminar Series, Biodiversity Research Centre, University of British Columbia
2016	Department of Food Science, Cornell University
2015	Department of Wildlife, Fish, and Conservation Biology, UC Davis
2015	Department of Anthropology, UC Davis
2015	Department of Ecology and Evolutionary Biology, Princeton University
2014	Swedish University of Agricultural Sciences
2014	Center for Latin American Studies, Stanford University
2014	MARINE seminar series, Moss Landing Biological Labs
2014	Hann endowed lecture, University of Michigan, Biological Station
2014	Center for Tropical Research, University of California Los Angeles
2014	San Jose State University
2014	Essig Museum of Entomology, University of California Berkeley
2013	San Francisco State University
2009	Achauer Symposium, Stanford University

CONFERENCE PRESENTATIONS (* = invited)

2017	Ecological Society of America*
2017	Developing BONs in Latin America, Stanford University*
2017	Natural Capital Symposium, Stanford University*
2016	North American Ornithological Congress
2016	Ecological Society of America
2015	Natural Capital Symposium, Stanford University
2014	Ecological Society of America
2013	Association for Tropical Biodiversity and Conservation*
2013	All Science Meeting, The Nature Conservancy
2012	Species Interactions Workshop, Stanford University/UC Santa Cruz
2012	Ecological Society of America
2012	North American Congress of the Society for Conservation Biology
2012	Species Interactions Workshop, Stanford University/UC Santa Cruz
2011	Ecological Society of America
2011	Bay Area Conservation Biology Symposium

REVIEWS (PUBLICATIONS)

Annals of the New York Academy of Sciences	Applied Animal Behavior Science
Basic and Applied Ecology	Biodiversity and Conservation
Biological Control	Biology Letters
BioScience	Biotropica
Ecology Letters	Ecological Applications
Functional Ecology	Global Change Biology
Global Ecology and Conservation	Int. J. Bio. Sci. Eco. Serv. Man.
Journal of Applied Ecology	Journal of Pest Science
Nature	Methods in Ecology and Evolution
PeerJ	PNAS
Proceedings of the Royal Society B	

REVIEWS (GRANTS)

National Environment Research Council of the United Kingdom

National Science Foundation
NRN-LEE

MEDIA AND OUTREACH

I strive to disseminate my research findings broadly. I have worked with the University of California and Stanford University press offices to develop releases, and have been interviewed for print media, online news sources, television, and radio. Outlets include Nature News, PBS Newshour, and NPR. Articles have been published in English, Spanish, Dutch, and German.