Daniel S. Karp

Wildlife, Fish, and Conservation Biology
University of California, Davis
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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-present Elissa Olimpi, Postdoctoral Researcher, (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-present Emelie Graves (qualifying and dissertation exam committee)
2017-present Mickey Agha (qualifying and dissertation exam committee)
2018 Allie Essert (qualifying exam committee)
2017 Michael Culshaw-Maurer (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 *Nature, Ecology Letters, PNAS*, 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 (2018) Agriculture erases climate-driven β-diversity in Neotropical bird communities. *Global Change Biology* **24**: 338-349.

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.

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. (2017) *Philosophical Transactions of the Royal Society B* **372**: 20160033.

Tscharntke, T., **D.S. Karp**, R. Chaplin-Kramer, P. Bátary, 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.

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 Kirchkoff: 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.

PUBLICATIONS IN REVIEW

Karp, D.S., R. Chaplin Kramer, and 152 co-authors (In Review) Crop pests and predators exhibit inconsistent responses to surrounding landscape composition. *Proceedings of the National Academy of Sciences.*

Frishkoff, L.O., A. Echeverri, K.M.A. Chan, and **D.S. Karp** (In Review) Do correlated responses to multiple environmental changes exacerbate or mitigate species loss. *Oikos.*

Jones, M.S., Z. Fu, J.P. Reganold, **D.S. Karp**, T.E. Besser, J.M. Tylianakis, and W.E. Snyder (In Review) Organic farming promotes biotic resistance to food-borne human pathogens. *Proceedings of the National Academy of Sciences.*

Gonthier, D., A. Sciligo, **D.S. Karp**, A. Lu, K. Garcia, G. Juarez, T. Chiba, and C. Kremen (In Review) Managing the services and disservices of birds in California farmlands. *Journal of Applied Ecology.*

Anderegg, W.R.L., A.G. Konings, A.T. Trugman, K. Yu, D.R. Bowling, **D.S. Karp**, S. Pacala, J.S. Sperry, and B. Sulman (In Review) Hydraulic diversity of forests regulates ecosystem resilience during drought. *Nature.*

Echeverri, A., **D.S. Karp**, R. Naidoo, J. Zhao, and K.M.A. Chan (In Review) Approaching human-animal relationships from multiple angles: a synthetic perspective. *Biological Conservation.*

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	Project Director's Meeting, United States Department of Agriculture
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.