
Lisa Mandle

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The Natural Capital Project
Stanford University

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PROFESSIONAL EXPERIENCE

- 2015-present **Academic research staff**
Natural Capital Project, Woods Institute for the Environment, Stanford
University, Stanford, CA
- 2014-present **Senior scientist**
Natural Capital Project, Woods Institute for the Environment, Stanford
University, Stanford, CA
- 2012-2015 **Post-doctoral scholar**
Natural Capital Project, Woods Institute for the Environment, Stanford
University, Stanford, CA

EDUCATION

- 2012 **Ph.D., Botany (Ecology, Evolution & Conservation Biology)**
University of Hawai'i at Mānoa, Honolulu, HI
Dissertation title: Balancing biodiversity and human land use: Effects of fire,
grazing and harvest on plant individuals, populations and communities in the
Western Ghats, India
- 2007 **A.B., Anthropology and Sc.B., Biology**
Brown University, Providence, RI
Magna cum laude, honors in biology, elected to Phi Beta Kappa
- Fall 2004 **Madagascar: Ecology & Conservation**
School for International Training, Madagascar

PUBLICATIONS

Peer-reviewed journal articles

- Chaplin-Kramer, R., I. Ramler, R. Sharp, N. M. Haddad, J. S. Gerber, P. C. West, **L. Mandle**, P. Engstrom, A. Baccini, S. Sim, C. Mueller, H. King. (Accepted). Degradation in carbon stock near tropical forest edges. *Nature Communications*.
- Mandle, L.**, B. P. Bryant, M. Ruckelshaus, D. Geneletti, J. M. Kiesecker & A. Pfaff. (In press). Entry points for considering ecosystem services within infrastructure planning: How to integrate conservation with development in order to aid them both. *Conservation Letters*. doi: [10.1111/conl.12201](https://doi.org/10.1111/conl.12201)
- Terrado, M., S. Sabater, B. Chaplin-Kramer, **L. Mandle**, G. Ziv & V. Acuña. (2016). Model development for the assessment of terrestrial and aquatic habitat quality in conservation planning. *Science of the Total Environment*. 540, 63-70. doi: [10.1016/j.scitotenv.2015.03.064](https://doi.org/10.1016/j.scitotenv.2015.03.064)
- Mandle, L.** & H. Tallis, L. Sotomayor & A. Vogl. (2015). Who loses? Tracking ecosystem service redistribution from road development and mitigation in the Peruvian Amazon. *Frontiers in Ecology and the Environment*, 13(6), 309-315. doi: [10.1890/140337](https://doi.org/10.1890/140337)

- Chaplin-Kramer, B., R. P. Sharp, **L. Mandle**, S. Sim, J. Johnson, I. Butnar, L. Mila i Canals, B. A. Eichelberger, I. Ramler, C. Mueller, N. McLachlan, A. Yousefi, H. King & P. M. Kareiva. (2015). Spatial patterns of agricultural expansion determine impacts on biodiversity and carbon storage. *Proceedings of the National Academy of Sciences*, 112(24), 7402-7407. doi: [10.1073/pnas.1406485112](https://doi.org/10.1073/pnas.1406485112)
- Mandle, L.** & T. Ticktin. (2015). Resilience of palm populations to disturbance is determined by interactive effects of fire, herbivory and harvest. *Journal of Ecology*, 103(4), 1032-1043. doi: [10.1111/1365-2745.12420](https://doi.org/10.1111/1365-2745.12420)
- Varghese, A., T. Ticktin, **L. Mandle** & S. Nath. (2015). Assessing the effects of multiple stressors on the regeneration of fruit harvested trees in a tropical dry forest, Western Ghats, India. *PLoS ONE*, 10(3), e0119634. doi: [10.1371/journal.pone.0119634](https://doi.org/10.1371/journal.pone.0119634)
- Mandle, L.** & T. Ticktin. (2015). Moderate land use changes plant functional composition without loss of functional diversity in India's Western Ghats. *Ecological Applications*. 25(6), 1711-1724. doi: [10.1890/15-0068.1](https://doi.org/10.1890/15-0068.1)
- Mandle, L.**, T. Ticktin, S. Nath, S. Setty & A. Varghese. (2013). A framework for considering ecological interactions for common non-timber forest product species: a case study of mountain date palm (*Phoenix loureiroi* Kunth) leaf harvest in South India. *Ecological Processes*, 21(1), 1-9. doi: [10.1186/2192-1709-2-21](https://doi.org/10.1186/2192-1709-2-21)
- Krishnamurthy, V., **L. Mandle**, T. Ticktin, R. Ganesan, C.S. Saneesh & A. Varghese. (2013). Conservation status and effects of harvest on an endemic multi-use cycad, *Cycas circinalis* L., in the Western Ghats, India. *Tropical Ecology*, 54(3), 309-320.
- Mandle, L.** & T. Ticktin. (2013). Moderate land use shifts plant diversity from overstory to understory and contributes to biotic homogenization in a seasonally dry tropical ecosystem. *Biological Conservation*, 158, 326-333. doi: [10.1016/j.biocon.2012.08.006](https://doi.org/10.1016/j.biocon.2012.08.006)
- Mandle, L.** & T. Ticktin. Interactions among fire, grazing, harvest and abiotic conditions shape palm demographic responses to disturbance. (2012). *Journal of Ecology*. 100(4):997-1008. doi: [10.1111/j.1365-2745.2012.01982.x](https://doi.org/10.1111/j.1365-2745.2012.01982.x)
- Schmidt, I. B.*, **L. Mandle***, T. Ticktin & O. G. Gaoue. (2011). What do matrix population models reveal about sustainability of non-timber forest product (NTFP) harvest? *Journal of Applied Ecology*. 48(4):815-826. doi: [10.1111/j.1365-2664.2011.01999.x](https://doi.org/10.1111/j.1365-2664.2011.01999.x) Cover article.
- Mandle, L.***, J.L. Bufford*, I.B. Schmidt* & C.C. Daehler. (2011) Woody exotic plant invasions and fire: Reciprocal impacts and consequences for native ecosystems. *Biological Invasions*. 13(8):1815-1827. doi: [10.1007/s10530-011-0001-3](https://doi.org/10.1007/s10530-011-0001-3)
- Mandle, L.**, D. L. Warren, M. H. Hoffmann, A. T. Peterson, J. Schmitt & E. J. von Wettberg. (2010). Conclusions about niche expansion in introduced *Impatiens walleriana* populations depend on method of analysis. *PLoS ONE* 5(12): e15297. doi: [10.1371/journal.pone.0015297](https://doi.org/10.1371/journal.pone.0015297)

Other publications & software

- Mandle, L.** & H. Tallis. (Forthcoming). Spatial ecosystem service analysis for environmental impact assessment of projects. In: *Handbook on Biodiversity and Ecosystem Services in Impact Assessment*, ed. D. Geneletti. Edward Elgar Publishing.

- Chaplin-Kramer, B., **L. Mandle**, E. Rauer and S. Langridge. (2016). Introduction to concepts of biodiversity, ecosystem functioning, ecosystem services and natural capital. In: *Ecosystems of California – A Source Book*, eds. H. Mooney & E. Zavaleta. University of California Press. 265-283.
- Mandle, L.**, J. Douglass, D. Denu, R. Sharp, A. Vogl. (2015). *OPAL (Offset Portfolio Analyzer and Locator) software tool v. 1.0.3* Natural Capital Project. Available online at: <http://www.naturalcapitalproject.org/software/#opal>
- Mandle, L.**, J. Douglass, D. Denu, R. Sharp, A. Vogl, J.S. Lozano, C. Pedraza, T. Walschburger, J.C. Gonzalez & F. Osario. (2014). *MAFE-T version 0.51 – A tool for integrating biodiversity and ecosystem services into impact assessment and offset portfolio design in Colombia*. Natural Capital Project. Available online at: <http://www.naturalcapitalproject.org/software/#opal>
- Tallis, H. & J. Lubchenco + 238 co-signatories (including **L. Mandle**). (2014). Working together: A call for inclusive conservation. *Nature*. 515, 27-28. doi:[10.1038/515027a](https://doi.org/10.1038/515027a)
- Mandle, L.**, R. Griffin & J. Goldstein. (2014). *Natural Capital & Roads: Managing dependencies and impacts on ecosystem services for sustainable road investments*. A report to the Inter-American Development Bank Transport Division and Biodiversity and Ecosystem Services Program.
- Mandle, L.**, H. Tallis, A. Vogl, S. Wolny, J. Touval, L. Sotomayor, S. Vargas and A. Rosenthal. (2013). *Can the Pucallpa-Cruzeiro do Sul road be developed with no net loss of natural capital? A framework for including natural capital in mitigation*. A report to The Nature Conservancy.
- Mandle, L.** & H. Tallis. (2012). *Can the Pucallpa-Cruzeiro do Sul road be developed with no net loss of natural capital in Peru? A report to the Latin America Conservation Council*.
- Mandle, L.** (2010). Research Initiatives in the Nilgiri Biosphere Reserve. *Newsletter of the Nilgiri Natural History Society*, 1(1): 5
- Keystone Foundation. (2009). *Non Timber Forest Products: Protocols for Harvest*. Keystone Foundation, Tamil Nadu, India. (I compiled and edited the guidelines for implementing ecological monitoring and sustainable harvest programs for non-timber forest products within India)

RESEARCH FUNDING & FELLOWSHIPS

- 2015-2016 **World Wildlife Fund** “An ecosystem service assessment for guiding infrastructure development in Myanmar within a Green Economy framework,” led proposal development with PI Gretchen Daily, Stanford University
- 2015-2016 **World Wildlife Fund** “A rapid national natural capital assessment for Mozambique,” led proposal development with PI Gretchen Daily, Stanford University
- 2013-2016 **National Science Foundation Coastal SEES (Science, Engineering, and Education for Sustainability)** “Understanding the links between local ecological knowledge, ecosystem services, and community resilience,” made major contributions to proposal development with PI Tamara Ticktin, UH Mānoa
- 2013-2014 **Inter-American Development Bank** “Including natural capital in planning and impact assessments for infrastructure for the Inter-American Development Bank,” made major contributions to proposal development with PI Gretchen Daily, Stanford University
- 2009-2012 **National Science Foundation Graduate Research Fellowship**

- 2011-2012 **National Science Foundation International Dissertation Enhancement Project**,
co-PI with Tamara Ticktin, UH Mānoa
- 2011 **Charles H. Lamoureux Award**, Botany Department, UH Mānoa
- 2008, 2011 **Beatrice Krauss Award**, Botany Department, UH Mānoa
- 2010 **Maybelle Roth Scholarship**, Achievement Rewards for College Scientists and
Ecology, Evolution & Conservation Biology Program, UH Mānoa
- 2008 **Research Grant**, Ecology, Evolution & Conservation Biology Program, UH Mānoa
- 2008 **Richard Evans Schultes Award**, Society for Economic Botany
- 2008 **Arts and Sciences Advisory Council Award**, UH Mānoa
- 2008 **Watson T. Yoshimoto Scholarship**, Ecology, Evolution & Conservation Biology
Program, UH Mānoa

OTHER AWARDS

- 2011 **Honorable Mention, Murray F. Buell Award for Excellence in Ecology**, Best Student
Oral Presentation at the Ecological Society of America Annual Meeting
- 2011 **Honorable Mention, Best Paper**, Tester Symposium, UH Mānoa
- 2011 **Coupled Human and Natural Systems (CHANS) Network Fellowship/Travel
Grant**
- 2008, 2011 **Travel Grant**, Graduate Student Organization, UH Mānoa
- 2008 **Sarah Ann Martin Award in Botany**, Achievement Rewards for College Scientists,
UH Mānoa
- 2007 **Lydia Carpenter Senior Prize in Biology**, Brown University
- 2007 **William Gaston Premium Scholarship in Anthropology**, Brown University

MEDIA COVERAGE

- “OPAL software aims to restore ecosystems” by Michael Ansaldo on *GreenBiz* website
(greenbiz.com), 2015, covers the software tool I developed for estimating development and
mitigation impacts to ecosystems and ecosystem services
- “The triple bottom line and the wealth of nations” by Andrew Burger on *TriplePundit* website
(triplepundit.com, with over 450,000 unique monthly readers), 2013, covers my work on
ecosystem service impacts of the proposed Pucallpa-Cruzeiro do Sul road

WORKING GROUPS

- SNAP (Science for Nature and People)* 2016-2017
Member of “Developing guidelines for and assessing relationships among biocultural
indicators to improve long-term resilience of Pacific social and ecological communities”
working group
- SNAP (Science for Nature and People)* 2014-2015
Member of “Making ecosystems count: Ecosystem and resilience metrics for progress toward
the sustainable development goals” working group

OUTREACH ACTIVITIES

PlantingScience (www.plantingscience.org)

2010-2015

Scientist mentor

- Served as an online mentor to middle/high school students developing and conducting research projects as part of their school science curriculum.

Science Club, Island Pacific Academy

2011

Invited speaker

- Spoke to high school students about ecological research and environmental issues in South India.

OPIHI (Our Project in Hawaii's Intertidal)

2009

Science assistant

- Assisted elementary school students in field sampling methods and marine organism identification on fieldtrips.

TEACHING EXPERIENCE

Stanford University

Instructor

Winter 2014

- Co-taught Ecological Statistics, a graduate-level Biology Department course on data analysis and statistical methods using R software, with professor Tad Fukami

Invited guest lecturer

- "Ecosystem Services" (in Introduction to Earth Systems undergraduate-level course), Fall 2015
- "Accounting for benefits from nature in decisions: a natural capital approach" (in Intro to Environmental Science graduate-level course for students also pursuing degrees in law, business or education), Spring 2015
- "Ecosystem service accounting" (in Social and Environmental Tradeoffs in Climate Decision-Making, Earth Systems mixed undergrad and graduate-level course), Spring 2014, 2015

Natural Capital Project

Instructor

2013-present

- Co-led over half-a-dozen one- to five-day trainings, including lectures, demonstrations and hands-on activities, on using the Natural Capital Project approaches and software (InVEST, OPAL, RIOS) for incorporating ecosystem services into land management decisions for students, faculty, resource managers and conservation practitioners

University of Hawai'i – University of South Pacific Field Course on Social-Ecological Resilience

Instructor

July 2014

- Developed course materials and hands-on activities on ecosystem service analysis for a week-long field course based in Fiji for ~20 Pacific Islander students

University of Hawai'i at Mānoa

Instructor

Fall 2009

- Developed the curriculum for and taught Plant Conservation Biology, an undergraduate Botany Department course, in collaboration with a fellow graduate student

Invited guest lecturer

- “Managing for biodiversity and ecosystem services in India and Hawai’i” Fall 2011
(in Plant Conservation Biology, Botany Department undergraduate course)
- “Finding funding sources” (in Grant Writing & Your Career in Science, Botany Department graduate course) Spring 2010, 2011
- “Opportunities for studying plants and people” (in Ethnobotany Laboratory, Botany Department undergraduate course) Fall 2010

Teaching assistant

- Natural History of the Hawaiian Islands, undergraduate Botany Department course Spring 2008
- Ecology and Evolutionary Biology Laboratory, undergraduate Biology Program course Fall 2007

SELECT PRESENTATIONS

Invited presentations

- 2015 Assessing Myanmar’s Natural Capital. *Geography Department, Yangon University*. Yangon, Myanmar.
- 2014 Pathways to impact: Infrastructure design and investment. *Natural Capital & Resilience Workshop: Frontiers in Research, Tools, Policy and Practice, Beijer Institute*. Stockholm, Sweden.
- 2013 Integrating biodiversity and ecosystem services in impact and offset accounting. *The Nature Conservancy All Science Meeting*. San Jose, California.
- Balancing biodiversity and human land use in the Western Ghats, India: Effects of fire, grazing and harvest on plant populations and communities. *Conservation Biology Program, University of Missouri*. Columbia, Missouri.
- Developing an approach for eco-compensation of ecosystem services. *International Workshop on Offsets for Impacts on Freshwater Ecosystems, The Nature Conservancy*. Bogota, Colombia.
- The Natural Capital Project: Approaches and tools for putting ecosystem services into action. *Evaluating and Trading Ecological Services: Is There a Role for Natural Capital in the Marketplace? Rice University*. Houston, Texas.
- 2011 Impacts of harvest, grazing and fire on mountain date palm (*Phoenix loureiri*) populations and the potential for sustainable harvest. *Foundation for the Revitalisation of Local Health Traditions*. Bangalore, India.
- Impacts of harvest, grazing and fire on plant populations and communities in the Western Ghats, India. *Keystone Foundation*. Kotagiri, India.

Contributed presentations

- 2015 Can population structure be a useful proxy for projected population growth? A meta-analysis of herbaceous plant populations. *Ecological Society of America Annual Meeting*. Baltimore, Maryland.
- 2014 Integrating ecosystem services into impact assessment and offset siting in Colombia and beyond. *A Community on Ecosystem Services (ACES)*. Washington, DC.

- 2013 Accounting for development's winners and losers: Integrating ecosystem services into impact assessments to weigh the benefits and costs of development to human well-being. *Annual International Ecosystem Services Partnership Conference*. Bali, Indonesia.
 Redeeming sins of omission: Accounting for people in mitigation. *American Association for the Advancement of Science Annual Meeting*. Boston, Massachusetts.
 Accounting for ecosystem services in mitigation: Can the Pucallpa-Cruzeiro do Sul road be developed with no net loss of ecosystem services in Peru?. *International Congress for Conservation Biology*. Baltimore, Maryland.
- 2012 Ecological compatibility and trade-offs between wild plant harvest and conservation of plant diversity in a seasonally dry tropical ecosystem. *Ecological Society of America Annual Meeting*. Portland, Oregon.
- 2011 Identifying trade-offs between management for palm harvest and livestock grazing and conservation of plant diversity in the Western Ghats, India. *International Congress for Conservation Biology*. Auckland, New Zealand.
 Interactive effects of leaf harvest, grazing and fire on the population dynamics of the mountain date palm (*Phoenix loureiri* Kunth) and implications for management. *Ecological Society of America Annual Meeting*. Austin, Texas.
 Fire frequency drives population dynamics of a wild-harvested palm by altering patterns of harvest and herbivory. *International Joint Meeting of the Association for Tropical Biology and Conservation and Africa Section of the Society for Conservation Biology*. Arusha, Tanzania.
 Impacts of harvest, grazing and fire on plant populations and communities in the Western Ghats, India. *Tester Symposium, University of Hawai'i at Mānoa*. Honolulu, Hawai'i.

PROFESSIONAL SERVICE

Reviewer of manuscripts for *Biological Conservation*, *Biotropica*, *Conservation and Society*, *Ecological Processes*, *Economic Botany*, *Ecosphere*, *Ecosystem Services*, *Environmental Modeling and Software*, *Frontiers in Ecology and the Environment*, *PLoS ONE*, *Proceedings B* and *Tropical Ecology*

Reviewer of grant proposals for the National Environment Research Council, UK and the Inter-American Institute for Global Change Research