

Michelle A. Marvier

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Education & Credentials

B. S., <i>cum laude</i> , Biology	1990	Santa Clara University
Ph.D., Biology	1996	University of California, Santa Cruz
Certificate in Effective Instruction	2020	ACUE

Professional Positions

1996	Lecturer, San Jose State University
1997–1998	NSF Fellow and Postdoctoral Researcher, University of Washington
1998, 1999	Lecturer, Mountain Lake Biological Station, VA
1999	Lecturer, University of Washington
2000	Population Ecologist, National Marine Fisheries Service, Northwest Fisheries Science Center
1999–2005	Assistant Professor, Department of Biology, Santa Clara University
2004–2007	Executive Director, Environmental Studies Institute (ESI), Santa Clara University
2005–2006	Associate Professor, Department of Biology, Santa Clara University
2006–2010	Associate Professor, Dept. of Biology and ESI, Santa Clara University
2009–2010	Acting Associate Provost for Research Initiatives, Santa Clara University
2010–2011	Professor, Dept. of Biology and ESI, Santa Clara University
2011–	Professor, Dept. of Environmental Studies and Sciences, Santa Clara University
2011–2014	Department Chair, Dept. of Environmental Studies and Sciences, Santa Clara University
2015–2016	Associate Dean, College of Arts and Sciences
2017–2018	Associate Dean, College of Arts and Sciences

Fellowships and Research Grants

1990	U.C. Santa Cruz, Regents' Fellowship
1993 & 1995	Bodega Field Conferences, Graduate Student Research Award
1994 & 1995	U.C. Santa Cruz, Biology Board, Graduate Student Fellowship
1993–1996	National Science Foundation, Doctoral Dissertation Improvement Grant

- 1997–1998 National Science Foundation, Postdoctoral Fellowship
- 2004–2007 U.S. Environmental Protection Agency, National Center for Environmental Research. *Evidence based risk analysis: learning from our experiences with genetically modified crops*. \$232,347 (10/04 – 9/07)

Awards

Bernard Hubbard, S.J., Creative Collaboration Award, College of Arts and Sciences, Santa Clara University (2008)

Santa Clara University Award for Recent Achievement in Scholarship (2009)

Books

Kareiva, P. and M. **Marvier**. 2011. *Conservation Science: Balancing the Needs of People and Nature*. Roberts & Co. (reviewed in *Science*, *Ecology*, *Biotropica*, and *Conservation Biology*)

Kareiva, P. and M. **Marvier**. 2015. *Conservation Science: Balancing the Needs of People and Nature*. 2nd edition. MacMillan (formerly Roberts & Co.)

Kareiva, P., M. **Marvier**, and B. Silliman (editors). 2018. *Effective Conservation Science: Data Not Dogma*. Oxford University Press.

Journal articles & book chapters (undergraduate coauthors underlined)

Edgerly, J. S. and M. **Marvier**. 1992. To hatch or not to hatch? Egg hatch response to larval density and to larval contact in a treehole mosquito. *Ecological Entomology* 17: 28-32.

Marvier, M. 1996. Parasitic plant- host interactions: plant performance and indirect effects on parasite-feeding herbivores. *Ecology* 77: 1398-1409.

Marvier, M. and D. Smith. 1997. Conservation implications of host use by parasitic plants. *Conservation Biology* 11: 839-848.

Doak, D. F., D. S. Bigger, E. Harding, M. **Marvier**, R. O'Malley, D. Thomson. 1998. The statistical inevitability of stability-diversity relationships in community ecology. *American Naturalist* 151: 264-276.

Bigger, D. S. and M. **Marvier**. 1998. How different would a world without herbivory be? A search for generality in ecology. *Integrative Biology* 1: 60-67.

Marvier, M. 1998. Parasite impacts on host communities: plant parasitism in an annual California coastal prairie. *Ecology* 79: 2616-2623.

Marvier, M. 1998. A mixed diet improves performance and herbivore resistance of a parasitic plant. *Ecology* 79: 1272-1280.

Marvier, M., E. Meir and P. Kareiva. 1999. How do the design of monitoring and control strategies affect the chance of detecting and containing transgenic weeds? Pages 109–122 in: *Methods for Risk Assessment of Transgenic Plants*, Volume 3, ed. K. Ammann, Y. Jacot, V. Simonson, and G. Kjellsson. Basel: Birkhauser Verlag Press.

Kareiva, P., M. **Marvier**, and M. McClure. 2000. Recovery and management options for spring/summer chinook salmon in the Columbia River basin. *Science* 290: 977-979.

Kareiva, P., M. **Marvier**, and M. McClure. 2001. Dam breaching and chinook salmon recovery: Response. *Science* 291:939a.

McClure, M., T. Cooney, and M. **Marvier**. 2001. Assessing the role of dams in salmon recovery. *Hydroreview* 20: 36-45.

Marvier, M. 2001. Can risk analysis ‘colorize’ the black and white of transgenic crops? *Plant Health Progress* doi:10.1094/PHP-2001-0831-01-RV.

Parrish, J. K., M. **Marvier**, and R. T. Paine. 2001. Direct and indirect effects: Interactions between bald eagles and common murre. *Ecological Applications* 11:1858-1869.

Marvier, M. 2001. Ecology of transgenic crops. *American Scientist* 89:160-167.

Marvier, M. 2001. Response to letters to the editor re ecology of transgenic crops. *American Scientist* 89:195-196.

Marvier, M. 2002. Improving risk assessment for nontarget safety of transgenic crops. *Ecological Applications* 12: 1119-1124.

Kareiva, P., M. **Marvier**, S. West, and J. Hornisher. 2002. Slow-moving journals hinder conservation efforts. *Nature* 420: 15.

Kareiva, P. and M. **Marvier**. 2003. Conserving biodiversity coldspots. *American Scientist* 91: 344-351.

Kareiva, P. and M. **Marvier**. 2003. Response to letters to the editor re conserving biodiversity coldspots. *American Scientist* 91: 385-386.

O’Connor, C., M. **Marvier**, and P. Kareiva. 2003. Biological versus sociopolitical priority-setting in conservation. *Ecology Letters* 6: 706-711.

Doak, D. F. and M. **Marvier**. 2003. Predicting the effects of species loss on community stability. Pages 140-160 in: Kareiva, P. and S. A. Levin, eds. *The Importance of Species: Perspectives on Expendability and Triage*. Princeton University Press, Princeton, NJ.

Marvier, M., P. Kareiva, and M. Neubert. 2004. Habitat destruction, fragmentation, and disturbance promote invasion by habitat generalists in a multispecies metapopulation. *Risk Analysis* 24: 869-878.

Molnar, J., M. **Marvier**, and P. Kareiva. 2004. The sum is greater than the parts – a response to Brooks et al. *Conservation Biology* 18: 1670-1671.

Marvier, M. 2004. Risk assessment of GM crops warrants higher rigor and reduced risk tolerance than traditional agrichemicals. *Naturschutz und Biologische Vielfalt* 1: 119-129.

Marvier, M. and R. VanAcker. 2005. Can crop transgenes be kept on a leash? *Frontiers in Ecology and the Environment* 3: 99-106.

Yuan-Farrell, C., M. Marvier, D. Press, and P. Kareiva. 2005. Conservation easements as a conservation strategy: is there a sense to the spatial distribution of easements? *Natural Areas Journal* 25:282-289.

Marvier, M., J. Grant, and P. Kareiva. 2006. Nature: poorest may see it as their economic rival. *Nature* 443: 749-750.

Kareiva, P. and M. **Marvier.** 2007. Conservation for the people. *Scientific American* 297: 50-57.

Marvier, M. 2007. Pharmaceutical crops have a mixed outlook in California. *California Agriculture* 61:59-66.

Marvier, M., C. McCreeedy, J. Regetz, and P. Kareiva. 2007. A meta-analysis of effects of Bt cotton and maize on non-target invertebrates. *Science* 316: 1475-1477.

Marvier, M. 2007. Pharmaceutical crops in California, benefits and risks. A review. *Agronomy for Sustainable Development* 28: DOI: 10.1051/agro:2007050. (re-publication of Marvier 2007 *Cal Ag* 61: 59-66)

Marvier, M. and S. West. 2007. Ecological risk assessment of GE crops: Getting the science fundamentals right. Pages 57-73 in I. E. P. Taylor, ed. *Genetically Engineered Crops: Interim Policies, Uncertain Legislation*, Haworth Press, Binghamton, NY.

Duan, J. J., M. **Marvier**, J. Huesing, G. Dively, and Z. Y. Huang. 2008. A meta-analysis of effects of Bt crops on honey bees (Hymenoptera: Apidae). *PLoS One* 3: e1415.

Marvier, M., Y. Carrière, N. Ellstrand, P. Gepts, P. Kareiva, E. Rosi-Marshall, B. E. Tabashnik, L. L. Wolfenbarger. 2008. Harvesting data from genetically engineered crops. *Science* 320: 452-453.

Tallis, H., P. Kareiva, P., M. **Marvier**, and A. Chang. 2008. An ecosystem services framework to support both practical conservation and economic development. *Proceedings of the National Academy of Sciences* 105: 9457-9464.

Kareiva, P., A. Chang, and M. **Marvier**. 2008. Development and conservation goals in World Bank projects. *Science* 321: 1638-1639.

Marvier, M. 2008. Implications of transgene escape for conservation. Pages 297-307 in Carroll, S. P. and C. W. Fox (eds). *Conservation Biology: Evolution in Action*. Oxford University Press: Oxford.

Duan, J. J., J. G. Lundgren, S. Naranjo, and M. **Marvier**. 2009. Extrapolating non-target risk of *Bt* crops from laboratory to field. *Biology Letters* 6: 74-77.

Perry, J. N., C. J. F. ter Braak, P. M. Dixon, J. J. Duan, R. S. Hails, A. Huesken, M. Lavielle, M. **Marvier**, M. Scardi, K. Schmidt, B. Tothmeresz, F. Schaarschmidt, and H. van der Voet. 2009. Statistical aspects of environmental risk assessment of GM plants for effects on non-target organisms. *Environmental Biosafety Research* 8: 65-78.

Marvier, M. 2011. Using meta-analysis to inform risk assessment and risk management. *Journal of Consumer Protection and Food Safety* 6:113-118.

Kareiva, P., R. Lalasz, and M. **Marvier**. 2011. Conservation in the Anthropocene: Beyond solitude and fragility. *The Breakthrough Journal* 2: 26-36.
<http://breakthroughjournal.org/content/authors/peter-kareiva-robert-lalasz-an-1/conservation-in-the-anthropece.shtml>

Kareiva, P., M. **Marvier**, and R. Lalasz. 2012. Anthropocene revisited but not reviled. *The Breakthrough Journal*. <http://breakthroughjournal.org/content/debates/anthropocene-revisited.shtml>

Marvier, M. 2012. The value of nature revisited. *Frontiers in Ecology and Environment* 10: 227.

Kareiva, P. and M. **Marvier**. 2012. What is conservation science? *Bioscience* 62:962-969.

Marvier, M. and H. Wong. 2012. Resurrecting the conservation movement. *Journal of Environmental Studies and Sciences* 2: 291-295.

Kareiva, P. and M. **Marvier**. 2013. Shared conservation goals but differing views on how to most effectively achieve results. *Bioscience* 63: 242-243.

Marvier, M. 2013. New conservation is true conservation. *Conservation Biology* 28: 1-3.

Marvier, M. and P. Kareiva. 2014. The evidence and values underlying "new conservation". *Trends in Ecology and Evolution* 29: 131-132.

Marvier, M. 2014. A call for ecumenical conservation. *Animal Conservation* 17:518-519.

Marvier, M. and P. Kareiva. 2014. Extinction is a moral wrong but conservation is complicated. *Biological Conservation* 176: 281-282.

Kareiva, P., C. Groves, and M. **Marvier**. 2014. The evolving linkage between conservation science and practice at The Nature Conservancy. *Journal of Applied Ecology* 51:1137-1147.

Marvier, M., and H. Wong. 2015. Move over Grizzly Adams: Conservation for the rest of us. In *After Preservation: Saving American Nature in the Age of Humans*, edited by B. Minter and S. J. Pyne. Chicago, IL: University of Chicago Press.

Marvier, M., P. Kareiva, and E. Fuller. 2016. Mark Plummer's legacy: Leave no orthodoxy unquestioned. *Coastal Management* 44:1-17.

Kareiva, P. and Marvier, M. 2018. Uncomfortable questions and inconvenient data in conservation science. Pages 3-9 in: Kareiva, P, M. Marvier, and B. Silliman (eds.) *Effective Conservation Science: Data Not Dogma*. Oxford University Press.

Marvier, M. 2018. Genetically-modified crops: Frankenfood or environmental boon? Pages 104-109 in: Kareiva, P, M. Marvier, and B. Silliman (eds.) *Effective Conservation Science: Data Not Dogma*. Oxford University Press.

Marvier, M. and Kareiva, P. 2020. It is time to rebalance the risk equation. *Frontiers in Ecology and Environment* 18: 423.

Hirashiki, C., Kareiva, P., and **Marvier**, M. 2021. Concern over hybridization risks should not preclude conservation interventions. *Conservation Science and Practice* 3:e424.

Phelan, R., Kareiva, P., **Marvier**, M., Robbins, P., and Weber, M. 2021. Why intended consequences? *Conservation Science and Practice* 3:e408.

Phelan, R., Baumgartner, B., Brand, S., Brister, E., Burgiel, S. W., Charo, R. A., ... and Robbins, P. 2021. Intended consequences statement. *Conservation Science and Practice* 3:e371.

Kareiva, P., Estes, J. A., and **Marvier**, M. 2021. Restore protected status for gray wolves. *Science* 373: 632.

Kareiva, P., Attwood, S. K., Bean, K., Felix, D., **Marvier**, M., Miketa, M. L., and Tate-Pulliam, E. 2022. A new era of wolf management demands better data and a more inclusive process. *Conservation Science and Practice* 4: e12821.

Mader, A. D., Waters, N. A., Kawazu, E. C., **Marvier**, M., Monnin, N., and Salkeld, D. J. 2022. Messaging should reflect the nuanced relationship between land change and zoonotic disease risk. *BioScience* 72: 1099-1104.

Shaughnessy, B., Almada, A., Thompson, K., **Marvier**, M. and Kareiva, P. 2023. Are all benefits equal? An exploratory analysis of northeast and west coast perspectives of seafood farming expansion in the U.S. *Journal of World Aquaculture Society* 54:899-914.

Marvier, M. 2023. Learning to live with large predators. *Proceedings of the National Academy of Sciences* 120: e2303652120.

Marvier, M., Kareiva, K., Billington, M., Felix, D., and Ferrante, B. In press. The benefits of nature exposure: Moving from research to implementation. *Proceedings of the National Academy of Sciences*.

Other publications (conference proceedings, encyclopedia articles, book reviews, etc.)

Marvier, M. A. and P. Kareiva. 1999. Extrapolating from field experiments that remove herbivores to population-level effects of herbivore resistance transgenes. Pages 57-64 in: Traynor, P. L. and J. H. Westwood (eds) *Proceedings of a Workshop on: Ecological Effects of Pest Resistance Genes in Managed Ecosystems*. Information Systems for Biotechnology, Blacksburg, Virginia.

Kareiva, P., M. **Marvier**, M. McClure, P. McElhany, M. Ruckelshaus, B. Sanderson, and R. Waples. 1999. *An Introduction to NMFS Decision-support Science for ESA Decision Making, With Examples*.

Kareiva, P. and M. **Marvier**. 2000. An overview of risk assessment procedures applied to genetically engineered crops. Pages 231-238 in: *Incorporating Science, Economics, and Sociology in Developing Sanitary and Phytosanitary Standards in International Trade. Proceedings of a Conference*. Board on Agriculture and Natural Resources, National Research Council, National Academy Press: Washington, D.C.

Kareiva, P. and M. **Marvier**. 2001. Concepts and theories in ecology. Pages 259-268 in: *Encyclopedia of Biodiversity, vol. 2*. Academic Press, San Diego, California.

Marvier, M. 2001. Genetically Engineered Crops. Pages 138-140 in: *Yearbook of Science and Technology: 2002*. McGraw-Hill, New York.

Marvier, M. 2001. Tropical Ecology. Pages 391-394 in: *Yearbook of Science and Technology: 2002*. McGraw-Hill, New York.

Marvier, M. 2002. Biodiversity. Pages 19-22 in: vol. 3: *Encyclopedia of Science and Technology, 9th edition*. McGraw-Hill, New York.

Marvier, M. 2002. “Quantitative Conservation Biology” and “Analysis and Management of

Animal Populations.” *Integrative and Comparative Biology* 42: 1181. (invited book review)

Marvier, M. 2003. Biodiversity hotpots. *Yearbook of Science and Technology: 2003*. McGraw-Hill, New York, NY.

Marvier, M. 2004. A bridge to advanced statistical techniques. *Conservation Biology* 18: 854-855 (invited book review).

Marvier, M. 2004. The Ecological Society of America voices its concerns regarding genetically engineered organisms. *ISB News Report* May 2004.

Marvier, M. 2005. Pharmaceutical crops. *Yearbook of Science and Technology: 2005*. McGraw-Hill, New York, NY.

Marvier, M. 2006. Confinement during field testing of wind-pollinated plant made pharmaceutical and plant made industrial crops using corn as a model. In R. Rose, S. McCammon, and S. Lively (editors) *Proceedings of a Workshop on Confinement of Genetically Engineered Crops During Field Testing, September 13-14 2004*. Biotechnology Regulatory Services, USDA.

Marvier, M. 2008. Honey bees, *Bt* crops, and the role of meta-analysis in risk assessment. *ISB News Report* July 2008 <http://www.isb.vt.edu/news/2008/news08.jul.htm#jul0802>

Marvier, M. 2008. Pharma comes to the farm: Crops can produce drugs, but contamination is a risk. *Contamination Control* Spring 2008.

Marvier, M. 2013. Conservation and people. In: Levin S.A. (ed.) *Encyclopedia of Biodiversity*, second edition, Volume 2, pp. 221-229. Waltham, MA: Academic Press.

Marvier, M. 2016. “Keeping the Wild: Against the Domestication of Earth.” *Quarterly Review of Biology* 91:80. (invited book review)

Selected Research Presentations

A Workshop on Genetically Engineered Organisms, Wildlife and Habitats; National Academy of Sciences; Beckman Center, Irvine, CA. November 5, 2007. “Strategies for detecting ecological effects of GEOs in nature.” (invited speaker)

10th International Symposium on the Biosafety of Genetically Modified Organisms (ISBGMO). TePapa Museum, Wellington, New Zealand. November 27, 2008. “Meta-analysis of the effects of *Bt* crops on non-target organisms” (invited plenary speaker)

Metrics for Assessing Global Agriculture, Columbia University School of International and Public Affairs, New York, NY. October 1, 2009. “Genetic engineering for sustainable agriculture: potential and risks” (invited panelist)

Decision Making and Science: The Balancing of Risk Based Decisions that Influence the Sustainability of Agricultural Production – a conference sponsored by the OECD, Berlin, Germany. October 8, 2010. “The role of meta-analysis for risk assessment and considerations for risk management” (invited plenary speaker)

San Francisco Bay Area Conservation Biology Symposium. UC Berkeley, Berkeley, CA. February 12, 2011. “Making a difference with science: Limited by data and information or communication?” (invited plenary speaker)

Ecological Society of America Emerging Issues Conference. National Conservation Training Center, Shepherdstown, WV. February 28, 2012. “Balancing the need for conservation of biodiversity and provision of services for human wellbeing” (invited plenary speaker)

Association for Environmental Studies and Sciences Annual Meeting. Santa Clara University, Santa Clara, CA. June 21, 2012. “The value of nature: How do we reach the public’s heart?” (invited keynote speaker)

Society for Conservation Biology, Oakland, CA. July 16, 2012. “Looking forward, not backward, for our conservation vision and goals” (contributed symposium paper)

University of Oklahoma. February 18–19, 2014. “Protecting nature in the Anthropocene: The battle between pragmatism and purity within the conservation movement” (invited speaker)

San Francisco Bay Area Conservation Biology Symposium. Stanford University, May 7, 2016. “Conservation for the 99%” (invited keynote speaker)

International Coral Reef Symposium (ICRS), Honolulu, June 19-26, 2016. “Should environmental policy and advocacy focus on thresholds or degradation?” (contributed talk)

Utah State University. April 19–20, 2017. “Data not dogma: Countering confirmation bias to increase the effectiveness of conservation science” (invited talk)

Canadian Association of Professional Biology. May 10, 2019. “Is conservation too conservative given the pace of global change?” (invited plenary speaker)

Professional Service & Activities

Associate Editor: *Frontiers in Ecology and the Environment* (2004–)

Consulting Editor: McGraw-Hill Yearbook of Science and Technology (2005–2006)

Member: Blue Ribbon Science Advisory Panel for Northwest Forest Conservation, The Nature Conservancy (2004–2006)

Invited workshop participant and breakout group reporter: Confinement of Genetically Engineered Crops During Field Testing. USDA, 13–15 September 2004, Greenbelt, MD.

Invited panelist: “The Promise and Pitfalls of Agricultural Biotechnology,” AgBiotech 2006, March 19, 2006.

Co-organizer: Expert Workshop: “Non-target effects of Bt crops” January 8–10, 2007. NCEAS, Santa Barbara, CA.

Committee member: National Research Council Committee to Organize a Workshop on Research to Improve the Evaluation of the Impacts of Genetically Engineered Organisms on Terrestrial and Aquatic Wildlife and Habitats, 2007.

External consultant for program review: Department of Biology at University of San Diego, 2011.

External consultant for program review: Department of Environmental Science at University of San Francisco, 2013.

Senior Fellow: Breakthrough Institute, 2013-.

Advisory Board Member: Environmental Progress, 2016-.

Courses Taught

BIOL 22	Introduction to Evolution & Ecology	lower division, lecture
BIOL 23	Investigations in Evolution & Ecology	lower division, lecture & lab
BIOL 150	Conservation Biology	upper division, lecture & lab
BIOL 156	General Ecology	upper division, lecture & lab
BIOL 160	Biostatistics (cross-listed as ENV5 110)	upper division, lecture & lab
ENV5 21	Environmental Biology	lower division, lecture & lab
ENV5 101	Environmental Studies Capstone	upper division, lecture & seminar
ENV5 144	Natural History of Baja	upper div, lecture & field immersion
ENV5 153	Conservation Science	upper division, lecture