

Michael J Koontz

PhD Candidate
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Graduate Group in Ecology
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EDUCATION

PhD, Ecology (expected 2019) University of California, Davis

Committee: Andrew Latimer, Malcolm North, Connie Millar

Dissertation: Effect of vegetation structure on forest resilience to wildfire and bark beetle disturbance in the Sierra Nevada

MSc, Ecology (2014) Colorado State University

Committee: Ruth Hufbauer, Tom Hobbs, Brett Melbourne

Thesis: Eco-evolutionary consequences of multiple introductions for colonizing individuals

BSc with highest honors, Biology (2009) University of Hawaii at Hilo

Concentration: Ecology, Evolution, and Conservation Biology

FELLOWSHIPS

Plant Sciences Departmental Graduate Student Research Award (\$185,803) 2015 - 2019

UC Davis Graduate Group in Ecology Fellowship (\$58,172) 2014 - 2016

NSF Graduate Research Fellowship (\$132,000) 2013 - 2018

PUBLICATIONS

- Koontz, Michael J.**, Meagan F. Oldfather, Brett A. Melbourne, and Ruth A. Hufbauer. 2018. Parsing propagule pressure: Number, not size, of introductions drives colonization success in a novel environment. *Ecology and Evolution*. 8 (16): 8043-8054. doi: 10.1002/ece3.4226
- Steel, Zachary L., **Michael J. Koontz**, Hugh D. Safford. 2018. The changing landscape of wildfire: Burn pattern trends and implications for California's yellow pine and mixed conifer forests. *Landscape Ecology*. 33 (7): 1159-1176. doi: 10.1007/s10980-018-0665-5
- Oldfather, Meagan F., Matthew N. Britton, Prahlad D. Papper, **Michael J. Koontz**, Michelle M. Halbur, Celeste Dodge, Alan L. Flint, Lorraine E. Flint, and David D. Ackerly. 2016. Effects of topoclimatic complexity on the composition of woody plant communities. *AoB Plants*. 8: plw049. doi: 10.1093/aobpla/plw049
- Hufbauer, Ruth A., Marianna Szücs, Emily Kasyon, Courtney Youngberg, **Michael J. Koontz**, Christopher Richards, Ty Tuff, Brett A. Melbourne. 2015. Reply to Wootton and Pfister: The search for general context should include synthesis with laboratory model systems. *Proceedings of the National Academy of Sciences*. 112 (44): E5904. doi: 10.1073/pnas.1517210112
- Hufbauer, Ruth A., Marianna Szücs, Emily Kasyon, Courtney Youngberg, **Michael J. Koontz**, Christopher Richards, T. Tuff, Brett A. Melbourne. 2015. Three types of rescue can avert extinction in a changing environment. *Proceedings of the National Academy of Sciences*. 112 (33): 10557-10562. doi: 10.1073/pnas.1504732112
- Cole, Rebecca J., Creighton M. Litton, **Michael J. Koontz**, and Rhonda K. Loh. 2012. Vegetation recovery 16 years after feral pig removal from a wet Hawaiian forest. *Biotropica*. 44: 463-471. doi: 10.1111/j.1744-7429.2011.00841.x

FUNDED GRANTS

US Forest Service Western Wildlands Environmental Threat Assessment Center	2018
<i>Using drones to link spatial features of forests and bark beetle-induced mortality at broad spatial scales</i>	\$7,500
US Forest Service Western Wildlands Environmental Threat Assessment Center	2017
<i>Assessing forest spatial structure and bark beetle spread using small, unmanned aerial systems (sUAS)</i>	\$19,420

TEACHING EXPERIENCE

<i>Instructor:</i>	ECL298 R for Data Analysis and Visualization in Science, UCD, 2018 Introduction to R, Data Intensive Biology Summer Institute, UCD, 2017 ECOL592 Introduction to R, CSU, 2014
<i>Teaching assistant:</i>	Data Skills in R, Cornerstone Research, 2016 PLS206 Applied Multivariate Modeling, UCD, 2016 R Bootcamp, UCD, 2015 LIFE320 Ecology, CSU, 2013 LIFE102 Biology Laboratory, CSU, 2012
<i>Guest lecturer:</i>	D-RUG Meeting, "High quality plots using base R graphics" Davis, 2015 LIFE320 Ecology, "Invasion Biology" CSU, 2013
<i>Formal training:</i>	Educational psychology & instructional design, SoftwareCarpentry, 2016

AWARDS AND HONORS

Nominated for Outstanding Graduate Student Teaching Award	2017
College of Agriculture Ag Day Scholarship (\$1,000)	2014
Front Range Student Ecology Symposium 3rd Place Oral Presentation	2014
Colorado State Graduate Degree Program in Ecology Travel Award (\$500)	2014
Ynez Morey and Chuck Reagin Memorial Entomology Scholarship (\$1,000)	2013
Colorado State University Graduate Fellowship (\$1,500)	2012
CSU Programs for Research and Scholarly Excellence Fellowship (\$2,339)	2012
University of Hawaii at Hilo Outstanding Senior in Biology	2009
Hawaii Audubon Society Rose Shuster Taylor Scholarship (\$1,838)	2008
AmeriCorps Education Award (\$4,750)	2006

INVITED TALKS

- Koontz, Michael J.**, Malcolm P. North, Christopher J. Fettig, L. A. Mortenson, Constance I. Millar, Malcolm P. North. 2018-03-22. Using drones to link spatial structure of forests and insect outbreaks. University of California Cooperative Extension North Coast Forest Health Meeting. Eureka, CA.
- Koontz, Michael J.**, Andrew M. Latimer, Christopher J. Fettig, L. A. Mortenson, Constance I. Millar, Malcolm P. North. 2017-11-15. Using drones to go beyond stand density: Spatial features of western pine beetle-attacked forests. California Forest Pest Council Annual Meeting. Davis, CA.

CONTRIBUTED TALKS

- Koontz, Michael J.**, Andrew M. Latimer, L. A. Mortenson, Christopher J. Fettig, Constance I. Millar, and Malcolm P. North. 2018-09-20. The effect of spatial variability of forest structure on severity of a tree-killing insect. MtnClim Conference. Gothic, CO.

- Koontz, Michael J.**, Andrew M. Latimer, Chhaya M. Werner, Stephen E. Fick, and Malcolm P. North. 2018-08-09. Greater variability in local vegetation structure increases forest resilience to wildfire. Ecological Society of America Annual Meeting. New Orleans, LA.
- Lee, Stephen P., Jan Ng, Ash T. Zemenick, Mikaela M. Provost, Carlos A. Ruvalcaba, Derek J. N. Young, Emilio Laca, **Michael J. Koontz**, Jessica Rudnick, and Elizabeth J. Sturdy. 2018-03-03. Evolution toward holistic review in the Ecology Graduate Program at University of California, Davis – Part I: Design and implementation of a system to evaluate applicants. 10th Annual Understanding Interventions Meeting. Baltimore, MD.
- Ng, Jan, **Michael J. Koontz**, Jessica Rudnick, Elizabeth J. Sturdy, Ash T. Zemenick, Steven P. Lee, Mikaela M. Provost, Carlos A. Ruvalcaba, Derek J. N. Young, and Emilio Laca. 2018-03-03. Evolution toward holistic review in the Ecology Graduate Program at UC Davis – Part II: Methods for evaluating progress. 10th Annual Understanding Interventions that Broaden Participation in Science Careers Meeting. Baltimore, MD.
- Oldfather, Meagan F., Brian Smithers, **Michael J. Koontz**, Jan Nachlinger, Catie Bishop, Jim Bishop, and Constance I. Millar. 2018-02-02. Alpine plant community-climate relationships across elevation gradients in the White Mountains, California. California Native Plant Society Conservation Conference. Los Angeles, CA.
- Koontz, Michael J.**, Malcolm P. North, and Andrew M. Latimer. 2016-10-17. Spatial heterogeneity of vegetation increases forest resistance to wildfire, and modern forests have a high potential for large, stand-replacing events. MtnClim Conference. Leavenworth, WA.
- Koontz, Michael J.**. 2014-09-24. The eco-evolutionary consequences of multiple introductions for colonizing individuals. BSPM Departmental Seminar and Thesis Defense. Fort Collins, CO.
- Koontz, Michael J.** and Ruth A. Hufbauer. 2014-08-08. The consequences of multiple introductions for colonizing individuals. Ecological Society of America Annual Meeting. Sacramento, CA.
- Koontz, Michael J.** and Ruth A. Hufbauer. 2014-02-19. Parsing propagule pressure: The role of multiple introductions in the colonization of novel habitats. Front Range Student Ecology Symposium. Fort Collins, CO.

PROFESSIONAL EXPERIENCE

Research Technician, Apr. 2012 to Aug. 2012 <i>Tree seedling demography, climate change</i>	Lara Kueppers <i>University of California, Merced</i>
Research Technician, Apr. 2011 to Jun. 2011 <i>Tropical forest succession, biogeochemistry</i>	Rebecca Cole <i>University of Colorado, Boulder</i>
Research Technician, Nov. 2009 to Jan. 2011 <i>Forest carbon cycling, global change</i>	Creighton Litton/Christian Giardina <i>University of Hawaii, Manoa/USDA FS</i>
Research Technician, Jun. 2009 to Nov. 2009 <i>Tropical forest demography</i>	Patrick Hart <i>University of Hawaii at Hilo</i>
Field Leader, May 2007 to Aug. 2007 <i>Sea turtle behavior/conservation</i>	Rhonda Loh <i>National Park Service</i>

SKILLS

Technical: Data manipulation, visualization, and analysis with R; GIS with R, Google Earth Engine, and CloudCompare; FAA Remote Pilot License; L^AT_EX; Bayesian inference using MCMC methods

Field: Forest stem mapping, GLORIA multi-summit approach, LiCOR soil respiration, ECH2O soil moisture

Lab: DNA extraction, PCR, gel electrophoresis, rearing of *Tribolium* populations

CURRENT COLLABORATIONS

Michael J. Koontz¹, Chhaya M. Werner¹, Stephen E. Fick², Malcolm P. North^{1,3}, and Andrew M. Latimer¹ *Spatial heterogeneity of vegetation increases forest resistance to wildfire*
¹University of California, Davis, ² USGS, ³US Forest Service, Pacific Southwest Research Station

<https://github.com/mikoontz/remote-sensing-resistance>

Michael J. Koontz¹, Andrew M. Latimer¹, Leif A. Mortenson², Christopher J. Fettig², Constance I. Millar², and Malcolm P. North^{1,2} *The effect of spatial variability of forest structure on the severity of a tree-killing insect*

¹University of California, Davis, ² US Forest Service, Pacific Southwest Research Station

<https://github.com/mikoontz/local-structure-wpb-severity>

GLORIA Great Basin. A regional chapter of an international organization monitoring long-term vegetation plots on mountain tops to capture climate change impacts to alpine plants.

<https://www.gloriagreatbasin.org/>

Jens Stevens¹, **Michael J. Koontz**², and Chhaya M. Werner² *Local effects of aspect on vegetation productivity in California.*

¹USGS, ²University of California, Davis

Michael J Koontz¹ and Ruth A. Hufbauer² *Several, small introductions of individuals to a novel environment facilitate adaptation by mitigating genetic load*

¹University of California, Davis, ²Colorado State University

UNDERGRADUATE MENTORING

Charlotte Hoover (Watershed Science major)	Feb. 2013 to Aug. 2014
Kaitlyn Adkins (Biology major)	Sep. 2013 to Aug. 2014
Jenny Rickford (Environmental Engineering major)	Feb. 2014 to Apr. 2014

REVIEWING SERVICE

rOpenSci: the [ccafs](#) package
Journal of Theoretical Biology

VOLUNTEER/INTERNSHIP EXPERIENCE

Global Observation Research Initiative in Alpine Environments <i>Death Valley National Park, Death Valley, CA</i> <i>Great Basin National Park, Baker, NV</i> <i>Sweetwater Mountain Range, Eastern Sierra, CA</i> <i>White Mountains Wilderness, CA</i>	2013, 2015 to 2018
Volunteer Wildland Firefighter <i>Hawaii Volcanoes National Park, Volcano, HI</i>	Dec. 2009 to Jan. 2011
Native Plant Nursery Internship <i>Environmental Concern Inc., St. Michaels, MD</i>	May 2008 to Aug. 2008
AmeriCorps Conservation Forestry Internship <i>State of Hawaii Natural Area Reserve System, Maui, HI</i>	Jan. 2006 to Dec. 2006
Hawksbill Sea Turtle Project Volunteer <i>Hawaii Volcanoes National Park, Volcano, HI</i>	Sep. 2005 to Dec. 2005

PROFESSIONAL MEMBERSHIPS

Ecological Society of America	2014 to 2018
American Alpine Club	2016 to 2018
Northern California Botanists	2016