

Rebecca J. Cole

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EDUCATION

2009 Ph.D., Environmental Studies Department, University of California- Santa Cruz, CA

1997 Teaching Credential, Sierra Nevada College, NV

1996 B.S. Biology, University of Nevada- Reno, NV

APPOINTMENTS

2014- Present Junior Research Faculty, Department of Natural Resources and Environmental Management, University of Hawaii-Manoa

2012- Present Research Director, American Climber Science Program (ACSP)

2011-2013 NSF Postdoctoral Fellow in Biology, University of Colorado- Boulder

2010-2011 Postdoctoral Research Associate, University of Hawaii- Manoa

TEACHING

Mentoring and Advising:

- 2015-16 **Committee member:** University of Hawaii-Manoa. Amanda Knauf – Master’s Thesis: *Effects of soil nutrient availability on competitive dynamics between non-native invasive and native plants in Hawaiian wet and dry ecosystems*
- 2014-15 **Committee member:** Universidad Nacional Agraria La Molina, Peru. Jhony Soca – Master’s Thesis: *Response of alpine vegetation to experimental cattle exclosures across an altitudinal gradient in the Peruvian Andes*
- 2015 **Mentor** for University of Hawaii–Pacific Internship Program for Exploring Sciences: Melanie Quiñones – *Photosynthetic responses of native vs. non-native, invasive Hawaiian wet forest plants under varying soil nutrient availabilities*
- 2015 **Mentor** for University of Hawaii–Pacific Internship Program for Exploring Sciences: Cyra Macanas – *Growth responses of native and invasive Hawaiian wet forest plants under varying soil nutrient availability*
- 2014 **Mentor** for University of Hawaii–Pacific Internship Program for Exploring Sciences: Taylor Tomita – *Vegetation recovery after non-native ungulate removal from tropical montane dry shrubland*
- 2014 **Mentor** for Universidad Nacional Santiago Antúnez de Mayolo, Peru. Rosa Glabro – Undergraduate thesis independent research project: *Recovery of indicator plants under reduced grazing pressure in high elevation grassland*

2014 **Mentor** for Universidad Nacional Santiago Antúnez de Mayolo, Peru. Katerine Tinoco – Undergraduate thesis independent research project: *Changes in soil texture and water content under reduced grazing pressure in high elevation grassland*

Full Courses:

2009 **Co-Instructor:** *Tropical Ecology and Conservation*, University of California- Santa Cruz

2008 **Teaching Assistant,** *Agroecology*, University of California- Santa Cruz

2007 **Teaching Assistant:** *Chemical and Physical Environment*, University of California- Santa Cruz

2006 **Teaching Assistant:** *Restoration Ecology*, University of California- Santa Cruz

1998-2003 **High School and Middle School Math and Sciences Teacher:** Outstanding Teacher Award recipient 2002- Boulder Valley School District

Guest Lectures:

2014 Restauración a través de diversos ecosistemas tropicales: Costa Rica, Hawái, Perú. Universidad Nacional Santiago Antúnez de Mayolo, Huaraz, Peru.

2013 Integrated environmental research in the Cordillera Blanca, Peru: Universidad Nacional Santiago Antúnez de Mayolo, Huaraz, Peru. Environmental Studies

2012 Assessing the effects of climate change in Huascarán National Park. Universidad Nacional Santiago Antúnez de Mayolo, Huaraz, Peru.

2010 Seed fate in a fragmented tropical landscape, southern Costa Rica. University of Hawaii- Hilo.

2009 Restoring forest to degraded lands in southern Costa Rica. University of California- Santa Cruz.

LEADERSHIP ACTIVITIES

2012-present **Research Director / Co-founder:** ACSP is a nonprofit organization that carries out research, education and conservation action in remote environments.

- Manage fundraising and budgets
- Led/ co-led 6 expeditions and managed >120 researchers, students and volunteers in Peru and Costa Rica
- Generate and oversee risk management plans and safety protocols

2014 **Workshop Organizer:** Climate Change Adaptation and Ecosystem Services Monitoring in Andean Mountain Communities, Huaraz, Peru.

2006-present **Project Manager:** University of California- Santa Cruz, University of Colorado-Boulder & University of Hawaii-Manoa.

- Hired and supervised ~20 research technicians in Costa Rica and Hawaii
- Supervised ~90 Earthwatch volunteers (Costa Rica)
- Managed all permitting, reporting and legal compliance for research in Costa Rica, Peru, and Hawaii

GRANTS, AWARDS AND FELLOWSHIPS (SINCE 2005)

- 2015 Elsevier Tropical Connections Fellowship
- 2013 Recovery of native plant communities and ecological processes following removal of nonnative, invasive ungulates from Pacific Island forests. Strategic Environmental Research and Development Program (SERDP) – Department of Defense (Co-PI with C. Litton, J. Sparks, and C. Giardina) \$1,094,560
- 2013 USAID High Mountain Glacial Watershed Program. \$1500
- 2013 American Alpine Club Research Grant. \$1000
- 2011 NSF Postdoctoral Research Fellowship in Biology. \$189,000
- 2011 NSF Leading Innovation and Discovery Workshop Award. \$1075
- 2010 Smithsonian Tropical Research Institute Conference Award. \$1000
- 2009 University of California, President’s Dissertation Year Fellowship. \$30,000
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- 2008 Organization for Tropical Studies Workshop Travel Award. \$750
- 2005-07 Marilyn C. Davis Fellowship. \$3500
- 2005-06 Environmental Studies Graduate Research Grant: UC-Santa Cruz. \$4500
- 2005 Center for Tropical Research in Ecology Fellowship: UC-Santa Cruz. \$1000

PUBLICATIONS

22. Balzotti, C. S., Asner, G. P., Taylor, P. G., Cleveland, C. C., **Cole, R.J.**, Martin, R. E., Nasto, M., Osborne, B. B., Porder, S. and Townsend, A. R. (2016). Environmental Controls on Canopy Foliar N Distributions in a Neotropical Lowland Forest. *Ecological Applications*. DOI:10.1002/eap.1408
21. **Cole, R.J.**, Holl, K.D., Zahawi, R.A., Wickey, P., & Townsend, A. (2016) Leaf litter arthropod responses to tropical forest restoration. *Ecology and Evolution*. DOI: 10.1002/ece3.2220
20. Balzotti, C.S., Asner, G.P., Taylor, P.G., **Cole, R.J.**, Osborne, B.B., Cleveland, C.C., Porder, S., & Townsend, A.R. (2016). Topographic Distributions of Emergent Trees in Tropical Forests of the Osa Peninsula, Costa Rica. *Ecography*. DOI: 10.1111/ecog.02062
19. Weintraub, S.R., **Cole, R.J.**, Schmitt, C.G., & All, J.D. (2016) Climatic controls on the isotopic composition and availability of soil nitrogen across mountainous tropical forest. *Ecosphere* (in press).
18. Taylor, P., Asner, G., Anderson, C., Knapp, D., Martin, R.E., Mascaro, J., Chazdon, R., **Cole, R.J.**, Wanek, W., Hofhansl, F., Malavassi, E., Vilchez-Alvarado, B. & Townsend, A.R. (2015) Landscape-scale controls on aboveground forest carbon stocks on the Osa Peninsula, Costa Rica. *PLOS One*, **10**, e0126748.
17. Schmitt, C.G., All, J.D., Schwarz, J.P., Arnott, W.P., **Cole, R.J.**, Lapham, E. & Celestian, A. (2015) Measurements of light-absorbing particles on the glaciers in the Cordillera Blanca, Peru. *Cryosphere*, **9**, 331-340.

16. **Cole, R.J.**, All, J.D., Schmitt, C.G. & Lopez, M.F. (2014) Remote sensing and ground-based measurements across a remote rainforest transect. *Photogrammetric Engineering and Remote Sensing*, **80**, 817-822.
15. Schmitt, C.G., All, J., **Cole, R.J.**, Celestian, A. & Arnott, W.P. (2014) Linking remote and in-situ detection of black carbon on tropical glaciers. *Photogrammetric Engineering and Remote Sensing*, **80**, 385-390.
14. **Cole, R.J.** & Litton, C.M. (2014) Vegetation response to removal of non-native feral pigs from Hawaiian tropical montane wet forest. *Biological Invasions*, **16**, 125-140.
13. Lindell, C.A., Reid, J.L. & **Cole, R.J.** (2013) Planting design effects on avian seed dispersers in a tropical forest restoration experiment. *Restoration Ecology*, **21**, 515-522.
12. Loik, M.E., **Cole, R.J.**, Holl, K.D. & Sady, G.C. (2013) Photosynthesis of seedlings of *Otoba novogranatensis* (Myristicaceae) and *Rugea glabra* (Meliaceae) in abandoned pasture, secondary forest and plantation habitats in Costa Rica. *Revista De Biologia Tropical*, **61**, 1493-1507.
11. Zahawi, R.A., Holl, K.D., **Cole, R.J.** & Reid, J.L. (2013) Testing applied nucleation as a strategy to facilitate tropical forest recovery. *Journal of Applied Ecology*, **50**, 88-96.
10. **Cole, R.J.**, Litton, C.M., Koontz, M.J. & Loh, R.K. (2012) Vegetation recovery 16 Years after feral pig removal from a wet Hawaiian forest. *Biotropica*, **44**, 463-471.
9. Lindell, C.A., **Cole, R.J.**, Holl, K.D. & Zahawi, R.A. (2012) Migratory bird species in young tropical forest restoration sites: effects of vegetation height, planting design, and season. *Bird Conservation International*, **22**, 94-105.
8. Celentano, D., Zahawi, R.A., Finegan, B., Casanoves, F., Ostertag, R., **Cole, R.J.** & Holl, K.D. (2011) Tropical forest restoration in Costa Rica: the effect of several strategies on litter production, accumulation and decomposition. *Revista De Biologia Tropical*, **59**, 1323-1336.
7. **Cole, R.J.**, Holl, K.D., Keene, C.L. & Zahawi, R.A. (2011) Direct seeding of late-successional trees to restore tropical montane forest. *Forest Ecology and Management*, **261**, 1590-1597.
6. Celentano, D., Zahawi, R.A., Finegan, B., Ostertag, R., **Cole, R.J.** & Holl, K.D. (2011) Litterfall dynamics under different tropical forest restoration strategies in Costa Rica. *Biotropica*, **43**, 279-287.
5. Holl, K.D., Zahawi, R.A., **Cole, R.J.**, Ostertag, R. & Cordell, S. (2011) Planting seedlings in tree islands versus plantations as a large-scale tropical forest restoration strategy. *Restoration Ecology*, **19**, 470-479.
4. **Cole, R.J.**, Holl, K.D. & Zahawi, R.A. (2010) Seed rain under tree islands planted to restore degraded lands in a tropical agricultural landscape. *Ecological Applications*, **20**, 1255-1269.
3. **Cole, R.J.** (2010) Social and environmental impacts of payments for environmental services for agroforestry on small-scale farms in southern Costa Rica. *International Journal of Sustainable Development and World Ecology*, **17**, 208-216.
2. **Cole, R.J.** (2009) Postdispersal seed fate of tropical montane trees in an agricultural landscape, Southern Costa Rica. *Biotropica*, **41**, 319-327.

1. Sady, G.G., Holl, K.D., **Cole, R.J.** & Zahawi, R.A. (2009) Germination and survival of tree seeds in a tropical montane forest restoration study, Costa Rica. *Ecological Restoration*, **28**, 121–124.

Manuscripts in Review:

- All, J., Medler, M. **Cole, R.J.**, Arques, S., Woodall, T., King, J., Yan, J., & Schmitt, C.G. Climate change impacts on fire occurrence and extent in Huascarán National Park, Peru. *Fire Ecology*.
- Long, M., Litton, C.M., Giardina, C.P., Deenik, J., **Cole, R.J.**, & Sparks, J. Impact of nonnative feral pig removal on soil structure and nutrient availability in Hawaiian tropical montane wet forests. *Biological Invasions*.

Manuscripts in Preparation:

- Cole, R.J., Selmants, P.C., & Townsend, A. The role of macroinvertebrates in litter decomposition and nutrient release across a chronosequence of lowland tropical forest succession. *Soil Biology and Biogeochemistry*.
- Cole, R.J. & Townsend, A. Effects of soil biota on growth of tropical trees during forest succession. *Ecology*.

SELECTED PRESENTATIONS

Invited talks:

7. Restoration across diverse tropical ecosystems. The carbon sequestration potential of restoration conference. Piro Biological Station, Costa Rica, February 2016.
6. Vegetation response to removal of nonnative ungulates across Hawaiian tropical montane dry and wet ecosystems. Association for Tropical Biology and Conservation, Honolulu, HI, June 2015.
5. Integrative research in remote and mountain landscapes. University of Hawaii- Manoa, Komohana Research and Extension Center, Hilo, June 2015.
4. Ecosystem responses to fencing and removal of nonnative ungulates in Pacific Island forest. USDA Forest Service, Institute of Pacific Islands Forestry, Hilo, April 2015.
3. Differentiating climatic and anthropogenic drives of alpine vegetation change in the Cordillera Blanca, Peru: USAID High Mountain Glacial Watershed Program Conference, Huaraz, Peru, July 2013.
2. Understanding tropical forest succession in order to design restoration strategies. University of Hawaii Manoa, April 2010.
1. Planting tree islands and direct seeding late-successional species as strategies to restore montane tropical forest in Costa Rica. Smithsonian Tropical Research Institute Conference. The Ecology and Ecosystem Services of Native Trees: Implications for Reforestation and Land Restoration in Mesoamerica. Panama City, Panama, January 2010.

Contributed talks & posters (first author):

15. Vegetation response across four Hawaiian ecosystems following removal of non-native ungulates. Hawaii Conservation Conference, Hilo, HI, July 2015.

14. Vegetation response to removal of nonnative ungulates across Hawaiian tropical montane dry and wet ecosystems. Hawaii Ecosystems Annual Meeting, Hilo, HI, July 2015.
13. Effects of nonnative ungulate removal on plant communities and soil biogeochemistry in tropical forests. American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.
12. Restoration across diverse tropical ecosystems: Costa Rica, Hawaii, Peru. Climate Change Adaptation and Ecosystem Services Monitoring in Andean Mountain Communities Workshop, Huaraz, Peru. July 2014.
11. Effects of non-native ungulate removal on vegetation and ecological processes in Pacific Island forests. Hawaii Conservation Conference, Honolulu, HI, July 2014.
10. Recovery of native plant communities and ecological processes following removal of non-native, invasive ungulates from Pacific Island forests. Hawaii Ecosystems Annual Meeting, Hilo, HI, July 2014.
9. Recovery of macroinvertebrate communities and their influence on litter decomposition during tropical forest succession. Association for Tropical Biology and Conservation, San Jose, Costa Rica, June 2013.
8. Vegetation response to removal of feral pigs from tropical montane wet Hawaiian forest. Ecological Society of America Conference, Portland, OR, July 2012.
7. Vegetation recovery 16 years after feral pig removal from a wet Hawaiian forest. Ecological Society of America Conference, Austin, TX, July 2011.
6. Effects of feral pigs on ecosystem structure in Hawaiian wet forests. Hawaii Ecosystems Annual Meeting, Hilo, HI, July 2010.
5. Seed rain under different restoration strategies in a complex tropical agricultural landscape. Ecological Society of America Conference, Albuquerque, NM, July 2009.
4. Secondary seed dispersal of tropical trees in degraded habitats. Front Range Student Ecology Symposium, Fort Collins, CO, February 2009.
3. Seed dispersal in successional habitats, southern Costa Rica. Tropical Restoration and Conservation Workshop, Las Cruces Biological Station, Costa Rica, March 2008.
2. Restauración de Bosque en Coto Brus. Tropical Restoration and Conservation Workshop, Las Cruces Biological Station, Costa Rica, March 2008.
1. Post-dispersal seed fate of large-seeded tropical montane trees in an agricultural landscape. Ecological Society of America Conference, San Jose, CA, July 2008.

REVIEWER FOR SCHOLARLY JOURNALS

Biological Invasions; Biotropica; Canadian Journal of Forest Research; Ecological Applications; Gender, Place and Culture; Forest Ecology and Management; Journal of Applied Ecology; Journal of Arid Environments; Journal of Tropical Ecology; Land Degradation and Development; New Forests; Plant and Soil; Restoration Ecology; Revista de Biología Tropical; Sustainability

PROFESSIONAL AFFILIATIONS

Association for Tropical Biology and Conservation

Ecological Society of America
Society for Ecological Restoration