

# CATHERINE KLEIER

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## EDUCATION

- 2001 Ph.D., Organismic Biology, Ecology, and Evolution, University of California, Los Angeles  
Advisor, Philip Rundel. Dissertation Title: Functional ecology, ecophysiology, and  
convergent evolution of dwarf shrub and cushion plant growth forms
- 1996 M.S. General Science/Botany and Plant Pathology, Oregon State University, Corvallis
- 1992 B.A. Environmental, Population and Organismic Biology, University of Colorado, Boulder

## PROFESSIONAL APPOINTMENTS

- 2012 Summer Visiting Faculty Fellow, Franklin College, Lugano, Switzerland
- 2010 - Associate Professor of Biology, Regis University, Denver, CO
- 2006-12 Director, Environmental Science and Studies Program, Regis University, Denver, CO
- 2006-10 Assistant Professor of Biology, Regis University, Denver, CO
- 2005-06 Visiting Assistant Professor of Biology, Metropolitan State College of Denver
- 2005 Post-doctoral Research Associate, Cooperative Institute for Research in Environmental  
Sciences (CIRES), University of Colorado, Boulder, CO
- 2005 Visiting Lecturer, University of Colorado, Boulder, CO
- 2004-05 Visiting Faculty, Regis University, Denver, CO
- 2004-05 Visiting Faculty, Metropolitan State College, Denver, CO
- 2001-04 Assistant Professor, Department of Biology, Adams State College, Alamosa, CO
- 2001-04 Curator ALAM Herbarium, Adams State College, Alamosa, CO
- 1997-01 Teaching and Research Associate, University of California, Los Angeles, CA
- 1993-96 Teaching and Research Assistant, Oregon State University, Corvallis, OR

## RESEARCH PROJECTS

- 2012 Tropical Alpine Ecology. Parque Nacional Lauca, Chile  
Continued monitoring of *Azorella compacta* growth rate, ecophysiology, geographic  
range, population size and indigenous use in the park in collaboration with Dr. Phil  
Rundel and Eric Graham of UCLA.
- 2011- Restoration Ecology. Mount Yale, CO  
Long term trail restoration monitoring with the Colorado Fourteeners Initiative and  
U.S. Forest Service involving study design and alpine ecology.
- 2005-11 Ecological Monitoring and Restoration. City of Breckenridge, CO  
Perform environmental monitoring and produce weed reports of Cucumber Gulch  
Wildlife Preserve in collaboration with Dr. Christy Carello of Metropolitan State  
College of Denver, CO.
- 2008-09 Conservation Biology. Boulder County Parks and Open Space, CO  
Investigated Abert's squirrel populations in treated and untreated areas of Heil Valley  
Ranch, Boulder, County, in collaboration with Dr. Kelly Worden of Red Rocks  
Community College, Lakewood, CO.

- 2005 Plant Physiological Ecology. University of Colorado, Boulder, CO  
 Research collaborators Dr. Ray Fall and Dr. Russ Monson. Worked with increased CO<sub>2</sub> and isoprene emission of *Populus*, using Li-Cor gas exchange equipment in addition to maintaining and programming Conviron growth chambers.
- 1998-01 Ph.D. Field and Greenhouse Research. Parque Nacional Lauca, Chile, White Mountain Research Station, CA; Bodega Bay Natural Reserve, CA  
 Conducted field studies using Li-Cor gas exchange and conductance equipment, pressure chambers, data loggers, and psychrometers. Also conducted ecological research including habitat selection, niche partitioning, demography, nearest-neighbor analysis, principle components analysis, and multiple linear regression.
- 1998 Organization for Tropical Studies (OTS). Costa Rica  
 Studied mouse home range size using Sherman traps, plant allometry, fish ecology, plant nastic movements, bird foraging behavior, and forest dynamics.
- 1997 Field Biology Quarter. Chiang Mai, Thailand  
 Organized equipment and assisted in logistics for UCLA international field biology course. Student projects included pioneer tree leaf physiology (see publication below), bird surveys using mist nets, and frog niche partitioning by call.
- 1993-96 M.S. Laboratory Research. Oregon State University  
 Investigated the combined effects of tropospheric ozone and increased root zone temperatures on physiology, growth, and fecundity of two Brassicaceae species in controlled growth chamber experiments.

#### **COURSES TAUGHT:**

Ecology, Plant Physiology, Plant Ecology, Plant Biodiversity and Ecology, Plant Anatomy and Morphology, Plant Systematics, Conservation Biology, Tropical Biology, Colorado Flora and Fauna, Field Ecology, Environmental Assessment, Modeling Sustainability, Ecology of the Galápagos Islands, Evolution, Advanced Ecology, Thesis I (majors science writing), First Year Writing Seminar (non-majors writing), Human Anatomy and Physiology, Environmental Justice, Ecotheology, Seminar in Biological Ethics, Introduction to Botany (majors and non-majors), General Biology Lecture and Laboratory (majors), Life Sciences (non-majors) Lecture and Laboratory, Introduction to Environmental Science and Laboratory

#### **PROFESSIONAL EXPERIENCES AND APPOINTMENTS**

- 2013 Fulbright Scholar for Teaching and Research
- 2012 SENCER (Science Education for New Civic Engagements and Responsibilities) Summer Symposium
- 2011-12 Chair, Research Grants Committee Colorado Native Plant Society
- 2010-12 Reader, Advanced Placement Environmental Science Exam
- 2010 Selected Scholar, Aspen Institute and National Geographic, Aspen Environmental Forum
- 2008-10 Elected to the Board of Directors of the Colorado Native Plant Society
- 2004 Kenan Fellow, National Tropical Botanic Garden, Miami, FL
- 2003 Consultant, Mid-continent Research for Education and Learning

#### **PUBLICATIONS (PEER REVIEWED)**

14. Worden, K. and C. Kleier. Impact of Ponderosa Pine (*Pinus ponderosa*) thinning on Abert's Squirrel (*Sciurus aberti*) populations. *Southwestern Naturalist*. In press.

13. Christner, L.\* and C. Kleier. 2011. Quantitative reasoning in introductory environmental science textbooks. *Journal of Environmental Studies and Sciences* 1(4): 296-300.
12. Brandenburg, W.\* and C. Kleier. 2011. Effect of MgCl<sub>2</sub> on germination, growth, and biomass allocation of the radish cv. "Cherry Belle." *American Journal of Environmental Sciences* 7(2): 132-135.
11. Kleier, C. 2011. Environmental Impact Assessment – A capstone course for environmental studies and science majors at Regis University. *Journal of Environmental Studies and Sciences* 1(3): 228-232.
10. Kleier, C. and P.W. Rundel. 2009. Energy balance and temperature relations of *Azorella compacta*, a high elevation cushion plant of the central Andes. *Plant Biology* 11(3): 351-358.
9. Kleier, C., C. Carello, and A. Hoffa\*. 2008. Willow (*Salix* spp.) clipping in Breckenridge, CO, for cross-country ski trails. *Aquilegia* 32(3): 4-7.
8. Lambrinos, J., Kleier, C., and P.W. Rundel. 2006. Plant community variation across a Puna landscape in the Chilean Andes. *Revista Chilena de Historia Natural* 79: 233-243.
7. Kleier, C. and J. Lambrinos. 2005. The importance of nurse associations for three tropical alpine life forms. *Arctic, Antarctic, and Alpine Research* 37(5): 331-336.
6. Kleier, C. and P.W. Rundel. 2004. Microsite requirements, population structure and growth of the cushion plant, *Azorella compacta*, in the tropical Chilean Andes. *Austral Ecology* 29(4): 461-470.
5. Rundel, P.W., A. C. Gibson, G. S. Midgley, S. J. E. Wand, B. Palma, C. Kleier, and J. Lambrinos. 2003. Ecological and ecophysiological patterns in a pre-altiplano shrubland of the Andean Cordillera in northern Chile. *Plant Ecology* 169(2): 179-193.
4. Lambrinos, J. and C. Kleier. 2003. Thermoregulation of juvenile Andean toads (*Bufo spinulosus*) at 4300 m. *Journal of Thermal Biology* 28: 15-19
3. Kleier, C., L. Ainsworth\*, and P.W. Rundel. 2001. Sunlight foraging in two tropical Southeast Asian pioneer tree species: *Macaranga denticulata* and *Mallotus paniculatus*. *Natural History Bulletin of the Royal Siam Society* 49: 231-241.
2. Kleier, C., B. Farnsworth, W.E. Winner. 2001. Photosynthesis, growth and biomass allocation of radish (*Raphanus sativa* L.) in response to root temperature and ozone. *Environmental Pollution* 111: 127-133.
1. Kleier, C., B. Farnsworth, W.E. Winner. 1998. Biomass, reproductive output and physiological responses of rapid-cycling Brassica (*Brassica rapa* L.) to ozone and modified root temperature. *New Phytologist* 139: 657-664.

#### **PUBLICATIONS (NON-PEER REVIEWED)**

Kleier, C. 2011. Learning from experience: a reflection. *Regis University Magazine* 19(2): 12.

#### **PRESENTATIONS AND PUBLISHED ABSTRACTS**

- Kleier, C., and W. Stenzel. 2012. Poster. *Azorella compacta* conservation and demography in Parque Nacional Lauca, Chile. Ecological Society of America Annual Meeting, Portland, OR.
- Moreland, K.\*, and C. Kleier. 2012. Poster. Observational flooding effects on *Rhizophora mangle*. Ecological Society of America Annual Meeting, Portland, OR.
- Van der Vieren, D.\*, and C. Kleier. 2012. Poster. Germination rates of *Bouteloua gracilis* (Blue grama) under different concentrations of magnesium chloride. Ecological Society of America Annual Meeting, Portland, OR.

- Terry, T.\*, and C. Kleier. 2011. Poster. Germination and growth of cheatgrass and blue grama in burned and unburned soils. Ecological Society of America Annual Meeting, Austin, TX.
- Kleier, C. 2011. Presentation. Modeling sustainability: a perfect storm of culture change, general education and action. Association for Environmental Studies and Sciences Annual Meeting, Burlington, VT.
- Kleier, C., and M. Nix. 2011. Presentation. Sustainability as enhanced by community based learning. Rocky Mountain Sustainability Summit, Denver, CO.
- Kleier, C., and C. Carello. 2010. Presentation. Willow (*Salix planifolia*) clipping for ski trail maintenance reduces catkin production but does not decrease biodiversity. Society for Conservation Biology Annual Meeting, Edmonton, Canada.
- Gould, K.\*, and C. Kleier. 2010. Poster. Environmental Impact Assessment – a capstone course for environmental studies and science majors. Association for Environmental Studies and Sciences Annual Meeting, Portland, OR.
- Kleier, C. A. Hoffa\*, and C. Carello. 2009. Presentation. Growth and reproduction decline with willow (*Salix* sp.) clipping for ski trail maintenance. Ecological Society of America Annual Meeting, Albuquerque, NM.
- Kleier, C., and K. Worden. 2009. Poster. Impact of ponderosa pine thinning on Abert's squirrel (*Sciurus aberti*) populations in Boulder County, CO. Ecological Society of America Annual Meeting, Albuquerque, NM.
- Kleier, C. 2008. Presentation. Assessment of environmental studies and science curricula at U.S. Jesuit Colleges and Universities. XVI International Conference of the Society for Human Ecology Bellingham WA, USA.
- C. Carello, C. Kleier, and A. Hoffa\*. 2007. Presentation. Impact of gondola construction and development on bird and mammal populations. Ecological Society of America Annual Meeting, San Jose, CA.
- Kleier, C., A. Hoffa\*, and C. Carello. 2006. Poster. Willow (*Salix* sp.) as a diversity driver in a subalpine forest. Ecological Society of America Annual Meeting, Memphis, TN.
- Kleier, C., D. Bullard\*, and B. Ybarrondo. 2004. Poster. Water pressure chamber measures xylem water potential. Ecological Society of America Annual Meeting, Portland, OR.
- Kleier, C. 2003. Presentation. Active learning in the plant sciences classroom. Botanical Society of America Annual Meeting, Mobile, AL.
- Kleier, C. and J. Lambrinos. 2002. Presentation. Spatial patterns of shrubs and grasses in a tropical alpine puna. Ecological Society of America Annual Meeting, Tucson, AZ.
- Kleier, C. and P.W. Rundel. 2001. Presentation. Comparative morphology, demography, and ecophysiology between two populations of *Chrysothamnus viscidiflorus* ssp. *viscidiflorus* at two different altitudes in the White Mountains, CA. Ecological Society of America Annual Meeting, Madison, WI.
- Kleier, C. and P.W. Rundel. 2000. Presentation. Comparison of functional morphology and ecophysiology between three shrubs in a Californian coastal prairie. Ninth International Conference on Mediterranean Type Ecosystems. Stellenbosch, South Africa.
- Kleier, C., J. Lambrinos, and P.W. Rundel. 2000. Poster. Community vegetation analysis of Parque Nacional Lauca, Chile in the high Andean puna. Joint meeting of the Ecological Society of America and the British Ecological Society, Orlando, FL.
- Kleier, C. and P.W. Rundel. 1999. Presentation. Cushion form adaptations of *Azorella compacta* to cold temperatures and drought in Parque Nacional Lauca, Chile. Ecological Society of America Annual Meeting, Spokane, WA.

Kleier, C., L. Ainsworth\*, and P.W. Rundel. 1998. Poster. Sunlight foraging in two tropical tree species. Ecological Society of America Annual Meeting, Baltimore, MD.

\* Denotes work with an undergraduate student

#### **INVITED PRESENTATIONS**

VII Southern Connections Conference, University of Otago, Dunedin, NZ, Invited contributed talk, February, 2013

Boulder County Parks and Open Space, Longmont, CO. Invited research talk. March, 2009.

Western State College, Gunnison, CO. Biology department seminar. September, 2005.

Colorado Native Plant Society, Boulder, CO. Seminar on tropical alpine plants. March, 2005.

Rio Grande County Museum, CO. Public address on alpine wildflowers. March, 2003.

University of Denver, Denver, CO. Biology department seminar. March, 2002.

Kew Botanic Gardens London, England. Seminar on *Azorella compacta*. February, 2001.

#### **SELECTED AWARDS AND GRANTS**

2012 Regis College Dean's Award for Outstanding Scholarship

2012 Nominee and Finalist – Regis University Faculty Member of the Year

2011 National Geographic / Waitt Foundation Grant Recipient (\$7,020)

2010 Nominee and Finalist – Regis University Faculty Member of the Year

2009 Boulder County Parks and Open Space Small Research Grant (\$10,000)

2008 Boulder County Parks and Open Space Small Research Grant (\$5,000)

2006 Colorado Native Plant Society, John Marr Research Grant

2004 Kenan Foundation, Kenan Fellowship for College Professors

2001 UCLA OBEE Lasiewski Award for Outstanding Graduate Student Research

2001 UCLA Professor Thomas James Memorial Award

2000 University of California Dissertation Year Fellowship

2000 UCLA Vavra Fellowship

2000 White Mountain Research Station Graduate Student Fellowship

1999 UCLA Latin American Center Grant

1998 University of California Natural Reserve System Mildred E. Mathias Award

1997 UCLA Vice-Chancellor for Academic Research Fellowship Award

#### **PEER REVIEWS SOLICITED BY JOURNALS**

*American Journal of Botany*

*Australian Journal of Botany*

*Arctic, Antarctic, and Alpine Research*

*Journal of Arid Environments*

*Plant Biology*

*Journal of Tropical Ecology*

#### **SOLICITED GRANT PROPOSAL PEER REVIEWS**

National Science Foundation

M.J. Murdock Charitable Trust

### **SELECTED LEADERSHIP EXPERIENCE AND SCHOOL SERVICE**

2011- Elected member of Rank and Tenure Committee, Regis University  
2010-11 Chair, College Core Curriculum Committee, Regis University  
2009- Coordinator for Integrative Core – Global Environmental Awareness, Regis  
University  
2008- College Core Curriculum Committee, Regis University  
2006- Women and Gender Studies Committee, Regis University  
2003-04 Center for Excellence in Learning and Teaching (CELT) Council  
2003-04 Title V Steering Committee, Adams State College  
1999-01 President, Biology Graduate Student Association, UCLA  
1994-95 President, Graduate Student Association, Oregon State University

### **PROFESSIONAL AFFILIATIONS**

Association of Environmental Studies and Sciences  
Botanical Society of America  
Ecological Society of America  
Organization for Tropical Studies  
Society for Conservation Biology