



Hugh DeForest Safford

Regional Ecologist
USDA-Forest Service
Pacific Southwest Region
1323 Club Drive
Vallejo, CA 94592
Telephone: 707-562-8934/Fax: 707-562-9050
Email: hughsafford@fs.fed.us

Research Associate
Department of Environmental Science and Policy
University of California
Davis, CA 95616
Telephone: 530-219-0898/Fax: 530-752-3350
Email: hdsafford@ucdavis.edu

EDUCATION-DEGREES-LICENSES

- 1999 Ph.D., Ecology, University of California, Davis, California 95616. Dissertation title: *Brazilian páramos: Geocological studies in the campos de altitude*. Major professor: Marcel Rejmánek.
- 1994 M.S. program in Biology, California State University, Hayward, California (24 quarter-hours; transferred to UC-Davis). Major professor: Rolf Benseler.
- 1990 State of California Single Subject Teaching Credential: German.
- 1989 State of California Single Subject Teaching Credentials: Physical Sciences and Social Sciences.
- 1989 M.A., Secondary Education, San Francisco State University, San Francisco, California 94132. Thesis title: *The federal government and private schooling: A study in courtship*. Advisor: Bernard Palmer.
- 1986 B.S., Geology/Earth Sciences, Montana State University, Bozeman, Montana 59715. Advisor: David Lageson.
- 1981 Diploma, Bozeman Senior High School, Bozeman, Montana 59715

PROFESSIONAL EXPERIENCE

- SENIOR VEGETATION ECOLOGIST (“REGIONAL ECOLOGIST”)
 USDA-Forest Service Dates Employed: 7/01 - present
 Pacific Southwest Region (California, Hawaii and Pacific Islands)
 1323 Club Drive,
 Vallejo, CA 94592
 Supervisor: Dr. Art Gaffrey, tel. 707-562-8719
- RESEARCH FACULTY ASSOCIATE Dates: 10/03 - present
 Department of Environmental Science and Policy
 University of California, Davis 95616
- RESEARCH ECOLOGIST Dates Employed: 6/99 – 10/02
 Department of Environmental Science and Policy
 University of California, Davis 95616.
 Supervisor: Dr. Susan Harrison, tel. 530-752-7110.
- RESEARCHER Dates Employed: 12/99 – 4/00
 University of California Natural Reserve System
 University of California, Davis 95616.
 Supervisor: Dr. Virginia Boucher, tel. 530-752-6949.
- ECOLOGIST AND STATISTICIAN (self-employed) Dates Employed: 11/98 – 4/00
 Great Basin Unified Air Pollution Control District
 Bishop, California.
 Supervisor: Dr. Jim Richards, tel. 530-752-0170.
- RESEARCH ASSISTANT IN ECOLOGY Dates Employed: 3/99 – 6/99
 Department of Environmental Science and Policy
 University of California, Davis 95616.
 Supervisor: Dr. Susan Harrison, tel. 530-752-7110.
- RESEARCH FELLOW IN ECOLOGY Dates Employed: 9/96 – 3/99
 Section of Evolution and Ecology
 University of California, Davis 95616.
 Supervisor: Dr. Marcel Rejmánek, tel. 530-752-1092.
- LABORATORY INSTRUCTOR/TEACHING ASSISTANT Dates Employed: 9/94 – 4/98
 Division of Biological Sciences and
 Division of Environmental Studies
 University of California, Davis, California 95616.
 Supervisors: Dr. Jim Quinn, tel. 530-752-8027
 Dr. Ellen Dean, tel. 530-752-1091.

Courses taught: *Plant Ecology, Field and Laboratory Methods in Ecology, Evolution, California Floristics, Introduction to Zoology and Ecology.*

- PLANT ECOLOGIST (self-employed)
Bitterroot Native Growers, Inc. Dates Employed: 1995-1996
445 Quast Lane, Corvallis, Montana 59828.
Supervisor: Matt Ogden (no longer works here).

- FIELD NATURALIST, GUIDE, AND TRANSLATOR
International Journeys, Inc. Dates Employed: 1995
17849 San Carlos Blvd., Fort Myers Beach, Florida.
Supervisor: Patrice Hart (no longer works here).

- TEACHER (High School)
Escola Americana de Brasília Dates Employed: 8/90 - 6/93
L-2 Sul, SGAS, 605-E
Brasília, D.F., Brazil.

Courses taught: *Biology* (10th grade), *Algebra* (7th/8th grade), *Advanced Placement European History* (12th grade), *History of Western Civilization* (10th grade).

- TEACHER (High School)
Bishop O'Dowd High School Dates Employed: 9/86 - 6/89
9500 Stearns Avenue
Oakland, California 94605.
Supervisor: John Calderwood (retired).

Courses taught: *Biology* (10th grade), *Oceanography* (11th/12th grade), *U.S. Government* (12th grade), *Introduction to Economics* (12th grade), *U.S. Foreign Policy* (12th grade).

PUBLICATIONS

- Veloz, S., B. A. Anacker, and H. D. Safford. 2010. Using species distribution models to predict occurrences in novel areas and climates. *Global Ecology and Biogeography*. In review.
- Dobrowski, S. Z., J. H. Thorne, J. A. Greenberg, H. D. Safford, A. R. Mynsberge, S. M. Crimmin, and A. K. Swanson. 2010. Niche Models Perform Poorly at Projecting Climate Change Impacts Over 75 Years of Measured Climate Change. *PLoS ONE*. In review.
- Kuhn, T. J., H. D. Safford, K. W. Tate, B. E. Jones, and M. G. Barbour. 2010. The contribution of aspen stands to plant diversity in northeastern California, USA. *Forest Ecology and Management*. In review.
- Waetjen, D. J. H. Viers, and H. D. Safford. 2010. A landscape-based classification of lakes in the Tahoe National Forest. *Environmental Management*. In review.

- Levine, B. M., H. D. Safford, and S. L. Stephens. 2010. Fuel reduction treatment effects on plantations and adjacent mixed-conifer forests, Sierra Nevada, California. *Forest Science*. In review.
- Safford, H. D., and G. Hayward. 2010 (in press). Climate change and historical ecology: can the past still inform the future? Pp. __-__, in: J. A. Wiens, C. Regan, G. Hayward, and H. D. Safford (eds). Historical environmental variation in conservation and natural resource management: Past, present and future. John Wiley and Sons, New York, NY.
- Lawler, J. J., H. D. Safford, and E. H. Girvetz. 2010 (in press). Martens and fishers in a changing climate. Pp. __-__, in K. B. Aubry (ed). *Biology and Conservation of Martens, Sables, and Fishers: a New Synthesis*. Cornell University Press, Ithaca, NY.
- Safford, H. D., and C. R. Mallek. 2010 (in press). Ecological disturbances and plant diversity in low productivity ecosystems. Pp. __-__, in: S. P. Harrison and N. Rajakaruna (eds). *Serpentine as a model in ecology and evolution*. University of California Press, Berkeley, CA.
- Spies, T. A., J. D. Miller, J. B. Buchanan, J. F. Lehmkuhl, J. F. Franklin, S. P. Healey, P. F. Hessburg, H. D. Safford, W. B. Cohen, R. S. H. Kennedy, E. E. Knapp, J. K. Agee, and M. Moeur. 2009. Underestimating risks to the Northern Spotted Owl in fire-prone forests: a response to Hanson et al. *Conservation Biology* 24: 330-333.
- Behling, H., and Safford, H. D. 2009. Late-glacial and Holocene vegetation, climate and fire dynamics in the Serra dos Órgãos, Rio de Janeiro State, southeastern Brazil. *Global Change Biology* 16: 1661-1671.
- Keeley, J. E., Safford, H. D., Fotheringham, C. J., Franklin, J., and Moritz, M. A. 2009. The 2007 Southern California wildfires: lessons in complexity. *Journal of Forestry* 107: 287-296.
- Hayward, G. D., C. H. Flather, E. Uloth, H. D. Safford and D. A. Cleaves. 2009. Managing fish and wildlife habitat in the face of climate change: USDA Forest Service perspective. *Transactions of the North American Wildlife and Natural Resources Conference* 74: 98-109.
- Safford, H. D., D. A. Schmidt, and C. Carlson. 2009. Effects of fuel treatments on fire severity in an area of wildland-urban interface, Angora Fire, Lake Tahoe Basin, California. *Forest Ecology and Management* 258: 773-787.
- Safford, H. D. 2009. Introduction to the Geology of Southern California and its Native Plants [book review]. *Crossosoma* 34(1): 40-41.
- Richardson, D. M., J. J. Hellmann, J. McLachlan, D. F. Sax, M. W. Schwartz, J. Brennan, P. Gonzalez, T. Root, O. Sala, S. H. Schneider, D. Ashe, A. Camacho, J. R. Clark, R. Early, J. Etterson, D. Fielder, J. Gill, B. A. Minteer, S. Polasky, H. Safford, A. Thompson, and M. Vellend. 2009. Multidimensional evaluation of managed relocation. *Proceedings of the National Academy of Sciences* 106: 9721-9724.
- Safford, H. D., Hellmann, J. J., McLachlan, J., Sax, D. F., and Schwartz, M. W. 2009. Managed relocation of species: Noah's ark or Pandora's box? *Eos* 90: 15.
- Miller, J. D., Safford, H. D., Crimmins, M., and Thode, A. E. 2009. Quantitative evidence for increasing forest fire severity in the Sierra Nevada and southern Cascade Mountains, California and Nevada, USA. *Ecosystems* 12: 16-32

- Miller, J. D., and Safford, H. D. 2008. *Sierra Nevada fire severity monitoring 1984-2004*. Publication R5-TP-027. USDA-Forest Service, Pacific Southwest Region, Vallejo, CA, USA.
- Safford, H. D. 2008. Fire and ultramafic vegetation in northern California. In: *6th International Conference on Serpentine Ecology, Program and Abstracts* (N. Rajakaruna, et al., org.), p. 6. College of the Atlantic, Bar Harbor, Maine, USA.
- Safford, H. D., Betancourt, J. L., Hayward, G. D., Wiens, J. A, and Regan, C. A. 2008. Land management in the Anthropocene: is history still relevant? *Eos* 89: 343.
- Dobrowski, S. Z., Safford, H. D., Rueda, C., and Ustin, S. 2008. Mapping mountain vegetation using species distribution modeling, image-based texture analysis, and object-based classification. *Applied Vegetation Science* 11: 499-508.
- Safford, H. D., Miller, J., Schmidt, D., Roath, B., and Parsons, A. 2008. BAER soil burn severity maps do not measure fire effects to vegetation: a comment on Odion and Hanson (2006). *Ecosystems* 11: 1-11
- Safford, H. D., and Harrison, S. P. 2008. The effects of fire on serpentine vegetation and implications for management. *Proceedings of the 2002 Fire Conference on Managing Fire and Fuels in the Remaining Wildlands and Open Spaces of the Southwestern United States*. December 2-5, 2002, San Diego, CA. General Technical Report PSW-189. USDA-Forest Service, Pacific Southwest Research Station, Albany, CA, USA.
- Safford, H. D. 2007. Man and fire in Southern California: doing the math. *Fremontia* 35(4): 25-29.
- Davies, K. F., Harrison, S., Safford, H. D., and Viers, J. H. 2007. Productivity alters the scale dependence of the diversity-invasibility relationship. *Ecology* 88: 1940-1947.
- Safford, H. D. 2007. Geocological extremism – obsessing on green rocks and kooky soils [book review]. *Madroño* 54: 199-201.
- Safford, H. D. 2007. Brazilian páramos IV. Phytogeography of the campos de altitude. *Journal of Biogeography* 34: 1701-1722.
- Grace, J. B., Safford, H. D., and Harrison, S. 2007. Large scale causes of variation in the serpentine flora of California. *Plant and Soil* 293: 121-132.
- Behling, H., Dupont, L., Safford, H. D., and Wefer, G. 2007. Late-glacial and Holocene vegetation and climate dynamics in the Serra da Bocaina, southeastern Brazil. *Quaternary International* 131: 22-31.
- Safford, H. D., and Schmidt, D. 2006. Assessment of landscape scale wildfire impacts and fuels treatments: methods for ecological restoration based on state-and-transition modeling. 4 pp., in: *Proceedings of the 2006 International Fire Ecology and Management Congress*. November 13-17, 2006, San Diego, CA, USA. Washington State University Extension, Pullman, WA, USA.
- Safford, H. D. 2006. Southern California and fire: a separate reality [abstract]. *Proceedings of the 2006 International Fire Ecology and Management Congress*. November 13-17, 2006, San Diego, CA, USA. Washington State University Extension, Pullman, WA, USA.

- Harrison, S. P., Grace, J., Davies, K. F., Safford, H. D., and Viers, J. H. 2006. Invasion in a diversity hotspot: Exotic cover and native richness in the California serpentine flora. *Ecology* 87: 695-703.
- Harrison, S. P., Safford, H. D., Grace, J., Viers, J. H., and Davies, K. F. 2006. Regional and local species richness in an insular environment: serpentine plants in California. *Ecological Monographs* 76: 41-56.
- Keeley, J. E., Allen, C. D., Betancourt, J., Chong, G. W., Fotheringham, C. J., and Safford, H. D. 2006. A 21st century perspective on postfire seeding. *Journal of Forestry* 104(1):1-2.
- Harrison, S., Davies, K., Safford, H., and Viers, J. 2006. Beta diversity and the scale dependence of the productivity-diversity relationship: a test in the California serpentine flora. *Journal of Ecology* 94: 110-117.
- Safford, H. D., Viers, J. H., and Harrison, S. P. 2005. Serpentine endemism in the California flora: a database of serpentine affinity. *Madroño* 52: 222-257.
- Keeley, J. E., Pfaff, A., and Safford, H. D. 2005. Fire suppression impacts on postfire recovery of Sierra Nevada chaparral shrublands. *International Journal of Wildland Fire* 14:255-265.
- Harrison, S. P., and Safford, H. D. 2004. Regional and local diversity in the serpentine endemic flora of California: preliminary results of a geographic study. Pp. 183-190 in Boyd, R. S., Baker, A. J. M., and Proctor, J. (eds). *Ultramafic rocks: their soils, vegetation and fauna*. Proceedings of the 4th International Conference on Serpentine Ecology. Science Reviews, St. Albans, UK.
- Safford, H. D., and Harrison, S. P. 2004. The effects of fire and grazing on serpentine versus nonserpentine grassland and chaparral. Pp. 315-322 in Boyd, R. S., Baker, A. J. M., and Proctor, J. (eds). *Ultramafic rocks: their soils, vegetation and fauna*. Proceedings of the 4th International Conference on Serpentine Ecology. Science Reviews, St. Albans, UK.
- Harrison, S., Safford, H. D., and Wakabayashi, J. 2004. Does the age of exposure of serpentine explain variation in endemic plant diversity in California? *International Geology Review* 46: 235-242
- Millar, C., and Safford, H. D. 2004. Research Natural Areas in the Sierra Nevada bioregion: Contribution to biodiversity conservation and opportunities for research [abstract]. P. 277 in Murphy, D. D., and Stine, P. *Proceedings of the Sierra Nevada Science Symposium*. October 7-10, 2002, Kings Beach, CA. General Technical Report PSW-193. USDA-Forest Service, Pacific Southwest Research Station, Albany, CA.
- Pfaff, A. H., Keeley, J. E., and Safford, H. D. 2004. Fire suppression effects on Sierra Nevada shrublands [abstract]. *Ecological Society of America Annual Meeting Abstracts* 89: 398.
- Safford, H. D. 2004. Seeing the forest and the trees: Ecologists and land management on the National Forests [abstract]. *Ecological Society of America Annual Meeting Abstracts* 89: 446.
- Safford, H. D., and Harrison, S. P. 2004. Fire effects on plant diversity in serpentine versus sandstone chaparral. *Ecology* 85: 539-548.
- Safford, H. D., Jimerson, T., Potter, D., and Smith, S. E. 2003. Vegetation communities and land management in the US Forest Service Pacific Southwest Region. *California Native Plant Society Sampler* 5: 5-7.

- Safford, H. D. 2003. Geology and plant life: the effects of land forms and rock types on plants [book review]. *Madroño* 50: 57-58.
- Harrison, S. P., Inouye, B., and Safford, H. D. 2003. Ecological heterogeneity in the effects of grazing and fire on grassland diversity. *Conservation Biology* 17: 837-845.
- Safford, H. D. 2002. Geocology: historical roots and contemporary practice [abstract]. *Geological Society of America Annual Meeting Abstracts with Programs* 34(6):
- Safford, H. D., and Harrison, S. P. 2001. Grazing and substrate interact to affect native vs. exotic diversity in roadside grasslands. *Ecological Applications* 11: 1112-1122.
- Safford, H. D., Rejmánek, M., and Hadaç, E. 2001. Species pools and the “hump-back” model of plant species diversity: an empirical analysis at a relevant spatial scale. *Oikos* 95: 282-290.
- Safford, H. D. 2001. Brazilian páramos III. Patterns and rates of postfire regeneration in the campos de altitude. *Biotropica* 33: 282-302.
- 2001. Fire effects on plant diversity in serpentine vs. nonserpentine chaparral and grassland [abstract]. *Ecological Society of America Annual Meeting Abstracts* 86: 196.
- Safford, H. D., and Martinelli, G. 2000. Southeast Brazil. In: *Inselbergs: Biotic diversity of isolated rock outcrops in tropical and temperate regions* (ed. by W. Barthlott and S. Porembski), pp. 339-389. Ecological Studies No. 146. Springer-Verlag, Berlin.
- Safford, H. D. 1999. Brazilian páramos II. Macro- and mesoclimate of the campos de altitude and affinities with high mountain climates of the tropical Andes and Costa Rica. *The Journal of Biogeography* 26: 739-760.
- 1999. Brazilian páramos I. Introduction to the physical environment and vegetation of the campos de altitude. *The Journal of Biogeography* 26: 713-738.
- 1999. Notas sobre a ecologia e preservação de *Nothochilus coccineus* (Scrophulariaceae), espécie endêmica ao Maciço do Caparaó, ES/MG. [Notes on the ecology and conservation of *Nothochilus coccineus* (Scrophulariaceae), species endemic to the Caparaó Massif, ES/MG, Brazil]. *Acta Botânica Brasileira* 13(2): 175-185.
- 1999. Brazilian páramos: Geocological studies in the campos de altitude. Ph.D. Dissertation, University of California, Davis.
- 1998. Conflagration in the campos de altitude: Patterns and rates of postfire regeneration in the Brazilian páramos [abstract]. *Biotropica* 30 (2 Suppl):32
- 1995. The recovery planning blues. *Northwest Science* 69(4): 330-335.
- 1995. Woody vegetation and succession in the Garin Woods, Hayward Hills, Alameda County, California. *Madroño* 42(4): 470-489.
- Richmond, D. P., Safford, H. D., and Mills, R. L. 1987. Avalanches. In: *Montana Hazard/Vulnerability Analysis*, 22 pp. Montana Disaster and Emergency Services Division, Department of Military Affairs, Helena, Montana.

Safford, H. D. 1986. Caution advised in Montana. *The Avalanche Review* 4(5): 11.

----- 1986. Montana, in "Regional Roundup". *The Avalanche Review* 4(5): 2.

MANUSCRIPTS IN PREPARATION

Lawlor, J., and Safford, H. D. Marten and Fisher (*Martes*) in a changing climate. (*Conference proceedings, "Biology and Conservation of Martens, Sables, and Fishers: A New Synthesis"*, Seattle, WA)

Safford, H. D., C. Carlson, and S. Dobrowski. The ecological effects of fuels treatments, Angora Fire, Lake Tahoe Basin, California, USA. (*Forest Ecology and Management*)

Safford, H. D., and D. Schmidt. State and transition models of historic forest stand dynamics in the Carson Range, Lake Tahoe Basin, Nevada. (*International Journal of Wildland Fire*).

Safford, H. D. Within- and between-habitat diversity in alpine vegetation of temperate versus tropical mountains: data bely theoretical predictions. (*Oikos*).

----- Climate change in the alpine zone: Variations in latitudinal response and implications for conservation. (*Arctic and Alpine Research*).

UNPUBLISHED REPORTS

Safford, H. D. 2009. Geography and biodiversity of the South Asia, Mekong, and Insular Southeast Asia Subregions. 25 pp. Report submitted to Asia Regional Biodiversity Conservation Assessment, US Agency for International Development, Regional Development Mission for Asia, Bangkok, Thailand.

Safford, H. D., and P. Cannon. 2009. Trip report: Agroforestry and forest restoration, Paraguay. USDA Forest Service Technical Assistance Trip, March 7 – March 21, 2009. 42 pp. USDA Forest Service International Programs and US Agency for International Development, Washington, DC.

Schmidtke, P., Safford, H. D., and Buchanan, J. 2008. Trip report: National Incident Management System development, Brazil. USDA Forest Service Technical Assistance Trip, September 29, 2008 – October 10, 2009. c. 35 pp. USDA Forest Service International Programs and US Agency for International Development, Washington, DC.

Anacker, B. L., Safford, H. D., and Harrison, S. P. 2008. Golden Trout Wilderness meadow inventory and monitoring: data analysis and assessment of current status. 32 pp. Report to the USDA Forest Service Pacific Southwest Region and the Inyo National Forest.

Safford, H. D. 2008. Fire severity in fuel treatments, American River Complex Fire, Tahoe National Forest, California. 21 pp. Report to the USDA Forest Service, Pacific Southwest Region Fire and Aviation Management Staff.

Safford, H. D., and Juergens, G. 2008. Trip report: Ecological restoration of burned areas, Paraguay. USDA Forest Service Technical Assistance Trip, April 26 – May 3, 2008. 26 pp. USDA Forest Service International Programs and US Agency for International Development, Washington, DC.

- Safford, H. D. 2008. Condition and trends in Angola forestlands. Report submitted to FAA 118-119 Tropical Forest and Biodiversity Assessment Team. 22 pp. USDA Forest Service International Programs and US Agency for International Development, Washington, DC.
- Safford, H. D. 2008. Potential impacts of climate change to the habitat of the California fisher: an initial assessment. 52 pp. Report for interagency California Fisher recovery program.
- Safford, H. D., and Lombardo, D. 2007. Trip report: Tree identification, vegetation assessment, and wildlife monitoring training, Divundu, Namibia, and Mucusso, Angola. USDA Forest Service Technical Assistance Trip, March 7-24, 2007. 21 pp. USDA Forest Service International Programs and US Agency for International Development, Washington, DC.
- Herbst, D. B., Roll, S. K., and Safford, H. D. 2007. Evaluation of livestock grazing effects and recovery in the Golden Trout Wilderness using macroinvertebrate bioassessment indicators and physical habitat surveys: contrast of grazed and ungrazed allotments. 53 pp. Final report to California Department of Fish and Game, US-Forest Service and California Trout.
- Zweede, M., H. D. Safford, and G. Juergens. 2006. Trip and assessment report: USDA Forest Service forest resource assessment trip, Kuando Kubango Province, Angola. USDA Forest Service Technical Assistance Trip, May 16-June 1, 2006. 64 pp. USDA Forest Service International Programs and US Agency for International Development, Washington, DC.
- Slaton, M. R., A. J. Gallegos, H. D. Safford, and D. Downie. 2006. Lake Tahoe Basin Management Unit Terrestrial Ecological Unit Inventory. Users' Guide. 353 pp.
- Harrison, S. P. and Safford, H. D. 2001. Postfire recovery of serpentine chaparral at the Knoxville Public Lands (Napa and Lake Counties, CA). 4 pp. Draft report, prepared for the US Bureau of Land Management, Ukiah Field Office.
- Safford, H. D. August, 2000. The McLaughlin Reserve database: Summary of available data. 56 pp. Prepared for University of California Natural Reserve System, University of California-Davis.
- Richards, J. H., Safford, H. D., and Paulus, J. November, 2000. Plant, soil, and groundwater relations in *Distichlis spicata* on the Owens Lake Playa. 70 pp. Prepared for Great Basin Unified Air Pollution Control District, Bishop, CA.

GRANTS RECEIVED

2010	USDA Forest Service, Tahoe National Forest. Project: <i>Installation and monitoring of a vegetation plot grid in the Pendola Fire watershed, Tahoe and Plumas National Forests</i>	\$58,000
2010	California Energy Commission. Project: <i>Monitoring the ecological effects of forest fuel treatments in wildfire areas</i>	\$80,000
2010	USDA Forest Health Protection Program, Spatial Technology Development Program. Project: <i>Creating a spatially-dependent model for probability of Jeffrey Pine Beetle-caused mortality in the Lake Tahoe Basin.</i> Co-PI:	\$45,500

Joel Egan, USFS Pacific Southwest Region		
2009	USDA Forest Service-International Programs, and USDA Foreign Agricultural Service. Project: <i>A comparison of current patterns of fire severity in the conifer forests of Baja California, Mexico with the eastern Sierra Nevada, California, USA.</i>	\$50,000
2009	USDA Forest Service, Lake Tahoe Basin Management Unit Project: <i>Vegetation, fuels, and tree survival monitoring, Angora Fire, Lake Tahoe Basin</i>	\$60,000
2008	Southern Nevada Public Lands Management Act, Tahoe Science Program Project: <i>Spatially Explicit Reference Conditions for Forest Landscapes in the Lake Tahoe Basin, USA.</i> PI: Alan Taylor, Pennsylvania State University	\$197,348
2008	Southern Nevada Public Lands Management Act, Tahoe Science Program Project: <i>Developing FCCS Fuelbeds for the Angora Fire Region.</i> PI: Roger Ottmar, USFS Pacific Northwest Research Station	\$73,130
2008	Southern Nevada Public Lands Management Act, Tahoe Science Program Project: <i>Predictive modeling of cheatgrass invasion risk for the Lake Tahoe Basin</i> Co-PIs: Brian Anacker and Susan Harrison, University of California-Davis	\$71,100
2008	USDA Forest Service, Cleveland National Forest Project: <i>Postfire monitoring of conifer and hardwood regeneration after the 2003 Cedar Fire, San Diego County</i>	\$68,000
2008	USDA Forest Service, Lake Tahoe Basin Management Unit Project: <i>Vegetation, fuels, and tree survival monitoring, Angora Fire, Lake Tahoe Basin</i>	\$65,000
2006	CalTrout Project: <i>Golden Trout Wilderness meadow monitoring: Comparison of grazed and ungrazed sites</i>	\$8,000
2006	Joint Fire Science Program Project: <i>Restoring fire to endemic Cypress populations in northern California</i> Co-PI's: Kyle Merriam and Max Creasy	\$98,000
2004	CalTrout/Orvis Golden Trout Habitat Restoration Initiative Project: <i>Stream Condition Inventory of Golden Trout Wilderness streams: Comparison of grazed and ungrazed allotments.</i> (Includes \$30,345 procured from matching Federal Fish Habitat Restoration funds)	\$40,460
2003	National Fire Plan Project: <i>Postfire monitoring of old and young chaparral stands in the</i>	\$20,000

MacNally Fire, Sequoia National Forest, California.

- 2001 National Fire Plan \$90,000
Project: *Serpentine habitats and fire: patterns of survival and regeneration in sensitive plant species and their application to postfire restoration planning.*
- 2000 Cowrote successful proposal to National Science Foundation; \$275,000 awarded to S. P. Harrison
Project: *Regional and local diversity in an insular environment: Serpentine plants in California.*)
- 1998 University of California University Grant \$1,500
Project: *Brazilian páramos: Geoecological studies in the campos de altitude.*
- 1996 University Research Expeditions Program (UREP), University of California-Berkeley, financial support for field research plus volunteer field help. \$2,800
Project: *Brazilian páramos: Geoecological studies in the campos de altitude.*
- 1994-1996 University of California Graduate Studies Fee Grant

GRANT PROPOSALS IN REVIEW

- Tahoe Science Program: *Assessing forest/fuel recovery following fuel reduction treatments in the Lake Tahoe Basin using a chronosequence approach.* PI: Brandon Collins, Pacific Southwest Research Station; \$211,320
- Joint Fire Science Program: *Using linked dynamic climate, fire, and forest growth models to inform landscape-level fuels management to sustain fishers (Martes pennanti) in the Sierra Nevada, California.* PI: Wayne Spencer, Conservation Biology Institute; \$468,615
- California Energy Commission: *Monitoring the ecological effects of forest fuel treatments in wildfire areas;* \$240,000
- Joint Fire Science Program: *The California Fire Science Delivery Consortium.* PI: Scott Stephens, University of California-Berkeley; \$750,000

AWARDS-SCHOLARSHIPS-FELLOWSHIPS

- 2010 Award: USDA Forest Service, recognition for overall achievement in providing ecological support to land and resource management in the Pacific Southwest Region
- 2009 Award: USDA Forest Service, Travel Gainsharing Award
- 2008 Award: USDA Forest Service Pacific Southwest Region, SPOT Award, for support to

- the Sierra Nevada Forest Plan Amendment litigation
- 2008 Award: USDA Forest Service Pacific Southwest Region, recognition for outstanding accomplishment in support of the Storrie Fire litigation
- 2007 Award: USDA Forest Service Pacific Southwest Region, recognition for outstanding dedication and achievement, annual Vegetation Management Conference
- 2007 Award: USDA Forest Service, Special Service Award
- 2007 Award: USDA Forest Service, Travel Gainsharing Award
- 2006 Award: ESRI User Conference, San Diego, CA. First Place: Best Software Integration Project: *Spatially integrated reporting of environmental criteria for resource management: an example from Lake Tahoe*
Authors: N. E. Roth, J. H. Viers, M. R. Slaton, H. D. Safford
- 2005 Award: USDA Forest Service, Travel Gainsharing Award
- 2004 Award: USDA Forest Service, Travel Gainsharing Award
- 2003 Award: USDA Forest Service, Travel Gainsharing Award
- 2002 Award: USDA Forest Service, Travel Gainsharing Award
- 1999 Award: Graduate Studies Travel Award, University of California-Davis
- 1998-1999 Fellowship: Ecology Graduate Group Fellowship, University of California-Davis
- 1998 Scholarship: Jastro Research Scholarship, University of California-Davis
Project: *Brazilian páramos: Geoecological studies in the campos de altitude.*
- 1998 Award: University of California-Davis Graduate Research Award
Project: *Brazilian páramos: Geoecological studies in the campos de altitude.*
- 1998 Award: Association for Tropical Biology Travel Award
- 1997-1998 Fellowship: Tracy and Ruth Risdon Storer Fellowship, University of California-Davis
- 1997 Fellowship: Eisenhower Graduate Fellowship, University of California-Davis
- 1997 Scholarship: Jastro Research Scholarship, University of California-Davis
Project: *Brazilian páramos: Geoecological studies in the campos de altitude.*

1997 Award: University of California-Davis Graduate Research Award
Project: *Brazilian páramos: Geoecological studies in the campos de altitude.*

1996-1997 Fellowship: Ecology Graduate Group Fellowship, University of California-Davis

1994 Scholarship: California Native Plant Society, *Myrtle Wolf* Scholarship, for most outstanding graduate botanical research conducted in the greater East San Francisco Bay region. Project: *Woody vegetation and succession at the Garin Woods Ecological Field Station, California State University, Hayward, California.*

INVITED LECTURES-PRESENTED PAPERS

April 27, 2010. *Climate change, fire and the National Forests: issues in current and future resource management in the California Central Coast Region.* California State University-Monterey Bay, Monterey, CA

March 3, 2010. *Climate, forests, and fire: issues in current and future resource management in the California National Forests.* Biological Sciences lecture series, San José State University, San José, CA.

February 10, 2010. *Ecological implications of future fire regimes in California.* Conference on Pre- and Post-Wildfire Forest Management For Ecological Restoration and Fire Resilience, Sacramento, CA.

September 22, 2009. *The ecological effects of climate change in the eastern Sierra Nevada.* Evaluating Climate Change in the Eastern Sierra Nevada Symposium, Bishop, CA.

September 11, 2009. *Martens and fishers in a changing climate.* 5th International Martes Symposium, Seattle, WA.

March 18, 2009. *Protocolos del monitoreo para la agroforesteria: experiencias en Latinoamerica [Monitoring protocols for agroforestry: experiences in Latin America].* Universidad Nacional de Asunción, Asunción, Paraguay.

March 17, 2009. *Manejo del fuego: estudios de caso de Latinoamerica [Fire management: case studies from Latin America].* Universidad Nacional de Asunción, Asunción, Paraguay.

January 23, 2009. *Ecological and biomass effects of forest fuel thinning in the Angora Fire, Lake Tahoe Basin, California.* Forest carbon management symposium, California Interagency Forest Working Group, Davis, CA.

December 3, 2008. *What role does fire suppression play in recent increases in fire activity, size and severity in the western United States?* Annual meeting of the Association for Fire Ecology, San Diego, CA.

November 19, 2008. *Fuels treatments and their ecological effects: the Angora Fire as a case study.* Annual meeting of the California Pest Council, Woodland, CA.

October 9, 2008. *Sistema Nacional de Manejo de Incidentes: Resultados da visita técnica do Serviço Florestal dos EUA [National incident management system: results of the technical visit of the US*

- Forest Service team*]. Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis, Brasília, Brazil.
- April 28, 2008. *Restauración de áreas de bosques quemados en Paraguay [Restoration of burned forest areas in Paraguay]*. Asociación Rural de Paraguay, Asunción, Paraguay.
- February 29, 2008. *Tendências atuais em incêndios florestais na Serra Nevada, California, USA [Current trends in fire activity and severity, Sierra Nevada]*. Universidade de Coimbra, Coimbra, Portugal.
- August 10, 2007. *Effects of fuels treatments on fire severity in the Angora Fire and summary of regional patterns in fire severity*. Summer meeting of the Society of American Foresters, California Chapter, Placerville, CA.
- August 8, 2007. *Spatiotemporal trends in fire severity in the Sierra Nevada, California, 1984-2004*. Annual meeting of the Ecological Society of America, San Jose, CA.
- August 1, 2007. H. Behling, principal author; M. Oliveira, L. Dupont. *Late Quaternary vegetation, biodiversity, fire and climate dynamics in the Atlantic mountain region of eastern Brazil*. Annual meeting of the International Union for Quaternary Research, Cairns, Australia
- November 14, 2006. *Southern California and fire: a separate reality*. 3rd International Fire Ecology and Management Congress, San Diego, CA.
- May 27, 2006. *Taxonomic and geographic patterns in the serpentine endemic flora of California, USA*. 5th International Conference on Serpentine Ecology, Università di Siena, Siena, Italy.
- May 5, 2006. S. Dobrowski, principal author; S. Ustin. *Incorporating Ecological Context into Object Oriented Vegetation Classification through Regression Based Distribution Modeling*. Annual meeting of the American Society for Photogrammetric Engineering and Remote Sensing, Reno, NV.
- January 28, 2006. *Power Fire restoration: Development of historical reference conditions and applications to restoration planning*. Annual meeting of the Society of American Foresters, California and Intermountain Chapters, Reno, NV
- April 21, 2005. *Vegetation and Fire Regime Condition Class in the North Fork Middle Fork American River watershed*. American River Watershed Conference, Sacramento State University, Sacramento, CA.
- October 14, 2004. *Fire, water and four-wheelin': Contemporary issues in Research Natural Area management in California*. Annual meeting of the Natural Areas Association, Chicago, IL.
- August 5, 2004. *Seeing the forest and the trees: Ecology and land management in the National Forest System*. Annual meeting of the Ecological Society of America, Portland, OR.
- July 2, 2003. *Grazing and invasion in roadside plant communities: Interactions with habitat productivity and evolutionary history*. Monterey Pine Forest Ecology Cooperative, Carmel, CA.
- April 23, 2003. *Disturbance ecology of ultramafic vegetation in California and implications for*

- management*. 4th International Conference on Serpentine Ecology, Jardín Botánico Nacional, Havana, Cuba.
- December 7, 2002. *Plant species diversity in California serpentines: Regional patterns and possible causative factors*. Annual State meeting, California Native Plant Society, University of California, Berkeley, CA.
- December 5, 2002. *The effects of fire on serpentine vegetation and implications for management*. Annual meeting of the Association for Fire Ecology, San Diego, CA.
- November 23, 2002. *Disturbance ecology of serpentine habitats and implications for management*. Department of Environmental Science and Policy, University of California, Davis, CA.
- November 4, 2002. *Patterns of plant species diversity in the serpentine flora of the Sierra Nevada*. California Native Plant Society, Chico, California.
- October 30, 2002. *Geocology: Historical roots and contemporary practice*. Annual meeting of the Geological Society of America, Denver, Colorado.
- October 9, 2002. C. Millar, principal author. *Research Natural Areas in the Sierra Nevada bioregion Contribution to biodiversity conservation and opportunities for research*. Sierra Nevada Science Symposium, Kings Beach, California.
- June 15, 2002. *Botany and geocology of northern Sierra Nevada serpentines*. Joint field workshop, Chico State University Herbarium and Plumas National Forest, N. Fork Feather River, California.
- March 19, 2002. *Plant species diversity in California serpentine: Regional patterns and possible causative factors*. California Native Plant Society, Fresno, California.
- February 20, 2002. H. Behling, principal author. *Paläoökologische Studien in den tropischen Gebirgsregionen Südostbrasieliens [Paleoecological studies in the tropical mountains of southern Brazil]*. Annual meeting of the Gesellschaft für Tropenökologie, Göttingen, Germany.
- August 8, 2001. *Fire effects on plant diversity in serpentine versus nonserpentine chaparral and grassland*. Annual meeting of the Ecological Society of America, Madison, Wisconsin.
- August 6, 2000. *Ungrazed road verges in a grazed landscape: Interactive effects of grazing, invasion and substrate on grassland diversity*. Annual meeting of the Ecological Society of America, Snowbird, Utah.
- March 24, 1999. *Geocological studies in the tropical highlands of southeastern Brazil*. Annual meeting of the American Association of Geographers, Honolulu, Hawaii.
- October 20, 1998. *Páramos brasileños: Estudios geocológicos en los campos de altitude*. [Brazilian

páramos: Geoecological studies in the campos de altitude]. VII Congreso Latinoamericano de Botánica, Mexico City, Mexico.

August 4, 1998. *Conflagration in the campos de altitude: Patterns and rates of postfire regeneration in the Brazilian páramos*. Annual meeting of the Association for Tropical Biology, Baltimore, MD.

September 7, 1997. *Formas de vida e evolução convergente em sistemas tropic-alpinas. [Life forms and convergent evolution in tropical alpine ecosystems]*. Universidade do Estado de Minas Gerais, Carangola, MG, Brazil.

September 6, 1997. *Geografia, geologia, e climatologia das terras altas do sudeste do Brasil. [Geography, geology, and climatology of the southeastern Brazilian Highlands]*. Universidade do Estado de Minas Gerais, Carangola, MG, Brazil.

September 9, 1996. *Ecologia e biogeografia dos campos de altitude do sudeste do Brasil. [Ecology and biogeography of the campos de altitude of southeastern Brazil]*. Universidade do Estado do Rio de Janeiro, Rio de Janeiro, RJ, Brazil.

SERVICE-LEADERSHIP ACTIVITIES

- 2000-present Regional Ecology Program Manager, USDA-Forest Service, Pacific Southwest Region
- 2001-present Chairperson, Regional Research Natural Area Committee, USDA-Forest Service, Pacific Southwest Region
- 2008-present Member, North American Forest Commission, Watershed Working Group
- 2009-present Member, Regional Interdisciplinary Team for Forest Plan Revision, USDA-Forest Service Pacific Southwest Region
- 2006-present Coach, American Youth Soccer Organization, Davis, CA
- 12/2008 Coorganized and presided at organized oral session at 2008 Association for Fire Ecology annual meeting, San Diego, CA: *The ecological and environmental effects of fire suppression*.
- 11/2008 Organized and presided at topical session at 2008 California Pest Council annual meeting, Woodland, CA: *The status of forests in the Lake Tahoe Basin*.
- 2002-2007 Chairperson, National Association of Regional Vegetation Ecologists, USDA-Forest Service
- 2006-2008 Chairperson, Regional Vegetation Information Steering Committee, USDA-Forest Service, Pacific Southwest Region

- 8/2004 Coorganized and presided at organized oral session at 2004 Ecological Society of America annual meeting, Portland, OR: *From idea to reality: Applied science and ecological problem solving in the National Forest System.*
- 10/2002 Coorganized and presided at topical session at 2002 Geological Society of America annual meeting, Denver, CO: *Geoecology: The emergence of an old concept to solve problems in the 21st century.*
- 6/2002 Coorganized and directed field workshop *Botany and geoecology of northern Sierra Nevada serpentines*, sponsored by Chico State University Herbarium and US-Forest Service, Plumas National Forest.
- 2002-2004 Regional Coordinator, Natural Resource Information System – TERRA module, US-Forest Service, Pacific Southwest Region
- 2001-2003 Member, Regional Vegetation Mapping Team, US-Forest Service, Pacific Southwest Region
- 1993-1994 Member, Garin Woods Ecological Field Station steering committee, California State University, Hayward, CA
- 1992-1993 Group Leader, Science and Mathematics Department accreditation committee, Escola Americana de Brasília, Brasília, Brazil
- 1990-1993 Head Coach, Varsity Women's Basketball, Escola Americana de Brasília, Brasília, Brazil.
- 1986-1989 Director, Ski Club, Bishop O'Dowd High School, Oakland, CA
- 1987-1988 Member, Science Department accreditation committee, Bishop O'Dowd High School, Oakland, CA
- 1986-1987 Faculty advisor, Junior Statesmen of America, Bishop O'Dowd High School, Oakland, CA

LANGUAGE SKILLS

Full fluency: English, German, Portuguese, Spanish

Semifluency: Italian, French, Swedish

Survival skills: Bahasa Indonesia, Hindustani (spoken only), Mandarin Chinese (spoken only),

PROFESSIONAL AFFILIATIONS

- Ecological Society of America

- Geological Society of America
- American Geophysical Union
- Society for Conservation Biology
- Association for Fire Ecology
- Natural Areas Association
- Association for Tropical Biology
- California Botanical Society
- International Society of Serpentine Ecologists

MANUSCRIPTS REVIEWED

- *Biotropica*
- *Biological Invasions*
- *Diversity and Distributions*
- *Ecology*
- *Ecology Letters*
- *Ecological Applications*
- *Fire Ecology*
- *Frontiers in Ecology and the Environment*
- *Global Change Biology*
- *Journal of Applied Ecology*
- *Journal of Biogeography*
- *Journal of Vegetation Science*
- *Madroño*
- *Mountain Research and Development*
- *Northeastern Naturalist*
- *Oecologia*
- *Palaeoecology – Data and Modelling*
- *Perspectives in Plant Ecology, Evolution and Systematics*
- *Plant and Soil*
- *Plant Ecology*
- *Revista Brasileira de Botânica*
- *Vegetatio*