

# CURRICULUM VITAE

**Eric B. Peterson, Ph.D.**  
**Geospatial Ecologist**

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## Degrees

- Ph.D., 2000: Oregon State University (OSU)  
Major: Plant Systematics and Ecology (with emphasis on forestry)  
Minor: Statistics
- B.S., 1995: California State University at Humboldt (HSU)  
Majors: Botany and Environmental Biology  
Minor: Art (photography and illustration)

## Professional Employment History

- 2008/3-Current Vegetation Ecologist / Data Manager, California Native Plant Society (address above).
- 2000-2008/3 Vegetation Ecologist, Nevada Natural Heritage Program, State of Nevada, Dept. Conservation & Natural Resources, Carson City, Nevada.
- 1999 (Fall quarter) Instructor, Dept. Science, Lane Community College, Eugene, Oregon.
- 1995-2000 16 quarters as Graduate Research Assistant, Dept. Botany and Plant Pathology, Oregon State University. (lichen community ecology and occurrence modeling) 3 quarters as Graduate Teaching Assistant, Dept. Botany and Plant Pathology, Oregon State University.
- 1994 (Summer) Research Assistant, Dept. of Botany and Microbiology, University of Oklahoma. (Effects of grazing on competition among native and introduced grasses in Yellowstone National Park).
- 1990-1991 Laboratory Technician, North Coast Laboratories, Arcata, California. (Extraction of pollutants from soil and water samples with organic solvents for analysis by HPLC).

## Professional Unpaid Activities

- 2001-Current California Lichen Society, Conservation Committee Chairperson
- 2005-Current California Lichen Society, Bulletin Production Editor
- 2003-2007 Adjunct Professor (unpaid), University of Nevada, Reno, Department of Natural Resources and Environmental Science

## Career Interests

I work to improve conservation by providing land managers with scientific information to better inform their decision-making process. In particular, I work on methods for detecting, analyzing, and modeling the distribution of vegetation. My work has involved both negative and positive sides of vegetation condition, including exotic invasions in sites of poor condition and remnant vegetation in sites of good condition. I have delved deeply into biogeographic technologies including remote sensing from satellite imagery, geographic information systems (GIS), multivariate and nonparametric statistics, relational databases, and computer programming in a variety of languages.

I am also involved with conservation of rare lichens and lichen habitats. I have worked closely with the California Natural Diversity Database and the California Native Plant Society to develop a cautious process for developing strong proposals for rare lichens – a process subsequently adopted by the California Native Plant Society for their own work. My interest in lichens has also drawn me into the subjects of taxonomy and phylogeography. And, I have enthusiastically returned to my home region of northern California with its complex and intricate landscape.

## Current Projects

- Gradsect analyses and other methods for strategic, efficient, and thorough sampling of large landscapes with limited staff resources.
- Conversion of the Manual of California Vegetation (second edition) into an on-line database.
- Vegetation classification for the San Joaquin Valley, Carrizo Plain, and southern Sierra-Nevada Foothills, to improve the (Inter-)National Vegetation Classification for the region and feed into future work with the Manual of California Vegetation.
- Strategic sampling for accuracy assessment of recent vegetation mapping in the northern Sierra-Nevada Foothills.
- Relationships among land form, land use, and vegetation.
- Understanding biotic and abiotic limitations to the invasion of annual grasses.
- Description of several new species of lichens and similar fungi.

## Peer-Reviewed Publications

**Peterson, E. B.** [*in revision*]. The relevance of temperature to *Bromus tectorum* invasion in arid western North America, with estimates of habitat suitability over time.

**Peterson, E. B.** [*in revision*]. Mapping a landscape in transition – the annual grass invasion of the Owyhee Uplands.

**Peterson, E. B.** 2005. Estimating cover of an invasive grass (*Bromus tectorum*) using tobit regression and phenology derived from two dates of Landsat ETM+ data. *International Journal of Remote Sensing*, 26(12): 2491-2507.

**Peterson, E. B.** and B. McCune. 2003. The importance of hotspots for lichen diversity in forests of western Oregon. *Bryologist*, 106: 246-256.

**Peterson, E. B.** and B. McCune. 2001. Diversity and succession of epiphytic macrolichen communities in low-elevation managed conifer forests in western Oregon. *Journal of Vegetation Science* 12: 511–524.

Poinar, G., **E. B. Peterson**, and J. Platt. 2000. Fossil *Parmelia* in new world amber. *Lichenologist* 32: 263–269.

**Peterson, E. B.** 2000. An overlooked fossil lichen (Lobariaceae). *Lichenologist* 32: 298–300.

**Peterson, E. B.** and J. Rikkinen. 1999. Range extensions of selected pin-lichens and allied fungi in the Pacific Northwest. *Bryologist* 102: 370–376.

- Peterson, E. B.** and J. Rikkinen. 1998. *Stenocybe fragmenta*, a new species of Mycocaliciaceae with fragmenting spores. *Mycologia* 90: 1087–1090.
- Peterson, E. B.**, D. Greene, B. McCune, E. T. Peterson, M. A. Hutten, P. Weisberg, and R. Rosentreter. 1998. *Sulcaria badia*, a Rare Lichen in Western North America. *The Bryologist* 101: 112–115.
- McCune, B., K. A. Amsberry, F. J. Camacho, S. Clery, C. Cole, C. Emerson, G. Felder, P. French, D. Greene, R. Harris, M. Hutten, B. Larson, M. Lesko, S. Majors, T. Markwell, G. G. Parker, K. Pendergrass, E. B. **Peterson**, E. T. Peterson, J. Platt, J. Proctor, T. Rambo, A. Rosso, D. Shaw, R. Truner, and M. Widmer. 1997. Vertical Profile of Epiphytes in a Pacific Northwest Old-Growth Forest. *Northwest Science* 71: 145–152.

## Gray Literature

- Peterson, E. B.** 2008. International Vegetation Classification Alliances and Associations Occurring in Nevada with Proposed Additions. Nevada Natural Heritage Program, Carson City, Nevada.
- Peterson, E. B.** 2008. A Synthesis of Vegetation Maps for Nevada (Initiating a 'Living' Vegetation Map). Documentation and geospatial data, Nevada Natural Heritage Program, Carson City, Nevada.
- Peterson, E. B.** 2007. A map of annual grasses in the Owyhee Uplands, Spring 2006, derived from multitemporal Landsat 5 TM imagery. Report for the U.S.D.I. Bureau of Land Management, Nevada State Office, Reno, by the Nevada Natural Heritage Program, Carson City, Nevada.
- Ryan, B. and E. B. **Peterson**. 2007. A preliminary checklist for the lichens and allied fungi of Nevada, U.S.A. *Bulletin of the California Lichen Society* 14(1): 4-14.
- Peterson, E. B.** 2006. A map of invasive annual grasses in Nevada from multitemporal Landsat 5 TM imagery. Report for the U.S.D.I. Bureau of Land Management, Nevada State Office, Reno, by the Nevada Natural Heritage Program, Carson City, Nevada.
- Peterson, E. B.** 2005. *Usnea longissima*. Online at <http://calscc.crustose.net>. [species sponsorship for ranking and listing by the California Lichen Society's conservation committee]
- Peterson, E. B.** 2005. *Solorina spongiosa*. Online at <http://calscc.crustose.net>. [species sponsorship for ranking and listing by the California Lichen Society's conservation committee]
- Peterson, E. B.** 2004. The Nevada Landscape. Nevada Natural Heritage Program, Carson City, Nevada. [poster size map of the state of Nevada emphasizing features relevant to landscape ecology]
- Peterson, E. B.** 2003. Mapping Percent-Cover of the Invasive Species *Bromus tectorum* (Cheatgrass) over a Large Portion of Nevada from Satellite Imagery. Nevada Natural Heritage Program report for the U.S. Fish and Wildlife Service, Nevada State Office.
- Peterson, E. B.** 2003. Clarification of three *Umbilicaria* species New to California. *Bulletin of the California Lichen Society*, 10(1): 10.
- Bryce, S. A., Woods, A. J., Morefield, J. D., J. M. Omernik, T. R. McKay, G. K. Brackley, R. K. Hall, D. K. Higgins, D. C. McMorrان, K. E. Vargas, **E. B. Peterson**, D. C. Zamudio, and J. A. Comstock. 2003. Ecoregions of Nevada (color poster with map, descriptive text, summary tables, and photographs). U.S. Geological Survey, Reston Virginia.
- Muir, P.S., R.L. Mattingly, J.C. Tappeiner, J.D. Bailey, W.E. Elliott, J.C. Hagar, J.C. Miller, **E.B. Peterson**, and E.E. Starkey. 2002. Managing for Biodiversity in Young Douglas-fir Forests of Western Oregon. USGS Biological Science Report BSR 2002-0006.
- Reid, M., P. Comer, H. Barrett, S. Caicco, R. Crawford, C. Jean, G. Jones, J. Kagan, M. Karl, G. Kittel, P. Lyon, M. Manning, **E. Peterson**, R. Rosentreter, S. Rust, D. Tart, C. Williams, and A. Winward. 2002. International classification of ecological communities: terrestrial vegetation of the United States. Sagebrush vegetation of the Western United States, NatureServe, Arlington, Virginia, USA.

- Neel, L. A. (ed.) 2001. Nevada Sage Grouse Conservation Strategy. By Governor Guinn's Sage Grouse Conservation Planning Team. [as a contributor to the Planning Team]
- Peterson, E. B.** and P. Neitlich. 2000. Impacts of Two Coal-Fired Power Plants on Lichen Communities in Northwestern Colorado. Report to the USDA Forest Service.
- Peterson, E. B.** 2000. Analysis and Prediction of Patterns in Lichen Communities over the Western Oregon Landscape. Ph.D. Dissertation, Oregon State University.
- Peterson, E. B.** 1998. Lichens of the Klamath Region: What do We Know and Why haven't We Found Endemics? *In*: J. K. Beigel, E. S. Jules, and B. Snitkin (eds.), Proceedings of the First Conference on Siskiyou Ecology. Siskiyou Regional Education Project and The Nature Conservancy, Portland Oregon.

### Oral Presentations

- Peterson, E. B.** 2007. Invasion of the annual grasses: distribution patterns in *Bromus tectorum* (cheatgrass). **Invited presentation**, Ecology, Evolution, and Conservation Biology seminar series, University of Nevada, Reno.
- Peterson, E. B.** 2007. Invasion of the annual grasses: mapping vegetation condition for arid lands of the Intermountain West. **Invited presentation**, Biology Department Seminar series, Humboldt State University, California.
- Peterson, E. B.** 2007. Biological soil crusts and the invasive annual grass *Bromus tectorum* – a case of mutual exclusion. American Bryological and Lichenological Association.
- Peterson, E. B.** 2007. Mapping the disintegration of intermountain west ecosystems by invasive grasses: potential limiting factors. Ecological Society of America.
- Peterson, E. B.** 2006. Invasion of the annual grasses: mapping the loss of ecological integrity. **Invited presentation**, Meeting of the Fire Learning Network, intermountain region, organized by The Nature Conservancy.
- Peterson, E. B.** 2006. The California Lichen Society's conservation committee: cautious approaches for defensible actions. Botanical Society of America / American Bryological and Lichenological Society.
- Peterson, E. B.** 2006. Invasion of the annual grasses: mapping the loss of Nevada's ecological integrity. Botanical Society of America.
- Peterson, E. B.** 2006. Invasion of the exotic grasses: mapping their progression via satellite. Fourteenth Wildland Shrub Symposium.
- Peterson, E. B.** 2006. Mapping cheatgrass (*Bromus tectorum*) in the intermountain west with satellite imagery. **Invited presentation**, American Society for Photogrammetry and Remote Sensing, ENVI user group meeting.
- Peterson, E. B.** 2006. The California Lichen Society's conservation committee: goals and processes. Northwest Scientific Association.
- Peterson, E. B.** 2006. Mapping cheatgrass (*Bromus tectorum*) in the intermountain west with satellite imagery. Northwest Scientific Association.
- Peterson, E. B.** 2005. Use of ground data from GAP in combination with project-specific data for mapping cover of invasive annual grasses across Nevada. National GAP Analysis Conference and Interagency Symposium.
- Peterson, E. B.** 2004. Timely questions, and the beginnings of answers, for strengthening lichen conservation. Botanical Society of America / American Bryological and Lichenological Society.
- Peterson, E. B.** 2004. Mapping cheatgrass cover over nearly ½ of Nevada. Plant Talk seminar, University of Nevada, Reno.

- Peterson, E. B.** 2003. Remote Sensing to Map Cheatgrass in Nevada. Nevada Weed Management Association.
- Peterson, E. B.** 2002. Symbiosis between lichenologists and natural heritage programs / conservation data centers could result in better conservation data and actions. Northwest Scientific Association.
- Peterson, E. B. and P. Neitlich.** 2001. Lichen communities, pollution signals, and an issue of scale. American Institute of Biological Sciences.
- Peterson, E. B.** 2001. Tour of a lichenological black-hole (Nevada). American Institute of Biological Sciences.
- Peterson, E. B. and B. McCune.** 1999. Estimating community composition by analysis of environmental neighborhoods. Ecological Society of America.
- Peterson, E. B. and B. McCune.** 1999. A modeling method for occurrence of species and its application to pin-lichens. Northwest Scientific Association.
- Peterson, E. B.** 1998. Zen and the search for Caliciales. Northwest Scientific Association. (*winner of the Goward Award for best student presentation among the lichen sessions*)
- Peterson, E. B.** 1997. Evaluating indicator species: a case study with epiphytic lichens. Ecological Society of America.
- Peterson, E. B.** 1997. Rare Lichens in the Klamath Region: Why have we not found endemics? Conference on Siskiyou Ecology.
- Peterson, E. B.** 1997. Epiphytic macrolichens in Managed Forests of Western Oregon. O.S.U. Graduate Student Conference.
- Peterson, E. B.** 1997. *Sulcaria badia*, a Rare Lichen in Western North America. Northwest Scientific Association.
- Peterson, E. B.** 1997. Epiphytic Lichen Communities in Managed Landscapes. O.S.U. Botany and Plant Pathology Department Seminar.
- Peterson, E. B., S. T. Gray, L. L. Wallace, and C. Tonielli.** 1996. Vesicular-Arbuscular Mycorrhizal Communities in Relation to Host Plants and Site-to-Site Differences at Two Locations in Yellowstone National Park. O.S.U. Mouldy Thursday mycology seminar.
- Peterson, E. B. and B. McCune.** 1996. Differences in Responses of Macrolichen Diversity and Species Composition to Forest Management in the Oregon Coast Range. American Institute of Biological Sciences.
- Peterson, E. B. and B. McCune.** 1996. Macrolichen Indicator Species of Managed and Old-Growth *Pseudotsuga menziesii* Forests of the Oregon Coast Range and an Analysis of Methods for Calculating Indicator Values. Northwest Scientific Association.

### **Poster Presentations**

- Peterson, E. B.** 2004. Estimating cover of *Bromus tectorum* (cheatgrass) using tobit regression and phenology derived from two dates of satellite images. Botanical Society of America.
- Peterson, E. B. and P. Neitlich.** 2001. Impacts to lichen communities downwind of two coal-fired power plants in Colorado's Park Range. USDA Forest Health Monitoring meetings.
- Peterson, E. B.** 2000. Identifying optimal habitat for multiple species with a combination of kernel estimation and odds ratio statistics. Ecological Society of America.

## **Grants Received** (as P.I. or equivalent)

- 2005. Bureau of Land Management. Owyhee Uplands Monitoring Project, Cheatgrass Distribution. \$105,000 for approximately two years.
- 2004. Bureau of Land Management. Expansion of cheatgrass (*Bromus tectorum*) mapping. \$66,000 for approximately one year.
- 2004. Nevada Department of Wildlife. Expansion of cheatgrass (*Bromus tectorum*) mapping. \$9,999 for approximately one year.
- 2004 Carson Valley Chukar Club. Expansion of cheatgrass (*Bromus tectorum*) mapping. \$10,000 for approximately one year.
- 2001. U.S. Fish and Wildlife Service. Mapping of cheatgrass (*Bromus tectorum*). \$33,334 for two years.
- 1999. Portland Garden Club. Enhancement of Caliciales taxonomy. \$2000 for one year.

## **Professional Society Memberships**

- Ecological Society of America
- American Bryological and Lichenological Society
- British Lichen Society
- California Native Plant Society
- California Lichen Society
- Nevada Native Plant Society

## **Teaching Experience**

- Lane Community College: Biology 103H: 1 quarter, 2 sections. Focus: fungal biology, ecology, identification.
- Oregon State University: Biology 102 & 103 Labs: 3 quarters, 2 sections per quarter.

## **Supervisory Experience**

- 2006 field season: Hiring, training, supplying, and managing 2 field staff.
- 2008 (March) – present: joint supervision (with 2 co-workers) of up to 10 field staff; my focus is to strategize thorough and efficient sampling over a 10 million acre project area, but I have also participated in hiring, training, and supplying the staff.

## **Computational Experience**

- Microsoft Windows and Linux operating systems including Linux web servers
- ArcView, ArcGIS, ArcPad, ENVI, and Imagine GIS and Remote Sensing software
- R statistical software
- PC-Ord
- Access and MySQL databases
- Scripting/programming in ENVI+IDL, R, PHP, C++, Visual BASIC for Applications (within MS Word, MS Access, ArcGIS, and ArcPad), AVENUE, Perl, HTML