

KRISTIN B. BYRD

U.S. Geological Survey
Western Geographic Science Center
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EDUCATION

- PhD **University of California, Berkeley**, 2005
Environmental Science, Policy, and Management (ESPM)
Temporal and Spatial Linkages Between Watershed Land Use and Wetland Vegetation Response in the Elkhorn Slough Watershed, Monterey County, California
N. Maggi Kelly (chair), Adina Merenlender, Alex Horne, dissertation committee
- MA **San Francisco State University**, 1998
Ecology and Systematics
The Influence of Clear-cutting on Ectomycorrhizal Fungus Diversity in a Lodgepole Pine (Pinus contorta) Stand, Yellowstone National Park and Gallatin National Forest, Montana
V. Thomas Parker, advisor
- BS **Cornell University, College of Agriculture and Life Sciences**, 1993
Environmental Science

PROFESSIONAL EXPERIENCE

- Physical Scientist**, U.S. Geological Survey *Feb. 2009 – Present*
Western Geographic Science Center, Menlo Park, CA
- Principal Investigator on NASA ROSES New Investigator Program-funded research titled, “Advanced remote sensing to quantify temperate peatland capacity for belowground carbon capture,” in partnership with the USGS Carbon Capture Wetland Farm Project and the University of California, Berkeley. Lead a graduate student and a postdoctoral researcher in field research to quantify belowground biomass of wetland plants based on hyperspectral remote sensing of aboveground biomass and characteristics; conduct educational outreach programs on local wetlands to San Francisco middle school students in partnership with the Randall Museum in San Francisco.
 - Project lead on a California Landscape Conservation Cooperative-funded project titled, “Integrating science into decisions: climate change/land use change scenarios for habitat threat assessments on California rangelands.” Developed multi-disciplinary team with the USGS CA Water Science Center, the USGS Science and Decisions Center, and Defenders of Wildlife to quantify ecological and economic consequences of land use and climate change in the Central Valley and surrounding foothills, and conduct outreach to land owners and land managers.
 - Published USGS Open File Report, website and factsheet on the Puget Sound Ecosystem Portfolio Model, a decision support tool to spatially link scenarios of projected land-cover change to nearshore ecosystem function and human well-being metrics.
- GIS Coordinator**, California Academy of Sciences, San Francisco, CA *Jan. 2007 – Dec. 2008*
- Advised graduate students, postdocs and curators on the integration and analysis of geographical data in biological studies that addressed topics in biogeography, biodiversity hotspots, and conservation.
- Post-Doctoral Researcher**, ESPM Department, U.C. Berkeley, Berkeley, CA *Jan. 2006 – Dec. 2006*
P.I. Adina Merenlender, in partnership with The Nature Conservancy
- Projected the influence of development patterns on habitat loss and fire management options under two scenarios, presence and absence of conservation easements, by means of a GIS-based growth model.
- Wetlands Bio-Technician**, Point Reyes National Seashore, CA (summer position) *May 2001 – Sept. 2001*
- Conducted surveys and GIS analyses to facilitate regulatory approval of the Giacomini Ranch Project, a 500-acre wetland restoration project on Tomales Bay.

PROFESSIONAL EXPERIENCE, continued

Senior Staff Biologist, URS Corporation, Oakland, CA

April 1998 – March 2001

- Conducted Endangered Species Act Section 7 consultation with the U.S. Fish and Wildlife Service and wrote Biological Assessment reports for projects affecting Federal threatened and endangered species.
- Assessed biological impacts of proposed FEMA projects for Environmental Assessment reports; developed measures to minimize impacts to biological resources caused by project implementation.
- Implemented a tidal wetland restoration monitoring program and delineated tidal and vernal pool wetlands.

Fellow, United Nations Economic Commission for Africa (UNECA)

Oct. 1994 – July 1995

Natural Resources Division, Addis Ababa, Ethiopia

- Designed research project to study the contribution of non-governmental organizations (NGOs) to the implementation of the U.N. Convention on Biological Diversity in Ethiopia.
- Examined land tenure policy, community-NGO-government relations, use of economic incentives in conservation; obtained funding from the UNECA; published research as a UNECA monograph.

Natural Resources Interpreter, Yosemite National Park, CA (internship)

June 1994 – Sept. 1994

- Presented evening campfire programs; lectured on park conservation; guided walks in giant sequoia grove

Environmental Analyst, Energetics, Inc., Columbia, MD

June 1993 – June 1994

- Researched economic impacts of wood energy in eleven northeast states; analyzed impact of Clean Air Act on Department of Energy (DOE) facilities; informed DOE of EPA compliance requirements

PUBLICATIONS

- Schile, Lisa M., Kristin B. Byrd, Lisamarie Windham-Myers and Maggi Kelly. 2013. Accounting for non-photosynthetic vegetation in remote-sensing-based estimates of carbon flux in wetlands. *Remote Sensing Letters* 4(6):542-551. <http://dx.doi.org/10.1080/2150704X.2013.766372>.
- Dinitz, Laura; Forney, William; Byrd, Kristin, 2012. Decision-support systems for natural-hazards and land-management issues. U.S. Geological Survey Fact Sheet 2012-3001, 2 p., available at <http://pubs.usgs.gov/fs/2012/3001/>.
- Byrd, K. B, Kreittler, J. R, and Labiosa, W. B, 2011, Tools and methods for evaluating and refining alternative futures for coastal ecosystem management—the Puget Sound Ecosystem Portfolio Model: U.S. Geological Survey Open-File Report 2011–1279, 47 p., available at <http://pubs.usgs.gov/of/2011/1279/>.
- Byrd, Kristin, 2011, Land-use planning for nearshore ecosystem services—the Puget Sound Ecosystem Portfolio Model: U.S. Geological Survey Fact Sheet 2011–3067, 2 p., available at <http://pubs.usgs.gov/fs/2011/3067/>.
- Byrd, K. B., A. R. Rissman, and A. M. Merenlender. 2009. Impacts of conservation easements for threat abatement and fire management in a rural oak woodland landscape. *Landscape and Urban Planning* 92(2):106-116.
- Byrd, K. B. 2009. Remote sensing and spatial analysis of watershed and estuarine processes for conservation planning in Elkhorn Slough, Monterey County, California, pp. 495-520 *In* X. Yang (ed.). *Remote Sensing and Geospatial Technologies for Coastal Ecosystem Assessment and Management*. Springer-Verlag Berlin Heidelberg.
- Byrd, K. B., N. M. Kelly and A. M. Merenlender. 2007. Temporal and spatial relationships between watershed land use and salt marsh disturbance in a Pacific estuary. *Environmental Management* 39(1):98-112.
- Byrd, K. B. and N. M. Kelly. 2006. Salt marsh vegetation response to edaphic and topographical changes from upland sedimentation in a Pacific estuary. *Wetlands* 26(3):813-829.
- Byrd, K. B., N. M. Kelly, and E. Van Dyke. 2004. Decadal changes in a Pacific estuary: a multi-source remote sensing approach for historical ecology. *GIScience and Remote Sensing* 41(4):347-370.
- Byrd, K. B., V. T. Parker, D. R. Vogler, and K. W. Cullings. 2000. The influence of clear-cutting on ectomycorrhizal fungus diversity in a lodgepole pine (*Pinus contorta*) stand, Yellowstone National Park, Wyoming, and Gallatin National Forest, Montana. *Canadian Journal of Botany* 78(2):149-156.

- Byrd, K. B. 2005. Temporal and Spatial Linkages Between Watershed Land Use and Wetland Vegetation Response in the Elkhorn Slough Watershed, Monterey, County, California. Ph.D. Dissertation, University of California, Berkeley. 173 pp.
- Byrd, K. B. 1998. The Influence of Clear-cutting on Ectomycorrhizal Fungus Diversity in a Lodgepole Pine (*Pinus contorta*) Stand, Yellowstone National Park, Wyoming, and Gallatin National Forest, Montana. M.A. Thesis. San Francisco State University. 103 pp.

CONFERENCE PRESENTATIONS AND POSTERS

- Byrd, K.B., L. Schile, L. Windham-Myers, M. Kelly, J. Hatala and D. Baldocchi. 2012. "A hyperspectral approach to estimating biomass and plant production in a heterogeneous restored temperate peatland." poster presentation at the American Geophysical Union Annual Fall Meeting, December 3 – 7, San Francisco, CA.
- Byrd, K.B., J. Ratliff, O. Abdul-Aziz, N. Bliss, A. Wein, B. Sleeter and T. Sohl. 2012. "Quantifying Wetland Carbon Sequestration Potential in the Great Plains for Three Greenhouse Gas Emission Scenarios." oral presentation at the 9th International INTECOL Wetlands Conference, June 3 – 8, Orlando, FL.
- Byrd, K.B., C. Souldard, L. Flint, F. Casey, P. Alvarez, B. Sleeter and T. Sohl. 2012. "Climate change/land use change scenarios for assessing threats to ecosystem services on California rangelands." oral presentation at the North America Congress for Conservation Biology, July 16 – 18, Oakland, CA.
- Byrd, K. B., S. Blanchard, L. Schile, S. Kolding, M. Kelly, L. Windham-Myers, and R. Miller. 2011. "Advanced remote sensing to quantify temperate peatland capacity for belowground carbon capture." oral presentation at the American Geophysical Union Annual Fall Meeting, December 5 – 9, San Francisco, CA.
- Byrd, K. B., S. Blanchard, L. Schile, S. Kolding, M. Kelly, L. Windham-Myers, and R. Miller. 2011. "Remote sensing of wetland carbon in the Sacramento-San Joaquin River Delta." poster presentation the State of the Estuary Conference, September 20 – 21, Oakland, CA.
- Byrd, K. B., W. Labiosa and J. Kreitler. 2010. "Coupling urban growth scenarios with nearshore biophysical change models to inform coastal planning in Puget Sound, Washington." Poster presentation at the 2010 American Geophysical Union Annual Fall Meeting, December 13 – 17. San Francisco, CA.
- Byrd, K. B., W. Labiosa, J. Kreitler, M. Gould, and J. Bolte. 2010. "The Puget Sound Ecosystem Portfolio Model: A Regional Analysis to Support Restoration Planning." oral presentation at the 3rd USGS Modeling Conference, June 7 – 11, Denver, CO.
- Byrd, K. B., W. Labiosa, J. Kreitler, and J. Bolte. 2009. "A landscape approach to modeling human well-being metrics of Puget Sound nearshore change in an alternative futures framework: the case of bluff-backed beaches," poster presentation at the Coastal and Estuarine Research Federation 20th Biennial Conference, November 1 – 5, Portland, OR.
- Byrd, K. B., A. R. Rissman, and A. M. Merenlener. 2007. The effectiveness of conservation easements: assessing development threats in the Lassen Foothills, CA, with Uplan, a GIS-based urban growth model. Association of American Geographers Annual Meeting, April 17 – 21, San Francisco, CA.
- Byrd, K. B. and N. M. Kelly. 2006. Connections between land use and salt marsh vegetation change in the Elkhorn Slough watershed: an historical remote sensing study. American Society for Photogrammetry and Remote Sensing Annual Conference, May 1 – 5, Reno, NV.
- Byrd, K. B. and N. M. Kelly. 2004. The relationship between watershed land use change, wetland soil physical properties and plant succession in a California coastal estuary. Proceedings of the 89th Annual Ecological Society of America Meeting, August 1 – 6, Portland, OR.
- Byrd, K. B. 2003. Linking watershed land-use change and wetland vegetation response in a coastal California watershed. Proceedings of the 88th Annual Ecological Society of America Meeting, August 3 – 8, Savannah, GA.
- Byrd, K. B. and N. M. Kelly. 2003. Development of a classification system for linking watershed land-use change and wetland vegetation response in the Elkhorn Slough Watershed, Monterey County, California. Proceedings of the NOAA Coastal GeoTools '03 Conference, January 6 – 9, Charleston, SC.

AWARDS, GRANTS AND FELLOWSHIPS

California Landscape Conservation Cooperative grant Integrated Scenarios and Outreach for Habitat Threat Assessments on California Rangelands: Metrics and Economic Analysis for Decision Support; \$99,991 Co-PIs: Lorraine Flint, USGS CA Water Science Center, Frank Casey, USGS Science and Decisions Center, and Pelayo Alvarez, Defenders of Wildlife.	2012
California Landscape Conservation Cooperative grant Integrating science into decisions: climate change/land use change scenarios and outreach for habitat threat assessments on California Rangelands; \$100,000 Co-PIs: Lorraine Flint, USGS CA Water Science Center, Frank Casey, USGS Science and Decisions Center, and Pelayo Alvarez, Defenders of Wildlife.	2011
NASA ROSES New Investigator Program in Earth Science award Advanced remote sensing to quantify temperate peatland capacity for belowground carbon capture; \$247,000 Collaborators: Lisamarie Windham-Myers, USGS National Research Program, Maggi Kelly, University of California, Berkeley.	2010
Estuarine Conservation Research Award Elkhorn Slough National Estuarine Research Reserve and the Elkhorn Slough Foundation	2004
U.C. Center for Water Resources Grant, with P.I. N. Maggi Kelly Linking upland landcover change with wetland structure in Elkhorn Slough, CA; \$56,000	2002 – 2004
U.C. Marine Council Coastal Environmental Quality Graduate Fellowship Agriculture in the watershed and its impact on the structure of salt marshes in Elkhorn Slough – use of remote sensing for historical change detection; \$25,000	2002
U.C. Marine Council Coastal Environmental Quality Graduate Research Support Agriculture in the watershed and its impact on the structure of salt marshes in Elkhorn Slough – use of remote sensing for historical change detection; \$17,500	2002 – 2003
ESPM Departmental Fellowship, U.C. Berkeley	2000 – 2001
U.S. Dept. of Education Graduate Assistance in Areas of National Need Fellowship Two year full fellowship for M.A. at San Francisco State University	1995 – 1997
Fellowship, International Foundation for Education and Self-Help, Phoenix AZ Support for position at the United Nations Economic Commission for Africa, Addis Ababa, Ethiopia	1994
Yosemite Association Scholarship, Yosemite National Park, CA	1994

TEACHING AND OUTREACH

Introduction to Environmental Science , Graduate Student Instructor Environmental Science Department, U.C. Berkeley	<i>Spring 2002, 2004</i>
<ul style="list-style-type: none">Created and taught lessons on Bay Area environmental topics; lectured on wetlands and estuaries	
Urban Environmental Education , Graduate Student Instructor ESPM Department, U.C. Berkeley	<i>Spring 2003</i>
<ul style="list-style-type: none">Trained college students to teach environmental science to urban Oakland high school studentsAdvised on lesson plan development and public speaking, led field trips to Arrowhead Marsh, Oakland	
Environmental Outreach Workshop Leader Environmental Leadership Outreach Program, U.C. Berkeley	<i>2003 – 2005</i>
Created and led the following environmental science workshops for Bay Area 6 – 12 grade students:	
<ul style="list-style-type: none"><i>Protecting the SF Bay and Delta: from regional debates to local action</i>; EarthTeam Network, Berkeley, CA<i>WebGIS</i>; Pre-College Academy, U.C. Berkeley<i>GPS and Wetlands workshop</i>; Girls, Incorporated, San Leandro, CA<i>Kayak Tour of Elkhorn Slough</i>; Global Environment Theme House, U.C. Berkeley	
Introductory Botany , Teaching Associate Biology Department, San Francisco State University	<i>Fall 1996, Spring 1997</i>
<ul style="list-style-type: none">Taught lab sections, led field trips to local parks, wrote and graded weekly quizzes	

COMMITTEES AND AFFILIATIONS

- Reviewed papers for *Wetlands, Environmental Management, Landscape and Urban Planning, Environmental Monitoring and Assessment, Landscape Ecology, Wetlands Ecology and Management*
- South Bay Salt Ponds Restoration Project Technical Advisory Committee 2010 – present
- Chair, Trainings and Short Courses committee, member of Steering Committee for the North America Congress on Conservation Biology, July 15 – 18, Oakland, CA 2011 – 2012
- USGS Western Region Colloquium committee 2009 – 2011
- Ecological Society of America 2003 – present
- American Geophysical Union 2010 – present
- Society for Conservation Biology 2012 – present
- Co-President, Society for Conservation Biology, U.C. Berkeley Chapter Sept. 2003 – Sept. 2004
- Graduate Programs Committee and Admissions Committee, ESPM Dept. Sept. 2002 – May 2003
- Vice-President, Cornell Class of 1993 1998 – 2003

TRAINING AND SKILLS

ERDAS Imagine 10, ASD field spectrometer, Definiens Ecognition 5.0, ArcGIS 10, Adobe Photoshop, R, SAS, Stata, Trimble GPS, wetland delineation, plant taxonomy, topographical surveying, photography, proficient in French