### **CURRICULUM VITAE**

# Steven O. Link, PhD

President
Native Plant Landscaping and Restoration LLC
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#### **EDUCATION**

B.S.	Biology, University of Minnesota	1977
B.M.	Mathematics, University of Minnesota	1977
Ph. D.	Botany, Arizona State University	1983
	(Statistics - Minor)	

#### **CURRENT ACTIVITIES**

He formed and is President of Native Plant Landscaping and Restoration LLC. He started the company in 2009. He conducts research, performs services, and grows native plants for a variety of clients. Activities include conducting botanical surveys, environmental assessments, assistance with regulatory re-licensing documents for Energy Northwest, seed bank studies, seed collection, plant propagation, ecological restoration plantings and seedings, rare plant re-establishment, monitoring of ecological restoration efforts, documentation of herbicide effects, fire risk assessment and reduction, landscaping with native species on governmental, commercial, and private lands, landfill vegetation monitoring, noxious weed control studies and surveys, greenhouse design, greenhouse energy budget studies, native plant cover crops in vineyards, fruit growth sensors, and plant water sensors. He writes regulatory documents, vegetation management plans, ecological restoration and landscaping plans, scientific publications, and popular articles on natural history. He currently is developing a book, "Native Plants to the Rescue: A Naturalist's Observations".

### PRIOR PROFESSIONAL EXPERIENCE

While (2010-2013) a member of the Department of Science and Engineering with the Confederated Tribes of the Umatilla Indian Reservation, he has focused on Natural Resource Damage Assessment at the Hanford Site in south-central Washington. Funding was through grant awards from the US Department of Energy. This work included botanical surveys, determining injury to natural resources, determining the cost of ecological restoration, ecological restoration research, conducting ecological restoration, and developing a Natural Resources regulatory position for the CTUIR. He created a list of all the plants species of the Hanford Site and the Tribal uses of each species.

While (1996–2009) on the faculty of Washington State University Dr. Link specialized in the areas of fire research, fire risk mapping, weed mapping, native plant horticulture, seed studies, restoration ecology, plant sensor development for plant water status, botanical surveys, weed control research, fruit quality, agricultural research, global climate change, arid-land plant ecophysiology, landfill cover design, and ecosystem carbon budgets. While in Extension (2007–2009) he promoted xeriscaping using native plants and worked to integrate native plants into agricultural settings in eastern Washington.

Previous experience includes over 10 years with the Pacific Northwest National Laboratory, a 2 1/2 year post-doctoral fellowship position with Dr. Martyn M. Caldwell at Utah State University (Range Science Dept.) and Ph. D. research with Dr. Thomas H. Nash III at Arizona State University (Botany Dept.).

### Societies

- Society for Ecological Restoration
- Washington Native Plant Society (organized the Columbia Basin Chapter)
- Tri-Cities Homebuilders Association

### Graduate Student Committees or Chair

- 14 Masters students.
- One Ph. D. student.

# **Editorial Service**

- Editor Natural Areas Journal 2005-2009
- Associate Editor Journal of Range Management 1997-1999
- Editor Phlox Phlyer; Newsletter of the Columbia Basin Chapter of the Washington Native Plant Society 1996-2001
- Ecological Research
- Global Change Biology
- Oecologia
- Functional Plant Biology
- Restoration Ecology
- Tree Physiology
- Ecology
- Ecological Applications
- Journal of Arid Environments
- Canadian Journal of Botany
- Northwest Science
- Water Resources Research
- United States Forest Service
- Environmental Protection Agency
- WSU Cooperative Extension Service

# Symposia and Workshops

- Session chair for Shrub-Steppe Restoration at the Society for Ecological Restoration Northwest Chapter & the Washington Chapter of The Wildlife Society Regional Conference at the Tulalip Resort in Tulalip, WA. Held February 16-19, 2010.
- Session chair for Shrub-Steppe Symposium: Pollination Restoration Projects at the Society for Ecological Restoration Northwest Chapter and Pacific Northwest Chapter of the Society of Wetland Scientists in Yakima, WA. Held September 25-28, 2007.
- Organized the workshop, "Management of Fuel Loading in the Shrub-steppe: HOW TO MAP CHEATGRASS COVER AND FIRE RISK, HOW TO GET RID OF CHEATGRASS" for the Joint Fire Science Program at WSU-TC March 8-9, 2005 (20 attendees).
- Chaired the "Restoration Toolbox" Conference for the Society for Ecological Restoration Northwest Chapter at the Oregon Convention Center in Portland, Oregon held March 24-28, 2003 (~520 attendees nationwide).
- Co-organized the Shrub-Steppe Symposium held at Boise State University June 20-23, 1999 (~120 attendees nationwide).
- Organized the Native Plants as Minor Crops Symposium held at WSU-TC May 5-7, 1997 (75 attendees nationwide).

# **Grant Reviewer**

- United States Department of Agriculture
- United States Department of Energy
- United States Department of Interior
- USDI Joint Fire Science Program
- Environmental Protection Agency
- Washington Native Plant Society

# Grants and Contract Awarding Groups (49)

- River's Edge Condominium Association.
- Washington State Department of Ecology.
- Benton County Noxious Weed Control Board
- Confederated Tribes of the Umatilla Indian Reservation
- Ouatrefoil Inc.
- BFI Native Seeds
- Ancora Estates
- Society for Ecological Restoration British Columbia
- US Army Corps of Engineers
- Washington State University
- Benton County Clean Air Agency
- Anderson-Perry and Associates, Inc
- Stokes, Lawrence, Velikanje, Moore & Shore
- Pacific Biodiversity Institute
- Washington Closure Hanford

- Freestone Environmental
- North Santiam Paving Company
- Natural Areas Association
- Environmental Assessment Services
- Pacific Northwest National Laboratory
- US Department of Interior Joint Fire Science Program
- Pilz Company
- Washington Tree Fruit Research Commission
- Walla Walla County Conservation District
- US Department of Energy Grand Junction
- Global Warming Research and Development Corporation
- Natural History Monthly Columnist for the Tri-City Herald Newspaper
- US Ecology
- Jones and Jones Inc
- Tetra-Tech, Inc
- NSF
- Country Companies
- Washington Native Plant Society
- Xerces Society
- White Shield, Inc.
- ATC, Inc.
- City of Kennewick
- CESI, Inc.
- Wildlands, Inc.
- EnergyNW, Inc.
- The Nature Conservancy
- University of Washington
- CAB International
- Horn Rapids Golf Course
- Washington Department of Health
- USFWS
- Northwest Wildlife Consultants
- US Department of Energy
- Environmental Protection Agency
- Department of Defense

# Service on Boards and Committees

- Science Advisor for the Washington State Department of Agriculture Noxious Weed Control Board
- Natural Areas Association
- Northwest Chapter of the Society for Ecological Restoration
- Washington Native Plant Society
- Columbia Basin Chapter of the Washington Native Plant Society
- Benton County Noxious Weed Control Board
- National Steering Panel for Protective Barrier Studies

- Pacific Northwest Exotic Pest Plant Council
- Western Weed Coordinating Committee
- Shrub Research Consortium Governing Board
- International Advisory Board of the Japanese Association for Arid Land Studies

# Elections

- Past-president, Society for Ecological Restoration Northwest Chapter (2003-2005)
- President, Society for Ecological Restoration Northwest Chapter (2001-2003)
- Chair, Research and Inventory Committee, Washington Native Plant Society (1999-2003)
- President, Benton County Noxious Weed Control Board (1998-2012)
- President, Columbia Basin Chapter, Washington Native Plant Society (1996-2002)
- Past-president, Columbia Basin Chapter, Washington Native Plant Society (2002-), started the chapter
- Vice President, Benton County Noxious Weed Control Board (1996-1998)

# Institutional Service (PNNL 1985-1995)

- Life Science Library Committee
- Terrestrial Ecology Safety Committee
- Elected Chairman of the Earth and Environmental Science Center Safety Committee
- Pacific Northwest Laboratory Safety Committee
- Initiated and ran the Terrestrial Ecology seminar series. Averaged two speakers/month.
- Fitzner-Eberhardt Arid Lands Ecology Laboratory Monitor
- Radiation Monitor

# **Teaching**

- Biology 499, Special Topics, Washington State University Tri-Cities, (Sum 2005)
- Biology 463/563, Field Ecology, Washington State University Tri-Cities, (Spr 2005)
- Biology 319, Plant Physiology Laboratory, Washington State University Tri-Cities, (Fall 2002)
- Botany 460/560, Plant Ecophysiology, Washington State University Tri-Cities, (Fall 1994,1996, Spr 2003).
- Environmental Sciences and Regional Planning 404, The Ecosystem, Washington State University Tri-Cities, (Fall 2005; Substituted 4 lectures, Spr. 1996)
- Land Use Planning 450, Washington State University Tri-Cities, Guest lecture, (Sum. 1997)
- Natural History of the Columbia Basin. Columbia Basin College, Guest lecture (Fall 1999, 2000, 2002, 2003, 2004)
- Natural Resources 419/519, Special Topics: Restoration Ecology, Washington State University Tri-Cities, (Fall 1997, Summer 2001)
- Natural Resources 454/554, Restoration Ecology, Washington State University Tri-Cities, (Spr. 2004, 2006, 2007)
- Natural Resources 301, Forest and Range Plant Resources I, Washington State University Tri-Cities, (Spr. 1997, Fall 2001).

- Natural Resources 302, Forest and Range Plant Resources II, Washington State University Tri-Cities, (Spr. 2002)
- Natural Resources 303, Conservation of Renewable Resources, Washington State University Tri-Cities, (Spr 2000)

### Courses

- GIS Phoenix software training with the Pacific Northwest National Laboratory (January 2013)
- HEA Habitat Equivalency Analysis software training. US Fish and Wildlife Service (Spring 2012)
- GIS Arc View software short course with the US Fish and Wildlife Service (Spring 2004)
- Army Corps of Engineers Wetland Delineation and Management Training Program (38 hours, 3.8 CEU, (Seattle Spring 2001)
- Computer Science 306, C++, (WSU Fall 2000)
- Washington State University Radiation Safety Course (WSU 4/97)
- Arc View 2.1 GIS software training short course (PNNL 2/96)

### **FUNDING**

- Native plant installation success after five years and management plans for the USFWS. PI (\$3500; 2013; Quatrefoil, Inc. to Native Plant Landscaping and Restoration LLC)
- Plant community characterization after fire for the US Bureau of Land Management. PI (\$4000; 2013; BFI Native Seeds to Native Plant Landscaping and Restoration LLC).
- Propagation of native plants for the Columbia Generating Station on the uplands. PI (\$4,500, 2011-2014; Energy Northwest to Native Plant Landscaping and Restoration LLC).
- Monitoring restoration success after herbicide application after the Horn Fire on the Arid Lands Ecology Reserve. PI (\$9990, 2012, USFWS to Native Plant Landscaping and Restoration LLC)
- Slope stabilization and native plant garden. PI (\$5,000; 2012-2013; River's Edge Condominium Association to Native Plant Landscaping and Restoration LLC)
- Cooperative Agreement and Natural Resource Damage Assessment at the Hanford Site for the US Department of Energy. With Dr. Barbara Harper (~\$1,100,000; each year 2010, 2011, 2012, 2013; USDOE to CTUIR)
- Seeding, propagation, planting, and monitoring native plants on the Arid Lands Ecology Reserve. PI (\$27,000; 2011; PNNL to CTUIR)
- Native plant seed acquisition and site evaluation for restoration on Hanford after power pole construction. PI (\$1,000; 2011; BPA to CTUIR)
- Growth of *Erigeron piperianus* seedlings for planting plus monitoring success on the Arid Lands Ecology Reserve. PI (\$9969; 2010-2011; USFWS to CTUIR)
- Growth of *Erigeron piperianus* seedlings for planting plus monitoring success on the Arid Lands Ecology Reserve. PI (\$9900; 2010-2011; USFWS to Native Plant Landscaping and Restoration LLC)
- Monitoring restoration success at McNary and Umatilla National Wildlife Refuges. PI (\$5500, 2010, USFWS to Native Plant Landscaping and Restoration LLC)

- Greenhouse design for DOSE. PI(\$1500; 2010, CTUIR to Native Plant Landscaping and Restoration LLC)
- Biological Monitoring of the Hanford Barrier. PI(\$8000; 2010, BATTELLE PNNL, to Native Plant Landscaping and Restoration LLC)
- Plan for Native Plant Landscaping on the Dowell property. PI(\$784, 2010, Dowell's to Native Plant Landscaping and Restoration LLC)
- Xeriscaping with native plants. PI(\$14,400, 2009-2010; Benton County Clean Air Agency to Native Plant Landscaping and Restoration LLC)
- Restoring disturbed shrub-steppe landscape in Benton County, WA. PI(\$15000, 2009-2010; Anderson Perry & Associates, Inc. to ESTS)
- Flowering rush control. PI(\$46000; 2009-2012; WA Dept. of Ecology to Benton County Noxious Weed Control Board to WSU then Native Plant Landscaping and Restoration LLC).
- Establishment of *Grayia spinosa* on the Columbia National Wildlife Refuge. PI(\$11422; 2009-2011; USFWS to Native Plant Landscaping and Restoration LLC)
- Xeriscaping the Benton Clean Air Agency Property with Native Plants. PI(\$11,600, 2010, BCCA to Native Plant Landscaping and Restoration LLC)
- Botanical consulting for the Columbia Generating Station in the uplands. PI(\$7000; 2009-2011, Energy Northwest to ESTS)
- Speaker fee for the Society for Ecological Restoration British Columbia Conference. PI(\$550; SERBC to Native Plant Landscaping and Restoration LLC)
- Supplemental Statement of Work of Work for the Prototype Barrier Burn Study. PI(\$17101, 2009, BATTELLE PNNL, to WSU)
- Natural Areas Journal Editor, PI(\$23556; 2008-2011; NATURAL AREAS ASSC, to WSU; ended 2009)
- Burn and Monitor/Analyze Affects on Hanford Barrier Performance. PI(\$83440; 2008-2009, BATTELLE – PNNL, to WSU)
- Vegetation survey for the Columbia Generating Station in the uplands. PI(\$2500; 2009, Energy Northwest to ESTS)
- Vegetation survey for the Columbia Generating Station along the river. PI(\$2500; 2008, Energy Northwest to ESTS)
- Botanical surveys for three Washington State Parks. PI(\$3000, 2008; Pacific Biodiversity Institute to ESTS)
- Ecological Monitoring At the Hanford Site. PI(\$19288; 2008-2010, ENV ASSESSMENT SVCS to WSU)
- Bonner County Strategic Plan for Control of Eurasian Watermilfoil. PI (\$10,000; 2007-2008, Bonner County, ID)
- Native Plant Establishment in the Ciel du Cherval Vineyard, PI(\$16236; 2008-2009 ANCORA ESTATE INC., to WSU)
- Native Plant Species Assessment on the Franks Property. PI(\$41,395 + continuing: 2008-2010 Stokes Lawrence Velikanje Moore & Shore to ESTS)
- Native plant greenhouse, nursery, and ecological restoration demonstrations. With others (\$572,000; 2007-2009, Washington Closure Hanford to WSU)
- Help with Sand Stabilization Issues at Horn Rapids. PI(\$2742; 2007, N STONE RICHLAND to WSU)
- Management of fuel loading in the shrub-steppe. PI (\$56010; 2007-2010, US Dept. of Interior, Joint Fire Science Program)

- Native plant greenhouses and ecological restoration monitor at the Hanford Site. PI (\$18,500, 2006-2007; Confederated Tribes of the Umatilla)
- Milfoil Planning for the City of Richland. PI (\$30,000, 2007, Washington State Department of Ecology).
- Restoration of sand dunes. PI(\$3000, 2007, Niall Hunt to WSU)
- Preparation for Restoration of the Umatilla Munitions Facility Incinerator Site. PI(\$20,000, 2007-2008, \$8000, 2008-2009, Confederated Tribes of the Umatilla, to WSU)
- Assessment of bunchgrass restoration success at the Crooked River Natl. Grassland. PI(\$4,000, 2006-2007 Wildlands to ESTS)
- Hanford Riparian Sampling. PI (\$30,000, 2006, Environmental Assessment Services to WSU)
- Hanford Riparian Sampling. PI (\$12,000, 2007, Environmental Assessment Services to WSU)
- Plant and Animal use survey of the 200-bp-1 prototype Hanford barrier. PI(\$6497 to WSU)
- Sand stabilization at Horn Rapids. North Santiam Paving. PI(\$2742, 2007-2008 to WSU, \$9769, 2007-2008, to ESTS)
- Heirloom Restoration Plan for Sustainable Agriculture at the Heirloom Cattle Ranch. PI(\$2470 to WSU).
- Editor, Natural Areas Journal. PI(\$15500, Natural Areas Association, 2005-2008 to WSU)
- Native plant greenhouse for the Columbia Basin. PI (\$25,000, 2005-2007, Energy Facilities Siting Evaluation Council) to the Confederated Tribes of the Umatilla Indian Reservation and WSU
- Xeriscaping plan for Sandy Rock. PI (\$80, 2005) to ESTS
- Xeriscaping plan for John Graham. PI (\$300, 2005) to ESTS
- Plant and Soils of the Hanford National Monument Interpretive Center. PI (\$7,003, Jones and Jones Inc., 2005-2006) to WSU
- Vegetation survey in the San Jacinto Mountains. PI (\$7,202, Pilz Company, 2005) to WSU
- Xeriscaping consultation with Terre Mercier. PI (\$350, 2004-2005) to ESTS
- Meachum Canyon Restoration Experiments. PI (\$12,000, Wildlands for the USFS, 2004-2006).
- Weed surveys in gravel pits for the National Park Service. PI (\$17,500 to Wildlands, Inc. from the NPS, (\$12,250 to WSU from Wildlands, Inc.) 2004-2005.
- Weed control and xeriscaping consultation with Bob Hennie. PI (\$140+, 2004-2005) to ESTS
- Plant identification and mapping for seed collection. co-PI (\$14,500 Wildlands, Inc. for the USFS, 2004).
- Native plant nursery plan. PI (\$2,500, 2004; Confederated Tribes of the Umatilla) to WSU.
- Invasive species research opportunities for graduate students. Advisor (\$12,000, 2003-2007, will continue; Benton County Noxious Weed Control Board) to WSU
- Xeriscaping with native plants consultation with Quinn Smith. PI (\$150, 2003) to ESTS
- A survey for *Spiranthes diluvialis* and its potential habitat near the Columbia National Wildlife Refuge. PI (\$996.30, 2002-2003; USFWS) to ESTS
- Franklin Hill Rare Plant Habitat Survey. PI (\$606.08, 2003; Northwest Wildlife Consultants) to ESTS.
- Property Damage, Risk of Slope Failure, and a Restoration Plan. PI (\$5145.89, 2002; \$9943.5, 2003, Nonita Adams) to ESTS

- Vegetative Characteristics of the Shepherds Flat Wind Farm. PI (\$2500, 2002-2003, Energy Northwest) to ESTS.
- Prediction of apple quality characteristics by tracking apple mass loss in storage. PI (\$16,677; 2002-2003, Washington Tree Fruit Research Commission) to WSU
- Management of fuel loading in the shrub-steppe. PI (\$172,000; 2002-2005, US Dept. of Interior) to USFWS (\$23,000) and WSU (\$149,000)
- Use of sensors to continuously and nondestructively measure fruit and stem diameter change as measures of leaf water potential and growth as influenced by irrigation. PI (\$49,247, 2002-2005, Washington Tree Fruit Research Commission) to WSU
- Vegetation assessment of Meadow Parke Estates before development. PI (\$190.83, 2002, Columbia Environmental Services, Inc.) to ESTS.
- Umatilla Munitions Incineration Environmental Monitoring. PI (\$3851.19, 2002, Columbia Environmental Services, Inc./Southwest Research Institute/Raytheon/US Army) to ESTS.
- Assessment of hybrid poplar tree farms for riparian restoration and the effect of differing mulch types on soil water and vegetation. PI (\$11,000; 2002, Walla Walla County Conservation District) to WSU
- A new sensor for tracking apple firmness in CA storage. PI (\$14,287; 2001-2002, Washington Tree Fruit Research Commission) to WSU
- Consultation on the use of native plants in a yard in Kennewick, WA. PI (\$110; 2001, Faye Valley) to ESTS.
- Consultation on the use of native plants in a front yard in West Richland, WA. PI (\$250; 2001, Debra Wilcox) to ESTS.
- Baseline Ecological Studies Supporting the Design of Long-Term Covers. PI (\$25,000; 2001, \$19,500; 2002 Department of Energy Grand Junction) to WSU and (\$811; 2002-2003 Department of Energy Grand Junction) to ESTS
- Seed assessment after the Great Basin Seed Company fire. PI (\$1957; 2000, Country Companies) to ESTS.
- Vegetation classification of lands prior to wind power generation in Benton County. PI (\$547; 2000, Northwest Wildlife Consultants) to ESTS.
- Damage assessment and recommendations for ecological restoration after soil disturbance. PI (\$13,334 + \$661; 2000-2001, \$15,825.47; 2002, Jansen Properties/Wildlands) to ESTS
- A planning level survey (PLS) of vegetative communities at the UMCD in Hermiston, Oregon. PI (\$7,518, 2000, Tetra-Tech, Inc.) to WSU.
- Assessment of vegetation and baseline surveys of plant communities for BLM parcels subject to fiber optic cable installation. PI (\$9,366, 2000, Kiewit Pacific Company) to WSU
- A shoreline management plan for property along the Yakima River. PI (\$2,646, 2000, James Etter) to WSU.
- Assessment of vegetation conditions on the 5 test plots after two years. PI (\$1,755, 2000, USEcology) to WSU.
- A flyer describing the use of native plants of eastern Washington for gardening. PI (\$500, 2000 Washington Native Plant Society) to ESTS
- Consultation on restoration using soil lichens and moss. PI (\$120, 1999, Curt Mohr) to ESTS
- Ecological restoration plan for a pipeline through Benton county. PI (\$2,321, 1999-2000, Kiewit Pacific Company) to WSU
- Density of shrub-steppe plants. PI (\$1,000, 1999, \$1625, 2001 Wildlands, Inc./Pacific Gas and Electric) to WSU

- Consultation on plant cover and density in burned and in comparable unburned areas. PI (\$1,103, 1999, Edmunds Farms) to ESTS
- A Webcam to Market WSU-TC. PI (\$1,000, 1999-2000, WSU)
- Rare and Endangered species surveys for the city of Kennewick. PI (\$25,838, 1999-2001, City of Kennewick) to WSU.
- Native Pollinator Collection Box Field Placement. PI (\$226, 1999, Xerces Society) to ESTS.
- Umatilla Munitions Incineration Environmental Monitoring. PI (\$29,000 + 3,623, 1999-2002, Whiteshield, Inc./Southwest Research Institute/Raytheon/US Army) to ESTS and WSU.
- Wildflowers of the Stabilized Dunes. With others (\$382, 1998-1999, Washington Native Plant Society) to the Columbia Basin Chapter of WNPS
- Assisting USEcology in preparations for the first closure barrier at Hanford: Soil testing. PI (\$14,230, 1998-1999, USEcology) to WSU
- Review Articles for Weeds. PI (\$760;1998-1999, CAB International) to ESTS
- Damage assessment and recommendations for ecological restoration after soil disturbance. PI (\$13,085; 1998-1999, Perkins Farms) to ESTS
- Ecological Restoration and Related Technical Services for National Parks in the Western United States. PI (\$7252; 1998-2008, Wildlands, Inc./ National Park Service) to WSU
- The Cougar Garden. PI (\$250;1998-1999, WSU-TC)
- Establishment of native plants as cover crops in wine grape fields. With others, (\$4000; 1998; WSU Prosser Irrigated Agricultural Research Station)
- Botanical Assessment of the Horn Rapids Golf Course. PI (\$5,700; 1998 Horn Rapids Golf Course) to WSU
- Wetland Water Chemistry. PI (\$600; 1997-1998; Kinsel Farms) to ESTS
- Vegetation Establishment at the US Ecology Site, Hanford. PI (\$37,014; 1997-1998, 2001, WDOH) to ESTS and WSU
- Soil Cryptogams of Hanford. PI (\$5,000; 1997-1998, The Nature Conservancy) to WSU
- Soil Cryptogams of Hanford. PI (\$2,100; 1997-1998, Univ. of Washington) to WSU
- Review of the Vegetative Cover Component of the Sherwood Project Tailing Impoundment Monitoring and Stabilization Plan. PI (\$25,505; 1997-1999, WDOH) to WSU
- Real-time Leaf Thickness Sensor. PI (\$40,180; 1996-1998, NSF) to WSU
- BRMaP Biological Surveys at Hanford. PI (\$20,000; 1996, PNNL/DOE) to WSU
- Carbon sequestration studies. PI (\$107,400; 1996-1998, GWR&D Corp.) to WSU
- Vegetation management plan for the 200 Areas at Hanford. PI (\$10,000; 1996, WHC/DOE) to WSU
- Energy content of three plant species at Hanford. PI (\$4,000; 1996, PNNL/DOE) to WSU
- Carbon and nitrogen cycling in the shrub-steppe. PI (\$63,000; 1996-7,1999-2001, PNNL/DOE) to WSU
- Ecosystem analysis of <sup>14</sup>C fate and transport at Chalk River, Ontario. PI (\$33,200 1996-7, PNNL/NRC) to WSU, ESTS
- Conference organizer for 'Native Plants as Minor Crops'. PI (\$600; 1997, WSU Coop. Extension)
- Analysis of the vegetation component of selected ecological simulation models. PI (\$15,000; 1996-8, PNNL/DOE) to WSU
- Vegetation Studies on Protective Barriers. PI (\$42,700; 1996-7, PNNL/DOE) to WSU
- Analysis of CERES data. With others (\$26,000; 1995, PNL/DOE)

- Commercialization of the CERES device. With others (\$25,000; 1995, PNL/DOE)
- National Environmental Research Park. With others (\$40,000; 1995, DOE)
- Organic Complexation and Micropartitioning. With others (\$870,000/yr, 1995-1996, NRC)
- Carbon Tetrachloride Flux Measurements in Plants. PI (\$25,000; 1994-1995, DOE)
- Molecular and Process Adjustments of N Cycling in the Shrub-Steppe. With others, (\$200,000/yr, 1994-1996, DOE)
- Lysimeter Tests. PI (\$26,500; 1992-1993, DOE-Grand Junction).
- Dynamics of Arid Lands. With others, (\$500,000-\$900,000/yr, 1986-1993, DOE)
- Protective Barriers. With others, (\$800,000-\$3,200,000/yr, 1986-1995, DOE)
- Hanford Performance Assessment. With others, (\$300,000-\$600,000/yr, 1986-1992, DOE)
- Xenobiotics. With others, (\$50,000; 1986, EPA)
- CERES. With others, (\$20,000-\$40,000/yr, 1986-1990, EPA/PNL)
- Army Smokes. With others, (\$300,000; 1986, DOD)

#### **PUBLICATIONS**

Journal Articles, Book Chapters, Dissertation, Symposium Proceedings, Reviews (66):

- Link, S. O. 2013. Effect of shading on *Butomus umbellatus*. Submitted to the Journal of Aquatic Weed Management. 6-14-12. JAPM-D-12-00026 (in revision).
- Link, S. O. and A. L. Ward. 2013. Revegetation of a landfill cover and subsequent community dynamics over 18 years. Ecological Engineering (In review)
- Link SO, R. O. Cruz, J. L. Downs' and B. L. Harper. 2013. Restoring biodiversity in the shrub-steppe and strategies to increase regulatory recognition of tribally significant species. In: Gibble WJ, Combs JK, Reichard, SH, Editors. Conserving Plant Biodiversity in a Changing World: A View from NW North America. University of Washington Botanic Gardens, Seattle, WA March 13-14, 2012: 29-39. Available at
  - http://depts.washington.edu/uwbg/research/plant-biodiversity-2012.shtml.
- Link SO, Cruz RO, Harper BL, Jones JD, Penney BL. 2011. Shrub-steppe species survival after outplanting on bare soils. In: Riley LE, Haase DL, Pinto JR, technical coordinators. National Proceedings: Forest and Conservation Nursery Associations—2010. Proc. RMRS-P-65. Fort Collins, CO: USDA Forest Service, Rocky Mountain Research Station: 159-167. Available at: <a href="http://www.fs.fed.us/rm/pubs/rmrs">http://www.fs.fed.us/rm/pubs/rmrs</a> p065.html
- Link, S. O. 2011. Ecological Processes and Changes in the Performance of Covers. Workshop on Engineered Barrier Performance Related to Low-Level Radioactive Waste, Decommissioning, and Uranium Mill Tailings Facilities Proceedings. NUREG/CP-0195 Rockville, MD. (p 4.20-4.23)
- Leary, K., G. Berlin, A. Ward, S. Link. 2010. Fire Impacts on an Engineered Barrier's Performance: The Hanford Barrier One Year After a Controlled Burn. WM 2010 Conference Proceedings.
- Ward, A., G. Gee, S. Link, C. Wittreich, G. Berlin, K. Leary. 2010. Quest for the Perfect Cap: The Prototype Hanford Barrier 15 Years Later. WM 2010 Conference Proceedings.
- Link, S. O. and D. J. M. Bradney. 2009. Effect of Habitat and Plant Position Relative to the Soil Surface on Survival of basin wildrye (*Leymus cinereus*) Seedlings. Native Plants Journal 10: 69-73.

- Ward, A. L., K. D. Leary, S. O. Link, G. T. Berlin, J. W. Cammann, M. L. Mandis, L. C. Buelow. 2009. Short and Long-Term Fire Impacts on Hanford Barrier Performance. WM 2009 Conference Proceedings.
- Link, S. O. 2009. Restoration. Natural Areas Journal 29:5.
- Link, S. O. 2008. Restoring highly diverse native plant communities in natural areas. Natural Areas Journal 28:329.
- Link, S. O., S. Simmons, R. Cruz, and B. Harper. 2008. Formation of a Cooperative to conduct research on native plants and restore damaged ecosystems. In: Weber, Samantha, and Harmon, David, eds. Rethinking Protected Areas in a Changing World: Proceedings of the 2007 GWS Biennial Conference on Parks, Protected Areas, and Cultural Sites. Hancock, Michigan: The George Wright Society. George Wright Society Proceedings: 197-201.
- Link, S. O. 2008. 35<sup>th</sup> Natural Areas Conference: Natural Areas Revival In Music City: Tuning into a changing climate and biological invasion. Natural Areas Journal 28:209.
- Link, S. O. 2008. A Savings Account for Natural Areas. Natural Areas Journal 28:103.
- Link, S. O. 2008. Climate change and natural areas. Natural Areas Journal 28:5.
- Link, S. O., S. Simmons, R. Cruz, and B. Harper. 2007. Formation of a Cooperative to conduct research on native plants and restore damaged ecosystems. Ecological Restoration 25:285-286.
- Link, S. O. 2007. Natural Heritage Programs. Natural Areas Journal 27: 290-291.
- Link, S. O. 2007. Invasive Plants in the Southeast. Natural Areas Journal 27: 213.
- Link, S. O. 2007. Restoring Nature's Complexity. Natural Areas Journal 27: 114-115.
- Link, S. O. 2007. Submitted manuscript topic emphasis since 2002. Natural Areas Journal 27: 6-7.
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- Link, S. O. 2004. Enjoy water plantains. Natural History Column, Tri-City Herald, Sunday, December 5, C3, Kennewick, Washington.
- Link, S. O. 2004. Stinging nettle can be painful but lends itself to many uses. Natural History Column, Tri-City Herald, Sunday, October 31, C6, Kennewick, Washington.
- Link, S. O. 2004. Hemp has proved useful throughout many centuries. Natural History Column, Tri-City Herald, Sunday, September 26, C5, Kennewick, Washington.
- Link, S. O. 2004. Rare native plants deserve extra care in Mid-Columbia. Natural History Column, Tri-City Herald, Sunday, August 22, C4, Kennewick, Washington.
- Link, S. O. 2004. Native plants thrive after fires with seed gathering program. Natural History Column, Tri-City Herald, Sunday, July 18, C3, Kennewick, Washington.
- Link, S. O. 2004. Baby's breath thrives in Tri-City desert conditions. Natural History Column, Tri-City Herald, Sunday, June 13, C3, Kennewick, Washington.
- Link, S. O. 2004. Evening primrose, willow-herb blooms brighten shrub steppe. Natural History Column, Tri-City Herald, Sunday, May 9, C3, Kennewick, Washington.
- Link, S. O. 2004. Flowering shrubs brighten spring days. Natural History Column, Tri-City Herald, Sunday, Apr. 4, C3, Kennewick, Washington.
- Link, S. O. 2004. Buttercup family pretty but poisonous. Natural History Column, Tri-City Herald, Sunday, Feb. 29, C3, Kennewick, Washington.
- Link, S. O. 2004. Look past snow to succulents. Natural History Column, Tri-City Herald, Sunday, Jan. 24, C3, Kennewick, Washington.
- Link, S. O. 2003. Ecological restoration can reduce fire risk in region's shrub steppe. Natural History Column, Tri-City Herald, Sunday, Dec. 21, C4, Kennewick, Washington.
- Link, S. O. 2003. Nonflowering plants have long history of helping humans. Natural History Column, Tri-City Herald, Sunday, Nov. 16, C3, Kennewick, Washington.
- Link, S. O. 2003. Bright red leaves of sumac family brighten fall days. Natural History Column, Tri-City Herald, Sunday, Oct. 12, C3, Kennewick, Washington.
- Link, S. O. 2003. 'Cruciferae' include flower, weed, spice. Natural History Column, Tri-City Herald, Sunday, Sept. 7, C4, Kennewick, Washington.

- Link, S. O. 2003. Shrub steppe may look brown, but native shrubs are thriving. Natural History Column, Tri-City Herald, Sunday, Aug. 3, C6, Kennewick, Washington.
- Link, S. O. 2003. Animals, mankind wise to steer away from borage family. Natural History Column, Tri-City Herald, Sunday, June 29, C4, Kennewick, Washington.
- Link, S. O. 2003. Sunflowers make up one of largest plant families. Natural History Column, Tri-City Herald, Sunday, May 25, C5, Kennewick, Washington.
- Link, S. O. 2003. Reducing cheatgrass at forefront of task to lower risk of fire. Natural History Column, Tri-City Herald, Sunday, Apr. 20, C5, Kennewick, Washington.
- Link, S. O. 2003. Native lilies as valuable as commercial. Natural History Column, Tri-City Herald, Sunday, Feb. 9, C7, Kennewick, Washington.
- Link, S. O. 2003. Snapdragon family pretty, useful. Natural History Column, Tri-City Herald, Sunday, Jan. 5, C7, Kennewick, Washington.
- Link, S. O. 2002. Steal a kiss under hanging parasite. Natural History Column, Tri-City Herald, Sunday, Dec. 8, C3, Kennewick, Washington.
- Link, S. O. 2002. Fire threat from cheatgrass can't be eliminated, just mitigated. Natural History Column, Tri-City Herald, Sunday, Oct. 27, C2, Kennewick, Washington.
- Link, S. O. 2002. Weed cloth improves success of plantings. Natural History Column, Tri-City Herald, Sunday, Sept. 22, C4, Kennewick, Washington.
- Link, S. O. 2002. Willow family good for more than shade. Natural History Column, Tri-City Herald, Sunday, Aug. 18, C4, Kennewick, Washington.
- Link, S. O. 2002. Experiments aimed at cheating cheatgrass, reducing wildfires. Natural History Column, Tri-City Herald, Sunday, June 9, C4, Kennewick, Washington.
- Link, S. O. 2002. Pea family includes many notables. Natural History Column, Tri-City Herald, Sunday, May 5, C4, Kennewick, Washington.
- Link, S. O. 2002. Native parsleys often odoriferous. Natural History Column, Tri-City Herald, Sunday, March 31, C2, Kennewick, Washington.
- Link, S. O. 2002. Native treasures flourish in preserve. Natural History Column, Tri-City Herald, Sunday, February 24, C4, Kennewick, Washington.
- Link, S. O. 2002. Native plants crucial to tricky business of restoration ecology. Natural History Column, Tri-City Herald, Sunday, January 20, C4, Kennewick, Washington.
- Link, S. O. 2001. Shrub-steppe's 'weeds' could add to your yard. Natural History Column, Tri-City Herald, Sunday, December 16, C5, Kennewick, Washington.
- Link, S. O. 2001. True colors of trees seen through leaves. Natural History Column, Tri-City Herald, Sunday, November 11, C2, Kennewick, Washington.
- Link, S. O. 2001. Blooming native plants brighten fall. Natural History Column, Tri-City Herald, Sunday, October 7, C2, Kennewick, Washington.
- Link, S. O. 2001. Desert buckwheats hardy, pretty. Natural History Column, Tri-City Herald, Sunday, September 2, C2, Kennewick, Washington.
- Link, S. O. 2001. Native plants easy on eyes, environment. Natural History Column, Tri-City Herald, Sunday, July 29, C2, Kennewick, Washington.
- Link, S. O. 2001. Ecological restoration critical for nature. Natural History Column, Tri-City Herald, Sunday, June 24, C3, Kennewick, Washington.
- Link, S. O. 2001. Global warming predictions make world look smaller. Natural History Column, Tri-City Herald, Sunday, May 13, C3, Kennewick, Washington.
- Link, S. O. 2001. Native plants easy, tasty treat. Natural History Column, Tri-City Herald, Sunday, April 15, C2, Kennewick, Washington.

- Link, S. O. 2001. Tumble into a cheap, renewable power source. Natural History Column, Tri-City Herald, Sunday, January 28, C2, Kennewick, Washington.
- Link, S. O. 2000. Desert may heat up more, thanks to global warming. Natural History Column, Tri-City Herald, Sunday, November 19, C2, Kennewick, Washington.
- Link, S. O. 2000. Fall best time to plant native shrubs. Natural History Column, Tri-City Herald, Sunday, September 10, C3, Kennewick, Washington.
- Link, S. O. 2000. Let nature do the work in your yard. Natural History Column, Tri-City Herald, Sunday, July 9, C3, Kennewick, Washington.
- Link, S. O. 2000. Mid-Columbia blooms with native colors. Natural History Column, Tri-City Herald, Sunday, April 23, C2, Kennewick, Washington.
- Link, S. O. 2000. I've been Staring at the Native Plants and Weeds in my Yard. Natural History Column, Tri-City Herald, Sunday, Jan 16, Kennewick, Washington.
- Link, S. O. 1999. Columbia Park good place to find variety of plant life. Natural History Column, Tri-City Herald, Sunday, October 24, C5, Kennewick, Washington.
- Link, S. O. 1999. Different plants found at higher elevations in our area. Northwest Geology Column, Tri-City Herald, Sunday, August 15, C5, Kennewick, Washington.
- Link, S. O. 1999. Plants with underground stem systems call sand dunes home. Natural History Column, Tri-City Herald, Sunday, June 6, A10, Kennewick, Washington.
- Link, S. O. 1999. Relax and let nature work its magic in your yard. Natural History Column, Tri-City Herald, Sunday, March 28, C3, Kennewick, Washington.
- Link, S. O. 1999. Seed banks. Natural History Column, Tri-City Herald, Sunday, Jan. 3, C5, Kennewick, Washington.
- Link, S. O. 1998. WSU Tri-Cities now has proper Cougar Garden. Natural History Column, Tri-City Herald, Sunday, Dec. 6, C5, Kennewick, Washington.
- Link, S. O. 1998. Mid-Columbia's grasses spring back to life with rains. Natural History Column, Tri-City Herald, Sunday, Nov. 8, C11, Kennewick, Washington.
- Link, S. O. 1998. Botanical hike highlights wide variety of plant species. Natural History Column, Tri-City Herald, Sunday, Oct. 11, C5, Kennewick, Washington.
- Link, S. O. 1998. Mosses, lichen thrive in Mid-Columbia's undisturbed areas. Natural History Column, Tri-City Herald, Sunday, Sept. 13, C5, Kennewick, Washington.
- Link, S. O. 1998. Columbia Basin plants well adapted to hot summers. Natural History Column, Tri-City Herald, Sunday, August 16, C8, Kennewick, Washington.
- Link, S. O. 1998. Semi-arid native plants can survive without watering, but irrigation helps. Natural History Column, Tri-City Herald, Sunday, June 21, C10, Kennewick, Washington.
- Link, S. O. 1998. Rush skeletonweed poses threat to E. Washington wheat. Natural History Column, Tri-City Herald, Sunday, May 24, C10, Kennewick, Washington.
- Link, S. O. 1998. Mid-Columbia dunes alive with native plants. Natural History Column, Tri-City Herald, Sunday, April 26, C6, Kennewick, Washington.
- Link, S. O. 1998. February shower, mild winter bring spring flowers on early. Natural History Column, Tri-City Herald, Sunday, March 29, D5, Kennewick, Washington.
- Link, S. O. 1998. Plants help solve environmental problems. Natural History Column, Tri-City Herald, Sunday, March 1, C10, Kennewick, Washington.
- Link, S. O. 1998. Plants proliferate using life-history strategies. Natural History Column, Tri-City Herald, Sunday, February 2, C12, Kennewick, Washington.
- Link, S. O. 1998. Plants do more in winter than we think. Natural History Column, Tri-City Herald, Sunday, January 4, D5, Kennewick, Washington.

- Link, S. O. 1997. Outdoor plants winterize themselves. Natural History Column, Tri-City Herald, Sunday, December 7, C10, Kennewick, Washington.
- Link, S. O. 1997. Fall a good time to get your hands in the soil. Natural History Column, Tri-City Herald, Sunday, November 9, D5, Kennewick, Washington.
- Link, S. O. 1997. Autumn is a time for flowering. Natural History Column, Tri-City Herald, Sunday, October 12, C8, Kennewick, Washington.
- Link, S. O. 1997. Like'em or not, tumbleweeds are here to stay. Natural History Column, Tri-City Herald, Sunday, September 14, C7, Kennewick, Washington.
- Link, S. O. 1997. Mid-Columbia vulnerable to fires. Natural History Column, Tri-City Herald, Sunday, August 17, C9, Kennewick, Washington.
- Link, S. O. 1997. Mid-Columbia the front line in battle against starthistle. Natural History Column, Tri-City Herald, Sunday, June 22, D5, Kennewick, Washington.
- Link, S. O. 1997. Native plants as minor crops an idea worth looking into. Natural History Column, Tri-City Herald, Sunday, May 25, D5, Kennewick, Washington.
- Link, S. O. 1997. Native phlox attractive, drought tolerant. Natural History Column, Tri-City Herald, Sunday, April 27, C11, Kennewick, Washington.
- Farmer, J. and S. O. Link. 1997. Stomp Out Tackweed. Tri-City Herald. Sunday, Feb. 23, Special to the Herald, E1, Kennewick, Washington.
- Link, S. O. and J. Farmer. 1994. Benton County Noxious Weed Control is Here to Help. Tri-City Herald. Sunday, March 6, Special to the Herald, D3, Kennewick, Washington.

# Symposia (21):

- Link, S. O. 2012. The Role of Plants and Animals on Covers. Barrier Technology Workshop. Washington State Department of Ecology, Richland, WA. Feb. 1-2.
- Link, S. O. 2010. Ecological Processes and Changes in the Performance of Covers. Workshop on Engineered Barrier Performance Related to Low-Level Radioactive Waste, Decommissioning, and Uranium Mill Tailings Facilities. August 3 5, NRC Headquarters, Rockville, MD.
- Ward, A., G. Gee, S. Link, C. Wittreich, G. Berlin, K. Leary. 2010. Quest for the Perfect Cap: The Prototype Hanford Barrier 15 Years Later. Waste Management Conference. Phoenix, AZ, March 7-10.
- Link, S. O. 2006. Native plants as minor crops. Sustainable Agriculture, Communities & Environments in the Pacific Northwest. Held at WSU-TC May 18-20.
- Link, S. O., T. M. Degerman, W. H. Mast, A. L. Ward, J. S. Lewinsohn, S. A. Simmons, and G. W. Gee. 1997. Revegetation of a landfill cover. Native Plants as Minor Crops Symposium held at WSU-TC May 5-7.
- Link, S. O., G. M. Petrie, and L. E. Rogers. 1995. Estimation of Latent Heat Flux using Landsat Thematic Mapper Data in the Shrub-Steppe. Proc. Conf. Shrub Research Consortium, U.S. Forest Serv. Interm. Res. Las Cruces, NM, May 23-25.
- Waugh, W. J., K. L. Peterson, S. O. Link, B.N. Bjornstad, and G.W. Gee. 1994. Natural analogs of the long-term performance of engineered covers. In: Proc. 33rd Hanford Symp. Health and Environ. InSitu Remediation: Scientific Basis for Current and Future Technologies. Pacific Northwest Laboratory, Richland, Washington., Nov. 7-11.

- Link, S. O., W. J. Waugh, and J. L. Downs. 1994. The role of plants on isolation barriers systems. In: Proc. 33rd Hanford Symp. Health and Environ. InSitu Remediation: Scientific Basis for Current and Future Technologies. Pacific Northwest Laboratory, Richland, Washington., Nov. 7-11.
- Link, S. O., W. J. Waugh, J.L. Downs, M. E. Thiede, and G. W. Gee. 1994. Effects of coppice dune topography and vegetation on soil water dynamics in a cold-desert ecosystem. Department of Energy, Technical Information Exchange Symposium (TIE), Kennewick, WA, May 19-21.
- Link, S. O., N. R. Wing, and G. W. Gee. 1993. The Development of Permanent Isolation Barriers for Buried Wastes in Cool Deserts: Hanford, Washington. Kona, HA, Dec. 5-10.
- Link, S. O., M. E. Thiede, R. D. Evans, J. L. Downs, and G. W. Gee. 1993. Responses of *Artemisia tridentata* and *Grayia spinosa* to increasing seasonal drought. Conf. Shrub Research Consortium, U.S. Forest Serv. Interm. Res., Las Vegas, NV, Oct. 19-21.
- Link, S. O., D. E. Gibbons, G. M. Petrie, R. R. Kirkham, L. E. Rogers, L. G. McWethy, and P. A. Beedlow. 1992. Estimation of latent heat flux using quantitative Landsat thematic mapper satellite data in a shrub-steppe ecosystem. Seventh Annual U. S. Landscape Ecology Symposium, p. 86, Corvallis, OR., April 8-11.
- Downs, J. L., L. G. McWethy, S. O. Link, D. E. Gibbons, and G. M. Petrie. 1992. Land cover/vegetation classification of an eastern Washington shrub-steppe environment. Seventh Annual U. S. Landscape Ecology Symposium, p. 56-57, Corvallis, OR., April 8-11.
- Gee, G. W., M. D. Campbell, and S. O. Link. 1991. Arid site water balance using monolith lysimeters. ASCE International Symposium on Lysimetry, p. 5, Honolulu, HA, July 22-26.
- Downs, J. L., S. O. Link, and R. A. Black. 1990. Determinations of hydraulic resistance of *Bromus tectorum* on intact plants. Paper presented at the New Analytical Methods for Quantifying Root and Soil Dynamics a Multidisciplinary Conference, Soil Science Society of America, St. Louis, MO., Aug. 13-15.
- Beedlow, P. A., D. E. Gibbons, S. O. Link, G. W. Gee, and L. E. Rogers. 1988. Using satellite imagery to measure landscape process in the shrub steppe. Paper presented at the Third Annual Landscape Ecology Symposium, Albuquerque, N.M.
- Link, S. O. and T. H. Nash III. 1987. A Comparison of Lichens from Contrasting Environments Based on a Model of CO<sub>2</sub> Gas Exchange. XIV International Botanical Congress p. 397
- Link, S. O., M. M. Caldwell and J. R. Richards. 1986. Seasonal Whole Plant Gas Exchange Dynamics of *Artemisia tridentata*, *Agropyron spicatum*, and *Agropyron desertorum*. IV International Congress of Ecology p. 218.
- Caldwell, M. M., J. R. Richards, S. O. Link, and D. M. Eissenstat. 1986. Competition Below Ground: Phosphorus and Moisture Uptake as Influenced by the Physiological Efficiency of Neighbors. IV International Congress of Ecology p. 108.
- Link, S. O., and T. H. Nash III. 1984. Lichen Photosynthesis Towards a Mechanistic Model. Paper presented at Recent Advancements in Lichen Physiology, University of Bristol, England.
- Nash III, T. H., S. O. Link, T. J. Moser, L. J. Ross, A. Olafsen and U. Matthes Sears. 1984. CO<sub>2</sub> Dependencies in Lichens. Paper presented at Recent Advancements in Lichen Physiology, University of Bristol, England.

# Workshops (7):

- Link' S. O., R. Cruz, J. L. Downs' and B. Harper. 2011. Restoring biodiversity in the shrub-steppe. ERWG workshop, WSU-TC, Richland, WA, Dec. 12.
- Link, S. O., R. W. Hill, 2011. Management of fuel loading in the shrub-steppe: Responses six and seven years after treatments. Given at the Linking Science and Management Improving Restoration Success in the Shrub Steppe Workshop, USFWS, Kennewick, WA, April 26-28
- Link, S. O. Potential impacts on vegetation and plant movement. CTUIR-IIIRM Adaptive Governance and Climate Change Workshop. Mission, OR, August 19-20, 2008. (~100 attendees).
- Link, S. O. Joint Fire Science Workshop, WSU Tri-Cities, March 8 & 9, 2005. 23 attendees Link, S. O. Joint Fire Science Workshop, WSU Tri-Cities, May 12, 2004. 20 attendees
- DeWaard, B. K. and S. O. Link. 1999. Sherwood, WA Cover Design and Monitoring. Long-Term Stewardship Workshop held at the Grand Junction Department of Energy Office, August 30-31 in Colorado.
- Robertson, D., A. Schilk, S. Link, E. Cooper, K. King, and F. Caron. 1997. Field investigations of organic complexants and microparticulates in enhancing transport. Field investigation of C-14 transport and uptake. Presented at the Research Workshop on Progress in Radionuclide Transport for Application to Performance Assessment. Nuclear Regulatory Commission. Held January 24 at the US Geological Survey, Menlo Park, CA.

# Abstracts (91):

- Link, SO. (2013) Effect of Shading on Flowering Rush and Control Efforts in the Yakima River. Western Aquatic Plant Management Society, Coeur d'Alene, ID, March 25-27.
- Link, SO. (2013) Success of planting nitrogen-fixing native species in silt loam and loamy fine sand soils in a vineyard in semi-arid eastern Washington. Washington Association Of Wine Grape Growers Annual Meeting & Trade Show. Feb. 6-7, Kennewick, WA
- Link SO, R. Cruz, J. L. Downs' and B. Harper. 2012. Restoring Biodiversity In The Shrub-Steppe And Strategies To Increase Regulatory Recognition Of Tribally Significant Species. Conserving Plant Biodiversity in a Changing World: A View from NW North America. University of Washington Botanic Gardens, Seattle, WA March 13-14.
- Link, SO. (2012) Success of planting nitrogen-fixing native species in a vineyard after three seasons and seeding after one year in an increase field. Washington Association Of Wine Grape Growers Annual Meeting & Trade Show. Feb. 7-10, Kennewick, WA
- Link, S. O., R. W. Hill, 2011. Management of fuel loading in the shrub-steppe: Responses six and seven years after treatments. Given at the 4<sup>th</sup> SER International World Conference on Ecological Restoration, Merida, Mexico August 21-25.
- Link, S. O. and R. W. Hill (2011). Controlling *Bromus tectorum* for shrub-steppe restoration: Responses six and seven years after treatments. SER2011 4th World Conference on Ecological Restoration, Book of Abstracts, Merida, Mexico, Society for Ecological Restoration, p. 122.
- Link, S. O. 2011. Success of planting nitrogen-fixing native species in silt/sand and sand/silt soils in a vineyard after two years. Washington Association Of Wine Grape Growers Annual Meeting & Trade Show. Feb. 8-11, Kennewick, WA
- Link, S. O., R. Cruz, B. Harper, J. Jones, B. Penney. 2010. Shrub-Steppe Restoration Trials at the Umatilla Munitions Depot. Intertribal Nursery Council 2010 Annual Meeting and Workshop., Arlington, WA, September 21-23.
- Leary, K., G. Berlin, A. Ward, S. Link. 2010. Fire Impacts on a Engineered Barrier's

- Performance: The Hanford Barrier One Year After a Controlled Burn. Waste Management Conference. Phoenix, AZ, March 7-10.
- Ward, A., G. Gee, S. Link, C. Wittreich, G. Berlin, K. Leary. 2010. Quest for the Perfect Cap: The Prototype Hanford Barrier 15 Years Later. Waste Management Conference. Phoenix, AZ, March 7-10.
- Link, S. O. 2010. Success of planting nitrogen-fixing native species in silt/sand and sand/silt soils in a vineyard. Washington Association Of Wine Grape Growers Annual Meeting & Trade Show. Feb. 3-5, Kennewick, WA
- Link, S. O. and R. W. Hill. 2010. Management of fuel loading in the shrub-steppe: Responses six years after treatments. Society for Ecological Restoration Northwest Chapter & the Washington Chapter of The Wildlife Society Regional Conference. February 16-19, 2010. Tulalip, WA.
- Link, S. O. and R. W. Hill. 2009. Management of fuel loading in the shrub-steppe: Responses six years after treatments. AFE 4<sup>th</sup> International Congress: Fire Ecology and Management, Fire as a Global Process. Nov. 30 Dec. 4, Savannah, GA.
- Link, S. O. 2009. *Bromus tectorum* (Cheatgrass, Downy Brome). Given to the Alaska Wildlife Society, University of Alaska, Fairbanks, AK, April 8, 2009
- Link, S. O. 2009. Ecological Restoration in the Columbia Basin. Society of Ecological Restoration British Columbia conference: Shared Responsibility for a Sustainable Landscape, Nov. 6, 2009, Naramata, BC,
- Leary, K., A. Ward, S. O. Link, G. Berlin, J. Cammann, M. Lynn-Yates Mandis, L. C. Buelow. 2009. Short and Long-Term Fire Impacts on Hanford Barrier Performance. WM 2009 Conference, March 1-5, 2009, Phoenix, AZ
- Link, S. O., R. Cruz, S. Simmons, and B. Harper. 2008. Collaboration between the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and Washington State University (WSU) for native plant and ecological restoration research. WSU Showcase, Pullman, WA 99164
- Link, S. O., R. Cruz, S. Simmons, and B. Harper. 2007. Formation of a Cooperative to conduct research on native plants and restore damaged ecosystems. Society for Ecological Restoration Northwest Chapter Conference, Seattle, Sept. 25
- Link, S. O. and K. D. Herman. 2007. The Natural Areas Journal: An Outlet for Natural Heritage Programs. NatureServe Conference, Golden Colorado, Oct. 1-4, 2007.
- Link, S. O., R. Cruz, S. Simmons, and B. Harper. 2007. Collaboration Between The Confederated Tribes Of The Umatilla Indian Reservation (CTUIR) And Washington State University (WSU) For Native Plant And Ecological Restoration Research. Some Assembly Required: Preserving Nature in a Fragmented Landscape. 34th Natural Areas Conference. Cleveland, OH Oct. 9-12.
- Link, S. O., R. Cruz, S. Simmons, and B. Harper. 2007. Formation of a Cooperative to conduct research on native plants and restore damaged ecosystems. Rethinking Protected Areas in a Changing World, George Wright Society, St. Paul, MN. April 16 20.
- Link, S. O., R. Hill, R. Cruz, B. Harper, and S. Simmons. 2007. Fire Risk And Ecological Restoration In The Shrub-Steppe. Joint Washington and Oregon Chapters Wildlife Society Conference, Pendleton, OR., April, 10-13.
- Link, S. O., R. Cruz, S. Simmons, and B. Harper. 2006. Ecological restoration and the control of invasives in the Columbia Basin and the Hanford Site with emphasis on collaboration between the CTUIR and WSU. National Tribal Invasive Species Conference, Sparks, NV, Nov. 7-9.

- Link, S. O., B. Mast, B. Kaiser, V. Erickson, Jean Wood, and S. Simmons (2006). Medusahead Control With Flaming, Native Plant Seeding, And Straw. 33<sup>rd</sup> Natural Areas Conference. Flagstaff, AZ, Sept. 20-23.
- Link, S. O. Native plants as minor crops. 2006. Sustainable Agriculture, Communities, and Environments in the Pacific Northwest," WSU Tri-Cities, May 18-20.
- Link, S. O., R. W. Hill. Cheatgrass control. Inland Northwest Restoration Conference. WSU Pullman, WA Oct. 29, 2005
- Link, S. O., R. W. Hill, E. M. Hagen, and C. Keeler. 2005. Management of fire risk through ecological restoration in south-central Washington. Society for Ecological Restoration Northwest Chapter Conference, Seattle, April 4-8.
- Link, S.O., C. Keeler, E. Hagen, G. Petrie, R. W. Hill. 2004. *Bromus tectorum* cover mapping and fire risk. Mixed Severity Fire Regime Conference. Nov. 17-19. Spokane, WA.
- Link, S. O., W. H. Mast, R. W. Hill, and M. Pellent. 2004. Restoration Encyclopedia: Shrub-steppe Restoration. International Conference on Ecological Restoration, Aug. 24-26, Victoria, BC
- Link, S. O. and S. R. Drake. 2004. Prediction of apple quality from mass loss. Vegetable Society, Las Vegas, NV.
- Link, S. O., R. W. Hill, E. M. Hagen, and C. Keeler. 2004. Management of fire risk through ecological restoration in south-central Washington. Northwest Science Conference, Ellensburg, March.
- Link, S. O., R. W. Hill, and E. M. Hagen. 2004. Management of fuel loading in the shrub-steppe. Joint Fire Science Program PI Review, April 7.
- Link, S. O., R. W. Hill, and E. M. Hagen. 2003. Management of fuel loading in the shrub-steppe. Washington State Weed Association. Kennewick, WA. Nov. 5
- Link, S. O. 2003. Effect of Mulch Type and Size on Soil Water and Survivorship. Society for Ecological Restoration Regional Conference, March 28.
- Link, S. O., R. W. Hill, and E. M. Hagen. 2003. Management of fuel loading in the shrub-steppe. Joint Fire Science Program PI Review, Mar. 13.
- Link, S. O. 2003. The use of sensors to continuously and non-destructively measure fruit and stem diameter change as measures of leaf water potential and growth as influenced by irrigation strategies. Jan. Washington Tree Fruit Research Commission PI Review. (Talk + poster)
- Link, S. O. and S. R. Drake. 2002. A new sensor for tracking apple firmness in CA storage. Washington Tree Fruit Research Commission PI Review. June (talk + poster)
- Bolton, Jr. H., J. L. Smith, V. L. Bailey, and S. O. Link. 2001. Influence of Climate on Plant and Soil Microbial Diversity of a Shrub-Steppe Ecosystem. Ecological Society of America 86th Annual Meeting.
- Link, S. O. and W. H. Mast. 2001. Restoration efforts in disturbed sandy soil plant communities in the shrub-steppe of eastern Washington and Oregon. Society for Ecological Restoration Regional Conference, April 7, p 68.
- Link, S. O., H. Bolton, Jr. and J. L. Smith. 2000. A field test of the effect of climate change on *Poa sandbergii*. Abstracts of the Ecological Society of America 85th Annual Meeting, p. 304.
- Link, S. O. and M. E. Thiede. 1999. Use of a leaf thickness sensor to predict leaf water status non-destructively in the field. Abstracts of the Ecological Society of America 84th Annual Meeting, p. 135.

- Link, S.O., B. K. DeWaard and W. H. Mast. 1998. Native vegetation on three earthen barriers in eastern Washington: Establishment and monitoring. SERNW Oct 26-29, Tacoma.
- Hawke, M.A., S. O. Link, J. L. Downs, L. L. Cadwell, J. Soll, and C. Hendricksen. 1998. Soil Crusts of the Shrub-Steppe: Using the World Wide Web to Foster Scientific Collaboration. SERNW Oct 26-29, Tacoma.
- Bolton Jr., H., J. L. Smith, S. O. Link, A. E. Plymale, D. L. Mummey, D. B. Ringelberg. 1997. Influence of temperature and moisture on microbial biomass and diversity of shrub-steppe soils. Agronomy Abstracts 112.
- Link, S. O. and M. E. Thiede. 1997. A real-time leaf thickness sensor. Suppl. Bull. Ecol. Soc. Amer. 78:
- Link, S. O., W. H. Mast, and G. W. Gee. 1995. Establishment of vegetation on barrier surfaces over nuclear wastes. Soc. for Ecological Restoration 1995 International Conference, Taking a Broader View, University of Washington, Seattle, p. 20.
- Anderson, J. E. and S. O. Link. 1995. Using natural ecosystem processes to keep water from reaching interred hazardous wastes. Suppl. Bull. Ecol. Soc. Amer. 76:5.
- Boudell-Flanary, J. A. and S. O. Link. 1995. Variation in semiarid seed banks: a comparison of seed banks found beneath the cryptogamic crust and the crevices in the crust. Suppl. Bull. Ecol. Soc. Amer. 76:304.
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- Link, S. O. and M. E. Thiede. 1993. Measurement of plant water extraction from UMTRA engineered covers. (To: U.S. Dept. of Energy, Grand Junction, CO Projects Office)
- Link, S. O. and M. E. Thiede. 1991. UWB clutter experiment ground truth data for a rangeland site. (To: Pacific Northwest Laboratories, Richland, WA)
- Thiede, M. E. and S. O. Link. 1991. Evaluation of the use of Ceres device to estimate the moisture content of fuel-moisture indicator sticks. (To: Intermountain Fire Sciences Laboratory, U.S. Forest Service, Missoula, MT)
- Thiede, M. E. and S. O. Link. 1990. Data handling procedures for Ceres data associated with the study to establish the seasonality of the cambial growth of sagebrush using a transducer device called Ceres. (To: EPA Corvallis, OR)
- Link, S. O. and M. E. Thiede. 1989. Evaluation of the ability of the Ceres device to detect the effect of ozone on slash pine. (To: EPA Corvallis, OR)
- Link, S. O. and M. E. Thiede. 1989. Data handling procedures for Ceres data associated with the 1985 bushbean, 1985 slashpine pilot, and 1986 slashpine studies. (To: EPA Corvallis, OR)

## Invited Presentations since 1991 (123):

- Wildfire Prevention Invasives as the Enemy. Given to the Washington Association of District Employees (WADE) Conference Leavenworth, WA. June 17-19, 2013, (15 audience)
- Management of Cheatgrass Fuel Loading in the Shrub-Steppe. Given to the Northwest Fire Science Consortium, USFWS, Othello, WA. May 29, 2013 (26 audience)

- Effect of Shading on Flowering Rush and Control Efforts in the Yakima River. Given to the Western Aquatic Plant Management Society, Coeur d'Alene, ID, March 25-27, 2013 (~40 audience)
- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Regional Home & Garden Show, Pasco, WA., Feb. 22, 2013 (~20 audience)
- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Regional Home & Garden Show, Pasco, WA., Feb. 23, 2013 (~40 audience)
- Management of Cheatgrass Fuel Loading in the Shrub-Steppe. Webinar for JFSP http://youtube/QCOGO7n8O4Y Feb. 12, 2013. (~500 attendees and views)
- Fire Ecology and Shrub-steppe Restoration. Given to WSU Extension Douglas County, Douglas County Fire Restoration Education Event. Grande Coulee, WA. February 8, 2013 (~40 audience)
- Success of planting nitrogen-fixing native species in silt loam and loamy fine sand soils in a vineyard in semi-arid eastern Washington. Washington Association Of Wine Grape Growers Annual Meeting & Trade Show. Feb. 6-7, 2013, Kennewick, WA. Poster
- Tribal Uses of Native Plants. S. O. Link, B. Harper, R. Cruz, and B. Penney. Given to the Benton Franklin County Conservation Districts, Richland Public Library, Richland, WA. Nov. 3, 2012 (~40 audience)
- Restoring Biodiversity In The Shrub-Steppe And Strategies To Increase Regulatory Recognition Of Tribally Significant Species. Conserving Plant Biodiversity in a Changing World: A View from NW North America. University of Washington Botanic Gardens, Seattle, WA March 13-14, 2012 (~40 audience)
- Success of planting nitrogen-fixing native species in a vineyard after three seasons and seeding after one year in an increase field. Washington Association Of Wine Grape Growers Annual Meeting & Trade Show. Feb. 7-10, 2012 Kennewick, WA
- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Regional Home & Garden Show, Pasco, WA., Feb. 24, 2012 (~30 audience)
- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Regional Home & Garden Show, Pasco, WA., Feb. 25, 2012 (~40 audience)
- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Regional Home & Garden Show, Pasco, WA., Feb. 26, 2012 (~30 audience)
- Native Plants of the Columbia Basin. Given to 4<sup>th</sup> to 6<sup>th</sup> graders in a Richland, WA school district facility. Nov. 9, 2011 (~15 audience)
- Native Plants in Landscaping. Given to the Benton-Franklin County Conservation Districts in Kennewick (~70 audience) and in Pendleton (~40 audience). Nov. 5, 6 2011.
- Management of fuel loading in the shrub-steppe: Responses six and seven years after treatments. Given at the 4<sup>th</sup> SER International World Conference on Ecological Restoration, Merida, Mexico August 21-25, 2011 (~20 audience)
- Success of planting nitrogen-fixing native species in silty and sandy loam soils in a vineyard after two seasons. Given to the Washington Association of Wine Grape Growers, Kennewick, WA., Feb. 8-12, 2011. Poster
- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Regional Home & Garden Show, Pasco, WA., Feb. 25, 2011 (~60 audience)
- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Regional Home & Garden Show, Pasco, WA., Feb. 26, 2011 (~30 audience)

- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Regional Home & Garden Show, Pasco, WA., Feb. 27, 2011 (~30 audience)
- Green Landscaping with Native Plants for Builders. Given to the Tri-Cities Home Builders Association., Kennewick, WA May 12, 2010 (6 audience)
- Management of fuel loading in the shrub-steppe: Responses six years after treatments. Given to the Society for Ecological Restoration Northwest Chapter & the Washington Chapter of The Wildlife Society Regional Conference at the Tulalip Resort in Tulalip, WA. February 17, 2010.
- Ecological Restoration in the Columbia Basin. Given to the Society of Ecological Restoration British Columbia conference: Shared Responsibility for a Sustainable Landscape, Naramata, BC, Nov. 6, 2009. (~50 audience).
- Ecological Restoration in the Columbia Basin. Given to the City of Oliver Parks Department, Oliver, BC, Nov. 5, 2009. (5 audience)
- Xeriscaping with Native Plants. Given to the City of Richland Parks Board, Richland, WA. Oct. 8, 2010 (~20 audience)
- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Regional Home & Garden Show, Pasco, WA., Feb. 21, 2010 (~40 audience)
- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Regional Home & Garden Show, Pasco, WA., Feb. 20, 2010 (~50 audience)
- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Regional Home & Garden Show, Pasco, WA., Feb. 19, 2010 (~70 audience)
- Native Plants of the Columbia Basin. Given to the Audubon Society, Kennewick, WA, Sept. 22, 2009. (~30 audience)
- Bromus tectorum (Cheatgrass, Downy Brome). Given to the Alaska Wildlife Society, University of Alaska, Fairbanks, AK, April 8, 2009 (~30 audience)
- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Regional Home & Garden Show, Pasco, WA., Feb. 21, 2009 (~80 audience)
- Planting for Xeriscaping in Central and Eastern Washington. Given to the Spokane Master Gardners, Spokane, WA., Sept. 27, 2008, (~60 audience)
- Potential impacts on vegetation and plant movement. CTUIR-IIIRM Adaptive Governance and Climate Change Workshop. Mission, OR, August 19-20, 2008. (~100 attendees).
- Planting for Xeriscaping in Central and Eastern Washington. Given to the Benton-Franklin Master Gardners Foundation, Kennewick, WA., Aug. 4, 2008, (~30 audience)
- Planting for Xeriscaping in Central and Eastern Washington Given to the State Master Gardners Conference, Pt, Townsend, WA., June 14, 2008, (~50 audience)
- Farmscaping for Pollinators and other Beneficials on May 28, 2008 at Sagemoor Farms, Franklin County. Presented to about 20 people. With Gwen Hoheisel and others. (Increase in knowledge score = 1.35 out of 7).
- Columbia River Integrated Aquatic Vegetation Management Plan for the City of Richland, Washington. Given to the city park board, May 8, 2008, (~15 audience)
- Columbia Basin Plants. Given to the Salmon Summit for the Benton County Conservation District. Horn Rapids Park, Benton County, WA., May 6, 2008. (~40 audience)
- Invasive Ornamentals & Noxious Weeds + Native Plant Gardening. Given to the Yakima County Master Gardners, Union Gap, WA., April 16, 2008, (~50 audience)
- Invasive Ornamentals & Noxious Weeds + Native Plant Gardening. Given to the Benton-Franklin County Master Gardners, Washington State University Tri-Cities, Richland, WA., April 15, 2008, (~50 audience)

- Incorporating native plants into your landscape, Given to the CREST Museum, Richland, WA, April 8, 2008 (~20 audience).
- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Regional Home & Garden Show, Pasco, WA., Feb. 26, 2008 (~50 audience)
- Xeriscaping with Native Plants in Central and Eastern Washington. Given to the Inland NW Turf, Tree & Landscape Conference, Couer d'Alene, ID, Feb. 7, 2008, (~60 audience)
- Columbia Basin Plants. Given to the Columbia Day-Break Rotary Club, Kennewick, Nov. 8, 2007, (~20 audience)
- Ecological Restoration in the Shrub-Steppe. Given to the Center for Urban Horticulture, University of Washington, Oct. 24, 2007 (~30 audience)
- Xeriscaping with Native Plants. Given to the public at the Tri-Cities Home Show, Pasco, WA., Feb. 24 and 25, 2007 (~70 audience)
- Xeriscaping with Native Plants. Given to the public at the Tri-Cities Home Show, Pasco, WA., Feb. 26, 2006 (~70 audience)
- Cheatgrass control. Inland Northwest Restoration Conference. WSU Pullman, WA Oct. 29, 2005 (~40 audience)
- Native plants and restoration of the Columbia National Wildlife Refuge. To be given to the Walla Walla subchapter of the Columbian Basin Chapter of the Washington Native Plant Society. Oct. 12, 2005
- Wildflowers of the California and Arizona Deserts in comparison with the Columbia Basin. Given to the Richland Riverside Rotary Club, Richland, WA., Aug. 16, 2005. (25 audience)
- Fire risk of restored shrub-steppe plant communities. Given to the Benton County Fire District. Kennewick, WA. Feb. 25, 2005. (~15 audience).
- *Bromus tectorum* cover mapping and fire risk. Given to the Benton County Fire District. Kennewick, WA. Feb. 25, 2005. (~15 audience).
- Effects of herbicides on invasive and native species and on establishment of a bunchgrass in the shrub-steppe. Given to the Benton County Fire District. Kennewick, WA. Feb. 25, 2005. (~15 audience).
- Elements of native plant restoration for the Hanford Site. Given to the Science group of the Confederated Tribes of the Umatilla Reservation. Dec. 23, 2004, Mission, OR. (~10 audience)
- Restoration Encyclopedia: Shrub-steppe Restoration. International Conference on Ecological Restoration, Aug. 24-26, Victoria, BC, 2004 (~30 audience)
- Prediction of apple quality from mass loss. Vegetable Society, Las Vegas, NV., July 8, 2004 (~15 audience)
- Management of fire risk through ecological restoration in south-central Washington. Northwest Science Conference, Ellensburg, March, 2004 (~40 audience)
- Management of fuel loading in the shrub-steppe. Given to the Okanogan County Weed Conference. Okanogan, WA. Nov. 19, 2003. (~150 audience).
- Management of fuel loading in the shrub-steppe. Given to the Washington State Weed Association. Kennewick, WA. Nov. 5, 2003. (~150 audience).
- Management of fuel loading in the shrub-steppe. Given to the Benton County Fire District. Kennewick, WA. June 17, 2003. (~30 audience).
- Wildflowers of the stabilized dunes in the Columbia Basin. Given to the Washington Native Plant Society, Richland, WA. May 16, 2003. (100 audience)
- Conserving water in the home. Given to the public at Washington State University Tri-Cities, Richland, WA., April 30, 2003 (10 audience).

- Management of fuel loading in the shrub-steppe. Given to the Washington State University Rangeland Meeting, Spokane, WA. April, 2003. (~100 audience).
- Xeriscaping with Native Plants. Given to the public at the Tri-Cities Home Show, Pasco, WA. Feb. 23, 2003 (~75 audience)
- Management of fuel loading in the shrub-steppe. Given to the Columbia Basin Chapter of the Washington Native Plant Society, Richland, WA. Jan. 8, 2003. (~18 audience).
- Air pollution, plants, and ecosystems. Given to the Confederated Tribe of the Umatilla Nation, Mission, OR, Dec. 11, 2002 (~20 audience)
- Native plants of the Columbia Basin. Given to the Cascadians, Yakima, WA. April 24, 2002. (~50 audience).
- Native plants of the Columbia Basin. Given to the Columbia Basin Chapter of the Washington Native Plant Society, Richland, WA. March 6, 2002. (~18 audience).
- Xeriscaping with Native Plants. Given to the public at the Tri-Cities Home Show, Pasco, WA., Feb. 23 & 24, 2002 (~150 audience)
- Plants of the Hanford Reservation. Given to the public at Washington State University Tri-Cities, Richland, WA., March 30, 2001 (~30 audience).
- The continuous measurement of *Vitis vinifera* cv. Cabernet Sauvignon plant water status in the field. Given to the Washington Wine Advisory Board at Washington State University Prosser Experimental Field Station, Prosser, WA., March 15, 2001. (~20 audience)
- Early spring flowers of the Columbia Basin. Given to the Columbia Basin Chapter of the Washington Native Plant Society, Richland, WA., February 7, 2001. (~20 audience).
- Plants of Hanford and Lichens and mosses on shrub-steppe soils in Southeastern Washington. Given for the Natural History of the Columbia Basin class at Columbia Basin College, Pasco, WA. Oct. 2, 2000 (15 audience)
- Alternatives to the Lawn. Given to the Richland Riverside Rotary Club, Richland, WA, September 18, 2000. (25 audience).
- Alternatives to the Lawn. Given to the Columbia Basin Chapter of the Washington Native Plant Society, Richland, WA, September 6, 2000. (15 audience).
- Alternatives to the Lawn. Given to the public at Washington State University at Tri-Cities, Richland, WA., July 27, 2000. (15 audience).
- The Hanford Wildfire Effects on Plants. Given to the retired CCC firefighters association. Richland, WA. July 28, 2000. (~30 audience)
- Saddle Mountain Wildflowers. Given to the Columbia Basin Chapter of the Washington Native Plant Society, Richland, WA., June 7, 2000. (~25 audience).
- Spring flowers of the Columbia Basin. Given to the Columbia Basin Chapter of the Washington Native Plant Society, Richland, WA., Apr, 3, 2000. (~25 audience).
- Lichens and mosses on shrub-steppe soils in Southeastern Washington and Let's Kill the Lawn. Given at the McNary Dam Nature Series, Umatilla, OR. March 23, 2000 (~30 audience).
- Wildflowers of the stabilized dunes in the Columbia Basin. Given to the Queen of Spades Garden Club, Richland, WA. Feb. 9, 2000 (~20 audience)
- Restoration of Landfill Covers. Given to the Desert Research Institute of the University of Nevada as an interview for the position of Restoration Ecologist, Las Vegas, NV, Feb. 8, 2000 (~15 audience)
- Restoration of Landfill Covers. Given to the Desert Research Institute of the University of Nevada as an interview for the position of Restoration Ecologist, Reno, NV, Feb. 7, 2000 (~20 audience)

- Wildflowers of the stabilized dunes in the Columbia Basin. Given to the Blue Mountain Chapter of the Oregon Native Plant Society, Pendleton, OR. Dec. 6, 1999. (15 audience)
- Lichens and mosses on shrub-steppe soils in Southeastern Washington. Given at the Third Annual Health of the Hanford Site Conference., Richland, WA., Nov. 3, 1999 (~20 audience)
- Plants of Hanford and Lichens and mosses on shrub-steppe soils in Southeastern Washington. Given for the Natural History of the Columbia Basin class at Columbia Basin College., Pasco, WA. Oct. 1, 1999 (~20 audience)
- Wildflowers of the stabilized dunes in the Columbia Basin. Given to the Central Chapter of the Washington Native Plant Society, Yakima, WA., Oct. 20, 1999. (20 audience)
- Biodiversity + Agricultural Diversity + Efficiency = Profitability => Sustainable Agriculture. Given to the Washington State University Cooperative Extension Service as an interview for the Lauzier Endowed Chair Position in Sustainable Agriculture, Ephrata, WA, March 30, 1999 (10 audience)
- Wildflowers of the stabilized dunes in the Columbia Basin. Given to the Richland Rod and Gun Club, Richland, WA., Mar. 27, 1999. (220 audience)
- Wildflowers of the stabilized dunes in the Columbia Basin. Given to the Richland Riverside Rotary Club, Richland, WA., Mar. 22, 1999. (20 audience)
- Let's Kill the Lawn. Given to the Wenatchee Chapter of the Washington Native Plant Society. Wenatchee, WA. Feb. 16, 1999. (~25 audience)
- Wildflowers of the Columbia Basin. Given to the Richland Riverside Rotary Club, Richland, WA., Feb. 15, 1999. (20 audience)
- Lichens and mosses of the soil at the Hanford Reservation. Given to the public at the Coop. Ext. Office, Walla Walla, WA., Nov 20, 1998. (~20 audience).
- A new sensor for plant water status and Response of Bromus tectorum to water and nitrogen. Given to the Dept. Of Plant Biology, Arizona State University, Oct. 23, 1998. (~50 audience)
- Lichens and mosses of the soil at the Hanford Reservation. Given to the Columbia Basin Chapter of the Washington Native Plant Society, Richland, WA., Sept. 2, 1998. (17 audience)
- Carbon 14 dynamics in a wetland ecosystem. Given to the Nuclear Regulatory Commission, Washington DC, August 19, 1998. (6 audience)
- Vascular Plants of the Hanford Reach. Yakima Gardening Club, Yakima, WA. May 30, 1998. (20 audience).
- Soil Lichens of the Hanford Site. Yakima Gardening Club, Yakima, WA. May 30, 1998. (20 audience).
- The Hanford Site. United Methodist Church Social Club, United Methodist Church, South Saint Paul, MN., May 12, 1998. (10 audience)
- Herbicides, Evolution and Biocontrol. Environmental Information Network. Washington State University at Tri-Cities, Richland, WA., Apr. 22, 1998. (~25 audience)
- Native Plants and Weed Control. Washington State Weed Board Coordinators Convention, Washington State University at Tri-Cities, Richland, WA., March 21, 1998. (70 audience)
- Native plants of the Columbia Basin-Gardening, Restoration Ecology and Economic Opportunities. Environmental Science Seminar Series, Washington State University at Tri-Cities, Richland, WA., Feb. 4, 1998. (35 audience)
- Native plants of the Columbia Basin-Gardening, Restoration Ecology and Economic Opportunities. Given to the Master Gardeners Foundation, Kennewick, WA., Feb. 2, 1998. (26 audience)

- Why Weeds are Weeds. Given at a Pesticide Training Conference, Pasco, WA., January 13, 1998. (250 audience)
- Native plants of the Columbia Basin-Gardening, Restoration Ecology and Economic Opportunities. Given to the Columbia Basin Chapter of the Washington Native Plant Society, Richland, WA., January 7, 1998. (36 audience)
- Native plants of the Columbia Plateau--Gardening, Restoration Ecology and Economic Opportunities. Given to the public at the Coop. Ext. Office, Walla Walla, WA., Nov 20, 1997. (~20 audience).
- Community structure with elevation on the Arid Lands Ecology Reserve. Given to the Columbia Basin Chapter of the Washington Native Plant Society, Richland, WA., August 6, 1997. (~20 audience)
- Plants of Hanford. Given to the Central Chapter of the Washington Native Plant Society, Yakima, WA., March 12, 1997. (~20 audience)
- Noxious weeds of Benton County. Given to the Environmental Information Network association, Richland, WA., Nov. 20, 1996. (~20 audience)
- Native plants. Given to the public at the Coop. Ext. Office, Walla Walla, WA., Apr. 30, 1996. (~25 audience).
- Noxious weeds of riparian areas. Given to the Tapteal Greenway Association, Richland, WA., Sept. 30, 1995.
- Hanford nursery. Given to the TRIDEC, Kennewick, WA., Sept. 1, 1995.
- Revegetation methods for a fill/spoil surface. Wildlife mitigation and survey techniques in arid lands workshop. The Washington Chapter of the Wildlife Society, Pacific Northwest Laboratory, Richland, WA May 5, 1995.
- A real-time leaf water potential sensor. Given to the Earth and Environmental Science Center Management, PNL, Richland, WA, Oct. 21, 1994.
- The Development Of Permanent Isolation Barriers For Buried Wastes In Cool Deserts: Hanford, Washington. ASCE Desert Technology II Symposium, Kona, HA, Dec. 8, 1993.
- The Development Of Permanent Isolation Barriers For Buried Wastes In Cool Deserts: Hanford, Washington. Terrestrial Ecology Group Seminar Series, PNL, Richland, WA, Nov. 24, 1993.
- Responses of *Artemisia tridentata* and *Grayia spinosa* to increasing seasonal drought. Conf. Shrub Research Consortium, U.S. Forest Serv. Interm. Res., Las Vegas, NV Oct 18, 1993.
- Environmental Studies of Plants at Hanford. Environmental Science and Regional Planning, Washington State University Tri Cities, Dec. 9, 1992.
- Dynamics of arid lands: Plant process studies. Presented at the U. S. Department of Energy review to the terrestrial ecology program. June 12, Las Vegas, Nevada., 1991.
- Dynamics of arid lands: Landscape level studies. Presented at the U. S. Department of Energy review to the terrestrial ecology program. June 12, Las Vegas, Nevada.,1991.
- The Ecology and Physiology of a Successful Invasive Winter-Annual Grass, *Bromus tectorum*. Botany Department, University of Washington, Seattle, Nov. 23, 1991.

## Outreach Clinics & Workshops

Farmscaping for Pollinators and other Beneficials, Field Day, with Hoheisel, Gwen-Alyn, role collaborator and speaker, A one day workshop mixing classroom and field time to empower producers and NRCS employees to create diverse landscapes around their agricultural land., Scope of audience is State. 20 people, 6 hours