

Resume

John D. Gerlach, Ph.D., J.D.

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EDUCATION

Ph.D., Plant Ecology, University of California, Davis
J.D., Western State University College of Law
B.A., Botany, University of California, Davis

WORK SUMMARY

Dr. Gerlach is experienced in habitat conservation planning, regulatory compliance, and natural resources planning. He has served as project manager and senior ecologist for a wide range of multidisciplinary and biological resources-related environmental projects. He has prepared project and regional habitat conservation plans (HCP), natural community conservation plans (NCCP), and natural resources management plans. His areas of technical experience and expertise include: postdoctoral research on the environmental characteristics of serpentine soils, plant adaptations to those characteristics, and genetic markers to identify distinct populations; ecosystem function, restoration, grazing, and management of annual grassland and blue oak woodland communities; the ecology, biology, and control of invasive species; ecosystem function, restoration, and endangered species recovery for many types of vernal pools and vernal pool species; riparian restoration techniques, and; experimental design and statistical analysis. Dr. Gerlach has been an invited speaker for a wide range of programs that include botanical and invasive species societies, cattlemen associations, agricultural commissioners, and universities.

PROFESSIONAL EXPERIENCE

Described below are projects for which Dr. Gerlach had a major role. This experience includes projects at SAIC and with his former employers.

Projects with Science Applications International Corporation (2008)

Bay-Delta Conservation Plan (BDCP) – California Resources Agency and BDCP Steering Committee (over 25 stakeholder members). Consulting Team Conservation Biologist for the BDCP. Developing conservation measures to address covered species and natural communities in the Delta. BDCP is a joint HCP/NCCP for the Sacramento-San Joaquin Delta to provide Federal and California Endangered Species Act compliance for water deliveries from Federal and State water projects supplying over 25 million people and 2.5 million acres of farmland.

Yolo County Habitat Conservation Plan/Natural Community Protection Plan – Yolo JPA. Working with prior employer and now with SAIC as Conservation Biologist.

Classified and mapped vegetation, agriculture and other land uses County-wide; identified and mapped the conservation status of all parcels; researched land use history, hydrology, geology, and soils and wrote the background sections of the HCP; gave presentations to the steering committee and scientific advisors panel. Prepared conservation objectives for 19 covered plant species and sensitive plant communities (serpentine, vernal pool, blue oak woodland, valley oak riparian, etc.); coordinated and held meetings with University of California faculty; worked with County staff to identify properties for conservation easements and restoration funding; wrote successful supplemental grant proposal for including preserve designs for the pollinator guild of an endangered plant species.

Sample projects while a Conservation Ecologist with prior employers (2001 to 2008)

Gabbro Rare Plant Fire Response and Distribution Prediction Modeling Study - Bureau of Reclamation. Lead conservation ecologist, project manager, and coauthor of CVPIA grant proposal (\$103k) while at ESA. This project used GIS data and GARP or Maxent predictive habitat models to target and prioritize the purchase of conservation easements and deeds to protect 4 endangered species. The models incorporated historic fire records, data from two previous research efforts, and current environmental data which was ground truthed in 2007.

Lower Stony Creek Watershed Assessment – Bureau of Reclamation and Glenn County Resource Conservation District. Lead ecologist and project manager. Research, feasibility analysis, and report regarding the feasibility of restoring or converting the vegetation the Stony Creek watershed (740 sq/miles); wrote draft implementation of restoration and invasive species control plans; determined the ecological and economic impacts of fire and grazing on and off of serpentine soils, and; designed a monitoring program to determine watershed hydrological and water quality changes.

Yolo County Rare Vernal Pool Species – Yolo County and Bureau of Reclamation. Lead conservation ecologist and project manager continuing as a subcontractor. Designed the restoration protocols and supervised the restoration of historic alkaline vernal pools; annual surveying of populations of two endangered species and measuring ecological factors that account for fluctuations in the sizes of the populations including water chemistry, and hydrology; statistical and graphical analysis of the data; USFWS and CDFG applications for scientific take permits, California Regional Water Control Board, CEQA, and NEPA exemptions, report writing.

South Sacramento Habitat Conservation Plan Adaptive Management and Monitoring Program – Sacramento County. Lead conservation biologist. Developed and wrote the draft portions of the adaptive management and monitoring plan (goals, protocols, data analysis, and data preservation) that cover vernal pools and their watersheds, endangered and threatened vernal pool dependant wildlife and plant species, and upland vegetation associated with vernal pools using Foundations of Success which is an offshoot of TNC's Measures of Success program; meeting with and responding to

requests by the biology subcommittee (agency, NGO, and private members) and County staff. Also wrote supplemental species habitat requirements and conservation objectives for western burrowing owl.

Endangered Plant Recovery Project - Solano County Water Agency. Lead conservation biologist and project manager. Wrote proposal (\$30k); designed all experiments to identify environmental and biological factors that could lead to the recovery of Solano grass and Colusa grass; invented a new type of inexpensive iButton level logger so water levels of many vernal pools could be recorded for statistical comparisons; implementing the experiments in vernal pools and playas in both Solano County and Yolo County; responsible for all data analysis; report writing and project accounting.

Upper Butte Basin Wildlife Area Land Management Plan – CDFG. Lead conservation biologist and project manager. Wrote the management plan for this 15 square mile wildlife area. The plan includes adaptive management recommendations for 31 rare species (plants, wildlife, fish), various types of waterfowl and upland hunting, wetland and waterfowl habitat vegetation management and restoration, and water delivery and drainage infrastructure; reviewed and analyzed the landscape setting for the wildlife area which included assessing the coordinated operation of the USFWS Sacramento River Reserve system, other CDFG reserves, private hunting clubs, and properties farmed and also managed for waterfowl habitat; reviewed and analyzed all hydrological and water quality information for the watershed which includes portions of the Sacramento River, Butte Creek, and Little Dry Creek as well as the hydrological impacts of out-of-watershed water from Lake Oroville which is distributed in natural channels as well as ditches; reviewed all surface and ground water basin management issues including water exports, priority uses, and the impacts of drought on water availability for waterfowl habitat; reviewed, analyzed and developed alternatives for mosquito control and aquatic invasive species control; reviewed and analyzed all geological data and soils data; developed plant and wildlife survey recommendations, staffing recommendations, and public access needs; conducted full CEQA analysis and public notice requirements; held three public meetings for comment under CEQA; conducted problem solving sessions with farmers, ranchers, duck club members, and staff of CDFG and CDP; responded to comments and incorporated appropriate comments into final plan.

North Table Mountain Ecological Reserve Land Management Plan – CDFG. Lead conservation biologist and project manager. Wrote the management plan for this 3,315 acre ecological reserve. The plan includes adaptive management recommendations for 31 rare species, protection of the rare vernal pool plant communities; recommendations included the maintenance of the historic grazing regime, invasive species control, survey recommendations, staffing recommendations, and public access. Conducted full CEQA analysis and public notice requirements; held two public meetings for comment under CEQA; conducted problem solving sessions with stakeholders and staff of CDFG and CDP; responded to comments and incorporated appropriate comments into final plan.

Phoenix Field and Park Land Management Plan – CDFG. Lead conservation biologist and project manager. Wrote the management plan for this 23 acre ecological reserve and park; reviewed and analyzed hydrological and soils engineering reports; plan includes adaptive management recommendations for 4 rare species, invasive species control and vegetation management and restoration recommendations, survey recommendations, staffing recommendations, and public access.

At-Risk Plant Species, Habitat Restoration and Recovery, and Non-native Species Management – Yolo County and CalFed. Lead conservation biologist. Reviewed four-years of existing population data for two rare vernal pool and alkali playa plants; evaluated the correlations between several environmental factors and the population fluctuations; evaluated the results of invasive species control and native plant restoration experiments, and; wrote the Management, Monitoring, Adaptive Management, and Conservation Goals chapters of the Final Conservation and Management Plan.

Agate Desert Vernal Pool Mitigation Manual – Oregon Natural Resources Department. Edited and peer reviewed the Mitigation Manual component of the Agate Desert Vernal Pool Wetland Conservation Plan (WCP) Project in Jackson County, Oregon (3,200 acres of vernal pools). The manual is integrated with the functional assessment component of the overall plan and will guide mitigation requirements for wetlands and endangered species under the Clean Water Act as delegated to the Oregon Department of Lands by the US Army Corps of Engineers and the Endangered Species Act.

Tassajara Creek Open Space Preserve Resource Management Plan – Private client. Lead botanist for this Army Corps and CDFG 1,100-acre mitigation project along 2 miles of Tassajara Creek and 1 mile of a tributary. Developed the monitoring and management protocols, conducted the field collection of data and statistical analysis of the monitoring program; wrote the restoration sections of the annual reports to the Corps and CDFG; supervised excavators during the setback and bioengineering of the stream channel to create habitat for amphibians and fish; supervised the collection and planting of native plant materials that were planted at mitigation sites along the drainages and in 5 created seasonal ponds (3-10 person field crews); wrote the grazing, vegetation management, and invasive species control protocols.

Lin Livermore Springtown Mitigation Site – Private client. Lead ecologist for this Army Corps and CDFG 700-acre mitigation project with alkaline springs, seeps and creeks leading directly to the Springtown Alkali Sink and Alameda Creek. Developed the monitoring and management protocols; conducted the field collection of data and statistical analysis of the monitoring program; wrote the restoration sections of the annual reports for the Corps and CDFG; developed and implemented the restoration plan that included invasive species control and native grass and forb planting of the uplands and native wetland plants for 15 seasonal ponds that were created for endangered amphibians (3-10 person field crews); developed and implemented the grazing, vegetation management, and invasive species control protocols and conducted field surveys to ensure that they were meeting their objectives.

Waxy Mannagrass Invasion of Vernal Pools. Lead volunteer conservation biologist in a joint effort by UC Davis facility, USDA ARS researchers, CDFA scientists, CDFG scientists, TNC scientists, and private consultants to identify the extent of the threat of waxy mannagrass to vernal pool ecosystems using field surveys and molecular markers (See TNC Global Invasive Species Red Alerts web site)

Invasive Species Prioritization and Management for Yosemite, Kings Canyon, and Sequoia National Parks – USFS. Lead ecologist. Reviewed all available scientific literature (species characteristics, plant community properties, ecosystem processes, conservation needs); evaluated and ranked the potential invasiveness of 212 exotic plant species by biological traits, home range habitat, invasiveness elsewhere, potential for control, and other ecological principles; analyzed data of three-season multi-site field sampling study over elevations from 1,000 to 14,000 feet for plant communities that ranged from annual grasslands, oak woodlands, mixed conifer forest, conifer forest, alpine fell fields, and down slope to shrub steppe, and; used multivariate statistical analysis techniques to identify correlations between species distributions and environmental factors.

ADDITIONAL TRAINING (Samples)

- Vegetation Classification and Mapping under the National and California Vegetation Mapping Programs
- Design and statistical analysis of field experiments
- General linear mixed statistical models in ecological studies
- Ecology, management, and restoration of California's annual grasslands
- Weed Science School
- Restoring Living Rivers using hydraulic and sediment transport models
- Wetland Delineation
- Hydric Soils and Wetland Hydrology
- California Environmental Quality Act

SELECTED PUBLICATIONS

Gerlach, John D. Jr., B. S. Bushman, J. K. Mckay, and H. Meimberg. (2008) Taxonomic Confusion Permits the Unchecked Invasion of Vernal Pools in California by *Glyceria declinata* (accepted by **Invasive Plant Science and Management**)

K. Reeve-Morghen, J. Corbin, & **J.D. Gerlach.** (2007). Water Relations. In, Ecology and Management of California Grasslands. University of California Press.

D'Antonio, C., C. Malmstrom, S. Reynolds, & **J.D. Gerlach.** (2007). Invasions. In, Ecology and Management of California Grasslands. University of California Press.

Meimberg, H., J.I. Hammond, C. M. Jorgensen, T. W. Park, **J. D. Gerlach**, K.J. Rice, & J.K. McKay. (2005). Molecular evidence for an extreme genetic bottleneck during introduction of an invading grass to California. **Biological Invasions** (electronic, on line).

Gerlach, John D. Jr. (2004) The impacts of serial land-use changes and biological invasions on soil water resources in California, USA. **Journal of Arid Environments** 57:365-379.

Gerlach, John D. Jr. and K. J. Rice. (2003) Testing life history correlates of invasiveness using congeneric plant species. **Ecological Applications** 13:167-179.

Gerlach, John D. Jr., P. Moore, B. Johnson, D. Roy, P. Whitmarsh, D. Lubin, D. Graber, S. Haultain, A. Plaff, and J. Keeley. (2003). Alien Plant Species Threat Assessment and Management Prioritization for Sequoia-Kings Canyon and Yosemite National Parks. U.S. Geological Survey Open-File Report 02-170.

George, M. R., R. E. Larsen, N. K. McDougald, K. W. Tate, **John D. Gerlach, Jr.**, and K. O. Fulgham. (2002). Influence of different seasons and intensities of grazing on channel morphology of intermittent streams. **Journal of Range Management** 55:551-557).

Gerlach, John D. Jr. (2001). Predicting invaders. **Trends in Ecology & Evolution** 16:545.

DiTomaso, Joseph M. and **J. D. Gerlach**. (2000). *Centaurea solstitialis* L. (Yellow starthistle). **In, Wildland Weeds of California**. J. Randall, C. Bossard, and M. Hershovfky eds. University of California Press.

Gerlach, John D., **A.R. Dyer**, and **K.J. Rice**. (1998) **Grassland and Foothill Woodland Ecosystems of the Central Valley**. *Fremontia* 26(4):39-43.