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### EDUCATION

M.S. 1984 (Range Ecology) Utah State University, Logan, Utah  
B.A. 1979 (Biology) Rice University, Houston, Texas

### PROFESSIONAL EXPERIENCE

1992 to present Biologist/Principal, Natural Resources Consulting, River Heights, Utah  
1983-1992 Biologist, Ecosystems Research Institute, Logan, Utah  
1980-1984 National Science Foundation Graduate Fellowship, Utah State University, Logan, Utah  
1979-1980 Research Technician, Dept. of Environmental Science and Engineering, Rice University, Houston, Texas

### PROFESSIONAL SOCIETIES

Society of Wetland Scientists - Certified Professional Wetland Scientist  
Association of State Wetland Managers  
American Society of Mining & Reclamation  
Phi Kappa Phi  
Phi Beta Kappa

### CURRENT PROJECTS

- Post-construction monitoring for restoration success of wetlands and streams within the Ruby Pipeline corridor in Wyoming and Utah.
- Monitoring for wetland establishment success of mitigation wetlands adjacent to the Logan River in Cache County, Utah.
- Delineation of wetlands and other Waters of the U.S. for a proposed residential development in Lehi, Utah. This project includes the preparation of a Pre-Construction Notification for use of a Nationwide 404 Permit.

### RECENTLY COMPLETED PROJECTS

- Surveys for threatened, endangered, and special status plant species within areas proposed for oil field development in Rio Blanco County, Colorado.
- Delineation of wetlands and other Waters of the U.S. within a 1,698 acre project area in Elko County, Nevada.
- Delineation of wetland and water resources within proposed oil and natural gas well pads, pipeline corridors, and road alignments in Duchesne and Uintah Counties, Utah.
- Surveys for threatened, endangered, and special status plant species within areas proposed for oil field development in Duchesne and Uintah Counties, Utah.
- Biological monitoring of natural resources during construction of 231 miles of natural gas pipeline in southwestern Wyoming and northern Utah. Work included documentation of compliance with environmental regulations during construction, consultation with construction contractors to avoid unforeseen impacts, and documentation of post-construction conditions.
- Biological resources inventory of 231 miles of proposed natural gas pipeline corridor, with associated access roads and auxiliary facilities, in southwestern Wyoming and northern Utah. Work includes supervision of multiple field crews, field data collection, data management, and report preparation. Resources inventoried include wetlands, vegetation types, wildlife occurrences, stream/water resources, and rare species.
- Wetland delineation of sites proposed for residential development in Summit and Davis Counties, Utah.

### PAST PROJECTS

#### Environmental Monitoring

- Monitoring and construction oversight for development of mitigation wetlands along the Wolf Creek Road, Utah Highway 35, in Duchesne and Wasatch Counties, Utah.
- Survey for threatened, endangered, and special status plant species on site of proposed reservoir, Navajo Indian Reservation, New Mexico.
- Survey for threatened and endangered plant species along proposed natural gas pipeline route, Morgan County, Colorado.
- Survey for threatened, endangered, and special status plant species along proposed road corridor, Valley County, Idaho.

- **Monitoring for revegetation success on reclaimed portions of the Bald Mountain Mine in White Pine County, Nevada.**
- **Monitoring of mitigation wetland establishment success at Vat Creek wetland and Jordan Creek stream restoration site, Blaine County, Idaho.**
- **Construction oversight and monitoring of development of mitigation wetlands to compensate for impacts due to expansion of the Salt Lake City International Airport.**
- **Monitoring of construction of mitigation wetlands associated with development of a municipal golf course in Logan, Utah.**
- **Monitoring of impacts of chemical spill to riparian vegetation along Sacramento River, California.**
- **Monitoring of wetland establishment in riparian zone and on canyon slopes in Snake River Canyon in Twin Falls County, Idaho.**

#### **Environmental and Impact Assessments**

- **Preparation of biological sections for Environmental Assessment of new site for USDA-ARS facility in Logan, Utah.**
- **Preparation of biological sections for Environmental Assessment of new site for air traffic control tower at Tucson International Airport in Tucson, Arizona.**
- **Preparation of Resource Report 2 for Federal Energy Regulatory Commission filing for natural gas pipeline air-blending facility site in El Paso County, Colorado.**
- **Preparation of Special Use Permit Application for natural gas pipeline meter station in Rio Blanco County, Colorado.**
- **Environmental Assessment for proposed improvements at the McCarran International Airport in Las Vegas, Nevada; Boise Air Terminal/Gowen Field in Ada County, Idaho; Palm Springs International Airport in Palm Springs, California; Rocky Mountain Metropolitan Airport in Broomfield, Colorado; and Carbon County Airport in Price, Utah.**
- **Environmental Assessment and 404 permit application for proposed improvements at the Tooele Valley Airport in Tooele County, Utah.**
- **Preparation of programmatic biological assessments for four species of rare plants located on BLM lands in Utah.**

- Preparation of Environmental Assessments for grazing management plans for livestock allotments on the Richfield, Utah, District of the Bureau of Land Management.
- Environmental assessment of proposed site for Cache County Sheriff's Office Complex in Logan, Utah.
- Biological assessment of site of proposed expansion of Spanish Fork/Springville Airport, Utah.
- Biological assessment of proposed route of West/East Light Transit Project in Salt Lake City, Utah.
- Biological assessment of site of proposed expansion of Ft. Bridger Airport, Uinta County, Wyoming.
- Preparation of biological assessment for proposed expansion of Nephi, Utah, Municipal Airport.
- Preparation of biological assessment for proposed expansion of Rexburg, Idaho, airport.
- Preparation of biological assessment for Afton, Wyoming airport expansion project.
- Assessment of environmental impacts of Navajo Indian Irrigation Project near Farmington, New Mexico, including survey for threatened and endangered plant species.
- Preparation of Exhibit E document for relicensing of hydroelectric project on reservoir in Cache County, Utah.
- Evaluation of eight proposed boat launch sites around Cutler Reservoir in Cache County, Utah for threatened or endangered plant species and wetlands.
- Preparation of Environment Impact Statement for proposed hydroelectric development on Kauai, Hawaii.
- Assessment of damages to natural resources at inoperative mining and milling sites in Colorado. Tasks include literature review for pertinent information, development, and implementation of a vegetation sampling plan, collection, and analysis of data for damage assessment, on site evaluations of natural resources damages and litigation support.
- Preparation of Exhibit E documents for three hydroelectric power projects in Utah.
- Compilation of all environmental data for the Bear Lake Basin, Utah, for the purpose of development of a water quality management plan. The product of the project will be a system of site-specific guidelines for development in the Bear Lake Basin.

- **Systematic, data-based evaluation of the environmental monitoring program on the White River Shale Oil Corporation Tracts Ua and Ub. This evaluation was used to suggest changes in monitoring parameters and procedures to allow detection of industry-related environmental perturbations.**
- **Establishment and evaluation of monitoring transects to evaluate the impacts of stream dewatering on riparian vegetation.**

#### **Reclamation Plans**

- **Pilot study of shrub establishment within pipeline corridor in northwestern Colorado.**
- **Development of weed control plan for Kern River natural gas pipeline right-of-way in Wyoming, Utah, Nevada, and California.**
- **Development of water quality management plan for Bear Lake Basin, Utah/Idaho.**
- **Development of soil erosion control and revegetation plans for two hydroelectric projects on the island of Kauai, Hawaii.**
- **Development and implementation of a computer model to predict water yield enhancement from snow trapped in proposed topographic catchments in southwestern Wyoming.**
- **Design and implementation of project to quantify viable seeds in topsoil piles on a coal strip-mine in southwestern Wyoming.**

#### **Wetland Delineations and 404 Permit Applications**

- **Wetland delineation of 63 acre site proposed for commercial/industrial development in Cache County, Utah.**
- **Wetland delineation and 404 permit application for runway and infield expansion at the Spanish Fork/Springville, Utah Airport.**
- **Preparation of a summary of the ecological and biological significance of the Lost River watersheds in central Idaho.**
- **Documentation of interstate and foreign commerce connections for the Lost River watersheds in central Idaho.**
- **Wetland delineation, 404 permit application, and storm water pollution prevention plan for 170 miles of natural gas pipeline in Colorado. Work included supervision of several field crews, data consolidation, and report preparation.**

- Wetland delineation and plant community mapping along more than 3,000 miles of proposed natural gas pipelines in Colorado, Wyoming, Utah, New Mexico, Nevada, Kansas, Texas, and Oklahoma.
- Wetland delineation, preparation of mitigation plans, and preparation of 404 permit application for proposed expansion of Bear Lake County, Idaho, Airport.
- Wetland delineation, development of wetland mitigation plans, and preparation of 404 permit application for proposed expansion of Logan-Cache Airport near Logan, Utah.
- Preparation of wetland delineation for proposed expansion of Nephi, Utah Municipal Airport.
- Preparation of wetland delineation for proposed expansion of Rexburg, Idaho airport.
- Wetland delineation of site of proposed Cache County School District Transportation and Maintenance Service Center in Logan, Utah.
- Wetland delineation, development of wetland mitigation plan, and preparation of 404 permit application for proposed residential and industrial developments in Cache and west Davis counties, Utah.
- Wetland delineation and 404 permit application for proposed residential development in Davis and Weber Counties, Utah.
- Wetland mapping on site of proposed ski area and residential development in Summit and Wasatch Counties, Utah.
- Wetland delineation and 404 permit application for proposed route of the West/East Light Transit Project in Salt Lake City, Utah.
- Wetland delineation for 120 acre site west of Salt Lake City International Airport.
- Wetland delineation on site of proposed golf course expansion in West Bountiful, Utah.
- Wetland delineation on site of proposed Southpoint Golf Course on the Jordan River in Salt Lake County, Utah.
- Delineation of wetlands and development of a mitigation plan for proposed electric power substation in floodplain of Jordan River, West Valley City, Utah.
- Wetland delineation on abandoned oil field in Orange County, California.
- Wetland delineation on-site of proposed VALBOIS year-round resort, Valley County, Idaho.

- Wetland delineation, evaluation, and impact assessment on site of proposed golf course and housing development in McCall, Idaho.

#### Wetland Mitigation Plans

- Development of mitigation plan for 121 acres of wetlands to be impacted by construction of Ridges Basin Reservoir near Durango, Colorado.
- Development and implementation of mitigation plan to create wetlands as compensatory mitigation for impacts associated with the expansion of the Salt Lake City International Airport.
- Development of mitigation plan to create wetlands as compensatory mitigation for impacts associated with improvements to Wolf Creek Road, Utah Highway 35, in Duchesne and Wasatch Counties, Utah.
- Development of riparian restoration plans for stream crossings by natural gas pipeline corridor; Moffat and Rio Blanco Counties, Colorado and Uintah and Duchesne Counties, Utah.
- Development of Special Area Management Plan for site of proposed industrial corridor, Logan, Utah.
- Development and implementation of restoration plan for wetlands impacted by train derailment near Tennessee Pass, Colorado.
- Alternatives analysis and assessment of impacts to wetlands associated with the development of the proposed Valbois year-round resort, Valley County, Idaho.
- Development of mitigation plan to compensate for wetlands to be impacted by the Grouse Creek Project gold mine near Stanley, Idaho.
- Preparation of wetland delineation report, impact assessment report, soil erosion control plan, wetland mitigation plan, wetland monitoring plan, and 404 permit application for proposed hydroelectric project at Horseshoe Bend, Idaho.
- Development and implementation of detailed plan for a riparian zone and wetland restoration on a tributary of the Snake River in southern Idaho.
- Wetland impact assessment and mitigation plan development for site of proposed municipal golf course, Logan, Utah.
- Preparation of FERC License Articles and 404 permit application for hydroelectric power project on a tributary of the Snake River in Twin Falls County, Idaho.

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- Implementation and monitoring of wetland restoration plan for hydroelectric power project on Teton River in Fremont County, Idaho.

**Habitat Evaluation Procedures (HEP)**

- Preparation of wetland delineation report, impact assessment report, soil erosion control plan, wetland mitigation plan, wetland monitoring plan, and 404 permit application for proposed hydroelectric project at Horseshoe Bend, Idaho. The adequacy of the mitigation design was determined by HEP analysis.
- Habitat Evaluation Procedures analysis of wetland to be impacted by gold mining operations near Stanley, Idaho.
- Evaluation of wetland mitigation plan for Salt Lake City Airport expansion project using Habitat Evaluation Procedures.
- Evaluation of wetland mitigation plan for proposed Auger Falls hydroelectric project on Snake River in Twin Falls County, Idaho using Habitat Evaluation Procedures.