APPENDIX B: STAFF QUALIFICATIONS

ESA Adolfson

CATHERINE CONOLLY, PWS

Wetlands Program Manager

Cathie brings over 20 years of experience in the environmental field to her role as Project Director for this project. She has experience with projects ranging from Environmental Assessments and Biological Assessments, to wetlands inventories, to Critical Areas Code updates. Cathie has managed large project teams including sub-consultants, and knows how to provide the oversight to bring projects in on time and in budget. She has provided quality control and assurance for projects over 10 years.

Education

M.S., Botany 1993, University of Washington

B.S., Botany 1984, University of Washington

B.S., Natural Science and Outdoor Education 1980, University of Vermont

Registrations/Certifications

Professional Wetland Scientist, Society of Wetland Scientists,

Certified Wetland Specialist, Pierce County

24-Hour Hazardous Materials Certification Program

Preferred Wetland Consultant, King County.

Washington Department of Transportation Biological Assessment Qualified Senior Author (February 2007)

Completed Western Washington Wetlands Rating System Training, Department of Ecology Coastal Training Program (October 2007)

21 Years Experience

Relevant Experience

Wetland Inventory, City of Newcastle, Washington. ***Project Manager*** Cathie is the project manager of this on-call environmental services contract. The first task was the preparation of a wetlands inventory for the City of Newcastle, which included air photo interpretation and ground-truthing. A representative sample of city wetlands were evaluated using the Washington State Department of Ecology Wetlands Rating System for Western Washington (2006). Thirty-five wetlands were identified in the City, and 16 were rated by both the current (2004) Washington Department of Ecology rating methodology and the 1993 rating methodology.

Pierce County Invasive Species and Lake Management Project. *Project Manager.* Cathie was manager of this project for Pierce County Water Programs. ESA Adolfson scientists and sub-consultants inventoried over 1,000 acres of Pierce County-owned properties to document the presence and approximate extent of invasive plant species, concentrating on aquatic, wetland, and riparian species. Site-specific information was collected on GPS units, and points and data entered into GIS; GIS information will be linked to an Access database. ESA Adolfson reviewed existing invasive species management requirements in a Regulatory Memorandum, and prepared a Gap Analysis.

Tacoma Open Space Habitat and Recreation Plan. *Project Manager.* Cathie was the project manager for this project for ESA Adolfson. ESA Adolfson scientists performed an inventory of open space lands in the City of Tacoma in support of the preparation of the Tacoma Open Space Habitat and Recreation Plan. The City of Tacoma has partnered with the Tahoma Audubon and the Cascade Land Conservancy, to form the "GreenTacoma Partnership" to coordinate City, non-profit, and volunteer efforts to protect and enhance open spaces within the City. Adolfson staff performed over 300 hours of field time studying open space lands in the city, collecting data on current conditions and use of open space lands, evaluating the restoration potential of the sites. Data was logged with GPS units that tied field data to locations.

Relevant Experience (Continued)

University of Washington Wetlands Science and Management Certificate Program. Cathie has served on the Advisory Board for this program since its inception (1995). The program was developed to provide a well-rounded education in wetlands issues to regulators, consultants, and concerned citizens. The year-long program provides college-level education in the science and policy implicit in wetlands science. Cathie has served as an instructor for Wetlands Functional Assessment (3 years) and Wetlands Field Botany (11 years). She has also served as advisor to students in the program each year in development of their practicum, where they implement their new skills and knowledge to perform a wetlands project.

Wetland Inventory, Swinomish Tribe, Washington. ***Project Manager.*** Cathie was project manager for this project. ESA Adolfson conducted a review of existing information and aerial photographs of wetland and stream resources on the Reservation. Cathie worked with the Tribal Community to identify priority sub-basins for immediate ground-truthing, and conducted field verification of estuarine wetlands (by boat) and freshwater wetlands on the approximately 3,000-acre reservation. She assessed the functions and values of the field-verified wetlands by the USFWS classification, and the Hydrogeomorphic (HGM) method. Cathie prepared overlay maps for digitizing in GIS and a technical report on findings.

City of Redmond Habitat Plan, King County, Washington. ***Project Manager*** Cathie was manager of this project to inventory and map wildlife habitat remaining in the City, documenting habitat changes from 1996 to 1999. ESA Adolfson developed a standardized rating system to characterize and evaluate habitat, and mapped the wildlife habitats in GIS. A technical report was prepared documenting the findings of the inventory and a policy review with recommendations for strengthening and implementing critical area policies and regulations. ESA Adolfson presented findings and recommendations at public open houses, citizen's advisory committee meetings, professional conferences, and at public hearings for the planning commission.

Projects Performed While Working For King County:

1990 Wetlands Inventory Update, King County, Washington. While working for King County, Washington, (area 2,126 square miles). Cathie conducted field verification of wetlands identified from air photos for the 1990 update for the King County Sensitive Areas Map Folio. She prepared mylar overlays on orthophotos including wetland boundaries and classifications for incorporation into county map database.

Puget Sound Wetlands and Stormwater Management Study, King County, Washington. Cathie was part of the team of scientists assessing the effects of urban stormwater on lowland Puget Sound wetlands over a 7-year period. She conducted botanical, wetland, and zoological field work.

TERESA H. VANDERBURG

Practice Lead, Biological Resources

Teresa has 20 years of experience in natural resource management and scientific analyses. She is the Practice Lead for the Biological Resources Group. Teresa is an experienced project manager and has managed environmental permits and mitigation planning for several large-scale public infrastructure projects, including the Seattle Public Utilities Tolt Water Supply Pipeline No. 2 in King County, and the North Fork Clover Creek Regional Detention Pond in Pierce County, Washington. She has reviewed and/or performed hundreds of wetland assessments, delineations, and wetland mitigation projects. Teresa's expertise also includes shoreline master plan (SMP) updates for eight cities and two counties in western Washington. She has also developed critical area ordinances using "best available science" for Tukwila, Kent, Burien, Kenmore, Gig Harbor, Sumner and Tacoma. Teresa also serves as an expert witness in hearings, trials and other legal proceedings. Teresa participated in a Local Government Wetland Advisory Team assisting Washington State Department of Ecology in development of management regulations for wetlands statewide. She also serves as a senior advisor to the University of Washington Wetlands Management Certificate program.

Education

M.S., Environmental Science, Washington State University

B.S., Biology, Eastern Kentucky University

20 Years of Experience

Registrations/Certifications

Jurisdictional Delineation of Wetlands in the Pacific Northwest, National Wetlands Science Training Cooperative (1990)

Certified Wetland Biologist, Pierce County (current)

Society of Wetland Scientists, Professional Wetland Scientist (PWS)

Professional Affiliations

Society of Wetland Scientists

Ecological Society of America

Senior Advisor for the UW Wetland Management Certificate Program

Relevant Experience

Clark County SMP Update, WA. ***Scientific Lead.*** Clark County and six cities therein are working together to update their SMPs. Clark County shorelines include significant waterbodies such as the Columbia River, Lewis River, Vancouver Lake and Washougal River. Teresa is the lead on the shoreline inventory and analysis report which was completed in Draft form for Ecology review in June 2010. Teresa has coordinated with the Technical Advisory Committee and Shoreline Stakeholder Advisory Committee on technical issues regarding shoreline jurisdiction, GIS analysis, scientific data and creation of the map folio. Three draft inventory reports were prepared and reviewed by stakeholders in the spring. Teresa has also supervised completion of the Draft Restoration Plan during this same time frame and coordinated completion of a summary table for development of the preliminary shoreline environment designations for the County.

City of Auburn Wetland and Stream Inventory, WA. ***Project Manager.*** Teresa conducted an inventory of stream and wetland resources on approximately 14,550 acres within the City limits of Auburn, Washington. The inventory updated information from an earlier wetland inventory. Work included comprehensive field reconnaissance work, wetland descriptions, stream classifications, GIS maps and associated metadata and a summary technical report. Historical permit information from approximately 90 historical permit files was incorporated into the GIS metadata and maps to allow the City to track past permit activities by parcel.

Relevant Experience (Continued)

Marysville UGA Wetland and Stream Inventory, WA. ***Project Manager.*** Teresa managed an extensive inventory of wetlands, streams, and habitat in an approximately 2,000-acre area in the Lakewood-Smokey Point region of Marysville's Urban Growth Area. The project was undertaken to evaluate lands to be annexed into the city for residential, commercial and industrial development. The study included wetland descriptions and functional evaluations, descriptions of stream habitat, documentation of fish presence or absence, and water quality testing. Other elements of the study included assessment of future build-out conditions within the planning sub-area and evaluating potential mitigation concepts. Prepared a wetland and stream inventory report, including field maps and habitat data, for review and approval by both the City of Marysville and the Washington Department of Ecology.

City of Kenmore Gap Analysis, Review of Endangered Species Act Compliance, WA. ***Scientific Lead.*** Teresa served as Task Lead for this "gap analysis" for the City of Kenmore to identify potential gaps and deficiencies in City codes, regulations, plans and policies in relation to the Endangered Species Act. This report will specifically address the local jurisdiction requirements in the Final 4(d) Rule by National Marine Fisheries Services (NMFS) for protecting and avoiding "take" of Puget Sound chinook and other federally-listed fish. ESA is reviewing sensitive areas ordinances, the Comprehensive Plan, stormwater regulations and road maintenance standards and practices for ESA compliance. Also part of this work is to review the Tri-County Proposal (King, Snohomish and Pierce Counties) for compliance with the 4(d) rule and discuss the differences between this proposal and Kenmore's current practices and plans. A list of recommendations for "next-step" items is currently being developed to guide the City in its response to NMFS regarding salmon protection and recovery.

PG& E Gas Transmission Pipeline Expansion, ID, WA, OR. ***Project Manager.*** Teresa managed technical studies for rare plants, wetlands, habitats, noxious weeds and stream crossings for a proposed 250-mile long natural gas transmission line expansion project. The project included expansion of the transmission pipeline right-of-way as well as upgrades to several Main Line Valves and Compressor Stations. The project extended from the Canadian border through Idaho, eastern Washington and eastern Oregon. Teresa managed data collection and field biologists tasked with the identification and mapping of rare plants, noxious weeds, wetland boundaries, and streambanks using hand held GPS units. In addition, rare plant locations were identified and marked as were noxious weeds and general vegetation habitat types. Work products included preparation of two resource reports to the Federal Energy Regulatory Commission (FERC) and a set of supporting maps documenting the location of biological and water resources in the project area.

ESA Adolfson

TOM MCGUIRE

Portland Office Director

Tom has over 20 years experience in environmental planning, resource management, policy development, and land use and environmental permitting. He has a diverse background and experience in all phases of natural resource evaluation and protection. Tom specializes in interpreting and writing complex land use and environmental planning regulations and has extensive experience working with Oregon Statewide Planning Goals, Washington Growth Management Act, NEPA, NPDES, FEMA, and ESA. Tom also has extensive experience conducting natural resource inventories and wildlife habitat assessments. He is an accomplished project manager with excellent working relationships with local, state, and federal agency staff in Oregon and Washington.

Education

Masters of Urban and Regional Planning, Emphasis in Environmental Planning, Portland State University (1989)

B.S., Geography—Environmental Studies, Minor in Plant Ecology, University of Iowa

20 Years of Experience·

Relevant Experience

Local Wetland Inventory for City of Lakeview, OR. *Project Manager*. Tom was ESA's project manager for a Local Wetland Inventory for the City of Lakeview, Oregon. The inventory included identifying and mapping wetlands within the urban growth boundary, wetland functional assessments, and designating significant wetlands as required by statewide land-use planning Goal 5. Tom worked with the City of Lakeview to develop a regulatory program for wetland protection in compliance with state requirements. He also attended public meetings and Planning Commission and City Council hearings.

Goal 5 Planning, Multnomah County Drainage District, Portland, OR. *Project Manager*. Tom worked with the Multnomah County Drainage District #1 and two other stakeholders, the Columbia Corridor Association and the Port of Portland, to determine possible approaches to Goal 5 compliance within the Columbia Slough Watershed. Tom helped the three stakeholders determine the most effective and efficient ways to reduce their compliance burden in the Metro Regional Goal 5 process and the compliance projects of the Cities of Portland, Fairview, Wood Village, Troutdale, and Gresham. Tom prepared an action plan detailing the options available, created a timeline, and recommended a course of action necessary for implementing the preferred compliance strategy.

Goal 5 Economic, Social, Environmental, and Energy (ESEE) analysis and program, Forest Grove, OR. *Project Manager*. Tom provided natural resources planning services related to the development of an economic analysis and regulatory program to comply with Oregon State Planning Goal 5 and to be consistent with the Tualatin Basin program. He first compiled information and performed a Geographic Information System (GIS) analysis for the economic, social, environmental, and energy (ESEE) analysis portion of the Goal 5 project. Tom assisted Forest Grove City staff in assessing site specific areas for adjustment of the Goal 5 "limit" decisions—looking at four sites in particular. He also worked with the City staff to develop codes and regulations for their Goal 5 program.

Relevant Experience (Continued)

Environmental Assessment and Permitting, Tualatin Valley Water District Water Supply Improvement Program, Clackamas and Washington Counties, OR. *Project Manager*. Tom was project manager for a project with the Tualatin Valley Water District to conduct an environmental screening of regional pipeline route alternatives. The project includes a new water distribution system pipeline, pump stations, and storage reservoirs and Tom led the effort to identify potential permits and their processes and timelines for each of the alternatives. Environmental issues in the Tualatin Valley that were addressed include potential stream and wetland crossings, local Goal 5 Environmental and Title 3 Water Quality Resource Area ordinances, and the presence of listed species in the vicinity of project construction. Potential land use issues were also evaluated for the full length of the corridor alternatives. Tom prepared a permit matrix identifying the regulatory permits necessary for construction of the various pipeline routes, the permit triggers, permit linkages, level of design needed for application, typical review times, overall schedule estimates, and potential permit obstacles. Results of the preliminary environmental screening were incorporated into the analysis of the alignment alternatives and documented in technical memoranda.

Portland Japanese Garden Master Plan, Portland, OR. *Project Manager*. Tom worked with the Portland Japanese Garden Association and a team of landscape architects to help prepare a comprehensive Master Plan to guide the future growth of the garden. Tom conducted a resource inventory and assessment of the project site that included plant communities, wildlife habitat, geology, soils, water features, and hazards. He also attended workshop and strategy sessions providing detail knowledge of the City of Portland land use and permitting requirements for expansion alternatives discussed. Tom provided technical memorandums covering the assessment of site resources and addressing sustainability and permitting issues for the final three alternatives.

Big Four Corners Management Plan, Bureau of Environmental Services, Portland, OR. *Project Manager*. Tom worked with the Bureau of Environmental Services (BES) to compile existing riparian, wetland, and upland habitat assessment and restoration materials into a comprehensive Big Four Corners Management Plan for a natural resource property purchased with Oregon Watershed Enhancement Board (OWEB) Acquisition Grant funding. Tom reviewed all relevant documents and wrote the management plan with emphasis on a summary of the site inventory and assessment, desired future ecological conditions, management recommendations, and a monitoring strategy. The management plan was submitted to OWEB by BES in October, 2007 to satisfy Acquisition Grant and Conservation Easement requirements.

ESA Adolfson

JOHN GORDON

Biological Resources Program Manager

John is a wetland biologist with over 12 years of experience. He has provided a full spectrum of wetland consulting services in Oregon, Washington, Idaho, Montana, Nevada and Utah. He is a project manager on multidisciplinary projects with wetland, Endangered Species Act and National Historic Preservation Act components. He has extensive experience working with clients in both the public and private sectors, and with natural resource agency scientists.

Education

B.S., Biology, Portland State University

Selected Training

U.S. Army Corps of Engineers Wetland Delineation Training, 1996.

Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, 2007.

Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, 2008.

Oregon Rapid Wetland Assessment Protocol, 2009.

Oregon Streamflow Duration Assessment Methodology, 2009.

Certified consultant for ODOT Biological Assessment Deliverables, 2007.

Certified ODOT CS3 Consultant, 2005.

Affiliations

Member, Society of Wetland Scientists.

Over 12 Years of Experience

Selected Relevant Experience

City of Klamath Falls Local Wetland Inventory and Riparian Assessment, Klamath Falls, Oregon. John was the project manager for the City of Klamath Falls Local Wetland Inventory (LWI) and Riparian Assessment. This is the largest LWI in the state, including parts of more than 60 Sections in the study area of over 23,000 acres. John met with City officials and staff from Oregon Department of State Lands (DSL), and made presentations at public meetings. He analyzed aerial photographs and other resources as required in Oregon Administrative Rules to locate probable wetlands for the preparation of preliminary wetland maps. John planned and scheduled work, supervised wetland staff in the field to collect accurate inventory data, and participated in all aspects of the inventory. He supervised staff in the office to analyze field data and produce LWI maps and reports, and provided QA/QC review. This LWI was approved and adopted by the City and DSL. It has been incorporated into Oregon's statewide wetland inventory.

City of Gresham Local Wetland Inventory, Gresham, Oregon. John was the project manager for the City of Gresham LWI, with a study area of about 15,000 acres. John met with City officials and DSL staff, and made presentations at public meetings. He analyzed resources specified in LWI rules to locate possible wetlands. He analyzed the sites using the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual to determine their wetland status. He supervised a staff of wetland scientists and cartographers on the project. John and his team evaluated the wetlands with the Oregon Freshwater Wetland Assessment Methodology (OFWAM) to make Locally Significant Wetland determinations, and prepared reports and maps to meet LWI standards. Both the City of Gresham and DSL approved and adopted this inventory.

Oregon Rapid Wetland Assessment Protocol (ORWAP). John was contracted by DSL to conduct preliminary testing of ORWAP on representative wetlands. John served on the DSL Technical Advisory Committee for the development of ORWAP. He received project-specific training from Dr. Paul Adamus, author of ORWAP, prior to conducting the work.

Relevant Experience (Continued)

City of Beaverton Local Wetland Inventory, Washington County, Oregon;
City of Vernonia Local Wetland Inventory, Columbia County, Oregon;
City of Clatskanie Local Wetland Inventory, Columbia County, Oregon;
City of Woodburn Local Wetland Inventory, Marion County, Oregon;
City of Silverton Local Wetland Inventory, Marion County, Oregon;
City of Oregon City Local Wetland Inventory, Clackamas County, Oregon.
On each of these LWIs, John used resources specified in LWI protocols to locate possible wetlands for preparation of preliminary wetland maps. He mapped wetlands and evaluated them with OFWAM to determine if they met standards for Locally Significant Wetlands. He prepared reports and worked with cartographers to prepare maps to meet LWI requirements. These inventories were approved by the respective cities and DSL.

Great Basin National Park Wetland and Riparian Inventory, Great Basin NP, Nevada. John mapped over 200 wetland and riparian sites on a 77,000-acre study area for this joint project between the U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) and the National Park Service. He produced a report for the National Park Service Water Resources Division, and the NWI.

Zion National Park Wetland and Riparian Inventory, Zion NP, Utah. John mapped and classified wetlands and riparian vegetation along 20 miles of the Virgin River in southwest Utah. He interpreted aerial photographs, USGS topographic maps, National Wetlands Inventory data and GPS equipment to identify and locate wetlands. He classified wetlands according to the Cowardin classification system.

Duck Valley Reservation Wetland Inventory, Duck Valley Reservation, Idaho and Nevada. John worked with a team of wetland scientists and tribal members to inventory approximately 10,000 acres of wetlands on 45,000 acres of the Shoshone – Paiute Duck Valley Reservation. He interpreted aerial photographs, soil survey maps, and topographic maps to determine the probable location of wetlands. He traversed the area to document wetland characteristics. This work was conducted to facilitate a Reservation wetland management plan.

Columbia River Wetland Mapping Project, Oregon and Washington. John performed wetland determinations on over 100 sites along the Columbia River downstream from Portland, Oregon and Vancouver, Washington. Using maps from the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service National Wetland Inventory and hydric soil maps from the USDA Natural Resource Conservation Service, John analyzed the sites to determine their wetland status.

ESA Adolfson

SARAH C. HARTUNG

Wetlands Scientist

Sarah is a wetlands scientist with eleven years of consulting experience in Oregon and Washington. Her experience includes wetland determinations and delineations, botanical surveys, species-specific surveys, and joint wetland permit applications. Sarah has delineated hundreds of wetlands and has prepared delineation reports for several large-scale transportation projects in the Pacific Northwest. She brings a proven record of obtaining wetland permits from the Department of State Lands and the U.S. Army Corps of Engineers in a timely manner. Sarah also has extensive experience preparing wetland mitigation and habitat restoration plans.

Education

M.S., Avian Ecology, University of Illinois, Champaign-Urbana

B.A., Biology, Hamline University, St. Paul, Minnesota

Selected Training

Oregon Rapid Wetland Assessment Protocol (ORWAP)

Oregon Streamflow Duration Assessment Method (OSDAM)

Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Valleys, Mountains and Coast Range

ODOT Certification for Preparing Biological Assessments

Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region

Advanced Soils Training

Affiliations

Member and Wetland Professional in Training, Society of Wetland Scientists

11 Years of Experience

Relevant Experience

ODOT – Highway 97 Improvement Project – Baseline Studies and Wetland Delineations, Deschutes and Klamath Counties, OR. ***Project Manager and Field Lead.*** Sarah managed this transportation project and was part of a subconsultant field crew to conduct environmental baseline surveys and wetland determinations for the Hwy 97 Improvement Project. ODOT proposed to repave Hwy 97 along a 15-mile corridor from south of LaPine to Creswell, replace failing culverts, install stormwater treatment facilities, and redesign transportation lanes in downtown Creswell. ESA reviewed existing data such as soil survey mapping, orthophoto aerial images of the site, and topographic mapping. Sarah led the field crew that conducted wetland determinations, botanical surveys, and assessed potential habitat for sensitive species. ESA mapped the locations of noxious weeds using Global Positioning Systems (GPS) and prepared technical memoranda for review by ODOT.

Highway 97 North of Bend, Oregon. ***Project Scientist.***
Sarah performed wetland and waterway scoping as well as wetland determinations for this ODOT project. ODOT is proposing to construct an alternate highway route to relieve congestion and reduce traffic accidents north of Bend. Sarah also mapped noxious weed locations throughout the project area. and assisted with writing memoranda documenting the findings of field investigations.

Lane County Sign Replacement Project. Lane County, OR. ***Project Manager and Wetland Scientist.*** Sarah served as project manager and field scientist for this large-scale transportation sign upgrade project. ODOT proposed to replace approximately 500 road signs along a 30-mile stretch of I-5 in Lane County to meet current FHWA readability standards. Sarah and another ESA wetland scientist determined the presence of wetlands within 25 feet of proposed sign locations based on existing data and field reconnaissance. Approximately 200 potential wetlands were identified. She conducted delineations at 10 sign locations with proposed impacts to wetlands and completed the joint permit application for approval from the U.S. Army Corps of Engineers (Corps). Sarah facilitated timely review of the JPA and assisted project engineers with construction specifications for avoiding impacts.

Relevant Experience (Continued)

ODOT – I-5 Bridges Vertical Improvements, Lane, Linn, and Marion Counties, OR. ***Project Manager and Field Lead.*** Sarah served as project manager and field crew leader for wetland field reconnaissance, wetland delineations, botanical surveys, and endangered species act documentation at eleven bridge overpasses along the I-5 corridor from south of Salem to Eugene, Oregon. ODOT proposes to increase the vertical clearance of the bridges, which will require extensive grading, repaving, and site restoration. Sarah and field technicians delineated approximately 45 wetlands and waterways at 11 bridge sites. Sarah prepared the delineation report and facilitated concurrence from the Department of State Lands (DSL). Sarah also prepared the joint permit application and facilitated approval from DSL and the Corps.

ODOT Region 3 Wetlands, Douglas and Josephine Counties, OR. ***Project Scientist.*** Sarah delineated wetlands, determined ordinary high water levels (OHWL) and assessed wetland functions for this highway improvement project. Sarah worked at two different sites: the Calapooya Creek Bridge on OR 138 to determine OHWL and to review a previous wetland delineation. At the Del Rio site, in Roseburg, Sarah delineated wetlands for the road realignment project and assessed the functions and values of over 20 wetlands using the judgmental method. Sarah prepared the wetland delineation report and assisted with the functional assessment report for the Del Rio Site.

ODOT Region 5 – US 730 Umatilla River Bridge Repair, Umatilla, OR; and US 26 Culvert Repairs Project, John Day, OR. ***Project Scientist*** **.** Sarah conducted data review, wetland and waterway scoping, wetland delinations, OHWL flagging, and report writing for these two transportation projects. For the Umatilla Bridge Project, Sarah and another ESA Adolfson scientist determined the presence of wetlands along the Umatilla River at the US 730 bridge crossing and prepared a scoping memorandum per ODOT's template to document the findings. The second project involves replacing and/or repairing four culverts along US 26 east of John Day to improve fish passage. Sarah assisted with wetland and waterway delineations along these four tributaries of the John Day River and prepared the delienation report for submittal to DSL. Sarah is currently coordinating with NMFS and ODOT to determine if the project would qualify for a programmatic biological opinion under SLOPES IV.

Frenchman Hills Wasteway Supplemental Feed Route Wetland Delineation, Quincy, Washington. ***Project Scientist.*** Sarah conducted wetland delineations along the Frenchman Hills Wasteway using the Arid West Supplement in support of a proposal to widen a culvert crossing. The culvert widening is part of Ecology and the Bureau of Reclamation's project to improve water delivery to the Potholes Reservoir. Sarah prepared a wetland delineation report for submittal to Ecology.

Local Wetland Inventory, Lakeview, OR. ***Project Scientist.*** Sarah assisted with the processing and quality control of field data for this wetland inventory in central Oregon. Sarah also assisted with preparing maps and finalizing the inventory for local and state approval.

ESA Adolfson

MIKE LEECH

Senior GIS Analyst

Mike is a Senior GIS Analyst with over 8 years of experience in GIS database development, analysis, management and cartography in natural resource management. He is an expert in design of GIS-linked MS Access databases for robust storage and retrieval of information. Mike is working with local cities and counties as they update their Shoreline Master Programs while also managing the GIS daily operations. He is adept at providing technical solutions to complex environmental problems using GIS. Mike has also developed a curriculum of intensive hands-on courses for the Northwest Environmental Training Center in areas of GIS software applications, spatial database development and information management. In addition, Mike also supports all of the GPS technology used by field staff in the Pacific Northwest region.

Education

M.S. Geography, Western Washington University 2006

Emphasis in Resource Conservation and Management

B.A. Biology, Indiana University 1996

B.A. Environmental Studies, Indiana University 1996

Affiliations/Activities

Association for American Geographers (AAG)

NW GIS Users Group

Relevant Skills

Database Development

GIS Manager

Modeler

Technical Lead

Natural Resource Policy

Public Outreach

Shoreline Planning

8 Years of Experience

Relevant Experience

ODOT Region 3 Wetlands, Douglas and Josephine Counties, Oregon. ***GIS Analyst.*** Mike provided GPS and GIS technical support for this project and also was responsible for preparing the maps and figures for the reports. Mike supported the field staff with Trimble GeoXT handheld GPS units and led the post-processing and conversion to GIS format. Mike also helped to deliver the digital data products to the ODOT R3 staff.

Shoreline Master Program Update, Pierce County, Washington. ***GIS Developer/Manager.*** Mike is coordinating GIS analysis and mapping to support Pierce County's SMP Update. He is also working with the County's Technical Advisory Group, made up of County staff, Department of Ecology staff, tribal representatives, and other stakeholders. As part of this project, Mike developed a web-based application using ArcGIS Server to support the technical document review process for the project team and includes over 80 data layers from a variety of sources. He has also prepared a series of landscape analysis maps to support the inventory and characterization. Mike has also attended and presented information to the shoreline technical advisory group as well as helped with the facilitation of the public working group meetings.

Disturbance Mapping Project, USACE, Walla Walla, Washington. ***GIS Manager/Database Developer.*** Mike is the GIS/Database Coordinator for the USACOE Walla Walla District Disturbance Mapping Project. Mike and his GIS support staff created a comprehensive database and GIS mapping system to depict areas of earth disturbance related to dam construction and related facilities. Mike is supervising other GIS staff in geo-referencing scanned historical documents and digitizing archaeological resources that may have been disturbed previously through excavation, shoreline erosion, or other construction activities. The final product delivered to the USACE was a robust GIS-linked Access database and a companion bound hard copy map atlas. Mike also prepared a hands-on training seminar with the project staff at the Walla Walla District office to demonstrate the applications of the digital data as it relates to on-current/on-going projects at the CORPs.

Relevant Experience (Continued)

Birch Bay Watershed Characterization and Restoration Prioritization, Whatcom County, Washington. ***GIS Analyst.*** Mike worked with project staff to develop and apply a watershed characterization approach that synthesizes the findings of ecosystem process and habitat diversity models with models of potential land use change within the within the Birch Bay watershed of Whatcom County. Mike assisted with adapting and applying remote sensing protocols for identifying and characterizing wetland and riparian conditions within the watershed. He has helped to support the build-out scenario models for the Birch Bay watershed to track potential development patterns and impacts within the watershed.

Northwest Environmental Training Center, Seattle, Washington. ***MS Access Database /GIS Instructor.*** Mike is also currently facilitating intensive hands-on courses for environmental professionals in areas of GIS software applications, spatial database development and information management. Mike has been responsible for developing training curriculum and lead instruction for MS Access 2003 Database Design and Management courses and on-going development of GIS Applications for Wildlife Biologists courses.

Salmon Fisheries Management Tool, Upper Skagit Indian Tribe, Sedro-Woolley, Washington. ***Database Developer/GIS Analyst.*** Mike worked closely with the Natural Resources & Fisheries staff to develop an in-season management tool based on 20 years of salmon catch data from the Skagit River for the Upper Skagit Indian Tribe. Mike developed an easy-to-use database and facilitated statistical analysis (linear regression modeling) for in-season updates to fisheries biologists. Mike also provided technical support, including training and comprehensive manuals for Microsoft Access databases and ArcGIS 9.x projects. He was responsible for the development of GIS-Linked MS Access databases for Public Works, Environmental Planning and Natural Resources Departments Other projects include CAD conversion of parcel data to GIS data, ortho-rectification of historical aerial photographs, and production of maps for grants and reports.

Mapping Plant Communities at the Alliance Level, Oʻahu Forest National Wildlife Refuge. ***Satellite Image Processor.*** Mike used high-resolution IKONOS satellite imagery to compare pixel and object-based methods for mapping plant communities and canopy-dominant invasive species on US Fish & Wildlife lands. Mike used several advanced remote sensing tools including object-oriented image analysis package eCognition to assess the changes in accuracy between the two approaches. The final product (GIS database) is currently being used as a management tool by resource mangers in the Oʻahu Forest National Wildlife Refuge.

ERIC SCHNIEWIND

Technical Associate

Mr. Schniewind has over 15 years of experience as a hydrogeologist and geologist specializing in soil and groundwater contamination studies, environmental remediation planning and implementation, and pre-acquisition site assessments. He has supervised and conducted numerous contaminated groundwater site assessments, field operations, and remediation system installation projects. His experience includes project management, analysis of laboratory results, site historical research, report preparation, and aquifer and well test analysis. In addition, Mr. Schniewind has been involved in fault hazard and landslide hazard studies. His general responsibilities include providing geological, hydrogeologic, geotechnical, hydrological, and hazardous materials technical support for NEPA and CEQA documents such as EIRs, EISs, and EAs.

Education

B.A., Geological Sciences, UC Santa Barbara

Relevant Experience

Sandy River Pipeline Project, Sandy River OR. ***Hazardous Materials Specialist and Hydrologist.*** Eric provided consultation of contaminated plume identified in tunneling spoils on large construction project immediately adjacent to the Sandy River. In addition, Eric provided technical assistance on retained dewatering water with constituents that were outside of discharge requirements. ESA Adolfson is currently providing construction monitoring for this long term construction project and enforcing required BMPs to protect water quality.

Grand Ronde, Road Construction, Grand Ronde, OR. ***Hazardous Materials Specialist and Hydrologist.*** Provided technical guidance and consultation services on contaminated soil characterization for excavated soils targeted for reuse on another site. Following local controversy on the potential presence of contaminants in excavated materials, Eric assisted in characterization of soils for potential presence of petroleum hydrocarbons. The construction project involved the widening of an existing local highway and requisite grading and earthwork activities while adhering to established BMPs.

Grand Ronde Elder Housing, Grand Ronde, OR. ***Hydrologist.*** Eric provided technical data on stormwater pollutants anticipated for proposed housing development. The project calls for converting a large area of pervious surfaces to impervious surfaces that would drain directly into a creek that is habitat for protected aquatic species. The initial work also included an evaluation of potential stormwater quality concerns during the construction phase.

Oak to Ninth Avenue Waterfront Development EIR. ***Geologist, Hydrologist, and Hazardous Materials Specialist.*** Analyzed subsurface soil stability, soil and groundwater quality, shoreline erosion potential, effects of dredged sediments for use as fill, and the presence of contaminated groundwater and potential impacts to the public. The project would redevelop this underutilized maritime industrial area along the Estuary and the Embarcadero in Oakland into a mixed use revitalized area. The issues analyzed in the EIR included redevopment on poorly engineered fill materials and Bay Muds, contaminated soils and groundwater from range of constituents, use of dredged materials as fill, and shoreline improvements to protect from erosion.

Relevant Experience (Continued)

Treasure Island Naval Base, Redevelopment Plan, *Hazardous Materials Specialist and Hydrogeologist.* Provided technical analysis of former naval base with long history of hazardous materials use. The base has been divided into separate areas determined by historical releases of wide range of contaminants. The proposed project will include development of wetland for treatment of stormwater runoff.

Lawrence Berkeley National Laboratory Building 51 and Bevatron Demolition Project, CEQA/NEPA analysis. *Geologist and Hydrologist.* Evaluated geologic, hydrologic, and hazardous materials related impacts for both the EIR and EA. The project entailed dismantling and removing the Bevatron particle accelerator, a facility listed on the National Register of Historic Places for its contribution to the development of the country's atomic energy program in the 1950s. Major environmental issues being analyzed include mitigation of significant impacts to historic resources, traffic and circulation associated with hauling of demolition materials through the city of Berkeley, handling and disposal of hazardous and radioactive materials, noise, air quality, public health and safety, visual quality and land use and planning.

Fairfield-Suisun Sewer District (FSSD) Sewer System and Treatment Plant Master Plan EIR. *Geologist.* Analyzed potential geological hazards for system-wide wastewater flow improvements. Elements included upgrading wastewater treatment plant, construction of new outfalls on soft Bay Muds, construction of new pipelines and expanding stormwater catch basin infrastructure. Provided analysis of potential impacts and mitigation measures to address numerous geologic hazards.

City of Eureka Balloon Tract EIR. *Geologist, Hydrologist, and Hazardous Materials Specialist.* Provided analysis for EIR on 43 acre Mixed Use project site located in the Coastal Zone. Former operations at the site included railroad car maintenance and repair and fueling of locomotives. Rail operations at the site included the use of Bunker C oil, diesel fuel, and gasoline. Environmental issues include soil and groundwater contamination from hazardous material releases, transportation, air quality, noise, biology, geology, and aesthetics.

Canyon Rock Quarry Expansion Project EIR. *Geologist and Hydrologist.* Analyzed and prepared Response to Comments relating to geology, hydrology and water quality concerns in the DEIR for the FEIR. Issues of the expansion included potential impacts to the groundwater supply and potential impacts to neighboring water supply wells, water quality impacts to the nearby creek, groundwater recharge, and adequacy of retention basins, as well as traffic, air quality, noise, and water quality (potential sedimentation into an adjacent creek).

ESA Adolfson

MICHELLE LENNOX

Project Scientist and GIS Analyst

Michelle has over ten years of professional experience supporting a variety of environmental projects. She has assisted with wetland delineations, wildlife surveys, and habitat assessments. Michelle has also prepared wetland delineation reports, environmental assessments, biological assessments, and other documents needed for permitting, including National Environmental Policy Act (NEPA) and Endangered Species Act compliance. She is experienced in data management, GIS analysis, and digital imaging.

Education

Graduate Certificate in Geographic Information Systems (GIS), Portland State University, Portland, Oregon

M.S., Biology, Towson University, Towson, Maryland

B.S., Marine Biology, University of Maryland, College Park, Maryland

10 Years of Experience

Environmental reviews and permitting

Wildlife surveys, habitat assessments, and wetland delineations

Restoration planning and monitoring

GIS analysis and remote sensing

Data compilation and management

Relevant Experience

Shoreline Master Program Update, Clark County, WA. ***GIS Analyst.*** Michelle is assisting with the GIS analysis and mapping to support Clark County's SMP Update. She has attended public meetings and has assisted the public in explaining how the shoreline boundaries were derived in GIS and helped them locate their properties to determine whether they are affected by shoreline planning area. Michelle will also create a series of landscape analysis maps to support the inventory and characterization.

ODOT Region 3 Wetlands, Douglas and Josephine Counties, OR. ***GIS Analyst.*** ESA delineated wetlands and waterways at three sites in ODOT Region 3, near Grants Pass and Roseburg. Michelle assisted in mapping over 100 delineated wetlands and waterways on this project and provided QA/QC for the mapping portion of the project. She also instructed staff on procedures for collecting GPS data using a handheld Trimble unit, and used this data to create GIS maps of the wetlands and waterways for all three project sites.

ODOT Highway 97, North of Bend, OR. ***GIS Analyst.*** Michelle assisted with mapping over 90 wetlands and waterways along Highways 97 and 20 north of Bend, for a proposed highway realignment project. She also conducted surveys for rare mammals within the area of potential impact (API). Michelle led the QA/QC effort for the GIS maps and figures to illustrate the location of waterways, wetlands, and noxious weeds in the API.

Elder Housing Wetland Delineation, Grand Ronde Tribal Housing Authority, Grand Ronde, OR. ***Project Manager.*** Michelle prepared a NEPA environmental assessment (EA) for the development of an approximately 10-acre site for elder housing facilities for the Confederated Tribes of Grand Ronde. The EA project includes preparation of an HUD Checklist and presentation of the final EA to the Bureau of Indian Affairs. Major issues addressed in the EA included wetlands and wildlife, transportation, cultural resources, and stormwater. Michelle was responsible for writing EA chapters, attending meetings, and coordinating with subconsultants.

Relevant Experience (Continued)

Orient Drive Wetland Permitting, Gresham, OR. ***Project Scientist.*** Michelle assisted with the re-flagging of a wetland resource at a property previously delineated by ESA. Phase II of the project included revising the wetland delineation report and assisting with preparation of a joint permit application for review by the Department of State Lands and the U.S. Army Corps of Engineers. Michelle coordinated with local agencies regarding wetland regulations affecting the site.

River Bend Wetland Delineation, Independence, OR. ***Project Scientist.*** Michelle conducted a delineation of wetlands within the area likely to be disturbed by mining, access roads, and the fish egress channel. Wetland boundaries were marked in the field with flagging.

ODOT I-5 Capitol Highway to the Willamette River Bridge Natural Resource Baseline Conditions and Biological Assessment, Clackamas, Multnomah, and Washington Counties, OR. ***Project Scientist.*** ODOT is proposing to widen shoulders along I-5 from Capitol Highway to the Willamette River Bridge and to construct several stormwater treatment facilities to treat new and existing impervious surface. To determine baseline conditions and potential project impacts, Michelle assisted with field review of the presence of wetlands, waterways, listed species habitat, and noxious weeds within the right-of-way of I-5 and helped prepare a technical memoranda summarizing the findings.

LC Construction Wetland Delineation, Oregon City, OR. ***Project Scientist.*** Michelle assisted with a wetland delineation in Oregon City collecting information on existing vegetation, soils, and hydrologic regime. Michelle compiled the findings in a wetland delineation report for review by Oregon City and the Department of State Lands.

Jordan Valley Airport Wetland Delineation, Jordan Valley, OR. ***Project Scientist.*** Michelle assisted with wetland delineation of a 23-acre site for a project proposing the construction of an emergency airport to service southeastern Oregon.

Commuter Rail Impact Assessment and Mitigation, Washington County, OR. ***Project Scientist.*** Michelle assisted with wetland delineations as part of the mitigation planning process for wetland impacts associated with a proposal to establish commuter rail service in Washington County.

Road Renovation EA, Grand Ronde, OR. ***Project Scientist.*** Michelle assisted with conducting wetland delineations in the vicinity of Grand Ronde Road between Highway 18 and Highway 22, collecting information on existing vegetation, soils, and hydrologic regime. She assisted with compiling the findings to help determine whether the past wetland documentation was still adequate for permitting purposes.

ESA Adolfson

ALISON SIGLER

Staff Scientist

Alison has five years of professional experience supporting environmental projects. She assists with wetland delineations and habitat assessments in Oregon, Washington and Idaho. She prepares biological assessments, wetland delineation reports, wetland functional assessment and impact reports, compensatory wetland mitigation reports, and other documents necessary for permitting. She has experience with data management, interpreting aerial photographs, creating maps, and GIS analysis.

Education

B.S., Biology, Washington State University, Pullman, Washington

Basic Wetland Delineation Training, Portland State University, Portland, Oregon

GIS for Natural Scientists, Portland State University, Portland, Oregon

5 years experience

Relevant Experience

Wetland Delineation Report and Buffer Assessment, Clackamas County, OR. ***Staff Scientist.*** Alison is assisting with a wetland delineation report of an industrial-zoned parcel in Clackamas County. A wetland delineation and buffer assessment is necessary for proposed expansion of the existing facility. Alison's contribution to the report includes reviewing and summarizing existing information, a site visit and photo documentation. The report is written following requirements from Oregon Department of State Lands and Clackamas County.

Draft Environmental Impact Statement (DEIS, Lane Transit District, Eugene, OR. ***Staff Scientist.*** Alison is assisting with a wetland inventory and functional assessment analysis of wetlands located along the project alternatives for this rapid bus transit (RBT) project. Lane Transit District is proposing to extend RBT into West Eugene to reduce congestion and promote economic development.

Compensatory Mitigation Plan Monitoring and Report Corvallis, OR. ***Staff Scientist.*** Alison conducted vegetation and woody species monitoring and compiled the annual monitoring report in support of Corvallis Station's compensatory wetland mitigation. Corvallis Station is a compensatory wetland mitigation site in its third year of monitoring. Tasks include identifying and assessing survival and cover of woody shrubs and vegetation, photo documentation, writing and editing the monitoring report. The report followed requirements set by Army Corps of Engineers and Oregon Department of State Lands.

ODOT Region 5 US 26 Culvert Repairs Project, Grant County, OR. ***Staff Scientist.*** Alison is preparing a biological assessment and assisting with preparation of a wetland delineation report required for the US 26 Culvert Repairs Project. This work involves replacing or upgrading four culverts on four streams in the Upper John Day River Basin, improving fish passage, stream flow and gradients. Tasks include collecting and summarizing background information and aiding in the determination of potential action areas and report drafting. Alison updated the following chapters of the Biological Assessment: Introduction, Environmental Baseline, and Natural History and Species Occurrence.

Relevant Experience (Continued)

Sandy River Conduit Relocation Construction Monitoring, Clackamas County, OR. ***Staff Scientist.*** The Portland Water Bureau is burying Conduits 2 and 4 of the City's drinking water system eighty feet below ground at the Sandy River crossing. As part of the construction monitoring over-sight provided by ESA, Alison is reviewing daily logs recorded by the Design-Builder to ensure compliance with environmental permits and approvals issued for the project, including a Removal-Fill permit, Section 404/Section 10 permit, and a Biological Opinion. She updates the bi-weekly monitoring report each month and periodically conducts site visits to evaluate environmental compliance.

Eastmoreland Golf Course Tree Inventory, Portland, OR. ***Staff Scientist.*** Alison is assisting with a comprehensive tree inventory which involves identifying species and measuring tree diameters on the Eastmoreland Golf Course. She is also assisting with the data processing and quality control of the data in GIS. The course was planted a century ago with native and non-native species. The goal of this inventory is to identify trees to remove for the purpose of improving play, improving air circulation in the tree canopy, and improving the overall health of the landscaping. ESA staff identified approximately 60 different tree species and surveyed over 1,300 trees using Global Positioning Systems (GPS).

Biological Assessment Survey for Pipeline Transmission. Mount Hood National Forest, OR. ***Staff Scientist.*** Alison assisted with wetland delineations; noxious weed and sensitive species surveys; wildlife habitat surveys in support of a biological assessment for a pipeline transmission project. She was responsible for field data collection and management. The project goal was to record ecological conditions of the potential natural gas pipeline corridor to determine project impacts.

GIS Mapping for Wild Salmon Conservation, Portland, OR. ***Staff Scientist.*** Alison created maps in GIS in support of salmon conservation non-profit research. She expanded and reorganized the GIS data server, reviewed and added metadata as needed and repaired missing data on existing maps.

Ground Truthing LiDAR Imagery. Cowlitz, Yakima and Skamania Counties, WA. ***Staff Scientist.*** Alison conducted field work ground truthing LiDAR imagery to check for image accuracy. Tasks included interpreting aerial photos and LiDAR imagery, collecting sample plot survey information including identifying and measuring trees and shrubs, reviewing and editing collected data superimposed on LiDAR imagery.

ESA Adolfson

ROSEMARY BAKER

Staff Wetland Ecologist/Botanist

Rosemary has a background in restoration, native plant conservation and landscaping. Rosemary has worked for several years in the restoration of a variety of local stream, wetland, and forested habitats in urban parks and natural areas in and around Washington. She specializes in identification of Washington native plants and invasive species. Rosemary has delineated wetlands in eastern and western Washington, and is experienced in wetland rating and assessment.

Education

B.S., Environmental Studies, The Evergreen State College, 2004

Wetland Science and Management Certificate, University of Washington, 2007

Professional Affiliations

EarthCorps 2005-2006

Washington Native Plant Society 2005-present

2 Years of Experience

Relevant Experience

King County Lands Invasive Plant Survey. King County, Washington. ***Primary Field Botanist****.* Rosemary managed daily field survey operations and logistics, site selection, field forms, and all data entry. The survey was conducted on 21,000 acres of county-owned properties that were deemed high-value conservation lands. Each habitat type i.e. closed forest, freshwater shoreline, etc. was evaluated for the percent presence of target invasive species, including county-listed noxious weeds. Surveyed data were entered in a database which county managers will use as a tool to better manage invasive species on high-value county owned lands.

Pierce County Invasive Species and Lake Management Project, Pierce County, Washington. ***Field Botanist.*** Rosemary assisted in field surveys during 2008. Data on weed presence and percent cover collected served as the basis for an invasive species management plan. Tasks performed included identification and coverage assessment of a variety of invasive plants and county listed noxious weeds, as well as documentation of hydrologic features and wildlife habitat suitability.

Redmond PSE Trail Phase 3 Trail Improvements, Redmond, Washington. ***Wetland Scientist.*** Rosemary delineated wetlands on City of Redmond property and prepared a Critical Areas Report including assessment of impacts for the Puget Sound Energy trail reroute.

D208519. Northeast Redmond Neighborhood Park Master Plan. ***Wetland Scientist***. Rosemary delineated wetlands and streams, characterized wildlife habitat areas, and assisted in preparation of a critical areas study. The undeveloped park, located in the City of Redmond, Washington, contains wetlands, a salmonid-bearing stream, and regulated wildlife habitat.

City of Kenmore On-Call 2008, Kenmore, Washington. ***Wetland Scientist.*** Rosemary reviewed permit submittals with regard to the City of Kenmore Critical Areas Code reviews for the City, as part of ESA's on-call contract with the City. Tasks included review of submitted documents for conformance with Kenmore Municipal Code, site visits to verify wetlands and boundaries, mitigation monitoring, and preparation of letters to the city regarding applicant's conformance with City code.

Relevant Experience (Continued)

Gentry Critical Area Permitting Assistance, King County, Washington. ***Wetland Scientist.*** Rosemary prepared both a conceptual wetland buffer enhancement plan and a planting plan for a private homeowner on Shady Lake in unincorporated King County.

Vintage I Office Park, Federal Way, Washington. ***Field Botanist.*** Rosemary assisted in the 2008 monitoring of stream buffer plantings installed installed on property adjacent to a tributary of Hyllebos Creek. She also assisted in assessing competitive bids for an additional planting, ordered plants, and helped manage installation logistics.

Japanese Gulch Trail, Mukilteo, Washington. ***Volunteer Coordinator.*** Rosemary assisted in managing a volunteer planting event within the City of Mukilteo. She helped with on-site event logistics, bare-root planting demonstrations and public safety. The city was required to mitigate impacts to a wetland for the installation of a pedestrian and biking trail within Japanese Gulch.

Experience Prior to Joining ESA Adolfson

Ravenna Park Wetland Restoration Project, Seattle, Washington. In alliance with the City's Green Seattle Partnership, and sponsor Washington Native Plant Society, Rosemary managed a wetland restoration in Ravenna Park at the 15th Ave Bridge. The site is a groundwater-fed sloped wetland at the base of the ravine draining into Ravenna Creek. Hummocks were constructed to establish longer term conifer survival and live stakes were installed in areas with Reed-canary grass. Rosemary's group continues to plant a diversity of native emergents and shrubs and remove invasives in the wetland.

ESA Adolfson

ADAM MERRILL

Watershed Scientist

Adam has over seven years of experience conducting and supporting a variety of biological and ecological studies. He regularly performs wetland delineations, wetland ratings, functional assessments, and prepares wetland reports and mitigation plans for permit applications. In addition, Adam has experience planning and prioritizing wetland and stream restoration activities at a watershed scale. Adam's knowledge and experience also includes stream habitat assessment, water quality monitoring, erosion and sediment control monitoring, forestry studies, and shoreline inventories. Adam is trained in the use of GPS technology and ArcGIS 9.3 software, and is skilled at using geospatial data to identify and analyze aquatic habitats.

Education

B.S., Environmental Science, Western Washington University, 2001

M.S., Resource Management, Central Washington University, *Expected Graduation Winter 2010*

Certifications

Certified Erosion and Sediment Control Lead (CESCL)

Fluvial Ordinary High Water Mark (OHWM) Certification

Washington State Wetland Rating System (Revised) Certification

Relevant Experience

Wetland identification, delineation, rating, functional assessment, mitigation

Shoreline inventories

Watershed characterization, planning, and restoration

Water Quality Monitoring

Stream Habitat Assessment

7 Years of Experience

Relevant ESA Adolfson Experience

I-405 Corridor Program Wetland Studies, King County, Washington. ESA Adolfson (ESA) was contracted with the Washington Department of Transportation (WSDOT) to conduct wetland investigation and mitigation development for multiple sections of the I-405 road improvements and Nickel projects in King County. The projects include: SR 169 to I-90 Renton to Bellevue Project, Kirkland Nickel Improvement Project, Bellevue Nickel Improvement Project, and Renton Nickel Improvement Project. Adam's duties have included wetland identification, delineation, functional assessment, and state and local rating for over 100 wetlands along approximately 25 miles of I-405. He has co-authored two discipline reports, two biology reports, and a mitigation plan in support of an Environmental Assessment and other environmental documentation.

Everett Riverfront Development, Everett, Washington. ESA is currently contracted to the city of Everett to provide technical and permitting assistance for a large, mixed-use redevelopment of a formally industrial site on the Snohomish River. Adam's duties included wetland delineation, rating, and functional assessment for several wetlands in the project area. In addition, Adam wrote technical memoranda analyzing the potential impacts to plants, animals, streams, and wetlands resulting from the public amenity improvement and environmental restoration phase of the project.

Union Hill Phase II Project, City of Redmond, Washington. ESA was contracted by the City of Redmond and INCA Engineers, Inc. to conduct an environmental study in support of the Union Hill Phase II Project, in the City of Redmond. The proposed road improvements will occur near Bear Creek, a Washington Department of Fish and Wildlife listed priority habitat. Adam was the lead biologist for the field study, which included a stream and wetlands survey and an assessment of fish and wildlife habitat. Adam also drafted the critical areas study, in accordance with City of Redmond's critical areas ordinance.

Relevant Experience (Continued)

Spanaway Creek Fish Passage Improvement Project, Pierce County, Washington. In support of a fish passage improvement project at Spanaway Creek in Pierce County, ESA conducted a wetland analysis and habitat assessment at the site of an existing dam on the creek at Bresemann Forest. Adam's duties included conducting wetland delineations, wetland ratings, and authoring the wetland portion of the critical areas study.

SR 522 Corridor Improvements, City Kenmore, Washington. At the request of the City of Kenmore and Butcher, Willis and Ratliff, Inc., ESA is conducting permitting support for the SR 522 Corridor Improvement project in the City of Kenmore, Washington. For this project, Adam has coordinated with the Army Corps of Engineers to permit the wetland impacts in the project area. He has also authored an environmental feasibility study for proposed intersection improvements near the project area. Adam also assisted the city in selecting a wetland mitigation site for the wetland impacts in the project area.

On-Call Projects for the cities of Kenmore, Newcastle, and Kent, Washington. ESA currently provides assistance to the City of Kenmore and the City of Kent planning departments through long-term on-call contracts. This work addresses wetlands, streams, and other sensitive areas and provides guidance to the cities in administering sections of their zoning codes. Adam has evaluated many wetland studies, stream determinations, and mitigation plans submitted to the cities of Kenmore, Newcastle, and Kent as part of proposed development applications.

Cathcart Custodial Transfer Site Wetland and Stream Reconnaissance, Snohomish County, Washington. Adam conducted a wetland and stream reconnaissance on the 200-acre Custodial Transfer Site in Snohomish County, Washington. The purpose of the study was to assist Snohomish County with future site planning. Adam was the lead biologist for the field work, and he drafted a technical memo detailing the findings of the wetland and stream reconnaissance.

Other Experience

Identification and Prioritization of Aquatic Habitat Restoration Projects at a Watershed Scale, Birch Bay, Washington To fulfill the thesis requirement for a M.S. degree in Resource Management at Central Washington University, Adam conducted a watershed-scale aquatic habitat restoration plan for the Birch Bay watershed, in western Whatcom County. Based upon a GIS analysis of existing data sources coupled with field verifications, Adam identified potential wetland and riparian restoration areas. He also developed a methodology for prioritizing these restoration areas, based upon their potential to provide wildlife habitat, floodwater attenuation, and water quality functions. Lastly, Adam suggested ecological restoration techniques for the identified areas, for the purpose of aiding future restoration planners in developing detailed, site-specific restoration plans.

AARON BOOY

Natural Resources Specialist

Aaron has five years of experience in both aquatic ecology and environmental planning. His knowledge of local, state and federal regulatory processes have contributed to a wide range of SEPA and NEPA documents, permit acquisition strategies, shoreline plans, and community land use planning efforts. Aaron is skilled in natural resource management and the use of science in developing environmental and land use policies. Aaron also has background in aquatic and fisheries science and brings an interdisciplinary approach to all of his planning projects. He has field experience in stream and riparian habitat surveys, wetland delineation, and water quality monitoring.

Education

B.S., Aquatic and Fisheries Science, University of Washington, Seattle

B.A., Design and Planning: Community and Environmental Planning University of Washington, Seattle

5 Years of Experience

Relevant Experience

McCormick Park Reconnaissance and Assessment, Duvall, WA. ***Project Manager.*** Aaron is the project manager for the City of Duvall's McCormick Park Reconnaissance and Assessment. He managed project scoping and in-field activities, including use of GPS equipment to inform the assessment and mapping of access and restoration opportunities within the McCormick Park area. The study area stretches across the City's Snoqualmie River shoreline, and includes unique environments and current land uses. Aaron's work on this project is informing planning for the shoreline area, including the SMP Update.

Hood Property Critical Areas Study, Snohomish County, WA. ***Wetlands Specialist.*** At the request of Mr. Hood, ESA conducted a critical areas study in support of a proposed single family residential development in unincorporated Snohomish County, Washington. Aaron's duties included conducting wetland and stream delineations, developing a conceptual mitigation plan for proposed stream buffer impacts, and drafting a Critical Areas Study per Snohomish County regulations.

City of Duvall On-Call Environmental Consultant, WA. ***Project Manager.*** ESA currently provides assistance to the City of Duvall planning department through a long-term on-call contract. This work addresses wetlands, streams, and other sensitive areas and provides guidance to the City in administering sections of the zoning code. As the Project Manager, Aaron manages receipt and tracking of submittals, site visits, and review for all submittals received. Aaron has evaluated wetland studies, stream determinations, and mitigation plans submitted to the City of Duvall as part of numerous proposed development applications, including assessment and review for the City's Public Works Department.

Relevant Experience (Continued)

Washington State Ferries, Hydrologic Monitoring and Modeling, Anacortes, WA. ***Project Scientist.*** ESA developed and implemented a detailed hydrologic monitoring plan for two significant wetland systems that surround the Washington State Ferries – Anacortes Terminal. Monitoring includes the installation of 12 piezometer nests, four continuous recording pressure transducers, and 2 continuous recording rain gauges. Aaron assists in conducting bi-monthly monitoring of the wetland system, which is currently in progress.

Everett Riverfront Development, WA. ***Biologist.*** ESA was contracted by the City of Everett to conduct an environmental study in support of the Everett Riverfront Development project, in the City of Everett. Aaron is a biologist for the large development project along the Snohomish River in the City of Everett, Washington covering over 100 acres. The project involved the delineation, rating, and functional assessment for over 20 wetlands and several streams, including Bigelow Creek. Ongoing work has included hydrologic monitoring and modeling of the wetland and stream systems in the project area.

Union Hill Road Phase II Project, Redmond, WA. ***Project Manager.*** ESA was contracted by the City of Redmond and INCA Engineers, Inc. to conduct an environmental study in support of the Union Hill Phase II Project, in the City of Redmond. The proposed road improvements will occur near Bear Creek, a Washington Department of Fish and Wildlife listed priority habitat. Aaron served as the Project Manager on the Union Hill – Phase II Project, which included client communication. He served as the primary author for the Mitigation Plan, SEPA Checklist, and the Permits Matrix. Aaron assisted in the field study as a biologist, which included a stream and wetlands survey and an assessment of fish and wildlife habitat.

City of Auburn SMP Update, WA. ***Project Scientist.*** Aaron assisted in the update of the City of Auburn's Shoreline Master Program. He authored chapters on freshwater shoreline natural resources for the Shoreline Inventory and Characterization Report, including wetlands, instream and riparian habitats, and critical wildlife habitat and species.

Cathcart Custodial Transfer Site and Bunk Foss Road Site Wetland and Stream Reconnaissance, Snohomish County, WA. ***Project Scientist.*** Aaron assisted in conducting a wetland and stream reconnaissance on the 60 total acre Woodinville Sites, the 200-acre Custodial Transfer Site and the 12-acre Bunk Foss Road Site in Snohomish County, Washington. The purpose of the study was to assist Snohomish County with future site planning. Aaron prepared the technical memos detailing the findings of the wetland and stream reconnaissance for the Woodinville Sites and Bunk Foss Road Site.

PAUL ADAMUS

Adamus Resource Assessment, Inc.

Dr. Paul Adamus is the author of ORWAP, the new tool of the Department of State Lands that assesses the relative capacity of wetlands to remove nitrate, as well as 15 other functions and values. While developing this he applied it to 220 wetlands throughout Oregon, including several he visited in the Upper Deschutes study area. For DSL, he has trained nearly 100 agency personnel and consultants in the use of ORWAP, and previously developed both of DSL's "hydrogeomorphic" (HGM) methods for assessing wetlands. In 2008 OWEB competitively selected Dr. Adamus to conduct ecological audits of their wetland projects in the Willamette Valley, for which he applied ORWAP and surveyed vegetation and soils at 60 sites. He has comprehensively assessed wetlands for Crater Lake National Park; for the Corvallis Natural Features Inventory; for Juneau, Alaska; and for Island County, Washington, where he drafted a local wetlands protection ordinance (subsequently adopted) that has been cited nationally for its innovative approach to buffer width determinations. He also designed and established the County's 5-year program for monitoring nitrate contamination of surface waters and statistically analyzed those data. He has twice been invited to testify on wetland matters to the U.S. Congress, and was chosen as the sole expert witness on major wetlands case in Michigan. He is best known as the author of WET (Wetland Evaluation Technique), developed originally for the Federal Highway Administration in the early 1980's, and used widely by federal agencies in the decade that followed. Over the past 35 years he has authored over 100 publications, many during the 10 years he was part of EPA's National Wetlands Research Program based in Corvallis. His research for EPA focused on cumulative impacts and the effects of excessive nutrients on wetland biological communities.

Education

Ph.D. Wildlife Science, Oregon State University, Corvallis
M.S. Biology (Aquatic), University of Utah, Salt Lake City
B.S. Wildlife Science, University of Maine, Orono

Current Positions

Adamus Resource Assessment, Inc., Corvallis, Oregon. Principal. 1997-present.
Oregon State University, Corvallis, Oregon (2002-present)
College of Oceanographic and Atmospheric Sciences, Assistant Professor (Courtesy)
Environmental Sciences Graduate Program (Water Resources)

Wetland Program Consultations

State/Tribe Wetland Program Consultation:
North Carolina (Dept. Environmental Management)
Illinois (Dept. of Conservation)
Maine (State Planning Office)
Washington (Dept. of Ecology)
Oregon (Dept. Environmental Quality, Department of State Lands)
Oklahoma
Michigan
Confederated Tribes of the Umatilla Indian Reservation

Regional Wetland Functional Assessment Projects:

Klamath Region (Lassen Volcanic & Crater Lakes National Parks)
Oregon Coast: HGM data collection, model development, and application
Willamette Valley, Oregon: HGM data collection, model development, and application
Juneau, Alaska: Wetlands Management Plan (the second such plan approved in the U.S.)
New Jersey (Hackensack Meadowlands, Raritan Estuary)
Salt Lake City, Utah: Wetlands Advanced Identification Project
Southern Maine: Wetlands Advanced Identification Project
Washington (Mill Creek Watershed): Special Area Management Plan
Washington (Puget Sound - Island County)

Selected Publications

Adamus, P., J. Morlan, and K. Verble. 2009. *Oregon Rapid Wetland Assessment Protocol (ORWAP): calculator spreadsheet, databases, and data forms.* Oregon Dept. of State Lands, Salem, OR. http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml

Willamette Partnership, Parametrix, and P.R. Adamus. 2009. *Crediting and Debiting of Ecosystem Services*. Counting on the Environment Project: http://www.willamettepartnership.org/ongoing-projects-and-activities/nrcs-conservation-innovations-grant-1/nrcs-conservation-innovations-grant

Adamus, P.R. and C.L. Bartlett. 2008. *Wetlands of Crater Lake National Park: An Assessment of Their Ecological Condition*. Natural Resource Technical Report NPS/KLMN/NRTR—2008/115. National Park Service, Fort Collins, CO. http://science.nature.nps.gov/im/units/klmn/Inventories/Adamus_Wetland/Adamus_Wetland.cfm

Adamus, P.R. 2007. *Best Available Science for Wetlands of Island County, Washington: Review of Published Literature.* Report to Island County Dept. of Planning & Community Development, Coupeville, WA. Internet: http://www.islandcounty.net/planning/criticalareas/wetlands/

Adamus, P.R., J. Burcar, K. Harma, C. Luerkens, A. Boscolo, J. Coleman, and M. Kershner. 2006. *Wetlands of Island County, Washington: Profile of Characteristics, Functions, and Health.* Report to Island County Dept. of Planning & Community Development, Coupeville, WA.Internet: http://www.islandcounty.net/planning/criticalareas/wetlands/Phase1_Complete-doc.pdf

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Alessandra E. Capretti, WPIT — Wetland Specialist

Ms. Capretti is a wetland scientist and natural resource specialist with expertise in environmental permitting, wetland delineation, compensatory mitigation, habitat enhancement and restoration. She also manages multidisciplinary projects involving Endangered Species Act and National Historic Preservation Act components. She is actively involved in all aspects of fieldwork and uses the latest technology. Ms. Capretti provides knowledge and experience in supervising landscape contractors; developing erosion control measures; inspecting plant material; preparing monitoring and maintenance plans, as well as site monitoring. In addition, she has experience in preparing Phase I Environmental Site Assessments in the states of Oregon and Washington. Ms. Capretti actively keeps abreast of the latest local, state and federal rules and regulations affecting her work and has an excellent reputation of working with clients and agency representatives in providing creative, cost effective solutions to environmental, regulatory and permitting challenges.
Ms. Capretti is currently completing the coursework needed for her environmental engineering degree.

Continuing Education:

- GIS & Field GIS
- Basic Wetland Delineation
- NEPA
- Hydrogeomorphic Wetland Classification
- ESA I & ESA II
- Wetland Mitigation, Const. & Installation
- Advanced Soils & Hydrology for Delineators
- Basic Water Rights
- Wetland Plants of the Pacific Northwest
- Environmental Compliance: Integration, Project Permits
- Wetland Regulations & Mitigation Compliance
- Arid Western Regional Supplement Training
- Oregon Rapid Wetland Assessment Protocol (ORWAP)Training

Education:

B.S. Environmental Science,
Portland State University,
Minor, Environmental Engineering

Work History:

Total Years of Experience: 9
Years with HHPR: 6

Professional Affiliations:

Member of the Society of Wetland Scientists (SWS)

Member of American Society of Civil Engineers

Certifications:

- Wetland Professional in Training (WPIT)
- Professional Certificate in Wetland Mitigation & Restoration, Portland State University
- Professional Certificate in Wetland Delineation

Area of Expertise:

- Wetland Delineation/Permitting
- Natural Resource Assessment
- Environmental Review
- Mitigation Planning
- Permitting
- Agency Consultation

HHPR

Qualifications / Project Experience:

Founded in Portland in 1990, HHPR currently has offices in Bend, Clackamas, and Portland, Oregon; and Vancouver, Washington. HHPR's staff of over 75 employees includes licensed Professional Engineers, Landscape Architects, Environmental Specialist and Surveyors in addition to Certified Planners and Project Managers, Engineers-in-Training, Designers/CAD Specialists, and office support.

Many of our staff have public sector experience combined with successful years of providing consulting services. This balance of experience assures knowledge of what is required to provide efficient consulting services with an understanding of what is needed by our public clients.

Qualifications: Ms. Capretti has managed environmental projects throughout the Pacific Northwest, from the Pacific Coast to the High Desert Region in Oregon, providing consulting services and developing compliance programs for public and private clients. These projects have included performing wetland delineations/determinations and compensatory mitigation plans for school districts, industrial sites, commercial properties, county and city road widening projects. Ms. Capretti has written numerous Natural Resources Assessments for public and private entities for projects ranging in size from less than an acre to 80 acres.

Ms. Capretti has recent experience utilizing Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual: Arid Western Region Supplement. HHPR was contracted by Deschutes Valley Water District (DVWD) to perform a wetland delineation on the proposed crossing of Willow Creek for the installation of a 20 inch transmission waterline. Ms. Capretti performed all the fieldwork for the delineation of Willow Creek. Directed the mapping and surveying of the project creek crossing. She prepared exhibits and a report for submittal to DSL and ACOE.

Ms. Capretti continuing education pursuits within wetland delineation, permitting and field investigations results in accurate, consistent establishment of sensitive are boundaries based on current guidelines to obtain concurrence by permitting authorities.