



EDUCATION

B.S., Ecology, The Evergreen State College, 1993
Graduate Coursework, Salmon Ecology, The Evergreen State College, 1999
Graduate Coursework, Soils Geomorphology, Portland State University, 2008

PROFESSIONAL REGISTRATIONS & MEMBERSHIPS

Certified Professional Wetland Scientist, Society of Wetland Scientists
Society of Wetland Scientists, Pacific Northwest Chapter
Oregon Society of Soil Scientists

EXPERIENCE

Principal, Cascade Environmental Group, LLC, Portland, Oregon, August 2010 – Present
Senior Wetland Ecologist, ICF/Jones & Stokes, Portland, Oregon, July 2005 – August 2010
Senior Wetland Ecologist, Washington State Department of Transportation, Olympia, Washington, April 1995 – July 2005
Biologist, Bureau of Land Management, Lander, Wyoming, April 1994 – November 1994

QUALIFICATIONS

Mr. Brent Haddaway, PWS, is a Principal with Cascade Environmental Group, LLC, and has worked for over 19 years as a wetland scientist and project manager in the Pacific Northwest. Brent performs and manages wetland delineations, functions assessments, wetland restoration and mitigation projects, restoration implementation oversight, wetland permitting, and compliance monitoring. These projects require applying wetland science methods under high degrees of scrutiny, developing analytical tools and interpreting environmental policy as needed to assess project specific conditions, managing budgets and staff, and effectively communicating with a wide range of stakeholders including individuals working in industrial, governmental, and non-profit sectors.

Over his career, Brent has delineated hundreds of wetlands in a variety of ecological settings and sites that have experienced a wide range of land alterations. Brent has managed linear wetland delineation projects extending over 50 miles in length and contiguous land area delineation projects exceeding 7,000 acres. Brent was selected by the US Army Corps of Engineers to instruct wetland delineation trainings for WSDOT and local government staff, and provided senior review of consultant delineation work while employed at WSDOT. He also has extensive experience in aquatic resource mitigation, including mitigation banking, stream mitigation, and out-of-kind mitigation plans. Brent was a technical committee member for the development of the *Wetland Rating System for Washington State* (WA Dept of Ecology) and the *Wetland Functions Assessment Method for Washington State* (WA Dept of Ecology), was a contributing author of the *Wetland Characterization Tool for Linear Projects* (WSDOT), is experienced with *Oregon Wetland Assessment Protocol* (DSL), and has developed project-specific wetland functions assessment protocols. Brent also served as on the Regional Technical Expert Review panel for development of the City of Portland's North Reach Mitigation Bank and West Hayden Island Natural Resource Mitigation Review. He has managed research projects assessing wetland mitigation performance criteria for the EPA to determine appropriate benchmarks for tree and shrub growth rates, and for the Federal Highway Administration to determine appropriate performance standards for invasive species cover.

Brent regularly manages multidisciplinary teams for the purpose of impact assessment and mitigation or restoration project development. Brent coordinates technical experts and manages budgets in excess of \$500,000. Brent typically oversees regulatory processes, manages budgets and timelines, coordinates design elements, designs monitoring protocols, and guides site management directly. He also assists with identifying perpetual protection mechanisms and developing stewardship plans.

SELECTED PROJECTS

Chehalis Basin Mitigation Bank - Womble Carlyle Ecology Innovations, LLC, Lewis County, Washington

Project Manager. Brent served as the project manager for this project, which was approved in April 2013 as the first umbrella (multi-site) bank in Washington State. The project encompasses two separate sites, totaling over 380 acres. Brent has managed all wetland technical studies for this project including developing a functions assessment protocol that adapts the Department of Ecology's *Wetland Functions Assessment Method* into a semi-quantitative approach to measure functional benefits of proposed mitigation actions; this site-specific methodology has been approved by both the Department of Ecology and the Corps of Engineers. Wetland restoration design included differing design approaches for each of the sites: floodplain enhancements to established forested wetland and emergent



swales, and re-meandering of Coal Creek near its confluence with Salzer Creek. The creek re-meander includes a transition of meander radii as the gradient decreases and occurs in an urban setting with substantial infrastructure.

Garret Creek Mitigation Bank - Garret Creek Mitigation Bank, LLC, Molalla, Oregon

Project Manager and Wetland Ecologist. Brent served as project manager and wetland scientist for developing this project near Molalla, Oregon, which was constructed in 2008 and completed its compliance monitoring period in 2013. The project included delineating actively farmed areas where natural vegetation had been removed and too late in the growing season to directly observe wetland hydrology (mid May). Brent proposed case-specific wetland hydrology indicators by comparing observed site conditions with precipitation and stream gauge data for the delineation year compared with 30 year averages. The approach required exhaustive documentation, but was approved by the Department of State Lands and the Corps of Engineers. The Garret Creek mitigation bank is the only mitigation bank in the Pacific Northwest with CWA Section 404/401-approved stream credits. He performed all delineation and functional assessment studies and authored all mitigation bank instrument documents; the bank project was approved in 11 months following prospectus submittal.

Rinearson Slough Property Acquisition and Salmon Habitat Restoration Feasibility Study - Cowlitz Indian Tribe, Rainier, Oregon

Project Manager and Wetland Ecologist. Brent managed the study of the feasibility of salmon habitat restoration for 4 project alternatives within a 610-acre study area in Rainier, Oregon. The feasibility study considered various acquisition and restoration opportunities, each requiring levee breaching and appropriate infrastructure protection considerations. The alternatives considered ranged from 195 to 610 acres in size and included various setback levee configurations, varying levels of habitat benefits, and a range of infrastructure considerations. For each alternative, costs were identified for quantifiable project cost elements such as levee construction, habitat restoration, and design and permitting costs. Additionally, public infrastructure considerations such as affected roads or utilities were described and correlated to specific alternatives where relevant.

TRIP Natural Resource Assessment - Port of Portland, Troutdale, Oregon

Project Manager and Wetland Ecologist. Brent managed the wetland functions assessment and alternatives analysis for site development. Work included performing *Oregon Wetland Assessment Protocol* (ORWAP) over 40 wetland areas and working to determine wetland avoidance priorities. Brent disputed the ORWAP results, recognizing that the assessment model failed to consider the seasonal high water table of the Columbia River in its assessment of hydrologic functions. Brent solicited assistance from hydraulics staff to dispute the ORWAP findings and ultimately gained the approval of the Oregon DSL resource coordinator. As a result, the avoidance priorities were adjusted and protection of wetlands with greater habitat value was prioritized. Brent participated on the project development committee, incorporating planning, financial, environmental, and development staff to coordinate planning efforts, while balancing a variety of environmental concerns.

West Vancouver Freight Access Project - Port of Vancouver, Vancouver, Washington

Permit Manager and Wetland Ecologist. Brent managed the aquatic resource permitting work for a rail freight improvement project that included numerous complexities. The project included assessing impacts to the Columbia River, two existing mitigation sites, and other wetlands that were jurisdictional to the State of Washington, but not the United States. The project permitting required developing an extensive alternatives analysis report that considered separate rail alignment alternatives. Each alternative included a differing set of mitigation components, that varied by permitting agency: Corps of Engineers, Washington State Department of Ecology, Washington Fish and Wildlife Department, and National Marine Fisheries Service.

Westfields Expansion Project - TransAlta Centralia Mining, LLC, Lewis County, Washington

Project Manager and Wetland Ecologist. Brent managed wetland delineations for an over 7,000 acre site located adjacent to the TransAlta Centralia Mine. All wetlands were delineated, rated for avoidance prioritization, and assessed for functions. Wetlands and other waters were delineated in remote areas, under all weather conditions, and under a variety of land uses (residential, timber production, agricultural, and transportation). To rate the wetlands, all hydrogeomorphic wetland type boundaries were also mapped (depressional areas, riverine areas, etc) using GPS. Fieldwork occurred over nine months, which required rotating crew members, creating challenges in maintaining data consistency, data management, and general logistics. Brent recognized the importance of data management and prioritized establishing roles for key project staff to assure data collection was managed effectively.

Mitigation Expert Review Panels - City of Portland, Portland, Oregon

Expert Reviewer. Brent was asked to review and provide comments on two compensatory mitigation policy planning efforts: North Reach Mitigation Bank and West Hayden Island Natural Resource Mitigation. For the North Reach Mitigation Bank project, Brent attended a



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Brent Haddaway, PWS
Principal | Senior Wetland Ecologist

public planning meeting and convened with regional discipline experts to review and provide comments on the City's proposed mitigation crediting system for future Portland Harbor development impacts. The review process included providing formal written comments, participating in expert review meetings, and subsequent email exchanges with the city project manager. Brent was also solicited to assist in the development of the mitigation framework that was adopted by the City for the West Hayden Island annexation process. Brent worked with City staff to identify appropriate mitigation ratios considering temporal loss and off-site mitigation, mitigation typing definitions, and the benefits of expansive contiguous habitat in an urban environment. Brent provided citations for City staff, provided direction for forming policy, and reviewed the written policy. He was also asked by the City to review and provide formal comments to proposals presented by the Port of Portland, which differed in approach.