



## Wetland Program Capacity Building Workshop Presentation Abstracts

### PLENARY. TUESDAY, SEPTEMBER 22, 2010

**TITLE:** Welcome.

**PRESENTER:** Mark Bostrom, MT DEQ Water Quality Planning Bureau Chief.

**ABSTRACT:** Mark Bostrom will welcome conference participants and provide his perspective on how wetlands can be integrated into broader water quality management challenges.

**TITLE:** Workshop Goals, Burning Questions & Wetland Program Building in Montana.

**PRESENTER:** Lynda Saul, Montana Wetland Program Coordinator, MT Department of Environmental Quality.

**ABSTRACT:** Lynda will set the stage for the Workshop goal - to build wetland program capacity among EPA Region 8 States and Tribes (ND, SD, MT, WY, CO, UT) to protect and restore wetlands and riparian areas and help meet the national goal of no net loss and net gain in function and acreage. The Workshop will focus on integrating EPA's 4 Core Elements of a State/Tribal Wetland Program through:

- using strategic planning, program coordination, and collaborative partnerships to build wetland programs
- wetland and watershed restoration plans
- monitoring and assessment for decision making, and
- water quality standards for wetlands and other wetland regulations/ordinances.

Lynda will highlight "burning questions" that Workshop participants would like addressed during the Workshop and encourage participants to ask additional burning questions. These will be posed to plenary speakers and addressed throughout the Workshop and in facilitated discussions ending each topic session. Finally, she will describe the Montana Wetland Program as a case study in program building and highlight some of the challenges. Major elements of the Montana Wetland Program include: the State's Conservation Strategy and the process to develop and adopt it; the Montana Wetland Council as a networking forum; the Wetland Legacy Partnership focusing on restoration; the Wetland and Riparian Mapping Center and monitoring and assessment at the Montana Natural Heritage Program; coordinating EPA Wetland Program Development Grants to help implement the State's Conservation Strategy; the biannual Wetland ward Ceremony at the State Capitol; extensive education, outreach and training focus for local decision makers, natural resource professionals, and other targeted audiences; and other aspects of Montana's non-regulatory Wetland Program.

**TITLE:** National Perspective on Wetland Issues.

**PRESENTER:** Dave Evans, Director of Wetlands Division, US EPA Headquarters.

**ABSTRACT:** David Evans will provide recent news and updates from Washington DC-US EPA Headquarters concerning national wetland policy issues. This plenary will focus on EPA's role in enhancing State and Tribal wetland programs, specifically the technical and financial assistance for program development under the EPA's Enhancing State and Tribal Programs (ESTP) Initiative. The goal of the ESTP Initiative is to enhance EPA's delivery of technical and financial support for state and tribal wetlands programs, with the overall objective of accelerating program development on a national scale. Key components that will be discussed are how EPA can increase dialogue between EPA and states/tribes on wetland program development, provide support for implementation of program building goals and activities found in the Core Elements Framework and provide useful, targeted technical assistance to states and tribes.

This plenary will cover current policy issues under each of the core elements. The core elements are basic program functions that form the foundation of wetlands management and protection in a state or tribe. EPA will provide an overview on the importance of Monitoring and Assessment; Regulatory activities including 401 certification; Voluntary Restoration and Protection; and Water Quality Standards for Wetlands. Discussion will also include how the core elements fit together to provide a comprehensive state/tribal wetland program.

**TITLE: Collaboration with State and Tribal Wetland Programs.**

**PRESENTER: Karen Reed, Supervisory Environmental Scientist, US EPA Region 8.**

**TITLE: Corps' Regulatory Program: Challenges, Hot Topics, and Partnership Opportunities~**

**PRESENTER: Meg Gaffney-Smith, Regulatory Branch Chief, US ACE Regulatory Headquarters.**

**ABSTRACT:** As we enter a new decade, the Corps' Regulatory Program is facing multiple challenges associated with evolving national policy, case law, and wetland and stream sciences. Margaret Gaffney-Smith, Chief of the Regulatory Community of Practice, will address several challenges and hot topics that the Regulatory Program is currently working on and how collaboration among State and Tribal partners can ease these challenges. One topic at the heart of the Regulatory Program is Clean Water Act (CWA) jurisdiction. Current practices in determining CWA jurisdiction after the Rapanos Supreme Court decision will be discussed as well as potential efforts in legislation and guidance to clarify jurisdiction. The Nationwide Permit program will be addressed including the schedule for re-authorization of the Nationwide Permits by March 2012, and improving upon consultation with Tribes for Nationwide Permit verifications. Two years after its promulgation, the Corps' mitigation rule still presents some challenges. Current practices among Corps Districts in implementation of the mitigation rule will be discussed, as well as the collaborative effort to get existing in-lieu fee programs into compliance with this rule. In relation to the 2008 mitigation rule, the Corps' Omaha District released the Montana Stream Mitigation Procedure in May 2010, which will also be discussed along with current regulatory issues associated with stream assessment and stream mitigation. Other topics to be covered include State, Tribal, and Federal collaboration on more effective enforcement and compliance of the CWA and regulatory challenges associated with the review of alternative energy projects, including hydropower, wind farms, and solar panels.

**TITLE: [Sharing Experiences and Insights from Wetland Programs Across the Nation: Resources for State and Tribal Wetlands Programs.](#)**

**PRESENTER: Jeanne Christie, Executive Director of the Association of State Wetland Managers, Inc.**

**ABSTRACT:** Every state or tribal wetland program is unique because people and places are unique. This is because the United States is a land of diversity including ecological diversity. It is the most ecologically diverse country in the world. This diversity encompasses arctic and tropical climates as well as deserts and rainforests. Wetland programs develop and evolve in response to state and tribal priorities. They reflect the values and concerns of the people who live there. They are also shaped by local landscapes.

State and tribal wetland programs also share many common issues. Developing restoration priorities, identifying appropriate monitoring strategies and establishing legally defensible programs are common concerns. There are many more. In this presentation Jeanne Christie will discuss innovations and trends in restoration, monitoring, regulatory, and water quality standard programs. Examples of actions underway in a variety of states will be presented. She will identify opportunities for coordination and collaboration with other states and tribes as well as federal agencies, nonprofits, and local government.

#### **SESSION 1: WETLAND AND WATERSHED RESTORATION PLANS. TUESDAY, SEPTEMBER 22, 2010.**

**TITLE: [Demonstrating Use of the Watershed Approach for Wetland Compensatory Mitigation in Colorado.](#)**

**PRESENTER: Dick Clark, Wetland Coordinator, Environmental Protection Agency Region 8.**

**ABSTRACT:** The Colorado Front Range Wetland and Watersheds Mitigation Project is a demonstration and training activity. Its objective is to integrate use of the watershed approach into decisions about the optimum placement, type and amount of compensatory mitigation needed to offset federally authorized wetland impacts. The project team also is working to demonstrate how the approach is used to guide mitigation project design, and performance evaluation. The team is comprised of staff from the Corps of Engineers, Omaha District, EP's Denver Region 8 Office, the Colorado Department of Transportation, the Colorado Natural Heritage Program and Colorado State University. The impetus for the project was the 2008 promulgation of the Federal Compensatory Mitigation Rule. The team saw the need to develop

a way of applying the Rule in a systematic manner to routine Clean Water Act Section 404 permit actions.

The Project is organized around the production of five training notes.

- (1) Screening of potential compensatory mitigation areas
- (2) Impact site assessment for establishing mitigation requirements
- (3) Evaluation of site ecological suitability for compensatory mitigation
- (4) The crediting and debiting of mitigation activity
- (5) Use of performance standards for mitigation compliance and evaluation

My brief talk will be looking on training note (1) Screening of potential compensatory mitigation areas.

**TITLE:** [The Galisteo Watershed Wetlands Action Plan: Strategic Partnerships and the Watershed Approach.](#)

**PRESENTER:** Maryann McGraw, Wetland Program Coordinator, New Mexico Environment Department.

**ABSTRACT:** In 2003, the New Mexico Environment Department Surface Water Quality Bureau (SWQB) Wetlands Program began development of a wetland restoration program (Wetlands Action Plan Program), as part of a larger mission to improve and protect the state's watersheds/water quality. Through the CW Section 319(h) Program, SWQB provides funding for the organization of watershed groups (federal, state and local agencies, NGO's and the public including private landowners formed to manage public watersheds) and a planning process (Watershed Implementation Plans) to reduce TMDL pollutants in their watersheds.

The SWQB Wetlands Program provides incentives and support to these watershed groups to develop Wetland Action Plans as an addendum to their watershed plans that delineate goals for protection and restoration of wetlands, riparian areas and buffers within these same watersheds.

As a demonstration, a Wetlands Action Plan for the Galisteo Watershed, in central New Mexico, was developed. The Galisteo Watershed Wetlands Action Plan is a watershed approach to wetlands protection and restoration. Strategic partnerships lie at the heart of the strategy in the Galisteo Watershed. Developing this plan included incorporating wetland issues of the Galisteo Watershed Partnership (GWP) and the 2005 Galisteo Watershed Restoration Action Strategy, establishment of a wetlands steering committee for the watershed as part of the GWP, and reviewing and incorporating other community planning initiatives for areas in the watershed that were identified as having wetlands potential. The plan also identifies potential wetland restoration projects, a list of priorities and timeline for implementation.

We targeted community planning initiatives as the strategic partnerships to help make wetlands restoration and protection part of all planning initiatives in the watershed. These initiatives include Santa Fe County's current planning initiatives for the area, New Mexico Wildways initiative, Commonweal Conservancy's Galisteo Basin Preserve, efforts related to tamarisk and other non-native invasive species management, and inclusion in the US Fish and Wildlife Partners for Fish and Wildlife Upper Rio Grande priority area among others. The Wetlands Action Plan coordinates wetland restoration with these planning initiatives to establish a longterm, watershed-wide wetlands restoration and protection program.

**TITLE:** [Learning to Waltz Between Wetlands and Watersheds: Developing a Multi-Scaled Approach to Wetland Regulation under the New Federal Mitigation Rule.](#)

**PRESENTER:** Brad Johnson, Research Scientist, Department of Biology, Colorado State University.

**ABSTRACT:** Among its significant new requirements, the joint-agency mitigation rule issued in March 2008 requires that wetland mitigation be placed in the watershed context. While signifying a major conceptual leap forward toward improving the effectiveness of compensatory mitigation, the rule provides no guidance as to how a watershed approach (WA) to mitigation might be undertaken or what might be entailed in its application. Although representing a major impediment to its immediate implementation, the lack of guidance engenders the rule with the requisite flexibility to contend with the wide variation in social, political and ecological settings found across the country.

Spatial data form the cornerstone of any large-scale approach to wetland management and regulation. Overall, compared to many other states, especially eastern ones, Colorado's wetland data resources are limited and often scattered among a number of agencies and entities. For instance, digital National Wetlands Inventory maps are available for less than 10% of the state and much of the state lacks mapping all together. Occasionally, however, the characteristic

lack of information is interrupted by a pocket of well developed spatial data. Thus, in some respects the distribution of wetlands spatial data in Colorado parallels that of the country as a whole.

**TITLE:** [Establishing the Legacy Nature Preserve through Collaborative Planning and Adaptive Management.](#)

**PRESENTER:** Eric McCulley, Environmental Scientist, SWCA Environmental Consultants.

**ABSTRACT:** The Utah Department of Transportation established an interagency-stakeholder “Collaborative Design Team” to develop an adaptive management plan for the proposed 2,225-acre Legacy Nature Preserve. The adaptive management plan is structured around habitat goals that focus on suitable habitat conditions for a diversity of nesting and migratory shorebirds and other water-associated birds. These goals consider vegetation structure, species composition and hydrology. The plan provides different management options to manipulate vegetation and actively manage hydrology. Many wetlands and uplands in the Preserve had been degraded and channelization cutoff hydrology to an historic river delta. To restore wetlands, an adaptive approach to water management was developed to optimize wetland quality through mimicking natural cycles of flooding and drawdown in shallow playas and grassland ponds within the historical river floodplain. To optimize habitat quality for bird use, water timing and amount has been controlled to provide a late summer drawdown, which in turn draws salts to the soil surface and keeps playa substrates at the proper salinity for desired macroinvertebrate productivity. Through implementing vegetation management strategies and then adapting them based on monitoring results, large areas once dominated by invasive species have been converted to desirable habitats. Increase in avian abundance and productivity correlate to effective vegetation and water management.

Truly implementing adaptive management is unique to both wetland mitigation and habitat management in this region. Natural systems are inherently complex and dynamic. A well-planned adaptive approach to restoration and habitat management can grapple with altered environmental states and system dynamics. This approach can be widely used in restoring lost functions of wetland and floodplain areas in the Great Basin and other arid environments. Mimicking natural hydrologic cycling through adaptive management should be the basis of design of river and wetland restoration projects wherever they are planned.

**TITLE:** [Wyoming Wetlands Conservation Strategy: Version 1.0.](#)

**PRESENTER:** Stephen A. Tessmann, Wyoming Joint Ventures Steering Committee, Wyoming Game & Fish Department.

**ABSTRACT:** Wyoming continues to be a predominantly rural state with vast tracts of relatively intact natural systems and world-class populations of endemic wildlife. The rapid growth of energy production, exurban development, and other anthropogenic changes to the landscape are placing these resources at increasing risk. The integrity of Wyoming’s wetlands and riparian corridors is also affected~ lthough Wyoming contains proportionately less wetland and riparian area compared to many other states, approximately 90% of Wyoming’s wildlife species use wetlands and riparian habitats daily or seasonally, and 70% of our bird species are considered wetland or riparian obligates~ Wyoming’s wetlands and riparian corridors fulfill many other important functions such as attenuating floods, stabilizing stream banks and shorelines, and maintaining water quality and base stream flows.

Historically, efforts to conserve wetlands and riparian habitats have been piecemeal, lacking extensive coordination, and this detracted from our ability to fully realize the project potential that can be supported by available funding. For example, through 2010 the North American Wetlands Conservation Act (NAWCA) disbursed \$1.05 billion in grants to the states to fund wetlands conservation projects, yet Wyoming ranks last or nearly last in NAWCA funding received to date. Other potential funding such as the Wetlands Reserve Program is also underutilized in Wyoming. Conservation and protection work is being done independently by several agencies and organizations including the U~S~ Fish and Wildlife Service’s Partner’s for Fish and Wildlife Program, the Natural Resource Conservation Service, Duck Unlimited, The Nature Conservancy, U.S. Army Corps of Engineers, and the Wyoming Game and Fish Department and Department of Environmental Quality. All of these entities are to be given credit for what they have accomplished. However we envisioned the opportunity to greatly improve the effectiveness of our conservation delivery effort through a more cohesive approach including formation of partnerships and agreement on statewide and regional conservation goals and objectives. This was the impetus for creating the Wyoming Joint Ventures Steering Committee and drafting the

Wyoming Wetlands Conservation Strategy.

**TITLE:** [Documenting Colorado's Wetland Biodiversity.](#)

**PRESENTER:** Denise Culver, Ecologist/Botanist, Colorado Natural Heritage Program.

**ABSTRACT:** Since 1995, the Colorado Natural Heritage Program (CNHP), a research unit at Colorado State University, has been documenting high quality wetlands on a county or watershed basis. Working with EPA, Great Outdoors Colorado, county governments, federal and state agencies, CNHP has provided land managers, researchers, and local decision makers with biological data to identify, characterize, and manage the wetland resource. By prioritizing wetland protection and restoration efforts, this information helps Colorado fulfill the main objective of the Clean Water Act of restoring and maintaining the chemical, physical, biological integrity of Nations waters. Specifically, the county/watershed surveys systematically identify rare and threatened wetland dependent species and plant communities as conservation targets and communicate the overall biodiversity significance of wetlands to our partners. To date, wetland surveys have been conducted in 32 counties, resulting in over 600 potential conservation areas (PCAs) designated for wetland resources. Over the years, several wetland PCAs have been purchased by land trusts, placed under conservation easement, or protected by state and federal land managers.

In April 2010, CNHP embarked on developing and compiling the Colorado Wetland Plant Field Guide. The Field Guide will identify over 500 common and rare/endorsed wetland plants as well as provide an overview of wetland ecology and wetland-dependent wildlife species. The Field Guide will contain photos, illustrations of diagnostic characters, Coefficient of Conservation, Wetland Indicator Status Global Rarity Ranks, range maps, and descriptions to help both the wetland scientist and lay person. Additionally a Colorado wetland website will be developed that will contain links to documents such as the Field Guide, wetland and riparian ecological system descriptions, and a wetland condition assessment database that will incorporate previously developed CNHP wetland condition assessment tools, Floristic Quality Assessment Indices, Vegetation Index of Biotic Integrity Models, and the Ecological Integrity Assessment methodology.

## **SESSION 2: MONITORING AND ASSESSMENT FOR DECISION MAKING. WEDNESDAY, SEPTEMBER 23.**

**TITLE:** EPA [Monitoring and Assessment Program; 2011 National Wetland Condition Assessment](#)

**PRESENTER:** Jill Minter, Wetland Scientist, USEPA Region 8

**ABSTRACT:** Jill will address EPA's role in working with states and tribes on wetland monitoring and assessment. She will discuss the 2011 NWCA and its implications for states and tribes.

**TITLE:** [Creating Digital Wetland Maps/GIS Tools in Wetland Programs.](#)

**PRESENTERS:** Meghan Burns, Landscape Ecologist and Linda Vance, Senior Ecologist/Spatial Analysis Lab Director, University of Montana-Montana Natural Heritage Program.

**ABSTRACT:** The Montana Natural Heritage Program (MTNHP) has taken on creation of a statewide NWI map layer to provide information on the type, location, and extent of wetlands. Since 2006, we have mapped over 1,000,000 acres of wetlands and riparian areas. This GIS layer is the first step in the wetland monitoring and assessment process. We use these digital maps and other spatial data sources to develop landscape-level assessments and profiles. For example, we conducted a GIS-based analysis of geographically isolated wetlands and intermittent and ephemeral streams, and built a statewide landscape integrity model to summarize wetland impacts across broad landscapes. As part of our statewide rotating basin assessment program, we use GIS for Level I analysis. Here we will provide an overview of our mapping program, and discuss the use and limitations of GIS in wetland programs.

**TITLE:** [A Geospatial Assessment on the Distribution, Condition, and Vulnerability of Wyoming's Wetlands](#)

**PRESENTER:** Holly Copeland, Spatial Ecologist, The Nature Conservancy.

**ABSTRACT:** We conducted a landscape-scale geospatial assessment of wetlands in Wyoming by identifying and mapping 'wetland complexes' and quantifying the relative importance of complexes in terms of biodiversity, recreational

potential and agricultural influence, current condition and vulnerability to future environmental changes (see Copeland et al. 2010). Our results indicate there are 280,591 wetlands in Wyoming, totaling 371,758 surface hectares. In all, we identified 222 wetland complexes. The majority (67%) of wetlands are classified as temporary. Low elevation wetland complexes are the least protected, in the poorest ecological condition, and the most vulnerable to future land use changes. Agricultural irrigation has influenced the hydrology of many wetlands in Wyoming, including more than 50% of the wetland area in four different complexes. Working with a multi-agency partnership, we identified 9 of the 222 wetland complexes as statewide priorities. This assessment provides a tool decision-makers can use to more effectively allocate limited resources to conserve, manage, and restore Wyoming's wetlands~ Our findings will assist efforts by other agencies and organizations to protect and restore wetlands and wetland-dependent wildlife. Finally, the results will be incorporated into Wyoming's 2010 update of the State Wildlife Action Plan. Ultimately, the analysis will help guide actions to abate non-point source pollution and accomplish wetland conservation. Our analysis provides a consistent, defensible methodology to understand the distribution and protection of wetlands across Wyoming and to obtain information necessary to build effective strategies for conservation of wetlands.

**TITLE:** [Wetland Assessment in the Prairie Pothole Region using Three Tiered Assessment Methods and a Probabilistic Design.](#)

**PRESENTER:** Christina L.M. Hargiss, Research Specialist/Instructor, North Dakota State University.

**ABSTRACT:** We assessed wetland condition based on plant community integrity in a designated area of the Missouri Coteau in central North Dakota using a probabilistic sampling design. Four sampling models were applied to wetlands in the study area: 1) Level 1 - geographic information system-based Landscape Wetland Condition Analysis Model (LWCAM); 2) Level 2 - North Dakota Rapid Assessment Method (NDRAM); 3) Level 3 - vegetative-based Index of Plant Community Integrity (IPCI); and 4) the Hydrogeomorphic (HGM) model. Results from the IPCI and HGM were compared to those found using the IPCI, NDRAM, HGM, and LWCAM Models. The methods differed in precision for ranking wetlands due to condition and disturbance/stressor intensity. All models tested were valuable for indicating wetland condition and/or disturbance/stress levels, but in different capacities. A combination of all models is best to indicate overall condition and possible stressors at a site. Sample size adequacy was determined for each of the models for use in determining condition in areas of the Prairie Pothole Region that have not been tested, as well as for returning to the designated area of the Missouri Coteau to determine change in condition and trends in land use. Results of this study can be used as a model for determining need specific, financial, and time appropriate wetland sampling methods in other areas of the Prairie Pothole Region.

**TITLE:** [Development of a Statewide Wetland Reference Network for Montana.](#)

**PRESENTER:** Karen Newlon, Ecologist/Project Manager, University of Montana-Montana Natural Heritage Program.

**ABSTRACT:** The creation of a statewide wetland reference network is a critical part of a comprehensive wetland assessment and monitoring program in Montana. The Montana Natural Heritage Program has established a statewide wetland reference network representing least disturbed examples of Montana's herbaceous wetland systems. Defining least disturbed condition for wetland systems across the state helps identify appropriate expectations or targets for management actions that affect wetland condition, such as restoration and mitigation projects. Examples of wetlands in least disturbed condition also promote a broader understanding of our wetland resources by providing managers and watershed groups with accessible guidelines for evaluating and characterizing wetland systems. Additionally, the reference network allows for the establishment of baseline wetland condition to track changes over time~ We will discuss the development of Montana's reference network as well as how information from this network can be used to inform other wetland assessment and monitoring projects across the state. We will also discuss the development of our wetland assessment database that will allow wetland professionals to access statewide wetland assessment data.

**TITLE:** [Statewide Strategies for Colorado Wetlands.](#)

**PRESENTER:** Joanna Lemly, Wetland Ecologist, Colorado Natural Heritage Program.

**ABSTRACT:** The Colorado Division of Wildlife (CDOW)'s Wetland Wildlife Conservation Program is a voluntary, incentive-

based program established to protect wetlands and wetland-dependent wildlife on public and private land. Since its inception in 1997, the Wetland Program has preserved and restored >210,000 acres of wetlands and >200 miles of streams through ~\$40 million in funding. Because much of this effort has been based on local priorities and/or opportunities, CDOW identified a need to establish statewide strategies to better guide conservation efforts. *Statewide Strategies for Colorado Wetlands* is a collaborative effort by the Colorado Natural Heritage Program and CDOW that aims to determine the types, abundance, threats to, and level of protection currently provided to Colorado's wetlands and to initiate the process of assessing their condition~ The outcome will be the development of a statewide strategy for protecting and restoring wetlands in Colorado for the benefit of wetland-dependent wildlife. This presentation will discuss the background and framework of CDOW's Wetland Program and the objective of the *Statewide Wetland Strategies* project, of which there are four: 1) compile existing geospatial data for wetlands in Colorado; 2) create an interactive online mapping tool to present wetland spatial data to conservation, management and regulatory partners; 3) conduct a pilot basinwide assessment of wetland condition in the Rio Grande Headwaters river basin; and 4) draft a strategy for prioritizing wetland protection efforts by the CDOW. The project began in April 2008 and will run for three years. Digital spatial data for wetlands have been compiled and the interactive online mapping tool is in development. National Wetlands Inventory maps previously available only on paper have been digitized for two river basins. Through the Rio Grande Headwaters wetland condition assessment, ~200 wetlands were surveyed in 2008– 2010, resulting in a clearer picture of ecological condition in this basin.

**TITLE:** [A Multimetric Index for Impounded Wetlands of the Great Salt Lake, Utah.](#)

**PRESENTER:** Jodi Gardberg, Great Salt Lake Watershed Coordinator, Utah Division of Water Quality (UDWQ).

**ABSTRACT:** A Multimetric Index (MMI) was developed for the Great Salt Lake Impounded Wetlands consisting of indicators of water chemistry, submerged aquatic vegetation, surface mats, and benthic macroinvertebrates offering multiple lines of evidence that relate to the physical, chemical (water chemistry), and biological condition of the impounded wetlands. This MMI provides useful overall measures that will ultimately integrate wetland condition with their aquatic life beneficial uses. At each site, each indicator received a score and the scores of all indicators were averaged to generate a single overall score card representing the relative condition of the wetland sites. Based on the average MMI scores, 4 out of a total of 16 impounded wetland sites (25 percent) were in relatively poor condition whereas 2 sites (12.5 percent) were in average condition. The majority of the wetland sites under consideration (10 sites or 62.5 percent) are in relatively good condition as defined by the MMI metrics~ The MMI for impounded wetlands represents the first task towards UDWQ's management program of assessing the Great Salt Lake Wetlands. Program tasks to be completed in an iterative manner include: 1) Develop Monitoring and Assessment Methods for Wetland Ecosystems; 2) Adopt an Assessment (Decision) Framework; 3) Revise Existing Water Quality Standards; 4) Implement a Water Quality Management Strategy for Great Salt Lake Wetlands and; 5) Outline a Comprehensive Great Salt Lake Water Quality Management Strategy.

### **SESSION 3: WATER QUALITY STANDARDS FOR WETLANDS & OTHER REGULATIONS / ORDINANCES.** **WEDNESDAY, SEPTEMBER 23, 2010.**

**TITLE:** [Clean Water Act Section 401 Water Quality Certification.](#)

**PRESENTER:** Toney Ott, Environmental Scientist, US EPA Region 8.

**ABSTRACT:** Recently EP issued a draft handbook: "Clean Water Act Section 401 Water Quality Certification: Water Quality Protection Tool for States and Tribes"~ We will be discussing CW §401 certification authorities, the way different state and tribal programs may use certification, and how state and tribal certification programs may consider leveraging available resources to operate their certification programs.

**TITLE:** [What Does it Take to Develop an Effective §401 Water Quality Certification?](#)

**PRESENTER:** John Hranac, Water Quality Assessor and 401 Certification Lead, Colorado Department of Public Health and Environment.

**ABSTRACT:** This is a look into how Colorado reviews and issues §401 Water Quality Certifications for §404 permits and

Federal Energy Regulatory Commission licenses~ lthough Colorado doesn't have a regulatory wetlands program, wetlands are considered waters of the State and are included in segments with numeric water quality standards, primarily streams and lakes. To develop water quality certifications for federal license or permit projects, the Colorado Department of Public Health and Environment Water Quality Control Division (Division) reviews the project information, anticipates water quality impacts from the project, and compares that information against Colorado regulatory standards and requirements. If, after review, it appears that the project will have negative water quality impacts during construction or project operation, the Division will develop special conditions to mitigate these impacts.

**TITLE:** [An Effective 401 Certification Program - Without 401 Certifications.](#)

**PRESENTER:** Jeff Ryan, Water Quality Specialist, Montana Department of Environmental Quality.

**ABSTRACT:** This a brief overview of how the Montana Department of Environmental Quality (MDEQ) has developed an effective 401 Certification program for 404 permits. DEQ resources for the 401 program are very limited (a fraction of one individual's work time)~ The Montana rmy Corps of Engineers 404 Regulatory Program also has limited resources relative to many other states, although they currently have several individuals processing 404 permit applications. The lack of resources in both programs has forced them to forge an effective and efficient working relationship to better meet their common goal of resource protection in Montana. Due to the programs collaborative efforts, involving considerable up-front coordination and program communication, of the approximate 100 404 permits that are issued in Montana a year, that require a 401 certification, only a handful require a formal 401 Certification from MDEQ. The vast majority of the 401 actions in Montana are "401 waivers"~

**TITLE:** [Proposed Strategies for Developing Water Quality Standards for Montana's Wetlands.](#)

**PRESENTER:** Randy Apfelbeck, Science Specialist, Montana Department of Environmental Quality.

**ABSTRACT:** The Clean Water Act (CWA) objective is to restore and maintain the chemical, physical, and biological integrity, i~e~, ecological integrity, of the Nation's waters~ For many years following the 1972 passage of CWA, EPA, states, and tribes focused mainly on the chemical aspects of the "integrity" goal to meet the interim goal of the CWA, which is to provide water quality for the protection and propagation of fish, shellfish and wildlife, and recreation in and on the water, wherever attainable. In the early decades of the Act's implementation, efforts focused on regulating discharges from traditional "point source" facilities, such as municipal sewage plants and industrial facilities into lakes, streams and rivers, with little attention paid to nonpoint source pollution or wetlands. During the last decade, more attention has been given to physical and biological integrity and on the maintenance objective of the CWA to conserve and protect high quality waters and those intact components of watersheds, e.g., wetlands and riparian corridors, to maintain water quality. Many state and tribal water-quality programs now consider these CWA objectives when revising their water quality standards (WQS), the mandated foundation of the water quality-based pollution control program. They define the goals for a water body by designating its highest attainable uses, setting criteria that reflect the current and evolving body of scientific information to protect those uses, and establishing provisions to protect water bodies from further degradation. WQS developed specifically for wetlands help ensure that the provisions of the CWA are consistently applied to wetlands, and provide a more relevant scientific basis for applying these provisions. I will explain how states and tribes can use WQS to protect wetlands; other state and tribe approaches for developing/implementing WQS for wetlands; and the approach that Montana is considering.

**TITLE:** Tribal Aquatic and Wetland Program Protecting Resources.

**PRESENTER:** Tribal Panel – Invited: Blackfoot, Chippeawa Cree, Confederated Salish Kootenai Tribes, Ft. Peck, Northern Cheyenne, And Rocky Boys.

**ABSTRACT:** This panel discussion is designed to be an informal reporting of wetland and aquatic protection programs that are in place or are being developed on tribal lands. Panelists will share information on program design, partnerships, findings and lessons learned.

**TITLE:** [Montana Stream Mitigation Procedure and Wetland Compensatory Mitigation Ratios.](#)

**PRESENTER:** Todd Tillinger, State Program Manager, Montana Regulatory Program of the U.S. Army Corps of

### **Engineers' Omaha District.**

**ABSTRACT:** This presentation provides an overview of the methods and procedures for calculating debits and credits in accordance with the US Army Corps of Engineers (Corps) permit program in Montana~ The Corps' Omaha District Montana Regulatory Program is responsible for issuing permits under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Federal Clean Water Act. Consistent with the governing regulations, adverse impacts from the placement of dredged or fill material into waters of the United States must be avoided and minimized to the extent appropriate and practicable. Compensatory mitigation may be required. When evaluating the amount and type of compensatory mitigation required, the Corps Montana Regulatory program uses Mitigation Ratios or Functional Assessment methods for wetland impacts, and a matrix-based crediting procedure for stream impacts.

### **TITLE: [GIS Based Wetland Functional Assessment and Natural Resource Mitigation Strategies for the US Highway 50 Tier 1 Environmental Impact Statement.](#)**

**PRESENTER: Richard McEldowney, Riparian/Wetland Ecologist, PBS&J-Bozeman.**

**ABSTRACT:** Located in SE Colorado, the US Highway 50 project extends 150 miles from Pueblo to the Colorado/Kansas state line. A Tier 1 EIS is currently being prepared to identify routes and provide guidance for road improvement projects over the next 40 to 50 years. As part of this project, a GIS-based wetland functional assessment method was developed to aid in route selection. This method incorporated elements from the NCCREWS GIS model and MDT's Montana Method and was used to rate over 8,000 wetland polygons~ Three functions were evaluated, including general wildlife habitat, hydrology (e.g., flood flow attenuation and dynamic water storage), and water quality improvement for each mapped wetland/riparian resource (i.e., polygon). We assessed these functions through the use of several indicators, or predictors, such as the wetland type, adjacent land uses, proximity to streams, and presence or absence of salt cedar, among others. In addition, a draft Natural Resource Mitigation Strategies document was developed that has been preliminarily approved by the agency working group. These strategies include general mitigation strategies, ecosystem banking strategies, early mitigation strategies, and partnering opportunity strategies. They emphasize special status species and an ecosystem level approach to mitigation. Extensive collaboration with federal, state and local governments and several other organizations has taken place throughout this multi-year project and has been extremely successful. Examples of how this has worked will also be presented.

### **TITLE: [Monitoring with Purpose for Compensatory Mitigation.](#)**

**PRESENTER: Larry Urban, Wetland Mitigation Specialist, Montana Department of Transportation.**

**ABSTRACT:** The Montana Department of Transportation has developed approximately 1300 acres of wetlands since 1995 in order to provide compensatory mitigation for Section 404 wetland impacts for a variety of transportation projects. The regulatory requirements of achieving successful mitigation involve the establishment of achievable mitigation goals and objectives; the development of performance standards to track wetland advancement over the monitoring period; outline monitoring protocols for measuring the success of performance standards at mitigation sites; detailed reports documenting the results of annual monitoring; and coordination with the regulatory agencies from the initial stages of mitigation design through the final compensatory monitoring and beyond. All of the monitoring and mitigation design efforts that are currently utilized and developed by MDT are the result of a dynamic learning and adaptive management process that has evolved over the past 15 years.

## **SPECIAL TOPIC WORKSHOPS. THURSDAY, SEPTEMBER 24, 2010.**

**TITLE: Sustainable Financing Workshop for State and Tribal Wetland Programs.**

**PRESENTER: Glenn Barnes, Project Director and Finance Analyst, Environmental Finance Center, School of Government, University of NC at Chapel Hill.**

**ABSTRACT:** Many state and tribal wetlands programs today are not able to meet all of their program goals because of insufficient or inconsistent funding. This is true both for small, emerging programs and larger, well-established programs. The purpose of the sustainable finance project is to help state and tribal wetlands programs develop a stable and

appropriate funding model to better meet their goals. There are five key elements to sustainable finance:

- Know the projects you want to pay for
- Seek out all appropriate federal funding options
- Combine federal money with funds generated at the state/tribal level such as appropriations, fees or bonds
- Collaborate with other units of government such as state/tribal agencies and local governments to avoid duplicating work and to increase the chance of receiving funding
- Seek out non-governmental organizations as partners

During the trainings, we will present information on a variety of potential funding mechanisms for state and tribal wetland programs. We will also give an overview of different strategies that states and tribes are currently using to finance their wetland programs, and identify what has been working and why. Furthermore, the presenters will provide information on funding sources from federal agencies, and identify how best to access these sources. Finally, the trainings will provide pointers on how to market a wetlands program to state legislators and to stakeholders.

**TITLE: Ground Water Dependent Ecosystems: Identification, Assessment, Management and Restoration.**

**PRESENTER: Linda Vance, Senior Ecologist, Montana Natural Heritage Program.**

**ABSTRACT:** The goal of the workshop to launch a regional GDE Working Group. Anyone interested in this topic will meet informally at a location to be announced. Topics to be covered include:

- What is a groundwater-dependent ecosystem?
- What kinds of GDEs occur across Region 8?
- What is the ecological significance and function associated with GDEs?
- What are the unique ecological attributes of GDEs?
- What are the threats and challenges for managers?
- How do GDEs fit into the Clean Water Act?
- What tools are available for mapping, identification and protection of GDEs?
- What current research and management efforts are underway?

## Wetland Program Capacity Building Workshop Presenter Biographies

**Randy Apfelbeck** is an Environmental Specialist with the Montana Department of Environmental Quality – Water Quality Standards Program. Randy has a M.S. degree in Environmental Science from Oklahoma State University and a B.S. degree in water resource management from the University of Wisconsin-Stevens Point. Randy has worked for the Montana DEQ for the past 20 years with a focus on the monitoring and assessment of lakes, streams, and wetlands~ During the 1990's Randy was involved in EP's "Biological Assessment of Wetlands Work Group" (BWWG) to develop protocols for assessing the biological integrity of wetlands. He has also assisted DEQ's Wetland Program over the years with the development of wetland monitoring and assessment protocols and strategies~ Randy has been working for DEQ's Water Quality Standards Program for the past four years. He is currently working on a strategy for DEQ to develop and apply WQS to improve the protection of wetland resources and water quality in Montana.

**Glenn Barnes** joined the University of North Carolina Environmental Finance Center in 2006. Barnes teaches courses, provides direct community assistance, and carries out research on a range of topics including stormwater management, water and sewer rate-setting, wetlands, woody debris recycling, and green government. Prior to joining EFC, he worked for non-profits in New England focusing on renewable energy, biofuels, and environmental regulation. Barnes holds a BA and MPA from The University of North Carolina at Chapel Hill. The wetland sustainable finance program was developed by Glenn Barnes of the UNC Environmental Finance Center and Romell Nandi of EPA Headquarters' Wetland Program. Barnes has given twelve training sessions on Sustainable Finance Strategies for Wetlands for States and Tribes since 2008. The project is funded by the U.S. Environmental Protection Agency.

**Mark Bostrom** is Bureau Chief for the Water Quality Planning Bureau (WQPB) of the Montana Department of Environmental Quality. Prior to leading the WQPB, he was the first, full-time Quality Assurance Officer for the WQPB, developing quality systems for both the WQPB and the agency. He served as the first Chairperson on the agency's Quality Assurance Council~ Before entering state government service, Mark worked in private industry analytical laboratories in Utah as Senior Project Manager and in Colorado as Marketing Manager. Mark received his B.A. in Business Administration from Western State College.

**Meghan Burns** received a B.S. in Biology and an M.S. in Geographic Information Science from Michigan State University. Meghan worked as an Environmental Health Specialist at the Ingham County Health Department in Lansing, Michigan. Currently, Meghan is a Landscape Ecologist with the Montana Natural Heritage Program where her work centers on the creation, management, utilization, and distribution of the statewide wetlands spatial data layer. Additionally, she created a conservation geodatabase for the Ruby Valley highlighting the wetland and riparian areas. She also co-authored two publications on wetland change, between the historic 1980s imagery and the 2005 NAIP, in the Flathead and Gallatin Valleys.

**Jeanne Christie** is Executive Director of the Association of State Wetland Managers, Inc. an organization dedicated to incorporating sound science into public policy. Jeanne's work centers on providing accurate, balanced information on wetlands through a variety of formats including workshops, conferences, speeches, web pages, white papers, conference calls, the association's bi-monthly newsletter and SWM's monthly e-zine Wetland Breaking News. She works with a large number of talented and knowledgeable professionals who willingly share their time and expertise in assisting SWM's efforts to develop and distribute useful, timely information. Many of the products developed over the years have influenced the formation of wetland policies and programs at the national, state, and local level.

Prior to joining ASWM in 1999 Jeanne worked for the Wisconsin Department of Natural Resources, the U.S. Environmental Protection Agency and the U.S. Department of Agriculture on watershed, wildlife and wetland issues.

**Dick Clark** is a Wetland Scientist for the U.S. Environmental Protection Agency (EPA) Region 8 currently working in Wetlands and Tribal Unit. I previously worked at EPA Region 10 in Seattle for 12 years working on Clean Water Act (CWA) Section 404 permit overviews, 404 enforcement cases and wetland mitigation plan oversight. Before working for EPA, I worked 10 years for the Corps of Engineers on the West coast in the CWA Section 404 regulatory program doing wetland delineations and permit review. I earned my Master of Environmental Science degree from Evergreen State College in Olympia, Washington, Bachelor of Science from West Virginia University and my Associate Arts in Science from Paul Smiths College in Paula Smiths, New York.

**Holly Copeland** is a spatial ecologist for the Wyoming Chapter of The Nature Conservancy where she works on spatial analysis and modeling for statewide and regional threat assessment, energy mitigation planning, and conservation priorities assessments. She has worked recently on spatial modeling and conservation planning for the Wyoming State Wildlife Action Plan and a statewide characterization and assessment of Wyoming's wetlands. She has articles published in such journals as *PLoSOne*, *Ecological Indicators*, *Bioscience*, and *Frontiers in Ecology and the Environment*. She has a M.A. in Geography from the University of Wyoming with additional courses in GIS and statistics from Duke University and Colorado State University.

**Denise Culver** has been an ecologist/botanist with the Colorado Natural Heritage Program for 16 years. She has been working in the ecology/botany field since 1987. Prior to working for CNHP she worked for the Wyoming Natural Diversity Database and the Montana Natural Heritage Program. Additionally, she worked for the National Park Service in several parks and monuments as a resource management ranger for five years. She has a B.S. degree in Botany from University of Wyoming and a M.S. degree in Biological Sciences from Montana State University. She has been the project leader for 16 Colorado county surveys for critical biological resources, the Field Guide to the Wetland and Riparian Plant Associations, and numerous wetland plant surveys and assessments. Currently, she is the project lead for the Colorado Wetland Plant Field Guide, a comprehensive description of over 500 wetland plants, completion early 2012. She is active in a variety of activities including Colorado Native Plant Society, Master Gardener Program, Native Plant Master Program and as a dog therapy team with her white hairy mutt, Nakai.

**David Evans** Since 2005, David Evans has been the Director of the Wetlands Division of EPA's Office of Wetlands, Oceans, and Watersheds (OWOW) in Washington D.C. Prior to his work in the Wetlands Division, Dave was Acting Director of Assessment & Watershed Protection Division in OWOW. Beginning in 2002, Dave served in EPA's Office of Emergency Management (OEM) as Director of the Regulation and Policy Development Division, and its predecessor entities. In 2004, Dave received a bronze medal (the fourth in his career) for his work on the team that successfully resolved industry challenges to the Spill Prevention, Control, and Countermeasure rule. From October 1995 until December 2002, Dave served as Director of the State, Tribal, and Site Identification Center in OEM; while he was there he took a four-month assignment to act as OEM's Deputy Director during early 2001. From August 1991 through September 1995, Dave served as Director of the Program Development and Budget Staff in the Office of Program Management of OEM. Before this, Dave served as a water quality/construction grants analyst for the Office of Comptroller. Dave began his EPA career in the Office of Water, coordinating national management of municipal wastewater treatment grants. Dave's training includes a Master's Degree in Urban Planning from University of Arizona, and a Bachelor's Degree in Geography from the State University of New York.

**Meg Gaffney-Smith** is the Chief of the U.S. Army Corps of Engineers Regulatory Program. As the national program Chief, Meg is responsible for providing leadership, guidance and direction to 38 Corps districts that administer the Clean Water Act Section 404 permitting, compliance and enforcement program. In addition to working on national policy initiatives, Meg regularly interacts with members of the public and the regulated community, including states, non-governmental and environmental organizations and industry to further the Corps' Regulatory Program goals. She works with senior leaders and appointees from other Federal agencies, and is a key liaison for NGOs, stakeholders, and the public. In addition to developing regulatory policy and technical guidance, the Meg is responsible for executing the \$190M Regulatory Program budget. Prior to becoming the Headquarters Regulatory

Chief Meg was the Regulatory Chief in the Baltimore and Jacksonville Districts. She conducted policy studies at the Army Corps of Engineers Institute for Water Resources and spent several years working for an A&E firm doing environmental and permitting work. Meg has a B.A. in Biology from Wittenberg University, and M.A. degree in Environmental and Resource Policy from George Washington University. Meg has been involved in aquatic resource protection since 1992 and has worked for the Corps of Engineers for 17 years. She is married and has a 13 year old son, Jack.

**Jodi Gardberg** is the Great Salt Lake Watershed Coordinator for the Utah Department of Environmental Quality, Division of Water Quality (UDWQ). In this capacity, she coordinates UDWQ activities pertaining to the lake including staff support for the Great Salt Lake Advisory Council, beneficial use assessments of the open water and wetlands and 401 certification planning. In addition, she is a Statewide Mercury Coordinator and assists with the Statewide Mercury Workgroup, research, fish sampling and advisories.

**Dr. Christina Hargiss** is a Research Specialist and Instructor at North Dakota State University. Christina has been working with wetlands and condition assessment for the past 12 years. She is responsible for facilitating and managing various research projects dealing with wetlands in the Prairie Pothole Region.

**Tom Hinz** is coordinator of the Montana Wetlands Legacy Partnership based out of Bozeman, Montana. The Legacy is a voluntary, incentive-based partnership of federal and state agencies, tribal and local government, and private conservation organizations working to protect wetlands, riparian areas, and watershed lands in Montana. Created in May, 2000, the Legacy set a five-year goal of conserving 250,000 acres during its first five years. At the end of those five years, Legacy partners had protected over 800,000 acres of watershed lands, including 27,000 acres of wetlands, and over 1,000 miles of stream habitat. Tom is a Minnesota native with Bachelors and Master of Science degrees in fish and wildlife management from Montana State University. He has worked in the field of migratory bird and wetland conservation since 1970. Tom and his wife Candy live south of Bozeman and enjoy traveling, hiking, mountain biking, diving, and camping. Tom is currently studying ecology of the south Pacific Islands and is getting involved with nonprofit organizations working to conserve natural resources and cultural traditions in the Pacific region.

**John Hranac** is the Surface Water Assessor for the Colorado Department of Public Health and Environment, Water Quality Control Division, Environmental Data Unit in Denver, Colorado. John is a graduate of the University of Wyoming and attended the University of California at Davis. He has worked as a terrestrial biologist doing vegetation mapping and determining wildlife habitat affinity for proposed energy development across the west but primarily in Wyoming. John spent multiple years assisting EPA develop legal cases against hazardous waste generators who improperly disposed of waste, and worked as a contractor to the Department of Energy to assist with the disposal of hazardous and mixed radioactive waste prior to closing the Rocky Flats site (a nuclear bomb factory)~ Currently, John is doing water quality assessments for the state's §303(d) List of Impaired Waters and serves as the Colorado lead for §401 Water Quality Certifications. An avid bike rider, he bicycles to work nearly every day from March through October and has raced to the top of a 14,000 foot peak on bicycle. (Go John!)

**Brad Johnson** received his bachelors in botany from the University of Wisconsin-Madison. Leaving the Midwest to study mountain wetlands, Brad came out to Colorado State University where he eventually completed a

Master's, Ph~D, and Post-doc fellowship. Brad is currently a research scientist in the Dept. of Biology at CSU and runs his own consulting firm, Johnson Environmental Consulting. Most recently his research has focused on developing the functional assessment of Colorado Wetlands methodology, implementing the watershed approach to compensatory mitigation, and fen restoration.

**Joanna Lemly** is a Wetland Ecologist with the Colorado Natural Heritage Program. Her work at CNHP focuses on the inventory and assessment of wetlands throughout the state of Colorado. She has been working in the field of wetland

ecology for nearly 10 years and earned a masters degree in Ecology from Colorado State University studying fens in Yellowstone National Park.

**Eric McCulley** is a Watershed Ecologist with SWCA Environmental Consultants. His work at SWCA has involved projects for wetland restoration, creation of wetlands for wildlife habitat, wetland mitigation, constructed wetlands, stream and riparian restoration, and the coordination of land management practices across political and physical boundaries. Eric has been involved in many phases of wetland work including consulting, planning and design, preparation of construction documents, construction oversight, transplanting of native plant materials, plant installation, and monitoring. He presently manages the Legacy Nature Preserve, which is a Utah DOT mitigation site, where he is using monitoring data to help guide an adaptive management strategy.

**Richard McEldowny** is a certified professional wetland scientist and returned Peace Corps Volunteer with over 15 years of experience in riparian/wetland ecosystem in the western U.S. He has authored two wetland functional assessment methodologies (2008 Montana Method revision, Hawaii Method), developed a GIS-based functional assessment method (Lower Arkansas River, CO), and conducted a detailed field evaluation of another functional assessment method (Summit County, CO). His experience also includes wetland and stream monitoring, wetland and stream mitigation designs and plans, biological assessments, wetland/riparian buffer design & management, wetland water budgeting, streambank and aquatic stream habitat assessments, stream geomorphic evaluations, revegetation plans, alluvial groundwater studies, construction oversight, TMDL development, ESA Section 7 consultations, NEPA documentation, and Clean Water Act permitting. Rich has a B.S. in Wildlife Biology from the University of Montana and a M.S. in Rangeland Ecosystem Science from Colorado State University and has completed all four levels of the Rosgen short courses on fluvial geomorphology, stream assessment, and natural channel design. Rich is a member of the collaborative adaptive management network (CAMnet). He is employed by PBS&J in their Bozeman, MT office.

**Maryann McGraw** is the Wetlands Program Coordinator and the Wetlands and Department of Transportation Team Leader with the New Mexico Environment Department (NMED) Surface Water Quality Bureau. Maryann has managed the New Mexico Wetlands Program since 2003. Previously, Maryann worked for the New Mexico Department of Transportation (DOT) as an Environmental Specialist beginning in 1993 where she provided input for natural resources protection as a part of transportation project design, wrote NEPA documents and was in charge of developing mitigation plans and projects for wetland impacts. Presently, she serves as the NMED liaison to the DOT. Maryann is a current board member of the ASWM. She has previously taught landscape ecology and restoration classes at Santa Fe Community College including Wetlands, Riparian Restoration, Dryland Restoration, Bioremediation, and Natural History of Arid Lands. Maryann holds Bachelor's and Master's Degrees in Geology from the University of Texas at Austin, Texas. Maryann paints en plein air in pastel, concentrating on New Mexico's scenic vistas and how time and seasonal changes affect those places.

**Catherine McIntyre** is in the process of completing her M.S. in Environmental Science at the University of Montana. Prior to graduate school she worked as a wetland scientist for an environmental consulting firm in Massachusetts for four years where she was responsible for environmental permitting, wetland delineations, habitat assessments, and wetland mitigation. She joined the Montana Natural Heritage Program in 2007 and has since conducted wetland condition assessments and assisted in wetland and riparian mapping throughout Montana.

**Jill Minter**, wetland scientist for the USEPA Region 8 Wetland Program.

**Karen Newlon** has been an Ecologist with the Montana Natural Heritage Program since May 2008. She received her M.S. in Biology from Montana State University. She and other ecologists with the Heritage Program are working to refine and validate wetland assessment methodologies with the goal of developing a statewide wetland assessment and monitoring program. She has also worked towards the development of a reference wetland network for Montana and the development and refinement of GIS-based wetland assessments techniques.

**Toney Ott** has worked for USEPA for 31 years in a variety of aquatic programs, everything from enforcement and compliance to aquatic assessments. Currently she is working on the following: Montana CWA 404 permits, Montana wetland Program Development Grants; Region 8 Wetland Mitigation IRT Coordinator; CWA Jurisdictional Determination Reviews; Tribal Water Quality Programs; Fish/wildlife/plant consumption program. Toney is the Region 8 Aquatic Invasive Species point of contact.

**Karen Reed**, Supervisory Environmental Scientist for USEPA Region 8.

**Jeff Ryan** earned his degree in Environmental Science at the University of Wisconsin. He has 33 years experience as a resource professional, including: 12 years environmental consulting, ECON Inc. – wildlife baseline and aerial photography analysis; 5 years Biologist, Montana Department of Transportation – produced biological resource reports and coordinated water resource permit acquisition for the department; and 16 years Water Quality/Wetlands Specialist, Montana Department of Environmental Quality (DEQ) Former Wetland Coordinator, current - 401 water quality certification of Army Corps of Engineers 404 permits, issues 318 authorization for temporary construction activities in state waters and issues 308 authorizations for application of pesticides in state waters. In his current role with Montana DEQ, Jeff provides compliance assistance for Montana Water Quality Act violations and coordinates with Federal Clean Water Act violation efforts.

**Lynda A. Saul**, Professional Wetland Scientist, is the Montana Wetland Program Coordinator at the Department of Environmental Quality. She leads the Montana Wetland Council to increase protection of Montana's wetlands through scientific rigor, enhanced coordination, and non-regulatory approaches. Wetland Program highlights include a State Wetland and Riparian Conservation Strategy that focuses on: public education and professional training; mapping, assessment, and monitoring; voluntary restoration; assisting local governments; protecting vulnerable wetlands; and engaging in public policy. Saul currently administers 16 EPA Wetland Program Development Grants contracts to implement the state's Conservation Strategy. Recently she has focused on riparian corridors and floodplain management. She has worked on wetland protection since 1997 and on water and natural resource issues for Montana state government since 1986. Saul spent 2004 on a state-federal job exchange bringing a western perspective to the EPA Office of Wetlands, Oceans and Watersheds in Washington D.C. She has a B.S. in Geology from Tulane University and a M.S. in Forest Hydrology from the University of Montana. Saul is past Vice Chair of the National Association of State Wetland Managers and active on the Governor's Task Force for Riparian Protection~ She received the 2007 National Wetland Program Development Award for implementing a strong State Wetland Program.

**Stephen A. [Steve] Tessmann** is currently chair of the Wyoming Joint Ventures Steering Committee, a consortium of agencies and organizations doing wetlands conservation work in Wyoming. I hold a B.S. in Mathematics and Biology, from Bowling Green State University, and a M.S. in Wildlife Sciences, from South Dakota State University. I began my career with the South Dakota Water Resources Institute and Department of Water and Natural Resources in 1979-1980. Since 1981, I have worked for the Wyoming Game and Fish Department in the capacity of Environmental Biologist and Staff Biologist. My job duties are varied and unpredictable, but I have at times been allowed to dabble in waterfowl and wetlands management issues. I was a late bloomer baby boomer who didn't get hitched until the age of 40, but have been married to my wife, Kerry, for 17 years and counting. My major interests are [obviously] hunting, fishing, and outdoor activities generally, with a smattering of woodworking and gardening thrown in. I am also trying to become a nature and landscape photographer because I received a very nice digital camera and telephoto lens this past Christmas.

**Todd Tillinger** is the State Program Manager for the Montana Regulatory Program of the U.S. Army Corps of Engineers' Omaha District. He is responsible for field-level administration of the Corps regulatory responsibilities under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. Todd was hired by the Omaha District in December, 1999 as a Regulatory Project Manager. He was selected as the Montana State Program

Manager in May 2009. He began working for the US Army Corps of Engineers in 1996 with the Kansas City District Hydraulics and Hydrology Section where he specialized in Missouri River projects, flood studies, and O&M repairs to Corps facilities. He has B.S. and M.S. degrees in Civil Engineering, with emphasis on surface water hydraulics and geomorphology. Both degrees are from Montana State University in Bozeman. During his career, he has worked for the Montana Department of Transportation, Montana Fish, Wildlife and Parks, the Corps Kansas City District, and the Corps Omaha District.

**Lawrence J. Urban** is the Wetland Mitigation Specialist in the Environmental Services Bureau of the Montana Department of Transportation. Mr. Urban is a graduate of Montana State University with a Bachelor's degree in Fish and Wildlife Management. He has worked as a park naturalist, and for a variety of private engineering and environmental firms as a consultant specializing in wetland and aquatic ecological assessments for proposed developments and transportation projects in the Mid-Atlantic region. From 1987 to 1996, he worked as an Environmental Specialist for the New Jersey Department of Transportation involved in conducting biological assessments for aquatic and wetland ecosystems associated with transportation projects, NEPA document preparation, and the development of wetland mitigation and monitoring of constructed wetlands for regulatory compliance. Since 1996 has been the wetland mitigation specialist for the Montana Department of Transportation involved in the development of a comprehensive wetland mitigation and monitoring program to meet wetland mitigation needs for transportation projects throughout the state.

**Linda Vance** is the Senior Ecologist at the Montana Natural Heritage Program, and directs the MTNHP's Spatial Analysis Lab at the University of Montana. She earned her Ph.D in Conservation Ecology from the University of California, Davis. Prior to joining the MTNHP, she worked as an ecologist for the Pacific Southwest Research Station in Albany, California, studying frog, fish, and reptile interactions in the Sierras. Her work with MTNHP involves classification, description, mapping and modeling of land cover; development of GIS-based tools for landscape-level assessment; and refinement of field-based protocols for wetland, riparian, and terrestrial integrity evaluation and monitoring. Her current projects include GIS-based decision support tools; a statewide analysis of riparian condition along large rivers; and identification of potential Research Natural Areas.

**Mary Clare Weatherwax** was raised in a large family in the midwest. In 1986 she graduated from Purdue University with a Bachelor of Science in Forestry. After graduation she moved to California and worked in a wide variety of natural resource positions in California and New Mexico. In 1994 she moved to Browning, Montana and in 1995 she was hired to be the Blackfeet Tribe's Wetlands Program Manager, where she continues to work today. She enjoys living near the mountains, hiking, skiing, and walking her dogs.