

# Enhancing Wetland Classification for the FGDC Wetland Mapping Standard in Montana

## NSDI-CAP Award Category 5

Karen Newlon and Linda Vance

The University of Montana-Montana Natural Heritage Program

Kick-off Meeting

June 25, 2012



# FGDC Wetland Mapping Standard

- Provides a consistent framework for accurate mapping and classification of wetlands
- Necessary to support inventory of existing wetlands and track changes in wetlands over time
- Conformance with the Wetland Mapping Standard is required for all wetland mapping submitted to the National Wetlands Inventory (NWI)
- These data comprise the Wetlands Layer of the National Spatial Data Infrastructure (NSDI)
- The minimum required wetland classification is based upon the FGDC-endorsed standard, *Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979)\*
- The existing wetland classification standard addresses the biotic component of wetlands, such as vegetation type and water regime
- To assess wetland functionality, information on abiotic features, such as water source and landscape setting, is needed

\*Cowardin, L.M., V. Carter, F.C. Golet, E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service Report No. FWS/OBS-79-31. Washington, D.C.

# LLWW

## Landscape Position, Landform, Water Flow Path, & Waterbody Type

- Enhancing wetland data with LLWW descriptors can provide a more comprehensive picture of wetland type and potential wetland function
- Wetland data can then be used to:
  - conduct landscape-level analyses
  - assist in the development of conservation strategies
  - increase public awareness of wetland functions

# LLWW

## Landscape Position, Landform, Water Flow Path, & Waterbody Type

- These descriptors have been applied to NWI data across the eastern U.S., creating a value-added wetlands database known as NWIPlus (Tiner 2011)\*
- When put into practice in Montana, we needed to adapt the methods and materials developed for the eastern U.S. for use in wetland mapping efforts in the western U.S.

\*Tiner, R.W. 2011. Dichotomous Keys and Mapping Codes for Wetland Landscape Position, Landform, Water Flow Path, and Waterbody Type Descriptors: Version 2.0. U.S. Fish and Wildlife Service, National Wetlands Inventory Program, Northeast Region, Hadley, MA. 51 pp.

# Adapting the LLWW Approach for Montana

- The Montana Natural Heritage Program (MTNHP) has been mapping and classifying wetlands and submitting these data to the NWI since 2007
- MTNHP has been adapting LLWW attribution procedures during this time
- Initially, LLWW descriptors were added manually to each wetland polygon
- This labor intensive approach prompted the MTNHP to develop semi-automated procedures to assign descriptors through the use of geoprocessing tools in a GIS

# Project Objectives

1. Refine geoprocessing tools for semi-automation of LLWW attribution.
2. Circulate geoprocessing tools and associated methods to our project partners for input.
3. Develop training materials for both creators and users of digital wetland data.
4. Determine the accuracy of LLWW classification using field-based wetland assessment data collected in Montana.
5. Present project details at state and regional GIS or natural resource conferences.
6. Submit interim and final reports to FGDC and project partners.
7. Produce an online article or professional paper detailing the project and results of the accuracy assessment.

# Project Methods and Timeline

## ***June-September 2012***

*Refine geoprocessing tools for semi-automation of LLWW attribution.*

- Examine current tools and look for opportunities to improve efficiency of geoprocessing methods via the use of other digital data sets.

## ***October-November 2012***

*Circulate geoprocessing tools and associated methods to our project partners for input.*

- Send out current procedures to partners for review and incorporate any recommendations.

## ***December 2012-February 2013***

*Develop training materials for both creators and users of wetland data.*

- Including a flow chart, fact sheet, dichotomous keys, a glossary of terms used in the LLWW descriptors, and a PowerPoint presentation. These products will be available for download via the MTNHP website [mtnhp.org/nwi/](http://mtnhp.org/nwi/). We will also hold at least one webinar through either MTNHP or the Wetland Mapping Consortium (WMC).

## ***March-May 2013***

*Determine the accuracy of LLWW classification using field-based wetland assessment data collected in Montana.*

- Assign LLWW descriptors to digital wetland mapping in several watersheds throughout Montana and assess the accuracy of the LLWW attribution through the use of existing field-based wetland assessment data.

# Project Methods and Timeline

## ***Fall-Winter-Spring 2012-2013***

*Present project details at state or regional meetings of GIS and natural resource professionals.*

- Present background and show applicability of project at one or more professional meetings.

## ***December 2012; May 2013***

*Submit interim and final reports to FGDC and project partners.*

- These reports will be available for download from the FGDC website and the MTNHP website.

## ***June-November 2013***

*Produce online article or professional paper detailing the project.*

- An article detailing the project will be posted to the MTNHP website. If time and funding allow, we will submit a manuscript for publication to a professional journal, such as *Wetlands*.

# Project Outcomes

- Creators of digital wetland data in Montana will have the necessary tools to add LLWW descriptors to wetland data.
- Users of wetland data such as state and federal natural resource agencies, city and county planning offices, and watershed councils will have an understanding of the additional information that LLWW descriptors provide and how this information can be used to predict potential wetland function, estimate losses or gains in wetland function across a given area, and prioritize wetlands for restoration or conservation.
- Wetland data enhanced with LLWW descriptors will allow for prediction of potential wetland function and provide a valuable tool for resource managers and planners.
- The accuracy of this LLWW classification in Montana will be assessed.

# Project Deliverables

- Detailed step-by-step geoprocessing procedures for semi-automation of LLWW attribution
- Training materials including a flow chart, fact sheet, dichotomous keys, a glossary of terms used in the LLWW descriptors, and a PowerPoint presentation. These products will be available for download via the MTNHP website [mtnhp.org/nwi/](http://mtnhp.org/nwi/)
- A webinar conducted either through MTNHP or the Wetland Mapping Consortium (WMC) <http://clic.cses.vt.edu/WMC/>
- An interim and final report detailing the project
- An online article or professional paper detailing the project and the results of the accuracy assessment