

Colorado Natural Heritage Program Wetland Program Plan -- Feb 2018 Status Update and Addendum --

The Colorado Natural Heritage Program (CNHP) developed a Wetland Program Plan (WPP) in 2010 for the planning years of 2011–2015. The plan contains six *strategic directions*, each with a series of *action items*. The strategic directions and action items are described in detail in the 2011-2015 WPP. The plan was extended to cover years 2016 and 2017 through an addendum written in Dec 2015. This current addendum extends the plan another two years, 2018 and 2019. In each addendum, we provide a status update on work completed or in progress during the past planning period and highlight areas of work that we will focus on in the additional two years.

Status Update on Action Items from the 2011–15 Plan and 2016-17 Addendum

The following status update specifically focuses on work completed in 2016-17. Work completed prior to 2016 is outlined in the Dec 2015 status update and addendum. Paragraphs under each strategic direction are from the original WPP document. Notations of status include: **Complete** = A major component of the action item was completed in 2016-17; **In Progress** = Work is underway on the action item; and **Planned** = additional work is planned on the action item. Action items may have more than one status (e.g., **Complete** and **In Progress**) if a major component of the action item was completed, but additional work is now underway.

Wetland Types: Classification and Identification

CNHP is recognized state and region-wide as the leading resource on wetland classification, identification, condition analysis, and education for local and state governments, agency personnel, conservation partners, consultants and private citizens. The following action items will help wetland professionals determine the *types of wetlands* that occur in Colorado.

Progress on action items in 2016-17

- **Publish Two Pocket Guides to Common Wetland Plants of Colorado.** *Status: In Progress.* CNHP received a 2016 EPA Region 8 Wetland Program Development Grant (WPDG) to create two new pocket guides to common wetland plants of 1) the Southern Rocky Mountains and 2) Colorado's Western Slope. Work on the pocket guides is currently underway and both guides will be available in summer 2018. Through work on these pocket guides 196 new species profiles have been added to the field guide database and will be added to the Colorado Wetland App as well as the print publications.
- **Create a Mobile Application for Information on Wetland Plants and Wetland Maps:** *Status: Complete and In Progress.* The Colorado Wetlands App was developed in 2015 and has been extremely popular among wetland professionals across EPA Region 8. As a part of the 2016 WPDG for additional pocket guides, we are also updating the App to a current software platform, and adding both new species and new functionality. An update to the App will be available in spring 2018.
- **Conduct Professional Trainings on Wetland Plant Identification.** *Status: Complete and In Progress.* Plant ID trainings offered by CNHP continue to be very popular. Two trainings were held in 2016 with funding provided by the BLM. CNHP did not offer full workshops in 2017. However, as part of the Wetland Survey for Lake County, we provided wetland plant identification class for Colorado Mountain College. Looking forward,

three additional trainings are planned for 2018. Given the popularity of these training, CNHP will look for opportunities to hold additional trainings in future years.

Extent and Location: Comprehensive Digital Wetland Mapping

CNHP will work with the U.S. Fish and Wildlife Service's National Wetland Inventory (NWI) Program and numerous funding partners to create a comprehensive digital map of wetlands for the state of Colorado by 2015. CNHP will be recognized as the best source of digital wetland data and will help determine the *extent and location* of wetlands across the state.

Progress on action items in 2016-17

- **Develop an Interactive Online Wetland Mapping Tool.** *Status: Complete.* The interactive online wetland mapping tool is complete and can be accessed through the CWIC website, specifically from this link: <http://www.cnhp.colostate.edu/cwic/location/viewSpatialData.asp>. In 2016-17, we continued to improve the functionality of the mapping tool and added additional data layers, including a map of warm water sloughs along the South Platte floodplain.
- **Delineate New NWI Maps for Select Areas.** *Status: Complete and Planned.* No new NWI mapping projects were initiated in 2016-17, but we continue good communication with the NWI Program and successfully submitted data we had mapped prior to 2016. We will continue to seek funds for new mapping whenever possible.
- **Monitor Change in Wetland Area over Time.** *Status: Complete and Planned.* In 2016, we completed the assessment of change in wetland acres over time in the Lower Arkansas River Basin and will seek funds to continue this work in the future.
- ***NEW* Develop a Functional Classification System for Wetland Mapping.** *Status: In Progress.* Though not called out as a specific action item in the original WPP or the 2016-17 Addendum, CNHP invested significant time in 2017 in the development of a functional classification system that can be used in addition to the traditional NWI Cowardin classification. The functional classification system is a regionally specific application of the Landscape Position, Landform, Water Flow Path, and Waterbody Type classification developed by Ralph Tiner of the NWI Program. CNHP has partnered with other organizations in EPA Region 8 to standardize the application of LLWW in the Rocky Mountains and arid West. We are applying this classification system in the South Platte and Arkansas River Headwaters as part of the Watershed Planning Toolbox project (funded by a 2014 WPDG). The goal of the toolbox is to incorporate wetlands into watershed planning, to improve wetland restoration for watershed health, and to identify opportunities for wetland conservation and restoration.

Wetland Condition Assessment Protocols

CNHP will continue to refine wetland condition assessment protocols developed over the past 5 years and will promote their use to public and private entities conducting wetland condition assessments. These protocols follow both the EPA's Level 1-2-3 framework and Ecological Integrity Assessment (EIA) framework of the NatureServe Network.

Progress on action items in 2016-17

- **Develop a Landscape Integrity Model for Wetlands (Level 1).** *Status: Complete.* The initial Landscape Integrity Model for Wetlands was developed in 2011 and a refined model, including updated land use classification data for tilled vs. no-till agricultural land, was completed in 2017. This refined map will be integrated into the online wetland mapper in 2018.
- **Expand Intensive Field Protocols (Level 3).** *Status: Complete and Planned.* Through a 2014 WPDG grant, CNHP developed Level 3 water chemistry sampling protocols in partnership with Colorado River Watch. These

protocols were used in the assessment of Lower Arkansas River Basin wetlands, a project we completed in 2017. In the near future, we will seek funding to refine the Floristic Quality Assessment tools developed in 2006.

- **Create Data Management Tools.** *Status: In Progress.* The Wetland Condition Assessment Database (WetCAD) was developed in 2009 and has been used to analyze all wetland assessment data since. Through a 2016 WPDG, we have updated the WetCAD database to match the most current EIA protocols and are compiling all previously collected EIA data into one searchable database, the content of which will be made available online and through a companion web map of sampled sites (public lands only).
- **Long-term Monitoring of Reference Condition Wetlands.** *Status: In Progress.* As part of the past two river basin scale assessment projects (Lower South Platte and Lower Arkansas), reference condition wetlands on the plains have been identified and surveyed. These sites, along with known reference wetlands in the mountains, form the basis of a reference network. Through a 2016 WPDG, we will formalize the reference network and make detailed data from these sites available online. We will also revisit a select number of these sites during the summer of 2018.
- **Conduct Trainings on Condition Assessment Protocols.** *Status: Complete and Planned.* We provided a training on EIA methods in May 2016 for the Southern Utes Indian Tribe outside of Durango, Colorado. We will continue to seek funds for additional EIA trainings in the future.
- ***NEW* Assist Partner Agencies in Developing and Implementing Wetland Monitoring Protocols.** *Status: In Progress.* Though not called out as a specific action item in the original WPP or the 2016-17 Addendum, CNHP's experience with wetland assessment and monitoring protocols has been sought out by both the National Park Service (NPS) and the Bureau of Land Management (BLM). In 2016, CNHP began a partnership with NPS to monitor wetlands in Great Sand Dunes National Park for 5 years. In 2017, CNHP began a partnership with BLM to help develop wetland monitoring protocols for all BLM lands as part of the BLM's Assessment, Inventory and Monitoring (AIM) Program.

Probabilistic Wetland Condition Assessments

CNHP will conduct probabilistic assessments of wetland condition for all river basins at the 6-digit hydrologic unit code (HUC) level by 2020. Beyond 2020, these assessments could be repeated at 10 year intervals to monitor change over time. CNHP will also participate in national assessments of wetland condition.

Progress on action items in 2016-17

- **Conduct Basin by Basin Wetland Condition Assessments.** *Status: Complete and Planned.* In 2017, CNHP completed the Lower Arkansas River Basin Assessment, the fourth basin-wide assessment of wetlands in Colorado. It is our intention to return to basin-wide assessments, but we are focusing on larger planning efforts with state agency partners first in order to define a priority order for the remaining basins.
- **Conduct Sampling for the National Wetland Condition Assessment.** *Status: Complete and Planned.* CNHP carried out 30 sampling events in Colorado for the National Wetland Condition Assessment (NWCA) in 2016. We plan to continue participating in the NWCA in future years and will seek funds for a statewide intensification of the NWCA in 2021. CNHP also participates in the ongoing National Wetland Monitoring and Assessment Workgroup, organized by EPA's Office of Wetlands, Oceans, and Watersheds, and Joanna Lemly attended a 2017 national meeting to discuss future directions for the NWCA and larger National Aquatic Resource Surveys (NARS) program.

Wetlands with High Biodiversity Significance

CNHP will continue to be the leading organization that identifies and tracks wetlands of high biodiversity significance. This has been the core work of CNHP for over 15 years and will continue to be a major focus of our wetland plan.

Progress on action items in 2016-17

- **Conduct Surveys for Wetlands with High Biodiversity Significance.** *Status: Complete, In Progress and Planned.* In 2016, CNHP completed the county survey of Huerfano County. We are currently midway through a survey of Lake County, funded by a 2016 WPDG. In 2018, we will seek funds from multiple partners to conduct surveys of Pitkin and Jefferson Counties.
- **Conduct Surveys for Fen Wetlands.** *Status: Complete, In Progress and Planned.* In 2016, CNHP completed a fen mapping project for the Rio Grande National Forest and began a series of similar projects for National Forest lands in U.S. Forest Service (USFS) Region 4. Through the USFS Region 4 contract, we have completed three fen mapping projects (Ashley National Forest, Manti-La Sal NF, and Salmon-Challis NF) and are scheduled to carry out six more. In addition, we have nearly completed a project to map and verify all fens along the state and federal highway network for the Colorado Department of Transportation. We will continue to seek similar funding from other forests and land management agencies.
- **Participate in Conservation Planning.** *Status: In Progress.* Identifying potential conservation areas are part of every county survey and CNHP seeks every opportunity to aid in conservation planning. CNHP continues to work with the Upper Arkansas Focus Area Committee and other wetland groups in the Watershed Planning Toolbox pilot area to refine prioritization efforts for potential conservation and restoration areas.

Empowering Public and Private Partners

CNHP will coordinate and partner with federal, state, and local agencies as well as with conservation organizations and local citizens to transform the information gained through the previous strategic directions into effective conservation and management.

Progress on action items in 2016-17

- **Help CPW Plan Restoration Priorities and Evaluate Wildlife Habitat.** *Status: In Progress.* CNHP has worked closely with CPW on each of the basin-wide assessments and has tailored the data collection protocols to provide meaningful data on wetland habitat quality. One outcome of that work is a series of PDF factsheets developed by CPW and CNHP explaining the habitat requirements of CPW's priority wetland-dependent wildlife species, available here: <http://cpw.state.co.us/aboutus/Pages/WetlandsPrioritySpecies.aspx>.
- **Help Land Management Agencies Meet Objectives for Wetlands.** *Status: In Progress.* This action item represents numerous ongoing relationships that we continue to foster and develop. Of particular importance is the ongoing Watershed Planning Toolbox project, which will build an online restoration prioritization tool for all wetland resource managers. In addition, in 2017 CNHP helped design a restoration plan for the Chico Creek drainage at the Pueblo Chemical Depot to address tamarisk and Canada thistle dominated areas and to enhance wildlife habitat along the drainage. For this project, CNHP worked collaboratively with a restoration ecologist to describe current conditions and design a plan to address noxious weeds and protect healthy perennial wetlands located along the creek.
- **Provide Data to Conservation Partners.** *Status: In Progress.* This action item represents numerous ongoing relationships that we continue to foster and develop.
- **Develop a Comprehensive, Multi-agency Wetland Program Plan for Colorado.** *Status: In Progress.* The current CNHP-authored WPP has served as an important guiding document for our work on wetlands.

However, we feel strongly that a WPP authored by many state agencies would produce a document with even greater relevance for all partners in the state. CNHP received funding through a 2016 WPDG to facilitate the development of a multi-agency WPP and has begun to organize this effort. We anticipate the plan being finished in late 2018 or early 2019.

Wetland reports produced by CNHP in 2016-17

- Culver, D. R. and P. F. Smith. 2017. Survey of Critical Wetland Resources in Huerfano, CO. Colorado Natural Heritage Program, Colorado State University, Fort Collins, Colorado.
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- Lemly, J, L. Gilligan, and C. Wiechmann. 2016. Ecological Integrity Assessment (EIA) for Colorado Wetlands Field Manual, Version 2.1. Colorado Natural Heritage Program, Colorado State University, Fort Collins, Colorado.
www.cnhp.colostate.edu/download/documents/2016/2016_Colorado_EIA_Field_Manual_Version_2.1.pdf
- Lemly, J., L. Gilligan, and C. Wiechmann. 2017. Wetlands of the Lower Arkansas River Basin: Ecological Condition and Water Quality. Colorado Natural Heritage Program, Colorado State University, Fort Collins, Colorado.
www.cnhp.colostate.edu/download/documents/2017/Lower_Ark_Random_Final_Report_FINAL.pdf
- Lemly, J, L. Long, G. Smith, and J. Sueltenfuss. 2016. National Wetland Inventory Mapping of the Arkansas Headwaters Subbasin. Colorado Natural Heritage Program, Colorado State University, Fort Collins, Colorado.
www.cnhp.colostate.edu/download/documents/2016/Arkansas_Headwaters_NWI_Mapping_Report_FINAL.pdf
- Smith, G. J. Lemly, P. Smith, and B. Kuhn. 2016. Fen Mapping for the Rio Grande National Forest. Colorado Natural Heritage Program, Colorado State University, Fort Collins, Colorado.
www.cnhp.colostate.edu/download/documents/2016/Fen_Mapping_for_the_RGNF_FINAL.pdf
- Smith, G. and J. Lemly. 2017. Fen Mapping for the Manti-La Sal National Forest. Colorado Natural Heritage Program, Colorado State University, Fort Collins, Colorado.
www.cnhp.colostate.edu/download/documents/2017/Fen_Mapping_for_the_MantiLaSal_NF_FINAL.pdf
- Smith, G. and J. Lemly. 2017. Fen Mapping for the Ashley National Forest. Colorado Natural Heritage Program, Colorado State University, Fort Collins, Colorado.
www.cnhp.colostate.edu/download/documents/2017/Fen_Mapping_for_the_AshleyNF_FINAL.pdf
- Smith, P., J. Giordanengo, T. Gillespie and B. Michels. 2018. Conceptual Design for Habitat Restoration and Weed Management, Pueblo Chemical Depot at Chico Creek. Colorado Natural Heritage Program, Colorado State University, Fort Collins, Colorado.

Addendum to the Colorado WPP for Planning Years 2018–19

This Addendum serves to extend the current Colorado WPP for two additional years and highlights goals that we will specifically address in those years. Specific action items from the existing WPP are called out here, as they represent items of focus in 2018–19.

Wetland Types: Classification and Identification

- **Publish Two Pocket Guides to Common Wetland Plants of Colorado.** In 2018, we will complete two new pocket guides to common wetland plants of 1) the Southern Rocky Mountains and 2) Colorado's Western Slope.
- **Create a Mobile Application for Information on Wetland Plants and Wetland Maps.** In association with the pocket guides, we will release an update to the Colorado Mobile App in 2018.
- **Conduct Professional Trainings on Wetland Plant Identification.** Three wetland plant ID trainings are planned for 2018. We will seek funding to hold additional wetland plant identification trainings in 2019.
- **Develop Key and Descriptions for Wetland Ecological Systems.** CNHP is currently expanding our work with Ecological Systems and is working to link all element occurrence records (EORs) for natural plant communities in our BIOTICS database to Ecological Systems. This will provide additional information on the geographic range of each Ecological System and will allow us to incorporate vegetation data from EORs into our existing Ecological System descriptions.
- **Revise and Reprint the Field Guide to the Wetland and Riparian Plant Associations of Colorado.** In conjunction with our work on Ecological Systems, we will seek funding in 2018 to revise and update the *Field Guide to Wetland and Riparian Plant Associations of Colorado* using field data collected in the past 20 year. We will also seek funds to host a workshop on using Ecological Systems and plant associations in wetland conservation and management.
- **Update the Colorado Wetland Website.** The original Colorado Wetland Information Center (CWIC) website was developed in 2011 and has been a useful clearinghouse of information on wetlands. With changing conventions for website design and additional focal areas of CNHP's wetland work, the CWIC website is due for a redesign. We will be updating the design and content of CWIC in 2018, including new pages for wetland restoration, conservation, regulations, best management practices, and technical and funding resources for working in wetlands.

Extent and Location: Comprehensive Digital Wetland Mapping

- **Delineate New NWI Maps for Select Areas.** We will continue to seek funds for new NWI mapping whenever possible.
- **Develop a Functional Classification System for Wetland Mapping.** We will complete our functional classification system for wetland mapping and will seek funding from various partners to apply it to new project areas across the state.

Wetland Condition Assessment Protocols

- **Expand Intensive Field Protocols (Level 3).** We will seek funding in 2018 to revise the Floristic Quality Assessment tools for Colorado, using data collected in wetlands over the past 10+ years. This will involve analyzing the distribution of species across disturbance gradients and comparing those distributions to

currently assigned C-values. We will recruit a panel of botanical experts to review C-values for species that regularly occur outside the expected disturbance regimes based on their current C-values (i.e., species with high C-values that regularly occur in disturbed sites or vice versa), as the values of these species may need to be reassigned. The panel will also consider the few hundred taxa that were not assigned C-values in the original 2006 development of the FQA tool.

- **Create Data Management Tools.** We will continue work on our master WetCAD database, which now holds all previously collected EIA data, and the online searchable database of wetlands data.
- **Long-term Monitoring of Reference Condition Wetlands.** In 2018, we will formalize the reference network and make detailed data from these sites available online. We will also revisit a select number of these sites.
- ***NEW* Assist Partner Agencies in Developing and Implementing Wetland Monitoring Protocols.** We will continue our partnerships with both NPS and BLM to develop and implement wetland monitoring initiatives.

Probabilistic Wetland Condition Assessments

- **Conduct Basin by Basin Wetland Condition Assessments.** We will seek input from state agency partners before beginning another basin-wide assessment of wetland condition.
- **Conduct Sampling for the National Wetland Condition Assessment.** In 2020, we will seek funds for a statewide intensification of the NWCA in 2021.

Wetlands with High Biodiversity Significance

- **Conduct Surveys for Wetlands with High Biodiversity Significance.** In 2018, we will seek funds from multiple partners to conduct surveys of Pitkin and Jefferson Counties.
- **Conduct Surveys for Fen Wetlands.** We will continue our efforts to map fens on National Forest Lands and will seek funds to continue and expand fen mapping projects.
- **Participate in Conservation Planning.** Identifying potential conservation areas is part of every county survey and CNHP seeks every opportunity to aid in conservation planning.

Empowering Public and Private Partners

- **Help CPW Plan Restoration Priorities and Evaluate Wildlife Habitat.** We will continue to refine tools for evaluating wetland habitat quality. We will also finalize the assessment of habitat quality in the Lower Arkansas River Basin, which includes creating spatial models of habitat suitability for priority wildlife species. We will also create additional priority species factsheets to add to those already developed.
- **Help Land Management Agencies Meet Objectives for Wetlands.** This action item represents numerous ongoing relationships that we continue to foster and develop, including a current project to build an online restoration prioritization tool for all wetland resource managers.
- **Develop a Comprehensive, Multi-agency Wetland Program Plan for Colorado.** We will continue our effort to develop and multi-agency Wetland Program Plan and will produce a new plan for the State in 2018 or 2019.