

SECTION 6

Plant Communities of Greatest Conservation Need



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PLANT COMMUNITIES IN MONTANA

Numerous, widespread plant communities characterize the terrestrial, riparian, and aquatic systems within the Rocky Mountain and Great Plains regions of Montana. Prominent examples of major plant communities include coniferous forest, temperate grassland, riparian forest, sagebrush steppe, alpine, and freshwater marsh. Each major plant community is composed of smaller, interconnected vegetation types, that go by many names. At the international, national, regional, and state scales, many different approaches have been used to define and classify these plant communities and vegetation types. Various approaches emphasize different criteria relative to the vegetation, such as plant species composition, dominant plant species, structure, geology, soils, climate pattern, topography, disturbance,

landform, and site history. Many national, regional, and state level classification systems have been used in Montana to describe, classify, categorize, and/or map our state's vegetation (Box 6-1). Montana's Tribes also have ways of knowing the plant communities on their ancestral lands and the reservation lands they manage (Box 6-1).

Although prominent in Montana, some plant communities are of concern to land managers across the state because of natural or anthropogenic stressors and/or a lack of protection or regulation. Indigenous tribal members have also expressed great concern for some of their important floral and physical places, which face the same natural or anthropogenic stressors and/or a lack of protection or regulation. In the process of

Box 6-1. Pertinent ecological, soil, and vegetation classification systems and knowledge used in Montana to define, classify, and map plant communities, vegetation types, and flora places.

- Soil Surveys – USDA, Natural Resources Conservation Service: <https://websoilsurvey.nrcs.usda.gov/app/>
- Forest Habitat Types of Western Montana - Pfister et al. 1977
- Classification of Wetlands and Deepwater Habitats of the United States - Cowardin et al. 1979
- Wetland and Riparian Mapping of Montana: <https://mtnhp.org/mapviewer/>
- Grassland and Shrubland Habitat Types of Western Montana - Mueggler and Stewart 1980
- Classification and Management of Montana's Riparian and Wetland Sites - Hansen et al. 1995/2012, 2022: Manual of Montana Vascular Plants—Lesica
- Ecological Site Descriptions - USDA, Natural Resources Conservation Service: <https://www.nrcs.usda.gov/getting-assistance/technical-assistance/ecological-sciences/ecological-site-descriptions>
- Ecoregions - Environmental Protection Agency: <https://www.epa.gov/eco-research/ecoregions>
- LANDFIRE – USDI-Forest Service: <https://landfire.gov/index.php>
- NatureServe's Ecological Systems of Montana: https://fieldguide.mt.gov/displayES_LCLU.aspx
- U.S. National Vegetation Classification: <https://usnvc.org/>
- Floral places, physical sites, and landscapes of cultural, spiritual, and traditional significance and importance – Indigenous Tribal Communities in Montana

developing the concept for a Montana Native Plant Conservation Strategy, members of the larger partnership representing various federal and state agencies suggested a voluntary, non-regulatory approach could aid efforts to conserve certain plant communities.

Determining Plant Communities of Greatest Conservation Need

A large partnership of biologists, ecologists, and botanists working for or retired from federal and state land management agencies, non-government organizations, and academic herbaria met in April 2019 to discuss the concept of a Montana Rare Plant Conservation Strategy¹. From the discussion came a list of commonly occurring plant communities which land managers across several organizations expressed significant concern for their persistence. This list was further refined in 2021 by the Criteria-Species-Habitat Subcommittee (Montana Native Plant Conservation Strategy-Criteria-Species-Habitat Subcommittee 2021). Criteria used to determine a ‘plant community of

greatest conservation need’ included the following elements:

- Fits the definition of a plant community: widespread and common in Montana; composed of smaller vegetation types; and provides ecosystem services; AND
- Is facing a significant threat that can be identified, and one that is generally shared by multiple land managers in different portions of Montana.

The subcommittee, with agreement by the larger partnership on April 12, 2021, proposed five plant communities for inclusion in the *Montana Native Plant Conservation Strategy*, hereafter *Strategy*, as Plant Communities of Greatest Conservation Need (GCN). Over the course of developing the Strategy, there has been debate as to whether some vegetation types should be unique habitats or plant communities. Therefore, readers of the *Strategy*, should also consult Section 5-Unique Habitats of Greatest Conservation Need. In the Strategy five Plant Communities of Greatest Conservation Need (GCN) are recognized (Table 6-1).

Table 6-1. Montana Plant Communities of Greatest Conservation (GCN) Need prioritized in the Montana Native Plant Conservation Strategy for Vascular Species and Habitats of GCN

Plant Community	General Locations in Montana	Conservation Profile Developed?
Cottonwood riparian forest communities	Throughout Montana and associated with large rivers and smaller stream systems	No
Prairie pothole communities	North-central to northeast Montana	No
Quaking Aspen communities	Throughout most of Montana in scattered locations.	Conservation Profile: Appendix C in <i>Strategy</i>
Sagebrush communities	Predominantly in southwest, south-central, north-central, northeast, and southeast Montana	No
Western (Montane) grassland communities	Western Montana	No

¹ This meeting laid the groundwork for planning and development of a *Montana Native Plant Conservation Strategy: Species and Habitats of Greatest Conservation Need*. Almost 35 organizations were invited; 22 people attended, representing retired and working professionals for federal and state government, NGOs, and academic herbaria organizations (see Table 1, page *iii*).

CONSERVATION GOALS & OBJECTIVES FOR PLANT COMMUNITIES OF GREATEST CONSERVATION NEED

The purpose is to promote the collective and coordination stewardship of Montana's Plant Communities of GCN to ensure their viability and persistence now and into the future. To effectively conserve Plant Communities of GCN requires a fusion of academic and pragmatic approaches to conservation problems, so that solutions are both innovative and realistic (Given 1994). Effective conservation also depends upon public attitudes, having good techniques that are cost-effective, and developing a range of approaches (Given 1994). Here in the Plant Communities of GCN section of the *Strategy*, we present goals and and over-arching objectives from four areas that are pillars of plant community conservation.

- Information Needs [Inventory, Monitoring, Research]
- Protection and Restoration
- Outreach and Education
- Policy and Regulation

The conservation objectives were developed by the members of the larger partnership from 2021 to 2024 and are based on literature and professional expertise and experiences. In addition, conservation objectives or actions from other strategies² were reviewed and cross-walked with this *Strategy* to relay the idea that collaboration across multiple land ownerships can often advance several management goals at one time.



Photo Credit: Dee Blank

Photo 6-1. A Prairie Pothole Plant Community of GCN, on the Bandy Ranch in the Blackfoot Valley, Montana.

² Montana Forest Action Plan (Montana Forest Action Advisory Council 2020): https://dnrc.mt.gov/docs/forestry/Montana_Forest_Action_Plan_12.22.2020.pdf
Montana State Wildlife Action Plan (MFWP 2015): <https://fwp.mt.gov/binaries/content/assets/fwp/gisresources/docs/swap/70169.pdf>

Information Needs [Inventory, Monitoring, Research]

Conservation Goal

Improve our scientific and cultural understanding of plant communities, their distributions, and classifications through inventory, monitoring, and research.

Conservation Objectives

- 1) Establish one or more statewide subcommittees or working groups to guide and develop the process for addressing one to all Plant Communities of GCN. Elements include, but are not limited to:
 - a. Review the 2024 Plant Communities of GCN list and criteria to make recommendations on how to improve the process, better define the plant community in need of conservation, and substantiate listings with data.
 - b. Collaborate with the Montana Forest Action Advisory Council and Montana's State Wildlife Action Plan team, and others who helped developed statewide strategies to consolidate designated communities in need of conservation, strengthen common goals, and develop synergy to improve the health and ecological functions of prioritized plant communities.
 - c. A statewide subcommittee or working group should be composed of people who represent the diversity of organizations across the state that engage, directly and indirectly, with the specific plant community. Examples of engagement include ecology, education, research, policy, and administration. Potential organizations to represent include, but are not limited to:
 - Private industry, such as nurseries, consultants, private foresters, and Montana Nursery and Landscape Association
 - Private landowners
 - Federal land managers, such as BIA, BLM, NPS, and USFS³
 - State land managers, such as MTFWP, MTDEQ, and MTDNRC³
 - Tribal Nations, such as Tribal colleges, Elders, traditionalists, plant gatherers, ethnobotanists, biologists, cultural directors, and administrators
 - Non-governmental conservation organizations, such as TNC, Montana Audubon, MNPS³
 - Academic researchers
- 2) In collaboration with ecologists working for the Montana Natural Heritage Program, NatureServe, LANDFIRE program, and University of Montana's Spatial Analysis Lab, continue to map existing vegetation communities in Montana using the U.S. National Vegetation Classification system (USNVC) (see Box 6-1). The USNVC provides a national standard and comprehensive system for all vegetation types in the US and is paralleled by the Canadian and International systems for vegetation classification. Conforming to the USNVC ensures greater efficiency and inter-agency communication across jurisdictional boundaries and with other ecological organizations. These efforts result in improved and more accurate global and state ranks for plant communities.

³ Refer to the "Acronyms and Abbreviations" section at the end of the *Strategy*.




Protection and Restoration

Conservation Goal

Secure-on-the-ground, site specific protection and/or restoration for Plant Communities of Greatest Conservation Need for parcels on public and private lands.

Conservation Objective

- 1) Seek out and collaborate with the Montana Forest Action Advisory Council and Montana's State Wildlife Action Plan team, and other ecologists to assist in current and new conservation efforts involving Plant Communities of GCN. Using existing decision-making support tools, as appropriate, to help determine where site-specific protection or restoration actions could occur will consolidate resources, strengthen common goals, create efficiencies, and hasten the progress to conserving Plant Species of GCN.



Outreach and Education

Conservation Goal

Facilitate the stewardship of Montana Plant Communities of Greatest Conservation Need through outreach, education, and coordination.

Conservation Objectives

- 1) Establish a working group to develop the conservation profile for each Plant Community of GCN (see Table 6-1 and Information Needs, Conservation Objective 1). For plant communities of cultural significance, strive to respect and reinforce Native American's Traditional Ecological Knowledge (TEK) and Indigenous Knowledge (IK), and self determination as practitioners of biodiversity conservation and ecological protection. Indigenous conservation efforts and practices can be accomplished through collaboration across jurisdictions, consultation and consent in land and water planning, research, management and pro-actively exercise mechanisms of Tribal sovereignty. Efforts will result in the removal of barriers to Indigenous people's rights to implementing land management practices (Status of Tribes and Climate Change Report (STCC) Working Group 2021).
- 2) Montana Field Guide⁴:
 - a. The MTNHP is aiming to create a profile of each Group on the Montana Field Guide that includes photographs, global and subnational conservation status ranks, and narratives for a general description, diagnostic characteristics, distribution, component vegetation species, dynamic ecological processes, management and restoration considerations, and similar Group types. See also Information Needs, Conservation Objective #2.
 - b. Revise profiles on the Montana Field Guide¹ for each Plant Species of GCN and other native plant species that associate with a Plant Community of GCN. Using the newest MTNHP standards will update and expand known information on the plant species' life history, ecology, wildlife-plant interactions, identification, taxonomy, range, habitat, biology, economics, management, threats, taxonomy, and other interesting facts; improve

⁴ MTNHP Montana Field Guide: <https://fieldguide.mt.gov/>

Outreach and Education

- readability; and link to other online resources. Cross-walking plants, animals, and habitats on the Montana Field Guide will elevate awareness of Montana's Plant Communities of GCN.
- c. Revise profiles on the Montana Field Guide¹ for each animal Species of Concern that occurs within a Unique Habitat of GCN. Cross-walking plants, animals, and habitats on the Montana Field Guide will elevate awareness of Montana's Plant Communities of GCN.
 - 4) Work with land trusts to inform them about Plant Communities of GCN and engage in discussions about conservation of Montana's Plant Communities of GCN.
 - 5) Consult with educators or educational staff at Montana Fish, Wildlife and Parks, Helena-Lewis and Clark National Forest, Montana Native Plant Society, Tribes, and other appropriate organizations to develop educational presentations on or including Plant Communities of GCN.

Policy and Regulation

Conservation Goal

Improve conservation of Montana's Plant Communities of Greatest Conservation Need through new and existing policies and regulations in cooperation with public land managers, private landowners, and other interested stakeholders.

Conservation Objectives

- 1) Support state and federal agencies to collaborate and build the Montana Natural Area System by identifying and nominating existing and potential natural area sites to the board of land commissioners [MCA 79-12-104(1)] for possible designation, in accordance with the Montana Natural Areas Act of 1974 (MCA 76-12). A natural area system contains an integrated group of areas which in their entirety project representative examples of all of the state's natural systems and guarantees the continued existence of the full array of the state's biotic diversity (Roush in Loope and Bird 1986). A natural area system coordinates the management of individual areas toward common goals which are a benefit to society for recreation, education, research, aesthetic enjoyment, and the unpredictable utility of individual species (Roush *in* Loope and Bird 1986).



Photo Credit: Karen Newlon

Photo 6-2. Ecologists conducting research in a prairie pothole in north-central Montana.

Policy and Regulation

- 2) Nominate natural area sites that contain Plant Communities of GCN in Montana.
- 3) For forested Plant Communities of GCN, consult the Montana Forest Action Plan (2020) for the Statewide Assessment of Forest Conditions, Priority Areas of Focused Attention, and recommended Goals and Implementation Strategies. This document can help develop collaboration (partnerships) relative to Plant Communities of GCN.

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