

Process for Identifying Plant Species of Conservation Concern for the Custer Gallatin National Forest's Revised Forest Plan (Post-Objection)

The 2012 Planning Rule (36 CFR 219) defines a species of conservation concern (SCC) as "a species, other than a federally recognized threatened, endangered, proposed or candidate species, that is known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area" (36 CFR 219.9). The Regional Forester identifies SCC as part of the planning process. Direction for identifying SCC are in the **Forest Service handbook** (FSH) for land management planning (i.e., the planning directives) at FSH 1909.12, chapter 10, section 12.52 and chapter 20, section 21.22a.

This document outlines the Northern Region's approach in identifying plant SCC for the Custer Gallatin National Forest's revised Forest Plan (animals are documented separately). This approach is consistent with the **2012 Planning Rule** and agency guidance contained in the planning directives. The best available scientific information, including external expert knowledge and information received from the general public, was considered during the development of this list.

Step 1. During the assessment phase, the Custer Gallatin NF planning team botanist and other vegetation specialists determined which plant species documented to occur in the planning area met the categories described in items 1A-1H below. This step resulted in the "potential SCC" plant list.

The Custer Gallatin NF revision planning team obtained, from the Montana and South Dakota Natural Heritage Programs (NHPs) and local Forest Service floristic survey data sources, spatial records of all plant species documented to occur on National Forest System (NFS) lands within the plan area, and that met at least one category in Steps 1 A-H below.

The NHPs and local data sources were used because collectively they are the most comprehensive, reliable, and up-to-date sources for documented species occurrences on NFS lands in Montana and South Dakota. The Montana and South Dakota NHPs, which are part of the international NatureServe network, manages statewide occurrence records and other information for species and habitats of conservation interest. Local Forest Service floristic survey data are in digital formats and accessed spatially through geographic information system (GIS), and are periodically submitted to Montana and South Dakota NHPs statewide data repository. The definitions of "occurrence" and "observation," as used in the plant lists, are from the **Montana Natural Heritage Program**. An occurrence is a documented location of a specimen collection or observed plant population, and an observation is a visual, specimen, genetic, or other documentation of a species at an occurrence with an assigned spatial precision during a given time period.

For plants, the categories of species to include as potential SCC, as indicated in FSH 1909.12, chapter 10, sec. 12.52 (link above), are:

- A. NatureServe global (G) or infraspecific taxon (T) ranks of 1 or 2.¹
- B. Delisted (removed) from the Endangered Species Act list within the last five years, or delisted and still monitored by the regulatory agency.²
- C. State of Montana and South Dakota Threatened or endangered designations.**Error! Bookmark not defined.**
- D. Positive “90-day findings” made by the US Fish and Wildlife Service in response to federal listing petitions.² Error! Bookmark not defined.
- E. Montana and South Dakota Species of Concern.¹ Species in this category generally include all vascular plant taxa with Montana and South Dakota NHP state (S) ranks of S1, S2, S3 or SH. Nonvascular taxa (bryophytes and lichens), which are not as well documented or studied as vascular plant taxa in the state, are listed as SOC using similar criteria as vascular taxa but are more strictly limited to those taxa which are believed to be the rarest or most vulnerable to extirpation based on current information. Some plants that are state Potential Species of Concern were also considered.
- F. Species of conservation concern identified during tribal consultations or in written comments.**Error! Bookmark not defined.**
- G. Regional Forester’s sensitive species list for the Custer Gallatin NF. ³
- H. All species for which the best available scientific information indicated a local conservation concern about the species’ capability to persist over the long term in the plan area. Additions of species were typically identified through public comments, state natural heritage program botanical experts, and from conversations with local individuals with botanical expertise.

Step 2: During the planning phase, Regional Office and Custer Gallatin botanists identified which of the plant species that emerged from Step 1 met the criteria in items 2A, B, and C below. This step resulted in the plant SCC list for the Custer Gallatin National Forest’s proposed action.

This step was completed by using the best available scientific information, including expertise from internal and external individuals, and the final planning directives at FSH 1909.12, chapter 10, section 12.52 and chapter 20, section 21.22a. The criteria for identifying SCC were:

- A. The species must be native to, and known to occur in, the plan area.
 - i. A species is known to occur in the plan area if, at the time of plan development, the best available scientific information indicates that a species is established or is becoming established in the plan area. NatureServe data from the Montana and South Dakota NHPs were used as the best available scientific information to determine whether a record of occurrence was historic or current. For plant species, observations 40 years or older were

¹ Status obtained from Montana and South Dakota NHPs. See <http://mtnhp.org/SpeciesOfConcern/?AorP=p> and <https://gfp.sd.gov/rare-plants/>, respectively, for definitions and more information.

² Status obtained from US Fish and Wildlife Service.

³ See <http://www.fs.usda.gov/detail/r1/plants-animals/?cid=stelprdb5130525>

- considered historic per NatureServe and Montana/South Dakota NHP ranking guidelines.⁴ A NatureServe rank of historical means that recent field information verifying the continued existence of the occurrence is lacking.
- ii. A species with occurrences in the plan area that were merely accidental or transient, or were well outside the species' existing range at the time of plan development, were not considered to be established or becoming established in the plan area. If the range of a species is changing so that what is becoming its "normal" range includes the plan area, an individual occurrence should not be considered transient or accidental.
 - iii. Species were removed from the dataset if they were designated by the state NHPs as SX, SH, SNR, SU, or SNA.⁵
- B. The best available scientific information must indicate substantial concern about the species' capability to persist over the long term in the plan area.
- i. In general, substantial concern was best demonstrated by a decreasing population (abundance or distribution), decreasing habitat, or significant threat to the species in the plan area. Other factors considered during this evaluation included abundance, geographic distribution, reproductive potential, dispersal capabilities, responses to management, and other demographic and life history characteristics of the species. This approach was based on best available science in conjunction with professional expertise of the Regional Office botanist.
- C. We clarify that rarity alone typically was not considered a substantial concern unless accompanied by one of the three general conditions listed in Step 2 (B)(i) above or having other prominent circumstances leading to concern for long-term persistence in the plan area. Most species in any given community are naturally rare (McGill et al. 2007, Magurran and Henderson 2003), so low abundance is not necessarily cause for concern.
- D. If there was insufficient scientific information available to conclude that there is a substantial concern about a species' capability to persist in the plan area over the long- term, or if the species was secure in the plan area, that species was not identified as an SCC. Rationale for not identifying species as SCC included:
- i. If the species was secure and its continued long-term persistence in the plan area is not at risk based on knowledge of its abundance, distribution, lack of threats to persistence, trends in habitat, or responses to management.

⁴ NatureServe describes their guidelines for ranking species as historical at <http://explorer.natureserve.org/eorankguide.htm>. Montana Natural Heritage Program describes their historic ranking information at: <http://fieldguide.mt.gov/statusCodes.aspx#msrc:rank>. South Dakota Natural Heritage Program describes their historic ranking information at: <https://gfp.sd.gov/rare-plants/>

⁵ SX= Presumed extinct or extirpated in Montana or South Dakota; SH = Historical; SNR = Not yet ranked; SU – Unrankable; SNA = No applicable rank. See Montana Natural Heritage Program at: <http://mtnhp.org/SpeciesOfConcern/?AorP=a> and South Dakota Natural Heritage Program at: <http://www.gfp.sd.gov>.

- ii. Insufficient scientific information available about the species' status in the plan area. Lack of sufficient scientific information included having limited inventory data resulting from low survey effort, lack of effective detection methods, or, in the case of purported population declines, lack of reasonably consistent monitoring methods among trend monitoring periods. The availability of information about other factors noted in the rationale spreadsheet was also considered.

Step 3: In response to public comments, objections, and new information, Regional Office staff reviewed the species selection process and criteria requirements, available information, and the rationale for identifying the SCC. As a result, this process document has been updated to provide additional clarification of terms and selection criteria conserved in Step 3. In addition, the species evaluation documentation has been updated. This review, clarification, and update resulted in the current plant SCC list for the Custer Gallatin National Forest's Revised Forest Plan.

Process clarifications and changes to the plant selection process resulting from this step:

- A. We applied NatureServe timelines to species observation records in the plan area to differentiate which plant species have sufficient information to determine they are *currently* known to occur in the plan area from those only known to *historically* occur in the plan area. NatureServe's timelines were used as best available scientific information to establish when past observations are not enough evidence to conclude that the species is known to occur in the plan area at this time. NatureServe describes their guidelines for ranking species as historical occurrences at <http://explorer.natureserve.org/eorankguide.htm> .
- B. For the purposes of the planning process, the individuals of a species of conservation concern that exist in the plan area are considered to be members of one population of the species. Further, to be considered viable (persistent) in the long term, a population must have sufficient distribution to be resilient and adaptable to stressors and likely future environments (preamble to the 2012 Planning Rule, 77 FR T 21217, April 9, 2012). A population need not be present or secure throughout the entire plan area in order to be viable.
- C. We clarify that threats must be both relevant and significant to indicate substantial concern. To be relevant, they must pertain to spatial and temporal scales appropriate to the plan area. To be significant, they must be of a magnitude that would potentially affect long-term persistence in the plan area. This characterization would normally include those threats known to exist in the plan area, as well as those occurring outside of the plan area if they affect populations or habitats inside the plan area. It typically would not include threats that might occur under a theoretical context (e.g., speculative), or occur in a location or time that would not affect individuals using the plan area.

As a result of the steps above, the following plant SCC were identified for the Custer Gallatin National Forest's revised forest plan and final environmental impact statement. No changes were made to the SCC list released in the Regional Forester's letter dated February 7, 2019. Documentation was updated in response to objections, but this did not result in any changes to the SCC list.

Scientific Name	Common Name	Plan Area Known Distribution
<i>Adoxa moschatellina</i>	muskroot	Montane ⁶
<i>Asclepias ovalifolia</i>	oval-leaf milkweed	Pine Savanna ⁷
<i>Asclepias stenophylla</i>	narrowleaf milkweed	Pine Savanna
<i>Botrychium gallicomontanum</i>	Frenchman's Bluff moonwort	Montane and Pine Savanna
<i>Botrychium paradoxum</i>	Peculiar moonwort	Montane
<i>Castilleja exilis</i>	annual Indian paintbrush	Montane
<i>Carex gravida</i> var. <i>gravida</i>	heavy sedge	Pine Savanna
<i>Cypripedium parviflorum</i>	small yellow lady's-slipper	Montane and Pine Savanna
<i>Draba densifolia</i>	Dense-leaf draba	Montane
<i>Drosera anglica</i>	English sundew	Montane
<i>Eleocharis rostellata</i>	beaked spikerush	Montane
<i>Ericameria discoidea</i> var. <i>discoidea</i> ; (Syn: <i>Haplopappus macronema</i> var. <i>macronema</i>)	Whitestem Goldenbush or Discoid Goldenweed	Montane
<i>Eriogonum visherii</i>	Dakota buckwheat	Pine Savanna
<i>Gentianopsis simplex</i>	hiker's gentian	Montane
<i>Grayia spinosa</i>	spiny hopsage	Montane
<i>Heterotheca fulcrata</i>	rockyscree false goldenaster	Montane
<i>Lomatium nuttallii</i>	Nuttall Desert-Parsley	Pine Savanna
<i>Meesia triquetra</i>	meesia moss	Montane

⁶ Montane refers to the Beartooth, Yellowstone, Gardiner, Bozeman, and Hebgen Lake Ranger Districts

⁷ Pine Savanna refers to the Ashland and Sioux Ranger Districts

Scientific Name	Common Name	Plan Area Known Distribution
<i>Mimulus nanus</i>	dwarf purple monkeyflower	Montane
<i>Physaria didymocarpa</i> var. <i>lanata</i>	wooly twinpod	Montane
<i>Pyrrocoma carthamoides</i> var. <i>subsquarrosus</i> (Syn. <i>Haplopappus carthamoides</i> var. <i>subsquarrosus</i>)	Beartooth large-flowered goldenweed	Montane
<i>Salix barrattiana</i>	Barratt's willow	Montane
<i>Shoshonea pulvinata</i>	shoshonea	Montane
<i>Sidalcea oregana</i>	Oregon checker-mallow	Montane
<i>Thelypodium paniculatum</i>	northwestern thelypody	Montane

In addition to the above “at-risk” SCC species, *Pinus albicaulis* (whitebark pine), found in the Montane units of the Custer Gallatin National Forest, is considered as an at-risk species based on the 2012 planning rule criteria since being identified as a candidate for listing under Endangered Species Act.

Additional Information Regarding the Characteristics, Status, and Survey History of the Plant Habitat Groups in the Custer Gallatin National Forest Plan Area Described in the Species Evaluation Documentation

Aquatic – aquatic habitats in the plan area include lakes, ponds, streams, rivers and sloughs. Threats to aquatic plant species can come from changes in hydrology and from aquatic plant invaders that can form dense carpets that block light, warmth and oxygen from the water. In addition, changes to canopy cover could alter the habitat conditions in cases where these sites occur in or adjacent to forest vegetation. While there are documented occurrences for aquatic plant species identified in the potential SCC list these habitats have not been extensively surveyed in the plan area, and the status of the species and their population trends is unknown. As a result, there is generally insufficient information to determine if there is a substantial concern for their persistence in the plan area.

Wetland-Riparian – these habitats include streambanks, lake margins, springs, seeps, and wet meadows. Most surveys for plants in these habitats have been project-related. The primary threats would be related to management activities or large-scale fires that could affect the hydrology of such habitats. General threats to riparian and wetlands system include improper grazing, off-road vehicle use, invasive species, drought, recreation and warming trends. General threats to wetlands include alteration of the original hydrology or hydric soils (i.e. diversion, draining, development, road construction, improper grazing, etc.). Established riparian and wetland protection measures are typically in place during Forest Service activity management such as use of best management practices, use of streamside

management zones during tree harvest operations, etc. Invasive species also pose a threat to wetland plant communities. In light of changing precipitation patterns, warming trends presents a potential threat as well.

Alpine – this habitat occurs in high-elevation areas above timberline. Alpine communities are common but unique in the high elevations of the montane units of the plan area on approximately 121,000 acres. Most surveys for plants in these habitats have been project-related, but their current status in the plan area could be better informed with additional surveys in the Crazy Mountains. Alpine vegetation in the plan area are generally not threatened by management activities, although impacts from recreational use or trail construction have occurred and continue to be possible in limited areas. For most species and occurrences, there have not been targeted surveys or recent observations on which to base determinations regarding long-term persistence. Warming trends are often cited as a threat to alpine species and habitats (as well as to aquatic and wetland/riparian species), and there have been documented cases of species' distributions shifting in elevation. In the plan area, however, the future projections regarding climate change have a high degree of uncertainty, especially for precipitation. As such, threats to alpine species due to warming trends would be speculative in nature. More extensive habitat surveys and long-term monitoring are needed to better understand the population trends for these species. If such work indicates population declines or other risks, then the alpine plant SCC should be re-evaluated for designation as SCC, especially those that are endemic in and near the plan area.

Broadleaf Woodlands - Deciduous broadleaf woodlands in mesic settings include green ash woodlands which provides more humid habitat for heavy sedge. They are best developed under conditions that favor snow entrapment, development of deeper soils, and concentration of moisture. These conditions are typical of ravines formed by ephemeral and intermittent streams where flooding is more sporadic or of short duration. Uplands are generally mixed grass prairies, shrublands and ponderosa pine forest. Soils are usually deep loams. Flooding is very short in duration when it occurs, as water is rapidly channeled downslope. Threats to broadleaf woodlands include fire suppression, improper grazing, noxious species invasion, conifer colonization, and human activity. There may be loss of tree species to disease, insects, freezes and fire as well as shifts in warming and/or drying patterns as a result of warming trends. Most surveys for plants in these habitats have been project-related.

Grasslands / Shrublands - Grasslands are dominated by cool-season perennial bunchgrasses and forbs, with sparse shrub and/or tree representation. Some warm-season grass occurs on the Ashland and Sioux Districts. Grasslands are usually forb species rich and may vary by moisture regime. Various shrub species may occur with low cover. Scattered pockets of ponderosa pine, limber pine, and Rocky Mountain juniper occur on shallow, skeletal soils or resistant bedrock. Grasslands range in size from small patches to large open parks, from montane to foothill zones.

Mesic meadow grassland habitats occur at lower montane to subalpine elevations where soils, snow deposition, or windy conditions limit tree growth. Meadow habitats are generally moist, sometimes seasonally so and may dry up late in the summer. Meadows occur in mosaics with shrublands or forests, or are adjacent to alpine communities across the plan area. They are generally dominated by perennial graminoids and mesic forbs. Scattered shrubs or trees may be present, but are not abundant. These meadows are limited on the landscape and occupy fringe habitats adjacent to wetter meadows or forest swales.

Shrublands occurs at all slopes, aspects, and soil types, within the plan area. The community can exhibit a variable extent of shrub diversity but is typically dominated by mountain or Wyoming big sagebrush. In some areas of volcanic origin, antelope bitterbrush may be co-dominant. The understory is often high in

perennial bunchgrass and forb species diversity. Moist shrublands include shrubby cinquefoil, snowberry, birch, and willow.

Most surveys for plants in these habitats have been project-related. Threats to grasslands include fire suppression, improper grazing, invasive species spread, tree encroachment, and human development. Threats to meadows include improper grazing, off-road vehicle use, hydrologic modifications, and potentially a reduction in snowpack resulting from warming trends. Threats to shrublands include invasive weed spread, fire exclusion, improper grazing, and conifer encroachment. Warming trends may also contribute to changes in the shrub communities as precipitation levels, fire frequency intervals, and fire intensities change.

Sparsely Vegetated (i.e. talus, scree, rocky, exposed, badlands, etc.) - Sparsely vegetated areas are often described as talus, rocky sites, disturbed sites, exposed sites, or badlands. This setting occupies the fringes of adjacent systems, particularly dry habitats. Tree and herbaceous cover is often low due to limited soil development and dry growing conditions, site disturbance, or rocky conditions. This habitat includes natural rock outcrops as well as scree (i.e., talus) and covers a wide range of rock types, varying from acidic to highly calcareous. Vegetation is sparse or largely lacking. Bryophytes and lichens often occur in crevices and flourish on open rock surfaces where the competition from vascular plants is absent. Species composition can vary widely, depending on the moisture regime and adjacent communities contributing to the seed source. Sparsely vegetated habitats are often fragile systems. Although recreation and road construction are threats to these habitats, disturbance is often limited due to inaccessibility in the Montane units. Most surveys for plants in these habitats have been project-related. Threats to the sparsely vegetated habitats in the Pine Savanna units include weed invasion, trampling from grazing, as well as shifts in warming and/or drying patterns. Shifts in warming or drying trends may also contribute to a change in distribution.

Because of the wide variety of habitats involved, the SCC spreadsheet should be referenced for details regarding specific species and the adequacy of past surveys. The current status of *Botrychium* species in the plan area is poorly understood in many cases, so the determinations regarding SCC status are based on a broader understanding of their abundance and distribution. At this time, two *Botrychium* species are considered to have substantial concern for long-term persistence in the plan area (pers. comm. Steve Shelly with Steve Popovich 2016).

Various floristic surveys in the assessment area were also used to help determine which plant species to consider as species of conservation concern within the habitat guilds described above, and the primary sources for these surveys are listed below. These include, but are not limited to, the following sources. Three recent Rocky Mountain Herbarium floristic surveys (Elliott 2012; Hartman and Nelson 2010; and Hallman 2012) dramatically added to the species to consider for the plan area. Plant SCC status in the plan area could be better informed with additional surveys, especially in the Crazy Mountains, Bridger/Bangtail Mountains, Gallatin mountain range, and Henry Mountains where fewer floristic surveys exist than on the remainder of the plan area.

- Elliott and Elliott, 2009. Chrome-Iron Mountain Botanical Report. Big Timber Ranger District, Gallatin National Forest. Sweet Grass Co., MT.
- Elliott 2012. Floristic Inventory of the Northern Absaroka, Beartooth, and Gallatin Ranges (Wyoming and Montana). 1289 unique taxa, 833 species, and 425 genera from 89 families, including 36 Montana species of concern and 8 potential species of concern in Montana, 133 exotic species were identified.

- Hallman 2012. Final Report to the USFS Floristic Inventory of Custer National Forest, Ashland and Sioux Ranger Districts. 622 taxa in 83 families of which there were 14 species of concern, 3 potential species of concern, 9 noxious weeds, and 72 exotics were identified.
- Hartman and Nelson 2010. Floristic Survey of the Pryor Mountains. 386 species including five Montana species of concern were identified.
- Heidel, B. 2001b. Monitoring *Shoshonea pulvinata* in the Pryor and Beartooth Mountains, Carbon County, Montana. 1999 Trend Report to the Bureau of Land Management, MT. Montana Natural Heritage Program, Helena, MT. 11 pp. plus appendices.
- Heidel, B. L. and K. H. Dueholm. 1995. Sensitive plant survey in the Sioux District, Custer National Forest: 1994; Carter County, Montana and Harding County, South Dakota. Unpublished report to the Custer National Forest. Montana Natural Heritage Program, Helena. 95 pp. + app.
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- Lesica 2012, Manual of Montana Vascular Plants. Brit Press. 771 pp.
- Lesica, P. 1992. Monitoring Populations of *Shoshonea pulvinata* in the Pryor and Beartooth Mountains, Carbon County, Montana. 1992 Progress Report. Montana Natural Heritage Program. Prepared for BLM, Montana State Office. 13 pp.
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- Mathews, S.Y. 1989. Sensitive plant surveys, 1989: U.S. Forest Service, Region 1, Gallatin National Forest, Montana. Unpublished report to the USDA Forest Service, Gallatin National Forest, Bozeman, Montana. Montana Natural Heritage Program, Helena, MT. 85 pp.
- McGregor, R.L, T.M. Barkley, R.E. Brooks, and E.K. Schofield, 1986. Flora of the Great Plains by the Great Plains Flora Association. University Press of Kansas. 1402 pp.
- Montana Natural Heritage Program (MTNHP) dataset specific to species of concern tracked by the State and MTNHP online Field Guide.
- NatureServe online dataset that tracks global plant rankings.
- Pacific Northwest Herbarium, online database

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- Rocky Mountain Herbarium, online database
- Schassberger, L.A. 1988. Status review of *Astragalus barrii*: USDA Forest Service – Region 1, Custer National Forest, Montana. Unpublished report the USDA Forest Service. Montana Natural Heritage Program, Helena, MT. 21 pp. + appendices.
- Schassberger, L.A. 1991. Preliminary Report to the Gallatin National Forest of Field Surveys for *Claytonia lanceolata* var. *flava*. Montana Natural Heritage Program, Helena, MT. 10 pp.
- Shelly, J. S. 1988. Report on the Conservation status of *Shoshonea pulvinata*, a Candidate threatened species. Montana Natural Heritage Program, Helena, MT. 35 pp. + appendices.
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- MTNHP. 1999. Unpublished report on *Gentianopsis simplex* in the East Rosebud Complex. 2 pp.
- South Dakota Natural Heritage Program (SDNHP) rare plant list of species tracked by the State.
- USDA Forest Service, Northern Region, 2011 Sensitive Species Lists for MT and SD.
- Vanderhorst's (1994) Sensitive Plant Surveys in the Gallatin National Forest, MT identifying 368 taxa including several Montana species of concern.
- Vanderhorst, J., S. V. Cooper and B. L. Heidel. 1998. Botanical and vegetation surveys of Carter County, Montana. Unpublished report to the Bureau of Land Management. Montana Natural Heritage Program, Helena, MT. 116 pp. + app.
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- Other local reports for the plan area and adjacent areas.

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