Plant Species of Conservation Concern Identification Process for the Flathead National Forest's Revised Forest Plan and Final Environmental Impact Statement

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 typically 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 Flathead National Forest's Revised Forest Plan and final Environmental Impact Statement (EIS) (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 Flathead planning team botanists and other vegetation specialists determined which plant species documented to occur in the planning area met the categories described in items 1A-1I below. This step resulted in the "potential SCC" plant list[1].

The Flathead revision planning team obtained, from the Montana Natural Heritage Program (NHP) and Forest Service Natural Resource Manager (NRM) applications, spatial records of all species documented to occur on National Forest System (NFS) lands within the plan area. The revision team then identified each species that met at least one category in Step 1 A-I below. The 2014 Assessment of the Flathead National Forest more broadly included some species that occurred near the plan area, but the final evaluation followed the criteria in the final directives and only assessed species within the plan area boundary.

The NHP and NRM 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. The Montana NHP, which is part of the international NatureServe network, manages statewide occurrence records and other information for species and habitats of conservation interest. Corporate Forest Service data on terrestrial and aquatic species are accessed through NRM applications, and are periodically submitted to Montana NHP's 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.

[1] Although there are slight differences in the assessment plant and animal process steps, both explicitly follow the final directives to identify the regional forester's list of species of conservation concern.

The categories of species to include as potential SCC originated from the proposed planning directives at FSH 1909.12, chapter 10, sec. 12.52[2], which were in place when the potential SCC list was developed. (Note: the final planning directives implemented categories that are very similar to what is described in 1A-1I; see more information at Step 2)). A species meeting any one category was further considered for potential SCC status regardless of whether it met another category. External expertise originated from Montana NHP, research entities, and local groups or individuals. The planning team also solicited public involvement in identifying potential SCC through a series of public meetings and public fieldtrips.

The categories that must be included were:

A) NatureServe global (G) or infraspecific taxon (T) ranks of 1 or 2.[3]

B) Delisted (removed) from the Endangered Species Act list within the last 5 years, or delisted and still monitored by the regulatory agency.[4,5]

C) Positive "90-day findings" made by the US Fish and Wildlife Service in response to federal listing petitions.[4,5]

The categories to consider included:

D) Montana Species of Concern.[3] Species in this category generally include all vascular plant taxa with Montana NHP state (S) ranks of S1, S2, or S3. 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. State Potential Species of Concern were considered if they were S1, S2, or S3.

E) NatureServe G3 ranks[1]. Species with higher ranks (e.g., G4, G5) were not automatically considered because they are reasonably secure at the global level, but if there was concern at the plan level, they would be identified in Step 1 category I. This approach is consistent with FSH 1909.12 chapter 10, section 12.52d(3)(a).

F) State of Montana or Tribal threatened or endangered designations.[5]

G) Species of conservation concern expressed by the Confederated Salish and Kootenai Tribes during tribal consultations or in written comments.[5]

H) Regional Forester's sensitive species list for the Flathead NF.[6]

I) Local conservation concern due to significant threats to populations or habitats, declining trends in populations or habitat, restricted ranges or habitats, or low population

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[2] For plan amendments and revisions initiated prior to the issuance of the final or amended directive, the Responsible Official should use the amended directive in any new step or phase of the planning process, but is not required to revise past steps or phases within the process. Thus, the process for identifying potential SCC during assessment has some slight differences than will be found described in the final directives. However, the final species identification by the Regional Forester reviewed these steps fully consistent with the final directives.

[3] Status obtained from Montana NHP. See http://mtnhp.org/SpeciesOfConcern/?AorP=p for definitions and more information.

[4] Status obtained from US Fish and Wildlife Service or Tribes.

[5] No plant species meeting this category occurred in the plan area.

[6] See http://www.fs.usda.gov/detail/r1/plants-animals/?cid=stelprdb5130525. Please note neither the proposed or final planning directives required consideration of this category; however, it was applied to compensate for the absence of SCC on adjoining units, which have not yet been identified.

numbers. Additions of these species were typically identified through public comments and from conversations with local biologists from the Forest Service, Montana NHP, and local individuals with scientific expertise.

Step 2: During the planning phase, Regional Office and Flathead NF 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 Flathead National Forest's revised Forest Plan and final EIS.

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. External expertise originated from many of the same organizations listed in Step 1.

The final planning directives adopted nearly identical categories and selection criteria as what were presented in the proposed directives and in Steps 1 A-I. Differences were minor, but did result in a few adjustments to the underlying documentation. For example, the final directives removed the requirement for all species in category B and C of Step 1 above to be included as SCC, and removed the requirement for species to have a plan occurrence record within the past 15 years. With this change, species that were eliminated previously were reconsidered for SCC status using the criteria in Step 2.

Most changes between the potential SCC list generated in Step 2 and the SCC list generated in Step 3 resulted from having more time to complete Step 3 the continued national learning and public engagement as forests implemented the 2012 planning rule. This allowed more thorough understanding of the final directives and more thorough evaluations of the best available scientific information regarding the species' statuses and threats to persistence within the plan area.

Additionally, we followed clarification in a June 6, 2016 Memorandum by the Deputy Chief of the National Forest System to regional foresters, which states that if a species is determined to be at risk across its range, but is determined to be secure within the plan area, it cannot be a SCC.

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 Natural Heritage Program 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 considered historic per NatureServe and Montana NHP ranking guidelines[7]. A NatureServe rank of historical means that recent field information verifying the continued existence of the occurrence is lacking.

[7] 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.

ii. A species with individual occurrences in the plan area that are merely accidental or transient, or are well outside the species' existing range at the time of plan development, is 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 NHP as SX, SH, SNR, SU, or SNA.[8]

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, 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.

ii. Rarity alone typically was not considered a substantial concern unless accompanied by one of the three general conditions listed in (B)(i) above or having other prominent circumstances leading to concern for long-term persistence in the plan area.

C) 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.

ii. Insufficient scientific information was 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.

Step 3. In response to public comments 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 considered in Step 3. In addition, the species evaluation documentation has been updated. This review, clarification, and

[8] SX=Presumed extinct or extirpated in Montana; SH=Historical; SNR=Not yet ranked; SU=Unrankable; SNA=No applicable rank. See http://mtnhp.org/SpeciesOfConcern/?AorP=a for detailed descriptions.

update resulted in the plant SCC list for the Flathead National Forest's Revised Forest Plan and final EIS.

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. We accepted NatureServe timelines[9] 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. We clarify that, for the purposes of the planning process, the individuals of a species of conservation concern that exist in the plan area will be considered to be members of one population of that 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 at 21217, April 9, 2012). A population need not be present or secure throughout the entire plan area in order to be viable.

This step resulted in additional species being considered for SCC status that were not previously considered and updates to the rationale document explaining why species were or were not identified as SCC for the Revised Forest Plan and final EIS. In addition, one additional peatland species (*Trichophorum alpinum*) has been added by the planning team botanists after further review of its status in the plan area. The following plant SCC have been identified for the Flathead National Forest's revised Forest Plan and final EIS. See the species evaluation documentation for a full description of the information considered to make this determination.

As a result of the steps above, the following plant SCC were identified for the Flathead National Forest's Revised Forest Plan and final EIS:

Scientific Name	Common Name
Amerorchis rotundifolia	Roundleaf orchid
Botrychium paradoxum	Peculiar moonwort
Botrychium pedunculosum	Stalked moonwort
Carex chordorrhiza	Creeping sedge
Carex lacustris	Lake-bank Sedge
Collema curtisporum	Jelly lichen
Corydalis sempervirens	Pale corydalis
Cypripedium fasciculatum	Clustered lady's-slipper

[9] Per NatureServe, being ranked as historical means that recent field information verifying the continued existence of the occurrence is lacking.

Scientific Name	Common Name
Cypripedium passerinum	Sparrow's-egg Lady's-slipper
Drosera linearis	Slenderleaf sundew
Dryopteris cristata	Crested shieldfern
Eleocharis rostellata	Beaked spikerush
Epipactis gigantea	Giant helleborine
Eriophorum gracile	Slender cottongrass
Grimmia brittoniae	Britton's dry rock moss
Grindelia howellii	Howell's gumweed
Idahoa scapigera	Scalepod
Liparis loeselii	Loesel's twayblade
Lycopodiella inundata	Northern bog clubmoss
Meesia triquetra	Meesia moss
Mimulus breviflorus	Short-flowered monkeyflower
Petasites frigidus var. frigidus	Arctic sweet coltsfoot
Scorpidium scorpioides	Scorpidium moss
Sphagnum magellanicum	Magellan's peatmoss
Trichophorum alpinum[10]	Hudson's Bay bulrush
Trichophorum cespitosum	Tufted club-rush

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

Peatlands – these are specialized wetland habitats characterized by accumulations of peat (organic matter). Peat accumulation results from permanent saturation and anaerobic conditions that causes the rate of accumulation to exceed the rate of decomposition; hence the peat accumulates to varying depths depending on how long the causal conditions have been in place at a site. All peatlands in the plan area are fens, which means that the water influencing them comes from both precipitation and groundwater. The primary threat to these habitats would be any change to existing vegetation or soils in the surrounding landscape, e.g., due to management activities or wildfires, that could alter the surface or groundwater inputs (hydrology) that are essential for stability of the habitat. See Chadde *et al*. (1998) for additional information regarding the characteristics and status of specific peatlands on the Flathead National Forest.

[10] Species added for the final plan and final EIS based on additional review per public comment on the DEIS.

In the plan area, peatlands have been the most extensively surveyed habitats for rare plant species. Focused surveys were conducted primarily during the early 1990s, and additional project-related surveys have been conducted since that time. As a result, the status of many peatland rare plants in the plan area is well-understood. Species with ten or fewer occurrences in the plan area have generally been identified as SCC, unless other factors such as average occurrence size indicate that a species is or is not currently secure in the plan area (e.g., species with larger populations and more than ten occurrences in the plan area were typically not included as SCC where abundance indicated there is not substantial concern for long-term persistence at this time). The basis for identifying the rarer peatland species as SCC is because they have low occurrence numbers and restricted ecological conditions (e.g., they are peatland obligates) in the plan area (FSH 1909.12, chapter 10, sec. 12.52d.3.f [4]), and thus have substantial concern for their long-term persistence in the plan area relative to the other more abundant species. Surveys have indicated that peatland habitats in the plan area have been stable over approximately the last 25 years, as no major changes have been noted regarding drying or vegetation succession. But the inherent susceptibility of the habitats to hydrologic changes, coupled with the known rarity of certain species, indicates a concern for persistence in those cases.

Aquatic – aquatic habitats in the plan area include lakes, ponds, rivers and sloughs. While there are documented occurrences for several aquatic plant species identified in the potential SCC list, unlike peatlands 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, and in some cases the species also occur in or near peatlands that have been surveyed. As a result, their current status in the plan area is fairly well documented. Similar to the peatlands habitat, the primary threats would be related to management activities or large-scale fires that could affect the hydrology of such habitats. In addition, changes to canopy cover could alter the habitat conditions in cases where these sites occur in or adjacent to forest vegetation.

Alpine – this habitat occurs in high-elevation areas above timberline. These areas 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. Climate change is 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 changing climatic conditions 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 many of the potential alpine plant SCC should be re-evaluated for designation as SCC, especially those that are endemic in and near the plan area.

Mesic-Montane-Disturbance-Talus – these assorted habitats occur primarily at low to middle elevations in the plan area. 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 information on the *Botrychium* species is taken directly from a summary report by Popovich *et al*. (2016); these botanists are the world experts on the status and ecology of the species in this genus. The current status of the species in the plan area is poorly understood in many cases, as they note, 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. com Steve Shelly with Steve Popovich 2016).

REFERENCES

Chadde, S.W., *et al*. 1998. Peatlands on National Forests of the Northern Rocky Mountains: ecology and conservation. Gen. Tech. Rep. RMRS-GTR-11. Ogden, UT: U.S. Dept. of Agriculture, Forest Service, Rocky Mountain Research Station. 75 pp.

Popovich, B., B. Legler, and D. Farrar. 2016. Cursory assessment of species of possible management concern for Ophioglossaceae of the Flathead National Forest. Unpublished report, on file at Flathead NF Supervisor's Office, Kalispell, Montana. 4 pp.