

DRAFT MONTANA PLANT STATUS RANKING METHODOLOGY

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This draft scoring methodology was developed for the purpose of assigning state status ranks for native vascular plants in Montana. It was developed with the idea that a more transparent, repeatable, and efficient system was needed for assigning state status ranks. It was designed after carefully studying the methods developed by NatureServe (2012), International Union for Conservation of Nature (2001), and Fertig (2011).

- 1. Species is believed to be introduced into Montana.....SNA (State Status Rank Not Applicable)
- 1. Species is believed to be native to Montana or its original distribution is uncertain.....2
- 2. Species is native to North America but may have been introduced into Montana
SU (state Status Unrankable)
- 2. Species is believed to be native to Montana.....3
- 3. Species is believed to be extinct in the state.....4
- 3. Species is not believed to be extinct in the state, though it may not have been observed recently
SX (State Status extirpated)
- 4. Species has not been observed for approximately 30 years or more.....SH (State Status Historical)
- 4. Species has been observed in the past 30 years.....Rank using scoring methodology below

Geographic Extent

Description	Definition and Criteria	Points
Local endemic or Very Small Montana Range	Very small range. Generally restricted to <6 Sub-basins (4 th code watersheds) or less than approx. 10,000 miles ² (equivalent to the combined area of Phillips and Valley Counties) range-wide OR limited to one Sub-basin in Montana	3
Regional or State Endemic or Small Montana Range	Small range. A Regional or State Endemic or MT contributes 50% or more of the species' range or populations. Geographic extent generally <2/3 the size of Montana OR limited to 2-3 Sub-basins in Montana.	2
Other Peripheral, disjunct or sporadically distributed Species	Widespread species that are peripheral, disjunct or sporadically distributed within Montana such that it occurs across <5% of (limited to 4-5 sub-basins/4 th -code watersheds).	1
Widespread	Widespread species within Montana (occurs in 5% or more of the state; generally occurring in 6 or more sub-basins).	0

Area of Occurrence

This factor is used as a surrogate for Area of Occupancy and the Number of Occurrences or locations as used by NatureServe and IUCN. The number of occurrences, populations or locations is often difficult to assign and is dependent upon the spatial arrangement of individuals, separation distances applied and the availability of survey data. The use of relatively small watersheds as a surrogate for Area of Occurrence and Number of Occurrences can generally be assigned with less bias and subjectivity.

Description	Definition and Criteria	Points
Very Small	Generally occurring in 3 or fewer Subwatersheds (6 th Code HUC's).	3
Small	Generally occurring in 4-10 Subwatersheds (6 th Code HUC's).	2
Moderate	Generally occurring in 11-25 Subwatersheds (6 th Code HUC's).	1
High	>25 Subwatersheds (6 th Code HUC's)	0

Population Size

Use the population cut-offs below as a guide for classifying population size. Population size is often imprecisely known for many plant species. Short-lived taxa may fluctuate in numbers widely from year to year making precise population estimates difficult. Generally only mature individuals should be counted. Important life history and biological factors should be considered when scoring this factor (ie. annual taxa with short-lived seedbanks may require larger populations to remain viable, monoecious, self-compatible taxa or vegetatively reproducing taxa may be viable with fewer individuals).

Description	Definition and Criteria	Points
Very Small	Generally <2,000 individuals.	3
Small	Generally 2,000-10,000 individuals.	2
Moderate	Generally 10,000-100,000 individuals.	1
Large	Generally >100,000 individuals.	0

Habitat Affinity/Specificity

Description	Definition and Criteria	Points
Highly Restricted	Species is restricted to a highly specialized and limited habitat and is typically dependent upon unaltered, high-quality habitat (C-Values typically 8 or greater).	2
Restricted	Species is restricted to a specific habitat that is more widely distributed or to several restricted habitats and/or is typically dependent upon relatively unaltered, good-quality habitat (C-Values of 5 or greater). Most rare or limited distribution species that do not occur in a highly restricted habitat are classified here.	1
Generalist	Species occurs in a variety of habitats or suitable habitat is common and widespread and/or species is tolerant of disturbed, altered habitats (C Values typically 4 or lower).	0

Intrinsic Vulnerability/Rarity

Description	Definition and Criteria	Points
High	Species possesses very specific or unusual life history or biological attributes or requires highly specific biological interactions or habitat dynamics which make the species highly susceptible to extirpation from stochastic events or other adverse impacts to its habitat OR species is slow to mature, reproduces infrequently and/or has low fecundity such that populations are very slow (>20 years) to recover from decreases in abundance or species has low dispersal capability such that extirpated populations are unlikely to become reestablished through natural recolonization.	2
Moderate	Species possesses specific or unusual life history or biological attributes or requires specific biological interactions or habitat dynamics which make the species susceptible to extirpation from stochastic events or other adverse impacts to its habitat OR species exhibits moderate age of maturity, frequency of reproduction, and/or fecundity such that populations generally recover from decreases in abundance over a period of several years (about 5-20 years) or species has moderate dispersal capability such that extirpated populations may eventually become re-established through natural recolonization.	1
Low	Species does not have any specific or unusual life history or biological attributes which makes it susceptible to extirpation from stochastic events or other adverse impacts to its habitat.	0

Threat Level

Description	Definition and Criteria	Points
Very High	>70% of the populations are being negatively impacted or are likely to be negatively impacted in the near future by one or more activities or agents and these impacts are expected to result in major reductions in populations, habitat quality and/or quantity.	3
High	31-70% of the populations are being negatively impacted or are likely to be impacted by one or more activities or agents and these impacts are expected to result in decreased populations, habitat quality and/or quantity.	2
Medium	11-30% of the populations are being negatively impacted or are likely to be impacted by one or more activities or agents and these impacts are expected to result in decreased populations, habitat quality and/or quantity.	1
Low	Impacts, if any, to the species are expected to be minor or insignificant (affecting <10% of populations) in severity, scope and immediacy.	0

Trends

Description	Definition and Criteria	Points
Severe Declines	A decline of 50% or more in population size, range extent or area of occurrence; or habitat quality has been significantly degraded or altered over the previous 3 decades or is expected to be in the near future.	3
Moderate Declines	A decline of 25-50% in population size, range extent or area of occurrence, or habitat quality has been moderately degraded or altered over the previous 3 decades or is expected to be in the near future.	2
Minor Declines	A decline of 10-25% in population size, range extent or area of occurrence, or habitat quality has been slightly degraded or altered over the previous 3 decades or is expected to be in the near future.	1
Stable or Increasing	Population size, range extent, area of occurrence and habitat quality stable, increasing or fluctuating.	0

State Status Rank Assignments:

- 15-19 points = Very High Conservation Priority or Needs/Critically Imperiled (S1)
- 11-14 points = High Conservation Priority or Needs/Imperiled (S2)
- 7-10 points = Medium Conservation Priority or Needs/Vulnerable (S3)
- 3-6 points = Low Conservation Priority or Needs /Presumed Stable or Secure (S4)
- 0-2 points = Very Low Conservation Priority or Needs/Stable or Secure (S5)

State Status Rank Assignments: Rarity Factors and Threats or Trends Only

- 13-16 points = Very High Conservation Priority or Needs/Critically Imperiled (S1)
- 10-12 points = High Conservation Priority or Needs/Imperiled (S2)
- 6-9 points = Medium Conservation Priority or Needs/Vulnerable (S3)
- 3-5 points = Low Conservation Priority or Needs /Presumed Stable or Secure (S4)
- 0-2 points = Very Low Conservation Priority or Needs/Stable or Secure (S5)

State Status Rank Assignments: Rarity Factors Only

- 11-13 points = Very High Conservation Priority or Needs/Critically Imperiled (S1)
- 8-10 points = High Conservation Priority or Needs/Imperiled (S2)
- 5-7 points = Medium Conservation Priority or Needs/Vulnerable (S3)
- 2-4 points = Low Conservation Priority or Needs /Presumed Stable or Secure (S4)
- 0-1 points = Very Low Conservation Priority or Needs/Stable or Secure (S5)

REFERENCES

Fertig, W. 2011. *Strategies for plant conservation in Wyoming: distributional modeling gap analysis, and identifying species at risk*. Ph.D. Dissertation, University of Wyoming, Laramie Wyoming.

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