

## *Castilleja septentrionalis*

Pale painted cup

### Status

Federal status: G5 N?, Not listed

NH state status: S1, Threatened

ME state status: S3, Special Concern

Flora Conservanda Division 2a, meaning that there are more than 20 occurrences in New England, but many of these have small populations. Population trends are unknown. A couple of WMNF occurrences have existed for nearly 100 years, however, a couple of historic sites were not relocated during 1990 surveys. Many Maine occurrences are ranked “E” by the state, which means they are vulnerable to extirpation, so long-term viability may be a concern.

The expert panel estimated the range-wide and WMNF viability at outcome B to C now and in the next 20 years. Trail impact on this species and its community in the Presidentials is not that high, but it may be much greater outside of the Presidentials because alpine habitat occurs in smaller patches and more of it is impacted by trails and view-seekers. Local demes have been lost, but the overall geographic extent of the taxon has not been reduced. It is expected that recreation impacts will increase in the next 20 years, but so will public awareness, which may mitigate some impacts. Winter campers will affect snowbank areas near the huts. If off-trail hiking prohibitions are not enforced, and specific sites are not protected, the outcome will move toward C in next 20 years.

### Distribution

Labrador and Newfoundland south to Maine and Vermont, west to Michigan and Utah, north to Alberta.

In New Hampshire, this species is known from Sargents Purchase, Thompson and Meserve, Cutts Grant, and Greens Grant, all of which are in the WMNF. In Maine it is only known from Mt. Katahdin and Aroostook County, neither of which are near the WMNF.

### Habitat

In New Hampshire, *Castilleja septentrionalis* is an alpine obligate. It typically occurs in cool, wet ravines, along alpine brooks, and in wet alpine and subalpine meadows. Soil conditions vary by location from moist organic soil to gravelly soil to calcareous cliffs.

Considered by the expert panel to be a good representative of the snowbank/streamside/wet ravine alpine communities. These patch communities are characterized by heavy late melting snow, high moisture levels, and a relatively thick organic soil layer. Snow loading is important because it provides protection from harsh winters and fluctuations in spring temperatures. Snow and thick soils and/or streamside conditions provide the moisture levels that are critical for these species.

### Limiting Factors

Hiking, winter camping, and late spring use are probably the most important factors affecting the snowbank/wet meadow/streamside community system, including *Castilleja septentrionalis*. The threats from winter camping are not well documented, but are believed by several experts to be from compaction and loss of snow load if snow caves are built on top of less than 1-2' of snow, and concentration of human waste in snowbank community patches. Winter camping is a greater concern in snowbank communities where camping occurs throughout the winter.

Loss of snow load or compaction could pose a threat to this species, but the threat from trampling and other recreational use is greater. Global warming and acid rain may be threats, but it is uncertain how much they impact alpine species, and they are less important other threats.

### Viability concern

The expert panel indicated that snowbank community species are very scattered; their distribution and association with others is unpredictable, making selection of focal or surrogate species for these communities inappropriate. WMNF contains 100% of known New Hampshire population. Future outcome is expected to decline if hikers are not kept on trails and known occurrences are not protected, so species was kept on list to help ensure that sites are protected.

### Management activities that might affect viability

The activities with potential to impact this species that the WMNF has some control over are trampling by hikers and winter camping that results in loss of snow loading and compaction. Management that would reduce the density of trails in the alpine zone or help keep hikers on designated trails would reduce the potential for trampling.

Local experts were asked about winter camping guidelines and potential impacts to snowbank community plants. They felt the current requirement for 2' of snow under any snow cave would be sufficient but are concerned, based on observations in the past, that some winter campers do not abide by this rule and use is increasing. The greater unknown is concentration of human wastes that could alter nutrient availability. Encouraging winter campers to pack out waste would help minimize potential impacts.

Trail construction or other development in the alpine zone could affect this species if it would directly impact a snowbank community patch, alter the hydrology of a suitable area, or increase human traffic near suitable habitat. Trail maintenance activities could alter habitat suitability or directly impact individuals.

### References

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