

## *Nabalus bootii*

### Status

Federal status: G2 N2, Not listed

NH state status: S1, Threatened; proposed for endangered status (5/03)

ME state status: S1, Endangered

Listed as RFSS under the name *Prenanthes boottii*. Populations in Maine appear to be stable based on monitoring results. The status of New Hampshire and other populations is not as well documented and therefore less certain.

The alpine expert panel indicated that the current outcome is between B and C, depending on habitat and location in the WMNF. There is potential for the outcome to move more toward a C in the future with increased impacts from recreational use.

### Distribution

This species is restricted to the northeastern United States from Maine to New York.

In New Hampshire, four extant and one historic population are documented from Sargents Purchase, Thompson and Meserve, and Chandlers Purchase. All are on the WMNF. In Maine, three extant occurrences are documented from Piscataquis, Somerset, and Franklin Counties. None are near the WMNF.

### Habitat

*Prenanthes boottii* occurs in a variety of alpine habitats, including moist tundra, steep cirque ledges and crests, and disturbed alpine sites. It is a component of the snowbank/wet meadow/streamside community system, but also occurs in the dry/mesic heath meadow system of alpine communities. This species does not occur in the wettest areas of either system, but tends to occur in drier areas such as damp meadows. It is primarily found above 4,000 feet but occasionally occurs below treeline.

Plants tend to be found in somewhat exposed situations, as well as disturbed areas such as fell-fields, steep slopes, ravines and streamsides, and anthropogenically disturbed situations such as near trails and huts. Therefore some level of natural or human-caused disturbance seems to benefit this species. *Prenanthes boottii* likely has a higher disturbance threshold than other disturbance-tolerant alpine species, but disturbance above this threshold level would be detrimental.

### Limiting Factors

Though *Prenanthes boottii* does well with some disturbance and is found in areas where there is a lot of hiking activity, there is a limit to the amount of disturbance it can tolerate. There is evidence that some populations have decreased in size due to foot traffic. Other possible related threats include trail maintenance, over-collecting by botanists, and picking by hikers. Proximity of one population to the Mt. Washington auto road is a threat to that occurrence.

Global warming, acid deposition, and hydrological changes may be threats to alpine species. The extent of these threats is not known at this time and is likely minor compared to other factors such as recreational use.

### Viability concern

Global (G2) and national (N2) ranks and known occurrence on the Forest make this an automatic RFSS for the WMNF. The WMNF contains almost half of the known populations for this species globally. The rarity of this species and its proximity to recreational disturbance make long-term viability a concern even though it appears to be adapted to benefit from some level of disturbance.

### Management activities that might affect populations or viability

The activity with potential to impact this species that the WMNF has some control over is trampling by hikers and other recreationists. Management that would reduce the density of trails in the alpine zone, help keep hikers on designated trails, and protect rare species from rock and ice climbing impacts would reduce the potential for trampling.

Trail construction or other development in the alpine zone could affect this species if it would directly impact wet ravine habitat, 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

Bliss, L. C. 1963. Alpine plant communities of the Presidential Range, New Hampshire. *Ecology* 44:678-697.

NatureServe: An online encyclopedia of life [web application]. 2001. Version 1.5. Arlington, Virginia. The Association for Biodiversity Information. Available: <http://www.natureserve.org>. (Accessed: October 22, 2001).

Sperduto, D. D. and C. V. Cogbill. 1999. Alpine and subalpine vegetation of the White Mountains, New Hampshire. New Hampshire Natural Heritage Inventory, Concord, NH. Submitted to the USDA Forest Service, White Mountain National Forest, Laconia, NH.

SVE panel. 2002. GMNF/WMNF species viability evaluation expert panel notes on alpine plants. Panel held: May 13-15, 2002, Rutland, Vermont.