

**Recommendation for the Designation of
Roan Mountain Bluets**
Houstonia montana Small
as a Virginia Species of Greatest Conservation Need

Contacts

Becky Gwynn, Deputy Director
Virginia Department of Wildlife Resources
becky.gwynn@dwr.virginia.gov
A 7870 Villa Park Drive, P.O. Box 90778, Henrico, VA 23228-0778
(804) 593-2043

Jason Bulluck, Director
Virginia Natural Heritage Program
Department of Conservation and Recreation
jason.bulluck@dcr.virginia.gov
600 East Main Street Richmond, Virginia 23219
(804) 786-8377

The Virginia Department of Wildlife Resources, with support from the Virginia Department of Conservation and Recreation-Division of Natural Heritage, recommends the addition of Roan Mountain bluets (*Houstonia montana* Small) to Virginia's list of Species of Greatest Conservation Need as a tier I-B species (Appendix 1).

Justification

Species Summary

Houstonia montana (= *Hedyotis purpurea* var. *montana*, Roan Mountain bluets; G5T2/S1, Fed LE/State PT) (Appendix 2) was listed as Federally Endangered by the U.S. Fish and Wildlife Service in April 1990 (USFWS, 1990). Despite its initial listing as a variety, subsequent research has confirmed its status as a full species (Church and Taylor, 2005; Glennon et al., 2011). In addition to its federal status, *Houstonia montana* is ranked G5T2 (imperiled variety) by NatureServe and the Natural Heritage Network, meaning that it is a high conservation priority on a global scale (NatureServe, 2022). Virginia has a single known population of Roan Mountain bluets (VA DCR, 2022). This diminutive herb in the coffee family (Rubiaceae) is a Southern Appalachian endemic, known from the Blue Ridge mountains of North Carolina, Tennessee, and Virginia. The Virginia population was discovered in Grayson County in 2013 and is the northernmost location known for the species. These plants are found on a high elevation outcrop barren, consistent with habitat types described elsewhere. *Houstonia montana* is threatened due to its limited range and small number of populations (fewer than 10). Its rare outcrop habitat is subject to impacts from a variety of recreational uses, including hiking, climbing, and ski resort development (SASVP, 2002; NatureServe, 2022).

Trends

Virginia's single population contains fewer than 50 clumps, all isolated on two small rock outcrops. This occurrence is on protected land and human impacts thus far have been minimal. Plant succession and shading within the *Houstonia* colonies seems to be a threat, but detailed monitoring data would be needed to discern any trends. In other states, the greatest damage to *Houstonia montana* has probably come from the development of open mountain summits and increased foot traffic (Kral, 1983). Any increase in visits by sightseers, rock climbers, and hikers could exacerbate this trend (USFWS, 1990). Data on population demographics is minimal, but fluctuations in the number of individuals or stems have been documented; any study of population trends would need to account for these natural cycles.

Conservation Action

Conservation actions recommended for *Houstonia montana* include increased protection and management of known populations, population monitoring, and surveys for new sites. The single Virginia population is partially protected from trampling and climbing impacts due to issues of accessibility, but threats from a popular rock bouldering and hiking trail exist in the immediate vicinity of the population (K. Patterson pers. comm. Oct. 25, 2022).

Shading from surrounding vegetation may be having a negative effect on the population, so vegetation management options should be examined (VA DCR, 2022). Infrastructure or trail projects in the vicinity of this population must be examined carefully if proposed. Further inventory for this species is needed, particularly on some of the more inaccessible and complex outcrops above 4,000 feet. In general, protection of high elevation outcrops should be a continued priority since it would help safeguard undetected populations of *Houstonia montana* as well as the rare plants and plant communities that often co-occur with it.

Summary

Houstonia montana (Roan Mountain bluets) is proposed for inclusion in the Virginia State Wildlife Action Plan as a tier I-B species due to its restricted available habitat on high elevation outcrops, recreational impacts at these sites, and low population numbers.

This species occurs only in the Mount Rogers Planning District Commission.

References

Church, Sheri A. and Douglas R. Taylor, August 2005. Speciation and hybridization among *Houstonia* (Rubiaceae) species: the influence of polyploidy on reticulate evolution. *American Journal of Botany*. Volume 92, Issue 8 Pages: 1372-1380

Glennon, Kelsey L., J. T. Donaldson, Sheri A. Church. 1 July 2011. Evidence for hybridization between the endangered Roan Mountain bluet, *Houstonia purpurea* var. *montana* (Rubiaceae) and its common congener. *The J. of the Torrey Botanical Society*, 138(3):272-286 (2011).

Kral, R. 1983. A report on some rare, threatened, or endangered forest-related vascular plants of the South. U.S. Dept. of Agriculture Forest Service Technical Publication R8-TP2, Athens, GA. 1305 pp.

NatureServe. 2022. NatureServe Explorer [web application]. NatureServe, Arlington, Virginia.
https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.155857/Houstonia_purpurea_var_montana [Accessed: October 21, 2022].

Southern Appalachian Species Viability Project (SASVP). 2002. A partnership between the U.S. Forest Service-Region 8, Natural Heritage Programs in the Southeast, NatureServe, and independent scientists to develop and review data on 1300+ regionally and locally rare species in the Southern Appalachian and Alabama region. Database (Access 97) provided to the U.S. Forest Service by NatureServe, Durham, North Carolina.

United States Fish and Wildlife Service (USFWS). April 5, 1990. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for *Geum radiatum* and *Hedyotis purpurea* var. *montana*. *Federal Register*. Vol. 55, No. 66. pp. 12793-12797.

United States Fish and Wildlife Service (USFWS). 1996. Recovery plan for Roan Mountain bluet (*Hedyotis purpurea* (L.) Torrey & Gray var. *montana* (Small) Fosberg). Southeast Region, Atlanta, GA. 46 pp.

Virginia DCR Natural Heritage Program (VA DCR). 2022. Biotics 5 database. Virginia DCR Natural Heritage Program, Richmond, Virginia.