

Species: Great Spurred Violet (*Viola selkirkii*)
Global Rank: G5?
State Rank: S3
Climate Change Vulnerability Index: Highly Vulnerable
Confidence: Very High

Habitat:

Great spurred violet occupies the boreal regions of North America south to Pennsylvania, Minnesota, and British Columbia, with disjunct occurrences in the Black Hills of South Dakota and the Rocky Mountains of Colorado and New Mexico (Gleason and Cronquist; NatureServe 2010). The species occurs in circumboreal forests underlain by basic soils or limestone in Pennsylvania.

Current Threats:

Great spurred violet is threatened by deforestation and displacement by exotic plant species.

Main Factors Contributing to Vulnerability Rank:

Distribution relative to natural topographic or geographic habitat barriers: Great spurred violet is mostly limited to moist, cool ravines and is unlikely to migrate upslope where microsite conditions are different.

Dispersal and movement: Seeds are both ant and ballistically dispersed with a mean dispersal distance of less than a meter (Ohkawara and Higashi 1994).

Predicted micro sensitivity to changes in temperature: The species occupies moist, shaded ravines, and cold boreal and hardwood forest habitats throughout its range (Hornbeck et al. 2003). The species is limited to the cool environment found in the northern tier of Pennsylvania.

Predicted macro sensitivity to changes in precipitation, hydrology, or moisture regime: Considering the range of the mean annual precipitation across the species' range in Pennsylvania, the species has experienced a slightly lower than average precipitation variation in the past 50 years.

References:

Gleason, H.A. and A. Cronquist. 1991. Manual of the vascular plants of northeastern United States and adjacent Canada, Second Edition. New York, New York: New York Botanical Garden. 910p.

Hornbeck, J.H., C.H. Sieg, and D.J. Reyher. 2003. Conservation assessment for great-spurred violet in the Black Hill National Forest, South Dakota and Wyoming. US

Department of Agriculture, Forest Service, Rocky Mountain Region, Black Hills National Forest, Custer, South Dakota.

NatureServe. 2010. NatureServe Central Databases. Arlington, Virginia. USA.

Ohkawara, K. and S. Higashi. 1994. Relative importance of ballistic and ant dispersal in two diplochorous *Viola* species (Violaceae). *Oecologia* 100:135-140.

Rhoads, A. and T. Block. 2007. The plants of Pennsylvania. 2nd Edition. Philadelphia. University of Pennsylvania Press.

Rhoads, A. and W.M. Klein. 1993. The vascular flora of Pennsylvania annotated checklist and atlas. American Philosophical Society, Philadelphia, PA.