

Species: Screwstem (*Bartonia paniculata*)

Global Rank: G5T5

State Rank: S3

Climate Change Vulnerability Index: Moderately Vulnerable

Confidence: Moderate

Habitat:

Screwstem is an obligate wetland species that occurs from New England and Ontario, Canada to Texas and Florida (NatureServe 2010). In Pennsylvania, this species is found in bogs, swamps, and wet meadows.

Currents Threats:

Screwstem is threatened by habitat loss, alterations to wetland hydrology, displacement by exotic plant species, and succession that results in shading (twining screwstem is shade intolerant).

Main Factors Contributing to Vulnerability Rank:

Distribution relative to natural topographic or geographic habitat barriers: Screwstem is limited to bogs, swamps, and wet meadows that tend to be separated by upland habitat that would make migration for a wetland obligate species very difficult.

Dispersal and movements: It is likely that dispersal is limited to short distances within a site (Hill 2003). Given that the wetland habitat where this species is found is generally isolated, it is unlikely that seeds can disperse long distances to new, suitable habitat.

Predicted micro sensitivity to changes in temperature: Considering the range of the species in Pennsylvania, some populations are restricted to relatively cool wetlands that may be lost or reduced due to climate change.

Predicted micro sensitivity to changes in precipitation, hydrology, or moisture regime: Screwstem is an obligate wetland species and is dependent on a moisture regime that may be vulnerable to loss or reduction with climate change and the expected direction of moisture change is likely to affect the species' distribution, abundance, or habitat quality. Hill (2003) suggests that the need for continuous moisture appears to be crucial for this species.

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 small precipitation variation in the past 50 years.

Predicted micro sensitivity to changes in precipitation, hydrology, or moisture regime: Climate models suggest a likely increase in precipitation amount and patterns for Pennsylvania that will likely have a negative impact on the species' habitat quality.

Interspecific interactions: Screwstem utilizes one or several mycorrhizal associates (Hill 2003).

References:

Hill, S.R. 2003. Conservation assessment for twining screwstem (*Bartonia paniculata*) (Michx.) Muhl. USDA Forest Service. Milwaukee, Wisconsin. USA.

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