

Species: Cranefly Orchid (*Tipularia discolor*)
Global Rank: G4G5
State Rank: S3
Climate Change Vulnerability Index: Highly Vulnerable
Confidence: Very High

Habitat:

The range of the cranefly orchid extends south from New York to Florida and Texas and west from the east coast to Illinois, Missouri, and Oklahoma (NatureServe 2010). It occurs at the northern limit of its range in Pennsylvania/New York, but is restricted to calcareous mesic forests in the southern third of Pennsylvania.

Current Threats:

The cranefly orchid is threatened by deforestation, displacement by exotic plant species, changes in soil chemistry, loss of associated soil mycorrhizae, and deer herbivory (Whigham 1990, 2004).

Main Factors Contributing to Vulnerability Rank:

Distribution relative to anthropogenic barriers: Populations of cranefly orchid that occur in southeast Pennsylvania may experience limitations to northward expansion due to the surrounding urbanization of the landscape and extensive agricultural areas beyond known populations.

Dispersal ability: Although seeds are dust-like in size, dispersal is thought to be a very limited distance (Rasmussen and Whigham 1993).

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.

Dependence on other species to generate habitat: The need for a mycorrhizal symbiont for germination and seedling establishment increases the vulnerability of this species to climate change (Rasmussen and Whigham 1998).

Interspecific interactions: Reliance on a mycorrhizal symbiont somewhat increases the vulnerability of cranefly orchid to climate change effects (Rasmussen and Whigham 1998).

References:

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Whigham, D.F. 1990. The effect of experimental defoliation on the growth and reproduction of a woodland orchid, *Tipularia discolor*. *Canadian Journal of Botany* 68: 1812-1816.

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