

# PURPLE TWAYBLADE

Purple Twayblade (*Liparis liliifolia*) is a fascinating plant with a distinctive biology, notably in its reproductive strategy and reliance on mycorrhizal fungi for germination and early growth.

## Taxonomy & Distribution

Purple Twayblade belongs to the *Orchidaceae* family, which is one of the most diverse families of flowering plants.



It is found in various parts of North America, including eastern Canada and right here in Windsor Ontario!



## Conservation Status

Purple Twayblade is listed as Threatened in Ontario under the ESA, which protects both the plant and its habitat.



## Habitat and Ecology

Purple Twayblade is a terrestrial orchid, meaning it grows in soil rather than being epiphytic (growing on other plants).



Purple Twayblade prefers open to semi-open areas and can be found in a wide range of habitats. These include open oak woodland, savanna, tallgrass prairie, shrub-thicket, shrub alvar, forested swamp, mixed deciduous forest, and coniferous plantation. It can tolerate a variety of soil conditions.

Despite a wide tolerance to a variety of habitat and soil conditions, the species' distribution is restricted by the presence of a specific mycorrhizal soil fungus.



Purple Twayblade grows in partial shade but does not like dense shade. It is also dependant on natural disturbances, such as storms and fire, to keep its habitat relatively open.



## Morphology

Purple Twayblade is a small terrestrial orchid that grows 10 - 25 cm tall.



It has two broadly elliptical to oval, toothless, shiny green leaves at the base of the plant and a single straight green or purplish tinged stem.

In late May through early July, a flowering stalk arises between the leaves bearing five to 30 translucent, purplish-brown flowers.



It is the purplish coloration of the inflorescence that gives the orchid its name.



## Reproduction

Like all orchids, Purple Twayblade has a unique reproductive strategy that involves specific interactions with pollinators.



The seeds are extremely small and lack endosperm, which makes Purple Twayblade dependent on a specific mycorrhizal fungus in the soil for germination. The fungus is in the genus *Tulasnella*. The fungus is the same over the entire range of this species and has virtually no genetic variation. This fungus provides essential nutrients to orchid seeds and young plants until they can conduct photosynthesis, playing a crucial role in their survival.



# THREATS

- The primary threat to Purple Twayblade is habitat loss and alteration, development, and the growth of trees and shrubs that increase shade above what the species can tolerate.
- Additionally, populations may be threatened by natural processes or activities such as wildlife browsing and competition from invasive plants.
- Another threat to Purple Twayblade is its small population size, which can make them vulnerable to inbreeding and the resulting lack of genetic diversity.

Our lives could not be if not for the lives of the plants and animals. As our food, medicine, clothing, shelter, tools, and inspiration, they give themselves. *“In their giving, their lives are also ensured in a chain of reciprocity”* (Kimmerer, 2013). We have responsibilities to the plants and animals. To learn their names, notice them, spread their seeds, create habitat, and give them offerings. It is in these relationships we restore the environment and ourselves.

~ Mariah Alexander

# RECOVERY ACTIONS

- Potentially suitable habitat for Purple Twayblade within the Tallgrass Prairie Heritage Park of the Ojibway Prairie Complex was identified, mapped, and surveyed.
- Prescribed burns were conducted in high-quality habitat containing a healthy population of Purple Twayblade.
- Future prescribed burns were recommended in the newly discovered, unmanaged and occupied habitats, to maintain and potentially increase the population.
- To mitigate threats to Purple Twayblade and its habitat, including invasive species establishment, boot cleaning brushes have been installed at the Tallgrass Prairie Heritage Park main trailhead with accompanying signage.

# WHAT WE CAN DO TO HELP

1. Enhance understanding of the species' biology, distribution, threats, and potential recovery through research and monitoring of species at risk and their habitats.
2. Sustain or enhance species distribution and habitat quality, while mitigating threats through habitat protection and effective management.
3. Raise awareness about the species, its vulnerabilities and habitat needs, through education and outreach initiatives.
4. Encourage cooperation between municipalities, conservation groups and landowners as Purple Twayblade inhabits both public and private lands.

**Private landowners are integral to species recovery. If you discover Purple Twayblade on your property, consider your eligibility for stewardship programs supporting species protection and recovery.**

**To learn more about Purple Twayblade you can visit the following websites:**

- <https://www.ontario.ca/page/purple-twayblade>
- <https://ontariowildflowers.com/main/species.php?id=994>
- [https://www.illinoiswildflowers.info/savanna/plants/pp\\_twayblade.htm](https://www.illinoiswildflowers.info/savanna/plants/pp_twayblade.htm)
- <https://www.minnesotawildflowers.info/flower/lily-leaved-twayblade>
- <https://www.ontario.ca/page/purple-twayblade-recovery-strategy>

**WITH SUPPORT FROM**

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Ontario 

# PURPLE TWAYBLADE

in the Ojibway  
Prairie Complex



Mariah Alexander