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## Do You Know *Platanthera praeclara*?

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# DO YOU KNOW *PLATANHERA PRAECLARA*?

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**Abstract.** This is a brief synthesis on the plant, habitat and range of the western prairie fringed orchid (*Platanthera praeclara* Sheviak and Bowles). This species was once common in the tallgrass prairie, but its numbers have been greatly reduced by improper management and loss of habitat. Comparisons are made to the eastern prairie fringed orchid [*Platanthera leucophaea* (Nutt.) Lindl.].

**Key Words.** western prairie fringed orchid, *Platanthera praeclara*, orchid, wet meadow, rare species

## INTRODUCTION

Western prairie fringed orchid (*Platanthera praeclara* Sheviak and Bowles) is a rare prairie orchid known only to a few people. It has only recently been separated from the eastern prairie fringed orchid [*Platanthera leucophaea* (Nutt.) Lindl.] as a distinct species. Only a few basic facts are known about the species: what it looks like in its floral state, where it lives, where it doesn't live, and some land management practices with which it can survive.

## DISCUSSION

### The Plant

Western prairie fringed orchid is similar to the eastern prairie fringed orchid, its relative east of the Mississippi River. Both are among the most highly evolved North American *Platanthera*. Each orchid has achieved speciation by adapting to different pollinators through differences in floral anatomy. These differences are morphological which dictate differences in pollinators. The flowers of western prairie fringed orchid are larger than the flowers of eastern prairie fringed orchid. The larger flower size of western prairie fringed orchid also means a longer nectar spur, which is the longest of any northern temperate member of the genus. Therefore, the western prairie fringed orchid requires pollinators (usually a moth, as both orchids display flowers which are nocturnally fragrant) with longer proboscises. The average spur length of western prairie fringed orchid is 1 cm longer than that of the eastern prairie fringed orchid (Sheviak and Bowles 1986). The pollinaria placement is slightly different between these orchids, which also separate effective pollinators and prevents cross-pollination. In general, western prairie fringed orchid produces shorter, denser inflorescences of fewer, larger flowers than eastern prairie fringed orchid. Western prairie fringed orchid has only recently been separated from *Platanthera leucophaea* (Luer 1975). Some taxonomists have placed it in the genus *Habenaria* Willd. (Luer 1975, Great Plains Flora Association 1986).

The western prairie fringed orchid is an herbaceous perennial that grows from a fusiform tuber. The leaves are lance shaped to suborbicular and sheath the lower stem. Basal leaves can be up to 20 cm long, while other leaves are reduced upwards. Flowers are large and showy, arranged in a spiciform raceme with 20 or more flowers. Each hooded flower is creamy white with three larger lower petals that are three-lobed and fringed. A slender nectar spur is included. Total flower length can be up to 15 cm,

the nectar tube 3.5- 5 cm, and the main petals 1.5-2.5 cm. Western prairie fringed orchid capsules are produced after flowering and remain in the pod until it dries, cracks, and tiny seeds are dispersed. Little is known about its incubation needs or germination requirements (Sheviak and Bowles 1986).

### The Habitat

Western prairie fringed orchid is found mostly in mesic prairie swales. These lowlands usually have sandy soils where the water table is near the surface and is often flooded. Western prairie fringed orchid is one of the few orchids of the tallgrass prairie, appears restricted to this habitat, and is usually an indicator of virgin prairie. Rarely is it found under successional conditions. This orchid is often seen in a sedge-meadow site on soils that are slightly acidic to neutral (5.4 to 7.6 pH), calcareous (1,730 to 6,456 ppm Ca), alluvial, lacustrine over sand, and loess or glacial till (Bowles and Duxbury 1986).

### The Range

Western prairie fringed orchid reaches its northern distribution in the Red River Valley of northern Minnesota. Southward, it ranges through the eastern Dakotas, central Nebraska, Kansas, and northeastern Oklahoma (Magrath 1973, Magrath and Taylor 1978). Its distribution extends eastward in a narrowing pattern through southern Minnesota, Iowa and northern Missouri. The Mississippi River is its eastern range boundary. Precise occurrences are located in five states: Oklahoma (treated by Tyrl *et al.* 1978 as eastern prairie fringed orchid), Kansas, Nebraska, South Dakota, and North Dakota.

In the past, western prairie fringed orchid was erroneously noted to have been seen as far west as Wyoming. Many old reports are known to be vague in land description and/or precise location. One such report was from the early explorer Lt. John Fremont. He collected a western prairie fringed orchid specimen and noted its location in the Platte Valley near what is now Casper, Wyoming. According to A. E. Nelson, Herbarium Manager of the Rocky Mountain Herbarium at the University of Wyoming, further research into Fremont's diary of the exploration has shown that the date of collection is unclear, as well as the diary report of that date. Some speculation is that Fremont actually collected the plant in the Nebraska Sandhills, because proper habitat does not exist near Casper, Wyoming.

Populations vary over the entire range of the western prairie fringed orchid from a few plants in some locations to over 2,000 at another. Many potential habitats and populations may exist for this orchid, but may be overlooked because the different life stages are not yet recognized.

Land management where western prairie fringed orchid is found varies. The largest population known (over 2,000 plants) is in the Shenyenne National Grassland where cattle grazing is the major use. Many areas where populations exist are hay meadows, which are occasionally mowed. These orchids do not survive plowing or urban development (Bowles and Duxbury 1986).

### CONCLUSIONS

Western prairie fringed orchids are beautiful plants that are protected by law in many states. They may again become a part of the common flora of the tallgrass prairie. This species had a wide distribution throughout the tallgrass prairie, but it now exists in a few locations with the largest population in southeastern North Dakota. Little adequate data are available on the habitat needs or effects of various land management practices on this species. More information is needed on its needs and life history.

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