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WYOMING'S

Threatened and Endangered Plant Species

Colorado Butterfly Plant

Bureau of Land Management

Colorado Butterfly Plant

Colorado butterfly plant (*Gaura neomexicana ssp. coloradensis*) is a striking plant of the North and South Platte River watersheds of southeastern Wyoming, western Nebraska, and northeastern Colorado. "Colorado" butterfly plant is a somewhat misleading name given that over twice as many populations are known from Wyoming than Colorado or Nebraska (the name commemorates the fact that subspecies *coloradensis* was only found in Colorado when it was first discovered in 1895). In Wyoming, it is known only from Laramie and Platte counties. The species was designated as threatened under the Endangered Species Act by the U.S. Fish and Wildlife Service on October 18, 2000.

Description

The Colorado butterfly plant is a member of the Evening primrose family (Onagraceae). Members of this family are distinguished by having flowers with four petals that are fused at the base into a slender tube situated above the seed-producing ovary. The flowers of Colorado butterfly plants are unlike most plants in being bilaterally symmetrical (having 2 mirrored halves when divided in one plane) and shaped somewhat like the fore and hind wings of a butterfly. When flowers first open, the showy, 3/8 inch long petals are white but turn pink with age. The female portion of the plant, called a pistil, extends from the flower and contains a four-lobed "cross" at the tip on which pollen is deposited during pollination. The hard, diamond-shaped fruits are 4-angled in cross-section and attached directly to the stem. The Colorado butterfly plant is a short-lived perennial plant that typically lives from 2-6 years. Typical plants are 1½ to 2 feet tall with leaves over 1½ inches long and approximately 3/8 inches wide.

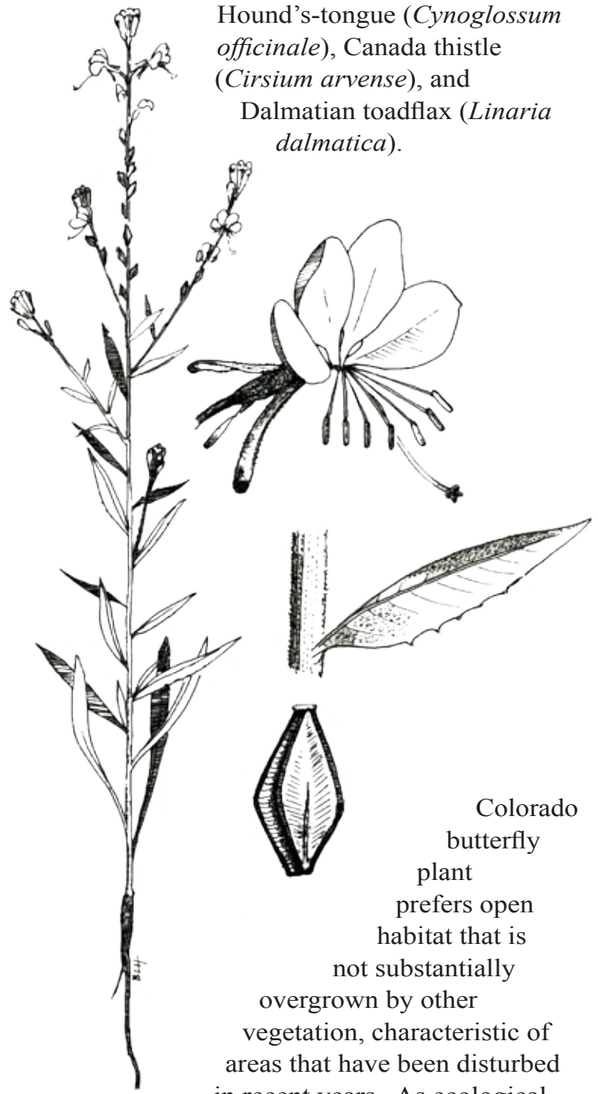
Life History

The Colorado butterfly plant flowers from late June until late September or October, depending on the date of the first hard frost. Like many other members of the Evening primrose family, Colorado butterfly plant flowers open at dusk and are light-colored to attract nocturnal insect pollinators, such as moths. While the primary pollinators of Colorado butterfly plant have not yet been documented one possible candidate is the Clouded crimson moth (*Schinia gaurae*) which commonly feeds on members of the butterfly plant genus as a caterpillar. In controlled studies, the Colorado butterfly plant has been shown to be self-compatible (capable of self-pollination), but in nature it is thought to reproduce primarily by outcrossing and requires an insect pollinator for assistance.

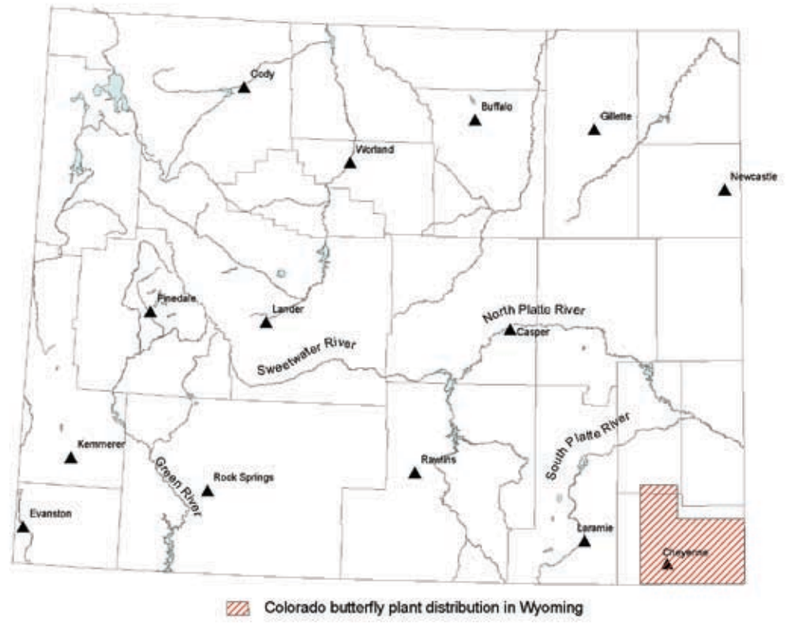
Fruits begin to mature in late July and continue to ripen through September. Individual fruits contain 1-4 seeds and a robust butterfly plant can produce as many as 383 fruits. Studies show that Colorado butterfly plant produces a seed bank, providing a reserve of seeds in the ground that can wait as many as five years for favorable environmental conditions before germinating. This gives the Colorado butterfly plant a means of survival during years of inhospitable conditions, and likely enables the plant to persist through severe environmental conditions such as prolonged drought.

Habitat

The Colorado butterfly plant typically is found in wetland habitats along meandering stream channels on the high plains. In undisturbed sites, it grows among native grasses and forbs like switchgrass (*Panicum virgatum*), little bluestem (*Schizachyrium scoparium*), Flodman's thistle (*Cirsium flodmanii*), and Canadian goldenrod (*Solidago canadensis*). The Colorado butterfly plant can also occur in wetland sites being invaded by non-natives, including Redtop (*Agrostis stolonifera*), Kentucky bluegrass (*Poa pratensis*), Leafy spurge (*Euphorbia esula*), Hound's-tongue (*Cynoglossum officinale*), Canada thistle (*Cirsium arvense*), and Dalmatian toadflax (*Linaria dalmatica*).



Colorado butterfly plant prefers open habitat that is not substantially overgrown by other vegetation, characteristic of areas that have been disturbed in recent years. As ecological succession continues and more vegetation begins to take over its habitat, the Colorado butterfly plant tends to die out. Historically, flooding was probably the most important type of disturbance creating and maintaining open habitat. Wildfire and grazing also were historically present and likely were important in creating and maintaining Colorado butterfly plant habitat.



Colorado butterfly plant distribution in Wyoming

Conservation

The Endangered Species Act defines a threatened species as any species which is likely to become in danger of extinction within the foreseeable future throughout all or a significant portion of its range. Federal law prohibits the removal or destruction of threatened plants on any federal land or as a result of federal actions. As a federally-listed threatened species, the Colorado butterfly plant also receives protection under BLM's Special Status Species management policy.

In 2004, the U.S. Fish and Wildlife Service initiated habitat conservation agreements with private landowners on whose property the Colorado butterfly plant occurs. These conservation agreements provide specific measures to address potential threats due to herbicide application, livestock grazing, and hay production. Eleven such agreements are in place providing protection to over 2,500 acres of habitat along 37 miles of stream. An additional 3,500 acres, along approximately 51 miles of stream, has been designated as critical habitat under the Endangered Species Act. Annual monitoring conducted through conservation agreements, and research conducted by University of Wyoming and Wyoming Natural Diversity Database on F.E. Warren Air Force Base, is providing important scientific information on which long-term recovery ultimately depends.

Suggested Reading

Fertig, W. 2000. Status review of the Colorado butterfly plant (*Gaura neomexicana ssp coloradensis*). Wyoming Natural Diversity Database, Laramie, Wyo.

Grunau, L., R. Schorr, and J. Handwerk. 2004. Conservation and management plan for Colorado butterfly plant and Preble's meadow jumping mouse on F.E. Warren Air Force Base. Colorado Natural Heritage Program, Fort Collins, CO. for F.E. Warren Air Force Base.

Heidel, B. 2008. 20-year population trends of a short-lived riparian species, Colorado butterfly plant (*Gaura neomexicana ssp. coloradensis;* Onagraceae), on F.E. Warren Air Force Base. Wyoming Natural Diversity Database, Laramie, Wyo.

Citation:

B. Heidel, W. Fertig, F. Blomquist, and T. Abbott. 2008. Wyoming's Threatened and Endangered Species: Colorado Butterfly Plant. Wyoming Bureau of Land Management, Cheyenne, Wyo. In collaboration with Wyoming Natural Diversity Database.

Note: New data on the biology and status of this species are being collected constantly, and parts of the information in this publication may become outdated. The fact sheet provides a general overview of the status of this species and is not intended as the sole source of species information for planning and research purposes. For additional information on this or other threatened and endangered species, or for additional copies of this publication, refer to the suggested readings or contact the botany contacts of the Bureau of Land Management in Wyoming, U.S. Fish and Wildlife Service in Wyoming, and the Wyoming Natural Diversity Database.

This Colorado Butterfly Plant fact sheet is one in a series on Wyoming's Threatened and Endangered Plant Species published by Bureau of Land Management and the Wyoming Natural Diversity Database.

Front and back cover photo by B. Heidel
Inset photo by T. Abbott
Colorado butterfly plant illustration by B. Heidel

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