

-State Species Abstract-
-Wyoming Natural Diversity Database-

GAURA NEOMEXICANA SSP
COLORADENSIS
COLORADO BUTTERFLY PLANT
Family: Onagraceae

Status:

US Fish & Wildlife Service: Threatened
Agency Status: None.

Heritage Rank:

Global: G3T2 State: S2
Range Context: Regional Endemic/ Core
Wyoming Contribution Rank: Very High:

Description: Colorado butterfly plant is a short-lived perennial herb with 1-few reddish, pubescent stems 50-80 cm tall. Lower leaves are lance-shaped, with smooth or wavy-toothed margins and average 5-10 cm long, while those higher on the stem are smaller and reduced in number. The inflorescence is located above the leaves, is flat-topped when in bud, and elongates as the flowering season progresses. Usually only a few open flowers are present at any time and are located between the floral buds and the mature fruits. Flowers have 4 white petals (turning pink with age) and are 1-1.5 cm wide. The hard, nut-like fruits are 4-angled and sessile (Fertig 2000, Heidel 2008).

Similar Species: *Gaura parviflora* is an annual with a narrow, elongate inflorescence at all stages and white flowers less than 3 mm long. *G. coccinea* is a low, bushy perennial with leaves less than 3 mm long.

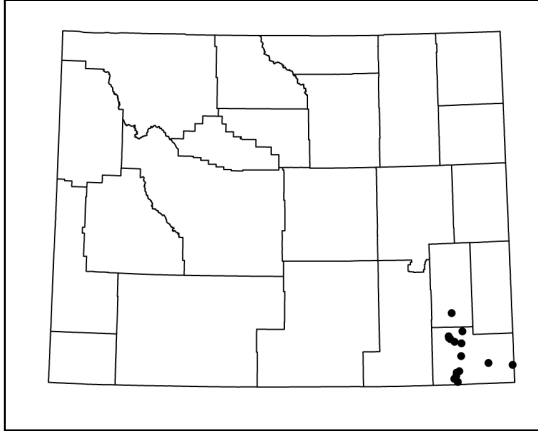
Flowering/Fruiting Period: Flowering from late June or early July until the first hard frost of fall. Flowers open at dusk and are pollinated by moths.



Above: *Gaura neomexicana* ssp. *coloradensis* at F.E. Warren Air Force Base. Photo by B. Heidel.

Below: *G. neomexicana* ssp. *coloradensis* by B. Heidel.





Wyoming distribution of *Gaura neomexicana* ssp. *coloradensis*.

Distribution: Regional endemic of SW Nebraska, SE Wyoming, and NE Colorado. In Wyoming, known only from the Southeastern Plains in Laramie and Platte counties.

Habitat: Typically occurs on subirrigated soils on level or slightly sloping floodplains and drainage bottoms at elevations of 5000-6400 feet. Colonies are often found along bends in wide, meandering stream channels or in low depressions, typically a short distance from the actual channel. On wet sites, Colorado butterfly plant is often associated with communities of *Agrostis stolonifera* and *Poa pratensis*, while in drier habitats it may occur in stands of *Panicum virgatum*, *Schizachyrium scoparium*, *Glycyrrhiza lepidota*, *Cirsium flodmanii*, *Grindelia squarrosa*, and *Equisetum laevigatum*. *Salix exigua* and *Cirsium arvense* may become locally dominant in habitats that are not periodically flooded or otherwise disturbed. Colorado butterfly plant occurs on soils derived from conglomerates, sandstones, and tuffaceous mudstones and siltstones of the Tertiary Wind River, Arikaree, and Ogalalla formations. (Fertig 2000).

Management Considerations: Periodic disturbance events are necessary to maintain suitable habitat, control competing

vegetation, and open bare ground for seedling establishment. Historically, flooding was probably the most important type of disturbance. Moderate, rotational grazing and haying may be potential management tools to maintain open habitat.

Occurrences in Wyoming: 15 occurrences are currently recognized in Wyoming, 10 of which have been relocated or resurveyed since 2004. [7 occurrences were combined consistent with critical habitat delimitation].



Above: Habitat of *Gaura neomexicana* ssp. *coloradensis*. Photo by Walter Fertig.

Abundance: Individual colonies may be locally abundant or sparse, often depending on habitat conditions and climate. Rangewide, the population of flowering individuals was estimated at 47,300-50,300 in 1998 under favorable climate conditions, with the majority of these occurring in Wyoming.

Trends: This taxon has probably declined in the past century due to loss of historically known habitat in northcentral Colorado (near Ft. Collins). Recent surveys in Wyoming suggest that extant populations are probably stable. Long term studies at FE Warren Air Force Base suggest that population size can vary from year to year, depending on past recruitment success, moisture conditions, and competition. Overall, the trend at the Base has been increasing since 1986 except on one

of the three drainages, and with short-term decline in all three drainages under drought and insect outbreak.

Protection status: One occurrence on Warren Air Force Base near Cheyenne is within a designated Research Natural Area, protected from spraying, mowing, and livestock grazing. All other occurrences are on private or state lands managed primarily for agriculture. The U.S. Fish and Wildlife Service has established Habitat Conservation Agreements with some landowners.

Threats: Haying, grazing, herbicide spraying, and urban expansion are potential threats. In the absence of periodic disturbance from agricultural practices, vegetation cover and weed competition may make habitat unsuitable for seedling establishment. Changes to groundwater and surface flows may be direct or indirect threats in fostering succession or conditions unsuitable for seedling establishment.

Managed Areas: One occurrence is on F.E. Warren Air Force Base. All other populations in Wyoming are on state or private lands.

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