

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Plant Abstract

Element Code: PDSCR0D270

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Castilleja nervata* Eastw.

COMMON NAME: Trans-Pecos Indian Paint Brush, TransPecos Indian paintbrush

SYNONYMS: *Castilleja cruenta*

FAMILY: Scrophulariaceae

AUTHOR, PLACE OF PUBLICATION: Eastwood, Proc. Amer. Acad. Arts 44: 574. 1909.

TYPE LOCALITY: Mexico: Chihuahua: vicinity of Madera, 2250m.

TYPE SPECIMEN: HT: GH-3245. E. Palmer 274, May-Jun 1908. IT: MO, NY, US.

TAXONOMIC UNIQUENESS: The genus *Castilleja* contains approximately 200 species (Hickman 1993). USDA, NRCS (PLANTS, 2002) reports 102 species in genus. Eighteen species of *Castilleja* are recognized by Lehr (1978) as occurring in Arizona.

According to NatureServe (2003), "Nesom (1992) states that *Castilleja rigida* is the correct name for the plants of Trans-Pecos Texas that were identified as *C. latebracteata* and *C. nervata*. Jackie Poole agrees (March 1996). Kartesz (1998 review draft of his Floristic Synthesis), on the other hand, treats *C. nervata* as distinct from *C. rigida* (and includes *C. latebracteata* in *C. rigida*). The Arizona plants called *C. cruenta* are included here in *C. nervata* by Eggers (Madroño 40: 176-177, 1993) and Kartesz."

DESCRIPTION: Perennial herb with mostly solitary, erect stems from (15-) 30-100 cm ([6-] 12-40 in) tall, commonly slightly zig-zag at the nodes, with villous-hirsute pubescence on foliage. Leaves are entire, **relatively thick and rigid**, not clasping. The lower leaves are linear lanceolate, **3-nerved**, acute, rough-pubescent beneath, and scabrous above. The upper leaves are much broader and shorter, and more pubescent. Bracts entire, broadly ovate, longer than the flowers, densely pubescent, green at the base, crimson above for about half the length, or some of the lower ones entirely green. Calyx cylindrical, 15-24 mm long, densely pubescent, dull green, slightly cleft behind, deeply cleft in front (for 7-8 mm, or twice as deep as behind), the lobes broadly obtuse and entire. The red corolla is about 2 cm long, and **not exerted from calyx**. The galea (5-8 mm long) and tube are about equal in length, and the lip is very short and inconspicuous with three sharp teeth. The capsule is ovoid, about 8 mm long, with a beak 3-4 mm long, glabrous (hairless).

AIDS TO IDENTIFICATION: *Castilleja nervata* is easily distinguished from any other *Castilleja* species found in Arizona. They are single to few-stemmed, with the stems unbranched. The abundant villous-hirsute pubescence of the slightly zigzagging stem is distinctive. (Egger 1992). It differs from other *Castillejas* in the area due to its thick, rigid leaves, villous-hirsute pubescence, and with a calyx cleft that is much deeper in front than behind; the calyx is entirely green and the corolla is not exerted. (Egger 1992).

ILLUSTRATIONS: Color slide of flower (Egger 1992).
Color photo of Holotype collection (Eastwood, *in* HUH at <http://brimsa.huh.harvard.edu/cms-wb/specimens.jsp?id=161551>)
Color photo of Isotype collection (Eastwood, *in* NYBG at http://scisun.nybg.org:8890/searchdb/owa/wwwcatalog.detail_list?this_id=4367647)
Color photo of Isotype collection (Eastwood, *in* USNH at <http://rathbun.si.edu/botany/types/fullRecords.cfm?myFamily=>)
Color photo from Durango Mex. (D. Nickrent, *in* <http://www.science.siu.edu/parasitic-plants/Scrophulariaceae/images/CastNervata4a.JPG>)

TOTAL RANGE: Southeastern Arizona and the mountains of western Mexico, including Sonora, Chihuahua, Distrito Federal, Sinaloa, Durango, Nayarit, Jalisco, Colima, México, Michoacán, Guerrero, Morelos, Puebla, Veracruz, and Oaxaca.

RANGE WITHIN ARIZONA: Chiricahua Mountains in Cochise County. Historical site from 1884 in the Santa Rita Mountains, Santa Cruz County. According to Egger (1992), "It is very likely that *C. nervata* occurs elsewhere in Cochise Co. and possibly other counties in SE Arizona and SW New Mexico, but its habitat probably is not visited much by botanists with a sufficient knowledge of the genus to recognize its distinctness."

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Herbaceous perennial.

PHENOLOGY: Flowers July – October. However, flowering in Arizona likely begins in early to mid August, depending on summer rains, and continues through most if not all of September (Egger, 1993).

BIOLOGY:

HABITAT: Rocky slopes with grassy openings, oak to pine-oak or pine woods, rarely in pine fir.

ELEVATION: Nesom (1992) reports the elevation for its range as 2,460-7,540(-8,525) feet (750-2300[-2600] m).

EXPOSURE: Found on rocky, south facing, grassy slope.

SUBSTRATE: Rhyolitic soil.

PLANT COMMUNITY: Plants are part of a tall bunch grass community in open sun with a scattering of small trees, consisting mostly of *Quercus grisea* (Gray oak) and a few pines and junipers scattered among them. Grasses appear to be the only close associates and probable root-host. (Egger 1992).

In recent collections from Mexico by Mark Fishbein (ARIZ 320917, Sonora, Mexico 8 Sep 1995 and ARIZ 315060, Sonora, Mexico 3 Jul 1994), *C. nervata* was located in open pine-oak forests and associated with: *Arctostaphylos pungens* (Mexican manzanita), *Bouteloua* (gramma), *Cosmos linearifolia*, *Crotalaria* (rattle-box), *Desmodium* (tick-trefoil), *Eryngium* (coyote-thistle), *Juniperus* (juniper), *Panicum* (panic-grass), *P. durangensis* (Durango pine), *P. leiophylla* (Chihuahuan pine), *Quercus arizonica* (Arizona oak), *Q. mcvaughii*, *Q. oblongifolia* (Mexican blue oak), *Q. viminea*, *Setaria* (foxtail), *Verbena* (vervain), and *Zinnia zinnioides*.

POPULATION TRENDS: Unknown. Egger (1993), reports that “It is very likely that *C. nervata* occurs elsewhere in Cochise Co. and possibly other counties in SE Arizona and SW New Mexico, but its habitat probably is not visited much by botanists with a sufficient knowledge of the genus to recognize its distinctness.” *Castilleja nervata* should be considered as an extremely rare species in Arizona and in the United States, until additional populations can be located north of Mexico (Nesom, in Egger 1993).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS:	None (USDI, FWS 1996). [3A, USDI, FWS 1985]
STATE STATUS:	None
OTHER STATUS:	Forest Service Sensitive (USDA, FS Region 3 1999) [Forest Service Sensitive USDA, FS Region 3 1990]

MANAGEMENT FACTORS: Heavy grazing should be considered as a potential threat.

CONSERVATION MEASURES TAKEN:

SUGGESTED PROJECTS: Conduct a wider census of the part of the ridge where population found, as more populations could be in the area. Also survey other areas in SE Arizona, where proper habitat occurs.

LAND MANAGEMENT/OWNERSHIP: Private, Historical site possibly USFS-Coronado National Forest.

SOURCES OF FURTHER INFORMATION

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Mark Porter - University of Arizona, Tucson.
Mark Egger - Seattle, Washington.
Neil Holmgren

ADDITIONAL INFORMATION:

- Listed incorrectly in a master thesis as part of flora of Pinaleno Mountains.

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