

km distant (Cooke, *American Fern Journal* 29:105–111, 1939; *American Midland Naturalist* 23:497–572, 1940), and only three (*Cystopteris*, *Cheilanthes*, and *Woodsia oregana*) are known with certainty from Modoc Co. from sites other than Fern Cave in the monument (Bruce Bartholomew in litt.). Whether these Lave Beds disjuncts are a reflection of the unusual habitats provided by the lava caves or the paucity of collections in areas of northeastern California is not known at this time, but they do emphasize the need for further collecting in this part of the state, particularly in habitats that remain relatively moist or cool throughout the summer.

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REDISCOVERY AND NOTES ON THE STATUS AND IDENTIFICATION OF *CASTILLEJA NERVATA* (SCROPHULARIACEAE) IN THE UNITED STATES.—Mark Egger, 9521 49th Avenue NE, Seattle, WA 98115.

The status of the taxon, *Castilleja cruenta* Standl. (= *C. nervata* Eastw.), has been a matter of some discussion among resource managers and botanists in the Southwest for a number of years. Originally collected on 2 September 1907 by J. W. Blumer [2133 (NY! ex NMC)] on a “rocky spur north of Wilgus Ranch”, growing on “rhyolite” at an altitude of “6,000 ft.”, the species was described by Standley in 1909 (*Muhlenbergia* 5:82). Although Standley noted that the “Wilgus Ranch” was in the Chiricahua Mountains in Cochise Co., AZ, very little was known about either the species or its type locality until recently. Standley cited only the single Blumer collection, which has remained the sole definitive collection from Arizona. Kearney and Peebles (*Arizona Flora*, 2nd ed.:789, 1960) cited a specimen “supposed to have been collected between Fort Huachuca and the San Pedro River (*Mearns 1539*)” that they say “may belong here”. This specimen, the location of which appears to be unknown, remains unverified. W. T. Johnson (*Desert Plants* 8(4):147–191, 1988) cited a specimen (11242) he collected on Webb Peak in the Pinaleno Mountains, but this specimen and several other recent collections originally identified as *C. cruenta* have since been annotated as either *C. austromontana* Standl. & Blumer, *C. lanata* A. Gray, or *C. tenuiflora* Benth. [S. Rutman, U.S. Fish & Wildlife Service (USFWS), personal communication].

The type specimen of *C. cruenta* was annotated as *C. nervata* by N. H. Holmgren (NY!) on 20 April 1983, and *C. cruenta* was formally reduced to synonymy under *C. nervata* by Nesom (*Phytologia* 72:231–252, 1992). *Castilleja nervata* is a Madrean species not previously thought to occur north of Mexico. Nesom (op. cit.) also referred to *C. nervata* two specimens collected by C. G. Pringle [8174 (NY), 8175 (NY)] on 25 July 1884 in the Santa Rita Mountains, Santa Cruz Co., AZ, noting that they “are atypical in their shallowly toothed floral bracts but otherwise so similar to *C. nervata* that they must be referred to it”. The population(s) from which Pringle collected his plants has yet to be relocated. As Nesom (op. cit.) noted, plants from trans-Pecos Texas identified as either *C. nervata* or *C. latebracteata* Pennell are properly placed in *C. rigida* Eastw., a related but clearly distinct species which also ranges southward into Mexico.

The USFWS lists *C. cruenta* as a Category 3A species, a taxon “for which the Service has persuasive evidence of extinction” (55 *Federal Register* 6184), though USFWS personnel informally recognize its synonymy with *C. nervata* (S. Rutman personal communication).

On 22 July 1992, J. Scott of Tucson, AZ, passed on to the USFWS crucial information she obtained from J. Williams of Portal, AZ as to the location of the “Wilgus Ranch”, near the type locality of *C. cruenta*. On 20 August 1992, I visited this area,



which is in the vicinity of Turkey Creek in the western foothills of the Chiricahua Mountains. I identified what I believe to be the "rocky spur" referred to by Blumer, whereon I located a single population of *C. nervata*, at an elevation of "6,000 ft.", just as described by Blumer. While I was not able to census the area thoroughly, I observed only 7 plants in one small population occupying no more than 100 sq. m within a much larger area of closely similar habitat.

I collected single stems from several multi-stemmed individuals to serve as vouchers: *Castilleja nervata* Eastw. (Scrophulariaceae). — Cochise Co., AZ, on a rocky, south-facing, grassy slope in pale yellowish rhyolitic soil with scattered *Quercus grisea* and *Bouvardia glaberrima*, just below the SW end of a small ridge system immediately N of Turkey Creek, ca. 1830 m, 20 August 1992, M. Egger 529 (WTU, ARIZ). More precise locational information is on file with the USFWS office in Phoenix, AZ.

*Identification.* Upon close examination, this species is easily distinguished from any other *Castilleja* species found in Arizona. The plants are single to few-stemmed (up to four stems on two of the plants I observed), and the stems are unbranched. The abundant villous-hirsute pubescence of the slightly zigzagging stem is distinctive. While Standley (op. cit.) mentioned only crimson for bract coloration, in the field the upper  $\frac{1}{2}$ – $\frac{2}{3}$  of the bracts may be pale vermillion, red or crimson. The calyx of this species is unusual. It is entirely green, grading from pale green at the base to deep green in the upper few mm, with very short or non-existent secondary lobes. Standley and the key in Kearney and Peebles (op. cit., p. 787) referred to the primary calyx lobes as "slightly cleft behind, deeply cleft in front (for 7 or 8 mm or twice as deeply as behind)". However, in the plants I observed the primary calyx lobes were subequal, with the abaxial cleft no more than 1–2 mm greater than that of the adaxial side. Moreover, both Eastwood (Proceedings of the American Academy 44:574, 1909) and Nesom (op. cit.) described *C. nervata* as having primary calyx lobes nearly equal in length. The corolla of *C. nervata* is almost completely included at full anthesis, with only the stigma or, rarely, the very tip of the corolla beak extending above the calyx lobes.

*Phenology.* Most of the plants I observed were in full flower on 20 August, while one or two of the solitary-stemmed plants were just beginning to flower. Flowering in this species in Arizona likely begins in early to mid August, depending on the rains, and continues through most if not all of September. The type collection of *C. cruenta* shows plants in full flower on 2 September.

*Status and conservation.* This collection is significant as the only verified modern population of *C. nervata* north of Mexico. 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.

According to Nesom (op. cit.), *C. nervata* is fairly widespread in the western cordilleras of Mexico. However, until such time as additional populations can be located north of Mexico, *C. nervata* should be considered as an extremely rare species in Arizona and in the United States. The conservation of this species in the United States is also a matter of concern, because the only known population is located on private property. The local plant association in which I observed *C. nervata* seemed to be healthy and not degraded by grazing. However, the site would be easily accessible to domestic animals, and heavy grazing should be regarded as a potentially serious threat, if the land use practices of the present or future owners should change. As with many *Castilleja* species, the stems of *C. nervata* are very brittle and vulnerable to trampling by livestock.

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