

**BIOLOGICAL STATUS OF *FUNASTRUM CYNANCHOIDES*
AND
F. HARTWEGII (ASCLEPIDACEAE)**

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ABSTRACT

Funastrum cynanchoides and *F. hartwegii* have been treated as belonging to various genera, either as distinct species, subspecies and/or varieties of a single species. The nomenclatural history of the two taxa is reviewed, and it is concluded that they are best treated as distinct species; maps showing the distribution of both are provided.

KEY WORDS: Asclepiadaceae, *Funastrum*, Mexico, southwestern U.S.A.

The nomenclatural history of *Funastrum cynanchoides* Decne. is adequately reviewed by Holm (1950). Suffice to say that the taxon has been variously treated in three genera, either as a widespread variable species, or as composed of one or more infraspecific taxa.

Recent DNA data (Liede 1996) strongly suggest that the species is best placed in the genus *Funastrum*, as well-noted by Krings (2000).

Regarding the heterogeneity of *F. cynanchoides*, most recent workers have followed the treatment of Holm (1950), who recognized two partially sympatric subspecies in the group (subsp. *cynanchoides*, typified by material from northeastern Mexico, and subsp. *hartwegii* [Vail] R. Holm, typified by collections from northcentral Mexico), noting however, that they were well-marked, flowered at different times, and presumably formed the occasional hybrid. Holm did not recognize the varietal category, as some consider appropriate (Turner

and Nesom 2002). Krings (2000) corrected this oversight with his creation of the var. *hartwegii* (Vail) Krings.

But the biological problem remains: should the two infraspecific taxa be treated as but varietally distinct, or as species? The present paper addresses that question, this ignored by Krings.

Sarcostemma cynanchoides and its segregate, *S. hartwegii* (Vail) Schltr., were both recognized at the specific level by Schlechter (1914). Nevertheless, Holm, as already noted, treated these as but subspecies, remarking as how “Intergradation between the two forms appears to be uncommon, but occurs in a narrow northwest-southwest belt from Arizona to central Mexico. Hybridization has produced an abruptly stepped cline and intermediate forms have been designated as *S. c. cl. cynanchoides-Hartwegii*.”

Holm goes on to list five hypothetical hybrids between the two taxa, most of which I have examined, and these might indeed be first-generation hybrids, but any evident backcrossing from such hybrids seem not to be apparent, nor does the large number of specimens examined by the present author from throughout the distribution of the taxa suggest that such occurs, nor evident clines derived from these. In short, the two taxa appear to be biological species that might occasionally form hybrids, this in spite of their different flowering times (*F. hartwegii* flowering in the spring; *F. cynanchoides* flowering in the late summer and fall).

The two species can be readily distinguished by the following key:

1. Leaves broadly lanceolate, 2-4 times as long as broad, cordate at the base; flowers mostly white; corona vesicles widest above the middle.....**F. cynanchoides**

1. Leaves narrowly lanceolate, 5-10 times as long as broad; flowers purple or pinkish; corona vesicles widest below the middle.....**F. hartwegii**

In my Atlas of the Flora of Texas (Turner et al. 2003) I reluctantly treated the two taxa as but varieties, but subsequent study, both in the herbarium and in the field, has convinced me that the two taxa are valid biological species (*sensu* Mayr [1992], and others). Distributions of the two species are shown in figures 1 and 2, the data concerned based upon specimens cited by Holm and those on file at SRSC, LL, and TEX. It should be noted that *F. hartwegii*, while partially sympatric with *F. cynanchoides* in the southwestern U.S. and northern Mexico, does not normally occur with the latter, at least in Trans-Pecos, Texas. However, both may be found growing in relatively close proximity, *F. cynanchoides* usually in loose sandy soils; *F. hartwegii* in heavier calcareous soils. Most of the inferred populations are composed of either one species or the other, but it is likely that occasional hybrids do occur, as suggested by Holm in her herbarium analysis.

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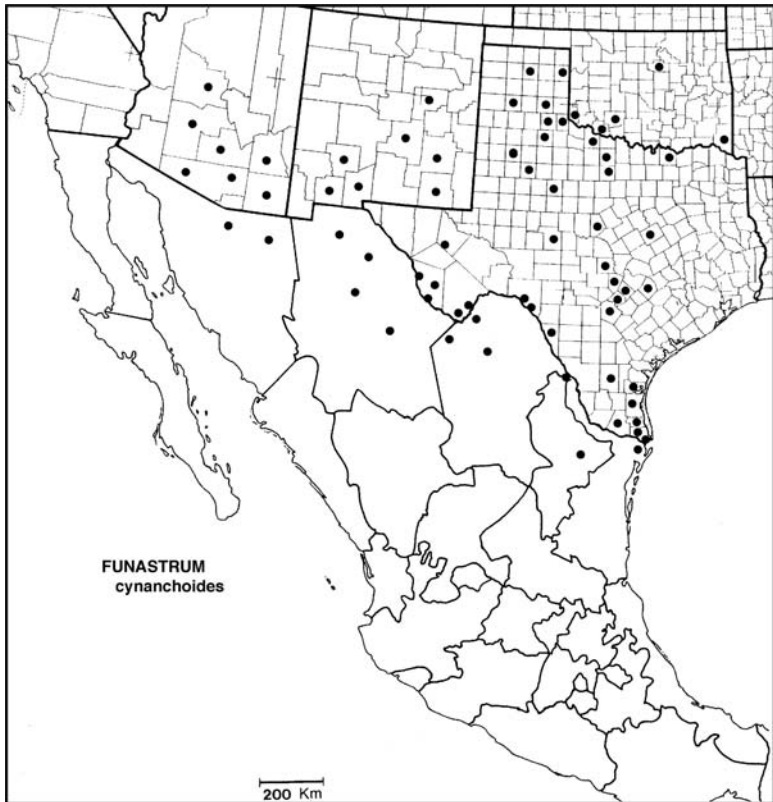


Figure 1. Distribution of *Funastrum cynanchoides*.

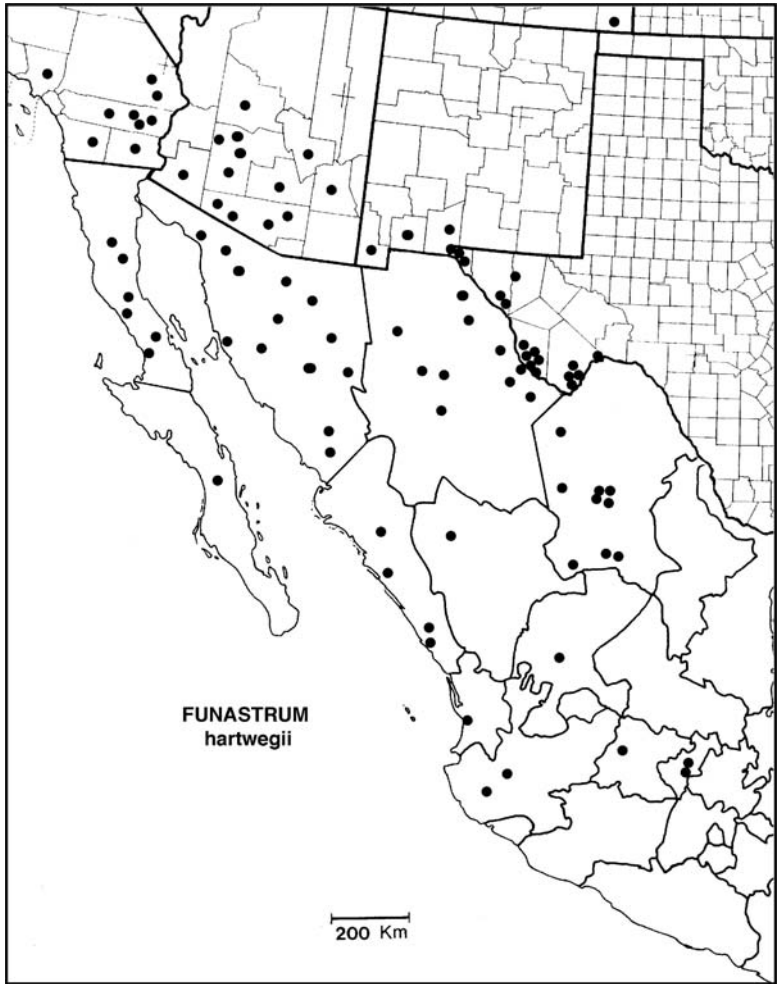


Figure 2. Distribution of *Funastrum hartwegii*.