

BIOLOGICAL STATUS OF *HEDEOMA DRUMMONDII*, *H. REVERCHONII* (LAMIACEAE) AND CLOSELY RELATED TAXA

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ABSTRACT

Biological status of the closely related taxa, *Hedeoma reverchonii* and *H. drummondii* is reviewed with the conclusion that they are best treated as species, the latter possessing two intergrading regional categories: var. *drummondii* and var. *crenulata*. Distribution maps for the several taxa are provided. *Phytologia* 93(2): 174-180 (August 1, 2011)

KEY WORDS: *Hedeoma drummondii*, *Hedeoma reverchonii*, USA, Texas, Mexico

In the seminal paper of Epling and Stewart (1939), *Hedeoma drummondii*, a widespread highly variable, mostly narrow-leaved perennial of the U.S.A. and northern Mexico, and the more localized, mostly broad-leaved perennial of central Texas, *H. reverchonii*, were accepted as distinct species, separated from each other by a number of characters, most notably calyx and corolla size. The two workers did not recognize infraspecific categories in the taxa, but Irving (1980), who monographed the complex, recognized a var. *serpyllifolia* of the latter, this taxon having been recognized by earlier and subsequent workers. The following key sums up the major floral distinctions between the two species as recognized by Epling and Stewart:

1. Corolla tubes 9-14 mm long; calyx tubes 7-9 mm long.....
.....**H. reverchonii**
1. Corolla tubes 4-8 mm long; calyx tubes mostly 4-7 mm long.....
.....**H. drummondii**

The two workers provided a well-reasoned account of the acceptance of the taxa concerned, including synonyms, this summarized in the listings that follow.

HEDEOMA DRUMMONDII Benth., *Labiata. Gen. Spec.* 368. 1834.
Typified by specimens collected by Berlandier near Monterrey, Nuevo Leon, Mexico.

Hedeoma ciliata Nutt. 1848

Hedeoma sancta Small 1899

Hedeoma serpyllifolia Small 1899

Hedeoma longiflora Rydb. 1909 (not *H. longiflora* Briq. 1897)

Hedeoma camporum Rydb. 1917

Hedeoma ovata A. Nelson 1904

Epling and Stewart note that *H. drummondii* throughout most of its range “is remarkably constant in the size and configuration of the flower parts, as well as the general aspect of the plant.” Nevertheless, they believed “it is a practical impossibility to segregate these two species even approximately where they come together.” They note further that numerous intermediates between the two taxa are found in central Texas, this presumably suggesting hybridization, but not stated as such. Indeed, they opined that such intermediates had served as the basis for Small’s proposed species, *H. serpyllifolia*, *H. sancta* and *H. lata*.

Irving et al. (1979) more or less agreed with the assessments of Epling and Stewart regarding natural hybridization between *H. drummondii* and *H. reverchonii*, but the former authors believed that *H. serpyllifolia* could be recognized as a variety of the latter, as noted below.

I have reevaluated the status of *H. serpyllifolia* and conclude that the taxon is of hybrid origin, consisting of F1 individuals and/or back crosses of variable origin. Indeed, I have annotated 16 herbarium sheets on file at TEX that appear to be of hybrid origin, these obtained from 9 or more counties in central Texas. Most other plants in central Texas approach one or the other taxon and are perhaps best identified by the following key:

Calyces 4-7 mm long; hairs on the tubes relatively short, mostly ca 1.2 mm long or less.....**H. drummondii**
 Calyces 8-14 mm long; hairs on the tubes mostly ca 1.3 mm long or more.....**H. reverchonii**

HEDEOMA REVERCHONII (A. Gray) A. Gray, Syn. Fl. N Amer. (ed 2) 2: 460. 1886. Typified by a specimen collected in Brown Co., Texas by Reverchon in 1877.

Hedeoma drummondii var. *reverchonii* A. Gray 1878

Epling and Stewart noted this taxon to be “A variable perennial amply distinct in its extreme forms but merging almost indefinitely with *Hedeoma drummondii*.”

Irving (1980), under my direction, undertook a doctoral study of *Hedeoma*. In this he largely followed the work of Epling and Stewart, like them noting that *H. reverchonii* and *H. drummondii* occur together in central Texas where they reputedly commonly form hybrids. Indeed, he bestowed the name *H. reverchonii* var. *serpyllifolia* (Small) Irving (typified by material from Kerr Co. Texas) upon somewhat intermediate plants, which Epling and Stewart included within *H. drummondii*, as noted in the above. Irving could as readily, in my opinion, have treated the taxon as a variety of the latter but preferred the former, for reasons not enumerated.

In my Atlas of the Vascular Texas Plants (Turner et al. 2003), I followed Irving’s treatment, but treated his *H. reverchonii* var. *serpyllifolia* at the specific rank, largely on chemical grounds (Turner 1969), the taxon concerned bearing camphor-scented volatiles, its presumed compatriot, var. *reverchonii*, having lemon-scented volatiles. In hindsight, I think I erred in this disposition, for not enough was known at the time about the correlation of morphological characters with such scents (cf. Irving and Adams 1973). More recently I have studied the taxa anew, using herbarium sheets and limited field observations, and have come to the conclusion that the purely morphological treatment of the complex as rendered by Epling and Stewart is reasonably sound, and perhaps superior to that of Irving’s study. Detailed DNA studies of the complex might prove me wrong.

Not noted in the above account is my recognition of *Hedeoma drummondii* var. *crenulata* Irving, this proposed by Irving in 1970, and typified by material from the state of San Luis Potosi, Mexico. Interestingly, Irving (1980) subsequently placed the taxon in synonymy within his broad concept of *H. drummondii*, but I accept the taxon as biogeographically distinct, this intergrading with typical var. *drummondii* in regions of contact (Fig. 2).

The following key should help identify the infraspecific taxa of *H. drummondii* recognized herein:

- Leaves mostly elongate-ovate, the margins to some extent crenulate; south-central Mexico.....var. **crenulata**
- Leaves mostly otherwise, the margins entire or nearly so; U.S.A. and north-central Mexico.....var. **drummondii**

In the above account I have treated *Hedeoma* as feminine, as opposed to masculine as treated by Irving and yet others, this resulting in the ending **a**, as opposed to **um**, to most of the descriptive taxa, this nicety called to my attention by Emer. Prof. Robert Harms with the following paragraph:

Specific epithets of *Hedeoma*, from the Greek ἡδύς ‘pleasant to the taste or smell’ and the feminine noun ὀσμή ‘scent’ require the ending –a (*H. serpyllifolia*). These are frequently misinterpreted as Latin neuter nouns in the botanical literature, and accordingly assigned an–um ending ((*H. serpyllifolium*; cf. e.g., “List of Taxa in the Virtual Herbarium of the New York Botanical Garden”). This confusion of Greek feminines in μή (spelled with eta) and Greek neuters in μα (with alpha, e.g. *Nama*, from νᾶμα), both transliterated ‘ma,’ has a long history in the botanical nomenclature. (cf, Nicolson, D. H. 1994. Gender of Generic Names, Particularly Those Ending in -ma, in the 'Names in Current Use' List. Taxon 43:97-107.

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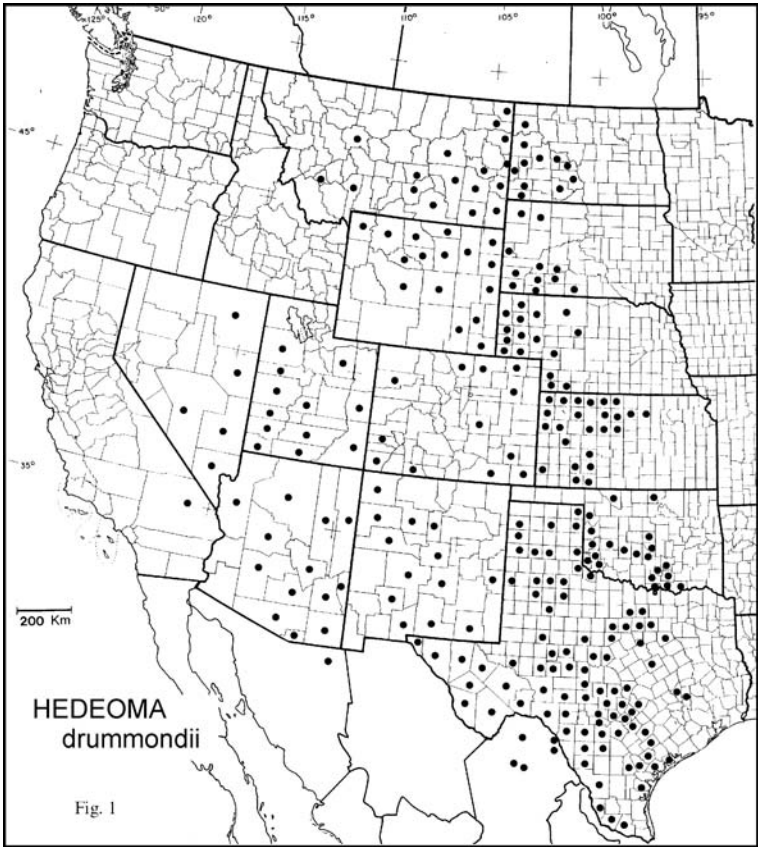


Fig. 1. Distribution of *H. drummondii* in the USA and closely adjacent Mexico.

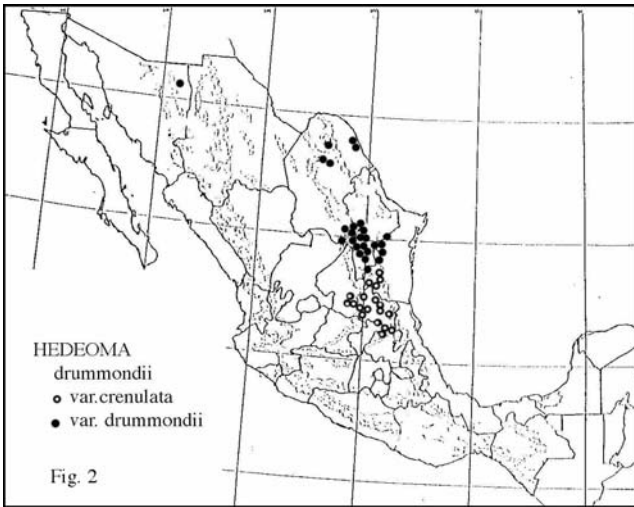


Fig. 2. Distribution of *H. drummondii* in Mexico.

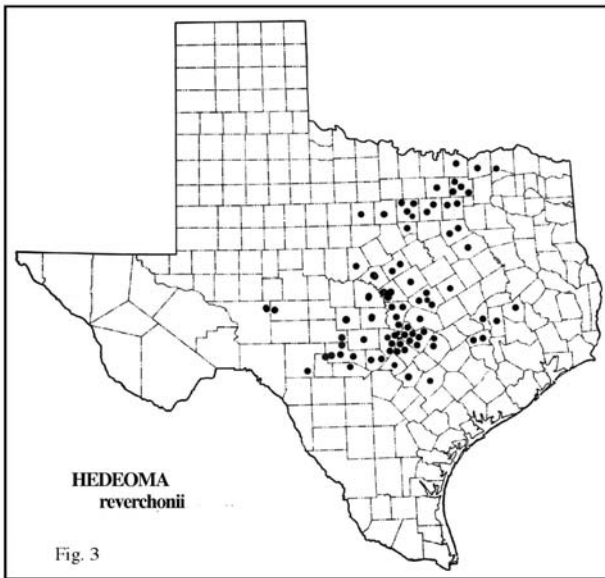


Fig. 3. Distribution of *Hedeoma reverchonii*.