

***HETEROSPERMA XANTI* TRANSFERRED TO THE GENUS
BIDENS (ASTERACEAE: COREOPSIDEAE)**

B. L. Turner

Plant Resources Center
The University of Texas at Austin
Austin, Texas 78712
billie@uts.cc.utexas.edu

Bidens xanti* (A. Gray) B.L. Turner, **comb. nov.*

Based upon *Heterosperma xanti* A. Gray, Proc. Amer. Acad. Arts 5:
162. 1861.

Bidens coreocarpoides Sherff

Bidens xantiana Rose ex Vasey & Rose

Heterosperma brandegeei Sherff

Heterosperma coreocarpoides (Sherff) Sherff

Heterosperma microglossum Sherff

As indicated in the above synonymy, this species was included in the genus *Heterosperma* by several authors. Gray, in his original description, stated, "The disk-achenia, and indeed the whole structure, except the fertile achenia, accord with *Bidens*." Vasey and Rose (1890) in their description of *Bidens xantiana*, and Sherff (1935) in his description of *B. coreocarpoides*, also retained the taxon in *Bidens*, albeit with mistaken identifications. Sherff (1955) subsequently placed *Heterosperma xanti* in the genus *Heterosperma* where it was retained by most workers until Clement (by annotation, TEX) and Melchert (also by annotation, TEX) again placed it in the genus *Bidens*, this in agreement with Melchert's forthcoming treatment of *Bidens* for Mexico (in prep.). Clement never published the new combination concerned, nor did Melchert.

Heterosperma (and the genus *Coreocarpus*) is distinguished from *Bidens* largely by its heteromorphic achenes, those of the disc florets differing from those of the ray florets, as noted by Panero (2007), in his key to genera of the tribe Coreopsideae. Regardless, I have included *Heterosperma xanti* in *Bidens* because it will not fit comfortably, all characters considered, within the former genus nor in

Coreocarpus, in spite of the fact that the plants concerned possess heteromorphic achenes. Indeed, Melchert and Turner (1990) transferred two species of the genus *Coreocarpus* (*C. gracillima* and *C. hintonii*), as conceived by Smith (1989), into *Bidens*, and Melchert intended to transfer *Heterosperma xanti* into the latter genus, as judged by his annotations on herbarium sheets at TEX. In short, the presence of dimorphic achenes in this or that species of *Bidens* is to be expected. This is also implicit in the work of Kimball and Crawford (2003) and Kimball et al. (2003) whose DNA studies confirm the position of *Coreocarpus hintonii* within *Bidens*, and that of *Coreopsis cyclocarpa* (having heteromorphic achenes) in the genus *Heterosperma*. *Bidens xanti* does, however, possess radial achenes similar to those of *Heterosperma*, if not *Coreocarpus*; the former, however, has floral traits like those of *Bidens*, hence the above transfer.

LITERATURE CITED

- Kimball, R.T. and D.J. Crawford. 2004. Phylogeny of Coreopsidae (Asteraceae) using ITS sequences suggests lability in reproductive characters. *Molecular Phylogenetics Evol.* 33: 127-130.
- Kimball, R.T., D.J. Crawford and E.B. Smith. 2003. Evolutionary processes in the genus *Coreocarpus*: insights from molecular biology, *Evolution* 57: 52-61.
- Melchert, T. and B.L. Turner. 1990. New species names and combinations in Mexican *Bidens* (Asteraceae: Coreopsidae). *Phytologia* 69: 20-23.
- Panero, J.L. 2007. Compositae: Tribe Coreopsidae. In, Kadereit, J.W. Jeffrey, C. [Eds.], *Families and Genera of Vascular Plants*, Vol. 8.
- Smith, E.B. 1989. A biosystematic study and revision of the genus *Coreocarpus*. (Compositae). *Syst. Bot.* 14: 448-472.