

**NEW COMBINATIONS FROM *HELIOTROPIUM* TO *EUPLOCA* (BORAGINALES:
HELIOTROPIACEAE)
FOR NORTH AMERICAN SPECIES**

CHRISTIAN FEUILLET and RICHARD R. HALSE

Department of Botany and Plant Pathology
2082 Cordley Hall
Oregon State University
Corvallis Oregon 97331-2902

feuillet@science.oregonstate.edu
halser@science.oregonstate.edu

ABSTRACT

We provide four new combinations needed for the treatment of *Euploca* (Boraginales: Heliotropiaceae) in a forthcoming volume of the Flora of North America: ***Euploca confertifolia*** (Torr.) Feuillet & Halse, **comb. nov.**, ***Euploca greggii*** (Torr.) Halse & Feuillet, **comb. nov.**, and ***Euploca tenella*** (Torr.) Feuillet & Halse, **comb. nov.**, ***Euploca torreyi*** (I.M. Johnst.) Halse & Feuillet, **comb. nov.**

The genus *Euploca* Nutt. (Nuttall 1836: 189) was transferred to *Heliotropium* L. (Linnaeus 1753, 1: 130) by Gray (1857: 403). Recently Hilger and Diane (2003) reevaluated the classification of the Heliotropiaceae Schrad. (Schrader 1819: 192) on the base of molecular data of nuclear ITS1 and plastidal *trnL*UAA intron sequences. One of their conclusions is that *Heliotropium* sect. *Orthostachys* (R. Br.) G. Don (Brown 1810: 493; Don 1938: 361), *Schleidenia* Endl. (Endlicher 1839: 646), and *Hilgeria* Förther (1998: 132) constitute a separate genus whose earliest available name is *Euploca*.

Some North American species belonging to *Euploca* have not been transferred from *Heliotropium*. We present the new combinations needed for the treatment of the genus in Flora of North America.

The case of Heliotropium angustifolium

Rafinesque (1833: 79) renamed, without good reason, *Heliotropium curassavicum* “Elliott”, which is *H. curassavicum* L. (1753, 1: 130) as cited by Elliott (1821: 224): *H. angustifolium* Raf. is illegitimate and rejected, and automatically typified by the type of the name it was intended to replace (McNeill et al., 2012: Art. 52.1. and 2.). Not knowing Rafinesque’s name, Torrey (1858: 137) named a different species *H. angustifolium* Torr. We know it excludes the type of *H. curassavicum* because *H. curassavicum* is treated by Torrey on page 136. According to McNeill et al. (2012: Art. 53.1.), *H. angustifolium* Torr. is illegitimate. A century later, Johnston (1959: 13) became aware of *H. angustifolium* Raf. and renamed *H. angustifolium* Torr. as *H. torreyi* I.M. Johnst.

Euploca torreyi (I.M. Johnst.) Halse & Feuillet, **comb. nov.** *Heliotropium angustifolium* Torr., Rep. U.S. Mex. Bound. [Emory], Bot., 137. 1858 nom. illeg. non Raf. 1833 (Herb. Raf. 79, an illegitimate renaming of *H. curassavicum*). *Heliotropium torreyi* I.M. Johnst., *Wrightia* 2: 13. 1959. **LECTOTYPE** (designated by Johnston 1959: 13): **USA. Texas.** [Val Verde Co.]: Zoquete Creek, between Rio Grande and Brackettville, 18 May 1851, *C. Wright 1546* (NY; isolectotypes: BM, F, GH, LE, P!, US!).

Other new combinations in *Euploca*

Euploca confertifolia (Torr.) Feuillet & Halse, **comb. nov.** *Heliotropium limbatum* var. *confertifolium* Torr., Rep. U.S. Mex. Bound. [Emory], Bot., 138. 1858. *Heliotropium confertifolium* (Torr.) Torr. ex A. Gray, Syn. Fl. N. Amer. 2(1): 184. 1878. **LECTOTYPE** (designated by Förther 1998: 203): **USA. Texas.** Pecos Co.: 1 Jul 1852, *C. Wright 1547* (NY; isolectotypes: BM, GH, K, M, P?, US!).

Euploca greggii (Torr.) Halse & Feuillet, **comb. nov.** *Heliotropium greggii* Torr., Rep. U.S. Mex. Bound. [Emory], Bot., 137. 1859. **LECTOTYPE** (designated by Förther 1998: 198): **MEXICO. [Chihuahua].** Valley of Conchos, near Rosalia, 1 May 1847, *J. Gregg s.n.* (NY; isolectotype: GH).

Euploca tenella (Torr.) Feuillet & Halse, **comb. nov.** *Heliotropium tenellum* Torr., in Marcy, Rep. Expl. Red River 304, t. 14. 1853. *Lithospermum tenellum* Nutt., Trans. Amer. Philos. Soc., n. ser. 5: 188. 1836; a later homonym and illegitimate, non Raf. 1819. *Heliotropium nuttallii* House, Bull. N.Y. State Mus. 233/234: 61. 1920; a superfluous renaming. **TYPE** (fide Förther 1998: 233): **USA. [Louisiana].** In the prairies of Red River, Jun 1819, *T. Nuttall s.n.* (holotype: BM; isotype: P! s. coll.).

Nuttall (1836) described *Lithospermum tenellum*, which is a later homonym of Rafinesque's name (1819), so this name by Nuttall is illegitimate. When Torrey (1853) transferred the species to *Heliotropium*, the epithet 'tenellum' was available.

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