

**NEW COMBINATIONS  
FOR *HELIOTROPIUM POWELLIORUM* AND *HELIOTROPIUM PRINGLEI*  
IN THE GENUS *EUPLOCA* (BORAGINALES: HELIOTROPIACEAE)**

**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 two new combinations needed for the treatment of *Euploca* (Boraginales: Heliotropiaceae) in a forthcoming volume of the Flora of North America North of Mexico: ***Euploca powelliorum*** (B.L. Turner) Feuillet & Halse, **comb. nov.**, from Texas and Mexico and ***Euploca pringlei*** (B.L. Rob.) Halse & Feuillet, **comb. nov.**, from Texas, Mexico, and Guatemala.

Morphological and molecular studies (Hilger & Diane 2003) provided evidence that *Heliotropium* sect. *Orthostachys* (R. Br.) G. Don (Brown 1810; Don 1838), *Schleidenia* Endl. (Endlicher 1839), and *Hilgeria* Förther (1998) constitute a separate genus whose earliest available name is *Euploca* Nutt. (Nuttall 1836). For more details and other new combinations, see Feuillet & Halse (2016).

*Heliotropium powelliorum* is closely related to *Euploca torreyi* (I.M. Johnst.) Halse & Feuillet (Johnston 1959; Feuillet & Halse 2016). It differs from *E. torreyi* by its longer inflorescences and the flowers more scattered and held nearly perpendicular to the inflorescence. *Heliotropium powelliorum* needs to be transferred to *Euploca*.

***Euploca powelliorum*** (B.L. Turner) Feuillet & Halse, **comb. nov.** Basionym: *Heliotropium powelliorum* B.L. Turner, *Lundellia* 10: 7; figs. 1–3. 2007. **TYPE: USA. Texas.** Brewster Co.: 4 mi S [of Terlingua?] along Terlingua-Lajitas highway, 3500 ft, 28 Sep 1947, *B.H. Warnock* 7576 (holotype LL [scan!]; isotypes: MEXU, SMU, SRSC, TEX [scan!]).

**USA collections studied. Texas. Brewster Co.:** Chisos Mtns area, Mesa de Anguila, 14 Jul 1937, *Warnock* 991 (US), id., 14 Jul 1937, *Warnock* 21126 (LL); Reed Plateau, 31 Mar 2007, *Weckesser* 1012 (TEX), id., 4 Jul 1979, *Powell* 3455 (TEX), id., 27 Jun 1978, *Powell* 3335 (TEX); between Terlingua and Lajitas, 11 Sep 1961, *Correll & Johnston* 24468 (LL), id., 14 Sep 1947, *Lundell* 14766 (LL); 3 mi W of Terlingua, 24 Sep 1966, *Correll* 33881 (LL!); W of Terlingua, 25 Jul 1973, *Henrickson* 11292 (CSLA, NY). **Presidio Co.:** 3 mi SW of Shafter, 30 Jul 1945, *Muller* 8469 (LL); E of Solitario Peak within the Solitario, on the Big Bend Ranch, 7 Jun 1975, *Butterwick & Strong* 856 (TEX), id., 25 Sep 1975, *Butterwick & Lamb* 1649 (TEX); Chinati Mtns, 5 mi S of Shafter, 5 Aug 1945, *Lundell & Lundell* 14280 (LL); S side of Chinati Mtns, 14 Jul 1944, *Kinckley* 3108 (CSLA, NY); Solitario, 24 May 1985, *Clark* 1051 (TEX).

*Heliotropium pringlei* Robinson (1891) was described from Mexico, where it occurs from the state of Chihuahua to Chiapas and in Guatemala (Frohlich 1981). In 1982, it was collected in the southwestern corner of Cochise Co. Arizona (20 Sep 1982, *Soreng & Salazar* 1895, NMC, USC; as identified by Frohlich (Soreng 1984)).

***Euploca pringlei*** (B.L. Rob.) Halse & Feuillet, **comb. nov.** Basionym: *Heliotropium pringlei* B.L. Rob., Proc. Amer. Acad. Arts 26: 170. 1891. **LECTOTYPE** (designated by Frölich 1981): **MEXICO. San Luis Potosi.** Thin soil of rocky hill, Las Canoas, 16 Jul 1890, C.G. Pringle 3207 (GH; isoelectotypes: BM, BP, BR(2) [scan BR0000006966782!], F105294 [photo F!, neg 51140], GOET, HBG, JE, LE, K 000478236 [scan!], LL(2) [2 scans!], M, MEXU, MO!, NY(2)!, P(2)!, RSA, S, TEX, UC, US 0051296 1! [scan!], W 350, WU). **SYNTYPE** (Robinson 1981): **MEXICO. Chihuahua.** Sta. Eulalia Mtns, 2 Oct 1886, C.G. Pringle 1160 (GH).

The isoelectotypes we have not seen are cited by Förther (1998). As far as we know, *Soreng & Salazar 1895* from Arizona, near Mexico and New Mexico borders is the only USA collection for this species.

Nine of the ten species of *Euploca* present in the USA occur at least in one of 3 states: Arizona, New Mexico, and Texas and are also in the flora of Mexico (Table 1). No *Euploca* species is endemic to the USA.

#### ACKNOWLEDGMENTS

We want to thank the curators who made our study of the specimens in their care possible (MO, NY, TEX, US). We are grateful to the editor for his review.

#### LITERATURE CITED

- Brown, R. 1810. Prodrum Florae Novae Hollandiae et Insulae van-Diemen. Johnson, London, United Kingdom.
- Don, G. 1838. A General History of the Dichlamydeous Plants, Vol. 4. Rivington, London, United Kingdom.
- Endlicher, S.F.L. 1839. Genera plantarum secundum ordines naturales disposita. Beck, Vienna, Austria.
- Feuillet, C. and R.R. Halse. 2016. New combinations from *Heliotropium* to *Euploca* (Boraginales: Heliotropiaceae) for North American species. *Phytoneuron* 2016-5: 1–3.
- Förther, H. 1998. Die infragenerische Gliederung der Gattung *Heliotropium* L. und ihre Stellung innerhalb der subfam. Heliotropioidea (Schräd.) Arn. (Boraginaceae). *Sendtnera* 5: 35–241.
- Frohlich, M. 1981. *Heliotropium*. *Flora de Veracruz* 18: 70–104.
- Hilger H.H. and N. Diane. 2003. A systematic analysis of Heliotropiaceae (Boraginales) based on trnL and ITS1 sequence data. *Bot. Jahrb. Syst.* 125: 19–51.
- Johnston, I.M. 1959. Some noteworthy American borages. *Wrightia* 2: 13–22.
- Linnaeus, C. 1753. *Species Plantarum*, 2 volumes. Salvius, Stockholm, Sweden.
- Nuttall, T. 1836. Collections towards a flora of the Territory of Arkansas. *Trans. Amer. Philos. Soc.*, n. ser. 5: 139–203.
- Robinson, B.L. 1891. Descriptions of new plants, chiefly Gamopetalae, collected in Mexico by C.G. Pringle in 1889 and 1890. *Proc. Amer. Acad. Arts* 26: 164–176.
- Soreng, R. 1984. Noteworthy collections. *Arizona. Madroño* 31: 123.
- Turner, B.L. 2007. Distribution of *Heliotropium torreyi* (Boraginaceae), and the description of a new species from its midst. *Lundellia* 10: 7–10.

Table 1. Distribution of the species of *Euploca* occurring in the USA. The usual abbreviations are used for USA states; CAM = Central America (more than one country, besides Mexico); SAm = South America; WI = West Indies (more than two islands).

	Arizona	New Mexico	Texas	other
<i>E. confertifolia</i> (Torr.) Feuillet & Halse			X	Mexico
<i>E. convolvulacea</i> Nutt.	X	X	X	AR, CA, CO, KS, NE, NV, OK, UT, WY; Mexico
<i>E. fruticosa</i> (L.) J.I.M. Melo & Semir	X	X	X	FL; Mexico
<i>E. greggii</i> (Torr.) Halse & Feuillet		X	X	Mexico
<i>E. polyphylla</i> (Lehm.) J.I.M. Melo & Semir				FL; Bahamas, SAm
<i>E. powelliorum</i> (B.L. Turner) Feuillet & Halse			X	Mexico
<i>E. pringlei</i> (B.L. Rob.) Halse & Feuillet	X			Mexico, Guatemala
<i>E. procumbens</i> (Mill.) Diane & Hilger	X		X	AR, FL, LA, MS; Mexico, CAM, SAm, WI
<i>E. tenella</i> (Torr.) Feuillet & Halse			X	AL, AR, GA, IA, IL, IN, KS, KY, MO, MS, OK, TN, WV?; Mexico
<i>E. torreyi</i> (I.M. Johnst.) Halse & Feuillet			X	Mexico
10 species	4	3	8	