

A NOMENCLATURAL ASSESSMENT AND A NEW COMBINATION IN NORTH AMERICAN *OENOTHERA* (ONAGRACEAE)

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Abstract. *Oenothera californica* (S. Watson) S. Watson is here replaced by *O. avita* (W.M. Klein) W.M. Klein. Consequently, the associated taxa names *O. californica* (S. Watson) S. Watson subsp. *californica*, *O. californica* subsp. *avita* W.M. Klein, and *O. californica* subsp. *eurekensis* (Munz & J.C. Roos) W.M. Klein are replaced with *O. avita* (W.M. Klein) W.M. Klein subsp. *avita*, *O. avita* subsp. *californica* (S. Watson) W.L. Wagner & Gandhi, and *O. avita* subsp. *eurekensis* (Munz & J.C. Roos) W.M. Klein.

Keywords: *Oenothera albicaulis* var. *melanosperma*, *O. avita*, *O. californica*, *O. deltoides* subsp. *eurekensis*

Oenothera L., the second largest genus in Onagraceae with about 150 species, is widely distributed in the New World, and a number of species are widely naturalized worldwide with a center of phylogenetic diversity in western North America (Wagner et al., 2007; Wagner, 2021). *Oenothera* sect. *Anogra* consists of eight species (17 taxa) native to western North America, found usually in dry, sandy soil in a wide variety of habitats in the Chihuahuan, Great Basin, Mojave, and Sonoran deserts, to grasslands and open sites in montane forest, at 50 to 3300 m.

One of the complexes in the section has previously been subdivided into two species, *Oenothera californica* (S. Watson) S. Watson and *O. avita* (W.M. Klein) W.M. Klein (Munz, 1965; Klein, 1964). In recent studies for regional floras, the basic taxonomy of Klein (1964, 1970) and Munz (1965) has been maintained, except for the recent elevation of one of Klein's subspecies of *O. avita* to species-level as *O. arizonica* (Munz) W.L. Wagner (Wagner, 1998) and the inclusion of the autotetraploid, *O. californica* with its diploid relatives, in one species. This resulted in *O. avita* and treated as a subspecies under the presumed older and legitimate name *O. californica* (Wagner et al., 1993).

With the realization that the combination *Oenothera californica* (S. Watson) S. Watson is a later homonym, we here adopt the oldest validly published and legitimate name at the species level, *O. avita* for the complex. The one new combination needed is provided. Current names that should be adopted for the other taxa are also provided.

Oenothera avita (W.M. Klein) W.M. Klein, N. Amer. Fl. ser. 2, 5: 116. 1965.

Basionym: *Oenothera californica* (S. Watson) S. Watson subsp. *avita* W. M. Klein, Aliso 5: 179. 1962. TYPE: U.S.A. Utah: Washington Co., along U.S. Highway 91 about 0.5 miles northeast of Leeds, 3400 ft, 21 May 1959, W. M. Klein 1049 (Holotype: RSA-145518; Isotypes: GH, UC).

Homotypic synonym: *Oenothera californica* S. Watson var. *avita* (W.M. Klein) S.L. Welsh & N. D. Atwood, Utah Fl., ed. 4. 538. 2008.

Neither of the specimens cited by Klein as isotypes could be located; however, another collection, *Klein 1060*, is at GH and labelled incorrectly by Klein as an isotype.

Oenothera avita* subsp. *avita

Oenothera avita (W.M. Klein) W.M. Klein subsp. ***californica*** (S. Watson) W.L. Wagner & Gandhi, *comb. nov.* Basionym: *Oenothera albicaulis* Pursh var. *californica* S. Watson, Proc. Amer. Acad. Arts 8: 582. 1872. TYPE: U.S.A. California: Los Angeles vicinity, W. T. Wallace s.n. (Lectotype: GH, designated by Munz, 1931).

Homotypic synonyms: *Oenothera californica* (S. Watson) S. Watson, in Brewer & S. Watson, Bot. Calif. 1: 223. 1876, *non* D. Dietr., Syn. Pl. [D. Dietrich] ii. 1288 (1840), *nom. illeg.*, *nom. superfl.*

Anogra californica (S. Watson) Small, Bull. Torrey Club 23: 176. 1896.

Oenothera pallida Lindl. var. *californica* (S. Watson) Jepson, Man. Fl. Pl. Calif. 681. 1925.

Heterotypic synonyms: *Oenothera albicaulis* Pursh var. *melanosperma* H. Léveillé, Bull. Acad. Int. Géogr. Bot. sér. 3, 19(241–242): 302, 305. 1910. TYPE: U.S.A. California: San Bernardino Co., San Bernardino Mountains, Bear Valley, 6500 ft, 18 June 1894, S. B. Parish 3147 (Syntypes: CAS, US [2 sheets]).

Oenothera californica (S. Watson) S. Watson var. *glabrata* Munz, Amer. J. Bot. 18: 327. 1931. TYPE: U.S.A. California: San Bernardino Co., San Bernardino, 1000–1500 ft, 1 June 1896, S. B. Parish 4177 (Holotype: GH; Isotypes: K [not seen], UC [not seen], US [2 sheets]).

Oenothera avita (W. M. Klein) W. M. Klein subsp. ***eurekensis*** (Munz & J. C. Roos) W.M. Klein, N. Amer. Fl. ser. II, 5: 116. 1965.

Basionym: *Oenothera deltoides* Torrey & Frémont subsp. *eurekensis* Munz & J. C. Roos, Aliso 3: 118, fig. 7. 1955. TYPE: California, Inyo Co., deep sand at north end of dunes in southeast part of Eureka Valley, east

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of the Inyo Mts., 3100 ft, 18 September 1954, P. A. Munz & F. C. Roos 20158 (Holotype: RSA; Isotypes: CAS [not seen], DS [not seen], COLO [not seen], GH, K [not seen], NY [not seen], RM [not seen], UC [not seen], US, WTU [not seen]).

Homotypic synonym: *Oenothera californica* (S. Watson) S. Watson subsp. *eurekensis* (Munz & J.C. Roos) W.M. Klein, Aliso 5: 179. 1962.

LITERATURE CITED

- KLEIN, W. M. 1964. A Biosystematic Study of Four Species of *Oenothera* Subgenus *Anogra*. Ph.D. dissertation. Claremont Graduate University, Claremont, California.
- MUNZ, P. A., 1931. Studies in Onagraceae VI. The subgenus *Anogra* of the genus *Oenothera*. Amer. J. Bot. 18: 309–327.
- . 1965. Onagraceae. Flora N. Amer., ser. 2, 5: 1–278.
- WAGNER, W. L. 1998. Species status for a Sonoran Desert annual member of *Oenothera* sect. *Anogra*. Novon 8: 307–310.
- . 2021. *Oenothera*. In FLORA OF NORTH AMERICA EDITORIAL COMMITTEE, EDS., Flora of North America North of Mexico 10: 243–336. Oxford Press, New York and Oxford.
- , H. LEWIS, P. C. HOCH, AND P. H. RAVEN. 1993. Onagraceae. Pages 776–804 in J. C. HICKMAN, ED., The Jepson manual. University of California Press, Berkeley.
- , P. C. HOCH, AND P. H. RAVEN. 2007. Revised classification of the Onagraceae. Syst. Bot. Monogr. 83: 1–240.