

Changed names to *Greeneocharis*, *Johnstonella*, and *Oreocarya* in the CNPS Inventory on November 29, 2016

Non-Substantive Name Changes: *Cryptantha* to *Greeneocharis*, *Johnstonella*, and *Oreocarya*

Aaron E. Sims (CNPS), Roxanne Bittman (CNDDDB), and Kristi Lazar (CNDDDB)
November 8, 2016

Background

The following five *Cryptantha* taxa in the Boraginaceae are proposed to undergo non-substantive taxonomic name changes to *Greeneocharis* (1 taxon), *Johnstonella* (2 taxa), and *Oreocarya* (2 taxa) in the CNPS Inventory and CNDDDB based on new combinations from the work of Hasenstab-Lehman and Simpson (2012). In order to assess phylogenetic relationships of the genus *Cryptanthus* s. l., Hasenstab-Lehman and Simpson (2012) sequenced two gene regions in 50 samples of 45 species of *Cryptanthus* s. l. and exemplars of the related genera *Amsinckia*, *Pectocarya*, and *Plagiobothrys*, as well as four outgroup taxa. Using parsimony, maximum likelihood, and Bayesian inference methods, they found *Cryptantha* s. l. to be polyphyletic, with its members placed among several well-supported clades, and based on their analyses propose resurrection of the genera *Eremocarya*, *Greeneocharis*, *Johnstonella*, and *Oreocarya*, and recognition of a newly delimited *Cryptantha* s. s. Of the 23 *Cryptantha* taxa currently included in the CNPS Inventory (see <http://www.rareplants.cnps.org/result.html?adv=t&gen=Cryptantha>) only five representative taxa were transferred to new genera following the new combinations presented in their work.

A taxonomic key to the genera of Cryptanthinae is presented in Hasenstab-Lehman and Simpson (2012). Key characters used to separate *Greeneocharis* from *Cryptantha* s. s., *Johnstonella*, and *Oreocarya* include plants only annual (versus annual, biennial, or perennial), generally wider than tall and often rounded to cushion-like (versus generally taller than wide, rarely rounded to cushion-like), taproot red or purple when dry, often staining herbarium paper (versus taproot usually not red or purple when dry), and in having floral bracts present (versus flower bracts absent or rarely present). *Oreocarya* is differentiated from *Cryptantha* s. s. and *Johnstonella* in plants being biennial or perennial (versus annual, rarely biennial or perennial), having basal or tufted vegetative leaves (versus vegetative leaves that are generally cauline and rarely basal), and in having nutlets that are smooth, rugulose, or variously roughened, apically broadly rounded to obtuse, with ventral groove apex well below nutlet apex (versus nutlets smooth, papillate, tuberculate, or muricate, apically narrowly acute to acuminate, ventral groove apex almost to nutlet apex). *Johnstonella* is differentiated from *Cryptantha* s. s. in being annual to rarely biennial (perennial in *J. racemosa*) (versus all annual in *Cryptantha* s. s.), chasmogamous flowers (versus chasmogamous or cleistogamous flowers), and nutlets that are ovate to triangular-ovate, often heteromorphic in size and sculpturing, have an angled margin (rarely rounded), are often narrowly winged, densely or sparsely tuberculate, with tubercles usually being whitish (versus nutlets lanceolate, lance-ovate, or ovate, usually homomorphic, margin rounded or angled, not winged

(except *C. oxygona*, *C. pterocarya*), smooth or papillate/tuberculate, and if tuberculate, tubercles are generally not whitish) (Hasenstab-Lehman and Simpson 2012).

Current Name in CNPS Inventory	Revised Name in CNPS Inventory
<i>Cryptantha circumscissa</i> (Hook. & Arn.) I.M. Johnston var. <i>rosulata</i> J.T. Howell	<i>Greeneocharis circumscissa</i> (Hook. & Arn.) Ryd. var. <i>rosulata</i> (J.T. Howell) Hasenstab & M.G. Simpson
<i>Cryptantha costata</i> Bdg.	<i>Johnstonella costata</i> (Brandegees) Hasenstab & M.G. Simpson
<i>Cryptantha holoptera</i> (Gray) Macbr.	<i>Johnstonella holoptera</i> (A. Gray) Hasenstab & M.G. Simpson
<i>Cryptantha roosiorum</i> Munz	<i>Oreocarya roosiorum</i> (Munz) R.B. Kelley, Hasenstab, & M.G. Simpson
<i>Cryptantha schoolcraftii</i> Tiehm	<i>Oreocarya schoolcraftii</i> (Tiehm) R.B. Kelley

Literature Cited

Hasenstab-Lehman, K.E. and M.G. Simpson. 2012. Cat's eyes and popcorn flowers: phylogenetic systematics of the genus *Cryptantha* s. l. (Boraginaceae). *Systematic Botany* 37(3): 738-757.