



Nutlet diversity of Amsinckiinae in western North America

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Amsinckiinae is an amphitropically distributed subtribe of Boraginaceae comprised of approximately 287 species and 330 minimally ranked taxa, with centers of diversity in western North and western South America. Members of the subtribe share many morphological features common to the family, including hirsute to hispid vestiture, a circinate scorpioid cyme, actinomorphic flowers, a deeply four-lobed ovary, a gynobasic style position, and a fruit that is a schizocarp of four mericarps (nutlets). In the family and especially the subtribe, nutlet morphology is highly variable and taxonomically important, often serving as a primary source of evidence for delimiting taxa at ranks from genus to variety. Over the last decade, phylogenetic studies have recovered the subtribe as a monophyletic group, but revealed some previously recognized genera as non-monophyletic (Hasenstab-Lehman and Simpson 2012, Guilliams 2015, Simpson et al. 2017, Mabry 2018). In preparation for the upcoming Flora of North America volume that will include Boraginaceae, we have begun updating nomenclature so that recognized genera reflect our current understanding of evolutionary history. This taxonomic work includes resurrecting previously recognized genera, re-circumscribing generic boundaries, and naming new genera. This poster represents the diversity of fruit and nutlet morphologies across the subtribe, and introduces the genera *Amsinckiopsis*, *Gruvelia*, *Simpsonanthus*, and *Sonnea* (Guilliams et al., in revision).

Row 1 left to right: *Amsinckia carinata*, *A. furcata*, *Amsinckia grandiflora*, *A. menziesii* var. *menziesii*, *A. scouleri*, *A. spectabilis* var. *spectabilis*, *A. tessellata*, *A. vernicosa*, *Amsinckiopsis kingii* var. *harkness*, *Andersonglossum virginianum*, *Cryptantha affinis*, *C. albidula*. Row 2: *C. clevelandii*, *C. clokeyi*, *C. dumetorum*, *C. excavata*, *C. flaccida*, *C. incana*, *C. kelseyana*, *C. kelseyana*, *C. leiocarpa*, *C. maritima* var. *maritima*, *C. maritima* var. *maritima*. Row 3: *C. minima*, *C. minima*, *C. muricata* var. *jonesii*, *C. pterocarya* var. *cycloptera*, *C. rattanlii*, *C. scoparia*, *C. simulans*, *C. texana*, *C. utahensis*, *C. wigginsii*, *Dasynotus daubenmirei*, *Eremocarya micrantha*, *E. micrantha*. Row 4: *Greeneocharis circumscissa*, *Gruvelia pusilla*, *Harpagonella palmeri*, *Johnstonella angelica*, *J. angelica*, *J. costata*, *J. fastigiata*, *J. parviflora*, *J. pusilla*, *Oreocarya confertiflora*, *O. creutzfeldtii*, *O. cymophila*. Row 5: *O. depressa*, *O. fulvocanescens*, *O. glomerata*, *O. oblata*, *O. ochroleuca*, *O. osterhoutii*, *O. palmeri*, *O. rollinsii*, *O. rugulosa*, *O. salmonensis*, *O. schoolcraftii*, *O. setosissima*. Row 6: *O. thompsonii*, *O. thompsonii*, *O. wetherillii*, *Pectocarya anisocarpa*, *Pe. heterocarpa*, *Pe. linearis* subsp. *ferocula*, *Pe. penicillata*, *Pe. peninsularis*, *Pe. platycarpa*, *Pe. recurvata*, *Pe. setosa*, *Plagiobothrys acanthocarpus*. Row 7: *Pl. arizonicus*, *Pl. austinae*, *Pl. bracteatus*, *Pl. canescens*, *Pl. colinus* var. *ursinus*, *Pl. colonatensis*, *Pl. figurata*, *Pl. fulvus* var. *campestris*, *Pl. greenii*, *Pl. hispidula*, *Pl. leptocladus*, *Pl. mollis* var. *mollis*. Row 8: *Pl. nothofulvus*, *Pl. pringlei*, *Pl. salsus*, *Pl. scriptus*, *Pl. tenellus*, *Pl. torreyi* var. *diffusus*, *Pl. trachycarpa*, *Pl. undulatus*, *Pl. unicus*, *Pl. stipitatus* var. *micranthus*, *Simpsonanthus jonesii*, *Sonnea hispidus*.