Changes to key: *Sarcocornia* from original key is treated within *Salicornia*, *Cycloloma* is treated within *Dysphania*, and *Neomonolepis* is a new genus segregated from *Blitum* and added to the key here.

References:

Piirainen, M., O. Liebisch, and G. Kadereit. 2017. Phylogeny, biogeography, systematics and taxonomy of Salicornioideae(Amaranthaceae / Chenopodiaceae) – A cosmopolitan, highly specialized hygrohalophyte lineage dating back to the Oligocene. Taxon 66(1): 109–132.

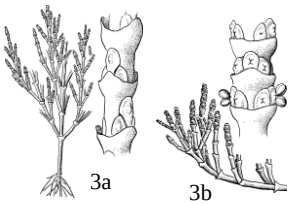
Sukhorukov, A.P., M. V. Nilova, A. A. Krinitsina, M. A. Zaika, A. S. Erst, K.A. Shepherd. 2018. Molecular phylogenetic data and seed coat anatomy resolve the generic position of some critical Chenopodioideae (Chenopodiaceae – Amaranthaceae) with reduced perianth segments. PhytoKeys 109: 103-128. doi: 10.3897/phytokeys.109.28956.

Uotila, P., Sukhorukov, A.P., Bobon, N., McDonald, J., Krinitsina, A.A. and Kadereit, G. (2021), Phylogeny, biogeography and systematics of Dysphanieae (Amaranthaceae). Taxon 70: 526-551.

AMARANTHACEAE Amaranth Family

Fls small, often glomerate, (1–∞) in lf axils or terminal bracteate or ebracteate spikes, pans, or cymes, ☿ to ♂♀ or ♂, ♀, apet; sepals mostly greenish, occ white or reddish, persistent, (1)4–5, free or fused below, or rarely lacking in the ♀ fls; stamens gen = the sepals and opp them, free or ± connate; pistil 1–3(5)-carpellary, ovary 1-locular and l–few-ovuled, superior or rarely with perianth adnate; fr achene, utricle or circumscissile caps, sometimes several cohering by fleshy sepals or bracts; ann or per herbs to fairly large shrubs and vines, often ± succulent, glab to pubescent and/or glandular, mostly with mealy excrescence on lvs and younger brs; lvs simple, alt or opp, sometimes scalelike, exstip; nodes sometimes swollen; pls often of saline soils.

Here we follow APG IV (2016) by including Chenopodiaceae within Amaranthaceae. The Eurasian intro *Polycnemum arvense* L. was coll once (1992) in sc BC, but apparently did not persist.


3a

3b

1a St jointed; lvs small alt or opp scales; fls sessile, borne in depressions of joints of fleshy spikes or along st

2a Lvs and brs alt; embryo ± annular, surrounding an abundant endosperm; GB pl, n to se OR and s ID but not known from our area **Allenrolfea occidentalis** (S. Watson) Kuntze

2b Lvs and brs opp; embryo folded; endosperm lacking

3a Pls ann, all sts terminating with an infl; anthers 0.2–0.5 mm **Salicornia**

3b Pls rhizomatous per, not all sts terminating with an infl; anthers 0.7–1 mm **Sarcocornia**


4a

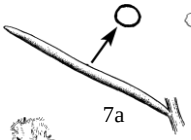

5a

1b St not jointed; lvs flattened to terete but not scalelike, sometimes linear

4a Lvs opp; sepals strongly overlapping, ovate, erect; low, per, rhizomatous herbs **Nitrophila**

4b Lvs alt; sepals rarely overlapping, variously shaped; pls ann or per, seldom rhizomatous

5a Pls spinose-br shrubs with ± linear, semiterete lvs; fls spicate, the ♂ uppermost, naked, with 2–3 stamens nearly covered by a long-stalked, peltate scale, ♀ 1–2 in axils of lf-like bracts, sepals becoming enlarged and top-shaped in fr, its upper portion flaring to form a winged border **Sarcobataceae** (see p. XXX)


7a

5b Pls herbs or shrubs, if shrubby and spinose-br then lvs oblanceolate or wider, and fls and frs not as above

6a Pls per subshrubs, densely tomentose with mostly stellate hairs; lvs linear to narrowly lanceolate, margins often revolute; pls ♂♀; ♂ fls 4-merous, ♀ fls lacking sepals but enclosed in 2 ± connate, densely hirsute bracteoles; fr vertical **Krascheninnikovia**


8a

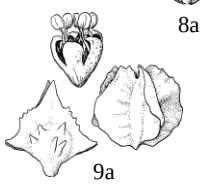
6b Pls ann to per herbs, or shrubs, if shrubs then glab to sparsely pubescent or merely farinose; lvs and fls various

7a Lvs ± linear, terete or semi-terete, gen fleshy **Group 1**

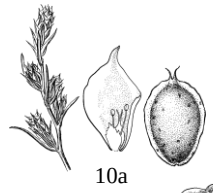
7b Lvs with a distinctly flattened bl, this linear or wider, fleshy or not

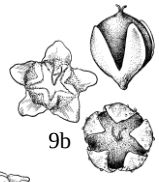
8a Perianth lacking in all fls, or consisting of 1–3 bractlike sepal(s) < (and not enclosing) fr; seeds vertical; pls ann **Group 2**, lead 14a


6a


9a

8b Perianth 3–5-lobed at least in ♂ fls; fr partially enclosed by perianth or fully enclosed by 2 large subtending bracts; seeds horizontal or vertical; pls ann or per

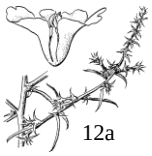

10a


9b

9a ♀ fls lacking sepals or with greatly reduced ones that are each subtended and enclosed by 2 accrescent, sepaloid bracteoles; ♂ fls ebracteate but with 3–5-lobed perianth; pls ♂♀ **Group 3**, lead 17a

9b All fls with reg, 3–5-lobed perianth; pls ⚥-fld to ♂♀ or ♂, ♀ **Group 4**, lead 20a

Group 1


12a


12b


13b


13a

10a Perianth absent or consisting of 1–3 bractlike sepal(s) < (and not enclosing) fr; seeds vertical; pls ann, gen with br to stellate hairs at least in infl **Corispermum**

10b Perianth 3–5-lobed; fr partially enclosed by perianth; seeds horizontal or vertical; pls ann or per, glab or pubescent

11a Lvs and infl bracts with a slender bristle or firm spine; pls ann

12a Lvs and infl bracts firmly spinose with age; infl not pilose in axils; fr sepals often becoming cross-winged near midlength on back **Salsola**

12b Lvs and infl bracts with a slender, soft bristle; infl pilose in axils; fr sepals becoming cross-winged near tip **Halogeton**

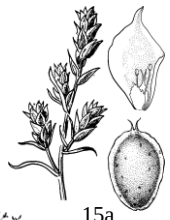
11b Lvs and infl bracts neither slenderly bristle-tipped nor spinose, though gen acute to mucronate; pls ann or per

13a Fr sepals bilaterally symmetric, rounded or dorsally horned; sts glab or puberulent; pls ann or per **Suaeda**

13b Fr sepals radially symmetric, becoming prominently cross-winged at midlength; sts densely pubescent; pls per **Neokochia**

Group 2


14a


15a

14a Fr a circumscissile caps, or occ an ovoid utricle loosely enclosing the shiny seed; stigmas or styles 3 (rarely 2); each fl gen subtended and mostly exceeded by several ± pungent bracts **Amaranthus**

14b Fr an achene, or occ a lenticular utricle tightly enclosing the seed; stigmas or styles 2; each fl subtended by 1 bract or ebracteate

15a Fls 1 per axil, in bracteate terminal and axillary spikes; lvs narrowly lanceolate to linear, entire; pls erect to ascending, gen with br to stellate hairs at least in infl, never farinose **Corispermum**

15b Fls glomerate in lf axils or 1–several in axils of dichotomous cymes; lvs broadly lanceolate to oblong or spatulate, sometimes lobed; pls prostrate to ascending, ± farinose to glabrate, never with br or stellate hairs

16a Pls ± dichotomous br, terminal brs filiform; fls gen 1(–4) per node; lvs entire **Micromonolepis**

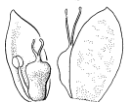
16b Pls not dichotomously br, terminal brs not filiform; fls gen several in axillary glomerules; lvs entire or hastately lobed

17a Lvs entire **Neomonolepis**

17b Lvs hastately lobed **Blitum**


16a


17a


17b

Group 3

18a Stigmas 4–5; glab herbs; lf bls triangular-ovate, 5–12 cm; common spinach, sometimes persistent in old garden areas **Spinacia oleracea** L.

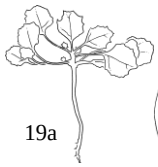
18b Stigmas 2–3; herbs or shrubs; lf bls various

19a Pls ann; lvs orbicular to broadly ovate, dentate; bracteoles of ♀ fls laterally compressed, narrowly crenulate-winged dorsally, strongly bidentate at tip; e MT, app our area in Blaine Co, ID **Suckleya suckleyana** (Torr.) Rydb.

19b Pls ann or per, occ shrubby, if ann the lvs rarely ovate and bracteoles of ♀ fls dorsoventrally compressed and not dorsally winged

20a Pls stellate-scurfy on new growth, becoming glabrate; bracteoles of ♀ fls connate, nearly orbicular, margins entire; shrubs **Grayia**

20b Pls not stellate (if scurfy, hairs unbr), often farinose; bracteoles of ♀ fls distinct to connate, variously shaped, often lobed or toothed; herbs or shrubs **Atriplex**


19a


20a

Group 4


20b


21a

21a Fr a circumscissile caps, or occ an ovoid utricle loosely enclosing the shiny seed; stigmas or styles 3 (rarely 2); sepals distinct, scarious, often awn-tipped, subtended and mostly exceeded by several pungent bracts **Amaranthus**

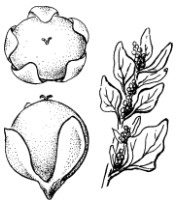
21b Fr an achene, or occ a lenticular utricle tightly enclosing the seed; stigmas or styles 2 or 3; sepals fused at least basally, not spinose


24a


24b


28a


26a


28b


29a


30a


30b

22a Pls sericeous to pilose or tomentose, at least on young growth (becoming glabrate with age in *Cycloloma*, but then fr sepals horizonally winged)

23a Hairs mostly stellate; fr sepals 3, membranous, without a spine or horizontal wing; fls in axillary, bracteate spikes, with ♂ fls above ♀ fls; pls erect ann 2–9 dm; lvs lanceolate, (1–)3–7 cm; Eurasian intro; occ crop weed in s Can and nc US, in our area a waif in sw BC **Axyris amaranthoides** L.

23b Hairs all simple; sepals 5, developing a spine or horizontal wing in fr

24a Lvs linear to linear-lanceolate, entire; fls crowded in terminal and axillary, lfy-bracteate spikes **Bassia**

24b Lvs lanceolate to oblong-ovate, sinuate-dentate; fls scattered in a gen diffusely pan infl, the bracts small **Cycloloma**

22b Pls glab to farinose, or with sessile to stalked glands; fr sepals not horizontally winged

25a Ovary partly inferior, the perianth hardened at base and adherent to ovary and often also to other fls; stamens perig; root often enlarged and fleshy; glab, often reddish herb with ovate to oblong, ± entire lvs; cult beet, occ persistent in wastelots **Beta vulgaris** L.

25b Ovary superior, the perianth not hardened and adherent to ovary or adj fls; stamens hypog; root rarely enlarged and fleshy; pls various

26a Pls ± resinous with sessile to stalked glands, strongly aromatic **Dysphania**

26b Pls eglandular, glab or farinose, never strongly aromatic

27a Seeds all or in part vertical (fr laterally flattened); sepals 3(4) in fls with vertical frs, 4–5 in fls with horizontal frs, not or only weakly keeled; stamens 1–3

28a Seeds all vertical; lvs essentially glab; glomerules typically in unbr terminal spikes only, these lfless or lfy **Blitum**

28b Seeds both vertical and horizontal; lvs glab or farinose beneath; glomerules in axillary and/or terminal, often lfy-bracteate, simple to compound spikes **Oxybasis**

27b Seeds all horizontal (fr flattened from top); sepals normally 5 in all fls, keeled or not; stamens 1 or 5

29a Fr sepals glab, spreading in fr, not or very weakly keeled, midvein indistinct; stamens 1(2); lvs glab, entire to undulate; glomerules 1–few-fld, arranged in spicate pan brs **Lipandra**

29b Fr sepals lightly to densely farinose, if occ subglab then with either a prominent keel or midvein, enclosing fr or not; stamens 5; lvs gen farinose at least when young, entire, toothed, or lobed; glomerules few–∞-fld (occ fls appearing singly), variously arranged

30a Vesicular trichomes becoming irreg flattened upon drying; sepals with a prominent raised midvein on outer surface; lvs toothed or lobed **Chenopodiastrum**

30b Vesicular trichomes becoming indented and cup-shaped upon drying; sepals with or without a prominent midvein on outer surface; lvs entire, toothed, or lobed **Chenopodium**