

*Amaranthus* L. AMARANTH, PIGWEED

*Amaranthus albus* L., TUMBLEWEED, TUMBLEWEED PIGWEED. Annual,  $\pm$  spinescent, taprooted, not rosetted, bushy with intricate 3-dimensional architecture having a branch from every node on first-order and second-order shoots, the canopy typically conic, ascending to erect, < 90 cm tall; monoecious; shoots becoming spinescent from aging axillary reproductive shoots, glabrate or aging glabrescent; when senescent abscising from base to form characteristic detached tumbleweed dispersal unit. **Stems:** irregularly ridged, to 11 mm diameter, with 2 ridges descending from each leaf, green becoming tan or straw-colored often with whitish streaks, main axis  $\pm$  zigzagged, with short, colorless, sessile glandular hairs. **Leaves:** helically alternate, simple, petiolate, without stipules; petiole channeled, 2–30 mm long; blade elliptic to obovate, 8–40(–70)  $\times$  3–20(–30) mm, tapered at base, wavy and  $\pm$  entire on margins, obtuse to short-notched at tip with a point extension of midrib, pinnately veined with several ascending lateral veins sunken on upper surface and raised on lower surface, lower surface pale green to bluish green with nongreen or light green veins having abundant whitish speckles (= aggregates of crystals in tissue). **Inflorescence:** short, highly condensed cymes of unisexual flowers (cymules), axillary, spikelike, < 10 mm long, with sessile staminate flowers near base and pistillate flowers above, bracteate, glabrous; bract subtending cymule and bractlet subtending flower  $\pm$  awl-shaped, 2–4.5 mm long, dark green with membranous margins, with short point at tip. **Staminate flower:** radial, < 2 mm long; **tepals** (perianth parts) 3, helically alternate, subequal, cupped-lanceolate or boat-shaped, 1.2–1.8  $\times$  0.4–0.6 mm, colorless or whitish except for green midstripe; **stamens** 3(4), free; filaments  $\pm$  flattened, (1–)1.2–1.6 mm long, colorless, with papillae; anthers dorsifixed, dithecal, linear,  $\pm$  0.7 mm long, yellow, longitudinally dehiscent; pollen yellow; **pistil** absent. **Pistillate flower:** radial, larger and more numerous than staminate flowers; **tepals** (perianth parts) 3, barely fused at base and persisting on fruit base, subequal, 1 or 2 oblong with short-pointed tip, 1.2–1.5(–2)  $\times$  0.25 mm, greenish and ciliate, the other 1 or 2 narrower, 0.8–0.9  $\times$  0.3–0.5 mm, whitish to  $\pm$  colorless, typically without pointed tip; **stamens** absent; **pistil** 1; ovary superior, compressed-ovoid, 1–1.5 mm long, 1-chambered with 1 ovule; styles 3, ascending,  $\pm$  0.7 mm long, conically thickened at base, stigmatic and papillate above base. **Fruit:** utricle, indehiscent but easily broken when grasped, the widest above midpoint, thin-walled, wrinkled, with 3 persistent styles becoming short beaks. **Seed:** lenticular, 1–1.1 mm wide, glossy dark brown to red-black, smooth, with  $\pm$  encircling ridge. Mid-June–early November.

Naturalized. Common annual weed of disturbed and ruderal habitats, but also observed occasionally in natural vegetation. *Amaranthus albus* is a C<sub>4</sub> species that begins its reproduction during dry, summer months. This is a species of tumbleweed, like Russian thistle (*Salsola*), which abscises at the root-stem junction so that the entire shoot is pushed around by strong wind, thereby dropping its seeds. There are reports that this species hybridizes with *A. blitoides*, so intermediate forms should be anticipated in range, because the two species can be found growing together.

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