

Abronia Juss. SAND-VERBENA

Abronia maritima S. Watson, RED SAND-VERBENA. Perennial herb, evergreen, fleshy, diffuse-rooted, several-stemmed at base, mat-forming, creeping, prostrate, and often partially buried, < 20 cm tall; shoots branching unequally at nodes, with 2 blade sizes per node (anisophyllous), with leaves vertically oriented or arching upward and with erect inflorescences, densely glandular-hairy and viscid on axes; forming adventitious nodal roots on old, sand-buried stems. **Stems:** cylindric, to 8 mm diameter, tough, green, densely glandular-hairy and becoming coated with sand, internodes to 90 mm long. **Leaves:** opposite decussate, simple, petiolate, without stipules; petiole hemi-cylindric at base, cylindric above, 5–25(–30) mm long, with U-shaped arc of vascular bundles; blade elliptic or oblong to obovate, in range 15–52(–70) × 10–35(–43) mm, fleshy, 1–3 mm thick, green, rounded at base, entire and slightly wavy on margins, rounded or obtuse at tip, pinnately veined, glandular-puberulent, not viscid, the basal portion of midrib with some longer glandular hairs. **Inflorescence:** headlike, axillary, only 1 per node, wedge-shaped and umbel-like, in range 15–20 mm across, 10–18-flowered, flowers sessile subtended by an involucre all flowers open ± at the same time, glandular-hairy and viscid; peduncle erect, typically 30–50 mm long increasing 2× in fruit, to 3× petiole length, green, glandular-hairy; **involucre** of 5–7(–10) helically alternate bracts, bract lanceolate to narrowly ovate, in range 6.5–8.5 × 2.5–3.5 mm, fleshy, green, densely glandular-hairy, persistent and papery in fruit. **Flower:** bisexual, radial, 6–8.5 mm across, 10–12 mm long; **perianth (calyx)** corollalike, 5-lobed, ± narrowly trumpet-shaped (salverform) but thicker at base, the base 2–5-angled or 2–5-winged, green, glandular-hairy and viscid; tube ± cylindric, (6–)9.5–10.5 mm long, dark red, glandular-hairy and viscid; lobes 2-lobed (heart-shaped), 2.5–3 × 3–4 mm, dark purplish red, with petal-like lateral margins on a ± fleshy, triangular central area, margins spreading (reflexed), glabrous, fleshy portion densely glandular-hairy; **stamens** 5–6, fused at base to form a cup, included; filament cup ± 0.7 mm long around ovary, then free for ± 1 mm before fused with perianth tube, free also at different heights along perianth tube between 1/3 and 3/4 distance along tube, free for 0.5–1 mm below anther; anthers dorsifixed, dithecal, 1.2–1.5 mm long, brilliant yellow, longitudinally dehiscent; pollen vivid yellow (or slightly darker); **pistil** 1; ovary superior but appearing inferior because surrounded by thick perianth base, ovoid, ± 1 × 0.5 mm, 1-chambered with 1 ovule; style included, 7–7.5 mm long, whitish; stigma lateral, 1.8–2.5 mm long, whitish or yellow-stained from pollen. **Fruits:** achenelike anthocarps in headlike cluster (diclesium); anthocarp 1-seeded, top-shaped, 10–14 × 6–13 mm, tan, winged-cordate, with 3–5 thin, unequal, lobelike wings derived from perianth base, wings truncate and ± beaked, viscid-hairy especially above midpoint where sand grains become attached. Mid-January–late September.

Native. Fleshy evergreen perennial herb rare in range occurring only on the shifting sand of coastal foredunes and unstable dunes of coastal strand. *Abronia maritima*, which has a dense cluster of flowers with vividly colored, dark red perianth, is easily distinguished from the more common sand-verbena of stabilized backdunes, *A. umbellata*, which has a broader, looser cluster of flowers that are lavender with white centers. The lightweight, 1-seeded anthocarps are readily dispersed across the sand surface by strong winds occurring on beach sand dunes. *Abronia maritima* is now rare in range because foredunes of public

and private beaches are groomed regularly, which does not permit the species to become established and persist in its very narrow ecologic niche. Its main root needs to be positioned deep within the dune, where the plant can continuously tap soil moisture for its long-lived leaves. Its nodal roots, placed just below the surface, help each radiating shoot, often extending several meters from the plant's center, to capture ephemeral water and to anchor the prostrate stem.

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