Cape-ivy
Delairea odorata Lem.

History and Ecology in North America

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SYNONYMS
Senecio mikanioides Otto ex Walp., African ivy, German ivy

CLASSIFICATION

RANKING	SCIENTIFIC NAME	COMMON NAME
Kingdom	Plantae	Plants
Subkingdom	Tracheobionta	Vascular plants
Superdivision	Spermatophyta	Seed plants
Division	Magnoliophyta	Flowering plants
Class	Magnoliopsida	Dicotyledons
Subclass	Asteridae	
Order	Asterales	
Family	Asteraceae	Sunflower family
Genus	*Delairea*	Cape-ivy
Species	*Delairea odorata* Lem.	Cape-ivy

HISTORY AND DISTRIBUTION
Cape-ivy is native to South Africa. It was intentionally introduced to the eastern USA as an ornamental houseplant in the 1850s as well as an ornamental groundcover in the West before escaping and becoming invasive in the San Francisco Bay Area. It is currently established and invasive in California and Oregon and has been reported from one isolated location in eastern Montana (**Fig. 1**). Cape-ivy was introduced to Hawai'i as an ornamental and was first collected on Hawai'i Island in 1909. It is now reportedly established and problematic on both Hawai'i Island and Maui.

Figure 1. Cape-ivy distribution in North America (Credit: EDDMapS, www.eddmaps.org, accessed 29 July 2021)

IMPACT
Cape-ivy forms dense mats (**Fig. 2a**) that smother, shade out, and prevent the germination of native and more desirable species. Dense infestations can even break shrubs and trees (**Fig. 2b**). Cape-ivy is known to reduce plant diversity, which is expected to have negative impacts on insects and other animals that depend on them. Dense Cape-ivy mats reduce nesting habitat for shorebirds, and the plant contains compounds toxic to humans, other mammals, and aquatic organisms, reducing forage quality and stream health. Cape-ivy also has a shallow root system, leading to increased erosion in riparian areas the weed has invaded.

Figure 2. Cape-ivy (a) infestation blanketing other vegetation; (b) climbing into a tree canopy (a: John M. Randall, The Nature Conservancy, Bugwood.org CC BY-3.0 US; b: Kyle Nessen, iNaturalist.org CC0)

IDENTIFICATION
At a Glance
Cape-ivy (**Fig. 3**) is an herbaceous vine with a woody base that grows as a perennial from stolons, rhizomes, and very shallow roots. Vines grow up to 20 ft (6 m) long, and stems are typically green but may be purple. Leaves are alternate and ivy-shaped with 5–9 sharp lobes. Leaf blades are up to 3 in (8 cm)

Figure 3. Cape-ivy plant (Jessica West, iNaturalist.org CC BY-4.0)

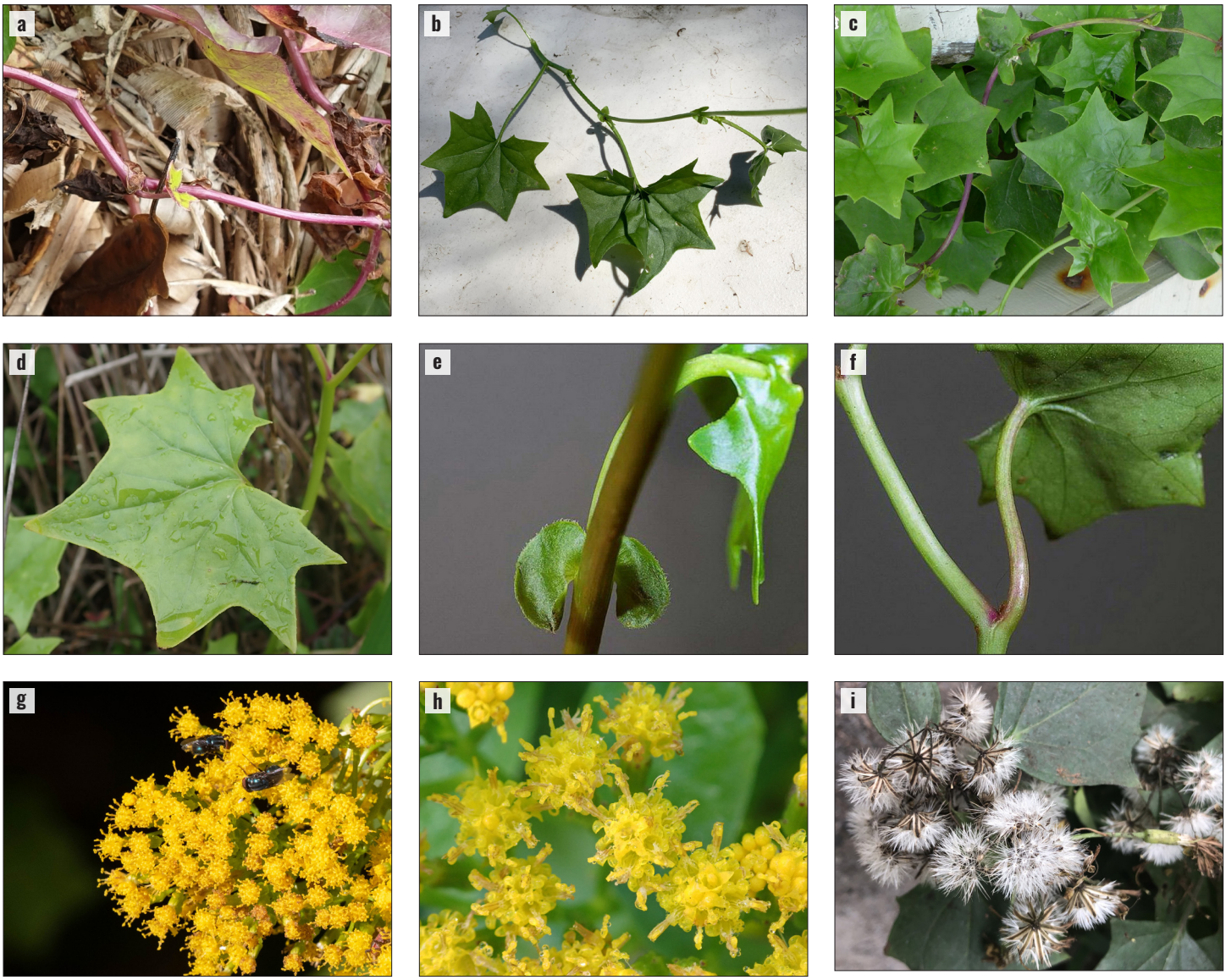

Figure 4. Cape-ivy (a) rhizomes are often purple, and it has stems that are (b) typically green but (c) may be purple. It has (d) alternate, ivy-shaped leaves with 5–9 sharply pointed lobes. One form of the plant (e) produces two kidney-shaped stipules at the base of the leaf; (f) the other form does not produce these stipules. Flower heads (g) occur in tight clusters; each flower head has (h) 10–12 tiny, yellow, and tubular florets. Each floret produces a single, cylindrical, ribbed seed (i) topped by a tuft of fine hairs. (a: Juditgee, iNaturalist.org CC BY-NC 4.0; b: Zsteeber, iNaturalist.org CC BY-NC 4.0; c: Sea kangaroo, iNaturalist.org CC BY-NC-ND 4.0; d: Wyatt, iNaturalist.org CC BY-NC 4.0; e,f: Joseph M. DiTomaso, University of California - Davis, Bugwood.org CC BY-3.0 US; g: Dan Fitzgerald, iNaturalist.org CC BY-NC 4.0; h: Peter de Lange, iNaturalist.org CC BY-NC 4.0; i: Antonio W. Salas, iNaturalist.org CC BY-4.0)

long and wide. One form of Cape-ivy produces two small, kidney-shaped stipules at the base of the leaf; the other form does not. Flower heads occur in tight clusters from vine tips and nodes. Each flower head has 10–12 tiny, yellow, and tubular florets. Each floret produces a single cylindrical and ribbed seed topped by a tuft of fine hairs.

Roots and Stolons

Cape-ivy produces stolons and rhizomes, both of which are shiny with thick cuticles. Rhizomes (and some stolons) are often covered with purple blotches or are entirely purple (**Fig. 4a**). Roots growing from the nodes of stolons and rhizomes are simple and shallow, often barely penetrating the soil surface.

Stems and Leaves

Vines may grow up to 20 ft (6 m) long and form a mat up to 1 ft (30 cm) thick. Stems are herbaceous and typically green (**Fig. 4b**) but may be purple (**Fig. 4c**) and are often woody at their base. Leaves are alternate and ivy-shaped with 5–9 shallow but sharply pointed lobes (**Fig. 4d**). Leaf blades are 1–3 in (3–8 cm) wide by 1–3 in (3–8 cm) long and give off a distinctive medicinal smell when crushed. Leaf petioles are as long or longer than the leaf (**Fig. 4b**). There are two forms of Cape-ivy: one form has a pair of small, kidney-shaped stipules at the base of the leaf petiole (**Fig. 4e**) and the other form lacks these stipules (**Fig. 4f**).

Flowers

Flower heads occur in large, tight clusters (**Fig. 3g**) at the end of vines and from vine nodes. Each flower head contains 10–12 tiny, yellow, tubular disk florets (**Fig. 3h**). Cape-ivy is self-incompatible.

Fruits and Seeds

Each floret produces one cylindrical, brown, and ribbed seed about 2 mm long. Seeds are initially topped by a tuft of fine hairs (pappus; **Fig. 3i**), but these are easily broken and soon fall off. A single plant may produce over 40,000 seeds annually in some parts of its range. Viable seed production is known to occur in California.

ECOLOGY

Though Cape-ivy can spread by seed in some parts of its range, the majority of spread in the continental USA is vegetative via stolons, rhizomes, and stem fragments. New vines sprout from the persistent rhizomes and roots throughout the year. Plants flower during winter, and then vines continue growing through spring and summer. By late summer, most vines die back, and new stems sprout from roots. Seeds may be carried short distances by wind, but because the pappus is short and falls off quickly, wind dispersal is not extensive. Most spread occurs when stem, stolon, or rhizome fragments are carried elsewhere on water currents and in garden and construction waste.

HABITAT

Cape-ivy can tolerate a wide range of habitats and climatic conditions (**Fig. 5**). It establishes most easily at moist sites with permanent moisture and partial shade, but can then spread into drier adjacent areas with full sun. It is frequently found in open forests and coastal scrubland as well as riparian corridors, lake shores, and adjacent grasslands.

SIMILAR SPECIES

Several vines established in North America resemble Cape-ivy in having similar ivy-like leaves and growing in a similar habitat. All of the potential look-alike species have tendrils and very different flowers and fruit. The most similar species are described in greater detail in **Table 1**, along with key characteristics that can be used for differentiating them from Cape-ivy and each other.

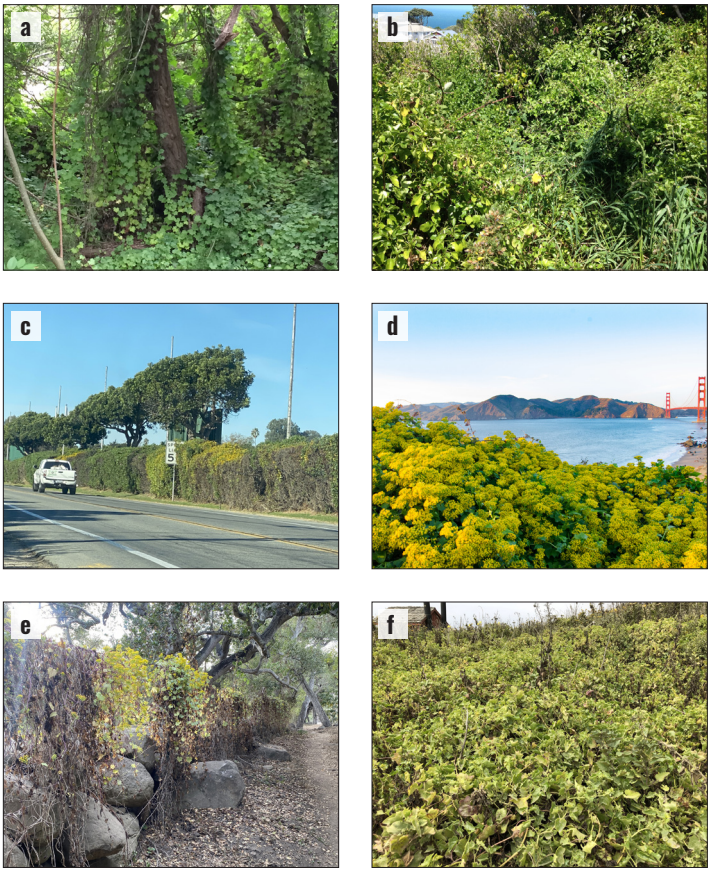

Figure 5. Cape-ivy growing in (a) moist forestland, (b) coastal scrubland, (c) roadside hedges, (d) coastal bluffs, (e) trailside fence, (f) open pastureland (a,c,e: Andrea_adams-morden, iNaturalist.org CC BY-NC 4.0; b: Tim Park, iNaturalist.org CC BY-NC-SA 4.0; d: Lew Stringer, , iNaturalist.org CC BY-NC 4.0; f: Michael Chassé, iNaturalist.org CC BY-NC-ND 4.0)

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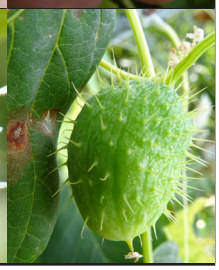
Table 1. Key traits for differentiating Cape-ivy from similar vine species established in North America and/or Hawai'i. Distribution information provided emphasizes any establishment in California (CA), Hawai'i (HI), and Oregon (OR), the three states where Cape-ivy is known to be invasive.

SPECIES	DISTRIBUTION	SIMILARITIES	DIFFERENCES	LEAF	FLOWER	FRUIT
English ivy *Hedera helix* **&** **Algerian ivy** *Hedera helix ssp. canariensis* Araliaceae Perennials	**English ivy:** exotic and established in CA, HI, OR, and throughout eastern and western North America **Algerian ivy:** exotic and established only in CA	Often grown as ornamental; habitat; shallow roots; dense, smothering mats; leaves ivy-shaped, alternate, often with sharp lobes	Root-like structures from vine nodes exude sticky substance, enabling climbing; twining tendrils at nodes; leaves up to 4 in (10 cm) long and across, with whitish veins; older leaves not lobed; flowers late summer to fall; flowers with 5 greenish petals; fruit black, fleshy; seeds stone-like			
Manroot *Marah* **spp.** Cucurbitaceae Perennials	Native to CA, OR, and western North America; not present in HI	Habitat in California; dense mats; similar length; leaves ivy-shaped, alternate, lobed; vines die back after summer	Root large tuber; rough, stout stems; twining tendrils from stem nodes; leaves up to 8 in (20 cm) across, often slightly hairy; flowers either male or female with 5 or 6 white petals; fruit fleshy, spherical, ≤2 in (5 cm) across, covered in prickles of variable density, green maturing to yellow			
Bur cucumber *Sicyos* **spp.** Cucurbitaceae Annuals	Native to HI	Habitat in Hawai'i; some species dense mats; often similar length; roots shallow; leaves ivy-shaped, alternate, lobed	Many species rare; not present in western portion of continental USA; some species up to 65 ft (20 m) long; some stems with black spots; twining tendrils from stem nodes; leaves up to 4 in (10 cm) long and across, small teeth along margins; fruit bur-like; seeds brown, flattened			
Wild cucumber *Echinocystis lobata* Cucurbitaceae Annual	Native to much of North America but not found in CA or HI. Present in far northern OR but not coastal and not far southern OR coast where Cape-ivy is found.	Superficially similar habitat in inland areas; dense mats; often similar length; roots shallow; leaves ivy-shaped, alternate, lobed; vines die back after summer	Can grow longer; stems angular; twining tendrils from stem nodes; leaves up to 7 in (18 cm) across; leaf margin slightly toothed; flowers either male or female with 6 white, rolled petals; fruit fleshy, ≤2 in (5 cm) long, covered in prickles of variable density, green maturing to yellow			

Photos: English ivy leaves (Rachel Winston, MIA Consulting), flowers (Roberto Ghiglia, iNaturalist.org CC BY-NC 4.0), fruit (Sonnenblume21, iNaturalist.org CC BY-NC 4.0); manroot leaf (Damon Tighe, iNaturalist.org CC BY-NC 4.0), flower (Ken-ichi Ueda, iNaturalist.org CC BY-NC 4.0), fruit (Lena Zentall, iNaturalist.org CC BY-NC 4.0); *Sicyos pachycarpus* leaf, flowers, fruit (Forest & Kim Starr, Starr Environmental CC BY-4.0); wild cucumber leaf (Christina Kovacs, iNaturalist.org CC BY-NC 4.0), flower (Scibadger, iNaturalist.org CC BY-NC 4.0), fruit (Cava, iNaturalist.org CC BY-NC 4.0)

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SUGGESTED CITATION

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