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McClay Ecoscience

## SYNONYMS

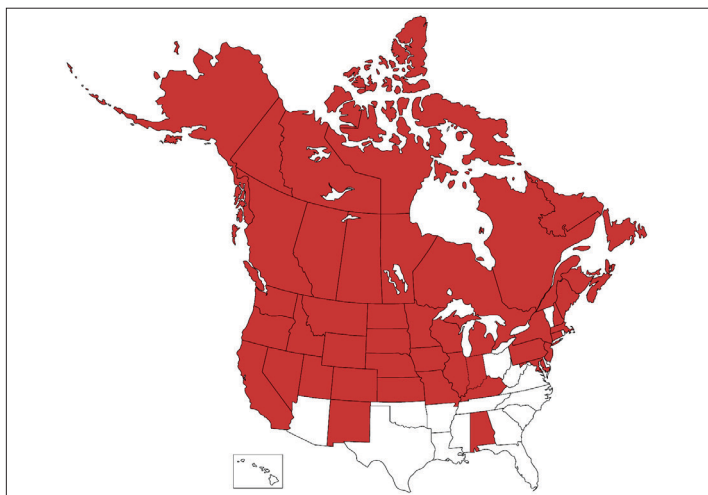
Scentless false mayweed, *Matricaria perforata* Mérat, *Tripleurospermum maritimum* (L.) W.D.J.Koch ssp. *inodorum* (L.) Appleg., *Tripleurospermum perforatum* (Mérat) M.Láinz.

## 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	<i>Tripleurospermum</i>	
Species	<i>Tripleurospermum inodorum</i> (L.) Sch.Bip.	Scentless chamomile

## HISTORY AND DISTRIBUTION

Scentless chamomile is native to Europe and western Asia. It was first recorded in North America from New York, USA in 1872 and New Brunswick, Canada in 1876. It has since been



**Figure 1.** Scentless chamomile reported distribution in North America (Credit: EDDMapS, [www.eddmaps.org](http://www.eddmaps.org); USDA PLANTS Database, [plants.usda.gov](http://plants.usda.gov); both accessed 21 October 2022)

reported in all 10 provinces and three territories in Canada as well as 32 states in the USA (Fig. 1).

## IMPACT

Scentless chamomile displaces native species in natural areas and is a particular nuisance in crops where it significantly reduces grain yields. The plant is unpalatable and may cause blistering on livestock muzzles. Most livestock will avoid the plant, but it reduces range and pasture production dramatically at some locations.

## IDENTIFICATION

### AT A GLANCE

Scentless chamomile (Fig. 2) is an herbaceous annual (sometimes a biennial or short-lived perennial) typically growing ½–3 ft (15–90 cm) tall from a fibrous root system. Leaves are alternate and very finely divided, giving the plant a fern-like appearance. Flower heads are daisy-like with white outer ray florets and yellow inner disc florets. Flower heads are typically 1¼–1¾ in (3–4½ cm) in diameter. Seeds are small, elongate, brown, ribbed, and have no pappus.



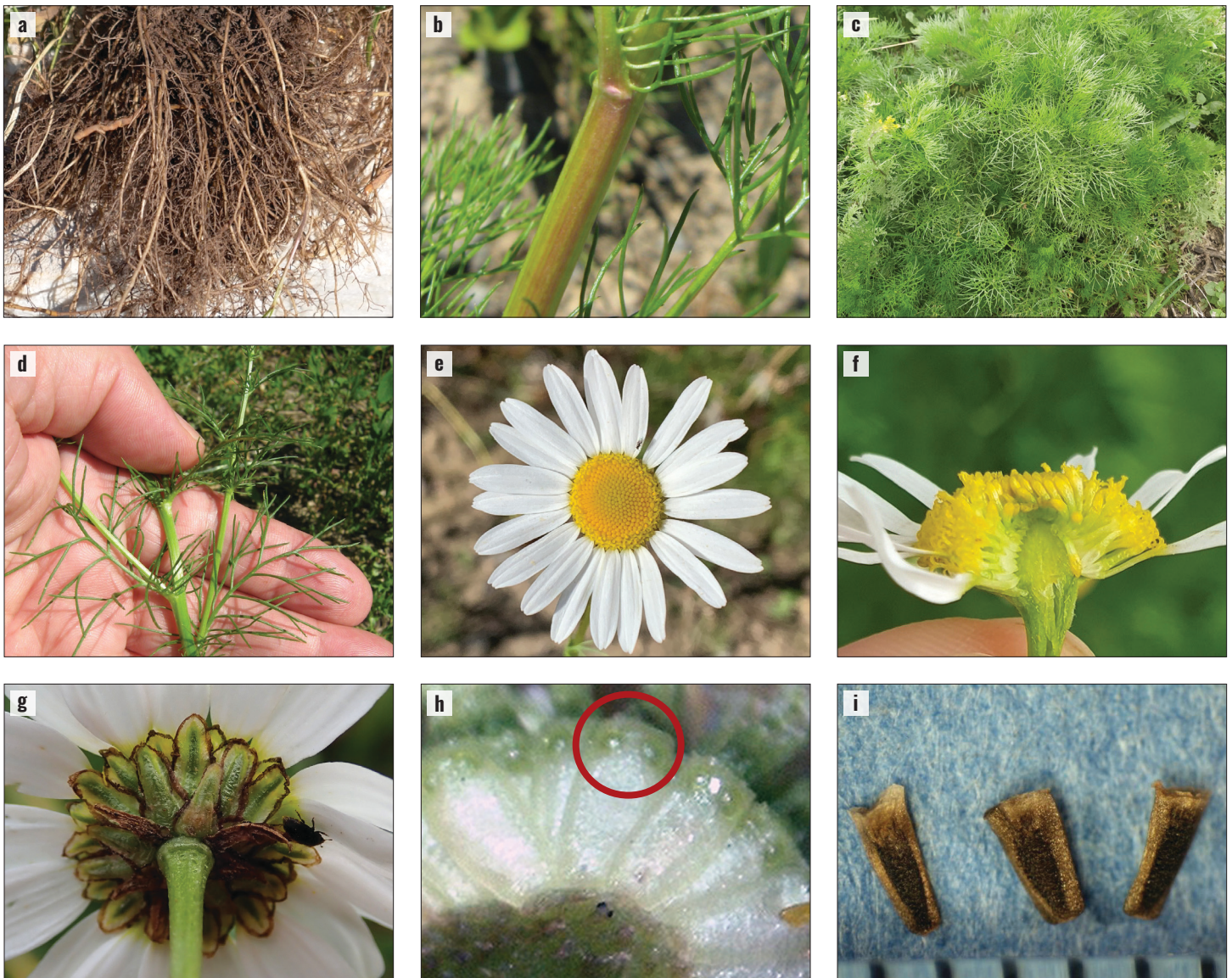
**Figure 2.** Scentless chamomile plant (K. George Beck and James Sebastian, Colorado State University, Bugwood.org CC BY-3.0 US)

### Roots

Scentless chamomile has a very fibrous but shallow root system (Fig. 3a).

### STEMS AND LEAVES

Most plants grow ½–3 ft (15–90 cm) tall. Stems are smooth or only slightly hairy, sometimes ribbed, and are green at first but often turn reddish with age (Fig. 3b). They typically have multiple branches (Fig. 2). All leaves are very finely divided into numerous narrow leaflets, giving the plant a fern-like



**Figure 3.** Scentsless chamomile (a) has fibrous roots. Stems (b) are often green but may turn red with age or dry conditions. Leaves (c) are finely divided into narrow leaflets and (d) leaves grow alternate and smaller up the stem. Flower heads (e) are daisy-like with <math>\leq 24</math> white ray florets around the periphery and a few hundred disc florets in the center. Flower head receptacles (f) are cone-shaped in cross section. Flower head bracts (g) are green in the center with dry, often brown margins. Immature seeds (h) are green with two small, circular glands at the top (red circle around one gland), becoming (i) brown, elongate, and 3-ribbed at maturity. (a: Travis McMahon, MIA Consulting; b: Caleb Slemmons, National Ecological Observatory Network, Bugwood.org CC BY-3.0 US; c: Иван Ядришиков, iNaturalist.org CC BY-NC 4.0; d: Vladimir Travkin, iNaturalist.org CC BY-NC 4.0; e: Fahrenheit\_66, iNaturalist.org CC BY-NC-SA 4.0; f: Ким Виктория, iNaturalist.org CC BY-NC 4.0; g: Daniel Cahen, iNaturalist.org CC BY-NC 4.0; h: © www.cronodon.com; i: Bruce Ackley, Ohio State University, Bugwood.org CC BY-3.0 US)

appearance (Fig. 3c). Stem leaves are  $\frac{3}{4}$ –3 in (2–8 cm) long, alternate, clasp the stem, and decrease in size further up the stem (Fig. 3d).

### FLOWERS

Scentsless chamomile produces flower heads singly at the end of branch tips (Fig. 2). Each head is typically  $1\frac{1}{4}$ – $1\frac{3}{4}$  in (3–4½ cm) in diameter and is daisy-like (Fig. 3e). There may be 10–24 white ray florets around the periphery and a few hundred disc florets in the center that are tiny, yellow, and tube-like. When sliced to reveal the flower head in cross section (Fig. 3f), the receptacle is characteristically cone-

shaped and is solid to indistinctly hollow. The bracts at the base of the flower head are overlapping, green in the center, and thin and dry (often brown) along their margins (Fig. 3g).

### FRUITS AND SEEDS

Each floret produces a single seed. Two small, circular oil glands are visible at the top of each immature seed (Fig. 3h). At maturity, seeds are small, elongate, brown, and have no pappus (Fig. 3i). Seeds have three obvious ridges that are separated along the length of the seed, including near the base. This species is a prolific seed producer; dense populations can yield up to 1.8 million seeds/ft<sup>2</sup> (19.4 million seeds/m<sup>2</sup>).

## ECOLOGY

Scentless chamomile reproduces by seed only. Plants germinate throughout the growing season. Those germinating before July often behave as annuals, bolting and flowering within the same growing season. Those germinating after July behave as winter annuals, developing into an overwintering rosette which bolts and flowers the following summer. Most plants die after flowering and setting seed, though a small proportion overwinter and re-grow from the root crown to flower again the following year. Because seeds lack a pappus, they aren't transported by the wind, and most end up falling around the parent plant. Seeds may be spread in runoff water, as seed or grain contaminants, or in soil attached to machinery or vehicles. Seeds may stay viable up to 15 years.

## HABITAT

Scentless chamomile is well adapted to many different habitats, thriving in disturbed conditions typical of annual and perennial crops. It is frequently found in or along pastures, roadsides, construction sites, and irrigation ditches (Fig. 4). It germinates readily at sites with periodic flooding.



**Figure 4.** Scentless chamomile is established in a variety of habitats but is frequently found in or along (a) field margins; (b) land recently cleared for construction; (c) roadsides; (d) irrigation canals (a: Зеленкова Виктория, iNaturalist.org CC BY-NC 4.0; b: Alec McClay, McClay Ecoscience; c: Dana Dopleach, iNaturalist.org CC BY-NC 4.0; d: Masha, iNaturalist.org CC BY-NC 4.0)

## SIMILAR SPECIES

Because the sunflower family (Asteraceae) is one of the largest in the world, there are numerous related species in North America that have many features similar to scentless chamomile, including flower heads with long ray florets on the periphery and hundreds of disc florets in the center. Many of these have different-colored ray florets or leaves that are not finely divided. Scentless chamomile is most frequently confused with other daisy-like flowers, of which there are several exotic species that have been introduced to North America, including Roman chamomile (*Chamaemelum nobile*), German chamomile (*Matricaria chamomilla*), stinking chamomile (*Anthemis cotula*), sea mayweed (*Tripleurospermum maritimum*), and oxeye daisy (*Leucanthemum vulgare*). Each of these has many similar features and is frequently mistaken for scentless chamomile in the field. **Table 1** lists key characteristics useful for differentiating these species from scentless chamomile and from each other.





















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**Table 1.** Key traits for differentiating scentless chamomile from similar related species established in North America.

SPECIES	DIFFERENCES	PLANT	LEAF	FLOWER HEAD	SEED
<b>Roman chamomile</b> <i>Chamaemelum nobile</i> Asteraceae Exotic perennial	Perennial; roots rhizomatous; often smaller, more sprawling; covered in short, white, woolly hairs; receptacle more conical; receptacle bracts without brown margins; receptacle scales closely ensheath each floret; plant parts more strongly and sweetly scented				
<b>Sea mayweed</b> <i>Tripleurospermum maritimum</i> Asteraceae Native and exotic perennial	Perennial or biennial; habitat rocky or gravelly, coastal, mainly Arctic; more sprawling; stems often more reddish, slightly woody; leaves more succulent; seeds longer, 3 ribs touch near the base; 2 oil glands (circled in image) at top of seeds longer, narrower				
<b>Stinking chamomile</b> <i>Anthemis cotula</i> Asteraceae Exotic annual	Often grows smaller, more sprawling; ray florets $\leq 18$ , more rounded; receptacle bracts with soft hairs or bristles, without brown margins; has receptacle scales; seeds wrinkled with 10 ridges, small glandular bumps across surface; all plant parts have harsh, disagreeable odor				
<b>Wild chamomile</b> <i>Matricaria chamomilla</i> Asteraceae Exotic annual	Flower heads smaller; receptacle hollow, more conical; receptacle bracts without brown margins; ray florets shorter, more blunt; seeds lack oil glands, have 4–5 weak ribs; plant parts more strongly and sweetly scented				
<b>Oxeye daisy</b> <i>Leucanthemum vulgare</i> Asteraceae Exotic perennial	Perennial; creeping, rhizomatous roots; minimally branched; stems with scattered small hairs; leaves lobed or toothed but not divided; receptacle not cone-shaped; seeds conical, more than 3 ribs; when crushed, plant has disagreeable, sour odor				

**Photos:** Roman chamomile plant (Dksbike, iNaturalist.org CC BY-NC 4.0), leaf (John Crossley, iNaturalist.org CC BY-NC-ND 4.0), flower head (Pajo\_2009, iNaturalist.org CC BY-NC 4.0); seeds: José Luis Romero Rego, iNaturalist.org CC BY-NC 4.0); sea mayweed plant (Morihk, iNaturalist.org, CC BY-NC 4.0), leaves (JW, iNaturalist.org, CC BY-NC-SA 4.0), flower head (Mary Ellen (Mel) Harte, Bugwood.org CC BY-3.0 US), immature seeds with longer oil glands (red circle) (Daniel Cahen, iNaturalist.org, CC BY-NC 4.0); stinking chamomile plant (Lena Zentall, iNaturalist.org, CC BY-NC 4.0), leaf (Mary Ellen (Mel) Harte, Bugwood.org CC BY-3.0 US), flower head (James Bailey, iNaturalist.org CC BY-NC 4.0), seeds (D. Walters and C. Southwick, USDA, Bugwood.org CC BY-3.0 US); wild chamomile plant (Alison Vanessa Vaca, iNaturalist.org CC BY-NC 4.0), leaf (Wolfgang Jauch, iNaturalist.org CC BY-NC-SA 4.0), flower head (Eleftherios Katsillis, iNaturalist.org CC BY-NC 4.0), seed (© www.cronodon.com); oxeye daisy plant, leaf and stem, flower head (Travis McMahon, MIA Consulting), seeds (Steve Hurst, USDA NRCS PLANTS Database, Bugwood.org CC BY-3.0 US)

## ACKNOWLEDGMENTS

The authors thank two anonymous reviewers for providing helpful comments on earlier versions of this publication. This fact sheet was produced by the North American Invasive Species Management Association (NAISMA) with financial support from USDA Forest Service. The layout was designed by Rachel Winston, MIA Consulting.

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## SUGGESTED CITATION

McClay, A.S. 2022. Scentsless Chamomile (*Tripleurospermum inodorum*): History and Ecology in North America. In: R.L. Winston, Ed. Biological Control of Weeds in North America. North American Invasive Species Management Association, Milwaukee, WI. NAISMA-BCW-2022-35-SCENTLESS CHAMOMILE-P.

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