

suckling clover

Trifolium dubium Sibth.

Synonyms: *Chrysoispis dubia* Greene, *Trifolium filiforme* sensu auct., *Trifolium filiforme* L. var. *dubium* (Sibth.) Fiori & Paol., *Trifolium filiforme* L. ssp. *dubium* (Sibth.) Gams., *Trifolium minus* Relhan, *Trifolium praticola* Sennen

Other common names: lesser hop trefoil, lesser trefoil, little hop clover, shamrock, small hop clover, yellow shamrock, yellow trefoil

Family: Fabaceae

Invasiveness Rank: 50 The invasiveness rank is calculated based on a species' ecological impacts, biological attributes, distribution, and response to control measures. The ranks are scaled from 0 to 100, with 0 representing a plant that poses no threat to native ecosystems and 100 representing a plant that poses a major threat to native ecosystems.

Description

Suckling clover is an annual plant with a slender, branched taproot and fibrous lateral roots. Plants are glabrous to sparsely pubescent. Stems are trailing to erect, slender, branched from the base, and 10 to 50 cm long. Stipules are ovate, finely toothed, and 4 to 8 mm long. Leaves are grey-green, alternate, and pinnately trifoliate. Petioles are shorter than or equal to leaflets. Leaflets are obovate, often indented at the tips, 5 to 15 mm long, and 3 to 8 mm wide. Leaflet margins have shallow teeth along the distal margins but are entire proximally. Terminal leaflets have long petiolules. Inflorescences consist of 3 to 20 flowers and are borne in leaf axils. They are dense, spherical, and 6 to 8 mm wide with short peduncles. Flowers are yellow and 3 to 4 mm long. Pods are egg-shaped and 1.5 to 2 mm long. They are enclosed by the persistent flowers and contain one seed each (Hultén 1968, DiTomaso and Healy 2007, eFloras 2008, Dzyubenko and Dzyubenko 2009, Klinkenberg 2010, NatureGate 2011).



Inflorescence and trifoliate leaves of *Trifolium dubium* Sibth. Photo by M. Iocchi.

Similar species: Suckling clover can be confused with eight other *Trifolium* species that are known or

suspected to occur as non-native species in Alaska: golden clover (*Trifolium aureum*), field clover (*T. campestre*), alsike clover (*T. hybridum*), lupine clover (*T. lupinaster*), smallhead clover (*T. microcephalum*), red clover (*T. pratense*), white clover (*T. repens*), and whitetip clover (*T. variegatum*). Alsike clover, lupine clover, smallhead clover, red clover, white clover, and whitetip clover can be distinguished from suckling clover by the absence of yellow flowers. Unlike suckling clover, golden clover lacks petiolules on all of its leaflets. Field clover can be distinguished from suckling clover by the presence of 30 to 100 flowers per inflorescence, inflorescences that are 8 to 13 mm wide, and flowers that are 4 to 6 mm long (Hultén 1968, eFloras 2008, Klinkenberg 2010).



Trifolium dubium Sibth. Photo by M. Iocchi.

Ecological Impact

Impact on community composition, structure, and interactions: Suckling clover, in combination with other non-native species, threatens uncommon and endangered ephemeral wetland plant species in New Zealand (Champion and Reeves 2009). However, in

Alaska and the Pacific Northwest this species appears to rarely grow in high enough densities in natural communities to significantly alter composition (M.L. Carlson pers. obs.). This species has low productivity in pastures (Frame 2011), but it may increase the density of vegetation in disturbed areas. It is a forage crop (Global Invasive Species Database 2010) and is likely grazed by wild herbivores. Flowers are insect pollinated (Dzyubenko and Dzyubenko 2009), and their presence may alter native plant-pollinator interactions.

Impact on ecosystem processes: Roots are associated with bacteria that have the ability to fix atmospheric nitrogen, and infestations of suckling clover therefore significantly alter soil nutrient levels (DiTomaso and Healy 2007). The alteration of soil conditions may favor the establishment of other non-native species.

Biology and Invasive Potential

Reproductive potential: Suckling clover reproduces by seeds only. A seed bank in a pasture in New Zealand had a density of 2,500 seeds per square meter (Pavone and Reader 1982). Seeds are known to persist in soil for 5 years or more (Thompson et al. 1993). Seeds can dominate the deep-soil seed bank, allowing populations to significantly increase following new disturbances (MacDougall et al. 2006).

Role of disturbance in establishment: In North America, suckling clover grows in lawns, fields, roadsides, open slopes, cultivated lands, clearings, and disturbed areas. It establishes readily in many anthropogenically disturbed sites (DiTomaso and Healy 2007, Klinkenberg 2010). It also establishes in areas disturbed by seasonal changes in water level, such as the edges of vernal pools or lagoons (DiTomaso and Healy 2007, Champion and Reeves 2009).

Potential for long-distance dispersal: Seeds of *Trifolium* species usually land near the parent plant. They can be transported by animals (DiTomaso and Healy 2007).

Potential to be spread by human activity: Seeds can be transported on shoes, clothing, vehicles, and agricultural equipment. They sometimes contaminate commercial seed (DiTomaso and Healy 2007).

Germination requirements: Most seeds have innate dormancy (Pavone and Reader 1982). Some seeds have hard seed coats and require scarification before they can germinate. Seeds germinate in fall, winter, or spring, depending on climate (DiTomaso and Healy 2007). Seeds can germinate in dry conditions (Frame 2011).

Growth requirements: Most growth occurs during spring and early summer. Suckling clover is well-adapted to dry, coarse soils, but it can also grow in wet, acidic soils. It is frost tolerant (Frame 2011) and moderately drought resistant (Dzyubenko and Dzyubenko 2009). This species is most competitive when growing on dry, infertile soils (Frame 2011).

Congeneric weeds: Alsike clover (*Trifolium hybridum*),

red clover (*T. pratense*), and white clover (*T. repens*) are known to occur as non-native weeds in Alaska with invasiveness ranks of 57, 53, and 59, respectively (AKEPIC 2011). Golden clover (*T. aureum*), field clover (*T. campestre*), lupine clover (*T. lupinaster*), smallhead clover (*T. microcephalum*), and whitetip clover (*T. variegatum*) are also known to occur as non-native species in Alaska (Hultén 1968).

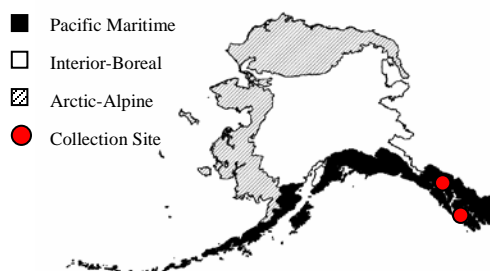
Legal Listings

- Has not been declared noxious
- Listed noxious in Alaska
- Listed noxious by other states
- Federal noxious weed
- Listed noxious in Canada or other countries

Distribution and Abundance

Suckling clover is cultivated as a soil amender and a forage crop, and it sometimes escapes cultivation (DiTomaso and Healy 2007, eFloras 2008, Global Invasive Species Database 2010). It is sometimes included in turf seed mixes (DiTomaso and Healy 2007). This species grows in riparian communities in Japan (Miyawaki and Washitani 2004). It is known to grow in ephemeral wetlands on the margins of vernal pools in California (DiTomaso and Healy 2007, Champion and Reeves 2009). It also invaded seasonally wet turf near the edge of a lagoon in New Zealand, but did not grow at or below the water line (Champion and Reeves 2009).

Native and current distribution: Suckling clover is native throughout much of Europe to the Caucasus Mountains (eFloras 2008). It has been introduced to North America, Scandinavia, Pakistan, China, Japan, Australia, and New Zealand (Mito and Uesugi 2004, eFloras 2008, Western Australian Herbarium 2010, Landcare Research 2011, NatureGate 2011, USDA 2011). It grows in 44 states of the U.S. and much of Canada (USDA 2011). This species is known to grow in subarctic regions in Iceland and Finland (Icelandic Institute of Natural History 2009, NatureGate 2011). Suckling clover has been documented from Juneau and Kosciusko Island in the Pacific Maritime ecogeographic region of Alaska (Hultén 1968, AKEPIC 2011, UAM 2011).



Distribution of suckling clover in Alaska

Management

Manual removal of suckling clover is effective when repeated regularly before seed set (DiTomaso and Healy 2007).

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