

black medick

Medicago lupulina L.

Synonyms: *Medicago lupulina* var. *cupaniana* (Guss.) Boiss., *M. lupulina* var. *glandulosa* Neir.

Other common names: black medic clover, hop clover, hop medic, nonesuch, yellow trefoil

Family: Fabaceae

Invasiveness Rank: 48 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

Black medick is a low-trailing, annual plant that grows from a thick, shallow root. Stems are prostrate, four-angled, hairy, and often over 61 cm long. Leaves are alternate and trifoliate. Leaflets are small, 6 to 31 ½ mm long, oval, and shallowly toothed at the tips. The central leaflet has a definite stalk. Flowers are small and yellow. They form dense, head-like clusters that are about 13 mm in diameter and grow on long stalks. Fruits are black, slightly coiled, and prominently ridged. They are hairy, but lack spines (Hultén 1968, Royer and Dickinson 1999, Whitson et al. 2000).



Medicago lupulina L. Photo by K. Kohout.

Similar species: Alfalfa and black medic can be confused with other trifoliate legumes, such as *Melilotus* and *Trifolium* species. *Medicago* species, including alfalfa and black medic, can be distinguished from other trifoliate legumes by the presence of longer stalks on the central leaflets than on the lateral leaflets and toothed margins on the leaves. Yellow alfalfa (*Medicago sativa* ssp. *falcata*) can be distinguished from black medick by the presence of larger flower clusters that are 13 to 38 mm in diameter and pods that are straight to strongly curved, but not coiled (Hultén 1968). Other introduced *Medicago* species are recorded from southeast Alaska: burclover (*M. polymorpha*) and burr medick (*M. minima*). Unlike black medick, both burclover and burr medick have pods with double rows of slightly hooked and curved spines (Hultén 1968, Gubanov et al. 2003).

Ecological Impact

Impact on community composition, structure, and interactions: Black medick establishes in an existing layer and likely increases the density of the lower vegetative layer. Black medick is alternate host for a number of viruses (Royer and Dickinson 1999).

Impact on ecosystem processes: Black medick alters soil conditions by fixing atmospheric nitrogen (USDA 2002).

Biology and Invasive Potential

Reproductive potential: Black medick reproduces by seeds only (Rutledge and McLendon 1996, USDA 2002). The number of seed pods produced per plant can be as great as 2,350 (Stevens 1932).

Role of disturbance in establishment: Black medick is known to establish in largely undisturbed areas. However, its establishment is accelerated by small-scale disturbances (Pavone and Reader 1982, Pavone and Reader 1985, Turkington and Cavers 1997, Wolfe-Bellin and Moloney 2000).

Potential for long-distance dispersal: Seeds are heavy and not easily dispersed. They generally drop near the parent plant (Pavone and Reader 1982, Pavone and Reader 1985).

Potential to be spread by human activity: Black medick

is a frequent contaminant in alfalfa and clover seed (Rutledge and McLendon 1996, USDA, ARS 2005).

Germination requirements: Seeds germinate at temperatures from 10°C to 23°C, but the optimum temperature range for germination is between 16.5°C and 18°C. Germination is promoted by disturbances and the presence of light (Turkington and Cavers 1979, Rutledge and McLendon 1996, Van Assche et al. 2003). In the Midwest, black medick often germinates on vegetated soils (Wolfe-Bellin and Moloney 2000). Most seeds germinate within 2 or 2½ years (Brenchley and Warrington 1930, Chepil 1946, Pavone and Reader 1982, Leishman et al. 2000, Van Assche et al. 2003). Some studies report that seed longevity can be as long as 10 to 20 years (Lewis 1973, Medvedev 1973 cited in Turkington and Cavers 1979).

Growth requirements: Black medick is adapted to fine- and medium-textured soils with pH between 5.9 and 6.9. It requires a minimum of 38 cm of annual precipitation and is drought tolerant. It is not tolerant of fire or shade. Black medick can withstand temperatures as low as -38°C. It requires 110 frost-free days for successful reproduction (USDA 2002).

Congeneric weeds: Yellow alfalfa (*Medicago sativa* ssp. *falcata*), alfalfa (*M. sativa* ssp. *sativa*), burclover (*M. polymorpha*), and burr medick (*M. minima*) are known to occur as non-native weeds in North America (USDA 2002). Burclover is considered a noxious weed in Arizona (Invaders 2010).

Legal Listings

- Has not been declared noxious (but it is considered a weed seed by Alaska administrative code)
- Listed noxious in Alaska
- Listed noxious by other states
- Federal noxious weed
- Listed noxious in Canada or other countries

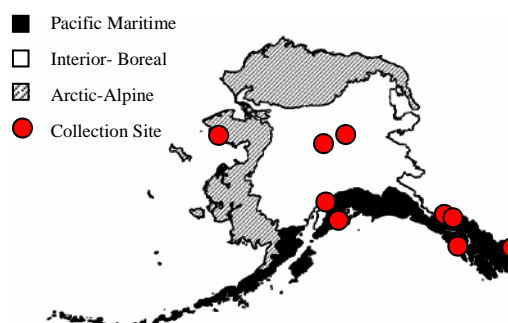
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Distribution and abundance

Black medick grows in disturbed habitats, roadsides, abandoned pastures, wastelands, gravel pits, and forest margins (Turkington and Cavers 1979).

Native and current distribution: The native range of black medick includes Europe, temperate and tropical Asia, and North Africa (USDA, ARS 2005). This species has been introduced into North America, Central Africa, Australia, New Zealand, and the Philippines (Hultén 1968). Black medick grows throughout the United States and Canada (Royer and Dickinson 1999, USDA 2002). This species has been recorded from all ecogeographic regions in Alaska (Hultén 1968, AKEPIC 2010, UAM 2010).



Distribution of black medick in Alaska

Management

Black medick can tolerate frequent mowing but can be controlled by the use of herbicides (Turkington and Cavers 1997).

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