Non-Native Plant Species of Alaska

Yellow alfalfa
_Medicago sativa ssp. falcata_ (L.) Arcang.

Synonyms: _Medicago falcata_ L.
Other common names: yellow alfalfa
Family: Fabaceae

**Description**
Yellow alfalfa is a perennial herb, to 3 feet high, with multiple erect stems and a thick, somewhat woody crown. Leaves are alternate, and composed of 3 ovate, hairy leaflets 1/2 to 1 inches long. The terminal leaflets are stalked, while the lateral leaflets are subsessile. Yellow flowers, about ½ inches long are in oblong clusters in leaf axils. The fruit is a curved (falcate) or nearly straight pod, ¼ to ½ inches long enclosing several seeds (Royer and Dickinson 1999, Hitchcock and Cronquist 1973, Hultén 1968).

Yellow alfalfa readily hybridizes with common alfalfa (M. _sativa_ ssp. _sativa_) producing intermediate forms (Small and Brookes 1984).
Common alfalfa is distinguished from yellow alfalfa by its purple flowers and spirally coiled pod. Both alfalfa and yellow alfalfa are easily confused with other weedy trifoliate legumes such as clover and sweetclover. However, the longer stalk of the central leaflet compared to lateral leaflets, and the toothed leaflet margins help to distinguish alfalfa from other trifoliate legumes even when not in flower or fruit.

**Ecological Impact**
_Impact on community composition, structure, and interactions:_ 27 species of birds and 46 mammals are known to use alfalfa (Graham 1941). Yellow alfalfa are consumed by most big game animals, including moose and mule deer (Kufeld 1973, Leach 1956). Many small mammals, including marmots, mice, and ground squirrels graze on alfalfa. Waterfowl such as the American wigeon and mallards eat the leaves, flowers, and/or seeds. Seeds are also consumed by rodents, rabbits, and upland birds. Alfalfa is a source of nectar and pollen for insects (Stanton 1974, Graham 1941) and it is particularly attractive to solitary bees (Carlson pers. obs.). Dabbling ducks (mallards, blue-winged teals, northern pintail, northern shovelers, and American wigeons) will nest in alfalfa stands (Klett et al. 1984). Undisturbed alfalfa fields provide food and cover for a variety of birds, including sharp-tailed grouse, American bitterns, marsh hawks, short-eared owls, and passerines (Duebbert et al. 1981).

_Impact on ecosystem process:_ Alfalfa in symbiosis with root-associated bacteria (Rhizobia) alters soil condition by fixing atmospheric nitrogen (USDA 2002). By increasing the nutrient contents alfalfa may facilitate the invasion of other exotic or native species.

**Biology and Invasive Potential**
_Reproductive potential:_ Alfalfa reproduces by seed only (USDA 2002). The mean number of seed produced by an individual plant has been documented at 5,320 (Stevens 1932).

_Role of disturbance in establishment:_ Yellow alfalfa generally establishes on disturbed ground. However, it is easily established after seeding on undisturbed ranchlands (MAFRI 2004, Royer and Dickinson 1999, Hitchcock and Cronquist 1973, Hultén 1968).

_Potential for long-distance dispersal:_ Yellow alfalfa seeds are large and not easily dispersed. Herbivores likely facilitate the spread of the plant’s seeds (Duebbert et al. 1981, Kufeld 1973, Leach 1956).

_Potential to be spread by human activity:_ Yellow alfalfa is cultivated worldwide and is used in erosion-control projects, for rangeland and wildlife habitat restoration, and for hay and honey (McLean et al. 1971). The utility of the plant probably contributes to its spread.

_Germination requirements:_ Yellow alfalfa seeds require scarification, a burial depth of ¼ to ½ inches, and moist soils for efficient germination. Sufficient soil moisture is also critical for root establishment (MAFRI 2004).
Growth requirements: Alfalfa is best adapted to medium textured soil with a pH between 6 and 8. It requires a minimum of 10 to 12 inches of precipitation annually, at least half of which should be received as rain (opposed to snow). Alfalfa withstands temperatures to -33°F and requires 100 frost-free days for successful reproduction (USDA 2002). Alfalfa is highly drought and fire tolerant; but does not tolerate flooding, poor soil drainage, salinity, or shading.


Listing: Medicago sativa is listed as a weed in the PLANTS Database (USDA 2002). This species is not declared as noxious in North America (Invaders Database System 2003).

Distribution and Abundance
Yellow alfalfa originates from southwestern Asia and northern Africa. It was first cultivated in Iran, and now has a worldwide distribution as an agricultural crop. It is widely planted in continental U.S. and Canada. It has become naturalized in many of these areas (Royer and Dickinson 1999). Yellow alfalfa cultivars are not adapted to Alaska winter (J. Conn – pers. com.), nevertheless it has occasionally established along roadsides and waste areas in Alaska (Weeds of Alaska Database 2005, UAM 2005, Hultén 1968).

Management
Control measures have not been developed due to the value of this plant as an agricultural crop. Alfalfa is susceptible to herbicides (Bowes 1982, Cogliastro et al. 1990).

References:
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_Last Updated November 7, 2005_