USDA
United States Department of Agriculture

Natural Resources Conservation Service Plant Guide

DESERT MADWORT

Alyssum desertorum Stapf

Plant Symbol = ALDE

Alternate Names

Common Names: Desert alyssum, dwarf alyssum

Scientific Names: Synonyms for *Alyssum minimum*, *Psilomema minimum*, *Alyssum sartorii*

Desert madwort fruits are glabrous and compressed in the same plane as the septum. Photo by M. Lavin, Montana State University, Bozeman, Montana. Used with permission.

Description

General: Desert madwort, an herbaceous annual, is native to northern Africa, eastern Asia, and eastern Europe. It is a member of the mustard family (Brassicaceae). It is a relatively short plant with yellow to white flowers, growing from 2 to 11 inches tall. Stems are erect, ascending, or decumbent, oftentimes with several branched stems growing from the base. Leaves are simple and alternately arranged on the stem, linear in shape or broadest at the tip, tapering to a petiole-like base (sub-sessile), the tip sharply pointed, and 0.2 to 1 inch long by 0.04 to 0.12 inch wide. The entire plant, except the fruit, is covered with 8- to 20-rayed star-shaped (stellate) hairs giving the plant a pale to grayish appearance. The inflorescent grows up to 4 inches in length with 30 to 40 flowers on stout, strait, ascending pedicels 0.06 to 0.12-inch-long (Jacobs, 2012).

The flowers form from the bottom up as the inflorescence grows. Sepals fall off as the fruit develops (Lackschewitz, 1991). Flowers are small, less than 0.1-inch-wide, with four pale yellow or dull-whitish, blunt- or notch-tipped petals that are widest at the tip, and early deciduous. The glabrous (hairless) fruiting pods (silicles) are 0.1 to 0.16 inch in diameter, circular in outline with a shallow notch at the tip where the short style persists, uniformly inflated at the middle and broadly flattened at the margins. There are two chambers in the pod each capable of producing two seeds. The chambers are separated by a thin membrane that persists and is obvious on the dried, senescent plant. The brown seeds are egg-shaped in outline, slightly compressed, but narrowly winged at the margins. Plants flower and fruit from April to July in North America. The chromosome number is 2n = 32 (Jacobs, 2012).

Distribution: Desert madwort was first reported in Canada and the United States in the late 1800s and early 1900s. It is now prevalent throughout the western United States and Canada, especially in low- to mid-elevations of drier climates. For current distribution, please consult the Plant Profile page for *Alyssum desertorum* on the PLANTS Web site.

Habitat: Similar to its native range, desert madwort grows in disturbed soils of deserts, rocky areas, grasslands, roadsides, streambanks, meadows, sagebrush flats, and cropland in North America from 2,600 to 6,500 feet above sea level (Jepson, 2012). It can invade disturbed areas in perennial bunchgrass plant communities (Mangold, 2017).

Adaptation

Desert madwort is well adapted to dry, semi-arid to arid environments similar to its native range in Africa, Asia, and Europe. It is highly effective at growing on disturbed sites and on overgrazed areas. It is adapted to light to medium texture soil and can tolerate infertile sites.

Uses

Desert madwort was brought to North America for medicinal purposes, and used in other cultures to treat hiccups, mental illness, and rabies. Although relatively unpalatable to livestock, the seeds and foliage are utilized by ants, pronghorn antelope (*Antilocapra americana*), rabbits (*Oryctolagus cuniculus*), and sage-grouse (*Centrocercus urophasianus*). Pronghorn antelope in Yellowstone National Park consistently use desert madwort in their winter diets. Western harvester ants

(*Pogonomyrmex occidentalis*) harvested up to 100% of desert madwort seeds from the seed bank of a site near Kemmerer, Wyoming (Jacobs, 2012). These are the only recorded uses of desert madwort in its non-native distributions.

Status
Weedy or Invasive: This plant may become weedy or invasive on disturbed sites in some regions or habitats, particularly on overgrazed or otherwise disturbed arid and semi-arid regions. Desert madwort is considered a weak invader requiring disturbance for population expansion. It is not listed as a noxious weed in any states or federally, but it is well adapted to out-compete native species in North America on disturbed sites or under harsh conditions. Desert madwort is not a threatened or endangered species or a wetland indicator species. Please consult the PLANTS Website (http://plants.usda.gov/) and your state's Department of Natural Resources for this species current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Planting Guidelines
Desert madwort is an undesired, invasive species, and should not be planted or propagated under any circumstances in North America. Please contact your local Extension specialist or county weed specialist to learn how to best manage it in your area.

Management
See control below.

Pests and Potential Problems
Powdery mildew (*Erysiphe cruciferarum*) infection of desert madwort has been reported in Turkey and Romania (Jacobs, 2012).

Environmental Concerns
Desert madwort is weedy on disturbed sites and can displace desired native vegetation if not properly managed. For example, the presence of desert madwort in the Gardiner Basin of Yellowstone National Park, Montana has made it nearly impossible for native plants to establish (Jacobs and Winslow, 2018). Although considered a weak invader, it can spread quickly and displace desired native plants if proper control measures are not utilized (Praciak, 2019). In the Republic of Armenia, increased water erosion of the soil resulted from increased establishment of desert madwort and other drought-resistant annual weeds that provided no soil cover following overgrazing of perennial grasses (Jacobs, 2012).

Control
Herbicide: Several herbicides temporarily reduce populations of desert madwort including metsulfuron, chlorsulfuron, imazapic, and glyphosate. Fall herbicide applications may be most effective because they target the species during its vulnerable winter annual, seedling phase. Please contact your local Extension or county weed specialist to learn what control methods work best in your area. Always read label and safety instructions for each control method. Trade names and control measures appear in this document only to provide specific information. USDA-NRCS does not guarantee or warranty the products and control methods named, and other products may be equally effective.

Cultural: It is important to limit disturbances where desert madwort may become established, and to properly manage desired competitive vegetation to compete with this weed. Managing desert madwort prior to seed production will limit its persistence and spread. Mow or hand-pull plants prior to flowering, and bag and dispose of plants. A native grass restoration project in northern Yellowstone National Park, Montana, used fall prescribed burns (October 2011) combined with revegetation to reduce ($p<0.0001$) desert madwort from 527 to 5 plants per square foot at one site and from 657 to 237 plants per square foot at a second site the year following burning (Jacobs and Winslow, 2018).

Seeds and Plant Production
Plants should not be intentionally propagated because, once established, desert madwort may become invasive. Plants typically flower in early spring to mid-summer, with seeds being dispersed by mid-summer. Seed production is greatest in climates of harsh, cold winters and hot, dry summers (CABI, 2019). As an annual plant, desert madwort relies on seed production for reproduction.

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