GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Cirsium arvense***

Cirsium arvense 简体中文 正體中文 **System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Asterales	Asteraceae

Common name perennial thistle (English), field thistle (English), Californian thistle (English), Canada thistle (English), creeping thistle (English), Canadian thistle (English)

Synonym
Carduus arvensis , (L.) Robson
Cirsium arvense , var. *argenteum* (Vest) Fiori
Cirsium arvense , var. *horridum* Wimmer & Grab.
Cirsium arvense , var. *integrifolium* Wimmer & Grab.
Cirsium arvense , var. *mite* Wimmer & Grab.
Cirsium arvense , var. *vestitum* Wimmer & Grab.
Cirsium incanum , (Gmel.) Fisch.
Cirsium setosum , (Willd.) Bess. ex Bieb.
Serratula arvensis , L.

Similar species *Cirsium vulgare, Carduus spp.*

Summary Cirsium arvense is an herbaceous perennial in the Aster family. It occurs in nearly every upland herbaceous community within its range, and is a particular threat in grassland communities and riparian habitats. C. arvense is shade intolerant and can tolerate soils with up to 2% salt content. It grows on all but waterlogged, poorly aerated soils, including clay, clay loam, silt loam, sandy loam, sandy clay, sand dunes, gravel, limestone, and chalk, but not peat. It spreads primarily by vegetative means, and secondarily by seed. The seeds spread as a contaminant in agricultural seeds in hay and in cattle and horse droppings and on farm machinery. It produces an abundance of bristly-plumed seeds that are easily dispersed by the wind and they may also be transported by water.

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Species Description
Thunhorst and Swearingen (1997) report that *C. arvense* is a herbaceous perennial of the aster family with erect stems 0.5 - 1.0m tall, prickly leaves, and an extensive creeping rootstock. Stems are branched, often slightly hairy, and ridged. Leaves are lance-shaped, irregularly lobed with spiny, toothed margins and are borne singly and alternately along the stem. Rose-purple, lavender, or sometimes white flower heads appear from June through October, generally, and occur in rounded, umbrella-shaped clusters. The small, dry, single-seeded fruits, called achenes, are 0.3 - 0.5m long and have a feathery structure attached to the seed base. Nuzzo (1997) states that the plant is usually dioecious, with male and female flowers produced on separate plants. Female (pistillate) flowers can be readily distinguished from male (staminate) flowers by the absence of pollen (abundant in male flowers) and presence of a distinct vanilla-like fragrance.

Notes
In the United States native species of thistle, some of which are rare, can be confused with *C. arvense* so it should be accurately identified before any control is attempted.

Lifecycle Stages
Germination may be affected by ecotype, temperature, day length, depth of seed burial, substrate stratification, and seed freshness. Seeds from \"male\" plants are smaller and percent germination is lower. Seeds germinate best in warm temperatures 20 - 40 degrees Celsius, with alternating light and dark periods. At lower temperatures germination is aided by high light intensity. Germination at higher temperatures can help ensure that maximum germination takes place during warmer periods of the year. Seeds are somewhat tolerant of heat, and some were still viable after 10 minutes at 102 degrees Celsius and 2 minutes at 262 degrees Celsius, although viability was decreased at these temperatures compared to unheated controls. The seeds germinate over a wide range of soil moisture.

Uses
Nuzzo (1997) reports that American Indians purportedly used an infusion of *C. arvense* roots for mouth diseases. The Chippewa considered it to be a \"tonic, diuretic, and astringent\". Young shoots and roots \"can be used in the same ways as asparagus,\" and were eaten in Russia and by Native Americans. The nectar of its flowers is also said to make good honey. Zouhar (2001) reports that the weed has been used by native people in the northeastern United States in remedies for worms and poison-ivy (*Toxicodendron radicans*) and was used to make a mouthwash for children, a treatment for tuberculosis, and a tonic for gastrointestinal ailments.

Habitat Description
Nuzzo (1997) cites that *C. arvense* occurs in nearly every upland herbaceous community within its range, and is a particular threat in prairie communities and riparian habitats. Throughout its range it is common on roadsides, in oldfields, croplands, and pastures, in deep, well-aerated, mesic soils. In eastern North America, it occasionally occurs in relatively dry habitats, including sand dunes and sandy fields, as well as on the edges of wet habitat, including stream banks, lakeshores, cleared swamps, muskegs and ditches. It is shade intolerant. It grows on all but waterlogged, poorly aerated soils, including clay, clay loam, silt loam, sandy loam, sandy clay, sand dunes, gravel, limestone, and chalk, but not peat. Zouhar (2001) reports that it can tolerate soils with up to 2% salt content. It grows best between 0 - 32 °Celsius. It tolerates annual precipitation ranging from 305-1015mm per year and grows best with 400-750mm of precipitation per year.

Reproduction
Nuzzo (1997) states that the weed spreads primarily by vegetative means (by its root), and secondarily by seed. The root system can be extensive, growing horizontally as much as 6m in one season, and individual roots live up to two years. Most patches spread at the rate of 1-2 m/year. Under good growing conditions, female plants produce an average of 29 flowering shoots/square metre, each with an average of 41 heads/shoot and 59 seeds/head. A single plant produces an average of 1500 and up to 5300 seeds. Multiple plants produced 100-64,300 viable seeds/m2 in Australia and up to 30,200/m2 in Holland.

General Impacts
Nuzzo (1997) states that *C. arvense* threatens natural communities by directly competing with and displacing native vegetation, decreasing species diversity, and changing the structure and composition of some habitats. Species diversity in an \"undisturbed\" Colorado grassland was inversely proportional to the relative frequency of *C. arvense*. It presents an economic threat to farmers and ranchers. Infestations reduce crop yield through competition for water, nutrients and minerals, and through interference with harvest. In Canada, the major impact of *C. arvense* is in agricultural land, and in natural areas that have been disturbed or are undergoing restoration. In the United States, it is a host for bean aphid and stalk borer, insects that affect corn and tomatoes, and for sod-web worm, which damages corn. In Bulgaria, *C. arvense* is a host for the cucumber mosaic virus. In addition to reducing forage and pasture production, it may scratch grazing animals, resulting in small infections. Zouhar (2001) reports that it has been identified as a management problem in many national parks and on TNC (The Nature Conservancy) preserves in the upper Midwest, the Great Plains states, and the Pacific Northwest. Infestations of *C. arvense* may contribute to the elimination of endangered and/or endemic plant species, such as the Colorado butterfly plant in Wyoming.

Management Info
Nuzzo (1997) reports that *C. arvense* should be removed from high quality natural areas when it is first observed. The plant is very tenacious and difficult to control once established. In lower quality areas, management effort should be influenced by the extent of invasion; greater effort is warranted in areas that have new and/or small invasions, which are more likely to be eliminated or contained. Management programs should be designed to kill established clones since the species spreads primarily by vegetative expansion of the root system. It takes at least two growing seasons to determine whether a particular control method is effective. At this time, there are no control methods suitable for wide-spread use in natural areas that eradicate, rather than reduce *C. arvense*. Control efforts may be more successful when the plant is under environmental stress. The plant is drought and flood sensitive, and its roots are cold-sensitive. Cutting or applying herbicide to shoots after a very severe winter may add sufficient stress to kill plants.
For details on chemical, physical and biological control options, please see *management information*.

Pathway
Cirsium arvense is native to southeastern Europe and the eastern Mediterranean area, and was probably introduced to North America in the 1600's as a contaminant of crop seed and/or ship's ballast (Zouhar, 2001).

Principal source: Element Stewardship Abstract for *Cirsium arvense* (Nuzzo, 1997)
Canada Thistle (Thunhorst and Swearingen, 1997)

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

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ALIEN RANGE

[2] AUSTRALIA
[1] FALKLAND ISLANDS (MALVINAS)
[1] JAPAN
[1] NEW ZEALAND
[1] SAINT PIERRE AND MIQUELON
[1] SOUTHERN AFRICA
[42] UNITED STATES
[13] CANADA
[1] INDIA
[1] MIDDLE EAST
[1] NORTHERN AFRICA
[1] SOUTH AMERICA
[2] UNITED KINGDOM

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Managment information
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Summary: The objective in creating this website is to provide the means of collating information on conservation management, sources including published papers, reports and the evidence of practitioners.
Case study 14 is available from: http://www.conservationevidence.com/ViewEntry.asp?ID=14 [Accessed 4 June 2005]
The database can be searched at: http://www.conservationevidence.com/search.asp
Conservationevidence.com, Case study 96. Intergrated herbicide, mechanical and grazing control of creeping thistle *Cirsium arvense* on grasslands at Bronydd Mawr, Wales and Marsh Gibbon, England
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Summary: This compilation of information sources can be sorted on keywords for example: Baits & Lures, Non Target Species, Eradication, Monitoring, Risk Assessment, Weeds, Herbicides etc. This compilation is at present in Excel format, this will be web-enabled as a searchable database shortly. This version of the database has been developed by the IUCN SSC ISSG as part of an Overseas Territories Environmental Programme funded project XOT603 in partnership with the Cayman Islands Government - Department of Environment. The compilation is a work under progress, the ISSG will manage, maintain and enhance the database with current and newly published information, reports, journal articles etc.
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General information

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Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.
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