GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Carduus nutans***

Carduus nutans 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Asterales	Asteraceae

Common name nodding thistle (English), musk thistle (English), plumeless thistle (English), chardon penché (French), nodding plumeless thistle (English)

Synonym
Carduus nutans , ssp. *leiophyllus*
Carduus nutans , ssp. *macrocephalus*
Carduus nutans , ssp. *macrolepis*
Carduus thoermeri
Carduus nutans , L. var. *macrocephalus*
Carduus nutans , L. var. *vestitus*
Carduus nutans , L. var. *leiophyllus*

Similar species

Summary Carduus nutans readily invades disturbed areas and outcompetes native plants. The best form of prevention is maintaining a healthy native ecosystem in recently disturbed sites. It is also invades grazed pastures in USA, New Zealand and Australia, where it reduces the amount of pasture available for livestock. Keeping pastures competitive is the best way to prevent establishment of seedlings.

view this species on IUCN Red List

Species Description
Sharp spines densely cover the stems and leaf margins and give the plant a spiny texture. The stems are multi-branched and erect. The leaves can grow up to 25cm long and 10cm wide towards the base of the plant and get progressively smaller up the stem. Leaves are dark green but get lighter towards the whitish midrib and veins. Once mature, the plant can range from 0.5 to almost 2m in height. Growing at the top of the stem are large flower heads consisting of many smaller, purple florets. These flowers usually bend over and \"nod\" at a 90-degree angle.

Lifecycle Stages
Carduus nutans grows a rosette that can be a little more than a metre in diameter. When the plant begins to bolt, it develops multi-branched stems that can reach up to 2 metres. *C. nutans* usually flowers in the second year after germinating, but it can sometimes flower in the first year in warmer climates.

Uses
Thistles have been used by humans as both food and medicine. *C. nutans* has been used in traditional medical practice for stimulating liver function.

Habitat Description
Areas disturbed by frequent flooding or landslides attract invasion by *C. nutans* . It does not grow well in excessively wet, dry, or shady conditions.
In North America *C. nutans* is found in meadows, prairies, grassy balds (alpine areas below the timberline that are devoid of trees and dominated by grasses and shrubs), and other open areas. In New Zealand and Australia, it appears in pastures that are not competitive with emerging seedlings in autumn, usually due to over-grazing and dry summer weather.

Reproduction
Carduus nutans can self-pollinate but sometimes uses insects for cross-pollination. Flower heads develop at different rates, allowing the plant to produce seeds for extended periods of time. Most seeds do not travel far from the first plant, creating dense stands. Each flower can produce up to 1,200 straw-coloured seeds. Seeds can be dormant in the soil for at least 16 years and still germinate.

Nutrition
Carduus nutans is found in neutral to acidic soils. It does not grow well in excessively wet, dry, or shady conditions. It does best under higher soil fertility conditions.

General Impacts
Where it is invasive, *C. nutans* is a problem on farmland because it competes with native forage plants, crops, and hinders the movement of livestock because livestock do not want to walk through it. Native plants are outcompeted by *C. nutans* because it is a prolific seed producer. It spreads seeds for an extended period of time, dispersing them close to the plant creating dense stands that crowd native plants. It reduces animal production in grazed pastures by reducing the amount of pasture available. The spiny vegetation catches in the wool of sheep, reducing the value of the wool. The presence of the seed in pasture and crop seed generally prevents certification of the seed.

Management Info
Preventative measures: Native species should be replanted after *C. nutans* has been controlled to ensure that it won't recolonise. Preserving a healthy stand of desirable vegetation will help prevent or at least slow invasion. \r\nPhysical:Hand pulling can be effective for small populations, but plants should be disposed of in a landfill to prevent seed dispersal. Care should be taken to not disturb the soil so that seeds will have a lesser chance of germinating. Mowing can also be used, but timing is imperative; it should be done before the flowers appear and should be done on a regular basis.
Chemical: Herbicides are effective on large populations. MCPA and 2,4-D are often used in New Zealand to control it in pastures, though a herbicide resistant biotype has now developed in some areas. Foliar spraying is effective on established populations of musk thistle. Apply a 2% solution of glyphosate (e.g., Roundup) or triclopyr (e.g., Garlon) and water plus a 0.5% non-ionic surfactant wetting all leaves and stems. Chlorpyralid (e.g. Transline) is effective at a concentration of 0.5% and is selective to Aster, Buckwheat, and Pea families. A low pressure and coarse spray pattern will limit drift and damage to non-target species. Treatments should be applied during the rosette stage or prior to flowering. glyphosate is a non-selective systemic (i.e., moves through the plant) herbicide that can kill non-target plants that are only partially contacted by spray. Triclopyr is selective to broadleaf species and is a better choice if native grasses are present. \r\n\r\n
Biological: The gall fly (*Urophora solstitialis*), the receptacle weevil (*Rhinocyllus conicus*) and the crown weevil (*Trichosirocalus horridus*) have been found to be effective in greatly reducing the number of seeds produced. A mathematical model developed, predicts that nodding thistle populations will decline if 65% or more of the seeds are destroyed. Biological control combined with good pasture management has been leading to declined populations in New Zealand. In the United States, weevils (thistlehead-feeding weevil and rosette weevil) introduced from Europe have been found somewhat effective for control, however, the unanticipated effect it has on native populations of thistle in the western U.S. has caused some debate in its continued use (Landcare, NZ).

Pathway
Probably was brought to America as an ornamental.Most dispersal is by contaminants within pasture seed, which is why nodding thistle seed is not allowed within any certified seed lots.

Principal source:

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

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ALIEN RANGE

[1] AUSTRALIA
[5] NEW ZEALAND
[46] UNITED STATES

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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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USDA National Resources Conservation Service - Plants Database
Summary: Images.