GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Azolla pinnata***

Azolla pinnata 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Pteridophyta	Filicopsida	Hydropteridales	Azollaceae

Common name mosquito fern (English), ferny azolla (English), water velvet (English)

Synonym

Similar species *Azolla spp.*

Summary Azolla pinnata can spread rapidly, and has the ability to survive on moist soil in and around rivers, ditches, and ponds. It forms dense surface mats, which degrade water quality by reducing oxygen levels, and can interfere with boating, fishing and recreational activities.

view this species on IUCN Red List

Species Description
\"Plants small, 1.5 - 2.5cm long, with a more or less straight main axis with pinnately arranged side **branches**, progressively longer towards the base, thus roughly triangular in shape, the basal branches themselves becoming pinnate and eventually fragmenting as the main axis decomposes to form new plants. Roots with fine lateral rootlets, having a feathery appearance in the water. **Leaves** minute, 1 -2mm long, overlapping in 2 ranks, upper lobe green, brown green or reddish, lower lobe translucent brown; minute, short, plae, +/- cylindrical unicellular hairs often present on the upper lobes. When fertile, round **sporocarps** 1 - 1.5mm wide can be seen on the under side at the bases of the side branches. The leaves often have a maroon-red tinge and the water can appear to be covered by red velvet from the distance. The upper surface of the leaves are totally water-repellant, and if completely submerged the plants quickly refloat with the right side up.\"

Uses
Azolla is useful as a \"soybean plant in rice field\", because it can assimilate atmospheric nitrogen gas owing to the nitrogen fixation by cyanobacteria (blue green alga) living in the cavities located at the lower side of upper (dorsal) lobes of leaf. (Duke)

Habitat Description
It has the ability to survive on moist soil in and around rivers, ditches, and ponds which may allow the plant to survive low water levels and periods of drought. (NC Aquatic Fact Sheet)

Reproduction
Generally it multiplies vegetatively, and by spores. In the right conditions *A. pinnata* can double its biomass in 5 to 10 days in the field. (Duke)

Nutrition
Azolla species can often grow on nitrogen poor water due to nitrogen fixing ability. However will grow very rapidly in high nitrogen habitats.

General Impacts
Azolla pinnata can spread very quickly forming dense vegetative masses on areas of still water. This in turn limits light available to other aquatic plants and oxygen used by other aquatic life. It forms dense mats that choke out other species. *A. pinnata* is on the US noxious weed list. In New Zealand has replaced a native floating fern, *Azolla rubra*, over most of northern New Zealand. Azolla lives in symbiosis with blue-green algae (cyanobacteria), taking advantage of their ability to fix nitrogen. It is sometimes introduced and used by farmers as a natural fertilizer for this reason.

Management Info
Chemical: Fact sheet on control of Azolla from Queensland, Australia, DNR.
\r\nBiological: There was some success in management of *A.pinnata* using weevils in South Africa although the study was aimed primarily at *Azolla filiculoides*.

Pathway
Possible introduced to New Guinea with cattle.Azolla lives in symbiosis with blue-green algae (cyanobacteria), taking advantage of their ability to fix nitrogen. It is sometimes introduced and used by farmers as a natural fertilizer for this reason. (PIER, 2003)

Principal source: Pacific Islands Ecosystems at Risk, (PIER)

Compiler: IUCN/SSC Invasive Species Specialist Group (ISSG)

Review:

Pubblication date: 2010-05-26

ALIEN RANGE

[1] NEW ZEALAND

[1] UNITED STATES

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Summary: Ecology, synonyms, common names, distributions (Pacific as well as global), management and impact information.
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General information

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The species list sheet for the Mexican information system on invasive species currently provides information related to Scientific names, family, group and common names, as well as habitat, status of invasion in Mexico, pathways of introduction and links to other specialised websites. Some of the higher risk species already have a direct link to the alert page. It is important to notice that these lists are constantly being updated, please refer to the main page (http://www.conabio.gob.mx/invasoras/index.php/Portada), under the section Novedades for information on updates.
Invasive species - Plants is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas [Accessed 30 July 2008]
Spanish:
La lista de especies del Sistema de informaci–n sobre especies invasoras de m–xico cuenta actualmente con informaci–n aceca de nombre cient–fico, familia, grupo y nombre com–n, as– como h–bitat, estado de la invasi–n en M–xico, rutas de introducci–n y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la p–gina de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualizaci–n, por favor consulte la portada (http://www.conabio.gob.mx/invasoras/index.php/Portada), en la secci–n novedades, para conocer los cambios.
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