

Acacia mearnsii  [简体中文](#) [正體中文](#)

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Fabales	Fabaceae

Common name Australische akazie (German), uwatela (Zulu), Australian acacia (English), swartwattel (Afrikaans), black wattle (English), acácia-negra (Portuguese)

Synonym *Acacia mollissima*
A. decurrens, var. *mollis*

Similar species *Acacia dealbata*

Summary *Acacia mearnsii* is a fast growing leguminous (nitrogen fixing) tree. Native to Australia, it is often used as a commercial source of tannin or a source of fire wood for local communities. It threatens native habitats by competing with indigenous vegetation, replacing grass communities, reducing native biodiversity and increasing water loss from riparian zones.



[view this species on IUCN Red List](#)

Species Description

Unarmed, evergreen tree, 6 - 20m high. Branchlets shallowly ridged; all parts finely hairy; growth tips golden-hairy. Leaves are dark olive-green, finely hairy, bipinnate; leaflets short (1.5 - 4mm) and crowded; raised glands occur at and between the junctions of pinnae pairs. Flowers are pale yellow or cream, globular flower heads in large, fragrant sprays. Fruits are dark brown pods, finely hairy, usually markedly constricted (Henderson, 1995; PIER, 2010; de Wit, Crookes and van Wilgen, 2001).

Lifecycle Stages

Seeds may remain viable for up to 50 years (Wessa, 2002).

Uses

The list of the uses for *Acacia mearnsii* is long and varied, hence it is grown commercially in many areas of the world, including Africa, South America and Europe. The tannin compounds extracted from the bark of *Acacia mearnsii* are commonly used in the production of soft leather. A range of other products, such as resins, thinners and adhesives, can also be made from bark extracts. The timber is used for building materials, the charcoal is used for fuel and the pulp and wood chips are used to produce paper. *Acacia mearnsii* has some known medical applications, such as its use as a styptic or astringent. The planting of wattles has also been used as a soil stabiliser to decrease erosion (preferably far from river courses to minimise the water loss caused by the tree's high rate of transpiration). The agroforestry industry promotes the use of *Acacia mearnsii* (among other similar species) as a potential "soil improver". (Duke, 1983; Franco, 1971; Paiva, 1999; Tutin *et al.*, 1992; de Wit, Crookes and van Wilgen, 2001; Young, 2002).

Habitat Description

Grows in disturbed, mesic habitats (at an altitude of between 600 - 1700m). Grows in a range of climates, including warm temperate dry climates and moist tropical climates. *Acacia mearnsii* is reported to tolerate an annual precipitation of between 6.6 - 22.8 dm (mean of 6 cases = 12.6), an annual mean temperature of 14.7 - 27.8°C (mean of 6 cases = 2.6°C), and a pH of 5.0 - 7.2 (mean of 5 cases = 0.5) (Duke, 1983). *Acacia mearnsii* does not grow well on very dry or poor soils (Franco, 1943).

Reproduction

Acacia mearnsii produces copious numbers of small seeds that are not dispersed actively. The species may resprout from basal shoots following a fire (PIER, 2010). It also generates numerous suckers that result in monotypic thickets (Wagner *et al.*, 1999, in PIER, 2010).

General Impacts

The invasiveness of this species is partly due to its ability to produce large amounts of long-lived seeds (which may be triggered to germinate *en masse* following bush fires) and the development of a large crown (which shades other vegetation). Its leaves and branches may have allelopathic properties. *Acacia mearnsii* competes with, and replaces, indigenous vegetation. It may replace grass communities, reducing the carrying capacity of the land. By causing an increase in the height and biomass of vegetation *Acacia mearnsii* infestations increase rainfall interception and transpiration, which causes a decrease in streamflow. Soil under *Acacia mearnsii* becomes dessicated more quickly (than it does under grass). *Acacia mearnsii* stands also destabilise stream banks and support a lower diversity of species (Adair, 2002; Sankaran, 2002; Le Maitre *et al.* 1999; Samways *et al.* 1996).

Commercial plantations and invasive stands of *A. mearnsii* in South Africa reduce surface runoff and decrease water ability, causing an estimated annual economic loss of \$US 2.8 million. According to KwaZulu-Natal Wildlife (the governmental agency responsible for managing protected areas in KwaZulu-Natal Province, South Africa) the advance of \alien plants (particularly *Chromolaena odorata*, *Lantana camara*, *Acacia dealbata*, and *Acacia mearnsii*) is the most significant past and future threat to conservation in these areas (De Wit, Crookes and Van Wilgen, 2001; Goodman, 2003)

Management Info

Preventative measures: A [Risk Assessment of *Acacia mearnsii*](#) for Hawaii and other Pacific islands was prepared by Dr. Curtis Daehler (UH Botany) with funding from the Kaulunani Urban Forestry Program and US Forest Service. The alien plant screening system is derived from Pheloung *et al.* (1999) with minor modifications for use in Pacific islands (Daehler *et al.* 2004). The result is a score of 15 and a recommendation of: \"Likely to cause significant ecological or economic harm in Hawai'i and on other Pacific Islands as determined by a high WRA score, which is based on published sources describing species biology and behaviour in Hawai'i and/or other parts of the world.\"

Integrated management: The Working for Water programme implemented by the South African Government is a collaborative program that aims to ameliorate the problems caused by *Acacia* species and other invasive plants. The program consists of more than 30 sub-projects in eight provinces in the country and consists of the clearing of weeds from water courses (by mechanical and chemical methods). Between 1995 and 2000 over \$100 million of poverty-relief funds on the program which was labour intensive and provided job opportunities for local communities. After seven years of implementation of the project it became clear that rehabilitation of sites (following the removal of alien plant species) would sometimes be needed in order to prevent or reduce the soil erosion stimulated by the clearing of plants (Van Wilgen *et al.*, 2002, Milton, Dean and Richardson, 2003). Richardson & Kluge (2008) observe that preventing the accumulation of seed banks by reducing seed production is critical to all successful management programmes and that biological control is the most effective and practical option.

Please follow this link for more details on [Chemical and Biological control options](#) that have been found promising and effective.

Pathway

A. mearnsii is a popular source of timber and tannins and is planted globally by the forestry industry. One example of a commercial company that funds research on and establishment of wattle plantations is the South African Wattle Growers Union (DuUsed as an ornamental (Paiva, 1999)

Principal source: [Pacific Island Ecosystems At Risk \(PIER\), 2010. *Acacia mearnsii*](#)

Compiler: IUCN SSC Invasive Species Specialist Group

Updates with support from the Overseas Territories Environmental Programme (OTEP) project XOT603, a joint project with the Cayman Islands Government - Department of Environment

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ALIEN RANGE

[1] ALGERIA	[1] CHINA
[1] COOK ISLANDS	[1] FRANCE
[2] INDIA	[1] ISRAEL
[1] ITALY	[1] JAPAN
[1] MADAGASCAR	[2] NEW ZEALAND
[12] PORTUGAL	[1] REUNION
[1] SAINT HELENA	[1] SEYCHELLES
[10] SOUTH AFRICA	[1] SPAIN
[1] SWAZILAND	[1] TAIWAN
[1] TANZANIA, UNITED REPUBLIC OF	[1] UGANDA
[1] UNITED STATES	[1] ZIMBABWE

Red List assessed species 6: EN = 2; VU = 2; NT = 1; LC = 1;

[Anthoxanthum borii](#) NT

[Elattoneura frenulata](#) LC

[Metacnemis angusta](#) VU

[Chlorolestes apricans](#) EN

[Heteromirafr ruddi](#) VU

[Metacnemis valida](#) EN

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Summary: Information on the effects of *A. mearnsii* in South Africa and possible biological control agents.

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Summary: A study on the use of a screening system to assess proposed plant introductions to Hawaii or other Pacific Islands and to identify high-risk species used in horticulture and forestry which would greatly reduce future pest-plant problems and allow entry of most nonpests.

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Summary: A good overview of the associated uses and negative impacts of *A. mearnsii* in South Africa, as well Dye, P. and Jarman, C. 2004. Water use by Black Wattle (*Acacia mearnsii*): Implications for the Link Between Removal of Invading Trees and Catchment Streamflow Response, *South African Journal of Science*: 100 40 - 44.

Summary: A study on the evaporation rates from areas infested with *A. mearnsii* in Western Cape and KwaZulu-Natal in South Africa.

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Summary: The paper discusses the appropriateness of the wasp *Bruchophagus acaciae* for use as a biological control agent for Australian *Acacia* species.

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[IUCN/SSC Invasive Species Specialist Group \(ISSG\), 2010. A Compilation of Information Sources for Conservation Managers.](#)

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.

[Motooka, P. 2000. Summaries of herbicide trials for pasture, range, and non-cropland weed control-1999. College of Tropical Agriculture and Human Resources of the University of Hawaii at Manoa.](#)

Summary: Data published to assist applicators experimenting with herbicides for weed control.

[PIER \(Pacific Island Ecosystems at Risk\), 2003. Acacia mearnsii](#)

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

Available from: http://www.hear.org/pier/species/acacia_mearnsii.htm [Accessed 17 June 2003]

Richardson, David M.; Kluge, Robert L., 2008. Seed banks of invasive Australian *Acacia* species in South Africa: Role in invasiveness and options for management. *Perspectives in Plant Ecology Evolution & Systematics*. 10(3). 2008. 161-177.

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Summary: This database compiles information on alien species from British Overseas Territories.

Available from: <http://www.jncc.gov.uk/page-3660> [Accessed 10 November 2009]

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Summary: Rates *A. mearnsii* as a scattered, or local, weed.

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[Duke, J. A. 1983. Acacia mearnsii. Handbook of Energy Crops. Unpublished.](#)

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Available from: http://www.hort.purdue.edu/newcrop/duke_energy/Acacia_mearnsii.html [Accessed 17 June 2003]

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Franco, J.A. 1971. *Nova Flora de Portugal (Continente e Azores)*. Vol. 1. Franco, J.A. (Ed.). Lisboa.

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Summary: Plant Protection Research Institute Handbook No. 5

[ITIS \(Integrated Taxonomic Information System\), 2004. Online Database Acacia mearnsii](#)

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