GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Ziziphus mauritiana***

Ziziphus mauritiana 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Rhamnales	Rhamnaceae

Common name

appeldam (English, Dutch West Indies), baher (English, Fiji), bahir (English, Fiji), baer (English, Fiji), jujube (English, Guam), manzanita (English, Guam), manzanas (English, Guam), jujubier (French), Chinese date (English), Chinese apple (English), Indian jujube (English), Indian plum (English), Indian cherry (English), Malay jujube (English), coolie plum (English, Jamaica), crabapple (English, Jamaica), dunk (English, Barbados), mangustine (English, Barbados), dunks (English, Trinidad), dunks (English, Tropical Africa), Chinee apple (English, Queensland, Australia), ponsigne (English, Venezuela), yuyubo (English, Venezuela), aprin (English, Puerto Rico), yuyubi (English, Puerto Rico), perita haitiana (English, Dominican Republic), pomme malcadi (French, West Indies), pomme surette (French, West Indies), petit pomme (French, West Indies), liane croc chien (French, West Indies), gingeolier (French, West Indies), dindoulier (French, West Indies), manzana (apple) (English, Philippines), manzanita (little apple) (English, Philippines), bedara (English, Malaya), widara (English, Indonesia), widara (English, Surinam), phutsa (English, Thailand), ma-tan (English, Thailand), putrea (English, Cambodia), tao (English, Vietnam), tao nhuc (English, Vietnam), ber (English, India), bor (English, India)

Synonym

Ziziphus jujuba , (L.) Lam., non P. Mill.
Rhamnus mauritiana , Soyer-Willemet
Ziziphus aucheri , Boiss.
Ziziphus jujuba , (L.) Gaertn. var. *stenocarpa* Kuntze
Ziziphus jujuba , (L.) Gaertn.
Ziziphus mauritiana , Lam. var. *orthacantha* (DC.) A. Chev.
Ziziphus mauritiana , Lam. var. *deserticola* A. Chev.
Ziziphus orthacantha , DC
Ziziphus poiretii , G. Don
Ziziphus rotundata , DC.
Rhamnus jujuba , L.
Ziziphus jujuba , (L.) Gaertn. var. *fruticosa* Haines

Similar species

Ziziphus spp.

Summary

Ziziphus mauritiana is widely cultivated in dry areas throughout the tropics. It tolerates extremely dry habitats and is an extremely valuable tree for people that live in such climates. Ziziphus mauritiana has a multitude of uses, including culinary and medicinal. It can form dense stands and become invasive in some areas, including Fiji and Australia. In Australia Ziziphus mauritiana has the capacity to greatly expand its current range in northern and northeastern Australia. The main industry affected is the cattle industry but Ziziphus mauritiana also has environmental impacts in woodland and savanna ecosystems.

view this species on IUCN Red List

Species Description
\"The plant is a vigorous grower and has a rapidly-developing taproot. It may be a bushy shrub 4 to 6 ft (1.2-1.8 m) high, or a tree 10 to 30 or even 40 ft (3-9 or 12 m) tall; erect or wide-spreading, with gracefully drooping branches and downy, zigzag branchlets, thornless or set with short, sharp straight or hooked spines. It may be evergreen, or leafless for several weeks in hot summers. The leaves are alternate, ovate- or oblong-elliptic, 1 to 2 1/2 in (2.5-6.25cm) long, 3/4 to 1 1/2 in (2-4cm) wide; distinguished from those of the Chinese jujube by the dense, silky, whitish or brownish hairs on the underside and the short, downy petioles. On the upper surface, they are very glossy, dark-green, with 3 conspicuous, depressed, longitudinal veins, and there are very fine teeth on the margins.\" (Morton, 1987)

\"The 5-petalled flowers are yellow, tiny, in 2's or 3's in the leaf axils. The fruit of wild trees is 1/2 to 1 in (1.25-2.5cm) long. With sophisticated cultivation, the fruit reaches 2 1/2 in (6.25cm) in length and 1 3/4 in (4.5cm) in width. The form may be oval, obovate, round or oblong; the skin smooth or rough, glossy, thin but tough, turns from light-green to yellow, later becomes partially or wholly burnt-orange or red-brown or all-red. When slightly underripe, the flesh is white, crisp, juicy, acid or subacid to sweet, somewhat astringent, much like that of a crabapple. Fully ripe fruits are less crisp and somewhat mealy; overripe fruits are wrinkled, the flesh buff-coloured, soft, spongy and musky. At first the aroma is applelike and pleasant but it becomes peculiarly musky as the fruit ages. There is a single, hard, oval or oblate, rough central stone which contains 2 elliptic, brown seeds, 1/4 in (6mm) long.\" (Morton, 1987)

Notes
The most serious pest of ber are the fruit flies, *Carpomyia vesuviana* and *C. incompleta*, which attack the fruits at the \"pea\" stage. (Kaaria, 1998)

Lifecycle Stages
Plants are capable of seed production once they reach a height of about 1 metre. Wild-growing plants in northern Australia may take 8 years to reach this size. Established plants are capable of vigorous sprouting and rapid shoot growth from the stem base and root crown following top-kill. (Grice, pers.comm. 2002)

Uses
Ber fruits are very nutritious and are usually eaten fresh. In parts of India and north Africa, the leaves of ber are used as nutritious fodder for sheep and goats. The timber is hard, strong, fine-grained and reddish in colour and is most often used to make agricultural implements. The branches are used as framework in house construction and the wood makes good charcoal. In addition, this species is used as firewood in many areas. This thorny tree makes good live fencing and is an excellent agroforestry tree to use in hedges. (Kaaria, 1998)

In Ethiopia, the fruits are used to stupefy fish (possibly there is sufficient saponin for this purpose). The leaves are readily eaten by camels, cattle and goats and are considered nutritious. The fruits are applied on cuts and ulcers; are employed in pulmonary ailments and fevers; and, mixed with salt and chili peppers, are given in indigestion and biliousness. The dried ripe fruit is a mild laxative. The seeds are sedative and are taken, sometimes with buttermilk, to halt nausea, vomiting, and abdominal pains in pregnancy. They check diarrhea, and are poulticed on wounds. Mixed with oil, they are rubbed on rheumatic areas. The leaves are applied as poultices and are helpful in liver troubles, asthma and fever and, together with catechu, are administered when an astringent is needed, as on wounds. The bitter, astringent bark decoction is taken to halt diarrhea and dysentery and relieve gingivitis. The bark paste is applied on sores. The root is purgative. A root decoction is given as a febrifuge, taenicide and emmenagogue, and the powdered root is dusted on wounds. Juice of the root bark is said to alleviate gout and rheumatism. Strong doses of the bark or root may be toxic. An infusion of the flowers serves as an eye lotion. (Morton, 1987)

Habitat Description
Roadsides and former agricultural land, to 600m in Fiji, (Smith, 1985. In PIER, 2002). In India, the tree grows best on sandy loam, neutral or slightly alkaline. It also grows well on laterite, medium black soils with good drainage, or sandy, gravelly, alluvial soil of dry river-beds where it is vigorously spontaneous, (Morton, 1987). Even moderately saline soils are tolerated. The tree is remarkable in its ability to tolerate water-logging as well as drought. In China and India, wild trees are found up to an elevation of 5,400 ft (1,650 m). In India, the minimum shade temperature for survival is 44.6º to 55.4º F (7º-13º C); the maximum, 98.6º to 118º F (37º-48º C), (Morton, 1987).

In Australia, this species grows on a wide variety of soil types, including cracking clays, solodic soils and deep alluvials, in the tropics and sub-tropics where the average annual rainfall is in the range 470-1200mm. In the drier parts of this range, it grows best in riparian zones. (Grice, pers.comm. 2002)

Reproduction
Propagates by seeds, seedlings, direct sowing, root suckers as well as by cuttings. Seeds may remain viable for 2 1/2 years but the rate of germination declines with age. (Morton, 1987). In Australia, plants growing under natural conditions are capable of producing seeds once they reach a height of about 1m. Plants between 1 and 2m high produce, on average, less than five fruits per season. Large plants (>5m high) can produce 5000 or more fruits in a single season. (Grice, pers.comm. 2002)

General Impacts
It forms impenetrable thickets which seriously hamper livestock management and reduces pasture production and accessibility (Land Protection, 2001). It is also likely to have significant environmental effects on tropical and subtropical woodlands and savannas. (Grice, pers.comm. 2002)

Management Info
Preventative measures: A Risk assessment of *Ziziphus mauritiana* for Australia was prepared by Pacific Island Ecosystems at Risk (PIER) using the Australian risk assessment system (Pheloung, 1995). The result is a score of 12 and a recommendation of: reject the plant for import (Australia) or species likely to be a pest (Pacific).
Physical: Mechanical techiques (eg bulldozing) must cut the shoot at least 25cm below ground level to avoid sprouting. Fire kills only a small proportion of the smaller plants (<1m high).
Chemical: Effective herbicides include triclopyr/picloram in a 1:60 herbicide-diesel mixture applied as a basal bark spray during times of active plant growth. The same chemical can be applied to cut stumps ay any time of year. It may also be effective in a high volume spray mixture of 0.35L herbicide:100L water to actively growing regrowth. Soil application of picloram-triethanolamine at 35-45 g/sq m can be used on dense infestations.
Biological: Biological control has not been attempted (Grice, pers.comm. 2002).

Principal source: Pacific Islands Ecosystems at Risk, (PIER, 2002)

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

Review: Dr A.C.Grice CSIRO Sustainable Ecosystems, Townsville, Australia.

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ALIEN RANGE

[2] AFGHANISTAN
[5] AUSTRALIA
[1] BARBADOS
[1] BES ISLANDS (BONAIRE, SINT EUSTATIUS AND SABA)
[1] ANGUILLA
[1] BAHAMAS
[1] BELIZE
[1] BRITISH INDIAN OCEAN TERRITORY

[2] CAYMAN ISLANDS
[1] COLOMBIA
[1] FRANCE
[1] FRENCH POLYNESIA
[1] GUAM
[1] GUINEA
[1] ISRAEL
[1] JAMAICA
[1] MARTINIQUE
[1] MEDITERRANEAN AREA
[1] MYANMAR
[2] NIGERIA
[1] PHILIPPINES
[1] PUERTO RICO
[1] SENEGAL
[1] SRI LANKA
[2] SYRIAN ARAB REPUBLIC
[3] UNITED STATES
[1] WEST INDIES
[1] CHINA
[1] FIJI
[1] FRENCH GUIANA
[1] GUADELOUPE
[1] GUATEMALA
[1] IRAN, ISLAMIC REPUBLIC OF
[1] ITALY
[2] MARSHALL ISLANDS
[1] MAYOTTE
[1] MOZAMBIQUE
[1] NEW CALEDONIA
[1] NORTH AFRICA
[1] PORTUGAL
[1] REUNION
[1] SPAIN
[1] SUDAN
[1] TROPICAL AFRICA
[1] VENEZUELA
[1] ZIMBABWE

BIBLIOGRAPHY

16 references found for **Ziziphus mauritiana**

Managment information

Bolton, M.P. 1990. Control of chinee apple, *Ziziphus mauritiana*, with residual herbicides. Proceedings of the 9th Australian Weeds Conference. pp. 403-406.

Grice, A. C. 1998. Ecology in the management of invasive rangeland shrubs: a case study of Indian jujube (*Ziziphus mauritiana*). Weed Science 46, 467-474.

Grice, A. C. 2002. The Biology of Australian Weeds 39. *Ziziphus mauritiana* Lam. Plant Protection Quarterly 17, 2-11.

Land Protection, 2001. NRM Facts, pest series. The State of Queensland (Department of Natural Resources and Mines) 2002. Queensland Government.

Varnham, K. 2006. Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough: United Kingdom.
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]

General information

Barthelat, F. 2005. Note sur les esp&#65533;ces exotiques envahissantes &#65533; Mayotte. Direction de l&#65533;Agriculture et de la For&#65533;t. 30p
Summary: Tableau synth&#65533;tique des plantes exotiques de Mayotte class&#65533;es en fonction de leur niveau d envahissement.

Conservatoire Botanique National De Mascarin (BOULLET V. coord.) 2007. - *Ziziphus mauritiana* Index de la flore vasculaire de la R&#65533;union (Trach&#65533;ophytes) : statuts, menaces et protections. - Version 2007.1
Summary: Base de donn&#65533;es sur la flore de la R&#65533;union. De nombreuses informations tr&#65533;s utiles.
Available from: http://flore.cbnm.org/index2.php?page=taxon&num=88cf91a1aef212f3c2cd12406983427d [Accessed 20 March 2008]

Dale, I. (1981). Chinee apple (*Ziziphus mauritiana*) in north Queensland. Internal Report, Biological Section, Queensland Department of Lands, Sherwood.

Grice, A. C. 1996. Seed production, dispersal and germination in *Cryptostegia grandiflora* and *Ziziphus mauritiana*, two invasive shrubs in tropical woodlands of northern Australia. Australian Journal of Ecology, 21(3), 324-331.
Summary: Information about seed numbers, germination rates, and methods of dispersal for *C. grandiflora* and *Ziziphus mauritiana*

Grice, A. C. 1997. Post-fire regrowth and survival of the invasive tropical shrubs *Cryptostegia grandiflora* and *Ziziphus mauritiana*. Australian Journal of Ecology 22:49-55.

Hoff, M., Cremers, G., Chevillotte, H., de Granville J.-J., Gu&#65533;rin V. & Molino J.-F., 2007. Base de donn&#65533;es botaniques Aublet2 de l Herbier de Guyane fran&#65533;aise (CAY).
Summary: Base de donn&#65533;es sur les sp&#65533;cimens botaniques collect&#65533;s sur le plateau des Guyanes, surtout en Guyane Fran&#65533;aise, et d&#65533;pos&#65533;s &#65533; l Herbier de Guyane.
Available from: http://www.cayenne.ird.fr/aublet2/Referentiel.html [Accessed 11 April 2008]

ITIS (Integrated Taxonomic Information System), 2005. Online Database *Ziziphus mauritiana*
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.
Available from: http://www.cbif.gc.ca/pls/itisca/taxastep?king=every&p_action=containing&taxa=Ziziphus+mauritiana&p_format=&p_ifx=plglt&p_lang= [Accessed March 2005]

Kaaria, Susan. 1998. Fact Sheet: *Ziziphus mauritiana* - a valuable tree for arid and semi-arid lands. Forest, Farm, and Community Tree network.
Summary: Description and information on the ecology, distribution, uses, propagation.
MacKee, H.S. 1994. Catalogue des plantes introduites et cultiv&#65533;es en Nouvelle-Cal&#65533;donie, 2nd edn. MNHN, Paris.
Summary: Cet ouvrage liste 1412 taxons (esp&#65533;ces, sous esp&#65533;ces et vari&#65533;t&#65533;s) introduits en Nouvelle-Cal&#65533;donie. L auteur pr&#65533;cise dans la majorit&#65533; des cas si l esp&#65533;ce est cultiv&#65533;e ou naturalis&#65533;e.
Morton, J. 1987. Indian Jujube. p. 272&#65533;275. In: Fruits of warm climates. Julia F. Morton, Miami, FL.C13. Center for New Crops & Plant Products, Purdue University.
Summary: Description, Origin and Distribution, Climate, Soil, Propagation, pests and diseases.
Available from: http://www.hort.purdue.edu/newcrop/morton/indian_jujube.html [Accessed 18 October 2002]
Tony Grice, Pers.comm. 10 December 2002.
Summary: Supplied a lot of the information presented in this species Account.