Leucaena leucocephala

System: Terrestrial

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Phylum</th>
<th>Class</th>
<th>Order</th>
<th>Family</th>
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<tbody>
<tr>
<td>Plantae</td>
<td>Magnoliophyta</td>
<td>Magnoliopsida</td>
<td>Fabales</td>
<td>Fabaceae</td>
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</tbody>
</table>

Common name

faux mimosa (French), acacia palida (English, Puerto Rico), guaje (Spanish), zarcilla (English, Puerto Rico), huaxin (Spanish), leucaena (English), uaxim (Spanish), wild mimosa (English, Bermuda), tamarindo silvestre (Spanish), wild tamarind (English, Puerto Rico), graines de lin (French), lino criollo (English, Dominican Republic), jumbie bean (English), tangantangan (Chamorro, CNMI), tangan-tangan (Chamorro, Guam), ganiitilyuyuan tangantan (Yapese), guaslim (Campeche, Mexico), guaxin (Maya, Yucatan), liliak (Totonaco, Veracruz, Mexico), tuhungantuhtungan (English, Kosrae), koa-haole (English, Hawai‘i), aroma blanca (English, Cuba), lamtoro (English, Indonesia), ipil-ipil (English, Philippines), kanthum thect (English, Cambodia), kan thin (English, Laos), kra thin (English, Thailand), bo chet (English, Vietnam), rohbohtin (English, Kosrae), subabul (English, India), katin (English, Cambodia), schemu (English, Vietnam), false koa (English, Hawai‘i), telentund (Palauan), lopa samoa (English, American Samoa), fua pepe (Samoan), usina (Samoan), pepe (Niuean), nito (English, Cook Islands), siale moheho (Tongan), vaivai (Fijian), vaivai ni vavalangi (Fijian), vaivai dina (Fijian), balori (Fijian), cassis (English, Vanuatu), te kaitetua (I Kiribati), leucaena (English), horse/wild tamarind (English), lead tree (English), faux-acacia (French)

Synonym

*Mimosa leucocephala* , Lamark 1783
*Acacia leucocephala* , (Lamark) Link 1822
*Leucaena glabrata* , Rose 1897
*Leucaena glauca* , (L.) Benth. 1842

Similar species

The fast-growing, nitrogen-fixing tree/shrub Leucaena leucocephala, is cultivated as a fodder plant, for green manure, as a windbreak, for reforestation, as a biofuel crop etc. Leucaena has been widely introduced due to its beneficial qualities; it has become an aggressive invader in disturbed areas in many tropical and subtropical locations and is listed as one of the ‘100 of the World’s Worst Invasive Alien Species’. This thornless tree can form dense monospecific thickets and is difficult to eradicate once established. It renders extensive areas unusable and inaccessible and threatens native plants.
Species Description
The genus *Leucaena* is distinguished from all other Mimosoid legumes by its hairy anthers which are easily visible with a hand lens. *Leucaena leucocephala* is distinguished from other species of *Leucaena* by its intermediate leaflets and large pods in clusters of 5-20 per flower head. It forms a small to medium-sized thornless tree 3-15 (-20)m tall and 5-50cm bole diameter. The leaves are bipinnate with an elliptic convex extrafloral nectary on the petiole, 4-9 pairs of pinnae and 13-21 pairs of leaflets per pinna. The leaflets are 9-16mm long and 2-4.5mm wide, nearly sessile and strongly asymmetric linear oblong and acute at the apex. The flowers occur in 12-21mm diameter heads, are cream-white, with ten free stamens per flower and hairy anthers. The pods occur in crowded clusters of 5-20 per flower head and are 11-19cm long and 15-21mm wide pendulous, flattened and papery, and passively dehiscent with 8-18 seeds per pod. Three subspecies are recognised, two of which - subsp. *leucocephala* and subsp. *glabrata* have been introduced pantropically. These two subspecies correspond to shrubby = subsp. *leucocephala* variants, sometimes referred to as the Common or Hawaiian type, and to the more arborescent = subsp. *glabrata* variants, sometimes referred to as the Giant or Salvador type.

Lifecycle Stages
Trees are generally short-lived (20-40 years). The hard seed coat means that germination occurs over a prolonged period after seed dispersal and that seed can remain viable for long periods (at least 20 years) in the soil.

Habitat Description
*Leucaena leucocephala* is a weed of open (often coastal or riverine) habitats, semi-natural, disturbed, degraded habitats and other ruderal sites. It was assigned to the category of 'a serious or widespread weed invading semi-natural or natural habitats which are of some conservation interest' by Cronk and Fuller (1995) and as a Category II weed (a species which has a local distribution but either expanding populations, or known potential to invade and disrupt native vegetation elsewhere) in Florida by Gordon and Thomas (1997). It is not known to invade undisturbed closed forest habitats. It tolerates a wide range of rainfall from 500 - 3500mm and withstands strongly seasonal (6-8 month dry season) climates. However, it is not frost hardy and grows poorly, setting less seed in cooler tropical highland sites. The species also grows poorly on the acid soils with high Aluminium saturation that prevail in many humid tropical areas. In broad terms, it thus adapts well to a wide range of tropical and subtropical environments, especially seasonally dry tropical areas.

Reproduction
Self-fertile (promoting seed production even on isolated individuals), some outcrossing, pollinated by a wide range of generalist insects including large and small bees. Resprouts after cutting. Flowering and seeding continually throughout the year as long as moisture permits combined with self-fertility promotes abundant pod and seed set.
General Impacts

*Leucaena leucocephala* is spreading naturally and has been reported as a weed in more than 20 countries across all continents except Europe and Antarctica. It is a weed of open, often coastal or riverine habitats, semi-natural, and other disturbed or ruderal sites and occasionally in agricultural land. It can form dense monospecific thickets which are reported to be replacing native forest in some areas and threatening endemic species of conservation concern in some areas. Dense thickets, even if not of immediate conservation concern can render extensive areas of disturbed ground unusable and inaccessible.

Management Info

**Preventative measures:** In Queensland, Australia, management practices aimed at minimising the risk of spread and invasion are being promoted under a code of good practice for livestock farmers who cultivate Leucaena. The policy endorsed in November 2004 "addresses the need for land use management recommendations over the location, design and management of plantings of the shrub legume leucaena to reduce the weed risk. The policy has been developed by Government agencies with responsibilities for natural resource management following consultation with industry, local governments and community groups" (NRM, 2005).

A **Risk Assessment of *Leucaena leucocephala*** for Hawai‘i 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."

A **Risk assessment of *Leucaena leucocephala*** 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 11 and a recommendation of: reject the plant for import (Australia) or species likely to be of high risk (Pacific).

**Biological:** A bruchid beetle seed predator, *Acanthoscelides macrophthalmus* has been deliberately introduced and released in South Africa as a biocontrol agent and the same insect has been accidentally introduced to Australia. The accidental spread of the psyllid insect defoliator *Heteropsylla cubana* in the mid 1980s can cause cyclical defoliation, but does not kill trees and the psyllid appears to have been brought under control by a number of generalist local (and in some cases introduced) psyllid predators and parasites.

**Integrated management:** Once established, *Leucaena* is difficult to eradicate. It resprouts vigorously after cutting. Cut stumps need to be treated with diesel or other chemicals. Furthermore, the soil seed bank can remain viable for at least 10-20 years after seed dispersal.

**Pathway**

Widely promoted by national and international agricultural and forestry development agencies for agroforestry and agricultural use. Introduced by acclimatisation societies.

**Principal source:** Pacific Islands Ecosystems at Risk (PIER), 2011. *Leucaena leucocephala* (Lam.) De wit
FULL ACCOUNT FOR: Leucaena leucocephala

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

Review: Dr. Colin Hughes, Department of Plant Sciences, University of Oxford, OXFORD, UK.

Publication date: 2010-08-16

ALIEN RANGE

[1] AMERICAN SAMOA
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[1] ANGUILLA
[1] ANTIGUA AND BARBUDA

[2] ARGENTINA
[1] ARUBA

[3] AUSTRALIA
[2] BAHAMAS

[1] BANGLADESH
[1] BARBADOS

[1] BENIN
[1] BERMUDA

[1] BES ISLANDS (BONAIRE, SINT EUSTATIUS AND SABA)
[1] BOLIVIA

[1] BOTSWANA
[1] BRAZIL

[1] BRITISH INDIAN OCEAN TERRITORY
[1] BRUNEI DARUSSALAM

[1] BURKINA FASO
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[1] ERIITREA
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[1] LAO PEOPLE'S DEMOCRATIC REPUBLIC

[1] LIBERIA
[1] MADAGASCAR

[1] MALAWI
[1] MALAYSIA

[1] MALI
[1] MARTINIQUE
Full account for: *Leucaena leucocephala*
GLOBAL INVASIVE SPECIES DATABASE
FULL ACCOUNT FOR: Leucaena leucocephala

Pittosporum gatopense VU
Polyscias crenata VU
Pseudeantheremum incisum VU
Ptilinopus roseicapilla EN
Solanum hugonis EN
Syzygium pendulimum EN
Syzygium veillonii EN
Turbina inopinata CR

Podonephelium subaequilaterum VU
Polyscias nothisii EN
Psychotria deverdiana VU
Randia pancheriana VU
Solanum pancheri NT
Syzygium poyanum VU
Terminalia cherrieri EN
Xylosma grossecrenatum EN

BIBLIOGRAPHY
25 references found for Leucaena leucocephala

Management information

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.


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.


Natural Resources and Mines (NRM) Environmental Protection Agency Department of Primary Industries Queensland Government, November 2004. Policy to Reduce the Weed Threat of Leucaena.


Pacific Island Ecosystems at Risk (PIER), 2011. Leucaena leucocephala (Lam.) de Wit, Fabaceae

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


Summary: Eradication case study in Turning the tide: the eradication of invasive species.


Summary: An illustrated guide providing practical information for the effective control of the worst invasive plant species in Galapagos. Designed for farmers and other land managers, it describes manual and chemical control methods. It also includes 8 species that are potential problems for Galapagos. Language: Spanish

Una guía con ilustraciones que provee información para el control efectivo de las peores plantas invasoras en Galápagos. Esta diseña para los agricultores y personas involucradas en conservación. De una forma clara y simple se describe los m?todos de control manuales y químicos, también incluye 8 especies que potencialmente podrían ser un problema para Galápagos. Lenguaje: Español.

GLOBAL INVASIVE SPECIES DATABASE
FULL ACCOUNT FOR: Leucaena leucocephala

Rentería, Jorge Luis, Rachel Atkinson & Chris Buddenhagen., 2007. Estrategias para la erradicaci?n de 21 especies de

Summary: This document comprises costed eradication plans for 21 invasive species in Galapagos. The plans were
developed as part of a GEF funded project ECU/00/G31 ?Control of Invasive species in the Galapagos Archipelago?. The
management plans report projects at different stages of development and for species that have invaded to different
extents. Three of the projects have already been finished successfully, 5 have yet to be started, and for the rest the
projects have been running for between 1 and 6 years. The cost and time needed for eradication varies considerably by
species and demonstrates the importance of species eradication as soon as possible after detection

Resumen
El presente documento proporciona planes de manejo y el costo para la erradicaci?n de 21 especies que se encuentran
presentes en Galapagos. Los planes fueron desarrollados como parte del proyecto ECU/00/G31 Control de las especies
invasoras en el Archipi?edo de Galapagos, suscrito por el Gobierno Ecuatoriano, representado por el Ministerio del
Ambiente, con el Fondo para el Medio Ambiente Mundial (GEF). El Proyecto es implementado por el Programa de las
Naciones Unidas para el Desarrollo (UNDP), tiene como instituciones ejecutoras al Servicio Parque Nacional Galapagos
(SPNG), Instituto Nacional Galapagos (INGALA), Servicio Ecuatoriano de Sanidad Agropecuaria-Galapagos (SESA-
Galapagos), y Fundaci?n Charles Darwin (FCD). Los planes de manejo representan proyectos en diferentes estados de
derrollo y dimensi?n. Tres de estos proyectos ya han sido desarrollados completamente, trece est?n en proceso y cinco
a?n no se han iniciado. El costo y tiempo para la erradicaci?n var?a considerablemente seg?n la especie y se muestra la
importancia econ?mica que implica desarrollar proyectos de erradicaci?n tan pronto las especies son detectadas.

Sheil, D. 1994. Naturalized and invasive plant species in the evergreen forests of the East Usambara Mountains,

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]

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]

Wilson, Colin, Wildlife Management Officer, Department of Infrastructure, Planning and Environment, Parks & Wildlife
Service, Northern Territory, Australia.

Summary: Complier of original GISP profile of Chromoleana odorata.