# GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Ricinus communis***

***Ricinus communis*** 简体中文 正體中文 **System:** Terrestrial

| Kingdom | Phylum | Class | Order | Family |
|---|---|---|---|---|
| Plantae | Magnoliophyta | Magnoliopsida | Euphorbiales | Euphorbiaceae |

**Common name**

lepo (Tongan), lama palagi (Samoan), Rizinus (German), lama papalagi (Samoan), pakarani (Maori), tiarili (English), mbele ni vavalagi (Fijian), belenivavalagi (Fijian), tiairi (Tuamotuan), higuerilla (Spanish), castor bean (English), tiairi papa'a (English, Tahiti), tiairi popa'a (English, Tahiti), agaliya (English), agaliya (Chamorro), ka'apeha (Hawaiian), uluchula skoki (Palauan), tuitui papa'a (Maori), pa'aila (Hawaiian), kamakou (Hawaiian), castor-oil-plant (English), castor (English), toto ni vavalagi (Fijian), ricin (French), palma-christi (English), la'au 'aila (Hawaiian), tuitui (Maori), kasterolieboom (Afrikaans), pakarana (Maori), maskerekur (Palauan), koli (Hawaiian), utouto (Fijian), gelug (Palauan), tuitui fua ikiiki (Niuean), pititu (Marquesan), rícino (Portuguese)

**Synonym**

*Ricinus africanus* , Willd.
*Ricinus angulatus* , Thunb.
*Ricinus armatus* , Haw.
*Ricinus badius* , Rchb.
*Ricinus chinensis* , Thunb.
*Ricinus digitatus* , Noronha
*Ricinus europaeus* , T.Nees
*Ricinus glaucus* , Hoffmanns.
*Ricinus hybridus* , Besser
*Ricinus inermis* , Mill.
*Ricinus japonicus* , Thunb.
*Ricinus laevis* , DC.
*Ricinus leucocarpus* , Bertol.
*Ricinus lividus* , Jacq.
*Ricinus macrophyllus* , Bertol.
*Ricinus medicus* , Forssk.
*Ricinus megalospermus* , Delile
*Ricinus minor* , Mill.
*Ricinus nanus* , Balbis
*Ricinus peltatus* , Noronha
*Ricinus purpurascens* , Bertol.
*Ricinus rugosus* , Mill.
*Ricinus sanguineus* , Groenland
*Ricinus scaber* , Bertol. ex Moris
*Ricinus speciosus* , Burm.f.
*Ricinus spectabilis* , Blume
*Ricinus tunisensis* , Desf.
*Ricinus undulatus* , Besser
*Ricinus urens* , Mill.
*Ricinus viridis* , Willd.
*Ricinus vulgaris* , Mill.

**Similar species**

**Summary**

Ricinus communis is a perennial shrub that can assume tree-like status if it establishes in a suitable climate. It is frequently found invading riparian areas where it displaces native vegetation. The seed of this species is toxic to variety of species including humans. Consuming only a few seeds can be fatal.

view this species on IUCN Red List

**Species Description**
*R. communis* is a robust perennial shrub that typically reaches heights of 3-5 metres. It has large, palmately lobed leaves and sharply toothed leaf margins. The large (10 to 75cm across), umbrella-like leaves have 5 to 9 pointed, fingerlike lobes. Long purple leaf-stems are attached near the centers of the leaf blades. The leaves are usually deep green, but in some strains they have a reddish cast. They have an odor when crushed. The stems are smooth, round, and frequently red, with clear sap. The flowers are small and greenish, with both male and female flowers on the same plant. The fruit is a quarter-sized, three-lobed, round, spiny capsule, often green or red, containing up to three shiny, smooth, mottled seeds that resemble ticks. One large, mottled, attractive seed develops in each lobe. The flowers are male and female on the same plant, and are produced on a clustered, oblong, terminal spike. The male flowers are placed on the under portion of the spike; they have no corolla, only a green calyx, deeply cut into three to five segments, enclosing numerous, much branched, yellow stamens. The female flowers occupy the upper part of the spike and have likewise no corolla. The three narrow segments of the calyx are, however, of a reddish colour and the ovary in their centre is crowned by deeply divided, carmine-red threads (styles). The fruit is a blunt, greenish, deeply grooved capsule less than 2.5cm long, covered with soft, yielding prickles in each of which a seed is developed (Cal-IPC, UNDATED; Dove Biotech, UNDATED).
*R. communis* is herbaceous when young but in frost-free areas it can be an evergreen tree that gets up to 12m in height and become woody with age. The wood is soft and light with a thick central pith. Occasionally, irregular brown heartwood develops. The bark is light brown, smooth, and exhibits rings at the nodes and raised lenticels. There are a moderate number of large, star-shaped leaves with 7 to 9 long pointed lobes (Flordiata, 2005; and Francis, UNDATED).

**Uses**
Ricin is a glycoprotein derived from the beans of *R. communis* and is one of the most potent and easily produced plant toxins known. Intact beans can pass through the digestive system with little or no toxic effects. The oil extracted from the seeds is used as additives in paints and varnishes and as the raw material from which sebacic acid is produced. From World War I until the 1960s oil extracted from *R. communis* beans was utilized as a lubricant (castor oil) for aircraft, but the United States also began developing biological warfare agents, ricin was produced because of its ease of production and toxic potency. By World War II the United States, collaborating with the British, had developed and tested, but never implemented in combat, a ricin-containing bomb code-named ''compound W''. Suspected domestic terrorists have been discovered with quantities of ricin that could pose a threat to public safety. The 1978 assassination of the Bulgarian defector Georgi Markov publicized ricin as a homicidal agent. A weapon disguised as an umbrella injected a small metal pellet thought to contain ricin into Markov's thigh. *R. communis* has medicinal uses as a laxative (Doan, 2004).
Castor oil has other uses. The oil acts as a barrier agent to protect against harsh climate, and is soothing to the skin. Castor oil forms a clean, light-coloured, transparent soap, which dries and hardens well and is free from odour. Ricinoleic acid and its many derivatives have skin smoothing and moisturizing qualities, and improve various skin conditions such as rough skin and acne. Hydrogenated castor oil and/or its esters, are useful as vehicles or carriers, emollients or solubilizers for toiletry, cosmetic, hair and skin care formulations, and are useful for cleansing and conditioning the skin (Aburjai and Natsheh, 2003).

**Habitat Description**
*R. communis* is frequently found in riparian areas, especially along the south and central coast, where it invades and displaces native vegetation. This plant is also common as an escape in abandoned fields, drainages, ditches, and along roadsides and railroad tracks. It is killed by low temperatures, and as little as twenty-four hours at 2 degrees F is sufficient to produce visible impacts on cellular membranes of seedlings at any stage of germination. Distribution is limited by castor bean's intolerance of cold temperatures. It is tolerant of a wide range of soil types and conditions. Plants tend to germinate more profusely in full sun. Disturbance required if natural stands of *R. communis* are to successfully establish. If disturbance is not repeated, *R. communis* will be succeeded in a few years by grass, vines, or trees. It is competitive and most frequently seen in flood zones, on neglected farmland, and roadsides (Cal-IPC, UNDATED; Francis, UNDATED).

**Reproduction**
*R. communis* reproduces by seed. Plants become reproductive in the first season (within six months) and are capable of flowering year round in a frost-free environment. A single large plant 10.2 feet (8 m) diameter was found to produce 150,000 seeds, while a smaller plant thirty-nine inches (1 m) diameter produced only 1,500 seeds (Cal-IPC, UNDATED).

**General Impacts**
Castor bean displaces native plant species in riparian areas and drainages. Its seeds are among the first to germinate following fire. Plants colonize disturbed areas, and they grow rapidly, shading out native seeds and seedlings and producing monospecific stands in areas with previously healthy native vegetation. Humans and horses are especially vulnerable to *R. communis* seeds if they are chewed on when ingested. Fatal doses are from 2.5 to 6 seeds for humans and about 6 seeds for horses (CISR 1972). Symptoms are stomach irritation, diarrhea, abdominal pain, increased heart rate, profuse sweating, collapse, and convulsions. Broken seeds can cause skin irritation. The foliage is only slightly toxic. Seeds that are ingested but not chewed will likely pass through the body harmlessly (Cal-IPC, UNDATED; and Francis, UNDATED).

**Management Info**
When *R. communis* becomes weedy in neglected cropland and pasture it is matter of controling the invasive through cultivation and mowing (Francis, UNDATED), but in more difficult or sensitive environments Tunison and Zimmer (UNDATED) suggest cutting the stump of mature *R. communis* and applying the herbicide \"Banvel\" along with the mechanical control techniques of uprooting seedling. The authors report that Banvel was nearly 100% effective. Langeland and Stocker (UNDATED) also suggest treating *R. communis* with either basal bark or cut-stump methods followed by an application with 10% Garlon 4, but the authors reiterate that the site must be revisited several times after the initial herbicide treatment to hand pull seedlings that sprout.

**Pathway**
This plant has been cultivated as an oil crop (Whitson 1992) and as an ornamental (Hogan 1992) (Cal-IPC, UNDATED).

**Principal source:** Dove Biotech, UNDATED. *Castor Bean (Rincinus communis) an International Botanical Answer to Biodiesel Production and Renewable Energy*
Francis, UNDATED. *Ricinus communis L. castor bean*

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

**Review:**

**Pubblication date:** 2006-07-05

## ALIEN RANGE

**[1]** ALBANIA
**[1]** ANGUILLA
**[3]** AUSTRALIA
**[1]** BERMUDA
**[1]** BRITISH INDIAN OCEAN TERRITORY
**[1]** CAMBODIA
**[1]** CHINA
**[3]** COOK ISLANDS
**[1]** CUBA
**[1]** EL SALVADOR
**[1]** FRENCH GUIANA
**[1]** GIBRALTAR
**[1]** GUADELOUPE
**[1]** GUATEMALA
**[1]** INDONESIA
**[3]** KIRIBATI
**[3]** MARSHALL ISLANDS
**[1]** MAYOTTE
**[1]** MICRONESIA
**[1]** MONGOLIA
**[1]** NEPAL
**[2]** NEW ZEALAND
**[1]** NORFOLK ISLAND
**[2]** PALAU
**[1]** PAPUA NEW GUINEA
**[1]** PERU
**[1]** PORTUGAL
**[1]** REUNION
**[1]** SAINT BARTHELEMY
**[1]** SAINT MARTIN (FRENCH PART)
**[1]** SOLOMON ISLANDS
**[1]** TAIWAN
**[36]** UNITED STATES
**[1]** URUGUAY
**[1]** WALLIS AND FUTUNA
**[1]** AMERICAN SAMOA
**[1]** ARGENTINA
**[1]** BAHAMAS
**[2]** BRAZIL
**[1]** BULGARIA
**[3]** CAYMAN ISLANDS
**[1]** COLOMBIA
**[2]** COSTA RICA
**[6]** ECUADOR
**[3]** FIJI
**[12]** FRENCH POLYNESIA
**[1]** GREECE
**[1]** GUAM
**[1]** INDIA
**[1]** JAMAICA
**[1]** MADAGASCAR
**[1]** MARTINIQUE
**[1]** MEXICO
**[2]** MICRONESIA, FEDERATED STATES OF
**[1]** NAURU
**[1]** NEW CALEDONIA
**[1]** NIUE
**[6]** NORTHERN MARIANA ISLANDS
**[1]** PANAMA
**[1]** PARAGUAY
**[1]** PITCAIRN
**[1]** PUERTO RICO
**[1]** RUSSIAN FEDERATION
**[2]** SAINT HELENA
**[2]** SAMOA
**[1]** SRI LANKA
**[5]** TONGA
**[1]** UNITED STATES MINOR OUTLYING ISLANDS
**[1]** VANUATU

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**Summary:** English:
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&#65533;n sobre especies invasoras de m&#65533;xico cuenta actualmente con informaci&#65533;n aceca de nombre cient&#65533;fico, familia, grupo y nombre com&#65533;n, as&#65533; como h&#65533;bitat, estado de la invasi&#65533;n en M&#65533;xico, rutas de introducci&#65533;n y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la p&#65533;gina de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualizaci&#65533;n, por favor consulte la portada (http://www.conabio.gob.mx/invasoras/index.php/Portada), en la secci&#65533;n novedades, para conocer los cambios.
Especies invasoras - Plantas is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas [Accessed 30 July 2008]
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