GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Rottboellia cochinchinensis***

Rottboellia cochinchinensis 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Liliopsida	Cyperales	Poaceae

Common name

konda panookoo (English, India), sagisi (English, Philippines), girum nagei (English, Philippines), anguigay (English, Philippines), barsali (English, India), paja peluda (English, Venezuela), capim-camalote (English, Portugal), doekoet kikisian (English, Indonesia), bandjangan (English, Indonesia), prickle grass (English), jointed grass (English), guinea-fowl grass (English), corn grass (English), bura (English, India), Raoul grass (English), dholu (English, India), kokoma grass (English), gaho (English, Philippines), bukal (English, Philippines), itchgrass (English), annarai (English, Philippines), Kelly grass (English), itch grass (English), sancarana (English, Cuba), swooate (English, India), tsunoaiashi (Japanese), herbe queue-de-rat (French), cebada fina (Spanish), rice grass (English), caminadora (Spanish), sugarcane weed (English), shamva grass (English), graminea corredora (Spanish), lisofya (English)

Synonym

Manisuris exaltata , (L. f.) Kuntze
Rottboellia exaltata , L. f., nom. illeg
Stegosia cochinchinensis , Lour
Aegilops exaltata , L.
Ophiurus appendiculatus , Steud.
Rottboellia arundinacea , Hochst. ex A. Rich
Rottboellia denudata , Steud.
Rottboellia setosa , J.S. Presl ex C.B. Presl
Stegosia exaltata , Nash

Similar species

Sorghum halepense

Summary

Rottboellia cochinchinensis is an erect annual grass that reaches heights of 4 metres. It is a weed of warm-season crops around the world, preferring tropical and subtropical climates. It grows along roadsides and in other open, well-drained sites. R. cochinchinensis is an aggressive weed, considered to be one of the 12 worst weeds that infest sugarcane (Saccharum officinarum) in the world. It is also a very competitive weed with maize crops. R. cochinchinensis has irritating hairs on its stem which makes it difficult to control it manually in small-scale farms. It is tolerant to most herbicides that are applied in cotton and maize fields. Management and removal of R. cochinchinensis requires the use of many man hours and the application of several techniques to ensure control.

view this species on IUCN Red List

Species Description
The erect, profusely tillering annual grass *R. cochinchinensis* is characterised by pale, green-coloured foliage, brace roots near the base of the plant, a cylindrical spikelet seedhead and siliceous hairs on the leaf sheath that can penetrate and irritate the skin.\" (Strahan *et al.* 2000a; 2000b).
R. cochinchinensis grows up to a height of 4m or more. The inflorescence is a cylindrical raceme that is 3 - 15cm long. The floral units consist of a sessile spikelet, pedicellate spikelet and internode. The pedicel is fused to the swollen floral internode. The spikelets are awnless, 3.5 - 6mm long, and 2.5 - 3mm wide. The floral units separate and fall as soon as they mature, from the top of the raceme downwards (NAPPO, 2003).

Lifecycle Stages
Smith *et al.* (2001) state that in Costa Rica, \"*Rottboellia cochinchinensis* life cycle is synchronized with the cropping season because its seed germinates and emerges in response to soil moisture and exposure to light after tillage prior to planting (Thomas 1970b ; Thomas and Allison 1975). Seeds do not germinate in the dry fallow season, although in practice, senescing *R. cochinchinensis* plants that remain after crop harvest may continue to shed seed during the fallow season. Preventing seed-set within crops should, in theory, substantially reduce *R. cochinchinensis* populations, since this plant's seed bank is short lived, approximately 3 to 5 yr (Rojas *et al.* 1993b).\"

Uses
Ishizuka (2001) states that, \"In a village near Lampang, in the northern part of Thailand *R. cochinchinensis*, injurious due to the thorns on the stems, is being tested in crop rotation as one of three crops in a large part of the village arable land. Because of its relatively fast and vigorous growth, up to 2-3m high in approximately 3 months, the weeds contribute to the retention of soil water and, in the long run, supply organic matter to soil as green manure, as the weed is flattened to the soil surface at harvest time and left there. At that time, the soil surface was covered completely by the harvested weed. It was reported that *R. Cochinchinensis* has also action of allelopathy. At the expense of one crop cultivation, the species of weed is deliberately seeded. This is one example of the collaboration of local traditional technologies with new ones (Suwannamek U & Chinawong S, personal communication).\"

Habitat Description
NAPPO (2003) state that, \"*Rottboellia cochinchinensis* is a weed of warm-season crops in a variety of habitats around the world, preferring tropical and subtropical climates. It also grows along roadsides and in other open, well-drained sites and is an important species in old field succession but it can be found in wet places, and even in shallow water. It survives in habitats with full sun, moderate shade, or nearly the full shade of thickets and forests. *R. cochinchinensis* is most troublesome between 800 and 1300m in elevation. Rainfall is a main limiting factor below 1300 m. Above this elevation, temperature is the main limiting factor (Holm *et al.* 1977).

Reproduction
Smith *et al.* (2001) state that, \"*Rottboellia cochinchinensis* seeds are stimulated to germinate by exposure to light and moisture that occurs upon sowing or tillage. Within each season, several further flushes of *R. cochinchinensis* seedlings may germinate and emerge, especially after soil disturbance or when there are gaps in the canopy (e.g., on weeding or herbicide application).\" Smith *et al.* (2001) continue that, \"*R. cochinchinensis* seed floats easily, and irrigation or floodwater is known to be a source of contamination for other fields (Mercado 1978); this is an aspect worthy of consideration for those managing *R. cochinchinensis*. In addition, the seed is very palatable to some birds, rodents, and insects. In studies of seed-feeding birds in the United States, 26 of 345 birds (4 out of 15 species) collected were found to have *R. cochinchinensis* seeds in their guts (Aison *et al.* 1984). In feeding trials, only about 0.3% of the seed survived passage through the gut. Similarly, Thomas (1970a) found that guinea fowl, mongoose, and cattle-but not smaller birds and mammals-could disperse *R. cochinchinensis* seed in Zimbabwe. This evidence from other regions indicates that local fauna could play a major role in destroying *R. cochinchinensis* seed and that they also contribute to local dispersal.\"

General Impacts
Alves (2003) state that, \"*Rottboellia cochinchinensis* is an aggressive weed, considered to be one of the 12 worst weeds that infest sugarcane (*Saccharum officinarum* L.) in the world because it obstructs closure of crop rows when densities are above 10 plants m-2 (Holm *et al.* 1977 ; Mercado 1978). According to Cepero and Rodriguez (1983) , Millhollon (1982 , 1992), and Morales and Fernandes (1985) , this species is one of the main invaders of sugarcane in Argentina, Cuba, India, Hawai'i, Mauritius, Puerto Rico, Trinidad, and the United States, where losses can reach 20 to 70%, depending on the cultivar, cutting cycle, and local ecological conditions.\"
The authors continue to state that, \"The appearance and dispersal of *R. cochinchinensis* worries researchers and sugarcane producers in areas that do not yet have *R. cochinchinensis* because the weed might spread and adapt to their conditions. Because itchgrass biotypes have not been confirmed, the same kind of control is used in every region.\" \r\n
Chikoye *et al.* (2000) state that, \"*R. cochinchinensis* is a very competitive weed with crops particularly maize and it has irritating hairs on its stem which makes it difficult to control manually in small-scale farms. It is also tolerant to most herbicides that are applied in cotton and maize fields.\"\r\n
Strahan *et al.* (2000a) states that, \"*R. cochinchinensis* is a prolific seed producer with seeds that germinate throughout the growing season (Harger et al. 1980 ; Millhollon 1965 ; Pamplona and Mercado 1982), making it difficult to manage. The weed is very competitive, and over a 3-yr period it may reach densities that could prevent crop harvest (Harger et al. 1982). Although relatively shade intolerant, *R. cochinchinensis* has the capacity for high photosynthetic activity and growth rates when exposed to light (Patterson 1979). Although adapted to the tropics, *R. cochinchinensis* has the ability to grow, flower, and set seed under a wide range of environmental conditions, reaching 75 to 100% of its growth potential under the temperature regimes found in the Gulf Coast states, the lower Midwest, the South Atlantic states, and the Southwest (Patterson *et al.* 1979).\"
Strahan *et al.* (2000a) states that, \"The competitiveness of *R. cochinchinensis* may be related to its ability to extract nutrients from soil more efficiently than *Z. mays* (El-Shafey *et al.* 1975).\"\r\n
Strahan *et al.* (2000b) states that, \" *R. cochinchinensis* is rated among the worst weeds in the world and is considered a serious problem in soybean (*Glycine max* (L.) Merr.), corn, cotton (*Gossypium hirsutum* L.), peanut (*Arachis hypogaea* L.), upland rice (*Oryza sativa* L.), and other crops in tropical regions of the world (Holm *et al.* 1977). In Louisiana, *R. cochinchinensis*, referred to as raoulgrass, is a major weed problem in sugarcane (*Saccharum* spp.), soybean, and corn (Millhollon 1965).\"

Management Info
For details on management of this species including preventative, mechanical, biological, chemical and integrated control please read our pdf file on *management information*.
For comprehensive information on management please see also Valverde, B. E., 2003. Progress on *Rottboellia cochinchinensis* management.

Principal source: Smith *et al.* 2001. *Rottboellia cochinchinensis*

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

Review: Expert review underway

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ALIEN RANGE

[1] ARGENTINA
[7] BRAZIL
[1] CENTRAL AMERICA
[2] COSTA RICA
[1] DOMINICAN REPUBLIC
[1] BOLIVIA
[1] CAYMAN ISLANDS
[1] COLOMBIA
[1] CUBA
[1] ECUADOR

[1] GUADELOUPE
[1] HONDURAS
[1] MARTINIQUE
[1] PANAMA
[1] PUERTO RICO
[1] SAINT BARTHELEMY
[1] SWAZILAND
[10] UNITED STATES
[1] GUATEMALA
[1] JAMAICA
[1] MEXICO
[1] PERU
[1] REUNION
[1] SAINT MARTIN (FRENCH PART)
[1] TRINIDAD AND TOBAGO
[1] VENEZUELA

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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.
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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.
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Summary: Available from:
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