

Ipomoea aquatica



简体中文

正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Solanales	Convolvulaceae

Common name

lorenzo (English, Nauru), kongkong (English, Yap), kangkong (English, Ulithi), water bindweed (English), luve ne tombithi (English, Fiji), ota karisa (English, Fiji), wa kumala (English, Fiji), Chinese waterspinach (English), seri (English, Chuuk), kangum (English, Palau), swamp morning glory (English), swamp cabbage (English), aquatic morning glory (English), water spinach (English), aseri (English, Chuuk), kang kong (English), ung-choi (English), seeri (English, Chuuk), lili vai (English, Samoa), kangking (English, Yap), ndrinikava (English, Fiji), akankong (English, Guam), kankum (English, Palau), te kang kong (English, Kiribati), cancon (English, Guam), kankan (English, Guam), kangkun (English, Guam), liseron d'eau (French)

Synonym

Ipomoea repens , Roth
Ipomoea reptans , Poiret
Convolvulus repens , Vahl
Ipomoea subdentata , Miq.

Similar species

Summary

Ipomea aquatica is rich in iron and is used traditionally to treat gastric and intestinal disorders. However, *Ipomea aquatica* is highly invasive, forming dense mats over the surface of water bodies, such as lakes, ponds, marshes, canals and ditches. It is also found in very moist soils, such as the muddy banks along streams. *Ipomea aquatica* spreads rapidly from plant fragments and its floating seeds allow effective colonisation of new areas. Aquatic herbicides, whilst generally effective, are not specific enough to be used in many sensitive areas, making eradication very difficult.



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

Species Description

Ipomoea aquatica is a trailing vine with milky sap. Stems are hollow, up to 3m long or more, rooting at the nodes, floating in aquatic situations." Stone (1970, in PIER, 2003) describes the leaves as being variable but commonly 5-15cm long and 2-10cm wide and oblong-lanceolate (arrowhead shaped) in shape. The flowers are described as being, showy, funnelform like morning-glory blooms, solitary or in few-flowered clusters at leaf axils; petals white to pink-lilac; the fruit as being, an oval or spherical capsule, woody at maturity, about 1cm wide, holding 1-4 grayish seeds, these often short-hairy. Two basic forms (with many cultivars of each) are recognized worldwide for this species "red," with red-purple tinged stems and pale pink to lilac flowers; and "green," with fully green stems and white flowers. A single plant of Chinese water spinach may grow taller than 21m and can branch profusely (Langeland K.A. & Burks K.C, 1999).

Uses

Commonly used as a food plant in Asia (PIER, 2003). Popular among some recent immigrants as a common potherb from the homeland and has been studied in Florida as a vegetable crop. This is because the plant of its rich iron content (Langeland K.A. & Burks K.C, 1999). *I. aquatica* is relatively rich in S-methyl methionine (Vitamin U) and is used traditionally to treat gastric and intestinal disorders. Furthermore it has been found to have insulin-like properties acting as an anti-hyperglycaemic (Malalavidhane, Wickramasinghe & Jansz, 2000).

Habitat Description

Ipomoea aquatica is found in fresh water aquatic habitats (PIER, 2003). *I. aquatica* has been found primarily in canals and ditches but also invades lakes. It grows well in moist soil or in still to flowing waters (Langeland K.A. & Burks K.C, 1999).

I. aquatica dwells in muddy stream banks, freshwater pond and lakes, and marshes. It is confined to the tropics and subtropics zones because it is susceptible to frosts and because it does not grow well when temperatures are below 23.9 degrees Celsius. Because of its prolific growth, this species can invade moist cultivated areas, such as rice and sugar cane fields, and other areas with varying water levels (Fears, UNDATED).

Reproduction

Under good conditions, *Ipomoea aquatica* can produce 190,000kg fresh weight biomass per ha in 9 months. It flowers in the warm months and produces 175-245 seeds per plant during the peak season (Langeland K.A. & Burks K.C, 1999).

General Impacts

Ipomoea aquatica forms dense floating mats of intertwined stems over water surfaces, shading out native submersed plants and competing with native emergents. It is considered the second greatest problem plant in the Philippines, where it tends to overgrow freshwater marginal areas. A common to serious weed in many areas in the tropics (Langeland K.A. & Burks K.C, 1999).

Masses of tangled vegetation obstruct water flow in drainage and flood control canals. They have infested lakes, ponds, and river shorelines, displacing native plants that are important for fish and wildlife. The veins of the plant create dense impenetrable canopies over small ponds and retention basins creating stagnant water conditions that are ideal breeding environments for mosquitoes (Fears, UNDATED).

Management Info

Preventative measures: Sale and distribution of *I. aquatica* is prohibited in Florida, however, the plant is still repeatedly introduced there.

Chemical: According to Schardt & Schmitz (1990, in Fears, UNDATED), aquatic herbicides have been used to control the plant but the results were only temporary. 3-(3,4-dichlorophenyl)-1,1-dimethylurea (DCMU / Diuron) provided acceptable control in dry ditches but also controlled most other adjacent plants, which is unacceptable in areas of high conservation value. 1-1'-dimethyl-4,4'-bipyridylum dichloride (paraquat) and 2,4-dichlorophenoxyacetic acid (2,4-D) have both been shown to have an impact on plant growth (Ninomiya, Oogami, Kino-Oka, Taya, 2003). However as with DCMU, paraquat is a broad spectrum herbicide and would, in many cases, likely impact surrounding vegetation to an unacceptable level. N-(phosphonomethyl)glycine (glysophate) would probably be effective but again is a broad spectrum herbicide. More research needs to be undertaken on the effectiveness of 2,4 D which is a far more selective herbicide.

Biological: It would appear that biological control has not been attempted in its non-native habitats (Williams, A.E., pers.comm., 2004).

Principal source: [Ipomoea aquatica](#) (Fears, UNDATED)

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

Review: Dr Adrian E. Williams: APEM Ltd., Manchester Science Park, Manchester, UK

Publication date: 2006-08-29

ALIEN RANGE

[1] AFRICA	[1] AMERICAN SAMOA
[1] AUSTRALIA	[1] BRITISH INDIAN OCEAN TERRITORY
[1] COOK ISLANDS	[1] FIJI
[1] FRENCH POLYNESIA	[1] GUAM
[2] KIRIBATI	[1] MARSHALL ISLANDS
[1] MAYOTTE	[1] MICRONESIA, FEDERATED STATES OF
[1] NEW CALEDONIA	[1] NORTHERN MARIANA ISLANDS
[1] PALAU	[1] PHILIPPINES
[1] PUERTO RICO	[1] REUNION
[1] SAMOA	[1] SOLOMON ISLANDS
[1] SOUTH AMERICA	[1] TONGA
[7] UNITED STATES	[1] UNITED STATES MINOR OUTLYING ISLANDS

BIBLIOGRAPHY

14 references found for ***Ipomoea aquatica***

Management information

[Fears, Nicole UNDATED. Water Spinach Exotic Aquatics on the Move \[Online Database\] Sea Grant.](#)

Summary: This page contains information about description, habitat, impacts, origin, distribution, uses, and control measures. Available from: <http://www.iisgcp.org/EXOTICSP/waterspinach.htm> [Accessed 24 October 2003].

Ninomiya K., Oogami Y., Kino-Oka M., Taya M. (2003). Assessment of herbicidal toxicity based on non-destructive measurement of local chlorophyll content in photoautotrophic hairy roots. *Journal of Bioscience and Bioengineering*, 95, 3, 264-270.

Summary: Investigates the response of chlorophyll in the hairy roots of *I. aquatica* to various herbicide applications.

[PIER \(Pacific Island Ecosystems at Risk\), 2003. *Ipomoea aquatica*](#)

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

Available from: http://www.hear.org/pier/species/ipomoea_aquatica.htm [Accessed 24 October 2003]

[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 espèces exotiques envahissantes à Mayotte. Direction de l'Agriculture et de la Forêt. 30p

Summary: Tableau synthétique des plantes exotiques de Mayotte classées en fonction de leur niveau d'envahissement.

[Conservatoire Botanique National De Mascarin \(BOULLET V. coord.\) 2007. *Ipomoea aquatica*.- Index de la flore vasculaire de la Réunion \(Trachophytes\) : statuts, menaces et protections. - Version 2007.1 \(mise à jour 12 juin 2007\). Disponible à <http://flore.cbnm.org>.](#)

Summary: Base de données sur la flore de la Réunion. De nombreuses informations très utiles.

Available from: <http://flore.cbnm.org/index2.php?page=taxon&num=c24fe9f765a44048868b5a620f05678e> [Accessed March 2008]

[Florence J., Chevillotte H., Ollier C. & Meyer J.-Y. 2007. *Ipomoea aquatica*. Base de données botaniques Nadeaud de l'Herbier de la Polynésie française \(PAP\).](#)

Summary: Base de données sur le flore de Polynésie Française.

Available from: http://www.herbier-tahiti.pf/Selection_Taxonomie.php?id_tax=1215 [Accessed March 2008]

[ISB \(Institute for Systematic Botany\) 2003. *Ipomoea aquatica* Atlas of Florida Vascular Plants \[Online Database\]](#)

Summary: Brief listing of scientific name, common name, synonyms, and a Florida distribution.

Available from: <http://www.plantatlas.usf.edu/main.asp?plantID=388> [Accessed 24 October 2003].

[ITIS \(Integrated Taxonomic Information System\), 2005. Online Database *Ipomoea aquatica*](#)

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.cbf.gc.ca/pls/itisca/taxastep?king=every&p_action=containing&taxa=Ipomoea+aquatica&p_format=&p_ifx=plgl&p_lang=\[Accessed March 2005\]](http://www.cbf.gc.ca/pls/itisca/taxastep?king=every&p_action=containing&taxa=Ipomoea+aquatica&p_format=&p_ifx=plgl&p_lang=[Accessed March 2005])

[Langeland, K.A. and Burks, K. C \(Eds\) 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas, University of Florida.](#)

[*Ipomoea aquatica*](#)

Summary: Information on plants that pose threats to natural resource areas in Florida.

Available from: http://www.fleppc.org/ID_book/ipomea%20aquatica.pdf [Accessed 30 December 2004]

MacKee, H.S. 1994. Catalogue des plantes introduites et cultivées en Nouvelle-Calédonie, 2nd edn. MNHN, Paris.

Summary: Cet ouvrage liste 1412 taxons (espèces, sous espèces et variétés) introduits en Nouvelle-Calédonie. L'auteur précise dans la majorité des cas si l'espèce est cultivée ou naturalisée.

Malalavidhane T.S., Wickramasinghe S.M.D.N. & Jansz E.R. (2000). Oral hypoglycaemic activity of *Ipomoea aquatica*. *Journal of Ethnopharmacology*, 72, 293-298.

Summary: Looks at the hypoglycaemic properties of the plant in rats from Sri Lanka

Meyer, Jean-Yves & Loope, Lloyd & Sheppard, A. & Munzinger, Jérôme & Jaffré, Tanguy. (2006). Les plantes envahissantes et potentiellement envahissantes dans l'archipel néo-calédonien : première évaluation et recommandations de gestion.

[USDA-NRCS \(Natural Resource Conservation Service\). 2005. *Ipomoea aquatica*. The PLANTS Database Version 3.5 \[Online Database\]](#)

[National Plant Data Center, Baton Rouge, LA.](#)

Summary: Available from: <http://plants.usda.gov/java/nameSearch?mode=Scientific+Name&keywordquery=Ipomoea+aquatica> [Accessed 24 March 2006].