

*Merremia tuberosa*



简体中文

正體中文

**System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Solanales	Convolvulaceae

**Common name** liane-jaune (French), quinamacal (Spanish), quiebra machet (Spanish), quiebra caje- te (Spanish), bejuco de golondrin (Spanish), foco de luz (Spanish), Ceylon morning glory (English), bara- asa-gao (Japanese), rosa de barranco (Spanish), Brazilian jalap (English), xixcamátic (Náhuatl)

**Synonym** *Ipomoea tuberosa* , L.  
*Batatas tuberosa* , (L.) Bojer  
*Operculina tuberosa* , (L.) Meisn.

## Similar species

**Summary** *Merremia tuberosa* is a climbing vine that is native to Mexico and parts of central America that has become invasive on various Pacific islands and parts of the United States. The vine overgrows tall hardwood forest canopies and smothers native trees and shrubs. Its population on Niue is reported as especially aggressive.



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

## Species Description

*Merremia tuberosa* is a long, climbing vine. Its leaves are simple and the blades are circular in outline, 6-16 cm long and wide, the base is cordate, and margins are palmately 5-7 lobed almost to the base. The lobes are 8-20 cm long, 9-20 cm wide, ovate, 3-9 cm long, 1-5 cm wide, and leaf margins are entire. Its stems are basally woody, perennial, twining, and glabrous. Flowers usually occur in clusters and fully bloom in sunlight and close under cloudy conditions and in the dark. The corolla is yellow, glabrous, funnelform, contortiplicate, enclosed by the sepals in bud, and comprised of 4 petals 5-6 cm long. It has 3 petioles which are 6-18 cm long and glabrous. Its pedicels are 15-18 mm long, claviform, glabrous, and enlarge in fruit. Its sepals are unequal, with the outer two longer than the inner three. They are oval to almost orbicular, with a rounded apex, membranous apically, somewhat herbaceous basally, and 23-25 mm long. Its sepals equally enlarge in fruit. The inner three are oblong, 12-20 mm long. Its filament is unequal, 2.5-3 cm long, glandular, and pubescent. The pistil is glabrous, 4-locular, and the stigma is globose. It has tuberous taproots. The fruits are globose to depressed globose and 3-3.5 cm in diameter. The calyx is accrescent, with fruiting sepals divergent but supporting the fruit. 1-4 seeds occur per fruit and are black to dark-brown, ovoid, 1.5-2 cm long, smooth surfaced, and covered with short, erect, puberulent indumentum (Austin, 1998; Motooka *et al*, 2003).

## Lifecycle Stages

*Merremia tuberosa* is a perennial vine that produces bright yellow morning-glory-like inflorescences in the late fall. Fruits occur abundantly in early winter. By late December and early January die backs occurs. Its seeds remain viable for several years and germinate readily even in conditions of low light (Langland & Stocker, 2001; PIER, 2008).

## Uses

The roots of *Merremia tuberosa* contain resins that were formerly used across the tropics and in Europe as laxatives. Now plants are grown for their flowers and ornamental fruits that are used by florists. Its grated root was historically found useful for those that have swollen bellies and whose intestines rumble. A mixture was also drunk while fasting, to purge, and to lower fever (Austin, 1998).

## Habitat Description

*Merremia tuberosa* is known to grow in mesic forests from 0-1,400 m elevation. It is a climbing vine that grows over trees or other surfaces and prefers high levels of sunlight. It is also reported to require fertile, well-drained soils (Smith, undated; PIER, 2008).

## Reproduction

*Merremia tuberosa* reproduces primarily through seed production and also by vegetative fragmentation. It produces an abundant seed set in the winter that germinate readily (PIER, 2008; Langland & Stocker, 2001).

## General Impacts

*Merremia tuberosa* is known to overgrow and smother tall hardwood forest canopies. This perennial vine blocks sunlight from trees and the understory, killing native trees and shrubs. *M. tuberosa* has been especially problematic on the island of Niue where it has spread quickly and aggressively (Space & Flynn, 2000). It is also reported to be toxic to animals and humans and should not be ingested by either (Smith, undated; PIER, 2005; Motooka *et al*, 2003; Orapa, 2003; Space & Flynn, 2000; Staples 2010).

## Management Info

Preventative measures: A [Risk Assessment of \*Merremia tuberosa\*](#) 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 'High Risk' score of 12 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.\"

Chemical: A study evaluated two types of herbicide applied by backpack sprayer for the treatment of *M. tuberosa* in Florida. Garlon 4 at 10% concentration applied to the basal surface of *M. tuberosa* was evaluated to achieve excellent control. Garlon 3A at 50% applied to cut surfaces of *M. tuberosa* achieved good control. Both herbicides are recommended to be applied to cut stems as it is evident which stems were effectively treated and which were missed within a week of application ([Kline & Duquesnel, 1996](#); [Langland & Stocker, 2001](#)).

Physical: Seedlings of *M. tuberosa* may be hand-pulled (PIER, 2008).

Biological control: The use of a biological control for *M. tuberosa* has been recommended and is being investigated (Dovey *et al*, 2004).

## Pathway

*Merremia tuberosa* was spread through as a medicine throughout Europe when it was discovered in Mexico, and subsequently through horticulture trade around the world. The roots contain resins that formerly were used across the tropics and in Europe as laxatives. Now it is grown and introduced for their flowers and ornamental fruits that are used by florists (Austin, 1998).

**Principal source:** Austin, Daniel F. 1998. Xixicamatic or wood rose (*Merremia tuberosa*, Convolvulaceae): Origins and dispersal. *Economic Botany*. 52(4). Oct.-Dec., 1998. 412-422.

[Pacific Islands Ecosystems at Risk \(PIER\), 2008. \*Merremia tuberosa\* \(L.\) Rendle, Convolvulaceae](#)

[Smith, Clifford W., Undated. Impact of Alien Plants on Hawaii's Native Biota](#)

**Compiler:** Comité français de l'IUCN (IUCN French Committee) & IUCN SSC Invasive Species Specialist Group (ISSG)

**Review:** Dr. Daniel F. Austin, Center for Sonoran Desert Studies, Arizona-Sonora Desert Museum

**Publication date:** 2010-07-16

## ALIEN RANGE

[1] AUSTRALIA	[1] BERMUDA
[1] BRAZIL	[1] CHINA
[1] COOK ISLANDS	[1] CUBA
[1] ECUADOR	[1] ETHIOPIA
[2] FIJI	[1] FRANCE
[2] FRENCH POLYNESIA	[1] GUADELOUPE
[1] GUAM	[1] HONG KONG
[1] INDIA	[1] INDONESIA
[1] JAMAICA	[1] KIRIBATI
[1] MARSHALL ISLANDS	[1] MARTINIQUE
[1] MAURITIUS	[1] MAYOTTE
[2] MICRONESIA, FEDERATED STATES OF	[1] NEW CALEDONIA
[1] NIUE	[3] NORTHERN MARIANA ISLANDS
[1] PERU	[1] PHILIPPINES
[1] PUERTO RICO	[1] REUNION
[1] SAINT LUCIA	[2] SAMOA
[1] SRI LANKA	[1] SWEDEN
[1] TAIWAN	[1] TONGA
[1] UNITED KINGDOM	[3] UNITED STATES
[2] UNITED STATES MINOR OUTLYING ISLANDS	[1] VENEZUELA
[1] VIRGIN ISLANDS, U.S.	

## BIBLIOGRAPHY

47 references found for *Merremia tuberosa*

### Management information

Daehler, Curtis C., 1998. The taxonomic distribution of invasive angiosperm plants: Ecological insights and comparison to agricultural weeds. *Biological Conservation* Volume 84, Issue 2, May 1998, Pages 167-180

Daehler, Curtis C. & Debbie A. Carino., 2000. Predicting invasive plants: prospects for a general screening system based on current regional models. *Biological Invasions* 2: 93-102, 2000.

Dovey, L., Orapa, W. and Randall, S. 2004. The need to build biological control capacity in the Pacific. In: *Proceedings of the XI International Symposium on Biological Control of Weeds* (eds Cullen, J.M., Briese, D.T., Kriticos, D.J., Lonsdale, W.M., Morin, L. and Scott, J.K.) pp. 36 - 41. CSIRO Entomology, Canberra, Australia.

[Early Detection and Distribution Mapping System \(EDDMaps\)](http://www.eddmaps.org/florida/distribution/viewmap.cfm?sub=6017), 2009. *Spanish arbovine Merremia tuberosa* (L.) Rendle

**Summary:** Available from: <http://www.eddmaps.org/florida/distribution/viewmap.cfm?sub=6017> [Accessed November 9 2009]

[Florida Exotic Pest Plant Council \(FLEPPC\)](http://www.fleppc.org/list/09PlantListfinal.pdf) 2009. *Florida Exotic Pest Plant Council's 2009 List of Invasive Plant Species*.

**Summary:** Available from: <http://www.fleppc.org/list/09PlantListfinal.pdf> [Accessed November 9 2009]

[Government of Samoa, 2004. Draft National Invasive Alien Species Implementation Action Plan \(NIASIP\), July 2004 - June 2007. Addressing Theme 6 - Biosecurity of the National Biodiversity Strategy & Action Plan](http://202.4.49.28/att/IRC/eCOPIES/Countries/Samoa/127.pdf)

**Summary:** Available from: <http://202.4.49.28/att/IRC/eCOPIES/Countries/Samoa/127.pdf> [Accessed November 9 2009]

Hunsberger, Adrian G. B., 2001. *Invasive and Banned Plants of Miami-Dade County*. University of Florida Extension

[Kline, W.N. and J.G. Duquesnel, 1996. Management of Exotic Invasive Plants with Herbicides in Florida. Florida Exotic Plant Pest Council. Down to Earth, Vol. 51, No. 2 \(1996\)](http://www.fleppc.org/Misc/trtguide.pdf)

**Summary:** Available from: <http://www.fleppc.org/Misc/trtguide.pdf> [Accessed November 9 2009]

Langeland, K.A. and R.K. Stocker., 2001. *Control of Non-native Plants in Natural Areas of Florida*. University of Florida Extension. This document is SP 242, one of a series of the Department of Agronomy, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. First printed: 1997. Revised: April, 2001.

Motooka, P. et al. 2003. *Merremia tuberosa*: Weeds of Hawai'i Pastures and Natural Areas; An Identification and Management Guide, College of Tropical Agriculture and Human Resources, University of Hawai'i at Mānoa.

[Pacific Islands Ecosystems at Risk \(PIER\), 2008. Risk Assessment \*Merremia tuberosa\* \(L.\) Rendle, Convolvulaceae](#)

**Summary:** Available from: [http://www.hear.org/pier/wra/pacific/merremia\\_tuberosa\\_htmlwra.htm](http://www.hear.org/pier/wra/pacific/merremia_tuberosa_htmlwra.htm) [Accessed November 9 2009]

[United States Department of Agriculture Animal and Plant Health Inspection Service\(USDA-APHIS\) 2005. Availability in Florida nurseries of invasive plants on a voluntary "do not sell" list.](#)

**Summary:** Available from: <http://www.floridagardening.org/download/CPHSTReport-InvasivePlants.pdf> [Accessed November 9 2009]

[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

Austin, Daniel F. 1998. Xixicamatic or wood rose (*Merremia tuberosa*, Convolvulaceae): Origins and dispersal. *Economic Botany*. 52(4). Oct.-Dec., 1998. 412-422.

Barthelat, F. 2005. Note sur les espèces exotiques envahissantes 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. - \*Merremia tuberosa\* Index de la flore vasculaire de la Réunion \(Trachophytes\) : statuts, menaces et protections. - Version 2007.1 \(D](#)

**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=32cbf687880eb1674a07bf717761dd3a> [Accessed 7 April 2008]

Fang, R.-Z. & Staples, G. W. 1995. Convolvulaceae 16. In: C.-Y. Wu & P. Raven (Eds.), *Flora of China* (pp. 271-325). Beijing and St. Louis: Science Press and Missouri Botanical Garden Press.

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

**Summary:** Available from: <http://www.herbier-tahiti.pf> [Accessed 7 April 2008]

Fournet, J. 2002. Flore illustrée des plantes exotiques de guadeloupe et de Martinique. CIRAD-Gondwana editions.

[Global Compendium of Weeds \(GCW\), 2009. \*Ipomoea tuberosa\* \(Convolvulaceae\)](#)

**Summary:** Available from: [http://www.hear.org/gcw/species/ipomoea\\_tuberosa/](http://www.hear.org/gcw/species/ipomoea_tuberosa/) [Accessed November 9 2009]

Gunn, C. R., & Dennis, J. V. 1976. *World Guide to Tropical Drift Seeds and Fruits*. New York: Quadrangle/New York Times Book Co.

Hemsley, W. B. 1892. A drift-seed (*Ipomoea tuberosa* L.). *Annals of Botany*, 6, 369-376.

[ITIS \(Integrated Taxonomic Information System\), 2008. Online Database \*Merremia tuberosa\* \(L.\) Rendle](#)

**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.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=30871](http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=30871) [Accessed 13 March 2008]

Josekutty, P. C., E. E. Wakuk, and M. J. Joseph., 2002. Invasive/Weedy Angiosperms in Kosrae, Federated States of Micronesia. *Micronesica* Suppl. 6: 61-65, 2002

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.

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

Orapa, Warea, 2003. Addressing Pasture Weed Problems in the Pacific. PAPER For Regional Workshop In The Field Of Invasive Plant Species In Pastoral Areas, New Caledonia Pouembout, IAC, 24-28 November 2003

[Pacific Islands Ecosystems at Risk \(PIER\), 2008. \*Merremia tuberosa\* \(L.\) Rendle, Convolvulaceae](#)

**Summary:** Available from: [http://www.hear.org/pier/species/merremia\\_tuberosa.htm](http://www.hear.org/pier/species/merremia_tuberosa.htm) [Accessed November 9 2009]

[PIER \(Pacific Island Ecosystems at Risk\), 2006. \*Merremia tuberosa\*](#)

**Summary:** Available from: [http://www.hear.org/pier/species/merremia\\_tuberosa.htm](http://www.hear.org/pier/species/merremia_tuberosa.htm) [Accessed 7 April 2008]

[Smith, Clifford W., Undated. Impact of Alien Plants on Hawaii's Native Biota](#)

**Summary:** Available from: <http://hear.org/books/hte1985/pdfs/hte1985smith.pdf> [Accessed November 9 2009]

[South Pacific Regional Environment Programme \(SPREP\), 2000. Invasive species in the Pacific: A technical review and draft regional strategy ed Greg Sherly](#)

[Space, James C. and Clyde T. Imada., 2004. Report to the Republic of Kiribati on Invasive Plant Species on the Islands of Tarawa, Abemama, Butaritari and Maiana. Contribution No. 2003-006 to the Pacific Biological Survey. U.S.D.A. Forest Service Pacific Southwest Research Station Institute of Pacific Islands Forestry Bishop Museum Pacific Biological Survey Department of Natural Sciences](#)

**Summary:** Available from: [http://www.hear.org/Pier/pdf/kiribati\\_report.pdf](http://www.hear.org/Pier/pdf/kiribati_report.pdf) [Accessed June 8 2010]

Space, James C and Tim Flynn, 1999. Observations on invasive plant species in American Samoa

[Space, James C and Tim Flynn, 2000. Report to the Government of Niue on Invasive Plant Species of Environmental Concern. U.S.D.A. Forest Service Pacific Southwest Research Station Institute of Pacific Islands Forestry Honolulu, Hawaii, USA](#)

**Summary:** Available from: [http://www.hear.org/pier/pdf/niue\\_report.pdf](http://www.hear.org/pier/pdf/niue_report.pdf) [Accessed November 9 2009]

[Space, James C and Tim Flynn, 2001. Report to the Kingdom of Tonga on Invasive Plant Species of Environmental Concern. U.S.D.A. Forest Service Pacific Southwest Research Station Institute of Pacific Islands Forestry Honolulu, Hawaii, USA](#)

**Summary:** Available from: <http://lyris.sprep.org/att/IRC/eCOPIES/Countries/Tonga/12.pdf> [Accessed November 9 2009]

[Space, James C and Tim Flynn, 2002. Report to the Government of Samoa on Invasive Plant Species of Environmental Concern. U.S.D.A. Forest Service Pacific Southwest Research Station Institute of Pacific Islands Forestry Honolulu, Hawaii, USA](#)

**Summary:** Available from: <http://www.sprep.org/att/IRC/eCOPIES/Countries/Samoa/27.pdf> [Accessed November 9 2009]

[Space, James C and Tim Flynn, 2002. Report to the Government of the Cook Islands on Invasive Plant Species of Environmental Concern. U.S.D.A. Forest Service. Pacific Southwest Research Station Institute of Pacific Islands Forestry Honolulu, Hawaii, USA 8 November 2002](#)

**Summary:** Available from: [http://202.4.49.29/att/IRC/eCOPIES/Countries/Cook\\_Islands/17.pdf](http://202.4.49.29/att/IRC/eCOPIES/Countries/Cook_Islands/17.pdf) [Accessed November 9 2009]

Space, James C., Barbara M. Waterhouse, Joel E. Miles, Joseph Tiobech and Kashgar Rengulbai., 2003. Report to the Republic of Palau on Invasive Plant Species of Environmental Concern. U.S.D.A. Forest Service Pacific Southwest Research Station Institute of Pacific Islands Forestry Honolulu, Hawaii, USA

**Summary:** Available from: <http://202.4.49.29/att/IRC/eCOPIES/Countries/Palau/11.pdf> [Accessed November 9 2009]

Space, James C., Barbara Waterhouse, Julie S. Denslow and Duane Nelson., 2000. Invasive plant species on Rota, Commonwealth of the Northern Mariana Islands

**Summary:** Available from: [http://sprep.org/att/IRC/eCOPIES/INVASIVE%20SPECIES/CMI\\_rota.pdf](http://sprep.org/att/IRC/eCOPIES/INVASIVE%20SPECIES/CMI_rota.pdf) [Accessed November 9 2009]

Space, James C. & Marjorie Falanruw., 1999. Prepared for the meeting of the Pacific Islands Committee, Council of Western State Foresters, Majuro, Republic of the Marshall Islands, February 22-26, 1999

**Summary:** Available from: <http://sprep.org/att/IRC/eCOPIES/INVASIVE%20SPECIES/micronesia.pdf> [Accessed November 9 2009]

Staples, G. W. 2010. A checklist of *Merremia* (Convolvulaceae) in Australasia and the Pacific. Garden Bulletin Singapore 61(2): 483-522.

Starr, Forest & Kim Martz, 1999. Botanical Survey of Midway Atoll 1999 Update. Prepared for: Midway Atoll National Wildlife Refuge United States Fish and Wildlife Service

**Summary:** Available from: [http://www.hear.org/starr/publications/botanical\\_survey\\_of\\_midway\\_text.pdf](http://www.hear.org/starr/publications/botanical_survey_of_midway_text.pdf) [Accessed November 9 2009]

Starr, Forest; Kim Starr and Lloyd L. Loope., 2005. Roadside Survey and Expert Interviews for Selected Plant Species on Molokai Hawaii.

Starr, Kim and Forest Starr, 2008. Plants of Hawaii: Images Convolvulaceae *Merremia tuberosa* Woodrose

**Summary:** Available from: <http://www.hear.org/starr/plants/images/species/?q=merremia+tuberosa> [Accessed November 9 2009]

USDA, ARS, 2010. Taxon: *Merremia tuberosa* (L.) Rendle. National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland.

**Summary:** Available from: <http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?311689> [Accessed November 9 2009]

USDA-NRCS, 2010. *Merremia tuberosa* (L.) Rendle Spanish arbovine The PLANTS Database (<http://plants.usda.gov>, 19 February 2010).

National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

**Summary:** Available from: <http://plants.usda.gov/java/profile?symbol=METU2> [Accessed November 9 2009]

Wu, Shan-Huah; Chang-Fu Hsieh and Marcel Rejmánek., 2004. Catalogue of the Naturalized Flora of Taiwan. *Taiwania*, 49(1):16-31, 2004

**Summary:** Available from: <http://www.press.ntu.edu.tw/ejournal/files/taiwan%5C200403%5CWu-3.pdf> [Accessed November 9 2009]