GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Merremia peltata***

Merremia peltata 简体中文 正體中文 **System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Solanales	Convolvulaceae

Common name

fue vao (Niuean), agon (English, Guam), lagun (English, Guam), kebeas (Palauan), wachathal (Yapese), big leaf (English, Vanuatu), Niaouli-Oelbaum (German), teb el yas (Palauan, Palau), merremia (English), iohl (English, Pohnpei), fitau (English, Chuuk), pohue (English, French Polynesia), iol (English, Pohnpei), fitaw (English, Chuuk), puhlah (English, Kosrae), big lif rop (English, Papua New Guinea), wa mbula (English, Fiji), wa bula (English, Fiji), wa damu (English, Fiji), wa ndamu (English, Fiji), viliyawa (English, Fiji), wiliviwa (English, Fiji), veliyana (English, Fiji), wiliao (English, Fiji), abui (English, Solomon Islands), grobihi (English, Solomon Islands), arosumou (English, Solomon Islands), fue mea (Tongan), fue vao (Samoan), fue lautetele (Samoan), fue (Niuean), fue kula (Niuean)

Synonym

Convolvulus peltatus , L.
Ipomoea nymphaeifolia , Blume
Merremia nymphaeifolia , (Dietr.) Hall. fil.
Ipomoea peltata , (L.) Choisy
Operculina peltata , (L.) Hall. fil.

Similar species

Summary

Merremia peltata is a vine that strangles vegetation and invades forest strands. It may provide rapid ground cover following land disturbance reducing erosion and nutrient loss. There is debate over the extent to which external factors such as cyclones and land clearing drive the invasiveness of the species. It may be a successional component of regenerating forest in its native range.

view this species on IUCN Red List

Species Description

Merremia peltata is a coarse climbing vine with underground tubers (FAO Technical Bulletin). Its stems are smooth and twine at the tips; they may be up to 20 metres long. Leaves are simple, alternate with purple veins beneath; leaf margins are waxy. White funnel shaped flowers are borne in clusters on stalks 15-30cm long (FAO Technical Bulletin). Leaves broadly cordate to orbicular, peltately attached, obtuse in general outline but very shortly and abruptly acuminate, strongly nerved; peduncles with a paniculate cyme of as many as 13 or more flowers; sepals glabrous, strongly concave or somewhat ventricose, to 2cm long, obtuse, only slightly accrescent but becoming very firm and hard in fruit; corolla white or yellow, 5-6cm long, ribs slightly glandular-puberulent without, broadly campanulate funnelform; capsule about 15mm long, splitting into many lanceolate valves; seeds dull brown, densely long-pilose. Both yellow and white-flowered forms are known (Fosberg and Sachet, 1977).

Habitat Description
Merremia peltata is an invasive plant in the Pacific region, invading both dry lowland and mesic inland natural communities (Meyer 2000). Coastal, wetland, wet upland and cloud forests are less susceptible to colonisation and invasion by Merremia (Meyer 2000). In Samoa, this species occurs up to an elevation of around 300 metres, and thus only affects lowland ecosystems (Whistler 1995a, in Kirkham Undated). In Fiji it occurs from sea level to about 400 metres in forests and forest edges, on open hillsides and along roadsides; it becomes locally abundant and weedy on disturbed land (Smith 1991, in PIER 2005). *M. peltata* is also found in gardens, plantations, pasture and forest plantations.

Reproduction
This species increases its distribution and abundance in two ways, either vegetatively, by sprawling into neighbouring areas and rooting from its nodes or by seeds. Research in the Solomons islands indicates a low seed viability rate and creeping may be a primary mode of reproduction (Bacon 1982, in Kirkham Undated).

General Impacts
Merremia peltata crawls up and over forest tree species and thickets forming either a ground cover or canopy species; it smothers and strangles other vegetation. *M. peltata* has apparently been in the Pacific for hundreds of years (Whistler Pers. Comm., in Kirkham Undated) but has only become invasive in the years following tropical cyclones Ofa (1990) and Val (1991) according to comments from local government officials. Disturbance thus appears to be an ecological contributing factor to the invasive process for this species. On Samoa *M. peltata* invasion has been linked to several vectors of disturbance including the cyclones Ofa and Val, the expansion of taro plantations for export and food security and the subsequent taro blight.\r\n
Not all invasive plants causing problems are introduced and, interestingly, *M. peltata* is a plant noted for its invasiveness in part of its native range (including American Samoa). Both *Merremia peltata* (L.) Merr. and *Merremia umbellata* (L.) Hall. f. are aggressive native vines that are covering stands of native lowland rainforest in Samoa (Hanson 2004). Studied by itself, *M. peltata* suppresses species diversity and aids the spread of other vines such as *Mikania micrantha* when it forms a ground cover, however, it appears to support species diversity when grows in the canopy (Kirkham Undated). Furthermore, certain native pioneering tree species appear to be able to compete successfully with *M. peltata*, including the common lowland forest species *Pometia pinnata* which appears to be resilient to the vine (Kirkham Undated). When vegetation communities in Samoa are analysed on a landscape scale, plots dominated by *M. peltata* ground cover are more similar to lowland rainforest than plots dominated by non-native invasive ground cover (located in the coconut zone), which are more frequently disturbed by people and livestock and show a different successional pattern (Kirkham Undated). *M. peltata* thus appears to be a part of the succession of lowland rainforest recovery (Kirkham Undated).

Management Info
Preventative measures: Since it requires full sunlight, minimizing disturbance will inhibit growth. A Risk assessment of *Merremia peltata* for the Pacific region was prepared by Pacific Island Ecosystems at Risk (PIER) using the Australian risk assessment system (Pheloung, 1995). The result is a score of 18 and a recommendation of: reject the plant for import (Australia) or species likely to be a pest (Pacific).
Integrated management: It is readily grazed by cattle, which can be used to control the weed. Non-grazed areas could be slashed, hand weeded or sprayed with 2,4 -D or glyphosate at recommended rates *(FAO Technical Bulletin: Vanuatu)*.\"
Physical: One option is to exploit its shade intolerance and plant trees to shade it out (Kirkham Undated). This technique , however, is labor intensive in that not only will trees need to be planted, but they must be tended to prevent the vines from growing into the canopy. Hand control is difficult due to resprouting and rooting of stem fragments.\r\n
Since *Merremia peltata* requires full sunlight to grow, minimising disturbance will inhibit its growth. It is readily grazed by cattle, which can be used to control the weed. Non-grazed areas could be slashed, hand weeded or sprayed with 2,4 -D or glyphosate at recommended rates (FAO Technical Bulletin: Vanuatu). Herbicides as 2,4-D, dicamba, triclopyr, picloram and glyphosate are effective in controlling the weed. Trials have shown glyphosate to be an effective herbicide for use against *Merremia* spp., a major weed in forestry plantation areas of the Solomon Islands. Results indicate that 1.5kg a.i./ha would be sufficient (Miller 1982).Chemical: Where they can be applied, such herbicides as 2,4-D, dicamba, triclopyr, picloram and glyphosate are effective. \"\"Trials have shown glyphosate to be an effective herbicide for use against *Merremia* spp., major weed problems in forestry plantation areas of the Solomon Islands. Results indicate that 1.5kg a.i./ha would be sufficient\"\" (Miller, 1982). \r\nBiological: In Samoa one option for management is simply to do nothing, and allow nature to take its course. As ground cover, *M. peltata* suppresses non-native weeds that would likely be present as ground cover in its absence (*M. micrantha* excepted). In the canopy, it helps to hand succession over from pioneer species to those more resembling climax species. Alternatively areas of *M. peltata* groundcover may be planted first with *Macaranga harveyana* and later with *Cananga odorata*, then following up with *P. pinnata* and other forest species. Scattering seeds, rather than establishing seedlings in nurseries, may be sufficient for this method. The low labor input and its self-maintaining strategy may make this a viable option.

Pathway
It is sometimes promoted as a means of providing rapid ground cover thus reducing erosion and nutrient losses following disturbance of land.

Principal source: Pacific Island Ecosystems at Risk (PIER)
Invasive Species in the Pacific: A Technical Review and Draft Regional Strategy (2000) (SPREP)

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

Review:

Pubblication date: 2006-09-15

ALIEN RANGE

[1] AMERICAN SAMOA
[1] COOK ISLANDS
[1] INDIA
[1] MICRONESIA, FEDERATED STATES OF
[1] PALAU
[1] SEYCHELLES
[3] WALLIS AND FUTUNA
[1] COMOROS
[2] FRENCH POLYNESIA
[1] MARSHALL ISLANDS
[2] NEW CALEDONIA
[2] SAMOA
[1] TONGA

Red List assessed species 1: VU = 1;

Macaranga huahineensis **VU**

BIBLIOGRAPHY

20 references found for **Merremia peltata**

Managment information

Miller, F. 1982. Evaluation of glyphosate for use against *Merremia* spp. in the Solomon Islands. Tropical Pest Management 28: 347-354.

Pacific Island Ecosystems at Risk (PIER). 2005. *Merremia peltata.*

Summary: Available from: http://www.hear.org/pier/species/merremia_peltata.htm [Accessed 29 March 2006]

Pacific Pest Info No. 51, August 2004. ISSN: 1728-5291. Secretariat of the Pacific Community, Plant Protection Service.

Summary: Available from: http://www.spc.int/pps/PestInfos/PestInfo51_Aug04.pdf [Accessed May 20 2005]

Waterhouse, D. F. 1993. Biological Control: Pacific Prospects: Supplement 2. Canberra, ACIAR, 138 pp.

General information

Florence J., Chevillotte H., Ollier C.,& Meyer J.-Y. 2007. *Merremia peltata*. Base de donn&#65533;es botaniques Nadeaud de l Herbier de la Polyn&#65533;sie fran&#65533;aise (PAP).

Summary: Base de donn&#65533;es sur le flore de Polyn&#65533;sie Fran&#65533;aise.

Available from:http://www.herbier-tahiti.pf/Selection_Taxonomie.php?id_tax=1255 [Accessed March 2008]

Fosberg, F. R. and Sachet, M. -H. 1977. Flora of Micronesia. Part 3. Convolvulaceae. Smithsonian Contrib. Bot. 36:27.

Hanson, D.E. 2004. ASSIST: Development of the American Samoa Selected Invasive Species Task Force, *Weed Technology 18*(5): 1334&#65533;1337.

Summary: Available from: http://wssa.allenpress.com/wssaonline/?request=get-document&issn=0890-037X&volume=018&issue=05&page=1334#LIT [Accessed 29 March 2006]

Katulic, S., Valentin, T. and Fleischmann, K. 2005. Invasion of creepers on the island of Mah&#65533;, Seychelles. In: *Kapisen Plant Conservation Action Group Newsletter.*

Summary: Available from: http://www.geobot.umnw.ethz.ch/staff/Kueffer/Kapisen3SEND.pdf [Accessed 29 March 2006]

Kirkham, W.S. Undated. Some Prospects for Managing *Merremia peltata.*

Summary: Available from: http://www.mnre.gov.ws/documents/forum/2004/3%20Stuart_lge.pdf [Accessed 29 March 2006]

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 recommandantions de gestion.

Meyer, J.-Y. 2000. Invasive plants in the Pacific Islands. In: The Invasive Species in the Pacific: A Technical Review and Draft Regional Strategy. Sherley, G. (tech. ed). Published in June 2000 by the South Pacific Regional Environment Programme (SPREP).

Summary: Resource that includes the distribution of invasive species throughout the Pacific Islands.

Meyer, J.-Y. 2004. Threat of invasive alien plants to native flora and forest vegetation of eastern Polynesia. Pacific Science, 58, 357-375

Summary: Dans cet article, la menace croissante des plantes exotiques envahissantes est discut&#65533;e et les esp&#65533;ces les plus envahissantes sont d&#65533;crites. Des hypoth&#65533;ses sur l invasibilit&#65533; des &#65533;les sont pr&#65533;sent&#65533;es &#65533; la lumi&#65533;re des observations et des donn&#65533;es r&#65533;colt&#65533;es.

Space, J.C. and Flynn, T. 2001. Report to the Kingdom of Tonga on Invasive Plant Species of Environmental Concern.

Summary: Available from: http://www.hear.org/pier/pdf/tonga_report.pdf [Accessed 29 March 2006]

Space, J.C., Waterhouse, B., Denslow, J.S and Nelson, D. 2000. Invasive Plant Species on Rota, Commonwealth of the Northern Mariana Islands. USDA Forest Service (Pacific Southwest Research Station: Honolulu.

Summary: Available from: http://hear.org/alienspeciesinhawaii/articles/pier/pier_rota_report.pdf [Accessed 29 March 2006]

Space, J.C., Waterhouse, B.M., Miles, J.E., Tiobech, J. and Rengulbai, K. 2003. Report to the Republic of Palau on Invasive Plant Species of Environmental Concern. USDA Forest Service (Pacific Southwest Research Station: Honolulu.

Summary: Available from: http://hear.org/pier/pdf/palau_report.pdf [Accessed 29 March 2006]

Stone, B. 1970. The flora of Guam. Micronesica 6: 496.

Traditional Medicinal Plants of Samoa.

Waterhouse, D. F. 1993. The Major Pests and Weeds of Agriculture in Southeast Asia: Distribution, Importance and Origin. Canberra, ACIAR Monograph 21, 141 pp.

Whistler, W. A. 1992. Flora of Tonga [unpublished checklist]. p. 17.

Yuncker, T. G. 1959. Plants of Tonga. B. P. Bishop Museum Bull. 220: 224.