

Family: *Convolvulaceae*

Taxon: *Merremia peltata*

Synonym: *Convolvulus peltatus* L. (basionym)
Ipomoea nymphaeifolia Blume
Ipomoea peltata (L.) Choisy

Common Name: merremia

Questionnaire :	current 20090513	Assessor:	Assessor	Designation:	H(HPWRA)
Status:	Assessor Approved	Data Entry Person:	Assessor	WRA Score	18
101	Is the species highly domesticated?		y=-3, n=0		n
102	Has the species become naturalized where grown?		y=1, n=-1		
103	Does the species have weedy races?		y=1, n=-1		
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"		(0-low; 1-intermediate; 2-high) (See Appendix 2)		High
202	Quality of climate match data		(0-low; 1-intermediate; 2-high) (See Appendix 2)		High
203	Broad climate suitability (environmental versatility)		y=1, n=0		n
204	Native or naturalized in regions with tropical or subtropical climates		y=1, n=0		y
205	Does the species have a history of repeated introductions outside its natural range?		y=-2, ?=-1, n=0		y
301	Naturalized beyond native range		y = 1*multiplier (see Appendix 2), n= question 205		y
302	Garden/amenity/disturbance weed		n=0, y = 1*multiplier (see Appendix 2)		
303	Agricultural/forestry/horticultural weed		n=0, y = 2*multiplier (see Appendix 2)		y
304	Environmental weed		n=0, y = 2*multiplier (see Appendix 2)		y
305	Congeneric weed		n=0, y = 1*multiplier (see Appendix 2)		y
401	Produces spines, thorns or burrs		y=1, n=0		n
402	Allelopathic		y=1, n=0		
403	Parasitic		y=1, n=0		n
404	Unpalatable to grazing animals		y=1, n=-1		n
405	Toxic to animals		y=1, n=0		n
406	Host for recognized pests and pathogens		y=1, n=0		
407	Causes allergies or is otherwise toxic to humans		y=1, n=0		
408	Creates a fire hazard in natural ecosystems		y=1, n=0		n
409	Is a shade tolerant plant at some stage of its life cycle		y=1, n=0		n
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		y=1, n=0		y

411	Climbing or smothering growth habit	y=1, n=0	y
412	Forms dense thickets	y=1, n=0	n
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	y
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	
605	Requires specialist pollinators	y=-1, n=0	
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	1
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	y
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	y
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	
801	Prolific seed production (>1000/m2)	y=1, n=-1	
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: H(HPWRA)

WRA Score 18

Supporting Data:

101	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Is the species highly domesticated? No] "The status of <i>M. peltata</i> varies throughout its large range and information regarding its status is often contradictory. For example, it is now considered to be an exotic problem weed in the Seychelles (Kueffer et al. 2004), although many taxonomists previously assumed it to be native there (Gerlach 1994)."
102	2013. WRA Specialist. Personal Communication.	NA
103	2013. WRA Specialist. Personal Communication.	NA
201	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Species suited to tropical or subtropical climate(s) 2-High] " <i>M. peltata</i> is distributed from the Indian Ocean Islands and throughout Malesia and eastwards into Polynesia to the Society Islands. In the Pacific region of Polynesia and Micronesia, <i>M. peltata</i> can be a troublesome weed, capable of smothering trees up to 20 m tall." ... " <i>Merremia peltata</i> is distributed from the Indian Ocean Islands of Pemba, Madagascar, Mauritius, Reunion, and the Seychelles, (see http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?24108), throughout Malesia (Malaysia, Indonesia and the Philippines), northern Australia (Fig. 3.) and eastwards into Polynesia to the Society Islands (Smith 1991)."
202	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Quality of climate match data 2-High]
203	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Broad climate suitability (environmental versatility)? No] " <i>Merremia peltata</i> is restricted to warm, wet tropical regions and in Australia it appears restricted by low rainfall."
203	2013. CABI. <i>Merremia peltata</i> In: Invasive Species Compendium. CAB International, Wallingford, UK www.cabi.org/isc	[Broad climate suitability (environmental versatility)? No] "A plant of the humid tropics, favouring the edges of primary and secondary lowland rainforest, thickets and plantations. From sea level up to 700 m."
204	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Native or naturalized in regions with tropical or subtropical climates? Yes] " <i>M. peltata</i> is distributed from the Indian Ocean Islands and throughout Malesia and eastwards into Polynesia to the Society Islands. In the Pacific region of Polynesia and Micronesia, <i>M. peltata</i> can be a troublesome weed, capable of smothering trees up to 20 m tall."
205	2006. Global Invasive Species Database. <i>Merremia peltata</i> . http://www.issg.org/database/species/ecology.asp?si=163 [Accessed 01 Oct 2013]	Does the species have a history of repeated introductions outside its natural range? Yes] "Native range: In Africa it is native to Madagascar, Mauritius, La Réunion and Pemba Island in Tanzania. In tropical Asia, it is native to Indonesia, Malaysia, the Philippines and northern Queensland, Australia. In the Pacific it is thought to be native to Samoa, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, the Solomon Islands and Niue (PIER 2005). Known introduced range: In the Pacific it is thought to have been introduced to Aitutaki, Cook Islands, and Vanuatu although records of introductions in this region are sketchy. Its biostatus is uncertain on Kosrae Island, Palau, Yap island and Tonga (PIER 2005)."
301	1996. Meyer, J.-Y./Florence, J.. Tahiti's Native Flora Endangered by the Invasion of <i>Miconia calvescens</i> DC. (Melastomataceae). <i>Journal of Biogeography</i> , 23(6): 775-781.	[Naturalized beyond native range? Yes] "Among the approximately fifty adventives that were introduced accidentally, <i>Merremia peltata</i> (L.) Merrill (Convolvulaceae, 'pohue'), an extensive liana, forms now tangles in the secondary forest." ... "Table 1. List of twenty main alien invasive plants in Tahiti (*invaders in native forests" [Includes <i>Merremia peltata</i>]
301	1997. Fleischmann, K.. Invasion of Alien Woody Plants on the Islands of Mahé and Silhouette, Seychelles. <i>Journal of Vegetation Science</i> . 8(1): 5-12.	[Naturalized beyond native range? Yes] " <i>Clidemia</i> has so far only been found on Silhouette Island, where it can form dense, often monospecific stands on disturbed sites and is, together with <i>Merremia peltata</i> , considered a potentially serious invader of native plant communities on Silhouette"
301	2002. Muniappan, R./Cruz, J./Bamba, J.. Invasive Plants and Their Control in Micronesia. <i>Micronesica Suppl.</i> 6: 85-92.	[Naturalized beyond native range? Yes] " <i>Merremia peltata</i> (L.) Merrill occurs in Kosrae, Pohnpei and Palau. It is a coarse climbing vine with a large underground tuber. It is abundant in the roadsides and forest clearings. It often scrambles over and smothers low vegetation (Waterhouse & Norris 1987)."

301	2012. Wood, K.R.. Possible extinctions, rediscoveries, and new plant records within the Hawaiian Islands. Bishop Museum Occasional Papers. 113: 91-102.	[Naturalized beyond native range? Yes] "This twining vine with broadly ovate orbicular, peltately attached leaves has not been previously recorded as naturalized in the Hawaiian Islands. It is currently reported in two locations ½ mile apart in Wainiha Valley, Kaua'i, where it is a rampant climber covering numerous acres and quickly smothering vegetation. Fosberg & Sachet (1977) describe its distribution as Indo-Pacific, from Africa to Tahiti [Society Islands]. My observation of this species in Micronesia leads me to believe that <i>Merremia peltata</i> is a very serious invasive species that should be closely watched and managed here in Hawai'i. Material examined. KAUAI: Wainiha Valley, south side of river, between power house and Maunahina, sterile, 152 m elev., 27 oct 1999, Keith Robinson s.n. (BISH, PtBG). "
302	2006. Global Invasive Species Database. <i>Merremia peltata</i> . http://www.issg.org/database/species/ecology.asp?si=163 [Accessed 01 Oct 2013]	[Garden/amenity/disturbance weed? A disturbance adapted vine with negative impacts to agriculture and the natural environment] "it becomes locally abundant and weedy on disturbed land" [See 3.03 and 3.04]
302	2008. Metcalfe, D.J./Bradford, M.G./Ford, A.J.. Cyclone damage to tropical rain forests: Species-and community-level impacts. <i>Austral Ecology</i> . 33(4): 432-441.	[Garden/amenity/disturbance weed? Disturbance adapted] "The effects of wind and rain are most apparent on the coastal ranges, where repeated canopy disturbance and subsequent growth of vine towers on remaining trees causes a distinctive 'cyclone scrub' (sensu Webb 1958; Bruce et al. 2008). This is dominated by a few species (e.g. <i>Merremia peltata</i>), and under it, there is very limited regeneration of tree and shrub species." ... "Taxa which positively benefit from repeated cyclonic disturbance otherwise appear to be restricted to the aggressive early colonisers of debris piles such as the climber <i>M. peltata</i> , the native bamboo <i>Bambusa moreheadiana</i> and the climbing palms, <i>Calamus</i> spp."
303	2003. Bakeo, R./Qarani, F.. Country report on the forestry invasive species situation in Vanuatu. Pp 130-136 in <i>The unwelcome guests Proceedings of the Asia-Pacific Forest Invasive Species Conference</i> . FAO, Bangkok, Thailand	[Agricultural/forestry/horticultural weed? Yes] " <i>Merremia peltata</i> (big liif rop) is a vigorous creeping vine that may have been introduced to the islands during World War II, by the American army, for camouflage purposes. It is a real threat to forests because it strangles vegetation. <i>Merremia peltata</i> kills forests on sites disturbed by man, and where the canopy is naturally opened as a result of factors like dying trees and the impacts of cyclones. It is one of the most important weeds of plantation forestry and is also found in natural and semi natural environments. This vine is one of two major species threatening natural regeneration in logged or disturbed areas. It prefers disturbed habitats and openings, including forest gaps and margins."
303	2005. Kirkham, W.S.. Valuing Invasives: Understanding the <i>Merremia peltata</i> Invasion in Post-Colonial Samoa. PhD Dissertation. The University of Texas, Austin, TX	[Agricultural/forestry/horticultural weed? Yes] " <i>Merremia peltata</i> has been identified as an invasive species of environmental concern in several PICs (Meyer 2000, Space and Flynn 2002). This species was cited as a pest of banana plantations in Fiji during the 1970s (Robinson and Singh 1973, cited in Bacon 1982). Its identification as an invasive species of environmental concern is more recent, however."
303	2012. Smith, R.G.B./Glencross, K./Nichols, J.D./Grant, J.C./Sethy, M.. A review of site-preparation, fertilizer and weeding practices for tropical plantation species with recommendations for whitewood (<i>Endospermum medullosum</i>) in Vanuatu. International For	[Agricultural/forestry/horticultural weed? Yes] "The dominant weed species of most concern for plantation establishment in Vanuatu is <i>Merremia peltata</i> , a vigorous vine that covers large areas of potential plantation land and can cause significant damage to trees if not controlled"
304	2004. Hanson, D.E.. ASSIST: Development of the American Samoa Selected Invasive Species Task Force. <i>Weed Technology</i> . 18: 1334-1337.	[Environmental weed? Potentially] "Not all the invasive plants causing problems are introduced. Two species of merremia [<i>Merremia peltata</i> (L.) Merr. And <i>Merremia umbellata</i> (L.) Hall. f.], aggressive native vines, are covering stands of lowland rainforest, potentially reducing the vigor of the canopy trees and inhibiting their regeneration. The effects of these vines on the forest community, however, have neither been examined nor has it been determined whether this condition is episodic or the result of some environmental factor, such as increased mean annual temperature."
304	2005. Tuiwawa, M.. Recent changes in the upland watershed forest of Monasavu, a cloud forest site along the PABITRA gateway transect on Viti Levu, Fiji. <i>Pacific science</i> . 59(2): 159-164.	[Environmental weed? Potentially] "In Monasavu the following invasive species have already impacted the native vegetation: <i>Piper aduncum</i> , <i>Solanum torvum</i> , <i>Clidemia hirta</i> , <i>Merremia peltata</i> , and <i>Coriaria ruscifolia</i> . Both <i>Merremia peltata</i> and <i>Coriaria ruscifolia</i> are native to Fiji. The former is a serious and problematic invasive climber and the latter is a shrubby thicket-forming plant that assumes a role in the early succession process."
304	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Environmental weed? Yes] "In the Pacific region of Polynesia and Micronesia, <i>M. peltata</i> can be a troublesome weed, capable of smothering trees up to 20 m tall. It is common to very abundant in plantations and forest clearings and was recently considered one of 24 serious weed targets for which biological control should be explored for Pacific island countries and territories (Dovey et al. 2004)."

304	2010. Matepi, M./de Romilly, G./Waugh, J.. Cook Islands: Managing Climate Change Risks in Vulnerable Communities. WWF / Te Rito Enuu, Cook Islands	[Environmental weed?] "M. peltata is an early successional plant spread by disturbance, and in Polynesia, especially by cyclones. Whether it is a biological invader or part of the natural succession is debated. Kirkham (2005) argues that M. peltata removal would promote the invasion of exotic species that would fill its ecological niche. As a colonizing plant, M. peltata would share common characteristics with invasive species, and would itself be invasive in disturbed areas such as croplands. On the ground, M. peltata suppresses species diversity but aids the spread of Mikania micrantha (Kirkham 2005)."
304	2013. Master, J./Tjitrosoedirdjo, S./Qayim, I./Tjitrosoedirdjo, S.. Ecological Impact of Merremia peltata (L.) Merrill Invasion on Plant Diversity at Bukit Barisan Selatan National Park. Biotropia. 20(1): 29 - 37.	[Environmental weed? Yes] "Invasion of mantangan was feared to have an effect on forest regeneration in the future, because in the invaded forest, the number of seedlings was significantly less than the number of saplings, pole and tree. Furthermore, the diversity and number of seedlings was lower than in the two other forests. Hence, it is necessary to do efforts to control the invasion in BBSNP."
305	1982. Bacon, P.S.. The weedy species of Merremia (Convolvulaceae) occurring in the Solomon Islands and a description of a new species. Botanical Journal of the Linnean Society. 84: 257-264.	[Congeneric weed? Yes] "The genus Merremia is found in the tropical regions of both hemispheres. The climbing species with fast growth rates can become troublesome weeds of cultivation and forestry. Several Merremia species have become serious weeds of forestry plantations in the Solomon Islands. The important species are discussed and a new species, Merremia bracteata, found in Merremia infestations is described."
305	2013. CABI. Merremia peltata In: Invasive Species Compendium. CAB International, Wallingford, UK www.cabi.org/isc	[Congeneric weed? Yes] "Several other vigorous Merremia spp. occur as weeds, including M. umbellata, M. pacifica and M. bracteata, all included in this compendium, but none of these has peltate leaves."
401	1977. Fosberg, F.R./Sachet, M.-H.. Flora of Micronesia, 3. Convolvulaceae. Smithsonian Contributions to Botany. 36: 1-34.	[Produces spines, thorns or burrs? No] "Coarse glabrous twiner; 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"
402	2006. Global Invasive Species Database. Merremia peltata. http://www.issg.org/database/species/ecology.asp?si=163 [Accessed 01 Oct 2013]	[Allelopathic? Unknown] "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)."
403	1977. Fosberg, F.R./Sachet, M.-H.. Flora of Micronesia, 3. Convolvulaceae. Smithsonian Contributions to Botany. 36: 1-34.	[Parasitic? No] "Coarse glabrous twiner; leaves broadly cordate to orbicular, peltately attached, obtuse in general outline but very shortly and abruptly acuminate, strongly nerved;"
404	2006. Global Invasive Species Database. Merremia peltata. http://www.issg.org/database/species/ecology.asp?si=163 [Accessed 01 Oct 2013]	[Unpalatable to grazing animals? No] "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)."
404	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of Merremia peltata. Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Unpalatable to grazing animals? No] "In addition, M. peltata is readily grazed by cattle, which can be used to control the weed, offering considerable cost savings before the establishment of permanent cover crops and tree crops."
404	2012. Nguyen Ngoc Anh et al.. Merremia peltata Merr as forage source for growing goats. Proc. Int. Conf. "Livestock-Based Farming Systems, Renewable Resources & the Environment", 6-9 Jun 2012, Dalat, Vietnam. http://www.mekarn.org/workshops/dalat2012/html	[Unpalatable to grazing animals? No] " M. peltata grows wild and in abundance in Vietnam, spreading from the delta to the mountain in the North of Vietnam (Photo 1). The plant appears to be highly palatable according to local farmers who feed leaves and vines to small ruminants, with no health problems. However, there appear to be no reports on its use as ruminant forage source." "...M peltata appears to have considerable potential to be developed as the sole feed for goats. Agronomic studies are needed to measure response to repeated harvests and effects on soil fertility."
405	2006. Global Invasive Species Database. Merremia peltata. http://www.issg.org/database/species/ecology.asp?si=163 [Accessed 01 Oct 2013]	[Toxic to animals? No evidence] "It is readily grazed by cattle, which can be used to control the weed."
406	2013. CABI. Merremia peltata In: Invasive Species Compendium. CAB International, Wallingford, UK www.cabi.org/isc	[Host for recognized pests and pathogens?] "Cock (1984) listed insects found feeding on M. peltata in Vanuatu, where it is introduced as a weed. None of the insects was causing significant damage and he recommended a search for biological control agents in its probable area of origin; the Malesian region."

407	2001. Mansur, M.. <i>Merremia peltata</i> (L.) Merr.[Internet] Record from Proseabase.. PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia http://www.proseanet.org . [Accessed 01 Oct 2013]	[Causes allergies or is otherwise toxic to humans? No evidence, but maybe possible if taken medicinally at incorrect dosage] "In Indonesia and Fiji, diluted sap from the young stems is used as eye or ear drops. In the Philippines and Papua New Guinea, sap from the stem and tuber is considered a purgative, and a remedy for cough, diarrhoea and worms. The leaves are applied as a maturative for inflammation of the breasts. The tubers are purgative in decoction, and are used to treat uterine haemorrhage. In Fiji, a drink made from the juice of the leaves is reputed to be taken for the treatment of hernia, and the heated leaves are applied as a poultice. In Indonesia, the leaves of <i>Merremia peltata</i> are often used for washing hair, as they are cooling, improve growth and prevent hair loss."
408	2013. CABI. <i>Merremia peltata</i> In: Invasive Species Compendium. CAB International, Wallingford, UK www.cabi.org/isc	[Creates a fire hazard in natural ecosystems? No. Occurs in wetter areas] "A plant of the humid tropics, favouring the edges of primary and secondary lowland rainforest, thickets and plantations. From sea level up to 700 m."
409	2006. Global Invasive Species Database. <i>Merremia peltata</i> . http://www.issg.org/database/species/ecology.asp?si=163 [Accessed 01 Oct 2013]	[Is a shade tolerant plant at some stage of its life cycle? No] "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."
410	2005. Kirkham, W.S.. Valuing Invasives: Understanding the <i>Merremia peltata</i> Invasion in Post-Colonial Samoa. PhD Dissertation. The University of Texas, Austin, TX	[Tolerates a wide range of soil conditions Yes] "... <i>Merremia peltata</i> vine scrub has been observed on several soil types, from rocky soata soils to areas with greater accumulation of colloidal material."
411	2003. Blüthgen, N./Reifenrath, K.. Extrafloral nectaries in an Australian rainforest: structure and distribution. <i>Australian Journal of Botany</i> . 51(5): 515-527.	[Climbing or smothering growth habit? Yes] "Large multibranching individuals of <i>M. peltata</i> , <i>Entada phaseoloides</i> and <i>Ichnocarpus frutescens</i> were highly dominant throughout the forest and individual lianas covered several tree crowns under their dense foliage."
411	2010. Spencer. H.. Controlling weeds in the Daintree Lowlands. <i>Feral Herald</i> . 26: 14-16.	[Climbing or smothering growth habit? Yes] "Even Australia has contributed weeds, including locals. The famous Captain Cook vine (<i>Merremia peltata</i> , related to morning glory, <i>Ipomea</i>) swamps trees in disturbed areas with massive wreaths of leaves, which can shade a tree out and cause it to collapse."
411	2012. Wood, K.R.. Possible extinctions, rediscoveries, and new plant records within the Hawaiian Islands. <i>Bishop Museum Occasional Papers</i> . 113: 91-102.	[Climbing or smothering growth habit? Yes] "It is currently reported in two locations ½ mile apart in Wainiha Valley, Kaua'i, where it is a rampant climber covering numerous acres and quickly smothering vegetation."
412	2012. Wood, K.R.. Possible extinctions, rediscoveries, and new plant records within the Hawaiian Islands. <i>Bishop Museum Occasional Papers</i> . 113: 91-102.	[Forms dense thickets? No] "a rampant climber covering numerous acres and quickly smothering vegetation."
501	2013. WRA Specialist. Personal Communication.	[Aquatic? No] Terrestrial vine
502	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Grass? No] " <i>Merremia peltata</i> (L.) Merr., belongs to the family Convolvulaceae, the morning-glory family."
503	2013. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Nitrogen fixing woody plant? No] Convolvulaceae
504	2010. Matepi, M./de Romilly, G./Vaughn, J.. Cook Islands: Managing Climate Change Risks in Vulnerable Communities. WWF / Te Rito Enuā, Cook Islands	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? Yes. With tubers] " <i>Merremia peltata</i> (morning glory, kurima), a heliotropic climbing vine with underground tubers, is considered one of the most aggressive weedy plant invaders in the Polynesia/Micronesia biodiversity hotspot (CEPF, 2007). It is invasive along forest edges and in disturbed sites."
601	2013. CABI. <i>Merremia peltata</i> In: Invasive Species Compendium. CAB International, Wallingford, UK www.cabi.org/isc	[Evidence of substantial reproductive failure in native habitat? No] "An Old World species ranging from East Africa through the Indian Ocean, South and South-East Asia to many islands of the Pacific."
602	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Produces viable seed? Yes] " <i>M. peltata</i> is weedy, can reproduce from both stem fragments and seed..."
603	1977. Fosberg, F.R./Sachet, M.-H.. Flora of Micronesia, 3. Convolvulaceae. <i>Smithsonian Contributions to Botany</i> . 36: 1-34.	[Hybridizes naturally? Unknown. None documented]

604	1996. Willmott, A.P./Burquez, A.. The Pollination of <i>Merremia palmeri</i> (Convolvulaceae): Can Hawk Moths be Trusted?. <i>American Journal of Botany</i> . 83(8): 1050-1056.	[Self-compatible or apomictic? Unknown. <i>Merremia palmeri</i> is self-incompatible] "The reproductive biology of <i>Merremia palmeri</i> and the pollination efficiency of its insect visitors were examined for a Sonoran Desert population in northwestern Mexico. Pollen transfer experiments proved that the plant is self-incompatible. Reproduction is, therefore, dependent upon reliable visitation by the primary pollinators, hawk moths"
604	2008. Raimúndez-Urrutia, E./Avendaño, L./Velázquez, D.. Reproductive Biology of the Morning Glory <i>Merremia macrocalyx</i> (Ruiz & Pavon) O'Donnell (Convolvulaceae). <i>Journal of the Torrey Botanical Society</i> . 135(3): 299-308.	[Self-compatible or apomictic? Unknown. <i>Merremia macrocalyx</i> is self-compatible] "Nevertheless, it is self-compatible and partially autogamous due to the position of anthers above the stigma."
605	2005. Kirkham, W.S.. Valuing Invasives: Understanding the <i>Merremia peltata</i> Invasion in Post-Colonial Samoa. PhD Dissertation. The University of Texas, Austin, TX	[Requires specialist pollinators? Unknown] "Little is known of any species that act as pollinators or dispersers of this plant. During the course of this study ants were frequently observed in the corolla of the <i>Merremia peltata</i> flowers, but never bees or wasps that were frequently seen on flowers of other species. There is, however, a species in the same genus (<i>M. palmeri</i>) that is moth pollinated (Willmott and Burquez 1996); if this is the case for <i>M. peltata</i> is not clear, because no nocturnal observations were made by the author of this study."
605	2013. WRA Specialist. Personal Communication.	[Requires specialist pollinators? Probably No] Seeds are produced in introduced range, so something appears to be effectively pollinating this plant
606	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Reproduction by vegetative fragmentation? Yes] " <i>M. peltata</i> is weedy, can reproduce from both stem fragments and seed..."
607	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Minimum generative time (years)? 1+] " <i>M. peltata</i> is weedy, can reproduce from both stem fragments and seed..."
607	2010. Gordon, D.R./Mitterdorfer, B./Pheloung, P.C. et al.. Guidance for addressing the Australian Weed Risk Assessment questions. <i>Plant Protection Quarterly</i> . 25(2): 56-74.	[Minimum generative time (years)? 1+] "Generation time is the time from germination to production of viable seed, or the time taken for a vegetatively reproduced plant to produce a clone that is capable of independent growth" [It is assumed that <i>M. peltata</i> , as a vine, will be able to vegetatively reproduce within 1 year]
701	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Possibly] "Although drifting seed could account for the current distribution of <i>M. peltata</i> in the Pacific Region, we cannot rule out the possibility that it has been dispersed either deliberately or accidentally by humans. Kirkham (2005) considered it possible that <i>M. peltata</i> seeds could have been accidentally transported in soil with deliberately transported species and also suggested that it might have been transported deliberately between islands because of its perceived beneficial properties: first, by reducing labour in dry-field taro production (by shading out other weed species that are harder to control), and also because it is perceived to improve the soil."
701	2013. CABI. <i>Merremia peltata</i> In: Invasive Species Compendium. CAB International, Wallingford, UK www.cabi.org/isc	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Yes] " <i>M. peltata</i> spreads by seed. It can also be transported in machinery and by the movement of soil. It is also commonly planted as an ornamental by humans."
702	2013. CABI. <i>Merremia peltata</i> In: Invasive Species Compendium. CAB International, Wallingford, UK www.cabi.org/isc	[Propagules dispersed intentionally by people? Yes] "It is also commonly planted as an ornamental by humans."
703	2013. CABI. <i>Merremia peltata</i> In: Invasive Species Compendium. CAB International, Wallingford, UK www.cabi.org/isc	[Propagules likely to disperse as a produce contaminant? No evidence] " <i>M. peltata</i> spreads by seed. It can also be transported in machinery and by the movement of soil. It is also commonly planted as an ornamental by humans."
704	1977. Fosberg, F.R./Sachet, M.-H.. Flora of Micronesia, 3. Convolvulaceae. <i>Smithsonian Contributions to Botany</i> . 36: 1-34.	[Propagules adapted to wind dispersal? No] "capsule about 15mm long, splitting into many lanceolate valves; seeds dull brown, densely long-pilose." [No evidence that hairs aid in wind dispersal]
705	1990. Hacker, J.B.. Drift Seeds and Fruit on Raine Island, Northern Great Barrier Reef, Australia. <i>Journal of Biogeography</i> . 17(1): 19-24.	[Propagules water dispersed? Yes] "Table 2. Drift seeds and fruit collected on Raine Island and estimated number per 100 m length of beach. Viability assessed by germination following scarification or by treatment in tetrazolium" [Includes <i>Merremia peltata</i>]
705	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Propagules water dispersed? Yes] " <i>Merremia peltata</i> is described as a thalassochorous (sea dispersed) species (Bush et al. 1995; Ghazanfar et al. 2001)."

706	1977. Fosberg, F.R./Sachet, M.-H.. Flora of Micronesia, 3. Convolvulaceae. Smithsonian Contributions to Botany. 36: 1-34.	[Propagules bird dispersed? No] "capsule about 15mm long, splitting into many lanceolate valves; seeds dull brown, densely long-pilose." [No evidence, and not fleshy-fruited]
707	1977. Fosberg, F.R./Sachet, M.-H.. Flora of Micronesia, 3. Convolvulaceae. Smithsonian Contributions to Botany. 36: 1-34.	[Propagules dispersed by other animals (externally)? No] "capsule about 15mm long, splitting into many lanceolate valves; seeds dull brown, densely long-pilose." [No evidence, and no means of external attachment]
708	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Propagules survive passage through the gut? Unknown] "In addition, <i>M. peltata</i> is readily grazed by cattle, which can be used to control the weed, offering considerable cost savings before the establishment of permanent cover crops and tree crops." [Consumption of plant could result in ingestion of seeds, but unknown whether seeds survive passage through the gut]
801	2013. CABI. <i>Merremia peltata</i> In: Invasive Species Compendium. CAB International, Wallingford, UK www.cabi.org/isc	[Prolific seed production (>1000/m ²)? Unknown] " <i>M. peltata</i> is a robust perennial climber with a large underground tuber, but also producing seeds (van Ooststroom and Hoogland, 1963; Bacon 1981, 1982). Flowering can occur year-round, but is greatest from May to September (Neil 1982a). The production of viable seed is thought to be favoured by the least shaded conditions."
802	1990. Graham, A.W./Hopkins, M.S.. Soil Seed Banks of Adjacent Unlogged Rainforest Types in North Queensland. Australian Journal of Botany. 38: 261-268.	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown] "Many secondary species found in soil seed banks of regrowth and other rainforest sites in north Queensland (Hopkins and Graham 1983a, 1983b, 1984b) were either in low numbers or not recorded in these samples. Examples include the secondary trees <i>Commersonia bartramia</i> (L.) Merr., <i>Glochidion</i> spp., <i>Macaranga</i> spp., <i>Melia azedarach</i> L. var. <i>australasica</i> (A. Juss.) DC. Or <i>Trichospermum pleiostigma</i> (F. Muell.) Kosterm., the scrambler <i>Rubus alceifolius</i> Poiret, and the vines <i>Flagellaria indica</i> L. or <i>Merremia peltata</i> (L.) Merr."
802	2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown for <i>M. peltata</i> . Other species have orthodox seeds]
802	2013. CABI. <i>Merremia peltata</i> In: Invasive Species Compendium. CAB International, Wallingford, UK www.cabi.org/isc	[Evidence that a persistent propagule bank is formed (>1 yr)? Possibly Yes] "Viability is apparently at least one year in the field (Neil, 1982a)."
803	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Well controlled by herbicides? Possibly] "Where they can be applied, chemicals can be effective: for example, trials have shown glyphosate to be an effective herbicide for use against <i>Merremia</i> sp., in forestry plantation areas of the Solomon Islands (Miller 1982)." ... "Non-grazed areas can be slashed, hand weeded or sprayed with 2,4 -D or glyphosate at recommended rates (FAO Technical Bulletin Vanuatu"
803	2013. CABI. <i>Merremia peltata</i> In: Invasive Species Compendium. CAB International, Wallingford, UK www.cabi.org/isc	[Well controlled by herbicides? Possibly] "In work on the Solomon Islands, early reports indicated that species of <i>Merremia</i> (including <i>M. peltata</i>) showed some resistance to growth regulating herbicides, but rigorous field testing has revealed that this is not the case (Bacon, 1981; Neil, 1982c). A wide range of inexpensive and widely available herbicides provide efficient control of <i>Merremia</i> . Those reported as giving best control include: 2,4 D and ioxynil; MCPA; 2,4-D butyl ester; 2,4 D dimethylamine salt; triclopyr; triclopyr + picloram; glyphosate; and dicamba. These herbicides provide effective control at a range of commercially recommended dose rates (Bacon, 1981; Lamb, 1975; Neil, 1982c). Granular applications are not practical at field level but low volume applications have provided effective control (Neil, 1982b). Englberger (2009) recommends using triclopyr, as a foliar spray for young plants and as an undiluted stem application (by brushing) onto freshly-cut stems for larger plants."
804	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Hand control is difficult because root fragments resprout and stem fragments readily take root."
805	2006. Paynter, Q./Harman, H./Waipara, N.. Prospects for biological control of <i>Merremia peltata</i> . Landcare Research Contract Report: LC0506/177. Landcare Research, Auckland, NZ	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown] "Waterhouse and Norris (1987) recommended that a survey be conducted in the Malaysian- Indonesian region to investigate whether there are any promising natural enemies in the presumed area of origin of <i>M. peltata</i> , but such a survey has yet to be conducted. As a consequence only limited published information regarding the pathogens and insects that attack <i>M. peltata</i> is available. Nevertheless, the presence of several fungal pathogens and insects with no other recorded hosts (Tables 2 & 3), and the very wide geographic range of <i>M. peltata</i> indicate host-specific biological control agents may exist."

Summary of Risk Traits

High Risk / Undesirable Traits

- Thrives in tropical climates
- Widely naturalized
- A disturbance adapted weed that can smother forestry trees and suppress native vegetation
- Related Merremia species have become invasive
- Tolerates many soil types
- Climbing vine capable of smothering other vegetation
- Tuberous
- Spreads by seeds and vegetative fragments root fragments resprout and stem fragments readily take root

Low Risk Traits

- Shade intolerant and may eventually be suppressed or overtopped by other vegetation
- Fodder plant
- Requires full sun
- Considered desirable in some areas for ability to suppress other weedy vegetation