Family: ***Moraceae***

Taxon: ***Ficus celebensis***

Synonym: *Ficus irregularis Miquel* ***Common Name:*** willow-leaved fig

Questionaire : current 20090513 **Assessor:** Patti Clifford **Designation:** L

Status: Assessor Approved **Data Entry Person:** Patti Clifford **WRA Score -3**

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**	
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**	**n**
302	**Garden/amenity/disturbance weed**	**n=0, y = 1*multiplier (see Appendix 2)**	**n**
303	**Agricultural/forestry/horticultural weed**	**n=0, y = 2*multiplier (see Appendix 2)**	**n**
304	**Environmental weed**	**n=0, y = 2*multiplier (see Appendix 2)**	**n**
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**	
405	**Toxic to animals**	**y=1, n=0**	
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**	
409	**Is a shade tolerant plant at some stage of its life cycle**	**y=1, n=0**	
410	**Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)**	**y=1, n=0**	
411	**Climbing or smothering growth habit**	**y=1, n=0**	**n**

412	**Forms dense thickets**	**y=1, n=0**	
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**	**n**
601	**Evidence of substantial reproductive failure in native habitat**	**y=1, n=0**	
602	**Produces viable seed**	**y=1, n=-1**	
603	**Hybridizes naturally**	**y=1, n=-1**	
604	**Self-compatible or apomictic**	**y=1, n=-1**	
605	**Requires specialist pollinators**	**y=-1, n=0**	**y**
606	**Reproduction by vegetative fragmentation**	**y=1, n=-1**	**n**
607	**Minimum generative time (years)**	**1 year = 1, 2 or 3 years = 0, 4+ years = -1**	
701	**Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)**	**y=1, n=-1**	**n**
702	**Propagules dispersed intentionally by people**	**y=1, n=-1**	**y**
703	**Propagules likely to disperse as a produce contaminant**	**y=1, n=-1**	
704	**Propagules adapted to wind dispersal**	**y=1, n=-1**	**n**
705	**Propagules water dispersed**	**y=1, n=-1**	
706	**Propagules bird dispersed**	**y=1, n=-1**	
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**	
805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	**y=-1, n=1**	

Designation: L **WRA Score** -3

Supporting Data:

101	2010. WRA Specialist. Personal Communication.	No evidence of domestication.
201	2010. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/genus.pl?1738	Native range: Indonesia - Celebes [Minahassa]
202	2010. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/genus.pl?1738	Indonesia - Celebes [Minahassa]
203	. Corner, E.J.H.. Flora Malesiana: the Corner manuscript. Center for Functional and Evolutionary Ecology (Centre d'Ecologie Fonctionnelle et Evolutive), www.cefe.cnrs.fr/coev/pdf/fk/CornerFloraMalesiana.doc	"Apparently rare and extremely local. Remarkable in the subseries for being a tall tree and not a banyan."
203	2010. WRA Specialist. Personal Communication.	Unknown.
204	2010. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/genus.pl?1738	Indonesia - Celebes [Minahassa]
205	. Corner, E.J.H.. Flora Malesiana: the Corner manuscript. Center for Functional and Evolutionary Ecology (Centre d'Ecologie Fonctionnelle et Evolutive), www.cefe.cnrs.fr/coev/pdf/fk/CornerFloraMalesiana.doc	"The third species of ser. Pallidae, Ficus celebensis, is fairly well-known in cultivation as a medium-size to large tree without any tendency to produce aerial roots or to become epiphytic."
205	2009. Chong, K.Y./Tan, H.T.W./Corlett, R.T.. A Checklist of the Total Vascular Plant Flora of Singapore: Native, Naturalized and Cultivated Species. Raffles Museum of Biodiversity Research, National University of Singapore, Singapore	Ficus celebensis is cultivated in Singapore.
301	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	No evidence of naturalization.
302	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	No evidence of weediness.
303	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	No evidence of weediness.
304	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	No evidence.
305	2008. Homes, K.A.. Invasive Fig Trees (Ficus carica) in the Riparian Forests of California's Central Valley: Population Growth, Community Impacts, and Eradication Efforts.	Ficus carica is an invasive species in the riparian forests of California's Central Valley, where it reduces the richness and significantly simplifies the physiognomy of the plant communities.
401	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	No spines, thorns, burrs.
402	2010. WRA Specialist. Personal Communication.	Unknown.

403	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Not parasitic.
404	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	Leaves of some species are used as fodder for cattle.
404	2010. WRA Specialist. Personal Communication.	Unknown.
405	2010. WRA Specialist. Personal Communication.	Unknown.
406	2010. WRA Specialist. Personal Communication.	Unknown.
407	2010. WRA Specialist. Personal Communication.	Unknown.
408	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	"The species is known by only few collections from natural habitats."
408	2010. WRA Specialist. Personal Communication.	Unknown.
409	2010. WRA Specialist. Personal Communication.	Unknown.
410	2010. WRA Specialist. Personal Communication.	Unknown.
411	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	Tree up to 25 m tall.
412	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	"Habitat is unknown. The species is known by only few collections from natural habitats. It is in cultivation as ornamental tree in many tropical countries."
412	2010. WRA Specialist. Personal Communication.	Unknown.
501	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	Terrestrial.
502	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	Moraceae.
503	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	Moraceae. [not a nitrogen fixer]
503	2010. www.nationmaster.com. Encyclopedia Nitrogen fixation. Nationmaster.com, http://www.nationmaster.com/encyclopedia/Nitrogen-fixation	Not a nitrogen fixer.
504	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	Tree.
601	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	"The species is known by only few collections from natural habitats."
601	2010. WRA Specialist. Personal Communication.	Unknown.

602	2010. WRA Specialist. Personal Communication.	Unknown.
603	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	"Hybridization: Material that could be regarded as hybrids with a clear mixture of parental characters have not been encountered. The few specimens showing (one or two) characteristic features of co-occurring species might be products of hybridization." However, Parish (et al 2003) found evidence of the occurrence of first and later generation hybrids in Ficus populations in the Krakatu Islands.
603	2010. WRA Specialist. Personal Communication.	Unknown.
604	1989. Halevy, A.H.. CRC handbook of flowering, volume 6. CRC Press, http://books.google.com/books?id=ZcTP7Kb01NAC&pg=PA331&lpg=PA331&dq=ficus+%2B+%22apomictic%22&source=bl&ots=b6gjCjzFfY&sig=2NsaSs8rrrXhvLyca1RhepgqEJU&hl=en&ei=wAvbTMafFZKasAPTkZTjBw&sa	Apomictic seeds have not been found in Ficus.
605	1970. Ramirez B., W.. Host specificity of fig wasps (Agaonidae). Evolution. 24: 680-691.	Studies of New World figs have shown that each species of fig (about 40) collected in Venezuela, Panama', Costa Rica, San Andres Island, Mexico, and Florida has its own specific pollinator, with the exception of Ficus tuerckheimii which is always the host of two species of Blastophaga and the equivocal case of F. costaricana. It is also well known that in the Old World each species of fig has its own agaonid symbiont, with only a few known exceptions (in which one species of fig is the host of two agaonids.
605	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	Pollinating agaonid fig wasps for the Palaeomorphe section , which includes F. celebensis are from the Liporrhopalum genera.
606	. Corner, E.J.H.. Flora Malesiana: the Corner manuscript. Center for Functional and Evolutionary Ecology (Centre d'Ecologie Fonctionnelle et Evolutive), www.cefe.cnrs.fr/coev/pdf/fk/CornerFloraMalesiana.doc	"Apparently rare and extremely local. Remarkable in the subseries for being a tall tree and not a banyan."
607	2010. WRA Specialist. Personal Communication.	Unknown.
701	1999. Wagner, W. L./Herbst, D. R./Sohmer, S. H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	In Hawaii about 60 Ficus species are cultivated; however only 4 fig wasps have been introduced, Blastophaga psenses (L.) for Ficus carica L., Pleistodontes froggatti Mayr for F. macrophylla Desf., Pleistodontes imperialis Saund. for F. rubiginosa Desf., and Euprestina verticillata Waterst. For F. microcarpa.
701	2010. WRA Specialist. Personal Communication.	Unlikely. [needs pollinator in Hawaii to produce seed]
702	2009. Chong, K.Y./Tan, H.T.W./Corlett, R.T.. A Checklist of the Total Vascular Plant Flora of Singapore: Native, Naturalized and Cultivated Species. Raffles Museum of Biodiversity Research, National University of Singapore, Singapore	Ficus celebensis is cultivated in Singapore.
703	2010. WRA Specialist. Personal Communication.	Unknown.
704	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Achenes or druplets enclosed in a usu soft receptacle. [genus description]

705	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	"The majority of the Ficus species are dispersed by animals. Endo-zoochory and dys-zoochory are the most common mode of the dispersal of seeds of Ficus. Seeds may also have exo-zoochorous dispersal when fruitlets are stuck to the beaks of birds and fall off onto branches. Water also plays a role in the dispersal by transporting floating figs. The traits of the fruits and seeds of Ficus allow long-distance dispersal. Events of long-distance dispersal will probably rarely result in reproduction and establishment by absence of pollinators and populations of trees to allow establishment of the pollinators as well."
705	2010. WRA Specialist. Personal Communication.	Unknown.
706	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	Unknown.
707	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	"The majority of the Ficus species are dispersed by animals. Endo-zoochory and dys-zoochory are the most common mode of the dispersal of seeds of Ficus. Seeds may also have exo-zoochorous dispersal when fruitlets are stuck to the beaks of birds and fall off onto branches. Water also plays a role in the dispersal by transporting floating figs. The traits of the fruits and seeds of Ficus allow long-distance dispersal. Events of long-distance dispersal will probably rarely result in reproduction and establishment by absence of pollinators and populations of trees to allow establishment of the pollinators as well."
707	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	"Fruit composed of tiny achenes or drupelets, enclosed in usu soft, colored receptacle."
708	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	"The majority of the Ficus species are dispersed by animals. Endo-zoochory and dys-zoochory are the most common mode of the dispersal of seeds of Ficus. Seeds may also have exo-zoochorous dispersal when fruitlets are stuck to the beaks of birds and fall off onto branches. Water also plays a role in the dispersal by transporting floating figs. The traits of the fruits and seeds of Ficus allow long-distance dispersal. Events of long-distance dispersal will probably rarely result in reproduction and establishment by absence of pollinators and populations of trees to allow establishment of the pollinators as well."
708	2010. WRA Specialist. Personal Communication.	Unknown.
801	2010. WRA Specialist. Personal Communication.	Unknown.
802	2005. Berg, C.C./Corner, E.J.H.. Flora Malesiana series I - seed plants volume 17 / part 2 Moraceae (Ficus). National Herbarium Nederland,	"The species is known by only few collections from natural habitats."
802	2010. WRA Specialist. Personal Communication.	Unknown. [pollinator is not in Hawaii yet]
803	2010. WRA Specialist. Personal Communication.	Unknown.
804	2010. WRA Specialist. Personal Communication.	Unknown.
805	2010. WRA Specialist. Personal Communication.	Unknown.