

Family: *Zingiberaceae*

Taxon: *Etilingera venusta*

Synonym: *Hornstedtia venusta* Ridl.

Nicolaia venusta (Ridl.) K.Larsen

Phaeomeria venusta (Ridl.) K.Schum.

Common Name: Malay rose

Malay rose torch ginger

Questionnaire :	current 20090513	Assessor:	Assessor	Designation: L
Status:	Assessor Approved	Data Entry Person:	Assessor	WRA Score 1
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	n
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)	n
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	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	n
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	y
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	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	y
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	2
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	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	n
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m2)	y=1, n=-1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
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: L

WRA Score **1**

Supporting Data:

101	2007. Montoso Gardens. <i>Etlingera venusta</i> (Zingiberaceae). http://www.montosogardens.com/etlingera_venusta.htm [Accessed 22 May 2013]	[Is the species highly domesticated? No] No evidence
102	2013. WRA Specialist. Personal Communication.	NA
103	2013. WRA Specialist. Personal Communication.	NA
201	2013. JSTOR Global Plants. Type of <i>Hornstedtia venusta</i> Ridl. [family Zingiberaceae]. http://plants.jstor.org/specimen/k000255134 [Accessed 22 May 2013]	[Species suited to tropical or subtropical climate(s) 2-High] "Locality Peninsular Malaysia State of Selangor; Ginting Bedai. Country - Malaysia (Malaysia)" [synonym of <i>Etlingera venusta</i>]
202	2013. JSTOR Global Plants. Type of <i>Hornstedtia venusta</i> Ridl. [family Zingiberaceae]. http://plants.jstor.org/specimen/k000255134 [Accessed 22 May 2013]	[Quality of climate match data 2-High]
203	2004. Tropicsphere. <i>Etlingera</i> gingers [2004 discussion thread]. http://www.tropicsphere.com/main/forums/viewtopic.php?f=2&t=59&p=15227 [Accessed 22 May 2013]	[Broad climate suitability (environmental versatility)? No] " <i>Etlingera venusta</i> should grow fine in a temp range of 19-25 deg celsius with high dose of humidity and soil moisture. It is one of those tropicals that are sensitive to temp extremes (beyond the stated range). I brought some back from the hills into cultivation into lowland conditions (where we get daily highs of 33 deg celsius) and the plant just couldnt make it."
203	2013. Polynesian Produce Stand. Malay Rose - Torch Ginger 25 Fresh Seeds <i>Etlingera venusta</i> . http://ez2plant.com/ [Accessed 22 May 2013]	[Broad climate suitability (environmental versatility)? No] "Frost tender, these tropical plants need a moist, humus-rich soil in full sun or part shade with a minimum temperature of about 45° F." ... "Hardiness: USDA zone 10B - 11."
203	2013. Rarexoticseeds. <i>Etlingera Venusta</i> Seeds (Malay Rose Torch Ginger Seeds). http://www.rarexoticseeds.com/en/exotic-seeds/etlingera-venusta-seeds-malay-rose-torch-ginger-seeds.html [Accessed 22 May 2013]	[Broad climate suitability (environmental versatility)? No] "Hardiness zones 9-11, (5°C/40°F, -5°C/25°F) in Winter. Not frost or cold tolerant."
204	2009. Asiatic Green. Gingers. http://www.asiaticgreen.com/gingers.htm [Accessed 22 May 2013]	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Another beautiful species found in exposed slopes of lowland to montane rainforest in the state of Pahang, Malaysia."
204	2013. JSTOR Global Plants. Type of <i>Hornstedtia venusta</i> Ridl. [family Zingiberaceae]. http://plants.jstor.org/specimen/k000255134 [Accessed 22 May 2013]	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Locality Peninsular Malaysia State of Selangor; Ginting Bedai. Country - Malaysia (Malaysia)" [synonym of <i>Etlingera venusta</i>]
205	2013. Rarexoticseeds. <i>Etlingera Venusta</i> Seeds (Malay Rose Torch Ginger Seeds). http://www.rarexoticseeds.com/en/exotic-seeds/etlingera-venusta-seeds-malay-rose-torch-ginger-seeds.html [Accessed 22 May 2013]	[Does the species have a history of repeated introductions outside its natural range? No] "A very rare new variety from Malaysia, it's strikingly unsurpassed beauty is almost beyond words." [Fairly new to cultivation]
301	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Naturalized beyond native range? No] No evidence
302	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Garden/amenity/disturbance weed? No] No evidence
303	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Agricultural/forestry/horticultural weed? No] No evidence
304	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	
305	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Congeneric weed? No] No evidence [<i>Etlingera elatior</i> naturalized in several locations, but no negative impacts have been documented to date]
401	1998. Kubitzki, K. (ed.). The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Produces spines, thorns or burrs? No] "Tall herbs up to 8 m with stout rhizome"

402	2013. WRA Specialist. Personal Communication.	[Allelopathic? Unknown]
403	1998. Kubitzki, K. (ed.). The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Parasitic? No] Zingiberaceae
404	2013. WRA Specialist. Personal Communication.	[Unpalatable to grazing animals? Unknown]
405	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Toxic to animals? No] No evidence in genus
406	2013. Sunshine Seeds. Etlingera venusta. http://www.sunshine-seeds.de/product_info.php?products_id=47254&language=en [Accessed 22 May 2013]	[Host for recognized pests and pathogens?] "Pests: Spider mites"
407	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Causes allergies or is otherwise toxic to humans? No] No evidence in genus
408	1998. Kubitzki, K. (ed.). The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Creates a fire hazard in natural ecosystems? No] "Tall herbs up to 8 m with stout rhizome" [Succulent herbaceous plants of wet tropical environments]
409	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	[Is a shade tolerant plant at some stage of its life cycle? Yes] "the ideal site is a shady forested area with ample, constant moisture."
409	2013. Dave's Gardern. PlantFiles: Malay rose - Etlingera venusta. http://davesgarden.com/guides/pf/go/151803/ [Accessed 22 May 2013]	[Is a shade tolerant plant at some stage of its life cycle?] "Sun Exposure: Full Sun; Sun to Partial Shade"
409	2013. Polynesian Produce Stand. Malay Rose - Torch Ginger 25 Fresh Seeds Etlingera venusta. http://ez2plant.com/ [Accessed 22 May 2013]	[Is a shade tolerant plant at some stage of its life cycle? Yes] "Malay Rose ginger does well in shade."
410	2013. Dave's Gardern. PlantFiles: Malay rose - Etlingera venusta. http://davesgarden.com/guides/pf/go/151803/ [Accessed 22 May 2013]	[Tolerates a wide range of soil conditions? Possibly] " these tropical plants need a moist, humus rich soil..."
411	1998. Kubitzki, K. (ed.). The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Climbing or smothering growth habit? No] "Tall herbs up to 8 m with stout rhizome"
412	2013. WRA Specialist. Personal Communication.	[Forms dense thickets? Unknown]
501	2013. WRA Specialist. Personal Communication.	[Aquatic? No] Terrestrial ginger
502	1998. Kubitzki, K. (ed.). The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Grass? No] Zingiberaceae
503	1998. Kubitzki, K. (ed.). The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Nitrogen fixing woody plant? No] Zingiberaceae
504	2010. Gordon, D.R./Mitterdorfer, B./Pheloung, P.C. et al.. Guidance for addressing the Australian Weed Risk Assessment questions. Plant Protection Quarterly. 25(2): 56-74.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "This question is specifically to deal with plants that have specialized organs and should not include plants merely with rhizomes" [E. venusta is rhizomatous, and can likely spread vegetative!]
601	2013. WRA Specialist. Personal Communication.	[Evidence of substantial reproductive failure in native habitat? Unknown] No information found on reproductive success within native range

602	2007. Montoso Gardens. <i>Etlingera venusta</i> (Zingiberaceae). http://www.montosogardens.com/etlingera_venusta.htm [Accessed 22 May 2013]	[Produces viable seed? Yes] "Propagated by division and seeds."
602	2013. Rarexoticseeds. <i>Etlingera Venusta</i> Seeds (Malay Rose Torch Ginger Seeds). http://www.rarexoticseeds.com/en/exotic-seeds/etlingera-venusta-seeds-malay-rose-torch-ginger-seeds.html [Accessed 22 May 2013]	[Produces viable seed? Yes] "Soak seeds overnight. Plant 1/2" deep in mixture of rich soil. Keep warm, moist and in bright light. Germination can be slow."
603	1997. Luc-Cayol, F./Fereol, L.. X <i>Alpingera martinica</i> (Zingiberaceae): an intergeneric hybrid between <i>Alpinia purpurata</i> and <i>Etlingera elatior</i> . <i>HortScience</i> . 32(5): 914-915.	[Hybridizes naturally? Unknown] "Artificial intergeneric crosses between <i>Alpinia purpurata</i> and <i>Etlingera elatior</i> (Zingiberaceae) have produced hybrids." [Artificial hybridization possible in genus, but unknown if natural hybridization occurs in any <i>Etlingera</i> species]
604	2013. WRA Specialist. Personal Communication.	[Self-compatible or apomictic? Unknown]
605	1996. Endress, P.K.. Diversity and evolutionary biology of tropical flowers. Cambridge University Press, Cambridge, UK	[Requires specialist pollinators? Yes] "Classen (1987) observed Nectariniidae as pollinators in the Botanical Garden, Singapore; Knuth (in Knueth et al. 1904) in the Botanical Garden, Bogor (Java). They perch in the centre of the stout inflorescence and push their bill downward into the open flowers." [Generic description]
605	2005. Roubik, D.W./Sakai, S./Hamid Karim, A.A. (eds.). Pollination ecology and the rain forest: Sarawak studies. Springer, New York, NY	[Requires specialist pollinators? Yes] "Bird Pollination of Zingiberaceae" [Three related species of <i>Etlingera</i> with similar floral structure to <i>E. venusta</i> were identified as being spiderhunter-pollinated. The spiderhunters are birds of the genus <i>Arachnothera</i> , part of the sunbird family Nectariniidae.]
605	2009. Asiatic Green. Gingers. http://www.asiaticgreen.com/gingers.htm [Accessed 22 May 2013]	[Requires specialist pollinators? Yes] "It produces huge attractive rose-like bracts with small flowers emerging to attract pollinators such as birds."
606	2013. Dave's Garden. PlantFiles: Malay rose - <i>Etlingera venusta</i> . http://davesgarden.com/guides/pt/go/151803/ [Accessed 22 May 2013]	[Reproduction by vegetative fragmentation? Yes] "Propagation Methods: By dividing rhizomes" [Most gingers can establish if rhizome fragments are divided or break off]
607	2004. Tropicsphere. <i>Etlingera</i> s gingers [2004 discussion thread]. http://www.tropicsphere.com/main/forums/viewtopic.php?f=2&t=59&p=15227 [Accessed 22 May 2013]	[Minimum generative time (years)? 2+] "I have been told that 2 years in normal before the first flowers." [Generic description]
701	1998. Kubitzki, K. (ed.). The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Propagules likely to be dispersed unintentionally? No] "Fruit indehiscent, globose to obovoid, longitudinally ribbed, sometimes united in a fleshy, globose or elongated syncarp; seeds arillate." [No evidence, and unlikely as seeds are adapted for bird dispersal, but otherwise lack means of external attachment]
702	2007. Montoso Gardens. <i>Etlingera venusta</i> (Zingiberaceae). http://www.montosogardens.com/etlingera_venusta.htm [Accessed 22 May 2013]	[Propagules dispersed intentionally by people? Yes] "Malay rose has arching 6-8 foot leaves and lovely porcelain pink and white basal inflorescences from 1-2 feet tall. The pink and white "petals" are actually bracts, which later reveal small true flowers inside. Attractive in the garden and as an exotic and long lasting cut flower. Blooms from January to May in Puerto Rico."
703	2013. WRA Specialist. Personal Communication.	[Propagules likely to disperse as a produce contaminant? No] No evidence. Unlikely, as plants require bird pollinators, and seeds do not appear to store well.
704	1998. Kubitzki, K. (ed.). The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Propagules adapted to wind dispersal? No] "Fruit indehiscent, globose to obovoid, longitudinally ribbed, sometimes united in a fleshy, globose or elongated syncarp; seeds arillate." [Generic description -arillate seeds adapted for bird dispersal]
705	1998. Kubitzki, K. (ed.). The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Propagules water dispersed? No] "Fruit indehiscent, globose to obovoid, longitudinally ribbed, sometimes united in a fleshy, globose or elongated syncarp; seeds arillate." [No evidence. Unlikely, unless grown near riparian areas and rhizome fragments are washed downstream]
706	1998. Kubitzki, K. (ed.). The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Propagules bird dispersed? Yes] "Fruit indehiscent, globose to obovoid, longitudinally ribbed, sometimes united in a fleshy, globose or elongated syncarp; seeds arillate." [Generic description -arillate seeds adapted for bird dispersal]

707	1998. Kubitzki, K. (ed.). The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Propagules dispersed by other animals (externally)? Unknown] "Fruit indehiscent, globose to obovoid, longitudinally ribbed, sometimes united in a fleshy, globose or elongated syncarp; seeds arillate." [No evidence, but arillate seeds may possibly be dispersed by animals that are attracted to the aril without consuming the attached seed]
708	1998. Kubitzki, K. (ed.). The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Propagules survive passage through the gut? Presumably Yes] "In some Amomum and Etlingera species the single fleshy fruits adhere to each other to form a collective fruit (syncarp), the shape of a small pineapple. The fruit wall is acid and juicy and seeds may be spread by birds or small mammals, but there are no observations on this."
801	2013. WRA Specialist. Personal Communication.	[Prolific seed production (>1000/m ²)? No] No evidence from cultivation, and seeds sold commercially in relatively small numbers. Limited availability of seeds suggests plants are unlikely to produce seed densities in excess of 1000 per m ²
802	2013. Sunshine Seeds. Etlingera venusta. http://www.sunshine-seeds.de/product_info.php?products_id=47254&language=en [Accessed 22 May 2013]	[Evidence that a persistent propagule bank is formed (>1 yr)? No] "Sowing Time: all year round > only fresh seeds germinate reliably"
803	2013. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on herbicide efficacy or chemical control of this species
804	2013. Dave's Gardern. PlantFiles: Malay rose - Etlingera venusta. http://davesgarden.com/guides/pf/go/151803/ [Accessed 22 May 2013]	[Tolerates, or benefits from, mutilation, cultivation, or fire? Presumably Yes] "Propagation Methods: By dividing rhizomes" [This and other Etlingera species are able to regrow from rhizomes after cutting]
805	2013. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]

Summary of Risk Traits

High Risk / Undesirable Traits

- Thrives in tropical climates
- Shade tolerant (potential to invade)
- Spreads by rhizomes and seeds
- Arillate seed adapted for bird dispersal
- Relatively new to cultivation. Limited ecological information makes accurate risk prediction difficult

Low Risk / Desirable Traits

- No reports of naturalization, invasiveness or negative impacts have been documented
- Unarmed (no spines, thorns or burrs)
- Non-toxic
- Landscaping and ornamental value (showy flowers)
- Flowers adapted for bird pollination may limit seed set and ability to spread