

**Family:** *Hypericaceae*

**Taxon:** *Cratoxylum formosum*

**Synonym:** *Elodes formosa* Jack

**Common Name:** pink mempat  
yue nan huang niu mu  
Tio Khao

<b>Questionnaire :</b>	current 20090513	<b>Assessor:</b>	Chuck Chimera	<b>Designation:</b>	EVALUATE
<b>Status:</b>	Assessor Approved	<b>Data Entry Person:</b>	Chuck Chimera	<b>WRA Score</b>	<b>1</b>
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		y
402	Allelopathic		y=1, n=0		n
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		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		y

411	Climbing or smothering growth habit	y=1, n=0	n
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	n
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	n
605	Requires specialist pollinators	y=-1, n=0	n
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	n
704	Propagules adapted to wind dispersal	y=1, n=-1	y
705	Propagules water dispersed	y=1, n=-1	
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: EVALUATE

WRA Score **1**

## Supporting Data:

101	2010. WRA Specialist. Personal Communication.	No evidence that species is highly domesticated.
102	2010. WRA Specialist. Personal Communication.	NA
103	2010. WRA Specialist. Personal Communication.	NA
201	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"Thickets, open secondary forests; below 1000 m. S Guangxi, Hainan, S Yunnan [Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam]"
202	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"S Guangxi, Hainan, S Yunnan [Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam]" [Quality of climate match data is high]
203	2009. Slik, J.W.F.. Plants of Southeast Asia. <a href="http://www.asianplant.net/">http://www.asianplant.net/</a>	"Ecology In undisturbed mixed dipterocarp, keranga, (peat)-swamp, mangrove and coastal forests up to 300 m altitude. Mostly on alluvial sites, but also on hillsides and ridges. On sandy to ultrabasic soils. In secondary forests usually present as a pre-disturbance remnant tree." [presumably only adapted to lower elevation, tropical climates]
204	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"S Guangdong, S Guangxi, S Yunnan [Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam]." [Native in regions with tropical or subtropical climates]
205	2010. WRA Specialist. Personal Communication.	No evidence
301	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	No evidence
302	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	No evidence
303	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	No evidence
304	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	No evidence
305	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	No evidence
401	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"Shrubs or trees, deciduous, 3–6 m tall. Trunk with spreading, long thorns on lower part."
402	1999. Ipor, I.B./Tawan, C.S./Ismail, J./Bojo, O.. Floristic compositions and structures of forest at Bario Highlands, Sarawak. ASEAN Review of Biodiversity and Environmental Conservation. <a href="http://www.arbec.com.my/pdf/art1julaug99.pdf">http://www.arbec.com.my/pdf/art1julaug99.pdf</a>	[No evidence of allelopathy]
403	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"Shrubs or trees, deciduous, 3–6 m tall." [not parasitic]

404	2005. Suksri, S./Premcharoen, S./Thawatphan, C./Sangthongprow, S.. Ethnobotany in Bung Khong Long Non-Hunting Area, Northeast Thailand. <i>Kasetsart Journal (Natural Science)</i> . 39: 519-533.	"Table 3 Ethnobotanical plants in Bung Khong Long Non-Hunting Area used by the villagers...Cratoxylum formosum...Young leaves as fresh vegetables" [plant palatable to humans is presumably palatable to grazing animals]
404	2008. Matsuda, I.. Feeding and Ranging Behaviors of Proboscis Monkey <i>Nasalis larvatus</i> in Sabah, Malaysia. PhD Dissertation.. Hokkaido University, Hokkaido, Japan	"Table 6 Food items and parts of each item consumed by focal members of BE-Group from May 2005 to May 2006." [leaves of <i>Cratoxylum formosum</i> consumed by Proboscis Monkeys]
405	2005. Suksri, S./Premcharoen, S./Thawatphan, C./Sangthongprow, S.. Ethnobotany in Bung Khong Long Non-Hunting Area, Northeast Thailand. <i>Kasetsart Journal (Natural Science)</i> . 39: 519-533.	"Cratoxylum formosum...Young leaves as fresh vegetables" [no evidence of toxicity to humans, so presumably no toxicity to animals]
405	2008. Matsuda, I.. Feeding and Ranging Behaviors of Proboscis Monkey <i>Nasalis larvatus</i> in Sabah, Malaysia. PhD Dissertation.. Hokkaido University, Hokkaido, Japan	"Table 6 Food items and parts of each item consumed by focal members of BE-Group from May 2005 to May 2006." [no evidence of toxicity]
406	2010. WRA Specialist. Personal Communication.	Unknown
407	2005. Secretariat of the Convention on Biological Diversity. Working together for biodiversity: Regional and international initiatives contributing to achieving and measuring progress towards the 2010 target. (CBD Technical Series no 17). SCBD, Montreal	"Table 2. Part of plant used and method of preparation (including local economic value in markets)" [ <i>Cratoxylum formosum</i> leaves and flowers consumed both raw and after boiling]
407	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. <i>Flora of China</i> . Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"The wood is reddish, hard, and fine grained, and is used for making woodcuts. The bark is used as a medicine for diarrhea in domestic animals. The young leaves are used as a substitute for tea." [used for many purposes, including tea, with no mention of allergenic properties or toxicity]
408	2000. Guhardja, E.. Rainforest ecosystems of East Kalimantan: El Niño, drought, fire and human impacts. Springer-Verlag, Tokyo-Berlin-Heidelberg-NY	"One hectare of Imperata grassland contains 107 plant species, including pyrophytic trees such as <i>Vernonia arborea</i> , <i>Cratoxylum formosum</i> , and <i>Vitex pinnata</i> (Kiyono and Hastaniah 1997)." [will tolerate and eventually establish forest which is less susceptible to burning]
409	2003. Averyanov, L.V./Phan Ke Loc/Nguyen Tien Hiep/Harder, D.K.. Phytogeographic review of Vietnam and adjacent areas of Eastern Indochina. <i>Komarovia</i> . 3: 1-83.	"A large number of other woody species occur in the understory strata of deciduous forests. Most common of them belong to the following families...Clusiaceae ( <i>Cratoxylum formosum</i> )" [understory species presumably shade tolerant]
410	1998. World Conservation Monitoring Centre. <i>Cratoxylum formosum</i> . In: IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4. <a href="http://www.iucnredlist.org">www.iucnredlist.org</a>	"A widespread species found mainly in lowland primary and secondary forest recorded on many soil types."
410	2009. Slik, J.W.F.. <i>Plants of Southeast Asia</i> . <a href="http://www.asianplant.net/">http://www.asianplant.net/</a>	"On sandy to ultrabasic soils."
411	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. <i>Flora of China</i> . Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"Shrubs or trees, deciduous, 3–6 m tall." [not climbing or spreading]
412	1999. Ipor, I.B./Tawan, C.S./Ismail, J./Bojo, O.. Floristic compositions and structures of forest at Bario Highlands, Sarawak. ASEAN Review of Biodiversity and Environmental Conservation. <a href="http://www.arbec.com.my/pdf/art1julaug99.pdf">http://www.arbec.com.my/pdf/art1julaug99.pdf</a>	"At Bario Asal, the utilization of forest products are mainly for fire-woods, housing materials and construction of shelters in the rice-fields or fences for buffalo rearing. <i>Cratoxylum formosum</i> was identified as the most dominant species in this locality; having highest Importance Value (Iv = 117.97), relative frequency (Rf = 18.75), relative density (Rd = 33.95) and relative dominance (RD = 65.25)." [highest relative density, but no evidence that this species forms dense thickets in native range]
501	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. <i>Flora of China</i> . Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"Shrubs or trees, deciduous, 3–6 m tall." [terrestrial]

502	2010. Tropicos.org. Tropicos [Online Database]. Missouri Botanical Garden, <a href="http://www.tropicos.org/">http://www.tropicos.org/</a>	Hypericaceae [formerly Clusiaceae]
503	2010. Tropicos.org. Tropicos [Online Database]. Missouri Botanical Garden, <a href="http://www.tropicos.org/">http://www.tropicos.org/</a>	Hypericaceae [not a nitrogen fixing plant]
504	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"Shrubs or trees, deciduous, 3–6 m tall." [not a geophyte]
601	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"Capsule dark brown, oblong, 0.6–1.5 cm, up to 1/2 enclosed by persistent calyx. Seeds 6–8 per locule, 3–7 mm. Fl. Mar–Apr, fr. after May." [no evidence of substantial reproductive failure in native habitat]
602	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"Seeds 6–8 per locule, 3–7 mm."
603	2010. WRA Specialist. Personal Communication.	Unknown
604	1982. Lewis, D.. Incompatibility, Stamen Movement and Pollen Economy in a Heterostyled Tropical Forest Tree, <i>Cratoxylum formosum</i> (Guttiferae). Proceedings of the Royal Society. B. 214(1195): 273-283.	" <i>Cratoxylum formosum</i> shows all the classical features of a distylic species. The two types are: long-styled plants with short stamens and small pollen grains and short-styled plants with long stamens and large pollen grains. Compatible pollinations are only between the two types; incompatible pollen tubes are inhibited in the style."
605	1982. Lewis, D.. Incompatibility, Stamen Movement and Pollen Economy in a Heterostyled Tropical Forest Tree, <i>Cratoxylum formosum</i> (Guttiferae). Proceedings of the Royal Society. B. 214(1195): 273-283.	"Pollen loads of the pollinating bee, <i>Apis javana</i> , consisted of 'long' and 'short' pollen on the thorax in the ratio found on the 'long' stigma, and on the head of the bee in a ratio close to the 9:1 found on the 'short' stigma. The corbicular loads reflected accurately the pollen of the tree in which the bee was caught. For <i>Cratoxylum</i> the accurate positioning of the anthers of the long styled plant in relation to the visiting bees head was an important evolutionary step in the effective pollination of the short-styled form, which, at least in this species, is one critical and highly selected feature of the system. " [bee pollinated]
605	2008. Kato, M./Kosaka, Y./Kawakita, A./Okuyama, Y./Kobayashi, C./Phimminith, T./Thongphan, D.. Plant–pollinator interactions in tropical monsoon forests in Southeast Asia. American Journal of Botany. 95: 1375-1394.	"Stem hollow-nesting bees as pollinators - Megachilids, Xylocopa, and small bees were also important pollinators of diverse plant species. Most of these bees are solitary species, except for the uncommon <i>Trigona</i> bees. Some families (Megachilidae, Xylocopinae, and Hylaeinae) nest in stem hollows, and others (Halictidae) nest underground."
606	2010. Japan International Research Center for Agricultural Sciences. Local Vegetables of Thailand - <i>Cratoxylum formosum</i> . <a href="http://www.jircas.affrc.go.jp/project/value_addition/Vegetables/037.html">http://www.jircas.affrc.go.jp/project/value_addition/Vegetables/037.html</a>	"This plant can be grown from seeds or from hardwood cutting."
607	2010. WRA Specialist. Personal Communication.	Time to reproductive maturity unknown
701	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"Capsule dark brown, oblong, 0.6–1.5 cm, up to 1/2 enclosed by persistent calyx. Seeds 6–8 per locule, 3–7 mm." [no evidence of unintentional seed dispersal, and seeds with no means of external attachment]
702	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"The wood is reddish, hard, and fine grained, and is used for making woodcuts. The bark is used as a medicine for diarrhea in domestic animals. The young leaves are used as a substitute for tea." [propagules likely dispersed intentionally within native range]

703	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"Capsule dark brown, oblong, 0.6–1.5 cm, up to 1/2 enclosed by persistent calyx. Seeds 6–8 per locule, 3–7 mm." [no evidence that seeds contaminate produce. Unlikely to be grown with any commercial product]
704	1990. Keng, H.. The Concise Flora of Singapore: Gymnosperms and dicotyledons. Singapore University Press, Singapore	"seeds winged"
704	2009. Slik, J.W.F.. Plants of Southeast Asia. <a href="http://www.asianplant.net/">http://www.asianplant.net/</a>	"Fruits ca. 15 mm long, green-yellow-brown, dehiscent capsules filled with many flat winged seeds."
706	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"Seeds obovoid to cylindric, with unilateral wing 2.5–3 × as long [or wing all around and smaller]" [genus description. Not fleshy-fruited. No adaptations for bird dispersal].
707	2009. Slik, J.W.F.. Plants of Southeast Asia. <a href="http://www.asianplant.net/">http://www.asianplant.net/</a>	"Fruits ca. 15 mm long, green-yellow-brown, dehiscent capsules filled with many flat winged seeds." [seeds adapted for wind dispersal and without a means of external attachment]
708	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"Seeds obovoid to cylindric, with unilateral wing 2.5–3 × as long [or wing all around and smaller]" [Unknown if seeds survive passage through gut, but unlikely to be ingested. Not fleshy-fruited]
801	2007. Xiwen, L./Jie, L./Robson, N.K.B./Stevens, P.F.. Flora of China. Vol. 13. - Clusiaceae (Guttiferae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis., <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=10203</a>	"Shrubs or trees, deciduous, 3–6 m tall...Capsule dark brown, oblong, 0.6–1.5 cm, up to 1/2 enclosed by persistent calyx. Seeds 6–8 per locule, 3–7 mm." [seed production unknown]
802	2010. WRA Specialist. Personal Communication.	Soil seed longevity unknown
803	2010. WRA Specialist. Personal Communication.	Unknown [no information on control with herbicides]
804	2000. Guhardja, E.. Rainforest ecosystems of East Kalimantan: El Niño, drought, fire and human impacts. Springer-Verlag, Tokyo-Berlin-Heidelberg-NY	"One hectare of Imperata grassland contains 107 plant species, including pyrophytic trees such as Vernonia arborea, Cratoxylum formosum, and Vitex pinnata (Kiyono and Hastaniah 1997)." [tolerates fire]
805	2010. WRA Specialist. Personal Communication.	Unknown