

**Taxon:** *Stephania japonica* (Thunb.) Miers

**Family:** Menispermaceae

**Common Name(s):** ivyweed  
snake vine  
tapevine

**Synonym(s):** *Menispermum japonicum* Thunb.  
*Stephania japonica* var. *japonica*

**Assessor:** Chuck Chimera

**Status:** Assessor Approved

**End Date:** 21 Nov 2018

**WRA Score:** 13.0

**Designation:** H(HPWRA)

**Rating:** High Risk

**Keywords:** Tropical Vine, Crop Weed, Smothering, Dioecious, Bird-Dispersed

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
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	y
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)	n
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)	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		
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		
407	Causes allergies or is otherwise toxic to humans		
408	Creates a fire hazard in natural ecosystems		
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	y

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		
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	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		
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	y
607	Minimum generative time (years)		
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		
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed		
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)		
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m <sup>2</sup> )	y=1, n=-1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides		
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)		

**Supporting Data:**

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2008. Flora of China. Vol. 7 (Menispermaceae through Capparaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Widespread, with no evidence of domestication] "Village margins, shrublands, open forests, forest margins, limestone mountains. Anhui, Chongqing, Fujian, Guangxi, S Guizhou, Hainan, S Henan, Hubei, Hunan, Jiangsu, Jiangxi, E and SW Sichuan, NE and S Yunnan, Zhejiang [Bangladesh, India, Indonesia (Java), Japan, Korea, Laos, Malaysia, Myanmar, Nepal, Sri Lanka, Thailand, ?Vietnam; Australia, Pacific islands]."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	NA

201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 16 Nov 2018]	"Native Asia-Temperate CHINA: China [Anhui, Fujian, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Zhejiang] EASTERN ASIA: Japan, [Honshu, Kyushu, Ryukyu Islands, Shikoku] Korea, Taiwan Asia-Tropical INDIAN SUBCONTINENT: Bangladesh, India, Nepal, Sri Lanka PAPUASIA: New Guinea INDO-CHINA: Laos, Myanmar, Thailand MALESIA: Indonesia, [Celebes, Java, Lesser Sunda Islands, Moluccas] Malaysia, Philippines Australasia AUSTRALIA: Australia [New South Wales (e.), Queensland (n. & e.), Northern Territory (n.)] Pacific SOUTH-CENTRAL PACIFIC: French Polynesia [Society Islands] SOUTHWESTERN PACIFIC: New Caledonia, Samoa, Tonga"

Qsn #	Question	Answer
202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 16 Nov 2018]	

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Forman, L. (1956). The Menispermaceae of Malaysia: I. Kew Bulletin, 11(1), 41-69	[Elevation range exceeds 1000 m, demonstrating environmental versatility] "HABITAT. Occurring in hedges, thickets, river-banks, forests, and on mountains, from sea-level to 1800 m. altitude. Flowering and fruiting all the year round (at least, in Java)."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Frohlich, D. & Lau, A. 2007. New plant records from O'ahu for 2006. Bishop Museum Occasional Papers 96: 8-13	"An herbaceous to woody climber native to eastern Asia, Australia, Malesia, and areas of Polynesia, this species was not previously vouchered at BISH. The genus can be distinguished from other Menispermaceae by its peltate leaves in combination with flowers in umbelliform cymes. <i>Stephania japonica</i> has tubers; petioles are 3–12 cm; leaves are triangular-ovate, 6–12 cm by 4–10 cm, and usually finely reticulate; both the male and female inflorescences are axillary, compound umbelliform cymes; male flowers are sessile or subsessile; and the fruit is a red, 4–8 mm drupe (Van Steenis & De Wilde 1986). The species has spread well beyond the original planting at Waimea Botanical Garden and is reportedly established beyond the garden's ability to control, given current resources. Its method of dispersal in the garden is unknown, but park staff believe it is being spread by pigs, which are seen running through the plantings and dragging pieces of the vine upslope. Material examined. O'AHU: Waimea Botanical Garden, vining up side slope, vine with small, white and pink flowers in an umbel, leaves light green below, darker green on top, 7 Dec 2006, D. Frohlich & A. Lau s.n. (BISH 725945)."

Qsn #	Question	Answer
	<p>USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a>. [Accessed 16 Nov 2018]</p>	<p>"Native Asia-Temperate CHINA: China [Anhui, Fujian, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Zhejiang] EASTERN ASIA: Japan, [Honshu, Kyushu, Ryukyu Islands, Shikoku] Korea, Taiwan Asia-Tropical INDIAN SUBCONTINENT: Bangladesh, India, Nepal, Sri Lanka PAPUASIA: New Guinea INDO-CHINA: Laos, Myanmar, Thailand MALESIA: Indonesia, [Celebes, Java, Lesser Sunda Islands, Moluccas] Malaysia, Philippines Australasia AUSTRALIA: Australia [New South Wales (e.), Queensland (n. &amp; e.), Northern Territory (n.)] Pacific SOUTH-CENTRAL PACIFIC: French Polynesia [Society Islands] SOUTHWESTERN PACIFIC: New Caledonia, Samoa, Tonga"</p>

205	Does the species have a history of repeated introductions outside its natural range?	y
	<p><b>Source(s)</b></p> <p>Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall</p>	<p><b>Notes</b></p> <p>"Stephania japonica (Murr.) Miers. ... Origin: Aust, E Asia Major Pathway/s: Crop, Herbal, Ornamental Dispersed by: Humans Weed of: Orchards &amp; Plantations References: China-W431, Global-W-85, India-N-1601, Indonesia-A-87, Indonesia- A-1617, India/Nepal-A-1617, Sri Lanka-A- 1617, Bangladesh-A-1761."</p>

Qsn #	Question	Answer
301	Naturalized beyond native range	y
	Source(s)	Notes
	Frohlich, D. & Lau, A. 2007. New plant records from O'ahu for 2006. Bishop Museum Occasional Papers 96: 8-13	"An herbaceous to woody climber native to eastern Asia, Australia, Malesia, and areas of Polynesia, this species was not previously vouchered at BISH. The genus can be distinguished from other Menispermaceae by its peltate leaves in combination with flowers in umbelliform cymes. <i>Stephania japonica</i> has tubers; petioles are 3–12 cm; leaves are triangular- ovate, 6–12 cm by 4–10 cm, and usually finely reticulate; both the male and female inflorescences are axillary, compound umbelliform cymes; male flowers are sessile or subsessile; and the fruit is a red, 4–8 mm drupe (Van Steenis & De Wilde 1986). The species has spread well beyond the original planting at Waimea Botanical Garden and is reportedly established beyond the garden's ability to control, given current resources. Its method of dispersal in the garden is unknown, but park staff believe it is being spread by pigs, which are seen running through the plantings and dragging pieces of the vine upslope. Material examined. O'AHU: Waimea Botanical Garden, vining up side slope, vine with small, white and pink flowers in an umbel, leaves light green below, darker green on top, 7 Dec 2006, D. Frohlich & A. Lau s.n. (BISH 725945)."

302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"Weed of: Orchards & Plantations"

303	Agricultural/forestry/horticultural weed	y
	Source(s)	Notes
	Zhenghao Xu & Meihua Deng. (2017). Identification and Control of Common Weeds: Volume 2. Zhejiang University Press, Hangzhou and Springer Nature, Singapore	"Snake vine often occurs both in mountain and plain habitats, and it can grow rampantly on the ground or climb along supports. It usually grows exuberantly and sometimes smothers trees or other vegetation where it appears. It prefers full to partial sun situations and can endure poor-nutrition conditions."
	Ohsawa, M. (1982). Weeds of tea plantations. In Biology and ecology of weeds (pp. 435-448). Springer, Netherlands	"Table 1. Important weed species in the world tea areas. Underlining indicates serious weeds." [ <i>Stephania japonica</i> var. <i>hernandifolia</i> identified as a weed of tea plantations in Indonesia, Sri Lanka and North India/Nepal]
	Flora of Australia Online. (2018). <i>Stephania japonica</i> var. <i>discolor</i> . <a href="http://www.anbg.gov.au/abrs/online-resources/flora">http://www.anbg.gov.au/abrs/online-resources/flora</a> . [Accessed 21 Nov 2018]	[Weed on citrus trees] "Grows in various types of forest, in beach scrub and climbing over rocks and grassy banks, sometimes a vine weed (e.g. on citrus trees), often in sandy soil, to 1000 m alt."

Qsn #	Question	Answer
304	Environmental weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	[No evidence to date] "Weed of: Orchards & Plantations References: China-W-431, Global-W-85, India-N-1601, Indonesia-A-87, Indonesia- A-1617, India/Nepal-A-1617, Sri Lanka-A- 1617, Bangladesh-A-1761."

305	Congeneric weed	y
	Source(s)	Notes
	Zhenghao Xu & Meihua Deng. (2017). Identification and Control of Common Weeds: Volume 2. Zhejiang University Press, Hangzhou and Springer Nature, Singapore	"Stephania cephalantha ... Harmfulness A common upland weed. ... Management Mechanical methods are effective to control the weed if it appears in cultivated areas by cutting off the stems at base. Weeding before anthesis can radically reduce the occurrence of the weed in the upland fields."

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Wu, Z.Y., Raven,P.H. & Hong, D.Y. (eds.). 2008. Flora of China. Vol. 7 (Menispermaceae through Capparaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[No evidence] "Vines, glabrous or pubescent. Root woody, not tuberous, brownish yellow. Stems slender, slightly woody when old, sometimes prostrate and rooting at nodes. Petiole 3–12 cm; leaf blade conspicuously peltate, usually triangular-rotund or broadly triangular-ovate to rotund, 5–12(–15) cm, as wide as or slightly wider than long, papery to thinly leathery, abaxially glabrous or hirsute, often glaucous, adaxially glossy, base usually broadly rounded, apex with a finely mucronate acumen, palmately 8–11-veined, raised abaxially, reticulation slightly raised, conspicuous."

402	Allelopathic	
	Source(s)	Notes
	Shinwari, M. I., Iida, O., Shinwari, M. I., & Fujii, Y. (2017). Evaluation of phytodiversity for allelopathic activity and application to minimize climate change impact: Japanese Medicinal Plants. Pakistan Journal of Botany, 49, 139-144	[Possibly No] "In the present study, leaf litter of 160 medicinal plant samples (156 species) belonging to 134 genera and 74 families were collected from Research Center for Medicinal Plant Resources, Tanegashima, Japan and subjected to evaluation of their allelopathic effects using the Sandwich method. Lettuce ( <i>Lactuca sativa</i> L.) was used as a test plant material in the bioassay because of its reliability for germination." ... "Table 1. Allelopathic potential determination of 156 medicinal plant species (160 Samples) from Japan" [ <i>Stephania japonica</i> not shown to significantly reduce elongation of the radicle and hypocotyl of the lettuce seedlings]

Qsn #	Question	Answer
403	Parasitic	n
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2008. Flora of China. Vol. 7 (Menispermaceae through Capparaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	"Vines, glabrous or pubescent." [Menispermaceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Agetsuma, N., Agetsuma-Yanagihara, Y., & Takafumi, H. 2011. Food habits of Japanese deer in an evergreen forest: Litter-feeding deer. Mammalian Biology-Zeitschrift für Säugetierkunde, 76(2): 201-207	"Appendix Identified food species and part of Japanese sika deer in a warm temperate broad leaved forest" [Fallen leaves of <i>Stephania japonica</i> consumed]
	Fan, P. F., Ai, H. S., Fei, H. L., Zhang, D., & Yuan, S. D. (2013). Seasonal variation of diet and time budget of Eastern hoolock gibbons ( <i>Hoolock leuconedys</i> ) living in a northern montane forest. Primates, 54(2), 137-146	"Table 2 Food species consumed by hoolock gibbons in Nankang, Gaoligongshan" [Leaves of <i>Stephania japonica</i> consumed]

405	Toxic to animals	n
	Source(s)	Notes
	Agetsuma, N., Agetsuma-Yanagihara, Y., & Takafumi, H. 2011. Food habits of Japanese deer in an evergreen forest: Litter-feeding deer. Mammalian Biology-Zeitschrift für Säugetierkunde, 76(2): 201-207	"Appendix Identified food species and part of Japanese sika deer in a warm temperate broad leaved forest" [Fallen leaves of <i>Stephania japonica</i> consumed. No reports of toxicity]
	Fan, P. F., Ai, H. S., Fei, H. L., Zhang, D., & Yuan, S. D. (2013). Seasonal variation of diet and time budget of Eastern hoolock gibbons ( <i>Hoolock leuconedys</i> ) living in a northern montane forest. Primates, 54(2), 137-146	"Table 2 Food species consumed by hoolock gibbons in Nankang, Gaoligongshan" [Leaves of <i>Stephania japonica</i> consumed. No evidence found]
	Forman, L. (1956). The Menispermaceae of Malaysia: I. Kew Bulletin, 11(1), 41-69	"The tuberous root is bitter and very poisonous due to its picrotoxin content." [Unknown if animals could be poisonous, but other evidence does not suggest leaf toxicity]
	CSIRO. (2010). Australian Tropical Rainforest Plants Edition 6 - <i>Stephania japonica</i> var. <i>japonica</i> . <a href="http://keys.trin.org.au/">http://keys.trin.org.au/</a> . [Accessed 20 Nov 2018]	"This species has been suspected of being poisonous to stock but feeding tests have not confirmed this. Everist (1974)."

406	Host for recognized pests and pathogens	
	Source(s)	Notes



Qsn #	Question	Answer
	Hsieh, H. J. (1983). Notes on host plants of <i>Cephaleuros virescens</i> new for Taiwan. <i>Botanical Bulletin of Academia Sinica</i> , 24, 89-96	" <i>Cephaleuros virescens</i> Kunze is the most studied species of plant pathogenic algae and is widely distributed in Africa, America, Asia, Australia and Europe (Joubert and Rijkenberg, 1971). It has a very wide host range. For example, Batista and Lima (1949) in Pernambuco, Brazil, recorded <i>C. virescens</i> on 448 hosts, including members of such widely divergent families as the Palmaceae, Liliaceae, Gramineae, Rosaceae, Solanaceae, Euphorbiaceae and Cucurbitaceae. To my knowledge, only 7 plants have been reported as hosts of <i>C. virescens</i> in Taiwan. These plants are tea plant (Anonymous, 1979), citrus (Lo, et al. 1952), mango (Chen, 1978), guava (Chen, 1978), wax-apple (Chen, 1978), oiltea camellia (Hsieh, 1980), and common camellia (Hsieh, 1981). According to the author's survey, <i>C. virescens</i> is widely distributed in Taiwan and attacks many kinds of plants. In this paper, the author lists 69 species of plants dispersed in 33 families and 52 genera as new host plants of <i>C. virescens</i> for Taiwan." [Includes <i>Stephania japonica</i> as an alternate host]
	Muniappan, R., Silva-Krott, I. U., & Lali, T. S. (1994). Distribution of larval host plants of the fruit piercing moth, <i>Othreis fullonia</i> . <i>Chemoecology</i> , 5(2), 75-77	"The adult fruit piercing moth, <i>Othreis fullonia</i> , a native of the Indo-Malaysian region, causes severe damage to fruits grown throughout the tropical and subtropical belt from Africa through Asia and Australia to the Pacific Islands. Plants of the family Menispermaceae and the genus <i>Erythrina</i> (Fabaceae) serve as larval hosts but the adult moths prefer Menispermaceae plants for oviposition. In Africa, Asia and Australia, the moth does not lay eggs on <i>Erythrina</i> since members of the Menispermaceae are abundant. However in the insular Pacific region, where most islands have few or no species of Menispermaceae, the introduced fruit piercing moth utilizes <i>Erythrina</i> as an alternate larval host, and either depletes, endangers or causes the possible extinction of Menispermaceae." ... "the moth laid eggs on the vines of Menispermaceae ( <i>Stephania japonica</i> ... "

407	Causes allergies or is otherwise toxic to humans	
	Source(s)	Notes
	Forman, L. (1956). The Menispermaceae of Malaysia: I. <i>Kew Bulletin</i> , 11(1), 41-69	"The tuberous root is bitter and very poisonous due to its picrotoxin content. It is used medicinally for fever, diarrhoea, urinary diseases and stomach-ache. Crushed leaves in water form a slightly gelatinuous mass which is applied to breast infections. Reported to be poisonous to live-stock in Australia" [Possibly, although unlikely to accidentally ingest roots]

408	Creates a fire hazard in natural ecosystems	
	Source(s)	Notes
	Zhenghao Xu & Meihua Deng. (2017). Identification and Control of Common Weeds: Volume 2. Zhejiang University Press, Hangzhou and Springer Nature, Singapore	"Snake vine often occurs both in mountain and plain habitats, and it can grow rampantly on the ground or climb along supports. It usually grows exuberantly and sometimes smothers trees or other vegetation where it appears." [Flammability unknown, but smothering habit could potentially serve as a fuel ladder to tree canopy or other vegetation]

Qsn #	Question	Answer
	Kubiak, P. J. 2009. Fire responses of bushland plants after the January 1994 wildfires in northern Sydney. <i>Cunninghamia</i> , 11(1): 131-165	[Resprouts after fire. Unknown if this vine increases fire risk, but as a vine, could serve as a fuel ladder to tree canopy] "Appendix 1. Observations on fire responses (after 100% leaf scorch) of vascular plants in the Lane Cove River (LCR)" [ <i>Stephania japonica</i> var. <i>discolor</i> - Fire Response - R = majority of adult plants resprouted after the fires]

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Zhenghao Xu & Meihua Deng. (2017). Identification and Control of Common Weeds: Volume 2. Zhejiang University Press, Hangzhou and Springer Nature, Singapore	"It prefers full to partial sun situations and can endure poor-nutrition conditions."
	Dave's Garden. (2018). Tape Vine - <i>Stephania japonica</i> . <a href="https://davesgarden.com/guides/pf/go/82670/">https://davesgarden.com/guides/pf/go/82670/</a> . [Accessed 21 Nov 2018]	"Sun Exposure: Sun to Partial Shade Light Shade Partial to Full Shade"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	
	Source(s)	Notes
	Zhenghao Xu & Meihua Deng. (2017). Identification and Control of Common Weeds: Volume 2. Zhejiang University Press, Hangzhou and Springer Nature, Singapore	"It prefers full to partial sun situations and can endure poor-nutrition conditions."
	Flora of Australia Online. (2018). <i>Stephania japonica</i> var. <i>discolor</i> . <a href="http://www.anbg.gov.au/abrs/online-resources/flora">http://www.anbg.gov.au/abrs/online-resources/flora</a> . [Accessed 21 Nov 2018]	[Identified as growing on sandy soils. Full range of soil tolerance unknown, but found in a variety of habitats, suggesting no or minimal substrate limitations] "Grows in various types of forest, in beach scrub and climbing over rocks and grassy banks, sometimes a vine weed (e.g. on citrus trees), often in sandy soil, to 1000 m alt."

411	Climbing or smothering growth habit	y
	Source(s)	Notes
	Zhenghao Xu & Meihua Deng. (2017). Identification and Control of Common Weeds: Volume 2. Zhejiang University Press, Hangzhou and Springer Nature, Singapore	"Snake vine often occurs both in mountain and plain habitats, and it can grow rampantly on the ground or climb along supports. It usually grows exuberantly and sometimes smothers trees or other vegetation where it appears."
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2008. Flora of China. Vol. 7 (Menispermaceae through Capparaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	"Vines, glabrous or pubescent. Root woody, not tuberous, brownish yellow. Stems slender, slightly woody when old, sometimes prostrate and rooting at nodes. Petiole 3–12 cm; leaf blade conspicuously peltate, usually triangular-rotund or broadly triangular-ovate to rotund, 5–12(–15) cm, as wide as or slightly wider than long, papery to thinly leathery, abaxially glabrous or hirsute, often glaucous, adaxially glossy, base usually broadly rounded, apex with a finely mucronate acumen, palmately 8–11-veined, raised abaxially, reticulation slightly raised, conspicuous."

412	Forms dense thickets	n
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Zhenghao Xu & Meihua Deng. (2017). Identification and Control of Common Weeds: Volume 2. Zhejiang University Press, Hangzhou and Springer Nature, Singapore	"Snake vine often occurs both in mountain and plain habitats, and it can grow rampantly on the ground or climb along supports. It usually grows exuberantly and sometimes smothers trees or other vegetation where it appears."

501	Aquatic	n
	<b>Source(s)</b>	<b>Notes</b>
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2008. Flora of China. Vol. 7 (Menispermaceae through Capparaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Terrestrial vine] "Vines, glabrous or pubescent." ... "Village margins, shrublands, open forests, forest margins, limestone mountains."

502	Grass	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 16 Nov 2018]	Family: Menispermaceae Subfamily: Menispermoideae Tribe: Cissampelideae

503	Nitrogen fixing woody plant	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 16 Nov 2018]	Family: Menispermaceae Subfamily: Menispermoideae Tribe: Cissampelideae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	<b>Source(s)</b>	<b>Notes</b>
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2008. Flora of China. Vol. 7 (Menispermaceae through Capparaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Roots not tuberous] "Vines, glabrous or pubescent. Root woody, not tuberous, brownish yellow. Stems slender, slightly woody when old, sometimes prostrate and rooting at nodes."

Qsn #	Question	Answer
601	<b>Evidence of substantial reproductive failure in native habitat</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Forman, L. (1956). The Menispermaceae of Malaysia: I. Kew Bulletin, 11(1), 41-69	"DISTRIBUTION. Throughout Malaysia (see Fig. 2), also Japan, S. China, Indo-China, Thailand, S. and E. Indian subcontinent, N. and E. Australia, Polynesia ( see also under varieties)." [No evidence]
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2008. Flora of China. Vol. 7 (Menispermaceae through Capparaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	"Village margins, shrublands, open forests, forest margins, limestone mountains. Anhui, Chongqing, Fujian, Guangxi, S Guizhou, Hainan, S Henan, Hubei, Hunan, Jiangsu, Jiangxi, E and SW Sichuan, NE and S Yunnan, Zhejiang [Bangladesh, India, Indonesia (Java), Japan, Korea, Laos, Malaysia, Myanmar, Nepal, Sri Lanka, Thailand, ?Vietnam; Australia, Pacific islands]." [No evidence. Widely distributed]

602	Produces viable seed	y
	Source(s)	Notes
	Zhenghao Xu & Meihua Deng. (2017). Identification and Control of Common Weeds: Volume 2. Zhejiang University Press, Hangzhou and Springer Nature, Singapore	"Diffusion Characteristics - Seed reproduction."
	Fair Dinkum Seeds. (2018). Snake Tape Vine <i>Stephania Japonica</i> Seeds. <a href="https://fairdinkumseeds.com/products-page/ethnobotanical-or-medicinal-plants/snake-tape-vine-stephania-japonica-seeds/">https://fairdinkumseeds.com/products-page/ethnobotanical-or-medicinal-plants/snake-tape-vine-stephania-japonica-seeds/</a> . [Accessed 20 Nov 2018]	"Packet of 25+ seeds from this Australian native vine." ... "It germinated fine for me after about a month or two, and now I have a heap planted out in the places I have pulled corky passionfruit out. Had a heap planted out near the creek, but that last lot of flooding wiped them out. Went back the other day and most of them have started to reshoot from the roots which is handy!"

603	Hybridizes naturally	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown. No evidence found

604	Self-compatible or apomictic	n
	Source(s)	Notes
	Meng, A., Zhang, Z., Li, J., De Craene, L. R., & Wang, H. (2012). Floral development of <i>Stephania</i> (Menispermaceae): impact of organ reduction on symmetry. International Journal of Plant Sciences, 173(8), 861-874	"Within the order, Menispermaceae are distinctive in being dioecious and having small flowers, with floral parts usually in whorls of three (Kessler 1993)." ... "Apomixis seems to be excluded from <i>Stephania</i> because none of the female plants grown in the greenhouse for a number of years was found to produce fruits (similar to a few other genera of Menispermaceae)."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Meng, A., Zhang, Z., Li, J., De Craene, L. R., & Wang, H. (2012). Floral development of <i>Stephania</i> (Menispermaceae): impact of organ reduction on symmetry. International Journal of Plant Sciences, 173(8), 861-874	"Although <i>Stephania</i> species have inconspicuous flowers, they have brightly colored (often orange-yellow) and fleshy petals. These features, in addition to the nectary, are usually found to attract small beetles, flies, or occasional bees that visit them (H. Wang, personal observation)."

Qsn #	Question	Answer
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2008. Flora of China. Vol. 7 (Menispermaceae through Capparaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	"Inflorescences compound umbelliform cymes, usually axillary, rarely 2 or few on short axillary branches; peduncle to 6 cm; rays often very short, umbellet very condensed, headlike; axes glabrous or pubescent; pedicels almost absent. Male flowers: sepals 6 or 8 in 2 whorls, membranous, yellowish green, oblanceolate or obovate-elliptic to spatulate or narrowly elliptic, 1–1.5 mm, glabrous or pubescent; petals 3 or 4, slightly fleshy, yellow, broadly obovate to rotund, 0.5–1 mm, glabrous, rarely apex slightly concave; synandrium 0.5–1 mm, exerted or not, anthers 6. Female flowers: sepals 3 or 4, shape and size as in male or smaller; petals 3 or 4, shape and size as in male or slightly smaller; carpel ovoid, stigma lacerate."

606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	Frohlich, D. & Lau, A. 2007. New plant records from O'ahu for 2006. Bishop Museum Occasional Papers 96: 8-13	"Its method of dispersal in the garden is unknown, but park staff believe it is being spread by pigs, which are seen running through the plantings and dragging pieces of the vine upslope."
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2008. Flora of China. Vol. 7 (Menispermaceae through Capparaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	"Vines, glabrous or pubescent. Root woody, not tuberous, brownish yellow. Stems slender, slightly woody when old, sometimes prostrate and rooting at nodes."

607	Minimum generative time (years)	
	Source(s)	Notes
	Hunter, J. T. & Alexander, J. (1999). Vegetation and Floristics of the Guy Fawkes River National Park Glen Innes District. A Report to the New South Wales National Parks and Wildlife Service. Invergowrie NSW	[Unknown. Secondary juvenile period following fire <1 year] "Table 7: Known fire responses and traits of taxa found in the Guy Fawkes River National Park. NPFR refers to National Fire Register." ... "Stephania japonica var. discolor ... Facultative resprouter. From base after high intensity fire. Secondary juvenile period < 1 yr"

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2008. Flora of China. Vol. 7 (Menispermaceae through Capparaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	"Drupes red, obovate to subglobose, 6–8 mm; endocarp 5–6 mm, abaxially ornamented with 10 or slightly more rows of transverse ridges; condyle perforate or not." [No means of external attachment]
	Frohlich, D. & Lau, A. 2007. New plant records from O'ahu for 2006. Bishop Museum Occasional Papers 96: 8-13	[Pigs speculated to move vine fragments. No evidence that humans accidentally spread vine fragments in heavily trafficked areas] "Its method of dispersal in the garden is unknown, but park staff believe it is being spread by pigs, which are seen running through the plantings and dragging pieces of the vine upslope."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes

Qsn #	Question	Answer
	Fair Dinkum Seeds. (2018). Snake Tape Vine <i>Stephania Japonica</i> Seeds. <a href="https://fairdinkumseeds.com/products-page/ethnobotanical-or-medicinal-plants/snake-tape-vine-stephania-japonica-seeds/">https://fairdinkumseeds.com/products-page/ethnobotanical-or-medicinal-plants/snake-tape-vine-stephania-japonica-seeds/</a> . [Accessed 21 Nov 2018]	"Packet of 25+ seeds from this Australian native vine." [Seeds sold online]
	Frohlich, D. & Lau, A. 2007. New plant records from O'ahu for 2006. Bishop Museum Occasional Papers 96: 8-13	"The species has spread well beyond the original planting at Waimea Botanical Garden and is reportedly established beyond the garden's ability to control, given current resources. Its method of dispersal in the garden is unknown, but park staff believe it is being spread by pigs, which are seen running through the plantings and dragging pieces of the vine upslope."
	Dave's Garden. (2018). Tape Vine - <i>Stephania japonica</i> . <a href="https://davesgarden.com/guides/pf/go/82670/">https://davesgarden.com/guides/pf/go/82670/</a> . [Accessed 21 Nov 2018]	Cultivated as an ornamental

703	Propagules likely to disperse as a produce contaminant	
	Source(s)	Notes
	Ohsawa, M. (1982). Weeds of tea plantations. In <i>Biology and ecology of weeds</i> (pp. 435-448). Springer, Netherlands	"Table 1. Important weed species in the world tea areas. Underlining indicates serious weeds." [ <i>Stephania japonica</i> var. <i>hernandifolia</i> identified as a weed of tea plantations in Indonesia, Sri Lanka and North India/Nepal]
	WRA Specialist. 2018. Personal Communication	A weed of tree crops and tea plantations, but unlikely to become a produce contaminant of crops harvested for their fruit or leaves.

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2008. <i>Flora of China</i> . Vol. 7 (Menispermaceae through Capparaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	"Drupes red, obovate to subglobose, 6–8 mm; endocarp 5–6 mm, abaxially ornamented with 10 or slightly more rows of transverse ridges; condyle perforate or not."

705	Propagules water dispersed	
	Source(s)	Notes
	Forman, L. (1956). The Menispermaceae of Malaysia: I. <i>Kew Bulletin</i> , 11(1), 41-69	"Occurring in hedges, thickets, river-banks, forests, and on mountains, from sea-level to 1800 m. altitude." [Adapted for frugivory, but proximity to rivers could allow for movement by water]

706	Propagules bird dispersed	y
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2008. <i>Flora of China</i> . Vol. 7 (Menispermaceae through Capparaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	"Drupes red, obovate to subglobose, 6–8 mm; endocarp 5–6 mm, abaxially ornamented with 10 or slightly more rows of transverse ridges; condyle perforate or not."
	CSIRO. (2010). <i>Australian Tropical Rainforest Plants Edition 6 - Stephania japonica</i> var. <i>japonica</i> . <a href="http://keys.trin.org.au/">http://keys.trin.org.au/</a> . [Accessed 20 Nov 2018]	"Fruit eaten by Lewin's Honeyeaters, Victoria's Riflebirds and Golden Whistlers. Cooper & Cooper (1994)."

Qsn #	Question	Answer
	Wefferling, K. M., Hoot, S. B., & Neves, S. S. (2013). Phylogeny and fruit evolution in Menispermaceae. <i>American Journal of Botany</i> , 100(5), 883-905	"Relatively little is known about fruit dispersal or seed predation within the family. Birds and mammals are the most commonly observed fruit consumers."
	Fair Dinkum Seeds. (2018). Snake Tape Vine <i>Stephania Japonica</i> Seeds. <a href="https://fairdinkumseeds.com/products-page/ethnobotanical-or-medicinal-plants/snake-tape-vine-stephania-japonica-seeds/">https://fairdinkumseeds.com/products-page/ethnobotanical-or-medicinal-plants/snake-tape-vine-stephania-japonica-seeds/</a> . [Accessed 20 Nov 2018]	"The birds love it, and where I originally found it the rainbow fish were sitting underneath the branch waiting for the ripe red berries to fall in the water."
	Kominami, Y., Sato, T., Takeshita, K., Manabe, T., Endo, A., & Noma, N. (2003). Classification of bird-dispersed plants by fruiting phenology, fruit size, and growth form in a primary lucidophyllous forest: an analysis, with implications for the conservation of fruit-bird interactions. <i>Ornithological Science</i> , 2(1): 3-23	"To understand the patterns of fruit-bird interactions and to identify species with significant roles that are irreplaceable in these interactions (key species), we classified plant types according to traits relating to frugivory by birds, and analyzed the relationships between plant types and frugivorous birds in a primary lucidophyllous forest in Japan." ... "Appendix 2. Traits and abundance of 111 endozoochorous plant species in the Aya Research Site" [Stephania japonica classified as bird-dispersed]

707	Propagules dispersed by other animals (externally)	
	Source(s)	Notes
	Frohlich, D. & Lau, A. 2007. New plant records from O'ahu for 2006. <i>Bishop Museum Occasional Papers</i> 96: 8-13	[Vegetative fragments possibly spread by pigs] "Its method of dispersal in the garden is unknown, but park staff believe it is being spread by pigs, which are seen running through the plantings and dragging pieces of the vine upslope."

708	Propagules survive passage through the gut	y
	Source(s)	Notes
	CSIRO. (2010). <i>Australian Tropical Rainforest Plants Edition 6 - Stephania japonica var. japonica</i> . <a href="http://keys.trin.org.au/">http://keys.trin.org.au/</a> . [Accessed ]	"Fruit eaten by Lewin's Honeyeaters, Victoria's Riflebirds and Golden Whistlers. Cooper & Cooper (1994)." [Seeds presumably survive gut passage]

801	Prolific seed production (>1000/m2)	n
	Source(s)	Notes
	Russell-Smith, J., & Lucas, D. E. (1994). Regeneration of monsoon rain forest in northern Australia: the dormant seed bank. <i>Journal of Vegetation Science</i> , 5(2), 161-168	"Appendix 1. Densities of dormant seeds germinated from monsoon rain forest soils in the Northern Territory, Australia, for each of four groups derived from TWINSpan analysis. Densities expressed as numbers of seeds per m2 soil surface area." [Stephania japonica densities recorded at 0.7±0.4 m2]
	WRA Specialist. 2018. Personal Communication	Unlikely. A dioecious vine with single-seeded drupes

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Royal Botanic Gardens Kew. (2018) Seed Information Database (SID). Version 7.1. Available from: <a href="http://data.kew.org/sid/">http://data.kew.org/sid/</a> . [Accessed 21 Nov 2018]	"Storage Behaviour: No data available for species or genus. Of 7 known taxa of family MENISPERMACEAE, 100.00% Orthodox(p/?)"

Qsn #	Question	Answer
803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Kubiak, P. J. 2009. Fire responses of bushland plants after the January 1994 wildfires in northern Sydney. <i>Cunninghamia</i> , 11(1): 131-165	"Appendix 1. Observations on fire responses (after 100% leaf scorch) of vascular plants in the Lane Cove River (LCR)" [ <i>Stephania japonica</i> var. <i>discolor</i> - Fire Response - R = majority of adult plants resprouted after the fires]
	Fair Dinkum Seeds. (2018). Snake Tape Vine <i>Stephania Japonica</i> Seeds. <a href="https://fairdinkumseeds.com/products-page/ethnobotanical-or-medicinal-plants/snake-tape-vine-stephania-japonica-seeds/">https://fairdinkumseeds.com/products-page/ethnobotanical-or-medicinal-plants/snake-tape-vine-stephania-japonica-seeds/</a> . [Accessed 20 Nov 2018]	[Anecdotal reports of resprouting following flood damage] "Had a heap planted out near the creek, but that last lot of flooding wiped them out. Went back the other day and most of them have started to reshoot from the roots which is handy!"

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown



**Summary of Risk Traits:**

High Risk / Undesirable Traits

- Elevation range exceeds 1000 m, demonstrating environmental versatility
- Thrives in tropical climates
- Naturalizing on Oahu, (Hawaiian Islands)
- A weed of tea plantations in Indonesia, Sri Lanka and North India/Nepal and of citrus crops
- Other *Stephania* species are invasive
- Roots reported to be toxic
- Shade-tolerant
- Reproduces by seeds and vegetatively by rooting at nodes or from stem fragments
- Seeds dispersed by birds, other frugivorous animals & intentionally by people
- Resprouts after flooding damage or fire

Low Risk Traits

- Unarmed (no spines, thorns, or burrs)
- Leaves palatable to gibbons, deer and probably other browsing animals
- Dioecious (may limit ability to spread if only male or female plants are cultivated)