Taxon: Tiliacora triandra (Colebr.) Diels

Family: Menispermaceae

Common Name(s): bai yanang
ya nang leuang
yanang grass jelly vine

Synonym(s): Aristega laevifolia Miers
Cocculus triandrus Colebr.
Limacia amherstiana Miers
Limacia triandra (Colebr.) Hook.f. &
Limacia wallichiana Miers
Menispermum triandrum (Colebr.)
Sebicea stipularis Pierre ex Diels
Tiliacora laevifolia (Miers) Diels
Tiliacora stipularis Pierre ex Diels

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 28 Jun 2022

WRA Score: 3.0 **Designation:** EVALUATE **Rating:** Evaluate

Keywords: Tropical Liana, Dioecious, Medicinal, Fleshy-fruited, Vertebrate 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	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	n
403	Parasitic	y=1, n=0	n

Qsn #	Question	Answer Option	Answer
404	Unpalatable to grazing animals		
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	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)		
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		
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	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	y
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
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)		
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire		
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**
	Forman, L. L. (1975). The Tribe Triclisieae Diels in Asia, the Pacific and Australia: The Menispermaceae of Malesia and Adjacent Areas: VIII. Kew Bulletin, 30(1), 77–100	[No evidence of domestication] "Habitat: In Thailand: limestone hills, evergreen forest near sea and also by the side of streams in scrub jungle at low altitudes up to 200 m. In Vietnam: on rocky and clayey soils up to 800 m alt. In Malaya: recorded from Kedah Peak at 1300 malt. Uses. Leafy shoots mixed with other plants are used in Cambodia for the preparation of a medicine for dysentery (see Martin, l. c., 1971). Used for cordage in Vietnam (Poilane 2936)."

102	**Has the species become naturalized where grown?**	
	Source(s)	**Notes**
	WRA Specialist. (2022). Personal Communication	NA

103	**Does the species have weedy races?**	
	Source(s)	**Notes**
	WRA Specialist. (2022). 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**
	Forman, L. L. (1988). A Synopsis of Thai Menispermaceae. Kew Bulletin, 43(3), 369–407	"Thailand. Eastern: Khorat; Central: Bangkok; South-Eastern: Trat (Koh Chang), Chantaburi, Sriracha; SOUTH-WESTERN: Utai Thani, Kanchanaburi, Ratchaburi; PENINSULAR: Surat Thani, Phuket, Songkhla, Satun, Pattani. DISTRIBUTION. S. Burma, Assam (Khasya), Cambodia, Laos, Vietnam, Malay Peninsula (type: origin Penang, Cult. Calcutta)."

202	**Quality of climate match data**	**High**
	Source(s)	**Notes**
	Forman, L. L. (1988). A Synopsis of Thai Menispermaceae. Kew Bulletin, 43(3), 369–407	"Thailand. Eastern: Khorat; Central: Bangkok; South-Eastern: Trat (Koh Chang), Chantaburi, Sriracha; SOUTH-WESTERN: Utai Thani, Kanchanaburi, Ratchaburi; PENINSULAR: Surat Thani, Phuket, Songkhla, Satun, Pattani. DISTRIBUTION. S. Burma, Assam (Khasya), Cambodia, Laos, Vietnam, Malay Peninsula (type: origin Penang, Cult. Calcutta)."

203	**Broad climate suitability (environmental versatility)**	**y**
	Source(s)	**Notes**

Qsn #	Question	Answer
	Dave's Garden. (2022). Vietnamese Jello Plant - Tiliacora triandra. https://davesgarden.com/guides/pf/go/197254/. [Accessed 24 Jun 2022]	"Hardiness: USDA Zone 10a: to -1.1 °C (30 °F) USDA Zone 10b: to 1.7 °C (35 °F) USDA Zone 11: above 4.5 °C (40 °F)"
	Forman, L. L. (1975). The Tribe Triclisieae Diels in Asia, the Pacific and Australia: The Menispermaceae of Malesia and Adjacent Areas: VIII. Kew Bulletin, 30(1), 77–100	[Occurs over an elevation of >1000 m] "In Thailand: limestone hills, evergreen forest near sea and also by the side of streams in scrub jungle at low altitudes up to 200 m. In Vietnam: on rocky and clayey soils up to 800 malt. In Malaya: recorded from Kedah Peak at 1300 malt."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	**Notes**
	Forman, L. L. (1988). A Synopsis of Thai Menispermaceae. Kew Bulletin, 43(3), 369–407	"Thailand. Eastern: Khorat; Central: Bangkok; South-Eastern: Trat (Koh Chang), Chantaburi, Sriracha; SOUTH-WESTERN: Utai Thani, Kanchanaburi, Ratchaburi; PENINSULAR: Surat Thani, Phuket, Songkhla, Satun, Pattani. DISTRIBUTION. S. Burma, Assam (Khasya), Cambodia, Laos, Vietnam, Malay Peninsula (type: origin Penang, Cult. Calcutta)."

205	Does the species have a history of repeated introductions outside its natural range?	n
	Source(s)	**Notes**
	Dave's Garden. (2022). Vietnamese Jello Plant - Tiliacora triandra. https://davesgarden.com/guides/pf/go/197254/. [Accessed 27 Jun 2022]	"This plant is said to grow outdoors in the following regions: Birmingham, Alabama San Diego, California Melbourne Beach, Florida"
	WRA Specialist. (2022). Personal Communication	Limited evidence found of cultivation outside native range

301	Naturalized beyond native range	n
	Source(s)	**Notes**
	Imada, C. (2019). Hawaiian Naturalized Vascular Plants Checklist (February 2019 update). Bishop Museum Technical Report 69. Bishop Museum, Honolulu, HI	No evidence
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	WRA Specialist. (2022). Personal Communication	No evidence found

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	No evidence
	CABI. (2022). Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	No evidence

Qsn #	Question	Answer
303	**Agricultural/forestry/horticultural weed**	**n**
	Source(s)	**Notes**
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	CABI. (2022). Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	No evidence

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
	CABI. (2022). Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	No evidence

305	**Congeneric weed**	**n**
	Source(s)	**Notes**
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	CABI. (2022). Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	No evidence

401	**Produces spines, thorns or burrs**	**n**
	Source(s)	**Notes**
	Forman, L. L. (1975). The Tribe Triclisieae Diels in Asia, the Pacific and Australia: The Menispermaceae of Malesia and Adjacent Areas: VIII. Kew Bulletin, 30(1), 77–100	[No evidence] "Stems puberulous to glabrous, striate. Leaves with puberulous to glabrous, verruculose petioles 0·5-2 cm long; lamina elliptic, lanceolate or sometimes subovate, base cuneate to rounded (to subcordate), apex acute to obtuse, often acuminate, 6·5-11 (-17) cm long, 2-4(-8·5) cm broad, with 3-5 subpalmate basal nerves apart from 2-6 pairs of lateral nerves, main nerves tending to link up towards the margin, mid-rib on lower surface verruculose near the base, glabrous, stiffly chartaceous. Inflorescences axillary or cauliflorous, pubescent, 2-8(-17) cm long bearing I-few-flowered peduncled cymes c. 0·5 cm long. Male.flowers yellow; inner sepals broadly elliptic 2 mm long, subglabrous; petals 3 or 6, cuneate, emarginate I mm long, glabrous; stamens 3, clavate, 1 ·5-2 mm long. Female flowers: inner sepals orbicular, 2 mm long, externally puberulous; petals 6, oblong-elliptic, 1 mm long; carpels c. 8-9, less than I mm long borne on short branches of a glabrous gynophore; style less than 0·5 mm long. Drupes red, borne on gynophore 3-4 mm long with branches 2-3 mm long, subcompressed, obovoid, 7-10 mm long, 6-7 mm broad, glabrous; endocarp transversely and irregularly ridged."

402	**Allelopathic**	**n**

Qsn #	Question	Answer
	Source(s)	**Notes**
	Sothearith, Y. et al. (2021). Determination of the Allelopathic Potential of Cambodia's Medicinal Plants Using the Dish Pack Method. Sustainability, 13(16), 9062	"Abstract: Plants produce several chemically diverse bioactive substances that may influence the growth and development of other organisms when released into the environment in a phenomenon called allelopathy. Several of these allelopathic species also have reported medicinal properties. In this study, the potential allelopathic effects of more than a hundred medicinal plants from Cambodia were tested using the dish pack method. The dish pack bioassay method specifically targets volatile allelochemicals. Twenty-five species were found to have significant inhibitory effects on lettuce radicle growth. Eleven different plant families, including Iridaceae (2), Apocynaceae (2), Poaceae (2), Sapindaceae, Araceae, Combretaceae, Orchidaceae, Clusiaceae, Zingiberaceae, Rutaceae and Asparagaceae had the plant species with high inhibitory effects. Allophyllus serrulatus had the highest growth inhibitory effect on lettuce radicles more than 60%, followed by Alocasia macrorrhiza, Iris pallida, Terminalia triptera, Wrightia tomentosa, Cymbidium aloifolium, Garcinia villersiana and Kaempferia parviflora. The candidate species were subjected to further studies to identify the volatile allelochemicals in the volatile constituents." [Tiliacora triandra was evaluated, but not found to have significant inhibitory effects on lettuce radicle growth.]

403	Parasitic	n
	Source(s)	**Notes**
	Lemmens, R.H.M.J. & Bunyapraphatsara, N. (Eds.). (2003). Plant Resources of South-East Asia. No 12(3). Medicinal and Poisonous Plants 3. Backhuys Publishers, Leiden, The Netherlands	"A dioecious liana with puberulous to glabrous and striate stems." [Menispermaceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	**Notes**
	India Biodiversity Portal. (2022). Tiliacora triandra (Colebr.) Diels. https://indiabiodiversity.org/species/show/250733. [Accessed 27 Jun 2022]	"Seeds may be dispersed by autochory i.e., self dispersal, zoochory i.e., dispersal by birds or animals, anthropochory i.e., dispersal by humans." [Palatability of foliage unknown]

405	Toxic to animals	n
	Source(s)	**Notes**
	Tropical Plants Database, Ken Fern. (2022). Tiliacora triandra. http://tropical.theferns.info. [Accessed 27 Jun 2022]	"Known Hazards None known"
	Quattrocchi, U. (2012). CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence

Qsn #	Question	Answer
406	**Host for recognized pests and pathogens**	
	Source(s)	**Notes**
	WRA Specialist. (2022). Personal Communication	Unknown

407	**Causes allergies or is otherwise toxic to humans**	**n**
	Source(s)	**Notes**
	Tropical Plants Database, Ken Fern. (2022). Tiliacora triandra. http://tropical.theferns.info. [Accessed 27 Jun 2022]	"Known Hazards None known"
	Forman, L. L. (1988). A Synopsis of Thai Menispermaceae. Kew Bulletin, 43(3), 369–407	[No evidence] "Widely used in Thailand as a flavouring in cooking. Leafy shoots mixed with other plants are used in Cambodia for the preparation of a medicine for dysentery. Used for cordage in Vietnam."

408	**Creates a fire hazard in natural ecosystems**	**n**
	Source(s)	**Notes**
	Forman, L. L. (1975). The Tribe Triclisieae Diels in Asia, the Pacific and Australia: The Menispermaceae of Malesia and Adjacent Areas: VIII. Kew Bulletin, 30(1), 77–100	"In Thailand: limestone hills, evergreen forest near sea and also by the side of streams in scrub jungle at low altitudes up to 200 m. In Vietnam: on rocky and clayey soils up to 800 malt. In Malaya: recorded from Kedah Peak at 1300 malt." [No evidence. Unlikely. Not reported in fire prone habitats]

409	**Is a shade tolerant plant at some stage of its life cycle**	**y**
	Source(s)	**Notes**
	Dave's Garden. (2022). Vietnamese Jello Plant - Tiliacora triandra. https://davesgarden.com/guides/pf/go/197254/. [Accessed 27 Jun 2022]	"Sun Exposure: Sun to Partial Shade Light Shade"
	Logee's Greenhouses. (2022). Yanang Grass Jelly Vine (Tiliacora triandra). https://www.logees.com/yanang-grass-jelly-vine-tiliacora-triandra.html. [Accessed 27 Jun 2022]	"Sun Requirement Full Sun, Partial Sun"

410	**Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)**	
	Source(s)	**Notes**
	Lemmens, R.H.M.J. & Bunyapraphatsara, N. (Eds.). (2003). Plant Resources of South-East Asia. No 12(3). Medicinal and Poisonous Plants 3. Backhuys Publishers, Leiden, The Netherlands	"It is found on rocky or clayey soils, and also on limestone hills."
	Dave's Garden. (2022). Vietnamese Jello Plant - Tiliacora triandra. https://davesgarden.com/guides/pf/go/197254/. [Accessed 27 Jun 2022]	"Soil pH requirements: 6.1 to 6.5 (mildly acidic) 6.6 to 7.5 (neutral)"

411	**Climbing or smothering growth habit**	**y**

Qsn #	Question	Answer
	Source(s)	**Notes**
	Wiart, C. (2021). Medicinal Plants in Asia and Pacific for Parasitic Infections: Botany, Ethnopharmacology, Molecular Basis, and Future Prospect. Academic Press, London	"Botanical description: It is a climber which grows in the forest of Laos and Thailand. The young stems are terete and flexuous. The leaves are simple, edible, spiral, and exstipulate. The petiole is up to about 2 cm long and curved. The blade is lanceolate, somewhat bay leaf-like, about 3.5 cm X 3.5 cm, round at base, slightly acuminate at apex, and marked with about seven pairs of secondary nerves. The drupes are orange to red and contain horseshoe-shaped seeds."

412	Forms dense thickets	n
	Source(s)	**Notes**
	Forman, L. L. (1975). The Tribe Triclisieae Diels in Asia, the Pacific and Australia: The Menispermaceae of Malesia and Adjacent Areas: VIII. Kew Bulletin, 30(1), 77–100	"In Thailand: limestone hills, evergreen forest near sea and also by the side of streams in scrub jungle at low altitudes up to 200 m. In Vietnam: on rocky and clayey soils up to 800 malt. In Malaya: recorded from Kedah Peak at 1300 malt." [No evidence]
	Lemmens, R.H.M.J. & Bunyapraphatsara, N. (Eds.). (2003). Plant Resources of South-East Asia. No 12(3). Medicinal and Poisonous Plants 3. Backhuys Publishers, Leiden, The Netherlands	"T. triandra occurs in forest and scrub vegetation up to 1300 m altitude. It is found on rocky or clayey soils, and also on limestone hills." [No evidence]

501	Aquatic	n
	Source(s)	**Notes**
	Forman, L. L. (1988). A Synopsis of Thai Menispermaceae. Kew Bulletin, 43(3), 369–407	[Terrestrial] "Ecology. Limestone hills, evergreen forest near sea, by the side of streams in scrub jungle, locally common in old clearings, at low altitudes up to 300 m. Flowering and fruiting December to July."

502	Grass	n
	Source(s)	**Notes**
	Forman, L. L. (1988). A Synopsis of Thai Menispermaceae. Kew Bulletin, 43(3), 369–407	Menispermaceae

503	Nitrogen fixing woody plant	n
	Source(s)	**Notes**
	Forman, L. L. (1988). A Synopsis of Thai Menispermaceae. Kew Bulletin, 43(3), 369–407	Menispermaceae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	**Notes**

Qsn #	Question	Answer
	Chinh, V. T., Quang, B. H., & Anh, T. T. P. (2015). Morphological characteristics and key to genera of family Menispermaceae in Vietnam. In Proceedings of the 6th National Scientific Conference of Ecology and Biological Resources (Hanoi, Vietnam) (pp. 27-32)	[Stephania is the only genus of the family having tuberous rootstock] "Large woody vines (Fig. 1): They are usually 10 - 40 m long, and about 0.7 - 5 cm in diameter. Tinomiscium, Albertisia, Lamicia, Pycnarrhena, Pachygone, Coscinium, Anamirta, Arcangelisia, Fibraurea, Diploclisia, Hypserpa (Fig. 1).Small woody vines: 5 - 8 m, Parabaena, Tiliacora, Tinospora. Herbaceous vines: 1 - 4 m, Cyclea, Cissampelos, Cucculus, Pericampylus (Fig 1d). (Fig. 1b). Stephania is the only genus of the family having tuberous rootstock."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	**Notes**
	Lemmens, R.H.M.J. & Bunyapraphatsara, N. (Eds.). (2003). Plant Resources of South-East Asia. No 12(3). Medicinal and Poisonous Plants 3. Backhuys Publishers, Leiden, The Netherlands	[No evidence] "Origin and geographic distribution T. triandra occurs in India (Assam), southern Burma (Myanmar), Indo-China, Thailand and Peninsular Malaysia."

602	Produces viable seed	y
	Source(s)	**Notes**
	Tropical Plants Database, Ken Fern. (2022). Tiliacora triandra. http://tropical.theferns.info. [Accessed 27 Jun 2022]	"Propagation - Seed"
	Wiart, C. (2021). Medicinal Plants in Asia and Pacific for Parasitic Infections: Botany, Ethnopharmacology, Molecular Basis, and Future Prospect. Academic Press, London	"The drupes are orange to red and contain horseshoe-shaped seeds."
	India Biodiversity Portal. (2022). Tiliacora triandra (Colebr.) Diels. https://indiabiodiversity.org/species/show/250733. [Accessed 27 Jun 2022]	"Tiliacora species are dioecious i.e., male (staminate) flowers on one plant, and female (pistillate) flowers on another plant. Pollination is entomophilous i.e., by insects. Flowering/Fruiting: May-September."

603	Hybridizes naturally	
	Source(s)	**Notes**
	Forman, L. L. (1975). The Tribe Triclisieae Diels in Asia, the Pacific and Australia: The Menispermaceae of Malesia and Adjacent Areas: VIII. Kew Bulletin, 30(1), 77–100	Unknown. No evidence
	Forman, L. L. (1988). A Synopsis of Thai Menispermaceae. Kew Bulletin, 43(3), 369–407	Unknown. No evidence

604	Self-compatible or apomictic	n
	Source(s)	**Notes**
	Wefferling, K. M., Hoot, S. B., & Neves, S. S. (2013). Phylogeny and fruit evolution in Menispermaceae. American Journal of Botany, 100(5), 883-905	"Menispermaceae are a family of dioecious lianas or scandent shrubs (rarely herbs, erect shrubs, or small trees) that are important components of wet tropical lowlands (Gentry, 1991 ; Ortiz et al., 2007 ; Hoot et al., 2009 ; Wing et al., 2009 ; Wang et al., 2012)."

Qsn #	Question	Answer
	Quattrocchi, U. (2012). CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[Tiliacora triandra] "Thailand. Shrub, climbing, slender, dioecious, large tuber underground, inflorescence in axillary panicles, fruits orange-red, druplets, in waste places, secondary forest"

605	Requires specialist pollinators	n
	Source(s)	**Notes**
	Lemmens, R.H.M.J. & Bunyapraphatsara, N. (Eds.). (2003). Plant Resources of South-East Asia. No 12(3). Medicinal and Poisonous Plants 3. Backhuys Publishers, Leiden, The Netherlands	"As in other Menispermaceae, the pollinators are probably small insects, which are undoubtedly attracted by the scent of the flowers."
	India Biodiversity Portal. (2022). Tiliacora triandra (Colebr.) Diels. https://indiabiodiversity.org/species/show/250733. [Accessed 27 Jun 2022]	"Tiliacora species are dioecious i.e., male (staminate) flowers on one plant, and female (pistillate) flowers on another plant. Pollination is entomophilous i.e., by insects. Flowering/Fruiting: May-September."

606	Reproduction by vegetative fragmentation	
	Source(s)	**Notes**
	India Biodiversity Portal. (2022). Tiliacora triandra (Colebr.) Diels. https://indiabiodiversity.org/species/show/250733. [Accessed 27 Jun 2022]	"Reproduction - Tiliacora species are dioecious i.e., male (staminate) flowers on one plant, and female (pistillate) flowers on another plant. Pollination is entomophilous i.e., by insects. Flowering/Fruiting: May-September." [Unknown. As a liana, may be able to spread vegetatively, but information on reproduction is limited]

607	Minimum generative time (years)	
	Source(s)	**Notes**
	Lemmens, R.H.M.J. & Bunyapraphatsara, N. (Eds.). (2003). Plant Resources of South-East Asia. No 12(3). Medicinal and Poisonous Plants 3. Backhuys Publishers, Leiden, The Netherlands	"Fruit consisting of several drupes borne on a branched carpophore; drupes obovoid, 7-10 mm x 6-7 mm, red, glabrous, endocarp transversely and irregularly ridged." [Unknown]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	**Notes**
	Lemmens, R.H.M.J. & Bunyapraphatsara, N. (Eds.). (2003). Plant Resources of South-East Asia. No 12(3). Medicinal and Poisonous Plants 3. Backhuys Publishers, Leiden, The Netherlands	"Fruit consisting of several drupes borne on a branched carpophore; drupes obovoid, 7-10 mm x 6-7 mm, red, glabrous, endocarp transversely and irregularly ridged." [No means of external attachment]
	India Biodiversity Portal. (2022). Tiliacora triandra (Colebr.) Diels. https://indiabiodiversity.org/species/show/250733. [Accessed 27 Jun 2022]	"Seeds may be dispersed by autochory i.e., self dispersal, zoochory i.e., dispersal by birds or animals, anthropochory i.e., dispersal by humans."

702	Propagules dispersed intentionally by people	y

Qsn #	Question	Answer
	Source(s)	**Notes**
	India Biodiversity Portal. (2022). Tiliacora triandra (Colebr.) Diels. https://indiabiodiversity.org/species/show/250733. [Accessed 27 Jun 2022]	"Seeds may be dispersed by autochory i.e., self dispersal, zoochory i.e., dispersal by birds or animals, anthropochory i.e., dispersal by humans."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	**Notes**
	Lemmens, R.H.M.J. & Bunyapraphatsara, N. (Eds.). (2003). Plant Resources of South-East Asia. No 12(3). Medicinal and Poisonous Plants 3. Backhuys Publishers, Leiden, The Netherlands	"Fruit consisting of several drupes borne on a branched carpophore; drupes obovoid, 7-10 mm x 6-7 mm, red, glabrous, endocarp transversely and irregularly ridged." [Unlikely. Single-seeded drupes relatively large]
	India Biodiversity Portal. (2022). Tiliacora triandra (Colebr.) Diels. https://indiabiodiversity.org/species/show/250733. [Accessed 27 Jun 2022]	"Seeds may be dispersed by autochory i.e., self dispersal, zoochory i.e., dispersal by birds or animals, anthropochory i.e., dispersal by humans."

704	Propagules adapted to wind dispersal	n
	Source(s)	**Notes**
	Lemmens, R.H.M.J. & Bunyapraphatsara, N. (Eds.). (2003). Plant Resources of South-East Asia. No 12(3). Medicinal and Poisonous Plants 3. Backhuys Publishers, Leiden, The Netherlands	"Fruit consisting of several drupes borne on a branched carpophore; drupes obovoid, 7-10 mm x 6-7 mm, red, glabrous, endocarp transversely and irregularly ridged." [Fleshy-fruited]

705	Propagules water dispersed	y
	Source(s)	**Notes**
	Forman, L. L. (1975). The Tribe Triclisieae Diels in Asia, the Pacific and Australia: The Menispermaceae of Malesia and Adjacent Areas: VIII. Kew Bulletin, 30(1), 77–100	"In Thailand: limestone hills, evergreen forest near sea and also by the side of streams in scrub jungle at low altitudes up to 200 m." [Fleshy-fruited, and presumably adapted for frugivory, but water may facilitate secondary dispersal along streams or other riparian habitats]
	Baird, I. G. (2007). Fishes and forests: the importance of seasonally flooded riverine habitat for Mekong River fish feeding. Natural History Bulletin of the Siam Society, 55 (1), 121-148	"Table 3. Plant species that fishers from Hang Khone and Hang Sadam villages, Khong District, Champasak Province, southern Laos, report to be regularly eaten by fish from the Mekong River." [Includes fruit of Tiliacora triandra, suggesting fruit also fall in water and are likely secondarily moved by water]

Qsn #	Question	Answer
706	**Propagules bird dispersed**	**y**
	Source(s)	**Notes**
	Lemmens, R.H.M.J. & Bunyapraphatsara, N. (Eds.). (2003). Plant Resources of South-East Asia. No 12(3). Medicinal and Poisonous Plants 3. Backhuys Publishers, Leiden, The Netherlands	"Fruit consisting of several drupes borne on a branched carpophore; drupes obovoid, 7-10 mm x 6-7 mm, red, glabrous, endocarp transversely and irregularly ridged." [Presumably Yes. Fleshy-fruited]
	India Biodiversity Portal. (2022). Tiliacora triandra (Colebr.) Diels. https://indiabiodiversity.org/species/show/250733. [Accessed 27 Jun 2022]	"Seeds may be dispersed by autochory i.e., self dispersal, zoochory i.e., dispersal by birds or animals, anthropochory i.e., dispersal by humans."

707	**Propagules dispersed by other animals (externally)**	**n**
	Source(s)	**Notes**
	Lemmens, R.H.M.J. & Bunyapraphatsara, N. (Eds.). (2003). Plant Resources of South-East Asia. No 12(3). Medicinal and Poisonous Plants 3. Backhuys Publishers, Leiden, The Netherlands	"Fruit consisting of several drupes borne on a branched carpophore; drupes obovoid, 7-10 mm x 6-7 mm, red, glabrous, endocarp transversely and irregularly ridged." [No means of external attachment. No evidence]
	India Biodiversity Portal. (2022). Tiliacora triandra (Colebr.) Diels. https://indiabiodiversity.org/species/show/250733. [Accessed 27 Jun 2022]	"Seeds may be dispersed by autochory i.e., self dispersal, zoochory i.e., dispersal by birds or animals, anthropochory i.e., dispersal by humans."

708	**Propagules survive passage through the gut**	**y**
	Source(s)	**Notes**
	India Biodiversity Portal. (2022). Tiliacora triandra (Colebr.) Diels. https://indiabiodiversity.org/species/show/250733. [Accessed 27 Jun 2022]	"Seeds may be dispersed by autochory i.e., self dispersal, zoochory i.e., dispersal by birds or animals, anthropochory i.e., dispersal by humans." [Presumably yes]
	Baird, I. G. (2007). Fishes and forests: the importance of seasonally flooded riverine habitat for Mekong River fish feeding. Natural History Bulletin of the Siam Society, 55 (1), 121-148	"Table 2. Stomach contents of Mekong River Pangasius polyuranodon, Pangasius bocourti, Pangasius conchophilus and Pangasius pleurotaenia (number indicates how many fish the item was found in) at Hang Khone village, Khong District, Champasak Province, southern Laos." [Includes Tiliacora triandra]

801	**Prolific seed production (>1000/m2)**	**n**
	Source(s)	**Notes**
	Lemmens, R.H.M.J. & Bunyapraphatsara, N. (Eds.). (2003). Plant Resources of South-East Asia. No 12(3). Medicinal and Poisonous Plants 3. Backhuys Publishers, Leiden, The Netherlands	"A dioecious Hana with puberulous to glabrous and striate stems." ... "Fruit consisting of several drupes borne on a branched carpophore; drupes obovoid, 7-10 mm x 6-7 mm, red, glabrous, endocarp transversely and irregularly ridged." [Unlikely. A dioecious plant with relatively large, single-seeded fruit]

802	**Evidence that a persistent propagule bank is formed (>1 yr)**	

Qsn #	Question	Answer
	Source(s)	**Notes**
	De Rouw, A., Casagrande, M., Phaynaxay, K., Soulileuth, B., & Saito, K. (2014). Soil seedbanks in slash-and-burn rice fields of northern Laos. Weed Research, 54(1), 26-37	"Appendix 1 Species recorded in soil seedbank and corresponding surface vegetation with indication of abundance. Sites are four slash-and-burn rice fields in northern Laos. Field recordings were made in permanent quadrats from burning to harvest, 0 = no occurrence. The coppicing species are indicated: [r] = mainly resprouting sometimes seedling, [R] = only resprouting." [Tiliacora triandra not recorded in the soil seedbank, but only resprouting.]

803	Well controlled by herbicides	
	Source(s)	**Notes**
	WRA Specialist. (2022). Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	**Notes**
	De Rouw, A., Casagrande, M., Phaynaxay, K., Soulileuth, B., & Saito, K. (2014). Soil seedbanks in slash-and-burn rice fields of northern Laos. Weed Research, 54(1), 26-37	"Appendix 1 Species recorded in soil seedbank and corresponding surface vegetation with indication of abundance. Sites are four slash-and-burn rice fields in northern Laos. Field recordings were made in permanent quadrats from burning to harvest, 0 = no occurrence. The coppicing species are indicated: [r] = mainly resprouting sometimes seedling, [R] = only resprouting." [Tiliacora triandra listed as only resprouting]

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	**Notes**
	WRA Specialist. (2022). Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits
• Broad elevation range in the tropics (>1000 m)
• Grows, and could spread, in regions with tropical climates
• Shade tolerant
• Climbing, and potentially smothering habit
• Reproduces by seeds
• Seeds presumably dispersed by birds, other animals (including fish), and through intentional cultivation
• May be able to resprout after cutting
• Gaps in biological and ecological information may reduce accuracy of risk prediction

Low Risk Traits
• No reports of invasiveness or naturalization, but no evidence of widespread introduction outside native range
• Unarmed (no spines, thorns, or burrs)
• Non-toxic
• Dioecious (requires male and female plants for seed set)

Second Screening Results for Vines & Lianas

(A) Reported as a weed of cultivated lands?> No
(B) Unpalatable to grazers Or known to form dense stands?> Np
(C) Shade tolerant or known to form dense stands?> Yes. Tolerates shade
(D) Bird- Or clearly wind- dispersed?> Yes. Presumably bird-dispersed
(E) Life-cycle <4 years? Unknown
Outcome = Evaluate further