

Taxon: <i>Oxyspora paniculata</i> (D. Don) DC.	Family: Melastomataceae
Common Name(s): bristletips jian zi mu shu	Synonym(s): <i>Arthrostemma paniculatum</i> D. Don <i>Bredia soneriloides</i> H. Léveillé

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 3 Aug 2022
WRA Score: 11.0	Designation: H(Hawai'i)	Rating: High Risk

Keywords: Tropical Shrub, Noxious Weed, Shade-Tolerant, Small-Seeded, Water-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	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)	n
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	y
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		
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	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

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	n
412	Forms dense thickets		
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		
605	Requires specialist pollinators		
606	Reproduction by vegetative fragmentation		
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	1
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	y
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		
705	Propagules water dispersed	y=1, n=-1	y
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)		
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m ²)		
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
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[No evidence of domestication] "Native to the Himalayas from Nepal through Bhutan, northeastern India, and Burma to southwestern China; in Hawai'i infrequently cultivated and locally established on Tantalus, O'ahu."

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
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). (2007). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Mixed forests, stream banks, valleys, moist places; 500-2000 m. Guangxi, Guizhou, Xizang (Mêdog), Yunnan [Bhutan, Cambodia, India, Laos, Myanmar, Nepal, Vietnam]."
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Native to the Himalayas from Nepal through Bhutan, northeastern India, and Burma to southwestern China"

202	Quality of climate match data	High
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). (2007). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	Mixed forests, stream banks, valleys, moist places; 500-2000 m. Guangxi, Guizhou, Xizang (Mêdog), Yunnan [Bhutan, Cambodia, India, Laos, Myanmar, Nepal, Vietnam].

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). (2007). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[Broad elevation range in tropical latitudes] "Mixed forests, stream banks, valleys, moist places; 500-2000 m. Guangxi, Guizhou, Xizang (Mêdog), Yunnan [Bhutan, Cambodia, India, Laos, Myanmar, Nepal, Vietnam]."

Qsn #	Question	Answer
	Thin, N. N., & Harder, D. K. (1996). Diversity of the Flora of Fan Si Pan, the Highest Mountain in Vietnam. <i>Annals of the Missouri Botanical Garden</i> , 83(3), 404–408	[<i>Oxyspora paniculata</i> found in subtropical and temperate locations] "Subtropical savanna. The derived sub-tropical savanna is a common type of vegetation found at these altitudes at present. It is secondary, arising after the destruction of subtropical forest most commonly by overexploitation or shifting cultivation. This widespread vegetation type is characterized by herbaceous species such as the grasses ... shrub species ... and some trees" ... "Temperate vegetation is found at altitudes over 2000 m and supports temperate species indicated by species in such genera as ... <i>Oxyspora</i> ... among others."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). <i>Manual of the flowering plants of Hawaii</i> . Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Native to the Himalayas from Nepal through Bhutan, northeastern India, and Burma to southwestern China; in Hawai'i infrequently cultivated and locally established on Tantalus, O'ahu. First collected in 1954 (Landgraf s.n., BISH)."

205	Does the species have a history of repeated introductions outside its natural range?	n
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). <i>Manual of the flowering plants of Hawaii</i> . Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Native to the Himalayas from Nepal through Bhutan, northeastern India, and Burma to southwestern China; in Hawai'i infrequently cultivated and locally established on Tantalus, O'ahu."

301	Naturalized beyond native range	y
	Source(s)	Notes
	Nagata, Kenneth M. (1995). <i>New Hawaiian plant records IV</i> . Bishop Museum Occasional Papers. 42: 10-13	" <i>Oxyspora paniculata</i> (D. Don) DC OAHU: This species is known to be naturalized in the wet forest behind Honolulu. Until recently it was confined to the western portion and the W rim of Manoa Valley from Tantalus to Konahuanui. Small populations now occur on Waahila Ridge, the E rim of the valley, Nagata 2490, 6 Jul 1982 (HLA). It is probably just a matter"
	Obata, J. K. (1985). Another noxious melastome? <i>Oxyspora paniculata</i> . <i>Newsletter of the Hawaiian Botanical Society</i> 24: 25-26	" <i>Oxyspora paniculata</i> (D. Don) DC. is a melastome with very showy, large lavender-pink panicles. It is a large shrub and may attain a height of over 3 meters (10 ft.). It may have been cultivated on O'ahu in the past and is now naturalized."
	Starr, F., Starr, K. & Loope, L.L. (2006). <i>Roadside Survey and Expert Interviews for Selected Plant Species on Maui, Hawaii</i> . http://www.starrenvironmental.com . [Accessed 13 Jun 2022]	" <i>Oxyspora paniculata</i> was not observed during our survey. <i>O. paniculata</i> is native to the Himalayas from Nepal through Bhutan, northeastern India, and Burma to southwestern China (Wagner et al. 1999). In Hawaii, <i>O. paniculata</i> is a state noxious weed and is naturalized on the island of Oahu (Wagner et al. 1999)."

Qsn #	Question	Answer
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Oahu] "Native to the Himalayas from Nepal through Bhutan, northeastern India, and Burma to southwestern China; in Hawai'i infrequently cultivated and locally established on Tantalus, O'ahu. First collected in 1954 (Landgraf s.n., BISH). Recently, Obata (1985) reported the first extensive naturalized population of this species along Lulumahu Stream. It apparently has explosively spread sometime during the preceding decade from cultivated plants that had not been reproducing at least since 1959."
	O'ahu Invasive Species Committee. (2022). OISC Field Crew. Pers. Comm. 2 August	Our crew has noted some specific locations for oxyspora and lastly, a general comment about where it's been seen. 20220627: Wa'ahila Ridge: -157.790011, 21.321898: 20220627 20220715: Manoa Valley patch: lat 21.339418 / long -157.796994 From OISC crew member: "During my time at OISC and also my off work hours hiking. Mānoa valley get Oxyspora in some places to the summit of the Ko'olau ridge. Some of the larger infestations from memory are Waiakeakua, Waihi, Lua'alaea, and Naniuapo. Going eastward, I know Wai'ōma'o, and Wailupe Valley has in the upper reaches of the valley. I also think Pia has as well higher up. Lastly I think I remember a report from ANRPO that they had a range extension of this species up near Koloa cabin (Poamoho Trail). They think it was spread through hikers."

302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Hawaii Administrative Rules. (2022). Title 4. Department of Agriculture. Subtitle 6. Division of Plant Industry. Chapter 68 Noxious Weed Rules. https://hdoa.hawaii.gov/admin-rules/ . [Accessed 13 Jun 2022]	A Hawaii state noxious weed with negative environmental impacts

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"First collected in 1954 (Landgraf s.n., BISH). Recently, Obata (1985) reported the first extensive naturalized population of this species along Lulumahu Stream. It apparently has explosively spread sometime during the preceding decade from cultivated plants that had not been reproducing at least since 1959."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

304	Environmental weed	y
	Source(s)	Notes
	Medeiros, A. C., Loope, L. L., Conant, P., & McElvaney, S. (1997). Status, ecology, and management of the invasive plant, <i>Miconia calvescens</i> DC (Melastomataceae) in the Hawaiian Islands. Bishop Museum Occasional Papers, 48: 23-36	"The Melastomataceae is one of the most damaging and invasive families of weeds in Hawaii. Of the 15 melastome species naturalized in the Hawaiian Islands (Almeda, 1990), 9 have been declared Noxious Weeds, the worst being <i>Clidemia hirta</i> , <i>Tibouchina herbacea</i> , <i>Oxyspora paniculata</i> , and <i>Miconia calvescens</i> ."

Qsn #	Question	Answer
	<p>Obata, J. K. (1985). Another noxious melastome? <i>Oxyspora paniculata</i>. Newsletter of the Hawaiian Botanical Society 24: 25-26</p>	<p>[Environmental weed along streams and potentially elsewhere] "On this date a large regenerating population of <i>Oxyspora</i> was seen along the upper reaches of Lulumahu Stream which radiates from Pu'u Konahuanui. Many mature plants were noted along the stream banks with countless seedlings. The infested area on a casual observation was at least 0.8 km (0.5 miles) long, but no attempt was made to determine its exact range. <i>Oxyspora</i> seemed to be the dominant plant along the upper Lulumahu Stream banks. They seem to be displacing other smaller flora, even <i>Clidemia hirta</i> (Koster's Curse), another noxious Melastome. So far few plants have penetrated beyond the river bank habitat but they appear to be capable of doing so. On subsequent trips along the Ko'olau summit from Pu'u Konahuanui to Niu Valley, the spread of <i>Oxyspora</i> was further observed. Many, adult, reproducing plants were firmly established along the summit's leeward face of Manca Valley. They were also established beyond Mt. Olympus along Palolo Valley's leeward crest. As visibility was poor on both trips, its vertical spread could not be observed. Judging from the maturity of the plants observed along the summit area, one might assume the spread of these plants into the gullies below as duplicating the Lulumahu infestation. The implication of this infestation may have some far reaching consequences. Is <i>Oxyspora paniculata</i> another in the growing list of noxious weeds taking over part of our wetter native forest? Based on the population explosion observation of November, 1984, the possibility is very real. Is this another <i>Clidemia</i> type of infestation? The field observations seem to support this contention. Could physical extermination (pulling) be a potential technique to eradicate this species? At this stage, perhaps, but we will have to move quickly."</p>
	<p>Hawaii Administrative Rules. (2022). Title 4. Department of Agriculture. Subtitle 6. Division of Plant Industry. Chapter 68 Noxious Weed Rules. https://hdoa.hawaii.gov/admin-rules/. [Accessed 13 Jun 2022]</p>	<p>Listed as a Hawaii state noxious weed</p>

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

Qsn #	Question	Answer
401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[No evidence] "Shrubs 2-4 m tall; young branches sparsely to densely covered with stellate and spreading, plumose hairs. Leaves ovate, elliptic, or ovate-lanceolate, 8-16 cm long, 5-10 cm wide, 5-7-nerved, upper surface glabrous at maturity, lower surface stellate pubescent on the nerves but otherwise glabrous, margins entire to remotely serrulate, apex acuminate, base rounded to subcordate, petioles 9-32 mm long."

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. (2022). Personal Communication	Unknown. No evidence found

403	Parasitic	n
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Shrubs 2-4 m tall" [Melastomataceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Malla, B. (2018). Ethnobotanical study on medicinal plants in Parbat district of western Nepal. PhD Dissertation. Kathmandu University, Dhulikhel	"Ripe fruits are eaten fresh. Soft stem after removing barks is eaten. Leaves are lopped for fodder."
	Koirala, S., Chalise, M. K., Katuwal, H. B., Gaire, R., Pandey, B., & Ogawa, H. (2017). Diet and activity of <i>Macaca assamensis</i> in wild and semi-provisioned groups in Shivapuri Nagarjun National Park, Nepal. <i>Folia Primatologica</i> , 88(2), 57-74	"Table 2. Food plants of Assamese macaques of SNNP based on this study and the literature reviews" [<i>Oxyspora paniculata</i> - Parts eaten = L, (mature) leaves; YL, young leaves]
	Varijakshapanicker, P., Haque, N., Sirie, R., Khate, K., Deka, R. P., Rutsa, V., & Solomon, K. (2015). Availability and nutritional value of wild forages as feed for pigs and mithun in Nagaland, India. ILRI Project Report. International Livestock Research Institute (ILRI), Nairobi, Kenya	[Leaves fed to pigs] " <i>Oxyspora paniculata</i> (Auchipen) is a perennial sub-shrub found in Nagaland (Tuensang). It is characterized by woody stem, oppositely decussate leaf, racemose inflorescence with pink flower. Leaves are used as feed for pigs by farmers. It is available mainly during autumn season. The plant in the autumn season is found to contain: Crude protein - 11.33% NDF - 39.14%, ADF -22.57%, ADL - 7.19% Tests for anti-nutritional factors showed that it has total phenolic compounds - 29.68%"

405	Toxic to animals	n
	Source(s)	Notes

Qsn #	Question	Answer
	Tsering, J., Gogoi, B. J., Hui, P. K., Tam, N., & Tag, H. (2017). Ethnobotanical appraisal on wild edible plants used by the Monpa community of Arunachal Pradesh. <i>Indian Journal of Traditional Knowledge</i> 16(4): 626-637	[No evidence. Edible to humans] "Table 1 - Current status and traditional uses of wild edible plants used by the Monpa community" [<i>Oxyspora paniculata</i> - Traditional uses = Tender stems just beneath the bark are edible]
	Varijakshapanicker, P., Haque, N., Sirie, R., Khate, K., Deka, R. P., Rutsa, V., & Solomon, K. (2015). Availability and nutritional value of wild forages as feed for pigs and mithun in Nagaland, India. ILRI Project Report. International Livestock Research Institute (ILRI), Nairobi, Kenya	[No evidence. Fed to pigs] " <i>Oxyspora paniculata</i> (Auchipen) is a perennial sub-shrub found in Nagaland (Tuensang). It is characterized by woody stem, oppositely decussate leaf, racemose inflorescence with pink flower. Leaves are used as feed for pigs by farmers. It is available mainly during autumn season. The plant in the autumn season is found to contain: Crude protein - 11.33% NDF - 39.14%, ADF -22.57%, ADL - 7.19% Tests for anti-nutritional factors showed that it has total phenolic compounds - 29.68%"
	Quattrocchi, U. (2012). <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	Novotný, V., & Lepš, J. (1997). Distribution of leafhoppers (Auchenorrhyncha, Hemiptera) on their host plant <i>Oxyspora paniculata</i> (Melastomataceae) in the understory of a diverse rainforest. <i>Ecotropica</i> , 3, 83-90	"This study quantifies species diversity of plants and leafhoppers (Auchenorrhyncha) in a rainforest understory and, using data on the distribution of leaf-hoppers, among individuals of a shrub species, <i>Oxyspora paniculata</i> (D. Don) DC. (Melastomataceae), tests the hypothesis that populations of herbivores ,are limited by the scarcity of their host plant." [Importance as potential plant pest unknown]

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Lalramnglinglova, J. H. (1996). Ethnobotany of Mizoram-a preliminary survey. <i>The Journal of Economic and Taxonomic Botany Additional Series</i> , 12: 439-450	"Decoction of root is taken for kidney trouble and also in bleeding from the nose."
	Quattrocchi, U. (2012). <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"Leaves decoction antidote."
	Tsering, J., Gogoi, B. J., Hui, P. K., Tam, N., & Tag, H. (2017). Ethnobotanical appraisal on wild edible plants used by the Monpa community of Arunachal Pradesh. <i>Indian Journal of Traditional Knowledge</i> 16(4): 626-637	"Table 1 - Current status and traditional uses of wild edible plants used by the Monpa community" [<i>Oxyspora paniculata</i> - Traditional uses = Tender stems just beneath the bark are edible]

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes

Qsn #	Question	Answer
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"a large regenerating population of <i>Oxyspora</i> was seen along the upper reaches of Lulumahu Stream which radiates from Pu'u Konahuanui. Many mature plants were noted along the stream banks with countless seedlings." [No evidence. Unlikely. Occurs in wet habitat not prone to fires]
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). (2007). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Mixed forests, stream banks, valleys, moist places" [No evidence. Unlikely in native habitat]

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Mukhopadhyay, C. (1989). Taxonomic and phytogeographical studies an the flora of Mirik and its environs in Darjeeling district. PhD dissertation. University of North Bengal, Raja Rammohunpur	"Common and abundantly growing in rocky slopes, in shady and moist localities along with <i>Maesa chisia</i> and <i>Osbeckia crinita</i> ."
	India Biodiversity Portal. (2022). <i>Oxyspora paniculata</i> (D. Don) DC. https://indiabiodiversity.org/species/show/230540 . [Accessed 14 Jun 2022]	"Frequent along the foot-trunk in shady places, in open forests; 1000 -1500 m."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	
	Source(s)	Notes
	India Biodiversity Portal. (2022). <i>Oxyspora paniculata</i> (D. Don) DC. https://indiabiodiversity.org/species/show/230540 . [Accessed 14 Jun 2022]	"Soil - Red Sandy Soils"
	Ghosh, A., & Paul, T. K. (2019). Enumeration of Flowering Plants of Senchal Wildlife Sanctuary, West Bengal, India. <i>Pleione</i> 13(2): 305 - 316	"The Senchal Wildlife Sanctuary, located in Darjeeling district of West Bengal, India, covers an area of 38.6 sq km." ... "The soil is loose, immature and of Mountainous loamy type, somewhere mixed with sands on the upper part. Only in the Kurseong part the soil is of alluvial mixture that favors the growth of tree species"
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Soil type unspecified, but may be limited by moisture availability, rather than substrate or soil type] "Native to the Himalayas from Nepal through Bhutan, northeastern India, and Burma to southwestern China; in Hawai'i infrequently cultivated and locally established on Tantalus, O'ahu. First collected in 1954 (Landgraf s.n., BISH). Recently, Obata (1985) reported the first extensive naturalized population of this species along Lulumahu Stream."

411	Climbing or smothering growth habit	n
	Source(s)	Notes

Qsn #	Question	Answer
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). (2007). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Shrubs 1-2(-6) m tall. Stems 4-sided to obtusely 4-sided, furfuraceous stellate and sparsely puberulous-setose. Petiole 1-7.5 cm, densely furfuraceous stellate; leaf blade ovate, narrowly elliptic-ovate, or suborbicular, 12-24(-32) × ca. 15.5 cm, stiffly papery, abaxially usually furfuraceous stellate on veins, adaxially furfuraceous squamose or glabrescent, secondary veins 3 on each side of midvein, base rounded to subcordate, margin denticulate, apex acuminate."

412	Forms dense thickets	
	Source(s)	Notes
	Obata, J. K. (1985). Another noxious melastome? <i>Oxyspora paniculata</i> . Newsletter of the Hawaiian Botanical Society 24: 25-26	" <i>Oxyspora</i> seemed to be the dominant plant along the upper Lulumahu Stream banks. They seem to be displacing other smaller flora, even <i>Clidemia hirta</i> (Koster's Curse), another noxious Melastome. So far few plants have penetrated beyond the river bank habitat but they appear to be capable of doing so."
	Ghosh, A., & Paul, T. K. (2019). Enumeration of Flowering Plants of Senchal Wildlife Sanctuary, West Bengal, India. <i>Pleione</i> 13(2): 305 - 316	[Described as dominant in the area. Ability to exclude other vegetation not specified] "The vegetation of the Sanctuary may be classified as Lower hill forests (1400 – 1600 m), Middle hill forests (1600 – 2000 m) and Upper hill forests (2000 – 2600 m)." ... " <i>Members of Melastomataceae like Osbeckia spp., Oxyspora paniculata are dominant in this area.</i> "

501	Aquatic	n
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). (2007). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[Terrestrial] "Mixed forests, stream banks, valleys, moist places; 500-2000 m."

502	Grass	n
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	Melastomataceae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	Melastomataceae

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

Qsn #	Question	Answer
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). (2007). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Shrubs 1-2(-6) m tall."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). (2007). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Mixed forests, stream banks, valleys, moist places; 500-2000 m. Guangxi, Guizhou, Xizang (Mêdog), Yunnan [Bhutan, Cambodia, India, Laos, Myanmar, Nepal, Vietnam]." [No evidence]

602	Produces viable seed	y
	Source(s)	Notes
	Malla, B. (2018). Ethnobotanical study on medicinal plants in Parbat district of western Nepal. PhD Dissertation. Kathmandu University, Dhulikhel	"Fruit a capsule, elliptic with truncate end. Propagated by seeds."
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Fruiting hypanthium 7-8(-10) mm long, 4.5-5 mm wide. Seeds 0.5-1 mm long."
	Obata, J. K. (1985). Another noxious melastome? <i>Oxyspora paniculata</i> . Newsletter of the Hawaiian Botanical Society 24: 25-26	"On subsequent trips along the Ko'olau summit from Pu'u Konahuanui to Niu Valley, the spread of <i>Oxyspora</i> was further observed. Many, adult, reproducing plants were firmly established along the summit's leeward face of Manoa Valley. They were also established beyond Mt. Olympus along Palolo Valley's leeward crest. As visibility was poor on both trips, its vertical spread could not be observed. Judging from the maturity of the plants observed along the summit area, one might assume the spread of these plants into the gullies below as duplicating the Lulumahu infestation."
	Hooker, W. J. & Smith, J. (1850). Curtis's Botanical Magazine Vol. VI. of the Third Series. Reeve and Benham, London	"This showy plant was raised last year from seeds, and this autumn it produced flowers."

603	Hybridizes naturally	
	Source(s)	Notes
	WRA Specialist. (2022). Personal Communication	Unknown. No evidence found

604	Self-compatible or apomictic	
	Source(s)	Notes

Qsn #	Question	Answer
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Unknown, but possible] "Inflorescences 8-20(-30) cm long (incl. peduncle), bracts and bracteoles subulate to lanceolate, 1-4 (-6) mm long, 0.5-2 mm wide at the base, deciduous; hypanthium quadrate in flower, 6-8 mm long, sparsely stellate pubescent; calyx lobes triangular, prominently keeled externally, 1-1.5 mm long, 1.5-2 mm wide at base; petals pink to magenta, 6-9 mm long, 4-7 mm wide; stamens dimorphic; anthers of larger stamens 7-12 mm long, with anther sacs prolonged basally (to 1.5-2 mm), connective not prolonged, anthers of smaller stamens 3-4.5 mm long, with anther sacs 2-10bed at base, connective prolonged dorsally into a de flexed spur 1-1.5 mm long. Fruiting hypanthium 7-8(-10) mm long,"

605	Requires specialist pollinators	
	Source(s)	Notes
	Obata, J. K. (1985). Another noxious melastome? <i>Oxyspora paniculata</i> . Newsletter of the Hawaiian Botanical Society 24: 25-26	[Specific pollinators unknown, but presumably not pollinator limited in Hawaii] "Then on November 11, 1984, all previous evaluations of <i>Oxyspora paniculata</i> changed. On this date a large regenerating population of <i>Oxyspora</i> was seen along the upper reaches of Lulumahu Stream which radiates from Pu'u Konahuanui. Many mature plants were noted along the stream banks with countless seedlings. The infested area on a casual observation was at least 0.8 km (0.5 miles) long, but no attempt was made to determine its exact range."
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). (2007). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[Unknown, but probably insect-pollinated] "Inflorescences terminal, a cymose panicle, with 2(or 3) leaflike bracts at base. Bractlets and bracteoles very small, caducous. Flower 4-merous. Hypanthium narrowly funnelform, 8-veined. Calyx lobes shortly and broadly triangular or shortly triangular-ovate, apex acute and apiculate. Petals pink, red, or dark red, ovate, apex apiculate and puberulous. Stamens 8, whorls unequal in length. Longer stamens purple; connective swollen and usually not extended at base into a spur. Shorter stamens yellow; connective usually extended at base into a short spur. Ovary inferior, 4-celled, glabrous."

Qsn #	Question	Answer
606	Reproduction by vegetative fragmentation	
	Source(s)	Notes
	Malla, B. (2018). Ethnobotanical study on medicinal plants in Parbat district of western Nepal. PhD Dissertation. Kathmandu University, Dhulikhel	"Fruit a capsule, elliptic with truncate end. Propagated by seeds."
	Obata, J. K. (1985). Another noxious melastome? <i>Oxyspora paniculata</i> . Newsletter of the Hawaiian Botanical Society 24: 25-26	"On this date a large regenerating population of <i>Oxyspora</i> was seen along the upper reaches of Lulumahu Stream which radiates from Pu'u Konahuanui. Many mature plants were noted along the stream banks with countless seedlings. The infested area on a casual observation was at least 0.8 km (0.5 miles) long, but no attempt was made to determine its exact range." [Unknown if vegetative fragments are capable of rooting, as are several other invasive Melastomes in the Hawaiian Islands]
	Hooker, W. J. & Smith, J. (1850). Curtis's Botanical Magazine Vol. VI. of the Third Series. Reeve and Benham, London	[Unknown if fragments can root like cuttings] "It grows freely if potted in light loam and leaf. mould, and kept in a moderately warm stove, and propagates readily by cuttings treated in the usual way."

607	Minimum generative time (years)	1
	Source(s)	Notes
	rarepalmseeds.com. (2022). <i>Oxyspora paniculata</i> . Bristletips. https://www.rarepalmseeds.com/oxyspora-paniculata . [Accessed 14 Jun 2022]	"Growth Rate: Fast"
	Hooker, W. J. & Smith, J. (1850). Curtis's Botanical Magazine Vol. VI. of the Third Series. Reeve and Benham, London	"This showy plant was raised last year from seeds, and this autumn it produced flowers." [Related species <i>Oxyspora vagans</i> reaches maturity within one year. Some publications treat <i>O. vagans</i> as a synonym of <i>O. paniculata</i>]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y
	Source(s)	Notes
	Obata, J. K. (1985). Another noxious melastome? <i>Oxyspora paniculata</i> . Newsletter of the Hawaiian Botanical Society 24: 25-26	[Occurrence along trails suggests movement on muddy footwear] "The Bernice P. Bishop Museum has the following vouchers. The first specimen collected was deposited by G. Pearsall from the "Manoa Ridge trail" on October 10, 1958. Subsequently another collection was made by him on the Manoa Cliff trail (Tantalus) on August 20, 1959 from a "12 feet high" bush."
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Small seed size and occurrence along trails would likely facilitate movement on muddy footwear or tools] "Fruiting hypanthium 7-8(-10) mm long, 4.5-5 mm wide. Seeds 0.5-1 mm long."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"Dispersed by: Humans, Escapee"

Qsn #	Question	Answer
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"in Hawai'i infrequently cultivated and locally established on Tantalus, O'ahu."
	rarepalmseeds.com. (2022). <i>Oxyspora paniculata</i> . Bristletips. https://www.rarepalmseeds.com/oxyspora-paniculata . [Accessed 14 Jun 2022]	Seeds sold commercially online

703	Propagules likely to disperse as a produce contaminant	
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Fruiting hypanthium 7-8(-10) mm long, 4.5-5 mm wide. Seeds 0.5-1 mm long." [Small seeds could become a contaminant in soil or media if cultivate with other ornamental plants, but direct evidence has not been reported]
	USDA, Agricultural Research Service, National Plant Germplasm System. (2022). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 14 Jun 2022]	"potential seed contaminant"

705	Propagules water dispersed	y
	Source(s)	Notes
	Obata, J. K. (1985). Another noxious melastome? <i>Oxyspora paniculata</i> . Newsletter of the Hawaiian Botanical Society 24: 25-26	"On this date a large regenerating population of <i>Oxyspora</i> was seen along the upper reaches of Lulumahu Stream which radiates from Pu'u Konahuanui. Many mature plants were noted along the stream banks with countless seedlings. The infested area on a casual observation was at least 0.8 km (0.5 miles) long, but no attempt was made to determine its exact range. <i>Oxyspora</i> seemed to be the dominant plant along the upper Lulumahu Stream banks. They seem to be displacing other smaller flora, even <i>Clidemia hirta</i> (Koster's Curse), another noxious Melastome. So far few plants have penetrated beyond the river bank habitat but they appear to be capable of doing so."
	Bacci, L. F., Michelangeli, F. A., & Goldenberg, R. (2019). Revisiting the classification of Melastomataceae: implications for habit and fruit evolution. <i>Botanical Journal of the Linnean Society</i> , 190(1), 1-24	"The dependence on water for seed dispersal and the limited dispersability could also explain the restriction of the taxa to a limited area or vegetation type."
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). (2007). <i>Flora of China</i> . Vol. 13 (Clusiaceae through Araliaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[Occurs along streams] "Mixed forests, stream banks, valleys, moist places; 500-2000 m."

706	Propagules bird dispersed	n
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). (2007). <i>Flora of China</i> . Vol. 13 (Clusiaceae through Araliaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Fruit a capsule opening apically or loculicidally" [In contrast to Fruit an indehiscent berry]

Qsn #	Question	Answer
	Bacci, L. F., Michelangeli, F. A., & Goldenberg, R. (2019). Revisiting the classification of Melastomataceae: implications for habit and fruit evolution. <i>Botanical Journal of the Linnean Society</i> , 190(1), 1-24	"The dependence on water for seed dispersal and the limited dispersability could also explain the restriction of the taxa to a limited area or vegetation type."
	Caetano, A. P. S. et al. (2018). Evolution of the outer ovule integument and its systematic significance in Melastomataceae. <i>Botanical Journal of the Linnean Society</i> , 186(2), 224-246	[Not fleshy-fruited] "Table 1. List of the Melastomataceae species analysed, status of the character observed and literature data; fruit type (dry or fleshy) is also given" [Oxyspora paniculata - Fruit type = Dry]

707	Propagules dispersed by other animals (externally)	
	Source(s)	Notes
	Nagata, Kenneth M. (1995). <i>New Hawaiian plant records IV</i> . Bishop Museum Occasional Papers. 42: 10-13	[Reported to be water dispersed, but presence along ridges and valley rims suggest small seeds could adhere to mud on animals or footwear of people] "This species is known to be naturalized in the wet forest behind Honolulu. Until recently it was confined to the western portion and the Wrim of Manoa Valley from Tantalus to Konahuanui. Small populations now occur on Waahila Ridge, the E rim of the valley, Nagata 2490, 6 Jul 1982 (HLA). It is probably just a matter of time before it spreads into the wet forests throughout the southern Koolau Range."

708	Propagules survive passage through the gut	n
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). (2007). <i>Flora of China</i> . Vol. 13 (Clusiaceae through Araliaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Fruit a capsule opening apically or loculicidally" [In contrast to Fruit an indehiscent berry. Unlikely to be consumed or internally dispersed]
	Caetano, A. P. S. et al. (2018). Evolution of the outer ovule integument and its systematic significance in Melastomataceae. <i>Botanical Journal of the Linnean Society</i> , 186(2), 224-246	[Not fleshy-fruited] "Table 1. List of the Melastomataceae species analysed, status of the character observed and literature data; fruit type (dry or fleshy) is also given" [Oxyspora paniculata - Fruit type = Dry]

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	Obata, J. K. (1985). Another noxious melastome? <i>Oxyspora paniculata</i> . <i>Newsletter of the Hawaiian Botanical Society</i> 24: 25-26	[Unknown, but prolific seedling recruitment documented] "On this date a large regenerating population of Oxyspora was seen along the upper reaches of Lulumahu Stream which radiates from Pu'u Konahuanui. Many mature plants were noted along the stream banks with countless seedlings. The infested area on a casual observation was at least 0.8 km (0.5 miles) long, but no attempt was made to determine its exact range."

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes

Qsn #	Question	Answer
	Luo, X., Cao, M., Zhang, M., Song, X., Li, J., Nakamura, A., & Kitching, R. (2017). Soil seed banks along elevational gradients in tropical, subtropical and subalpine forests in Yunnan Province, southwest China. <i>Plant Diversity</i> , 39(5), 273-286	"Table 4. The five species with the most abundant seeds that germinated from the soil samples at each elevation (20 samples for each)" [<i>Oxyspora paniculata</i> collected in the seed bank on Ailao Mountain (Subtropical forest) at multiple elevations. Longevity unspecified]
	WRA Specialist. (2022). Personal Communication	Unknown, but many small-seeded Melastomataceae are reported to have long-lived seed banks

803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. (2022). Personal Communication	Unknown, but methods to control other invasive Melastomes would probably be effective if needed

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	WRA Specialist. (2022). Personal Communication	Unknown. Several invasive Melastomes are capable of resprouting or rerooting after cutting or physical damage

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Unknown, but no apparent limiting factors preventing spread] "in Hawai'i infrequently cultivated and locally established on Tantalus, O'ahu. First collected in 1954 (Landgraf s.n., BISH). Recently, Obata (1985) reported the first extensive naturalized population of this species along Lulumahu Stream. It apparently has explosively spread sometime during the preceding decade from cultivated plants that had not been reproducing at least since 1959.-"

Summary of Risk Traits:

High Risk / Undesirable Traits

- Thrives and spreads in regions with tropical climates
- Broad elevation range (>1000 m)
- Naturalized on Oahu (Hawaiian Islands)
- A Hawaii state noxious weed of stream sides and wet forest with the potential to impact native biodiversity or ecosystem function
- Shade tolerant
- A dominant plant in its native and introduced range, with the potential to outcompete or exclude other vegetation
- Reproduces by seeds
- Fast growth rate and rapid time to reproductive maturity
- Seeds dispersed by water, probably in mud on shoes, equipment or animals, and through intentional cultivation
- Prolific reproduction along streams

Low Risk Traits

- Unarmed (no spines, thorns, or burrs)
- Palatable to pigs and probably other grazing animals (used as fodder within native range)
- Non-toxic
- Young stems reported to be edible and used for food in native range
- Dispersal requirements may limit spread