

Taxon: *Philodendron xanadu* Croat, Mayo & J.Boos **Family:** Araceae
Common Name(s): philodendron 'winterbourn'
xanadu **Synonym(s):**

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 2 Sep 2020
WRA Score: 2.0 **Designation:** L **Rating:** Low Risk

Keywords: Tropical, Herbaceous, Poisonous, Ornamental, Shade-Tolerant

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	n
204	Native or naturalized in regions with tropical or subtropical climates	y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	y
301	Naturalized beyond native range		
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)	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	y
405	Toxic to animals	y=1, n=0	y
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	y
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)	y=1, n=0	y
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		
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally		
604	Self-compatible or apomictic		
605	Requires specialist pollinators	y=-1, n=0	y
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	n
706	Propagules bird dispersed		
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut		
801	Prolific seed production (>1000/m ²)	y=1, n=-1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
803	Well controlled by herbicides	y=-1, n=1	y
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
	Exotic Rainforest. (2020). <i>Philodendron xanadu</i> . https://www.exoticrainforest.com/Philodendron%20xanadu%20pc.html . [Accessed 1 Sep 2020]	[Plants common in cultivation may be smaller than wild plants, but are otherwise not heavily domesticated] "Based upon recently published scientific study by Julius Boos which can be read in the International Aroid Society journal <i>Aroideana</i> (volume 31, 2008) , <i>Philodendron xanadu</i> is thought to have originated in southeastern Brazil and is capable of growing much larger than the tissue cultured specimens commonly available all over the world. Some evidence now indicates the chemical process used to tissue culture (clone) the species appears to cause a specimen not to reach its full potential and size. As a member of <i>Philodendron</i> section <i>Meconostigma</i> the species is also easily "stunted" by overcrowding and does not grow as well as possible when numerous specimens are crowded into a single pot."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2020). 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
	Exotic Rainforest. (2020). <i>Philodendron xanadu</i> . https://www.exoticrainforest.com/Philodendron%20xanadu%20pc.html . [Accessed 1 Sep 2020]	" <i>Philodendron xanadu</i> is a good species which evidence indicates originated in Brazil."
	Tropicos.org. (2020). Missouri Botanical Garden. http://www.tropicos.org/ . [Accessed 1 Sep 2020]	Native to Brazil

202	Quality of climate match data	High
	Source(s)	Notes
	Tropicos.org. (2020). Missouri Botanical Garden. http://www.tropicos.org/ . [Accessed 1 Sep 2020]	

203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes

Qsn #	Question	Answer
	Exotic Rainforest. (2020). <i>Philodendron xanadu</i> . https://www.exoticrainforest.com/Philodendron%20xanadu%20pc.html . [Accessed 1 Sep 2020]	"A strictly tropical species requiring warmth and humidity to survive, the lobed foliage of <i>Philodendron xanadu</i> can grow to 1.6 meters (5 feet) in width and 1 meter (3 feet) in height."
	Dave's Garden. (2020). <i>Philodendron xanadu</i> . https://davesgarden.com/guides/pf/go/59808/ . [Accessed 1 Sep 2020]	"Hardiness: USDA Zone 9a: to -6.6 °C (20 °F) USDA Zone 9b: to -3.8 °C (25 °F) 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)"

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Exotic Rainforest. (2020). <i>Philodendron xanadu</i> . https://www.exoticrainforest.com/Philodendron%20xanadu%20pc.html . [Accessed 1 Sep 2020]	" <i>P. xanadu</i> is used as a landscape plant in some tropical climates such as South Florida. Many growers report great success with the species. A strictly tropical species requiring warmth and humidity to survive, the lobed foliage of <i>Philodendron xanadu</i> can grow to 1.6 meters (5 feet) in width and 1 meter (3 feet) in height."
	Tropicos.org. (2020). Missouri Botanical Garden. http://www.tropicos.org/ . [Accessed 1 Sep 2020]	Native to Brazil

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Dave's Garden. (2020). <i>Philodendron xanadu</i> . https://davesgarden.com/guides/pf/go/59808/ . [Accessed 2 Sep 2020]	Cultivated in a number of locations on the mainland US, but probably grown as a house plant in a number of states.

301	Naturalized beyond native range	
	Source(s)	Notes
	Green and Vibrant. (2019). A Beginner's to Growing and Caring For <i>Philodendron Xanadu</i> . https://www.greenandvibrant.com/philodendron-xanadu . [Accessed 2 Sep 2020]	[Unconfirmed reports of naturalization in South America] "Natively grown in Brazil and naturalized in other areas of South America, this plant is accustomed to warm weather and is not tolerant of low temperatures or frost."
	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
	Gann GD, Stocking CG and Collaborators. (2001-2019). Floristic Inventory of South Florida Database Online. The Institute for Regional Conservation. Delray Beach, Florida. https://www.regionalconservation.org/ . [Accessed 2 Sep 2020]	SOUTH FLORIDA Occurrence: Present SOUTH FLORIDA Native Status: Not Native, Cultivated Only SOUTH FLORIDA Cultivated Status: Cultivated

302	Garden/amenity/disturbance weed	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

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

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

305	Congeneric weed	y
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"Philodendron aurantiifolium ... Weed of: Bananas, Orchards & Plantations References: Costa Rica-A-1513." ... "Philodendron hederaceum ... Weed of: Bananas, Orchards & Plantations References: Singapore-U-811, Singapore- U-1290, Costa Rica-A-1513, Singapore-U- 1839, Marshall Islands-W-1977, Singapore-W-1977" ... "Philodendron inaequilaterum ... Weed of: Bananas, Orchards & Plantations References: Costa Rica-A-1513."
	De Costa, W. A. J. M., Hitinayake, H. M. J. B., & Dharmawardana, I. U. (2010). A physiological investigation into the invasive behaviour of some plant species in a mid-country forest reserve in Sri Lanka. Journal of the National Science Foundation of Sri Lanka, 29(1-2): 35-50	[P. scandens listed as invasive, but impacts unspecified] "Abstract: An introduced and naturalized plant species which increases its population excessively at the expense of other species in a given community is defined as an invasive species. The objective of this study was to determine whether some selected physiological characteristics were responsible for the invasive behaviour of eight plant species in the Udawattakelle forest reserve. These included saplings of three tree species, three shrub species and two herbaceous species" "Two of the early successional invasive species (i.e. Scindapsus and Philodendron) are herbaceous species"

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Croat, T. B., Mayo, S. J., & Boos, J. (2002). A new species of Brazilian Philodendron subgenus Meconostigma (Araceae). Aroideana, 25, 63-66	[No evidence] "Terrestrial; with leaves extended individual plants to 1.6 m wide; stems to 1 m or more tall, 3.5-5 cm diam.; internodes short, dark brown, scurfy; leaf scars conspicuous, 2.7-3.4 cm wide, 9-18 mm high; intravaginal squamules minute, no more than 1.5 mm long;"

Qsn #	Question	Answer
402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	Unknown. No evidence found

403	Parasitic	n
	Source(s)	Notes
	Croat, T. B., Mayo, S. J., & Boos, J. (2002). A new species of Brazilian <i>Philodendron</i> subgenus <i>Meconostigma</i> (Araceae). <i>Aroideana</i> , 25, 63-66	"Terrestrial; with leaves extended individual plants to 1.6 m wide; stems to 1 m or more tall, 3.5-5 cm diam.; internodes short, dark brown, scurfy; leaf scars conspicuous, 2.7-3.4 cm wide, 9-18 mm high; intravaginal squamules minute, no more than 1.5 mm long; sap acrid, pungent" [Araceae. No evidence]

404	Unpalatable to grazing animals	y
	Source(s)	Notes
	South-Florida-Plant-Guide.com. (2020). <i>Xanadu Philodendron</i> . https://www.south-florida-plant-guide.com/xanadu-philodendron.html . [Accessed 2 Sep 2020]	"Some parts of this plant are toxic if ingested. It's considered a deer-resistant plant and generally bugs don't like it either."
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Toxicity likely deters browsing] "The Araceae are well known as a family which includes poisonous plants. Many ornamentals (e.g. species of <i>Alocasia</i> , <i>Caladium</i> , <i>Dieffenbachia</i> , <i>Philodendron</i> , <i>Zantedeschia</i>) are known to cause poisoning, particularly when vegetative plant parts are accidentally eaten by children and pets."

405	Toxic to animals	y
	Source(s)	Notes
	Dave's Garden. (2020). <i>Philodendron xanadu</i> . https://davesgarden.com/guides/pf/go/59808/ . [Accessed 2 Sep 2020]	"Danger: Parts of plant are poisonous if ingested"
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	"The Araceae are well known as a family which includes poisonous plants. Many ornamentals (e.g. species of <i>Alocasia</i> , <i>Caladium</i> , <i>Dieffenbachia</i> , <i>Philodendron</i> , <i>Zantedeschia</i>) are known to cause poisoning, particularly wheu vegetative plant parts are accidentally eaten by children and pets."
	Green and Vibrant. (2019). A Beginner's to Growing and Caring For <i>Philodendron Xanadu</i> . https://www.greenandvibrant.com/philodendron-xanadu . [Accessed 2 Sep 2020]	"Toxicity Poisonous to humans and pets"

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	Burke, D. 2005. <i>The Complete Burke's Backyard: The Ultimate Book of Fact Sheets</i> . Murdoch Books, Millers Point, Australia	" <i>Philodendrons</i> are easy to grow and almost pest and disease free."

Qsn #	Question	Answer
	<p>Green and Vibrant. (2019). A Beginner's to Growing and Caring For Philodendron Xanadu. https://www.greenandvibrant.com/philodendron-xanadu. [Accessed 2 Sep 2020]</p>	<p>"The Philodendron Xanadu is susceptible to leaf spot, which is a fungal disease. Symptoms of leaf spot include brown spots on the foliage of the plant, which can vary in shape and size. The brown spots are the fungus feeding on the plant and will cause the leaves to die and fall off. Leaf spot typically occurs when the foliage of the plant has been allowed to get too wet, as the fungus thrives in moist conditions. The best ways to prevent leaf spot are to ensure good air circulation between plants, refrain from overwatering, and to water at soil level so that the leaves do not get wet when watering. Leaf spot can be treated with fungicide, and you should keep the plant away from other plants while infected as the disease can be easily spread. This plant can also fall victim to common houseplant pests, such as aphids, mealy bugs, and spider mites. Spider mites typically occur in very dry conditions, so the best way to combat this is to create a humid environment for your plant."</p>

407	Causes allergies or is otherwise toxic to humans	y
	Source(s)	Notes
	<p>Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York</p>	<p>"The Araceae are well known as a family which includes poisonous plants. Many ornamentals (e.g. species of Alocasia, Caladium, Dieffenbachia, Philodendron, Zantedeschia) are known to cause poisoning, particularly when vegetative plant parts are accidentally eaten by children and pets."</p>
	<p>Green and Vibrant. (2019). A Beginner's to Growing and Caring For Philodendron Xanadu. https://www.greenandvibrant.com/philodendron-xanadu. [Accessed 2 Sep 2020]</p>	<p>"Toxicity Poisonous to humans and pets"</p>
	<p>Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL</p>	<p>No entry for <i>Philodendron burle-marxii</i>, but several other species have toxic properties or contain irritating crystals of calcium oxalate</p>

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	<p>Exotic Rainforest. (2020). <i>Philodendron xanadu</i>. https://www.exoticrainforest.com/Philodendron%20xanadu%20pc.html. [Accessed 2 Sep 2020]</p>	<p>"A strictly tropical species requiring warmth and humidity to survive, the lobed foliage of <i>Philodendron xanadu</i> can grow to 1.6 meters (5 feet) in width and 1 meter (3 feet) in height." [No evidence. Herbaceous and occurs in wetter habitats]</p>

Qsn #	Question	Answer
409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Dave's Garden. (2020). <i>Philodendron xanadu</i> . https://davesgarden.com/guides/pf/go/59808/ . [Accessed 2 Sep 2020]	"Sun Exposure: Sun to Partial Shade Light Shade Partial to Full Shade Full Shade"
	South-Florida-Plant-Guide.com. (2020). <i>Xanadu Philodendron</i> . https://www.south-florida-plant-guide.com/xanadu-philodendron.html . [Accessed 2 Sep 2020]	"They'll grow in sun or shade (depending how they're grown at the nursery) but vastly prefer a part sun or part shade location to look their best."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Shoot Gardening. (2020). <i>Philodendron xanadu</i> (Split-leaf philodendron). https://www.shootgardening.co.uk/plant/philodendron-xanadu . [Accessed 2 Sep 2020]	"Soil type - Loamy Soil drainage - Moist but well-drained Soil pH - Acid, Alkaline, Neutral"
	Botanic Box. (2020). <i>Philodendron xanadu</i> Care Guide. https://www.botanicbox.com.au/blogs/botanic-blog/philodendron-xanadu-care-guide . [Accessed 2 Sep 2020]	"The <i>Philodendron xanadu</i> is quite a tough plant. It is used widely in landscaping and garden design as it can deal with a wide variety of conditions including light, water, and soil types."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Croat, T. B., Mayo, S. J., & Boos, J. (2002). A new species of Brazilian <i>Philodendron</i> subgenus <i>Meconostigma</i> (Araceae). <i>Aroideana</i> , 25, 63-66	"Terrestrial; with leaves extended individual plants to 1.6 m wide; stems to 1 m or more tall, 3.5-5 cm diam"

412	Forms dense thickets	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	Unknown

501	Aquatic	n
	Source(s)	Notes
	Croat, T. B., Mayo, S. J., & Boos, J. (2002). A new species of Brazilian <i>Philodendron</i> subgenus <i>Meconostigma</i> (Araceae). <i>Aroideana</i> , 25, 63-66	"Terrestrial; with leaves extended individual plants to 1.6 m wide; stems to 1 m or more tall, 3.5-5 cm diam"

502	Grass	n
	Source(s)	Notes

Qsn #	Question	Answer
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 2 Sep 2020]	Family: Araceae Subfamily: Aroideae Tribe: Philodendreae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 2 Sep 2020]	Family: Araceae Subfamily: Aroideae Tribe: Philodendreae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Croat, T. B., Mayo, S. J., & Boos, J. (2002). A new species of Brazilian Philodendron subgenus Meconostigma (Araceae). <i>Aroideana</i> , 25, 63-66	"roots 9-14 mm diam., reddish brown with longitudinal fissures; cataphylls to 21 cm long, medium green, narrowly and deeply sulcate with a medial rib toward the base, drying dark brown and persisting intact"

601	Evidence of substantial reproductive failure in native habitat	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	Reproductive biology in native range unknown. Common in cultivation

602	Produces viable seed	y
	Source(s)	Notes
	Exotic Rainforest. (2020). <i>Philodendron xanadu</i> . https://www.exoticrainforest.com/Philodendron%20xanadu%20pc.html . [Accessed 2 Sep 2020]	"Philodendron xanadu was exclusively cultured in a lab as a tissue cultured (cloned) specimen. However, seeds from wild collected plants have become available. For many years, the importer possessed a U.S. patent and copyright to sell the plant as Philodendron 'Xanadu'. However, there is some speculation the patent is no longer valid and other growers are beginning to cultivate the species."

Qsn #	Question	Answer
603	Hybridizes naturally	
	Source(s)	Notes
	Exotic Rainforest. (2020). <i>Philodendron xanadu</i> . https://www.exoticrainforest.com/Philodendron%20xanadu%20pc.html . [Accessed 2 Sep 2020]	" <i>Philodendron xanadu</i> is a species, is not a hybrid, is not native to Australia and is not the offspring of <i>Philodendron bipinnatifidum</i> "
	Sakuragui, C., Mayo, S., & Zappi, D. (2005). Taxonomic Revision of Brazilian Species of <i>Philodendron</i> Section <i>Macrobelyum</i> . <i>Kew Bulletin</i> , 60(4), 465-513	Unknown. Hybridization documented in genus

604	Self-compatible or apomictic	
	Source(s)	Notes
	Chouteau, M., Barabé, D., & Gibernau, M. (2006). A comparative study of inflorescence characters and pollen-ovule ratios among the genera <i>Philodendron</i> and <i>Anthurium</i> (Araceae). <i>International Journal of Plant Sciences</i> , 167(4), 817-829	[Probably No. 23 species of <i>Philodendron</i> were documented to be self-incompatible] "Floral characters in angiosperms may be involved in different relationships in order to ensure and maximize pollination. To assess these relationships, which may provide insight to understand floral evolution, we analyzed 14 floral characters in 23 species of <i>Philodendron</i> and 20 species of <i>Anthurium</i> , which are tropical long-living plants bearing spadiceiform inflorescences." ... "All species of <i>Philodendron</i> studied are considered to be self-incompatible because of the lack of fructification in bagged inflorescences"

605	Requires specialist pollinators	y
	Source(s)	Notes
	Chouteau, M., Barabé, D., & Gibernau, M. (2006). A comparative study of inflorescence characters and pollen-ovule ratios among the genera <i>Philodendron</i> and <i>Anthurium</i> (Araceae). <i>International Journal of Plant Sciences</i> , 167(4), 817-829	"The inflorescences of <i>Philodendron</i> have a 24-h flowering cycle (Gibernau et al. 1999, 2000; Gibernau and Barabé 2002), beginning with the receptivity of the female flowers on the first night and finishing with the release of pollen on the second night (Gibernau et al. 1999, 2000). They are mainly pollinated by beetles of the genus <i>Cyclocephala</i> (Gibernau 2003) that are attracted to the inflorescence during the heating and odoriferous period of the spadix."

606	Reproduction by vegetative fragmentation	
	Source(s)	Notes
	Shoot Gardening. (2020). <i>Philodendron xanadu</i> (Split-leaf philodendron). https://www.shootgardening.co.uk/plant/philodendron-xanadu . [Accessed 2 Sep 2020]	[Possibly] "Propagation methods - Budding, Layering, Seed, Stem tip cuttings"

607	Minimum generative time (years)	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	Unknown. May be able to spread vegetatively before first flowering

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Exotic Rainforest. (2020). <i>Philodendron xanadu</i> . https://www.exoticrainforest.com/Philodendron%20xanadu%20pc.html . [Accessed]	"When ready to reproduce, the spadix produces male, female and sterile flowers which if pollinated by an appropriate insect, normally a beetle, will produce berries containing seeds"
	WRA Specialist. (2020). Personal Communication	Seeds may be rarely produced in cultivation. Some <i>Philodendron</i> seeds possess sticky mucilaginous material on seeds which may enable seeds to adhere to animals, clothing of vehicles

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Dave's Garden. (2020). <i>Philodendron xanadu</i> . https://davesgarden.com/guides/pf/go/59808/ . [Accessed 2 Sep 2020]	Cultivated as an ornamental

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Exotic Rainforest. (2020). <i>Philodendron xanadu</i> . https://www.exoticrainforest.com/Philodendron%20xanadu%20pc.html . [Accessed 2 Sep 2020]	"When ready to reproduce, the spadix produces male, female and sterile flowers which if pollinated by an appropriate insect, normally a beetle, will produce berries containing seeds" [No evidence. Fruit and seeds may be rare, or absent, in cultivation]

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Exotic Rainforest. (2020). <i>Philodendron xanadu</i> . https://www.exoticrainforest.com/Philodendron%20xanadu%20pc.html . [Accessed 2 Sep 2020]	"When ready to reproduce, the spadix produces male, female and sterile flowers which if pollinated by an appropriate insect, normally a beetle, will produce berries containing seeds"
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Family description] "Dispersal of the genera with red- or orange-coloured berries is probably carried out mainly by birds, though data are scarce."

705	Propagules water dispersed	n
	Source(s)	Notes
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	"Dispersal of the genera with red- or orange-coloured berries is probably carried out mainly by birds, though data are scarce." [Family description]

706	Propagules bird dispersed	
	Source(s)	Notes
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Family description] "Dispersal of the genera with red- or orange-coloured berries is probably carried out mainly by birds, though data are scarce."

Qsn #	Question	Answer
	Exotic Rainforest. (2020). <i>Philodendron xanadu</i> . https://www.exoticrainforest.com/Philodendron%20xanadu%20pc.html . [Accessed 2 Sep 2020]	[Probably yes, if fruit are produced outside native range] "When ready to reproduce, the spadix produces male, female and sterile flowers which if pollinated by an appropriate insect, normally a beetle, will produce berries containing seeds"

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Exotic Rainforest. (2020). <i>Philodendron xanadu</i> . https://www.exoticrainforest.com/Philodendron%20xanadu%20pc.html . [Accessed 2 Sep 2020]	"When ready to reproduce, the spadix produces male, female and sterile flowers which if pollinated by an appropriate insect, normally a beetle, will produce berries containing seeds" [No evidence]

708	Propagules survive passage through the gut	
	Source(s)	Notes
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Unknown. Possibly if seeds are produced] "Dispersal by mammals, including primates, has been observed (e.g. <i>Anchomanes difformis</i> - chimpanzee; <i>Philodendron bipinnatifidum</i> monkeys, bats; <i>Xanthosoma robustum</i> - bats). The seeds of Araceae, particularly those with large chlorophyllous embryos, do not remain viable for a long time. Bulbils with hooks or hairlike processes are found in Remusatia, which must be dispersed by birds or mammals."

801	Prolific seed production (>1000/m2)	n
	Source(s)	Notes
	Dave's Garden. (2020). <i>Philodendron xanadu</i> . https://davesgarden.com/guides/pf/go/59808/ . [Accessed 2 Sep 2020]	"Seed Collecting: N/A: plant does not set seed, flowers are sterile, or plants will not come true from seed" [Apparently rare or absent in cultivation]
	Exotic Rainforest. (2020). <i>Philodendron xanadu</i> . https://www.exoticrainforest.com/Philodendron%20xanadu%20pc.html . [Accessed]	[Seeds available, but apparently uncommon in cultivation] "Philodendron xanadu was exclusively cultured in a lab as a tissue cultured (cloned) specimen. However, seeds from wild collected plants have become available. For many years, the importer possessed a U.S. patent and copyright to sell the plant as <i>Philodendron 'Xanadu'</i> . However, there is some speculation the patent is no longer valid and other growers are beginning to cultivate the species."

802	Evidence that a persistent propagule bank is formed (>1 yr)	n
	Source(s)	Notes
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	"The seeds of Araceae, particularly those with large chlorophyllous embryos, do not remain viable for a long time."

803	Well controlled by herbicides	y
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Qsn #	Question	Answer
	Source(s)	Notes
	Mahoney, J. (2020). How to Kill a Philodendron. http://homeguides.sfgate.com/kill-philodendron-27558.html . [Accessed 2 Sep 2020]	[No evidence of weediness, but herbicides, if necessary, provide effective control] "You may need to kill your philodendrons if they overwhelm their surroundings, contract disease or if you simply no longer want them." ... "Foliar Spray" ... herbicide application is a fast-acting way to kill the plant and ensure it does not come back." ... "Mix a 2-percent solution of glyphosate herbicide with diesel fuel or kerosene in a spray bottle. Products that contain glyphosate are sold with varying concentrations, so read the product label carefully for specific mixing instructions. Use a small spray bottle to kill a small philodendron houseplant, or a garden sprayer if treating a dense patch of large philodendron bush plants, such as lacy tree philodendron (<i>Philodendron bipinnatifidum</i>)." ... "Spray the herbicide solution directly onto the leaves of the philodendron, being careful not to target surrounding plants. The kerosene or diesel fuel helps to fully coat the leaves and doesn't drip off as readily as herbicide mixed with water; the blue marking dye makes it easy to distinguish leaves that you already sprayed." "Cut Stem Application. 1. Prepare a 18- to 21 percent solution of glyphosate herbicide mixed with kerosene or diesel fuel in a small, disposable bowl. Add blue marking dye, if desired, but it's not as necessary with this type of application. 2. Cut thick stemmed philodendrons, such as the larger, tree-like cut-leaf philodendron (<i>Philodendron bipinnatifidum</i>), with lopping shears or a pruning saw, leaving an 8- to 12-inch stem protruding from the ground. 3. Paint the cut tip of the philodendron stems with the herbicide solution, using a small household paintbrush. Paint the stems within one hour of cutting because fresh-cut stems are better able to absorb the herbicide into the root system. 4. Paint the outside of the remaining stem with the herbicide solution, providing a greater surface area through which the herbicide absorbs into the roots. 5. Allow a few days for the herbicide to take effect, in which the plant slowly

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	"Older, leggy plants can be removed by cutting the tops off and rerooting them; the stumps send up one or more shoots and soon become dense and full again."
	WRA Specialist. (2020). Personal Communication	Probably Yes. Other <i>Philodendron</i> species resprout after cutting & pruning.

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Thrives in tropical climates
- Possibly naturalizing outside native range in South America (confirmation needed)
- Other *Philodendron* species are weedy
- Unpalatable
- Poisonous to animals and humans
- Shade-tolerant
- Tolerates many soil types
- Reproduces by seeds
- Seeds, if produced, may be bird-dispersed
- Spread intentionally by people
- *Philodendron* species can resprout after cutting and pruning

Low Risk Traits

- No reports of invasiveness or naturalization
- Unarmed (no spines, thorns, or burrs)
- Seed production may be limited in cultivation (possibly due to pollinator limitations)
- Limited or absent seed production limits ability to spread
- Herbicides can effectively control *Philodendron* species

Second Screening Results for Herbs or Low Stature Shrubby Life Forms

(A) Reported as a weed of cultivated lands? No
Outcome = Accept (Low Risk)