

Family: *Acanthaceae*

Taxon: *Thunbergia alata*

Synonym: **Common Name:** black-eyed-susan vine

Questionnaire :	current 20090513	Assessor:	Patti Clifford	Designation: H(HPWRA)
Status:	Assessor Approved	Data Entry Person:	Patti Clifford	WRA Score 14
101	Is the species highly domesticated?		y=-3, n=0	n
102	Has the species become naturalized where grown?		y=1, n=-1	
103	Does the species have weedy races?		y=1, n=-1	
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)		y=1, n=0	n
204	Native or naturalized in regions with tropical or subtropical climates		y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?		y=-2, ?=-1, n=0	y
301	Naturalized beyond native range		y = 1*multiplier (see Appendix 2), n= question 205	y
302	Garden/amenity/disturbance weed		n=0, y = 1*multiplier (see Appendix 2)	n
303	Agricultural/forestry/horticultural weed		n=0, y = 2*multiplier (see Appendix 2)	
304	Environmental weed		n=0, y = 2*multiplier (see Appendix 2)	y
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		y=1, n=0	
403	Parasitic		y=1, n=0	n
404	Unpalatable to grazing animals		y=1, n=-1	n
405	Toxic to animals		y=1, n=0	n
406	Host for recognized pests and pathogens		y=1, n=0	
407	Causes allergies or is otherwise toxic to humans		y=1, n=0	n
408	Creates a fire hazard in natural ecosystems		y=1, n=0	n
409	Is a shade tolerant plant at some stage of its life cycle		y=1, n=0	y
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		y=1, n=0	n
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	
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
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	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	
708	Propagules survive passage through the gut	y=1, n=-1	
801	Prolific seed production (>1000/m2)	y=1, n=-1	
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: H(HPWRA)

WRA Score 14

Supporting Data:

101	2011. WRA Specialist. Personal Communication.	[Is the species highly domesticated? No] No evidence of domestication to reduce invasive characteristics.
102	2011. WRA Specialist. Personal Communication.	[Has the species become naturalized where grown?] NA
103	2011. WRA Specialist. Personal Communication.	[Does the species have weedy races?] NA
201	2011. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"?] Native region: Eritrea; Ethiopia; Sudan East Tropical Africa: Kenya; Tanzania; Uganda Rwanda; Cote D'Ivoire; Liberia; Nigeria; Sierra Leone; Malawi; Mozambique; Botswana; South Africa - Cape Province, KwaZulu-Natal, Transvaal; Swaziland
202	2011. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Quality of climate match data? 2] Native region: Eritrea; Ethiopia; Sudan East Tropical Africa: Kenya; Tanzania; Uganda Rwanda; Cote D'Ivoire; Liberia; Nigeria; Sierra Leone; Malawi; Mozambique; Botswana; South Africa - Cape Province, KwaZulu-Natal, Transvaal; Swaziland
203	2011. Australian Tropical Rainforest Plants. <i>Thunbergia alata</i> . http://keys.trin.org.au:8080/key-server/data/0e0f0504-0103-430d-8004-060d07080d04/media/Html/taxon/Thunbergia_alata.htm	[Broad climate suitability (environmental versatility)? No] Altitudinal range from near sea level to 800 m.
203	2011. Dave's Garden. PlantFiles: black-eyed susan vine <i>Thunbergia alata</i> . Davesgarden.com, http://davesgarden.com/guides/pf/go/248/	[Broad climate suitability (environmental versatility)? No] USDA Hardiness Zones: 9a: to -6.6 °C (20 °F) 9b: to -3.8 °C (25 °F) 10a: to -1.1 °C (30 °F) 10b: to 1.7 °C (35 °F)
204	2011. Plantzafrica.com. <i>Thunbergia alata</i> . http://www.plantzafrica.com/planttuv/thunbergalata.htm	[Native or naturalized in regions with tropical or subtropical climates? Yes] It has become naturalized in Asia and Malesia and is invasive in Hawaii and Australia.
204	2011. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Native or naturalized in regions with tropical or subtropical climates? Yes] Native region: Eritrea; Ethiopia; Sudan East Tropical Africa: Kenya; Tanzania; Uganda Rwanda; Cote D'Ivoire; Liberia; Nigeria; Sierra Leone; Malawi; Mozambique; Botswana; South Africa - Cape Province, KwaZulu-Natal, Transvaal; Swaziland
205	1811. Loudon, J.. The ladies' flower-garden of ornamental annuals. Smith, W. - Harvard University, http://books.google.com/books?id=JxcDAAAAYA&pg=RA1-PA256&dq=Thunbergia+alata&hl=en&ei=enXUTe bTMoKgvGON7_H7BA&sa=X&oi=book_result&ct=result&resnum=5&ved=0	[Does the species have a history of repeated introductions outside its natural range? Yes] Seeds of <i>Thunbergia alata</i> were first sent to England in 1823.
205	2005. Staples, G.W./Herbst, D.R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Does the species have a history of repeated introductions outside its natural range? Yes] Widely cultivated and naturalized in the tropics and grown as an annual in the temperate zone.
301	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Naturalized beyond native range? Yes] Widely naturalized in tropical regions.
301	2003. Llamas, K.A.. Tropical Flowering Plants. Timber Press, Portland, OR	[Naturalized beyond native range? Yes] Widely naturalized.
301	2011. Plantzafrica.com. <i>Thunbergia alata</i> . http://www.plantzafrica.com/planttuv/thunbergalata.htm	[Naturalized beyond native range? Yes] "It has become naturalized in Asia and Malesia and is invasive in Hawaii and Australia. "
302	2007. Miles, J.. Protecting our bush land: grow me instead. Excell Printing, Pambula http://www.shoalhaven.nsw.gov.au/environment/GrowMeInstead.pdf	[Garden/amenity/disturbance weed? Yes] Frequently escapes from the garden, sometimes assisted by dumping.

302	2011. Dave's Garden. PlantFiles: black-eyed susan vine <i>Thunbergia alata</i> . Davesgarden.com, http://davesgarden.com/guides/pf/go/248/	[Garden/amenity/disturbance weed? Yes] "I have been inundated with seedlings of this plant for 2 years now. I grew it in a hanging basket one year and now it is everywhere!! I would strongly advise against growing this near flower beds of any kind as it will smother anything- even morning glory!"
302	2011. WRA Specialist. Personal Communication.	[Garden/amenity/disturbance weed?] Scored as an environmental weed. 3.04
303	2007. Randall, R.. Global Compendium of Weeds <i>Thunbergia alata</i> (Acanthaceae). Hawaii Ecosystems at Risk (HEAR), http://www.hear.org/gcw/species/thunbergia_alata/	[Agricultural/forestry/horticultural weed? No] The Global Compendium of Weeds list <i>Thunbergia alata</i> as an agricultural weed, but no impacts or control is mentioned. [unable to validate economic impacts]
304	2002. Batianoff, G.N./Butler, D.W.. Assessment of Invasive naturalized plants in south-east Queensland. Appendix. Plant Protection Quarterly. 17: 27-34.	[Environmental weed? Yes] <i>Thunbergia alata</i> is considered an environmental weed in south-east Queensland. It is escaping cultivation and spreading into natural areas. A panel of experts rated <i>T. alata</i> in the top 200 naturalized weeds out of 1060 weeds that were assessed.
305	2007. Queensland Government Department of Primary Industries and Fisheries. Fact sheet: <i>Thunbergia</i> species. Land Protection (Invasive Plants and Animals) Queensland Government Department of Primary Industries and Fisheries, http://www.dpi.qld.gov.au/docu	[Congeneric weed? Yes]. <i>Thunbergia grandiflora</i> and <i>Thunbergia laurifolia</i> are environmental weeds in Queensland, Australia. Both species smother native vegetation often pulling down mature trees. The smothered vegetation reduces light levels to lower layers of vegetation reducing grow and killing native plants. The large tubers degrade creek and river banks and make destruction of these species difficult.
401	2011. Hu, J./Daniel, T.F.. <i>Thunbergia alata</i> FOC Vol. 19. eFloras.org, http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=242414497	[Produces spines, thorns or burrs? No] "Vines, herbaceous. Stems ± 4-angled to flattened, bisulcate, pubescent. Petiole 1.5-3 cm, winged, sparsely pubescent; leaf blade sagittate to deltoid ovate, 2-7.5 × 2-6 cm, abaxially hirsute, adaxially sparsely strigose, palmately 5-veined, base hastate to cordate, margin entire or undulate, apex acute."
402	2011. WRA Specialist. Personal Communication.	[Allelopathic?] Unknown.
403	2011. Hu, J./Daniel, T.F.. <i>Thunbergia alata</i> FOC Vol. 19. eFloras.org, http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=242414497	[Parasitic? No] Acanthaceae.
404	2011. JSTOR Plant Science. <i>Thunbergia alata</i> Acanthaceae. http://plants.jstor.org/upwta/1_92	[Unpalatable to grazing animals? No] In Kenya <i>Thunbergia alata</i> is readily grazed by all animals.
404	2011. Plantzafrica.com. <i>Thunbergia alata</i> . http://www.plantzafrica.com/planttuv/thunbergalata.htm	[Unpalatable to grazing animals? No] Used as fodder in East Africa.
405	2011. Plantzafrica.com. <i>Thunbergia alata</i> . http://www.plantzafrica.com/planttuv/thunbergalata.htm	[Toxic to animals? No] Used as fodder in East Africa.
406	1811. Loudon, J.. The ladies' flower-garden of ornamental annuals. Smith, W. - Harvard University, http://books.google.com/books?id=JxcDAAAAYA&pg=RA1-PA256&dq=Thunbergia+alata&hl=en&ei=enXUTe bTMoKgvON7_H7BA&sa=X&oi=book_result&ct=result&resnum=5&ved=0	[Host for recognized pests and pathogens?] Particularly sensitive to attacks of the red spider (<i>Acarus tellarius</i>).
406	2011. WRA Specialist. Personal Communication.	[Host for recognized pests and pathogens?] Unknown.
407	2004. Grubben, G.J.H.. Vegetables. Volume 2 of Plant resources of tropical Africa. PROTA, Wageningen, Netherlands	[Causes allergies or is otherwise toxic to humans?] Leaves of <i>Thunbergia alata</i> are eaten in Africa.
407	2011. Plantzafrica.com. <i>Thunbergia alata</i> . http://www.plantzafrica.com/planttuv/thunbergalata.htm	Causes allergies or is otherwise toxic to humans? No] In East Africa used as a vegetable. y it is used for skin problems, cellulitis, back and joint pains, eye inflammation, piles and rectal cancer. Gall sickness and some ear problems in cattle are also treated with this plant. Some people can get contact dermatitis from it.
408	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Creates a fire hazard in natural ecosystems? No] Vine.

409	2007. Miles, J.. Protecting our bush land: grow me instead. Excell Printing, Pambula http://www.shoalhaven.nsw.gov.au/environment/GrowMeInstead.pdf	[Is a shade tolerant plant at some stage of its life cycle? Yes] Popular vine for shady areas.
409	2011. Plantzafrica.com. Thunbergia alata. http://www.plantzafrica.com/planttuv/thunbergalata.htm	[Is shade tolerant plant at some stage of its life cycle? Yes] Full sun or light shade.
410	2011. Dave's Garden. PlantFiles: black-eyed susan vine Thunbergia alata. Davesgarden.com, http://davesgarden.com/guides/pf/go/248/	[Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)? No] Soil pH requirements: 6.1 to 6.5 (mildly acidic) 6.6 to 7.5 (neutral) 7.6 to 7.8 (mildly alkaline)
410	2011. Plantzafrica.com. Thunbergia alata. http://www.plantzafrica.com/planttuv/thunbergalata.htm	[Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)? No] "In much of the warmer world, Thunbergia alata, or black-eyed susan, is well known as a fast-growing, long-flowering, friendly creeper. In South Africa it is a general favourite as it is not fussy about soil, needs only moderate water."
411	2011. Hu, J./Daniel, T.F.. Thunbergia alata FOC Vol. 19. eFloras.org, http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=242414497	[Climbing or smothering growth habit? Yes] Vine.
412	2011. Hu, J./Daniel, T.F.. Thunbergia alata FOC Vol. 19. eFloras.org, http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=242414497	[Forms dense thickets? No] Vine.
501	2011. Hu, J./Daniel, T.F.. Thunbergia alata FOC Vol. 19. eFloras.org, http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=242414497	[Aquatic? No] Vine. Terrestrial.
502	2011. Hu, J./Daniel, T.F.. Thunbergia alata FOC Vol. 19. eFloras.org, http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=242414497	[Grass? No] Acanthaceae.
503	2011. Hu, J./Daniel, T.F.. Thunbergia alata FOC Vol. 19. eFloras.org, http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=242414497	[Nitrogen fixing woody plant? No] Acanthaceae. Vine.
504	2011. Folia Social garden tracker & organiser. Black-eyed susan vine Thunbergia alata. http://myfolia.com/plants/831-blackeyed-susan-vine-thunbergia-alata/swappable	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? Yes] Seeds, bulbs, tubers, and cuttings of Thunbergia alata for sale.
504	2011. WRA Specialist. Personal Communication.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? Possibly.]
601	2011. Plantzafrica.com. Thunbergia alata. http://www.plantzafrica.com/planttuv/thunbergalata.htm	[Evidence of substantial reproductive failure in native habitat? No] Conservation status: Thunbergia alata is not a threatened plant in its native range.
602	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Produces viable seed? Yes] Propagate from seed and cuttings.
603	2011. WRA Specialist. Personal Communication.	[Hybridizes naturally?] Unknown.
604	2009. Owens, S.J./Miller, R.. Cross- and self-fertilization of plants - Darwin's experiments and what we know now. Botanical Journal of the Linnean Society. 161: 357-395.	[Self-compatible or apomictic? Yes] According to Darwin, Thunbergia alata is self-fertile.
605	2011. Plantzafrica.com. Thunbergia alata. http://www.plantzafrica.com/planttuv/thunbergalata.htm	[Requires specialist pollinators? No] "Black-eyed susan is probably pollinated by bees. An insect visiting the flower will touch the stigma first, with its back, and then the anthers, getting a load of pollen that is then carried to another stigma. The flowers reflect ultra violet light in a pattern that is visible to insects but not to humans. This helps insects find the centre of the flower."
606	2007. Miles, J.. Protecting our bush land: grow me instead. Excell Printing, Pambula http://www.shoalhaven.nsw.gov.au/environment/GrowMeInstead.pdf	[Reproduction by vegetative fragmentation? Yes] "Frequently escapes from the garden, sometimes assisted by dumping."

607	1811. Loudon, J.. The ladies' flower-garden of ornamental annuals. Smith, W. - Harvard University, http://books.google.com/books?id=JxcDAAAAYA AJ&pg=RA1-PA256&dq=Thunbergia+alata&hl=en&ei=enXUTEbTMoKgvqON7_H7BA&sa=X&oi=book_result&ct=result&resnum=5&ved=0	[Minimum generative time (years)? 1] Annual.
607	2011. Plantzafrica.com. Thunbergia alata. http://www.plantzafrica.com/planttuv/thunbergalat a.htm	[Minimum generative time (years)? 1] "In much of the warmer world, Thunbergia alata, or black-eyed susan, is well known as a fast-growing, long-flowering, friendly creeper. Black-eyed susan grows quickly and starts flowering at an early age."
701	2007. Miles, J.. Protecting our bush land: grow me instead. Excell Printing, Pambula http://www.shoalhaven.nsw.gov.au/environment/G rowMelnstead.pdf	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Yes] Frequently escapes from gardens, sometimes assisted by dumping.
701	2011. Plantzafrica.com. Thunbergia alata. http://www.plantzafrica.com/planttuv/thunbergalat a.htm	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Yes] "In Africa it is usually found on forest margins but it can occur in dryer, open areas. It is sometimes seen along roads near settlements, but it does not seem to become a nuisance."
702	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Propagules dispersed intentionally by people? Yes] Widely cultivated for its flowers.
702	2005. Staples, G.W./Herbst, D.R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Propagules dispersed intentionally by people? Yes] Cultivated and widely naturalized in the tropics.
703	2011. WRA Specialist. Personal Communication.	[Propagules likely to disperse as a produce contaminant? No] No evidence of produce contamination.
704	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Propagules adapted to wind dispersal? No] "Capsules subglobose, with a conspicuous sterile beak 1-2 cm lon. Seeds not on a modified funiculus that ejects the seeds from the capsule."
705	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.][Propagules water dispersed?] "Capsules subglobose, with a conspicuous sterile beak 1-2 cm lon. Seeds not on a modified funiculus that ejects the seeds from the capsule."
706	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Propagules bird dispersed? No] "Capsules subglobose, with a conspicuous sterile beak 1-2 cm lon. Seeds not on a modified funiculus that ejects the seeds from the capsule."
707	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Propagules dispersed by other animals (externally)? No] Fruit a subglobose woody capsule with an extended terminal beak. [no means of external attachment
708	2011. Plantzafrica.com. Thunbergia alata. http://www.plantzafrica.com/planttuv/thunbergalat a.htm	[Propagules survive passage through the gut?] "Seeds are perhaps ejected mechanically when the fruit splits open."
801	2011. Australian Tropical Rainforest Plants. Thunbergia alata. http://keys.trin.org.au:8080/key-server/data/0e0f0504-0103-430d-8004-060d07080d04/media/Html/taxon/Thunbergia_alat a.htm	[Prolific seed production (>1000/m2)?] Flowers profusely but seed set usually not as much.
801	2011. Plantzafrica.com. Thunbergia alata. http://www.plantzafrica.com/planttuv/thunbergalat a.htm	[Prolific seed production (>1000/m2)?] Flowers all summer in Africa, but in warmer areas can flower year round.
801	2011. WRA Specialist. Personal Communication.	[Prolific seed production (>1000/m2) ?] Unknown.
802	2011. WRA Specialist. Personal Communication.	[Evidence that a persistent propagule bank is formed (>1 yr)?] Unknown.
803	2011. WRA Specialist. Personal Communication.	[Well controlled by herbicides?] Unknown.

804	1811. Loudon, J.. The ladies' flower-garden of ornamental annuals. Smith, W. - Harvard University, http://books.google.com/books?id=JxcDAAAAYA AJ&pg=RA1-PA256&dq=Thunbergia+alata&hl=en&ei=enXUTe bTMoKgvgON7_H7BA&sa=X&oi=book_result&ct=result&resnum=5&ved=0	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] When sown in the open ground the points of their shoots can be repeatedly pruned to make them form bushy plants.
804	2011. Plantzafrica.com. Thunbergia alata. http://www.plantzafrica.com/planttuv/thunbergalata.htm	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "It can be trimmed if it gets too big but it is usually well behaved. Light trimming in spring will encourage flowering. If frost is a problem, cut the plant right back and it will probably resprout."
805	2011. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)?] Unknown.