Taxon: Impatiens sodenii **Family:** Balsaminaceae

Common Name(s): poor man's Rhododendron
shrub balsam

Synonym(s): Impatiens oliveri C. H. Wright ex W. ...
Impatiens thomsonii Oliv.
Oliver's touch-me-not

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 22 Jul 2015

WRA Score: 11.0 **Designation:** H(HPWRA) **Rating:** High Risk

Keywords: Tropical Shrub, Shade-Tolerant, Thicket-Forming, Spreads Vegetatively, Mechanical Dispersal

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)	y=1, n=0	y
204	Native or naturalized in regions with tropical or subtropical climates	y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	y
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	y
302	Garden/amenity/disturbance weed	n=0, y = 1*multiplier (see Appendix 2)	y
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed		
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		
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)	y=1, n=0	y
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets	y=1, n=0	y
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	y=1, n=-1	y
607	Minimum generative time (years)		
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	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	y=1, n=-1	n
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)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides	y=-1, n=1	y
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**
	Grey-Wilson, C. 1980. Impatiens of Africa. A.A. Balkema, Rotterdam, Netherlands	No evidence

102	**Has the species become naturalized where grown?**	
	Source(s)	**Notes**
	WRA Specialist. 2015. Personal Communication	NA

103	**Does the species have weedy races?**	
	Source(s)	**Notes**
	WRA Specialist. 2015. Personal Communication	NA

201	**Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"**	**High**
	Source(s)	**Notes**
	USDA, ARS, National Genetic Resources Program. 2015. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/. [Accessed 20 Jul 2015]	"Native: AFRICA East Tropical Africa: Kenya; Tanzania"

202	**Quality of climate match data**	**High**
	Source(s)	**Notes**
	USDA, ARS, National Genetic Resources Program. 2015. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/. [Accessed 20 Jul 2015]	

203	**Broad climate suitability (environmental versatility)**	**y**
	Source(s)	**Notes**
	Grey-Wilson, C. 1980. Impatiens of Africa. A.A. Balkema, Rotterdam, Netherlands	[Elevation range exceeds 1000 m] "Growing in damp shaded or rather exposed places, upland rain forests. gullies, cliff ledges and mountain ridges or amongst boulders; often on granitic rocks; altitudinal range 1000-2700 m."

204	**Native or naturalized in regions with tropical or subtropical climates**	**y**

Qsn #	Question	Answer
	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.	"Native to eastern tropical Africa"
	USDA, ARS, National Genetic Resources Program. 2015. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/. [Accessed 20 Jul 2015]	"Native: AFRICA East Tropical Africa: Kenya; Tanzania [n. & e.] Naturalized: AFRICA Macaronesia: Spain - Canary Islands [Gran Canaria] AUSTRALASIA New Zealand: New Zealand - North Island PACIFIC North-Central Pacific: United States - Hawaii SOUTHERN AMERICA Western South America: Colombia"

205	**Does the species have a history of repeated introductions outside its natural range?**	**y**
	Source(s)	**Notes**
	USDA, ARS, National Genetic Resources Program. 2015. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/. [Accessed 22 Jul 2015]	"Naturalized: AFRICA Macaronesia: Spain - Canary Islands [Gran Canaria] AUSTRALASIA New Zealand: New Zealand - North Island PACIFIC North-Central Pacific: United States - Hawaii SOUTHERN AMERICA Western South America: Colombia"

301	**Naturalized beyond native range**	**y**
	Source(s)	**Notes**
	Sykes, W.R. (1982) Checklist of dicotyledons naturalised in New Zealand 15. Annonales, Berberidales, Cactales, Fagales, some Geraniales, Juglandales, Laurales, Rutales, Salicales, Sapindales, Tiliales, Nyctaginaceae, and Zygophyllaceae. New Zealand Journal of Botany, 20(4): 333-341	"Escape from cultivation; N Auckland, Auckland City, Wellington."
	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 sparingly naturalized in mesic forest, especially along streams, Koke'e area, Kaua'i. First collected in 1956 (Holt s.n., BISH)."
	USDA, ARS, National Genetic Resources Program. 2015. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/. [Accessed 20 Jul 2015]	"Naturalized: AFRICA Macaronesia: Spain - Canary Islands [Gran Canaria] AUSTRALASIA New Zealand: New Zealand - North Island PACIFIC North-Central Pacific: United States - Hawaii SOUTHERN AMERICA Western South America: Colombia"

Qsn #	Question	Answer
	Oppenheimer, Hank L. 2003. New plant records from Maui and Hawai'i Counties. Bishop Museum Occasional Papers. 73: 3-30	"On East Maui, this species had volunteered in a yard several years ago (Fern Duvall, pers. comm.); these plants are now 2m tall and fruiting. More plants were seen in a nearby gully dominated by Hedychium gardnerianum. It had previously been known to be naturalized only on Kaua'i (Wagner et al., 1990: 380). Wagner et al. (1999: 1864) reported the taxonomic change. Material examined: MAUI: East Maui, Makawao Dist, 24 Mar 2001, Olinda, 1082 m, Oppenheimer & F. Duvall H30141; in gulch E of Pi'iholo Rd, 1134 m, Oppenheimer & F. Duvall H30142."

302	Garden/amenity/disturbance weed	y
	Source(s)	**Notes**
	Williams, P.A. & Hayes, L.M. 2007. Emerging weed issues for the West Coast Regional Council and their prospects for biocontrol. Landcare Research Contract Report: LC0607/109. Landcare Research, Lincoln, NZ	"Appendix 2. Naturalised plants on the West Coast and parameters indicating their weediness" [Impatiens sodenii - "Occasional in gardens near Karamea but barely naturalised."]
	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 sparingly naturalized in mesic forest, especially along streams, Koke'e area, Kaua'i."
	Weedbusters. 2015. Shrub Balsam. Impatiens sodenii. http://www.weedbusters.org.nz/weed-information/impatiens-sodenii/59/. [Accessed 22 Jul 2015]	[Invades degraded forests] "Why is it weedy? Roots at nodes, spreads by layering, and forms dense stands in degraded and revegetating forest. Moderate to high shade tolerance." ... "What damage does it do? Replaces other vegetation on forest floor, and prevents seedlings of native species establishing. "

303	Agricultural/forestry/horticultural weed	n
	Source(s)	**Notes**
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

304	Environmental weed	
	Source(s)	**Notes**
	Weedbusters. 2015. Shrub Balsam. Impatiens sodenii. http://www.weedbusters.org.nz/weed-information/impatiens-sodenii/59/. [Accessed 22 Jul 2015]	"Why is it weedy? Roots at nodes, spreads by layering, and forms dense stands in degraded and revegetating forest. Moderate to high shade tolerance." ... "What damage does it do? Replaces other vegetation on forest floor, and prevents seedlings of native species establishing. "
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	Listed as an environmental weed, but impacts unspecified

305	Congeneric weed	y
	Source(s)	**Notes**

Qsn #	Question	Answer
	Adamowski, W. 2008. Balsams on the offensive: the role of planting in the invasion of Impatiens species. Pp 57-70 in Tokarska-Guzik et al. (eds.) Plant Invasions: Human Perception, Ecological Impacts and Management. Backhuys Publishers, Leiden	"The genus Impatiens includes a number of species with very attractive flowers. Some of them were introduced for cultivation already in the 19th century. At least two taxa have become popular decorative plants. The introductions of balsams have resulted in a few spectacular biological invasions. Because of the recent interest in the genus as a source of potential decorative plants and the cultivation of many new taxa, a study was undertaken to analyse the threat of invasive balsam species. In the temperate climatic zone, the taxa originating from mountainous areas of China seem to pose the greatest risk of spreading. These regions are characterized by well-marked climatic seasons. Over 80% of the balsam species growing in these areas are annuals wintering as seeds. The balsams coming from tropical Africa are mostly perennials, adapted to a more even climatic pattern. They can be expected to expand in tropical zones characterized by abundant precipitation."

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] "Glabrous, erect, shrubby perennial herbs 1-2.5(-3) m tall; stems pale green. Leaves in whorls of 4-8 per node, oblanceolate, 8- 21 cm long, margins ciliate-toothed."

402	Allelopathic	
	Source(s)	**Notes**
	Vrchotová, N., Šerá, B., & Krejčová, J. (2011). Allelopathic activity of extracts from Impatiens species. Plant, Soil and Environment, 57: 57-60	[Unknown. Related species have allelopathic properties] "We have tested the effect of water, methanol and dichloromethane extracts from the leaves of several species of Impatiens (I. noli tangere, I. parviflora, I. glandulifera) on germination of seeds Leucosinapis alba and Brassica napus. All of the tested extracts had inhibitory effects to seeds of all studied plants (except the dichloromethane extracts). The highest activity revealed methanol extract and extract from I. glandulifera."

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.	"Glabrous, erect, shrubby perennial herbs 1-2.5(-3) m tall" [No evidence. Balsaminaceae]

404	Unpalatable to grazing animals	
	Source(s)	**Notes**
	Plant This. 2015. Impatiens sodenii. http://www.plantthis.com.au/plant-information.asp?gardener=25869&tabview=design&plantSpot=. [Accessed 22 Jul 2015]	"Animals: deer resistant"

Qsn #	Question	Answer
	Annie's Annuals. 2015. Impatiens sodenii (syn. oliveri) 'Madonna'. Richmond, CA. https://www.anniesannuals.com/plants/view/?id=1841. [Accessed 22 Jul 2015]	"excellent weed suppression & deer resistance"
	Dave's Garden. 2015. Shrub Balsam, Poor Man's Orchid, Poor Man's Rhododendron Impatiens sodenii. http://davesgarden.com/guides/pf/go/56556/. [Accessed 22 Jul 2015]	"On Oct 28, 2003, dho1655 from Belvedere Tiburon, CA wrote: Plant is deer-resistant,"

405	Toxic to animals	n
	Source(s)	**Notes**
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	
	Source(s)	**Notes**
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"Pests and diseases are few, and regular applications of fertilizer assure vigorous growth and abundant flower production."

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	**Notes**
	Dave's Garden. 2015. Shrub Balsam, Poor Man's Orchid, Poor Man's Rhododendron Impatiens sodenii. http://davesgarden.com/guides/pf/go/56556/. [Accessed 22 Jul 2015]	"Danger: N/A"
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	**Notes**
	Weedbusters. 2015. Shrub Balsam. Impatiens sodenii. http://www.weedbusters.org.nz/weed-information/impatiens-sodenii/59/. [Accessed 22 Jul 2015]	[No evidence. Unlikely in areas with high rainfall] "Which habitats is it likely to invade? Moves slowly from the margins into damp lowland forest in high rainfall areas."
	Grey-Wilson, C. 1980. Impatiens of Africa. A.A. Balkema, Rotterdam, Netherlands	[Unlikely given damp, shaded habitat] "Growing in damp shaded or rather exposed places, upland rain forests. gullies, cliff ledges and mountain ridges or amongst boulders"
	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.	[Unlikely in Hawaiian Islands] "in Hawai'i sparingly naturalized in mesic forest, especially along streams, Koke'e area, Kaua'i"

409	Is a shade tolerant plant at some stage of its life cycle	y

Qsn #	Question	Answer
	Source(s)	**Notes**
	Grey-Wilson, C. 1980. Impatiens of Africa. A.A. Balkema, Rotterdam, Netherlands	"Growing in damp shaded or rather exposed places, upland rain forests. gullies, cliff ledges and mountain ridges or amongst boulders; often on granitic rocks; altitudinal range 1000-2700 m."
	International Environmental Weed Foundation. 2015. Impatiens sodenii. IEWF, Gladesville, Australia. http://www.iewf.org/weedid/impatiens_sodenii.htm. [Accessed 22 Jul 2015]	"It has also been recorded as naturalized in Merimbula on the NSW far south coast, where it has persisted for at least since 2001 in a moist, shaded, heavily weed infested gully close to a coastal lake, a very different habitat from that described in Western Australia. In Merimbula it is confined to only the moistest soils in the lower part of this gully."
	Weedbusters. 2015. Shrub Balsam. Impatiens sodenii. http://www.weedbusters.org.nz/weed-information/impatiens-sodenii/59/. [Accessed 22 Jul 2015]	"Moderate to high shade tolerance."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	**Notes**
	Annie's Annuals. 2015. Impatiens sodenii (syn. oliveri) 'Madonna'. Richmond, CA. https://www.anniesannuals.com/plants/view/?id=1841. [Accessed 22 Jul 2015]	"Not fussy about soil or root competition from trees, it lives forever just asking for water maybe once a week & a layer of compost annually to keep it really green."
	Dave's Garden. 2015. Shrub Balsam, Poor Man's Orchid, Poor Man's Rhododendron Impatiens sodenii. http://davesgarden.com/guides/pf/go/56556/. [Accessed 22 Jul 2015]	"Soil pH requirements: 6.1 to 6.5 (mildly acidic) 6.6 to 7.5 (neutral) 7.6 to 7.8 (mildly alkaline)"

411	Climbing or smothering growth habit	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.	"Glabrous, erect, shrubby perennial herbs 1-2.5(-3) m tall; stems pale green. Leaves in whorls of 4-8 per node, oblanceolate, 8- 21 cm long, margins ciliate-toothed."

412	Forms dense thickets	y
	Source(s)	**Notes**
	Grey-Wilson, C. 1980. Impatiens of Africa. A.A. Balkema, Rotterdam, Netherlands	"Impatiens sodenii is one of the most vigorous of the African balsams often forming large clumps."
	Weedbusters. 2015. Shrub Balsam. Impatiens sodenii. http://www.weedbusters.org.nz/weed-information/impatiens-sodenii/59/. [Accessed 22 Jul 2015]	"Roots at nodes, spreads by layering, and forms dense stands in degraded and revegetating forest."

Qsn #	Question	Answer
501	**Aquatic**	**n**
	Source(s)	**Notes**
	Grey-Wilson, C. 1980. Impatiens of Africa. A.A. Balkema, Rotterdam, Netherlands	"Growing in damp shaded or rather exposed places, upland rain forests. gullies, cliff ledges and mountain ridges or amongst boulders; often on granitic rocks; altitudinal range 1000-2700 m."

502	Grass	n
	Source(s)	**Notes**
	USDA, ARS, National Genetic Resources Program. 2015. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/. [Accessed 20 Jul 2015]	Family: Balsaminaceae

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.	"Glabrous, erect, shrubby perennial herbs 1-2.5(-3) m tall" [Balsaminaceae. No evidence]

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	**Notes**
	Grey-Wilson, C. 1980. Impatiens of Africa. A.A. Balkema, Rotterdam, Netherlands	"The plants on suffruticose, the stems becoming gradually thickened with age." [No evidence]

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	**Notes**
	Grey-Wilson, C. 1980. Impatiens of Africa. A.A. Balkema, Rotterdam, Netherlands	[No evidence] "Distribution: Kenya. N.&E. Tanzania. Habitat: Growing in damp shaded or rather exposed places, upland rain forests. gullies, cliff ledges and mountain ridges or amongst boulders; often on granitic rocks; altitudinal range I ()()()'2 700 m. Found in flower throughout the year."

602	Produces viable seed	y
	Source(s)	**Notes**
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"It is easily propagated from seed or 6" stem cuttings."
	Oppenheimer, Hank L. 2003. New plant records from Maui and Hawai'i Counties. Bishop Museum Occasional Papers. 73: 3-30	"On East Maui, this species had volunteered in a yard several years ago (Fern Duvall, pers. comm.); these plants are now 2m tall and fruiting."

Qsn #	Question	Answer
	Dave's Garden. 2015. Shrub Balsam, Poor Man's Orchid, Poor Man's Rhododendron Impatiens sodenii. http://davesgarden.com/guides/pf/go/56556/. [Accessed 22 Jul 2015]	"Propagation Methods: From softwood cuttings From seed; sow indoors before last frost"

603	Hybridizes naturally	
	Source(s)	**Notes**
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"Generally, only plant breeders are likely to cross-pollinate impatiens deliberately."
	Grey-Wilson, C. 1980. Impatiens of Africa. A.A. Balkema, Rotterdam, Netherlands	[Unknown for Impatiens sodenii] "Hybrids between different species occurs in African Impatiens, although the frequency of such hybridisation is not known. However, it is true to say that hybrids nearly always occur in areas where the habitat has been disturbed in some way." ... "The chances of crossing are likely providing suitable pollinating agents are available. This does not of course imply that hybrids will occur, it merely increases the chances."

604	Self-compatible or apomictic	
	Source(s)	**Notes**
	Dave's Garden. 2015. Shrub Balsam, Poor Man's Orchid, Poor Man's Rhododendron Impatiens sodenii. http://davesgarden.com/guides/pf/go/56556/. [Accessed 22 Jul 2015]	[Self-seeding] "On Aug 30, 2005, sanity101 from Dublin, OH (Zone 5b) wrote: Excellent self seeding annual in the north. It grows freely in part sun or sun, and reseeds *very* readily...you'll never have to re-plant."
	Grey-Wilson, C. 1980. Impatiens of Africa. A.A. Balkema, Rotterdam, Netherlands	[Unknown] "Does self-pollination play any part in the life-cycle of Impatiens? The breeding system would seem to preclude any such possibility. However, Knuth (1908) discussing the widespread small yellow flowered balsam in Europe, I. parviflora says that ' . .. The insect visitors of the species are generally very few, but as in spite of this all the flowers set fruits, it must be assumed that the plant is self· fertile'."

605	Requires specialist pollinators	
	Source(s)	**Notes**
	Grey-Wilson, C. 1980. Impatiens of Africa. A.A. Balkema, Rotterdam, Netherlands	"The floral structure of Impatiens and its significance in pollination has been discussed on pp. 15·19. The zygomorphic nature of the flower and the rich assortment of designs afforded by evolution is undoubtedly closely connected with their pollinators. The protandrous character of the flower ensures cross pollination in most instances. However, despite the fact that much information can be deduced by studying the genus closely there is surprisingly tittle useful information at hand as regards individual Impatiens species and their specific pollinator(s)."
	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] "Flowers solitary, axillary, pale lavender or rose, nearly white externally, the spur usually 4- 5.5 cm long."

Qsn #	Question	Answer
606	**Reproduction by vegetative fragmentation**	**y**
	Source(s)	**Notes**
	Weedbusters. 2015. Shrub Balsam. Impatiens sodenii. http://www.weedbusters.org.nz/weed-information/impatiens-sodenii/59/. [Accessed 22 Jul 2015]	"Roots at nodes, spreads by layering, and forms dense stands in degraded and revegetating forest."
	Staples, G.W., Herbst, D.R & Imada, C.T. 2000. Survey of invasive or potentially invasive cultivated plants in Hawai'i. Bishop Museum Occasional Papers 65: 1-35	"Table 2. Annotated checklist of invasive or potentially invasive cultivated plants in Hawai'i with dispersal syndrome" [Authors suspect that Impatiens sodenii spread vegetatively, in addition to ballistic seed dispersal]

607	**Minimum generative time (years)**	
	Source(s)	**Notes**
	Plant This. 2015. Impatiens sodenii. http://www.plantthis.com.au/plant-information.asp?gardener=25869&tabview=design&plantSpot=. [Accessed 22 Jul 2015]	"Growth rate: fast"

701	**Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)**	**y**
	Source(s)	**Notes**
	Weedbusters. 2015. Shrub Balsam. Impatiens sodenii. http://www.weedbusters.org.nz/weed-information/impatiens-sodenii/59/. [Accessed 22 Jul 2015]	"Fragments are spread by greenwaste dumping and water movement. Common garden and pot plant."
	Staples, G.W., Herbst, D.R & Imada, C.T. 2000. Survey of invasive or potentially invasive cultivated plants in Hawai'i. Bishop Museum Occasional Papers 65: 1-35	[Small, mechanically dehisced seeds may be secondarily dispersed along roads or trails] "Here the ripe, fleshy fruit dehisces suddenly, often when something touches or bumps it, and the 5 carpels roll up inwards and hurl the seeds out. This has allowed Impatiens, planted along roadsides, trails, and as ornamentals around buildings in parks and natural areas, to spread into surrounding areas and become naturalized."

702	**Propagules dispersed intentionally by people**	**y**
	Source(s)	**Notes**
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"naturalized at higher, cooler elevations on Kauai and is quite likely cultivated there and on other islands."
	Llamas, K.A. 2003. Tropical Flowering Plants. Timber Press, Portland, OR	Ornamental

703	**Propagules likely to disperse as a produce contaminant**	
	Source(s)	**Notes**

Qsn #	Question	Answer
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Potentially. If cultivated with other potted ornamentals, seeds could become a contaminant of potted plants] "Among fruits that burst open due to internal pressure, the best known example in Hawai'i is Impatiens. Here the ripe, fleshy fruit dehisces suddenly, often when something touches or bumps it, and the 5 carpels roll up inwards and hurl the seeds out. This has allowed Impatiens, planted along roadsides, trails, and as ornamentals around buildings in parks and natural areas, to spread into surrounding areas and become naturalized."

704	Propagules adapted to wind dispersal	n
	Source(s)	**Notes**
	International Environmental Weed Foundation. 2015. Impatiens sodenii. IEWF, Gladesville, Australia. http://www.iewf.org/weedid/impatiens_sodenii.htm. [Accessed 22 Jul 2015]	"The fruit is a smooth greenish capsule, c. 24 mm long and 8 mm w ide, swollen in the middle. Ripe fruits explode w ith even slight pressure."
	Staples, G.W., Herbst, D.R & Imada, C.T. 2000. Survey of invasive or potentially invasive cultivated plants in Hawai'i. Bishop Museum Occasional Papers 65: 1-35	[Mechanically dispersed] "Among fruits that burst open due to internal pressure, the best known example in Hawai'i is Impatiens. Here the ripe, fleshy fruit dehisces suddenly, often when something touches or bumps it, and the 5 carpels roll up inwards and hurl the seeds out. This has allowed Impatiens, planted along roadsides, trails, and as ornamentals around buildings in parks and natural areas, to spread into surrounding areas and become naturalized."

705	Propagules water dispersed	y
	Source(s)	**Notes**
	Weedbusters. 2015. Shrub Balsam. Impatiens sodenii. http://www.weedbusters.org.nz/weed-information/impatiens-sodenii/59/. [Accessed 22 Jul 2015]	"Fragments are spread by greenwaste dumping and water movement."
	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.	[Distribution along streams suggests secondary water dispersal occurs] "in Hawai'i sparingly naturalized in mesic forest, especially along streams, Koke'e area, Kaua'i."

706	Propagules bird dispersed	n
	Source(s)	**Notes**
	Staples, G.W., Herbst, D.R & Imada, C.T. 2000. Survey of invasive or potentially invasive cultivated plants in Hawai'i. Bishop Museum Occasional Papers 65: 1-35	[No evidence] "Among fruits that burst open due to internal pressure, the best known example in Hawai'i is Impatiens. Here the ripe, fleshy fruit dehisces suddenly, often when something touches or bumps it, and the 5 carpels roll up inwards and hurl the seeds out."

Qsn #	Question	Answer
707	**Propagules dispersed by other animals (externally)**	**n**
	Source(s)	**Notes**
	Weedbusters. 2015. Shrub Balsam. Impatiens sodenii. http://www.weedbusters.org.nz/weed-information/impatiens-sodenii/59/. [Accessed 22 Jul 2015]	[No evidence] "How does it spread? Fragments are spread by greenwaste dumping and water movement. Common garden and pot plant."

708	**Propagules survive passage through the gut**	**n**
	Source(s)	**Notes**
	Gordon, D. R., Mitterdorfer, B., Pheloung, P. C., Ansari, S., Buddenhagen, C., Chimera, C., ... & Williams, P. A. 2010). Guidance for addressing the Australian Weed Risk Assessment questions. Plant Protection Quarterly, 25(2): 56-74	"Answer 'no' where the taxon is unlikely to be eaten by animals or if seeds are not viable following passage through the gut."
	WRA Specialist. 2015. Personal Communication	No evidence of consumption

801	**Prolific seed production (>1000/m2)**	
	Source(s)	**Notes**
	WRA Specialist. 2015. Personal Communication	Unknown. Other Impatiens species are reported to produce numerous, small seeds

802	**Evidence that a persistent propagule bank is formed (>1 yr)**	
	Source(s)	**Notes**
	Perglova, I., Pergl, J., Skalova, H., Moravcova, L., Jarošík, V., & Pyšek, P. (2009). Differences in germination and seedling establishment of alien and native Impatiens species. Preslia, 81(4): 357-375	[Unknown for I. sodenii] "Impatiens species are reported to have transient or short-term persistent soil seed banks (Thompson et al. 1997). However, good data is scarce and this part of the life cycle has not been thoroughly studied by means of burial experiments. Grime et al. (1988) state that I. glandulifera does not form a persistent seed bank. In contrast, Beerling and Perrins (1993) conclude, on the basis of an experimental removal of plants before flowering, that seeds can persist in the soil for at least 18 months."

803	**Well controlled by herbicides**	**y**
	Source(s)	**Notes**
	Weedbusters. 2015. Shrub Balsam. Impatiens sodenii. http://www.weedbusters.org.nz/weed-information/impatiens-sodenii/59/. [Accessed 22 Jul 2015]	"What can I do to get rid of it? Begin control programme at the top of the catchment to prevent reinfestation during flooding. 1. Dig out: dispose of all parts at refuse transfer station, bury or burn. 2. Spray: glyphosate (150 ml/15L + penetrant (knapsack) or 10ml/L + penetrant (spraygun spray)) or metsulfuron-methyl 600g/kg (4g/15L + penetrant (knapsack) or 20g/100L + penetrant (spraygun)). Avoid spray runoff. What can I do to stop it coming back? Limited herbicide follow up required."

Qsn #	Question	Answer
804	**Tolerates, or benefits from, mutilation, cultivation, or fire**	
	Source(s)	**Notes**
	Annie's Annuals. 2015. Impatiens sodenii (syn. oliveri) 'Madonna'. Richmond, CA. https://www.anniesannuals.com/plants/view/?id=1841. [Accessed 22 Jul 2015]	"I prune mine back to 3' in Winter for extra bushiness. "
	Weedbusters. 2015. Shrub Balsam. Impatiens sodenii. http://www.weedbusters.org.nz/weed-information/impatiens-sodenii/59/. [Accessed 22 Jul 2015]	[Possibly Yes. Fragments can root] "Roots at nodes, spreads by layering, and forms dense stands in degraded and revegetating forest." ... "Fragments are spread by greenwaste dumping and water movement."

805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	
	Source(s)	**Notes**
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"Pests and diseases are few ..."
	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] "Native to eastern tropical Africa; in Hawai'i sparingly naturalized in mesic forest, especially along streams, Koke'e area, Kaua'i."

Summary of Risk Traits:

High Risk / Undesirable Traits
• Elevation range exceeds 1000 m, demonstrating environmental versatility
• Thrives in tropical climates
• Naturalized on Kauai and East Maui, Hawaiian Islands, Canary Islands, New Zealand, Colombia
• Possible environmental weed. Replaces other vegetation on forest floor, and prevents seedlings of native species establishing
• Other Impatiens species have become invasive
• Possibly unpalatable (deer resistant)
• Shade tolerant
• Tolerates many soil types
• Forms dense stands
• Reproduces by seeds
• Spreads vegetatively
• Can be spread as garden waste
• Planted intentionally by people
• Fruits burst open due to internal pressure & disperse seeds
• Can be dispersed by water

Low Risk Traits
• Unarmed (no spines, thorns or burrs)
• No reports of toxicity
• Ornamental
• Herbicides may provide effective control