

Taxon: <i>Huernia longii</i>	Family: Apocynaceae
Common Name(s): huernia	Synonym(s): NA

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 23 Jul 2015
WRA Score: 3.0	Designation: L	Rating: Low Risk

Keywords: Succulent, Spiny, Ornamental, Fly-Pollinated, Wind-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)	Intermediate
202	Quality of climate match data	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)		
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	?
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	n
302	Garden/amenity/disturbance weed	n=0, y = 1*multiplier (see Appendix 2)	n
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	n
305	Congeneric weed	n=0, y = 1*multiplier (see Appendix 2)	n
401	Produces spines, thorns or burrs	y=1, n=0	y
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals		
405	Toxic to animals		
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans		
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		
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y

Qsn #	Question	Answer Option	Answer
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	y=-1, n=0	n
606	Reproduction by vegetative fragmentation		
607	Minimum generative time (years)		
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
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	y
705	Propagules water dispersed		
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
	Court, D. 2000. Succulent Flora of Southern Africa. Revised Edition. 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"	Intermediate
	Source(s)	Notes
	Court, D. 2000. Succulent Flora of Southern Africa. Revised Edition. A.A. Balkema, Rotterdam, Netherlands	"West of Uitenhage in the Eastern Cape."
202	Quality of climate match data	High
	Source(s)	Notes
	Court, D. 2000. Succulent Flora of Southern Africa. Revised Edition. A.A. Balkema, Rotterdam, Netherlands	
203	Broad climate suitability (environmental versatility)	
	Source(s)	Notes
	Court, D. 2000. Succulent Flora of Southern Africa. Revised Edition. A.A. Balkema, Rotterdam, Netherlands	"West of Uitenhage in the Eastern Cape." ... "Tufted plants found among grasses on steep slopes in the Uitenhage district." [Limited distribution]
204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Court, D. 2000. Succulent Flora of Southern Africa. Revised Edition. A.A. Balkema, Rotterdam, Netherlands	"West of Uitenhage in the Eastern Cape." [At approximately 33 degrees latitude. Marginally subtropical]
205	Does the species have a history of repeated introductions outside its natural range?	?

Qsn #	Question	Answer
	Source(s)	Notes
	Cullen, J., Knees, S. G., & Cubey, H. S. (eds.). 2011. The European Garden Flora. Aquifoliaceae to Hydrophyllaceae. Cambridge University Press, Cambridge, UK	[Unknown how widespread <i>H. longii</i> is cultivated] "A genus or 64 species as monographed by Leach . widespread across S to E Africa. Namibia. Ethiopia and Arabia. some species disjunct on both sides of the continent. They are among the most popular and amenable stapeliads in cultivation. valued for their compactness. free flowering. and bizarre blooms variously adorned with spots, flecks. stripes, papillae and hairs."

301	Naturalized beyond native range	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

302	Garden/amenity/disturbance 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

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

305	Congeneric weed	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	<i>Huernia aspera</i> - naturalized. Not listed as a weed

Qsn #	Question	Answer
401	Produces spines, thorns or burrs	y
	Source(s)	Notes
	Cullen, J., Knees, S. G., & Cubey, H. S. (eds.). 2011. The European Garden Flora. Aquifoliaceae to Hydrophyllaceae. Cambridge University Press, Cambridge, UK	"Dwarf clustering or creeping stem succulents. with hairless stems covered in more or less prominent tubercles arranged in 4-6 ribs. rarely more. Leaves reduced to fine flexible bristles or stiff. spine-like points on the lip of the tubercle." [Generic description]

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	Unknown

403	Parasitic	n
	Source(s)	Notes
	Court, D. 2000. Succulent Flora of Southern Africa. Revised Edition. A.A. Balkema, Rotterdam, Netherlands	"Huemias are generally short, tufted plants with glabrous 4- to 5- (rarely more) angled stem which are toothed without stipules, the leaves usually form acute tips to these teeth or tubercles." [Apocynaceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	Unknown

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

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2015. <i>Huernia longii</i> subs. <i>echidnopsoides</i> . http://www.llifile.net/Encyclopedia/SUCCULENTS/Family/Asclepiadaceae/21250/Huernia_longii_subs._echidnopsoides . [Accessed 23 Jul 2015]	"Pest and diseases: <i>Huernia</i> are generally fairly easy to grow, especially if kept pest-free. They are very susceptible to stem and root mealy bugs, and damage from these may well initiate fungal attack. Any time when there is a dead or dying stem in the pot it is important to remove it immediately and completely before other healthy stems can become ill too, isolate the healthy parts, dry them off, and re-root them in new compost."

407	Causes allergies or is otherwise toxic to humans	
	Source(s)	Notes

Qsn #	Question	Answer
	Succulent South. 2015. <i>Huernia</i> . https://succulentsouth.wordpress.com/products/huernia/ . [Accessed 23 Jul 2015]	[Unknown for <i>H. longii</i> , but other species are consumed by people] "Various species of <i>Huernia</i> are considered famine food by the inhabitants of Konso special woreda in southern Ethiopia. The local inhabitants, who call the native species of this genus baqibaqa indiscriminately, eat it with prepared balls of sorghum; they note that baqibaqa tastes relatively good and has no unpleasant side-effects when boiled and consumed. As a result, local farmers encouraged it to grow on stone walls forming the terraces, where it does not compete with other crops."

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Cullen, J., Knees, S. G., & Cubey, H. S. (eds.). 2011. <i>The European Garden Flora. Aquifoliaceae to Hydrophyllaceae</i> . Cambridge University Press, Cambridge, UK	[Succulents. No evidence] "Dwarf clustering or creeping stem-succulents..."

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2015. <i>Huernia longii</i> subs. <i>echidnopsoides</i> . http://www.llifle.net/Encyclopedia/SUCCULENTS/Family/Asclepiadaceae/21250/Huernia_longii_subs._echidnopsoides . [Accessed 23 Jul 2015]	[Partial shade] "In the spring they will grow well in partial shade and leaving them out in the rain may provide them with the water they need."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2015. <i>Huernia longii</i> subs. <i>echidnopsoides</i> . http://www.llifle.net/Encyclopedia/SUCCULENTS/Family/Asclepiadaceae/21250/Huernia_longii_subs._echidnopsoides . [Accessed 23 Jul 2015]	"Potting medium: Since roots are quite shallow, use a cactus mix or add extra perlite or pumice to regular soil potting soil. A gritty, very free-draining compost is suitable, and clay pots help the plants to dry out between watering. Re-pot every 2 years."
	Victor, J.E. & Raimondo, D. 2009. <i>Huernia longii</i> Pillans subsp. <i>echidnopsioides</i> (L.C.Leach) Bruyns. National Assessment: Red List of South African Plants version 2014.1	"Variety of habitats and soils, including clay slopes, exposed rock cliff faces, conglomerate slopes, shale and shallow loamy soil on rock outcrops."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Court, D. 2000. <i>Succulent Flora of Southern Africa</i> . Revised Edition. A.A. Balkema, Rotterdam, Netherlands	[Generic description] "Huemias are generally short, tufted plants with glabrous 4- to 5-(rarely more) angled stem which are toothed without stipules, the leaves usually form acute tips to these teeth or tubercles." [Species description] "the narrow stems (8 mm in diameter) have 6 to 8 rows of tessellate tubercles bearing small teeth then young."

Qsn #	Question	Answer
412	Forms dense thickets	
	Source(s)	Notes
	Keen, B. 2011. Cacti and Succulents: Step-by-Step to Growing Success. The Crowood Press, Marlborough, UK	"With a few exceptions, the plants form clumps of stems about 1 in (2.5cm) tall."
501	Aquatic	n
	Source(s)	Notes
	Court, D. 2000. Succulent Flora of Southern Africa. Revised Edition. A.A. Balkema, Rotterdam, Netherlands	[Terrestrial] "Tufted plants found among grasses on steep slopes in the Uitenhage district."
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 23 Jul 2015]	"Family: Apocynaceae subfamily Asclepiadoideae tribe Ceropegieae subtribe Stapeliinae. Also sometimes placed in: Asclepiadaceae"
503	Nitrogen fixing woody plant	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 23 Jul 2015]	"Family: Apocynaceae subfamily Asclepiadoideae tribe Ceropegieae subtribe Stapeliinae. Also sometimes placed in: Asclepiadaceae"
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Court, D. 2000. Succulent Flora of Southern Africa. Revised Edition. A.A. Balkema, Rotterdam, Netherlands	No evidence
601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Victor, J.E. & Raimondo, D. 2009. <i>Huernia longii</i> Pillans subsp. <i>echidnopsioides</i> (L.C.Leach) Bruyns. National Assessment: Red List of South African Plants version 2014.1	"A range-restricted species (EOO 488 km ²). Not threatened due to the unsuitability of its habitat to ploughing."
	Court, D. 2000. Succulent Flora of Southern Africa. Revised Edition. A.A. Balkema, Rotterdam, Netherlands	"Tufted plants found among grasses on steep slopes in the Uitenhage district." [No evidence]
602	Produces viable seed	y

Qsn #	Question	Answer
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2015. <i>Huernia longii</i> subs. <i>echidnopsoides</i> . http://www.llifle.net/Encyclopedia/SUCCULENTS/Family/Asclepiadaceae/21250/Huernia_longii_subsp._echidnopsoides . [Accessed 23 Jul 2015]	"It can also be increased from seeds sowing in spring in moist, sandy peat moss. Barely cover seeds. Seeds germinate quickly."

603	Hybridizes naturally	
	Source(s)	Notes
	Harvey, T. (2014). Succulent Cultivars and Hybrids-An Introduction. <i>Cactus and Succulent Journal</i> , 86(5): 180-193	[Unknown. Artificial hybrids possible] "Quite a few <i>Huernia</i> hybrids have been distributed commercially, including <i>H.</i> 'Foma' and <i>H.</i> 'Stretched Hide', by the Huntington's ISI program, and several other <i>Huernia</i> hybrids from Miles Anderson, many of which have more interesting names."

604	Self-compatible or apomictic	
	Source(s)	Notes
	Manders, W. (1980). Pollination of Stapeliads. <i>Asklepios</i> , 20: 32-36	[Unknown. Other taxa did not set seed after self-pollination] " <i>Huernia</i> : several species flowered last year, some very profusely. There are healthy pedicels on <i>H. keniensis</i> , <i>H. macrocarpa</i> v. <i>penzigii</i> and <i>H. pillansii</i> , 5 months after artificial self-pollination. <i>H. concinna</i> was the first one to flower and pollination was unsuccessful. This was the result of a phenomenon that occurs in <i>Huernia</i> , but in no other genus so far examined: the guide rails do not accept the pollinia on the first day the flowers open. It appears that the guide rails open a little a few days after the start of flowering. Of all <i>Huernia</i> specimens examined so far, the guide rails accept pollinia three days after the flowers have opened. In <i>H. zebrina</i> the pedicels aborted because the plant suffered from too much water. <i>H. schneiderana</i> flowered abundantly and all the pedicels from self-pollinated flowers aborted."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Durban Natural Science Museum. 1999. A Tale of Sex and Exploitation. <i>Palmnut Post</i> 2(1): 4-7	[Fly-pollinated] "Deceitful flowers usually advertise rewards which they fail to provide. The carrion flowers, such as the genera <i>Stapelia</i> , <i>Caralluma</i> and <i>Huernia</i> are yellow, brown, purple or mottled, often with vibratile hairs which shimmer in the slightest breeze, simulating putrefying meat and with a scent to match. Carrion flies are attracted to the flowers, which they mistakenly perceive to be a food source. In bumbling about the flowers the flies are often trapped by the legs in special slits near the centre of the flower and can only escape by dragging their leg upwards through the slit. In doing so they pick up packages of pollen (pollinia) which they then transfer to the next deceitful flower visited."

606	Reproduction by vegetative fragmentation	

Qsn #	Question	Answer
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2015. <i>Huernia longii</i> subs. <i>echidnopoides</i> . http://www.llife.net/Encyclopedia/SUCCULENTS/Family/Asclepiadaceae/21250/Huernia_longii_subs._echidnopoides . [Accessed 23 Jul 2015]	[Unknown] "Propagation: Easiest with stem cuttings. Allow cuttings to dry a day before planting. Stems must be laid (Not buried) on gritty compost and will then root from the underside of the stems."

607	Minimum generative time (years)	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	Unknown

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	Unknown. Hairs on seeds, when produced, may aid in external attachment

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Cullen, J., Knees, S. G., & Cubey, H. S. (eds.). 2011. The European Garden Flora. Aquifoliaceae to Hydrophyllaceae. Cambridge University Press, Cambridge, UK	"They are among the most popular and amenable stapeliads in cultivation. valued for their compactness. free flowering. and bizarre blooms variously adorned with spots, flecks. stripes, papillae and hairs."

703	Propagules likely to disperse as a produce contaminant	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	Unknown

704	Propagules adapted to wind dispersal	y
	Source(s)	Notes
	Operation Wildflower. 2015. <i>Huernia</i> seed follicles. http://www.operationwildflower.org.za/index.php/component/joomgallery/genera-g-l/huernia/stapelia-or-huernia-seed-pods-241 . [Accessed 23 Jul 2015]	"When the dehiscent follicles burst open to release the seeds, the silky tufted or winged seeds, flat in many species, are distributed by the wind." [Generic description]

705	Propagules water dispersed	
	Source(s)	Notes
	Operation Wildflower. 2015. <i>Huernia</i> seed follicles. http://www.operationwildflower.org.za/index.php/component/joomgallery/genera-g-l/huernia/stapelia-or-huernia-seed-pods-241 . [Accessed 23 Jul 2015]	"When the dehiscent follicles burst open to release the seeds, the silky tufted or winged seeds, flat in many species, are distributed by the wind." [Generic description. Seed tufts may increase buoyancy]

Qsn #	Question	Answer
706	Propagules bird dispersed	n
	Source(s)	Notes
	Operation Wildflower. 2015. <i>Huernia</i> seed follicles. http://www.operationwildflower.org.za/index.php/component/joomgallery/genera-g-l/huernia/stapelia-or-huernia-seed-pods-241 . [Accessed 23 Jul 2015]	"When the dehiscent follicles burst open to release the seeds, the silky tufted or winged seeds, flat in many species, are distributed by the wind." [Generic description. Adapted for wind dispersal]
707	Propagules dispersed by other animals (externally)	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	Unknown, but hairs may aid in attachment
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. <i>Plant Protection Quarterly</i> , 25(2): 56-74	[No evidence that follicles or seeds would be consumed] "Answer 'no' where the taxon is unlikely to be eaten by animals or if seeds are not viable following passage through the gut."
801	Prolific seed production (>1000/m ²)	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	Unknown
802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Royal Botanic Gardens Kew. 2008. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/ . [Accessed 23 Jul 2015]	Unknown
803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

Qsn #	Question	Answer
804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2015. <i>Huernia longii</i> subs. <i>echidnopsoides</i> . http://www.lifile.net/Encyclopedia/SUCCULENTS/Family/Asclepiadaceae/21250/Huernia_longii_subsp._echidnopsoides . [Accessed 23 Jul 2015]	[Unknown if able to resprout from cutting or damage] "Propagation: Easiest with stem cuttings. Allow cuttings to dry a day before planting. Stems must be laid (Not buried) on gritty compost and will then root from the underside of the stems."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Able to grow in subtropical climates
- Leaves with spine-like points
- Tolerates many soil types
- Reproduces by seed
- Seeds wind-dispersed
- May be able to spread vegetatively
- Able to coppice & resprout after cutting
- Limited ecological information may reduce accuracy of risk prediction

Low Risk Traits

- No reports of invasiveness or naturalization, but minimal evidence of widespread introduction outside native range
- Ornamental

Second Screening Results for Herb or Low Stature Shrubby Life Form

(A) Reported as a weed of cultivated lands?> No

Outcome = Accept (Low Risk)