Taxon: Urtica urens L. **Family:** Urticaceae

Common Name(s): burning nettle
dog nettle
dwarf nettle
English stinging nettle
lesser nettle
lesser stinging nettle
small nettle

Synonym(s): Urtica trianae Rusby

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 29 Nov 2016

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

Keywords: Crop Weed, Stinging Hairs, Annual, Medicinal, Seed Bank

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)	Low
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		
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	y
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	y
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	n

Qsn #	Question	Answer Option	Answer
406	Host for recognized pests and pathogens	y=1, n=0	y
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	y
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	n
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	y=1, n=-1	n
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
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)		
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	y
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	n
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	y
801	Prolific seed production (>1000/m2)	y=1, n=-1	y
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	y
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**
	Wiersema, J.H. & León, B. 1999. World Economic Plants: A Standard Reference. CRC Press, Boca Raton, FL	[No evidence of domestication] "ECON: Alt-host (crop diseases, crop pests); Medic. (folklore); Weed (also poss. seed contam.) DIST: natzd.: widely natzd. other: probably native in Eur."

102	**Has the species become naturalized where grown?**	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	NA

103	**Does the species have weedy races?**	
	Source(s)	**Notes**
	WRA Specialist. 2016. 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"**	**Low**
	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 Eurasia, now a nearly cosmopolitan weed"

202	**Quality of climate match data**	**High**
	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 Eurasia, now a nearly cosmopolitan weed"

Qsn #	Question	Answer
203	**Broad climate suitability (environmental versatility)**	**y**
	Source(s)	**Notes**
	Chileflora. (2009). Urtica urens. http://www.chileflora.com/Florachilena/FloraEnglish/HighResPages/EH1502.htm. [Accessed 29 Nov 2016]	"Habitat according to altitude: Low altitude, interior valleys Coastal mountains, 500 - 2000 m. Coastal areas, 0 - 500 m" [Elevation range exceeds 1000 m in Chile, demonstrating environmental versatility]
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"U. urens is adapted to many environments, infesting a wide range of horticultural crops, especially where there is irrigation or summer rainfall."
	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.	[Elevation range exceeds 1000 m] "Native to Eurasia, now a nearly cosmopolitan weed; in Hawai'i naturalized in pastures and subalpine forest, 790-2,290 m, Hawai'i."

204	**Native or naturalized in regions with tropical or subtropical climates**	**y**
	Source(s)	**Notes**
	Wagner, W.L., Herbst, D.R.& Lorence, D.H. 2016. Flora of the Hawaiian Islands. Smithsonian Institution, Washington, D.C. http://botany.si.edu/. [Accessed]	[Naturalized in mid to high elevation of subtropical island] "in Hawai'i naturalized in pastures and subalpine forest, 790-2,290 m, Hawai'i."

205	**Does the species have a history of repeated introductions outside its natural range?**	**y**
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"U. urens is native to Europe, but now occurs in over 50 temperate countries or locations at high altitude."

301	**Naturalized beyond native range**	**y**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 22 Nov 2016]	". widely natzd."
	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 naturalized in pastures and subalpine forest, 790-2,290 m, Hawai'i. First collected in 1909 (Rock 3169, BISH).-"
	Wagner, W.L., Herbst, D.R.& Lorence, D.H. 2016. Flora of the Hawaiian Islands. Smithsonian Institution, Washington, D.C. http://botany.si.edu/. [Accessed 22 Nov 2016]	"Urtica urens L. Status: Naturalized Distribution: O (Nu`uanu Pali State Park)/ H"

302	**Garden/amenity/disturbance weed**	

Qsn #	Question	Answer
	Source(s)	**Notes**
	Woodland, D. W. (1974). Biosystematics of the perennial North American species of Urtica. PhD. Dissertation. Iowa State University, Ames, Iowa	"Habitat: Weed infested places, near old dwellings, orchards, and waste areas; disturbed habitats and soils."
	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 naturalized in pastures and subalpine forest"
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"U. urens is adapted to many environments, infesting a wide range of horticultural crops, especially where there is irrigation or summer rainfall." [Primarily an agricultural weed]

303	Agricultural/forestry/horticultural weed	y
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"U. urens is adapted to many environments, infesting a wide range of horticultural crops, especially where there is irrigation or summer rainfall. In pastures, it can become prevalent in situations rich in organic material or manure, such as stock camps, holding yards or watering points (Lazarides et al., 1997)." ... "U. urens has been reported in many types of vegetable crops, orchards (citrus, pome and stone fruits) and vineyards. It is also a problem in nursery crops (conifers, ornamental shrubs, forest trees, fruit trees, roses, cut flowers) and gardens." ... "Holm et al. (1997) rank U. urens amongst the 200 worst weeds of the world. As with most weeds, however, quantitative data on the economic impact of the species is extremely limited. U. urens is a weed of 27 crops in 50 countries and is a frequently reported weed of vegetables and orchards (Holm et al., 1997). Once U. urens appears in vegetable fields, populations can increase rapidly. In locations where U. urens was one of the dominant weeds in unweeded potato crops in Egypt, tuber yield was reduced by 40% (Abusteit and Shehata, 1993). Where it was one of the dominant weeds of faba beans in Portugal, yield losses were 29-34% (Fernandes, 1989). U. urens is included in a catalogue of problem plants in southern Africa (Wells et al., 1986), where its impacts are listed as competition, replacement of preferred vegetation (indigenous), skin irritation, seed contamination and obstruction of access. In Morocco, U. urens is an alternative host for Leveillula taurica, the causal agent of tomato powdery mildew (Besri and Hormattallah, 1985). Carnation ringspot dianthovirus and tomato bushy stunt tombusvirus were found on apple, pear, cherry, sweet cherry and plum in East German orchards and were also isolated from U. urens (Kegler et al., 1983)."

304	Environmental weed	n
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"U. urens is adapted to many environments, infesting a wide range of horticultural crops, especially where there is irrigation or summer rainfall." [Primarily an agricultural weed]

305	Congeneric weed	y

Qsn #	Question	Answer
	Source(s)	**Notes**
	CABI, 2016. Urtica dioica. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Although Urtica dioica is distributed widely in many parts of the world, it is considered invasive because of its nuisance value even within its native range, particularly in waste places, especially since its stinging hairs can cause painful welts on human and possibly animal skin. In some circumstances it can be very hard to eradicate because of its large root mass which allows it to spread vegetatively once it has established. In some countries it invades and takes up space in grassland, where it can form very large, often monospecific patches, and it can also be a nuisance in urban areas, especially in nitrogen-rich habitats."

401	Produces spines, thorns or burrs	y
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Each stinging hair on U. urens is a tapered, elongated cell, constricted just below the tip, with a bulbous base embedded in the multicellular pedestal. When hit, the tip breaks off and the hair becomes a miniature hypodermic needle that penetrates the skin and injects its irritating chemicals. The tip of the hair is high in silica, but the silica concentration decreases towards the base, where it is replaced by calcium (Thurston and Lersten, 1969). Each hair is 100 µm long and has 10 µg of fluid that contains histamine and acetylcholine. Stem hairs have 2.5 times more acetylcholine than leaf hairs, whereas upper and lower surface leaf hairs have equal concentrations. The leaf itself has nearly as much histamine and acetylcholine as the leaf hairs. Crushed leaves can also give a stinging sensation, but are not as irritating as the hairs. The stinging reaction disappears within 1-3 hours for most people, but the hairs can remain in tissue and cause pain for 24-36 hours. Plants are not considered toxic to livestock, but cause the same irritating reaction in all animals (Everist, 1974)."
	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.	[Stems & leaves with stinging hairs] "stems erect or ascending, unbranched or branched from base, 10-60(-80) cm long, glabrous or sparsely pubescent and with scattered, coarse, stinging hairs, hispidulous at nodes. Leaves thin, elliptic to ovate, (2.5-)4-13 cm long, (0.7-)1.5-5.2 cm wide, often larger toward apex of stem, 3-5-nerved, glabrous except with scattered stinging hairs"

402	Allelopathic	
	Source(s)	**Notes**
	Qasem, J. R. (2002). Allelopathic effects of selected medicinal plants on Amaranthus retroflexus and Chenopodium murale. Allelopathy Journal, 10(2), 105-122	[Possibly allelopathic] "Residues of A. maurorum, C. spinosa, L. officinalis, O. basilicum, O. syriacum, S. officinalis, T polium, R. officinalis and R. coriaria inhibited growth of both weed species. The highest toxicity occurred with R. officinalis residues on roots of A. retroflexus (Table 3). Those of A. fragrantissima and U. urens inhibited growth of C. murale."

403	Parasitic	n

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.	"Taprooted annual herbs; stems erect or ascending, unbranched or branched from base, 10-60(-80) cm long, glabrous or sparsely pubescent and with scattered, coarse, stinging hairs, hispidulous at nodes." [Urticaceae. No evidence]

404	Unpalatable to grazing animals	y
	Source(s)	**Notes**
	Scowcroft, P.G. & Conrad, C.E. 1992. Alien and Native Plant Response to Release from Feral Sheep Browsing on Mauna Kea. Pp. 625-665 in Stone, C.P., Smith, C.W. & Tunison, J.T. (eds.). Alien Plant Invasions in Native Ecosystems of Hawai`i: Management and Research. University of Hawaii Cooperative National Park Resources Studies Unit, Honolulu, HI	"Table 1. Relative forage value, relative palatability, and susceptibility to browsing or grazing damage of some common plant species in the Mauna Kea Forest Reserve, island of Hawai`i." [Relative palatability of Urtica urens is low, probably due to presence of stinging hairs]
	Gill, R. M. A., & Beardall, V. (2001). The impact of deer on woodlands: the effects of browsing and seed dispersal on vegetation structure and composition. Forestry, 74(3), 209-218	"Table 3: Plant species (present in the British Isles) which have been shown to germinate from dung of red (Cervus elaphus) and fallow (Dama dama) deer (Malo and Suarez, 1995; Welch, 1985)" [Urtica urens present in dung of both species. Whole plants presumably browsed by deer because plants lack fleshy fruit that would attract animals]
	HerbiGuide. (2016). Dwarf Nettle - Urtica urens. http://www.herbiguide.com.au/Descriptions/hg_Dwarf_Nettle.htm. [Accessed 29 Nov 2016]	"Unpalatable and usually avoided by all animals." ... "Not recorded as toxic to stock. Cattle occasionally eat them with no apparent effect."

405	Toxic to animals	n
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Plants are not considered toxic to livestock, but cause the same irritating reaction in all animals (Everist, 1974)."

406	Host for recognized pests and pathogens	y
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"In Morocco, U. urens is an alternative host for Leveillula taurica, the causal agent of tomato powdery mildew (Besri and Hormattallah, 1985). Carnation ringspot dianthovirus and tomato bushy stunt tombusvirus were found on apple, pear, cherry, sweet cherry and plum in East German orchards and were also isolated from U. urens (Kegler et al., 1983)."

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

Qsn #	Question	Answer
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	[No evidence] "Herbal uses of U. urens have been known for centuries. Fresh plants have a painful, but beneficial effect on rheumatism. Leaves and flowers are reportedly powerful diuretics (Holm et al., 1997). In spite of the stinging hairs, young stems and leaves are edible and can be boiled as a green vegetable or in soup (Lazarides et al., 1997). Nettles have also been used to make beer and tea. According to Szabo et al. (1973), U. urens has a crude protein content of about 25% of dry matter. Zulu peoples in Africa regarded the plant as an aphrodisiac (Watt and Breyer-Brandwijk, 1932). Leaf extracts of U. urens showed nematicidal properties against the citrus nematode, Tylenchulus semipenetrans (Mohammad et al., 1981)."
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[Stinging hairs, but not reported to be toxic] "(Intense burning sensation. Blood purifier, antispasmodic, antiseptic, anti-acidity, analgesic, for impotency and barrenness, anemia, heart diseases, tuberculosis, asthma, for sweatbaths and for pain from rheumatism, stomach ulcers. Leaf poultice used to treat rheumatism.)"

408	Creates a fire hazard in natural ecosystems	y
	Source(s)	**Notes**
	County of San Diego, Department of Planning and Land Use. (2004). Fire, Plants, Defensible Space and You. http://www.sandiegocounty.gov/pds/docs/DPLU199.pdf. [Accessed 29 Nov 2016]	"The following species are highly flammable and should be avoided when planting within the first 50 feet adjacent to a structure. The plants listed below are more susceptible to burning, due to rough or peeling bark, production of large amounts of litter, vegetation that contains oils, resin, wax, or pitch, large amounts of dead material in the plant, or plantings with a high dead to live fuel ratio." [Urtica urens is included in list]

409	Is a shade tolerant plant at some stage of its life cycle	n
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"U. urens is light-loving and dry matter distribution is not affected by light intensity. It is most competitive in full sunlight, whereas the perennial U. dioica is better adapted to shade (Corre, 1984). "

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	**Notes**
	HerbiGuide. (2016). Dwarf Nettle - Urtica urens. http://www.herbiguide.com.au/Descriptions/hg_Dwarf_Nettle.htm. [Accessed 29 Nov 2016]	"Soil: Tolerant of a wide range soil types. Prefers highly fertile areas."
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"U. urens is frequently found on light-textured soils, especially those rich in organic matter. It responds well to N and entire plants contain over 5% N."

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

Qsn #	Question	Answer
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Taprooted annual herbs; stems erect or ascending, unbranched or branched from base, 10-60(-80) cm long, glabrous or sparsely pubescent and with scattered, coarse, stinging hairs, hispidulous at nodes."

412	Forms dense thickets	y
	Source(s)	**Notes**
	Roberts, H. A., & Stokes, F. G. (1966). Studies on the weeds of vegetable crops. VI. Seed populations of soil under commercial cropping. Journal of Applied Ecology, 3 (1), 181-190	"Greig-Smith (1948) notes that U. urens frequently forms dense stands in crops receiving several cultivations."

501	Aquatic	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.	[Terrestrial] "Taprooted annual herbs ... in Hawai'i naturalized in pastures and subalpine forest"

502	Grass	n
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 22 Nov 2016]	Urticaceae

503	Nitrogen fixing woody plant	n
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 22 Nov 2016]	Urticaceae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	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.	"Taprooted annual herbs; stems erect or ascending, unbranched or branched from base, 10-60(-80) cm long, glabrous or sparsely pubescent and with scattered, coarse, stinging hairs, hispidulous at nodes."

Qsn #	Question	Answer
601	**Evidence of substantial reproductive failure in native habitat**	**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.	"Native to Eurasia, now a nearly cosmopolitan weed" [No evidence]

602	**Produces viable seed**	**y**
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Seed can remain viable for 20-100 years in the soil." ... "Plants are cross-pollinated and produce 100-1300 seeds weighing 0.5 mg each."

603	**Hybridizes naturally**	
	Source(s)	**Notes**
	Woodland, D. W. (1974). Biosystematics of the perennial North American species of Urtica. PhD. Dissertation. Iowa State University, Ames, Iowa	"Figure 22 shows that U. urens does not occur in central Texas but only on the southern coast. Hybrids may be formed between the two species in contiguous situations since both have a chromosome number of 2n = 26."
	Greig-Smith, P. (1948). Urtica L. Journal of Ecology, 36(2), 339-355	"Hybrids. Asherson & Graebner (4) consider Urtica oblongata Koch to be a hybrid with U. urens (presumably on morphological grounds only)."

604	**Self-compatible or apomictic**	**n**
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Plants are cross-pollinated and produce 100-1300 seeds weighing 0.5 mg each."

605	**Requires specialist pollinators**	**n**
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	[Wind-pollinated] "Pollen release in the Urtica genus is unique. Immature stamens are bent towards the centre of the flower. When the anthers mature, the stamens suddenly straighten, shooting pollen into the wind. Plants are cross-pollinated and produce 100-1300 seeds weighing 0.5 mg each."

Qsn #	Question	Answer
606	**Reproduction by vegetative fragmentation**	**n**
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	[No evidence] "U. urens is an annual, growing up to 75 cm tall, branching at the base." ... "Pollen release in the Urtica genus is unique. Immature stamens are bent towards the centre of the flower. When the anthers mature, the stamens suddenly straighten, shooting pollen into the wind. Plants are cross pollinated and produce 100-1300 seeds weighing 0.5 mg each."

607	**Minimum generative time (years)**	**1**
	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.	"Taprooted annual herbs"

701	**Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)**	
	Source(s)	**Notes**
	Clarke, J. (2015). The Encyclopaedia of Arable Weeds. AHDB Cereals & Oilseeds, Kenilworth, Warwickshire	"Seeds can be transported by ingestion by animals or in soil." [Seeds may be accidentally dispersed in soil stuck to footwear, tools, or vehicle tires]

702	**Propagules dispersed intentionally by people**	**y**
	Source(s)	**Notes**
	World Seed Supply. (2016). Urtica Urens (Dwarf Stinging Nettle) Seeds. https://www.worldseedsupply.com/product/urtica-urens-dwarf-stinging-nettle-seeds/. [Accessed 29 Nov 2016]	[Seeds sold online] "Urtica Urens is a close relative of the more well-known stinging nettle, urtica dioica. Urtica urens, also known as dwarf nettle or annual nettle, is actually more effective at stinging because it has more stingers in a given space. Urens may therefore, work better for certain medicinal applications. "

703	**Propagules likely to disperse as a produce contaminant**	**y**
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"U. urens is included in a catalogue of problem plants in southern Africa (Wells et al., 1986), where its impacts are listed as competition, replacement of preferred vegetation (indigenous), skin irritation, seed contamination and obstruction of access."

704	**Propagules adapted to wind dispersal**	**n**
	Source(s)	**Notes**
	Clarke, J. (2015). The Encyclopaedia of Arable Weeds. AHDB Cereals & Oilseeds, Kenilworth, Warwickshire	"Seeds can be transported by ingestion by animals or in soil."

705	**Propagules water dispersed**	**n**

Qsn #	Question	Answer
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Seeds are rich in oily endosperm and do not float on water (Holm et al., 1997)."

706	Propagules bird dispersed	n
	Source(s)	**Notes**
	Clarke, J. (2015). The Encyclopaedia of Arable Weeds. AHDB Cereals & Oilseeds, Kenilworth, Warwickshire	"Seeds can be transported by ingestion by animals or in soil."

707	Propagules dispersed by other animals (externally)	
	Source(s)	**Notes**
	Clarke, J. (2015). The Encyclopaedia of Arable Weeds. AHDB Cereals & Oilseeds, Kenilworth, Warwickshire	"Seeds can be transported by ingestion by animals or in soil." [Possibly in soil stuck to hooves or fur]

708	Propagules survive passage through the gut	y
	Source(s)	**Notes**
	Malo, J. E., & Suárez, F. (1995). Herbivorous mammals as seed dispersers in a Mediterranean dehesa. Oecologia, 104(2), 246-255	"Appendix 1. Number of seeds germinated from the whole set of 3-g dung samples (n = 104 for rabbit, fallow deer and cattle, n = 103 for red deer)." [Urtica urens present in dung of all 4 mammals]
	Gill, R. M. A., & Beardall, V. (2001). The impact of deer on woodlands: the effects of browsing and seed dispersal on vegetation structure and composition. Forestry, 74(3), 209-218	"Table 3: Plant species (present in the British Isles) which have been shown to germinate from dung of red (Cervus elaphus) and fallow (Dama dama) deer (Malo and Suarez, 1995; Welch, 1985)" [Urtica urens present in dung of both species]

801	Prolific seed production (>1000/m2)	y
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Plants are cross-pollinated and produce 100-1300 seeds weighing 0.5 mg each."
	Roberts, H. A., & Stokes, F. G. (1966). Studies on the weeds of vegetable crops. VI. Seed populations of soil under commercial cropping. Journal of Applied Ecology, 3 (1), 181-190	"Urtica urens was the most abundant species in seventeen of the fields, and in eight of them there were more than 30 million seeds per acre of this species."

802	Evidence that a persistent propagule bank is formed (>1 yr)	y
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Seed can remain viable for 20-100 years in the soil. Emergence is enhanced by soil disturbance and mostly occurs from within the top 2.5 cm of soil. Only 4% viable seed remained in the soil after 6 years of cultivation, compared with 39% viable seed in undisturbed soil (Holm et al., 1997)."

Qsn #	Question	Answer
803	**Well controlled by herbicides**	**y**
	Source(s)	**Notes**
	HerbiGuide. (2016). Dwarf Nettle - Urtica urens. http://www.herbiguide.com.au/Descriptions/hg_Dwarf_Nettle.htm. [Accessed 29 Nov 2016]	"For spot spraying use a mixture of 100 mL glyphosate(450g/L) plus 1 mL Hammer® in 10 L water. Apply in autumn or winter before flowering. A repeat application may be required to control plants that germinate after spraying. 4 L/ha of 2,4-DB with wetting agent can be used in bushland for more selective control. Apply annually in June and repeat in September."
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Herbicide recommendations are available for most crops and situations where U. urens is a problem (Parsons, 1992), summarized below:" ... "Non-crop areas: simazine, 2,4-D, imazapyr, glyphosate"

804	**Tolerates, or benefits from, mutilation, cultivation, or fire**	
	Source(s)	**Notes**
	HerbiGuide. (2016). Dwarf Nettle - Urtica urens. http://www.herbiguide.com.au/Descriptions/hg_Dwarf_Nettle.htm. [Accessed 29 Nov 2016]	"Manual removal is difficult because the leaves and stems have stinging hairs. Isolated plants can be dug up with a fork or cultivator. Mowing is only effective if repeated regularly and is low enough to remove all flowers from July to December. Grazing is not very effective."
	Clarke, J. (2015). The Encyclopaedia of Arable Weeds. AHDB Cereals & Oilseeds, Kenilworth, Warwickshire	"Small nettle is more common in broad-leaved crops than in cereals and in spring rather than winter crops. It is poorly competitive in vigorous cereal crops." ... "It is susceptible to hoeing in row crops."

805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	
	Source(s)	**Notes**
	CABI, 2016. Urtica urens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Damage produced on U. urens in Argentina by the fungus Septoria urticae suggests that this organism is a potential biological control agent (Dal-Bello et al., 1993; 1995). Species of Pratylenchus nematodes were found in the roots of 31 weed species surveyed in Germany, with the highest infestations on U. urens (Rossner, 1983). U. urens is susceptible to arabis mosaic nepovirus and hop mosaic carlavirus (Brunt et al., 1996)."

Summary of Risk Traits:

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High Risk / Undesirable Traits
• Elevation range exceeds 1000 m, demonstrating environmental versatility
• Naturalized in mid- to high elevation areas in the tropics
• Widely naturalized, including on Oahu & Hawaii island, Hawaii
• A disturbance adapted agricultural weed of numerous crops
• Other Utrica species have become invasive
• Stinging hair affect animals & humans
• Relatively unpalatable, although some animals may consume occasionally
• Reportedly flammable in certain habitats
• Tolerates many soil types
• Reported to form dense stands in certain crops
• Reproduces by seeds in one growing season (annual)
• Seeds dispersed in soil, as a contaminant, ingested by animals & intentionally by people
• Prolific seed production
• Forms a persistent seed bank (20-100 years)

Low Risk Traits
• Due to predominantly temperate range, may only become invasive at higher elevations of tropical regions
• Despite stinging hairs, non-toxic if ingested by animals
• Used medicinally by people
• Require high light environments (may be shade intolerant)
• Reported to be outcrossing
• Not reported to spread vegetatively
• Seeds do not float in water
• Herbicides provide effective control