

Taxon: <i>Urtica dioica L.</i>	Family: Urticaceae
Common Name(s): common nettle European nettle giant nettle stinging nettle	Synonym(s):

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 2 Feb 2017
WRA Score: 16.0	Designation: H(HPWRA)	Rating: High Risk

Keywords: Crop Weed, Stinging Hairs, Dense Stands, Dioecious, 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		
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	n
405	Toxic to animals	y=1, n=0	y
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	y
408	Creates a fire hazard in natural ecosystems	y=1, n=0	n

Qsn #	Question	Answer Option	Answer
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	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	y
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	2
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	y
704	Propagules adapted to wind dispersal		
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	y
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m ²)	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
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	[Not domesticated] "In their delimitation of <i>Urtica dioica</i> L., Henning et al. (2014) pointed out that "The taxonomy of subcosmopolitan <i>Urtica dioica</i> L. is problematic." The taxon is morphologically quite plastic and encompasses a large number of named forms on all continents (Henning et al., 2014). The same authors continue, saying that 'Morphologically, the differences between the subspecies and varieties are small and refer largely to details of leaf morphology (narrowly or widely ovate, base cordate or truncate) and indumentum (density of trichome cover, number of stinging hairs).' The authors then add, quoting Woodland (1982) and Pollard and Briggs (1982; 1984a), that these characters are quite plastic in individual plants."
102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	NA
103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2017. 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
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"In its broad sense <i>U. dioica</i> is found in many cooler temperate parts of the world – in Africa, the Americas, Asia, Australasia and Europe. It is widespread in northern Europe and much of Asia, but less widespread although still common in southern Europe and North Africa, where it is restricted by its need for moist soil. In North America, it is widely distributed in Canada and the USA, where it is found in every province and state except for Hawaii, and also can be found in northernmost Mexico. It grows in abundance in the Pacific Northwest, especially in places where annual rainfall is high (GBIF, 2015). Taylor (2009) shows the distribution of <i>U. dioica</i> in Europe and its very wide distribution in Britain. DAISIE (2015) reports it as an alien in the Faroe Islands, Greenland, Iceland and Sweden, and also Bulgaria."

Qsn #	Question	Answer
202	Quality of climate match data	High
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2003. Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Moist places in forests, thickets, grasslands, stream banks; (500) 2200-5000 m. E Gansu, Qinghai, NW Sichuan, W Xinjiang, Xizang [Afghanistan, C Himalayas; N Africa, Europe, North America]." [Demonstrates environmental versatility. Elevation range exceeds 1000 m]
	Plants for a Future. 2017. <i>Urtica dioica</i> . http://pfaf.org/user/Plant.aspx?LatinName=Urtica+dioica . [Accessed 1 Feb 2017]	"USDA hardiness 4-9" [6 hardiness zones]

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Useful Tropical Plants Database. 2017. <i>Urtica dioica</i> . http://tropical.theferns.info/viewtropical.php?id=Urtica+dioica . [Accessed 1 Feb 2017]	"Temperate regions throughout the world, including Britain. The plant has become naturalized at higher elevations in the Tropics."
	Olsen, C. (1921). The Ecology of <i>Urtica dioica</i> . <i>Journal of Ecology</i> , 9(1), 1-18	" <i>Urtica dioica</i> , which is widely distributed through Europe, North Africa, temperate Asia, as well as throughout temperate and subtropical America, occurs frequently in Denmark, particularly in those parts of the country where the soil is relatively good."

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	" <i>U. dioica</i> subsp. <i>dioica</i> appears to have been widespread in most of its current range for a very long time, although some reports of its appearance or that of different subspecies in North America, Australia and New Zealand may be related to European settlement of those countries. The first record from Australia was in 1912 (Council of Heads of Australasian Herbaria, 2015), and from New Zealand in 1877 (Thomson, 1922). Taylor (2009) suggested that the species had increased in southern England in recent decades. Carey et al. (2008) in their UK Countryside Survey reported that <i>U. dioica</i> was one of the ten species that had increased most between 1998 and 2007 and had become the most abundant dicotyledonous plant recorded in the Survey, at least partly the result of reduced farm maintenance."

301	Naturalized beyond native range	y
-----	---------------------------------	---

Qsn #	Question	Answer
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 30 Jan 2017]	"Naturalized: . natzd. elsewhere"
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. <i>Journal of Ecology</i> , 97(6): 1436-1458	" <i>Urtica dioica</i> is a tall, usually dioecious, rhizomatous, perennial herb with numerous stinging hairs, probably native in fens and semi-natural ancient woodlands, but widely naturalized in a range of habitats and abundant throughout the British Isles." ... " <i>U. dioica</i> has been assigned to the Eurosiberian Boreo-temperate element in the British flora; it is widely naturalized outside its native range (Preston&Hill 1997)."

302	Garden/amenity/disturbance weed	
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	"It is also a common weed of disturbed areas, preferring to grow on deep rich, moist soils, being intolerant of poor fertility, dense shade and frequent disturbance." [A disturbance weed that impacts agriculture]
	Schellman, A. E., & Shrestha, A. 2008. <i>Pest Notes: Burning & Stinging Nettles</i> . UC ANR Publication 74146	"The species commonly infests moist uncultivated areas including waste places, riverbanks, fence rows and roadsides, and is occasionally a problem in orchards and vineyards. It is not generally a problem in gardens and row crops."

303	Agricultural/forestry/horticultural weed	y
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	" <i>U. dioica</i> is generally regarded as a weedy invasive species. Where it occurs in pastures and grasslands its monospecific clumps can take up considerable space and thus reduce hay yields and the amount of grass available to livestock. It is normally avoided by livestock, thus restricting their free movement. Although considered native to Canada, it is listed as a noxious weed in several provinces (Carey, 1995), including Nova Scotia and Quebec (Darbyshire, 2003) and Alberta and Manitoba (Bassett et al., 1977). In the USA, <i>U. dioica</i> is classed as weedy or invasive depending on state and authority (USDA-NRCS, 2015). According to Bayer CropScience (2015), it is a weed of cereal and other field crops, is difficult to eradicate and is an important alternative host of the economically damaging carrot fly (<i>Psila rosae</i>)."

304	Environmental weed	
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	[Potentially] "The weediness of <i>U. dioica</i> is attributed to its spread by rhizomes, allowing it to form dense colonies that exclude other plant species (Bayer CropScience, 2015). Where <i>U. dioica</i> occurs in dense patches in pasture or woodland it could be a problem if it interferes with the growth or occurrence of endangered species."

Qsn #	Question	Answer
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	Cited as an environmental weed

305	Congeneric weed	y
	Source(s)	Notes
	CABI, 2016. <i>Urtica urens</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	" <i>U. urens</i> 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)." ... " <i>U. urens</i> 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."

401	Produces spines, thorns or burrs	y
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2003. Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Herbs perennial, dioecious, rarely monoecious. Rhizomes woody, stoloniferous. Stems simple or few branched, 40-100 cm tall; stems and petioles often densely or sometimes sparsely covered with stinging and setulose hairs. Stipules free, linear, (2)5-8 mm; petiole 2.5-4 cm; leaf blade ovate, sometimes lanceolate, 5-13 x 2.5-6 cm, often herbaceous, (3)5-veined, lateral basal veins reaching distal margin and anastomosing, secondary veins 3-5 each side, adaxial surface sparsely covered with stinging and setulose hairs, abaxial surface often densely covered with long, stinging and setulose hairs along veins, base cordate, margin coarsely 1-2-1-serrate or -dentate, teeth often incurved-tipped, apex acuminate or long acuminate; cystoliths punctiform."

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

403	Parasitic	n
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2003. Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Herbs perennial, dioecious, rarely monoecious." [Urticaceae. No evidence]

Qsn #	Question	Answer
404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. <i>Journal of Ecology</i> , 97(6): 1436-1458	"Kirby (2001) quotes the findings of studies which indicate that the following deer eat <i>U. dioica</i> in quantity: fallow (<i>Dama dama</i> L.), roe (<i>Capreolus capreolus</i> L.) and red (<i>Cervus elephas</i> L)." ... "some breeds of domestic cattle avoid stinging nettles while other breeds eat them readily (Uphof 1962). Selective grazing was studied in Åland, south-western Finland, by Haeggström (1990). He found that if grazing was intense, sheep droppings contained numerous germinable nettle seeds, but cattle which graze selectively did not eat the plant. However, Cosyns et al. (2005) found that fresh dung samples from Shetland and Konik breeds of horses and Scottish Highland cattle grazing two coastal dune nature reserves contained seed and abundant emerging seedlings of <i>U. dioica</i> . The dung of free-ranging horses also contained large numbers of emerging seedlings of <i>U. dioica</i> (Cosyns & Hoffmann 2005). Rabbits will eat small quantities of nettles when food is scarce (Gillham 1955; Thomas 1960), and remains of nettle epidermis, including stinging hairs have been found in samples of rabbit dung. <i>Urtica dioica</i> apparently possesses high nutrient quality (a high content of protein and vitamins A and C), and is potentially a good source of food for livestock, and hence mammalian grazing is an obvious major threat and probably the main selection pressure behind the stinging hairs."

405	Toxic to animals	y
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	"A number of toxins are present in the stinging hairs, including serotonin and acetylcholine (Connor, 1977). A report in 1982 (Anon., 1982), cited by CBIF (2015), noted that hunting dogs in the USA were poisoned after massive exposure to stinging nettles. Symptoms included trembling, pain, slobbering, dyspnoea and vomiting. Without treatment some dogs died 2-3 days after exposure. "
	Offord, M. 2006. <i>Plants Poisonous to Horses - An Australian Field Guide</i> . Rural Industries Research and Development Corporation, Barton, ACT	Signs of stinging nettle poisoning <ul style="list-style-type: none"> • Skin irritation and discomfort • Hives may be seen around the muzzle if the plant is accidentally contacted while grazing. Hives can appear on any body part if the horse has rolled in a patch of stinging nettles • In severe cases the horse may show signs of incoordination and muscle weakness Symptoms of exposure to stinging nettles usually resolve within a few hours. In horses showing severe symptoms veterinary attention should be sought. The administration of sedatives and analgesics will reduce discomfort

Qsn #	Question	Answer
406	Host for recognized pests and pathogens	
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"According to Bayer CropScience (2015), it is a weed of cereal and other field crops, is difficult to eradicate and is an important alternative host of the economically damaging carrot fly (<i>Psila rosae</i>)."

407	Causes allergies or is otherwise toxic to humans	y
	Source(s)	Notes
	Schellman, A. E., & Shrestha, A. 2008. Pest Notes: Burning & Stinging Nettles. UC ANR Publication 74146	"Both burning and stinging nettle are aptly named. Their leaves and stems are covered with long, fine to bristly hairs that can irritate and blister skin when handled. When human skin comes into contact with a leaf or stem, it often rapidly develops reddish patches accompanied by itching and burning. Frequently, a prolonged tingling sensation may persist on the affected skin for more than 12 hours, even after visible symptoms have faded."
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Generations of children and adults have suffered the stinging hairs of <i>U. dioica</i> subsp. <i>dioica</i> . A number of toxins are present in the stinging hairs, including serotonin and acetylcholine (Connor, 1977). A report in 1982 (Anon., 1982), cited by CBIF (2015), noted that hunting dogs in the USA were poisoned after massive exposure to stinging nettles. Symptoms included trembling, pain, slobbering, dyspnoea and vomiting. Without treatment some dogs died 2-3 days after exposure. The action of the stinging hairs is neutralized by heat or by drying, so leaves can be used for edible purposes quite safely (PFAF, 2015). The copious wind-blown pollen of <i>U. dioica</i> is a major contributor to summer hay fever (Hyde, 1959; Bassett et al., 1977)."

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Carey (1995) reported that <i>U. dioica</i> regenerates from its buried rhizomes and seeds relatively quickly after a fire, although its top growth is presumably severely damaged." [No evidence, although formation of dense stands could contribute to fuel load]

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"It is also a common weed of disturbed areas, preferring to grow on deep rich, moist soils, being intolerant of poor fertility, dense shade and frequent disturbance. According to Olsen (1921), in Denmark it thrives in full light as well as in light shade, but does best in half-shade."

Qsn #	Question	Answer
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. <i>Journal of Ecology</i> , 97(6): 1436-1458	" <i>Urtica dioica</i> is a moderately shade-tolerant species, which occurs on most moist or damp, weakly acid or weakly basic, richly fertile soils." ... " <i>Urtica dioica</i> tolerates partial shade, with >10% relative illumination when the trees are in leaf (Ellenberg value for light = 6; Hill, Preston & Roy 2004). It prefers moderately shaded woodlands and hedgerows, but also occurs in open habitats such as floodplains, pastures and meadows. According to Olsen (1921), <i>U. dioica</i> thrives in full daylight, but attains its most luxuriant growth at 10–20% and minimum growth at 5–10% full daylight. In open woods, moderately high light fluxes reach the floor during a large part of the spring and summer, and providing mineral nutrition is not limiting, rapid growth rates are possible. Pigott & Taylor (1964) found that seedlings of <i>U. dioica</i> grew best in woodland plots with added phosphate where light fluxes were high, but in deep shade only a few seedlings survived."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	"Greig-Smith (1948) reported the British occurrence of <i>U. dioica</i> on almost all soil types, but noted its absence from waterlogged soils and its rarity on acid peats. The same author, along with many others, commented on its apparent preference for soils with a high nitrate content. However, Bates (1933) suggested that the controlling factor was the soft, unconsolidated nature of favoured substrates rather than high nitrate."
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. <i>Journal of Ecology</i> , 97(6): 1436-1458	"In general, <i>Urtica dioica</i> occurs in topsoils over the pH range 4.5–7.5 (Olsen 1921; Rackham 2003; Grime, Hodgson & Hunt 2007)."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2003. <i>Flora of China</i> . Vol. 5 (Ulmaceae through Basellaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Herbs perennial, dioecious, rarely monoecious. Rhizomes woody, stoloniferous. Stems simple or few branched, 40-100 cm tall; stems and petioles often densely or sometimes sparsely covered with stinging and setulose hairs. Stipules free, linear, (2)5-8 mm; petiole 2.5-4 cm; leaf blade ovate, sometimes lanceolate, 5-13 × 2.5-6 cm, often herbaceous, (3)5-veined, lateral basal veins reaching distal margin and anastomosing, secondary veins 3-5 each side, adaxial surface sparsely covered with stinging and setulose hairs, abaxial surface often densely covered with long, stinging and setulose hairs along veins, base cordate, margin coarsely serrate or -dentate, teeth often incurved-tipped, apex acuminate or long acuminate; cystoliths punctiform."

Qsn #	Question	Answer
412	Forms dense thickets	y
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"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."
501	Aquatic	n
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2003. Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[Terrestrial herb] "Herbs perennial" ... "Moist places in forests, thickets, grasslands, stream banks; (500) 2200-5000 m."
502	Grass	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 26 Jan 2017]	Family: Urticaceae
503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 26 Jan 2017]	Family: Urticaceae
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2003. Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[Stoloniferous herb] "Herbs perennial, dioecious, rarely monoecious. Rhizomes woody, stoloniferous."
601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Wu, Z.Y., Raven, P.H. & Hong, D.Y. (eds.). 2003. Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[No evidence. Widely distributed] "Moist places in forests, thickets, grasslands, stream banks; (500) 2200-5000 m. E Gansu, Qinghai, NW Sichuan, W Xinjiang, Xizang [Afghanistan, C Himalayas; N Africa, Europe, North America]."
602	Produces viable seed	y

Qsn #	Question	Answer
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Nettle plants produce abundant seed. Those growing in full sunlight produce 10,000-20,000 seeds per shoot (Bassett et al., 1977). The average 1000-seed weight is 0.2 g and the seeds have an oil content of 27.85% and a protein content of 15.5% (Kew Seed Information Database, 2015). Besides producing seeds, plants spread vegetatively by means of rhizomes or stolons. Vegetative spread is initiated in a plant's first season. A rhizome planted in late summer can spread into a 2.5 m wide monospecific patch by the following year (Bassett et al., 1977)."
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. <i>Journal of Ecology</i> , 97(6): 1436-1458	"The low seed mass of <i>U. dioica</i> enables the production of vast numbers of seeds. Few of the seeds germinate in the period immediately following dispersal, and the species maintains a seed bank that changes little in size with season and is large in relation to annual seed production."

603	Hybridizes naturally	
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Uncertainty reigns over the nomenclature of <i>Urtica</i> species, and many taxa within the genus are easily confused with others. Some of the species and subspecies also form hybrids, further adding to the confusion."
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. <i>Journal of Ecology</i> , 97(6): 1436-1458	" <i>Urtica dioica</i> ssp. <i>dioica</i> and ssp. <i>galeopsifolia</i> differ cytologically and are usually separable using the morphological characters described by Rich & Jermy (1998). Hybrids with intermediate morphology and chromosome number are found in places where populations of the two taxa meet; so far all such plants encountered have been female (M. F. Godfrey, pers. comm.)."

604	Self-compatible or apomictic	n
	Source(s)	Notes

Qsn #	Question	Answer
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	" <i>U. dioica</i> subsp. <i>dioica</i> is, as its botanical name suggests, mostly dioecious, with male and female flowers on different plants. Glawe (2006) found that although male and female flowering plants occurred at approximately equal numbers at her study site at Meijendel harbour in the Netherlands, seeds collected individually from 33 female plants and grown to flowering showed progeny sex ratios that ranged between 5% and 76% male offspring. The same author investigated the effects of physiological and environmental factors on sex ratios, and found that sex ratios remained constant under different soil nutrient conditions or when plant growth hormones were applied. However, in monoecious plants with both male and female flowers, the proportion of male flowers increased when plants were grown under more favourable conditions. In fact, nearly half of the plants that initially appeared monoecious exclusively produced male flowers when grown in more fertile soils. The author described these as 'inconstant males' (genetic males that occasionally produce seeds), which change the fraction of male flowers in response to different environmental conditions. She suggested, as a result of her crossing experiments, that males represent the heterogametic sex and females the homogametic sex. However, sex determination does not follow a clear-cut scheme and it seems that genes on different loci are involved in sex determination."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. <i>Journal of Ecology</i> , 97(6): 1436-1458	"Reproduction is amphimictic. It is usually wind-pollinated; the immature stamens are incurved and under tension in the flower bud, and spring back, scattering the pollen explosively."

606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Besides producing seeds, plants spread vegetatively by means of rhizomes or stolons. Vegetative spread is initiated in a plant's first season. A rhizome planted in late summer can spread into a 2.5 m wide monospecific patch by the following year (Bassett et al., 1977)."

607	Minimum generative time (years)	2
	Source(s)	Notes
	Bender, M., Baskin, J., & Baskin, C. (2000). Age of Maturity and Life Span in Herbaceous, Polycarpic Perennials. <i>Botanical Review</i> , 66(3), 311-349	"Table IV Herbaceous, polycarpic perennials with earliest maturity in the wild being in the second year; ramets common" [Includes <i>Urtica dioica</i>]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y
	Source(s)	Notes

Qsn #	Question	Answer
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. <i>Journal of Ecology</i> , 97(6): 1436-1458	"Dispersal is effected when the persistent, hispid perianth segments of the fruits adhere to animal fur, feathers and clothing, and the perianth probably also assists in wind dispersal."
	Ansong, M., & Pickering, C. (2013). Are weeds hitchhiking a ride on your car? A systematic review of seed dispersal on cars. <i>PLoS One</i> , 8(11), e80275	"Of the 49 species with seed on cars from the one study in Sweden [34], 29 (59%) are naturalized alien species in Sweden, two of which, <i>Stellaria media</i> and <i>Urtica dioica</i> are declared invasive in Sweden [55]."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	" <i>U. dioica</i> may easily be transported to countries where it is not yet present because it has long been used as a source of fibre, food and herbal medicines. It is also seen as a useful food source for many kinds of caterpillar and is sometimes deliberately planted for that purpose (for example, see the Monarch Butterfly New Zealand Trust (2015))."

703	Propagules likely to disperse as a produce contaminant	y
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	"Seed of <i>U. dioica</i> has been found contaminating commercial timothy (<i>Phleum pratense</i>) seed lots (Gooch, 1963)."

704	Propagules adapted to wind dispersal	
	Source(s)	Notes
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. <i>Journal of Ecology</i> , 97(6): 1436-1458	"Dispersal is effected when the persistent, hispid perianth segments of the fruits adhere to animal fur, feathers and clothing, and the perianth probably also assists in wind dispersal." [Possibly]

705	Propagules water dispersed	y
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	"Taylor (2009) suggests that the perianth assists in wind dispersal of <i>U. dioica</i> seed. Seeds can also be dispersed by water as they can survive floating in water for a week (Bond et al, 2007)."

706	Propagules bird dispersed	n
	Source(s)	Notes
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. <i>Journal of Ecology</i> , 97(6): 1436-1458	"Dispersal is effected when the persistent, hispid perianth segments of the fruits adhere to animal fur, feathers and clothing, and the perianth probably also assists in wind dispersal." [Possibly externally dispersed]

707	Propagules dispersed by other animals (externally)	y
-----	--	---

Qsn #	Question	Answer
	Source(s)	Notes
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. Journal of Ecology, 97(6): 1436-1458	"Dispersal is effected when the persistent, hispid perianth segments of the fruits adhere to animal fur, feathers and clothing, and the perianth probably also assists in wind dispersal."

708	Propagules survive passage through the gut	y
	Source(s)	Notes
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. Journal of Ecology, 97(6): 1436-1458	"Viable seeds have also been found in the excrement of sheep, cattle, horses and fallow deer"

801	Prolific seed production (>1000/m ²)	y
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Nettle plants produce abundant seed. Those growing in full sunlight produce 10,000-20,000 seeds per shoot (Bassett et al., 1977). The average 1000-seed weight is 0.2 g and the seeds have an oil content of 27.85% and a protein content of 15.5% (Kew Seed Information Database, 2015)."
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. Journal of Ecology, 97(6): 1436-1458	"The low seed mass enables the production of vast numbers of seeds; a pastureland clone produced c. 30 000 seeds per shoot, but a woodland clone considerably fewer."

802	Evidence that a persistent propagule bank is formed (>1 yr)	y
	Source(s)	Notes
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. Journal of Ecology, 97(6): 1436-1458	[5 years] "The 'seed bank' of <i>U. dioica</i> is of the persistent type (Thompson & Grime 1979), in which few of the seeds germinate in the period immediately following dispersal, and the species maintains a seed bank that changes little in size with season and is large in relation to the annual production of seeds." ... "Roberts & Boddrell (1984) sowed seeds of <i>U. dioica</i> , freshly collected in autumn, on to sterilized soil that was confined in cylinders sunk in the ground outdoors and periodically cultivated. Seedling emergence was recorded for 5 years and the seasonal pattern of emergence was determined. Peak emergence occurred in April and in greatest numbers in the first year (68% of the seeds sown), and an average of only 3% of the viable seed initially sown still remained after 5 years."

803	Well controlled by herbicides	y
	Source(s)	Notes

Qsn #	Question	Answer
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Bassett et al. (1977) suggest that, in Canada, since there are no specifically recommended chemical control measures for the species, general control recommendations for perennial weeds in non-crop land will probably eradicate this plant. However, Popay et al. (1982) tested a number of herbicides commonly used for weed control and found that few gave complete control after a single application. Only 2,4-D + picloram or picloram granules were effective and, after a single application, nettle clumps were either completely killed or very few shoots emerged later and were killed by a repeat application a year after the first. Natural England (1999) also recommends clopyralid + triclopyr, 2,4-D + dicamba + mecoprop, fluroxypyr, mecoprop and triclopyr for effective nettle control."
	Schellman, A. E., & Shrestha, A. 2008. Pest Notes: Burning & Stinging Nettles. UC ANR Publication 74146	"Herbicides listed to control burning and stinging nettles include isoxaben, oxadiazon and oxyfluorfen, but these materials are available only to licensed pesticide applicators. Refer to the herbicide label for proper use of these products."
	Taylor, K. (2009). Biological Flora of the British Isles: <i>Urtica dioica</i> L. Journal of Ecology, 97(6): 1436-1458	"The plant can also be controlled by the use of any of the herbicides simazine, atrazine, bromacil, monuron or diuron, glyphosate, sodium chlorate, dichlobenil and picloram (Fryer & Makepeace 1978)."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	[Resprouts after fire. May not tolerate repeated cutting] "Carey (1995) reported that <i>U. dioica</i> regenerates from its buried rhizomes and seeds relatively quickly after a fire, although its top growth is presumably severely damaged. Greig-Smith (1948) reported that the species will not withstand repeated cutting. Machines for pulling out grassland weeds have been developed and are seen as environmentally friendly alternatives to herbicide use. One such, developed in the late 1990s, is the Eco-Puller, a tractor-trailed and PTO-driven machine that pulls weeds from the ground in a way that mimics hand pulling. This is achieved by feeding tall plants between a pair of gripping rollers which then provide a good firm vertical pull which is necessary to get the root out of the ground. The weed gripping height is adjustable, but weeds should be at least 30 cm tall to be pulled effectively. Stinging nettle should be pulled early in the season as soon as the stems are robust (Natural England, 1999)."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	CABI, 2016. <i>Urtica dioica</i> . In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"No biological control agents have been identified for this species and, since it is considered native to several continents, a search for such agents would probably not be practical."

Summary of Risk Traits:

High Risk / Undesirable Traits

- Elevation range exceeds 1000 m, demonstrating environmental versatility
- Naturalized in mid- to high elevation areas in the tropics
- Widely naturalized (but no evidence from Hawaiian Islands)
- A disturbance adapted agricultural weed of numerous crops
- Other *Urtica* species have become invasive
- Stinging hair affect animals & humans
- Shade tolerant
- Tolerates many soil types
- Reported to form dense stands
- Reproduces by seeds in two growing seasons
- Spreads vegetatively by rhizomes
- Seeds dispersed attached to clothing, fur, or feathers, as a produce contaminant, by water, potentially by wind, & internally by animals
- Prolific seed production
- Forms a persistent seed bank (at least 5 years)
- Resprouts after fires (but does not withstand repeated cutting)

Low Risk Traits

- Due to predominantly temperate range, may only become invasive at higher elevations of tropical regions
- Consumed by animals despite stinging hairs
- Dioecious
- Herbicides provide effective control