Taxon: Senecio sylvaticus L. **Family:** Asteraceae

Common Name(s): heath groundsel
wood groundsel

Synonym(s): Senecio areolatus Colenso

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 18 Jan 2016

WRA Score: 9.5 **Designation:** H(HPWRA) **Rating:** High Risk

Keywords: Annual, Disturbance Weed, Toxic Properties, Self-Fertile, 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)	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	n=0, y = 1*multiplier (see Appendix 2)	y
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed	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	n
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	y=1, n=0	y
407	Causes allergies or is otherwise toxic to humans		
408	Creates a fire hazard in natural ecosystems		
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	n

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	n
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	y=1, n=-1	y
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	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)	y=1, n=-1	y
702	Propagules dispersed intentionally by people	y=1, n=-1	n
703	Propagules likely to disperse as a produce contaminant		
704	Propagules adapted to wind dispersal	y=1, n=-1	y
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)	y=1, n=-1	y
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)		
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**
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[No evidence of domestication] "Native to Eurasia, now widely distributed in temperate regions"

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**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 15 Jan 2016]	"Native: Africa Macaronesia: Portugal - Madeira Islands Europe East Europe: Estonia; Latvia; Lithuania Middle Europe: Austria; Belgium; Czech Republic; Germany; Hungary; Netherlands; Poland; Slovakia; Switzerland Northern Europe: Denmark; Finland; Ireland; Norway; Sweden; United Kingdom Southeastern Europe: Bosnia and Herzegovina; Bulgaria; Croatia; Italy; Montenegro; Romania; Serbia; Slovenia Southwestern Europe: France; Portugal; Spain"
	Flora of North America Editorial Committee. 2006. Flora of North America North of Mexico. vol. 20. New York and Oxford	"Senecio sylvaticus is a Eurasian weed that favors cool, wet climates."

202	**Quality of climate match data**	**High**
	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 18 Jan 2016]	

203	**Broad climate suitability (environmental versatility)**	**y**

Qsn #	Question	Answer
	Source(s)	**Notes**
	Plants for a Future. 2016. Senecio sylvaticus, http://www.pfaf.org/user/Plant.aspx?LatinName=Senecio+sylvaticus. [Accessed 18 Jan 2016]	"USDA hardiness zone : 5-9"
	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, demonstrating environmental versatility] "in Hawai'i naturalized usually in open, relatively dry sites but also in wet habitats, 1,500-3,200 m"

204	**Native or naturalized in regions with tropical or subtropical climates**	**y**
	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.	[Naturalized at middle to higher elevations in islands with tropical & subtropical climates] "in Hawai'i naturalized usually in open, relatively dry sites but also in wet habitats, 1,500-3,200 m, on O'ahu, Moloka'i, Maui, and Hawai'i. First collected on Maui in 1910 (Forbes 202.M, BISH)."

205	**Does the species have a history of repeated introductions outside its natural 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 18 Jan 2016]	[Widely introduced & naturalized] "Naturalized: Africa Macaronesia: Portugal - Azores Australasia New Zealand: New Zealand Europe East Europe: Ukraine Northern America Eastern Canada: Canada - Quebec, - Nova Scotia, - Prince Edward Island, - New Brunswick, - Newfoundland North-Central U.S.A.: United States - Wisconsin Northeastern U.S.A.: United States - Massachusetts, - Michigan, - New Jersey, - Ohio, - Pennsylvania Northwestern U.S.A.: United States - Oregon, - Washington Southeastern U.S.A.: United States - Louisiana Southwestern U.S.A.: United States - California Western Canada: Canada - British Columbia Pacific North-Central Pacific: United States - Hawaii Southern America Southern South America: Argentina; Chile"

301	**Naturalized beyond native range**	**y**
	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.	"in Hawai'i naturalized usually in open, relatively dry sites but also in wet habitats, 1,500-3,200 m, on O'ahu, Moloka'i, Maui, and Hawai'i. First collected on Maui in 1910 (Forbes 202.M, BISH)."

Qsn #	Question	Answer
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 18 Jan 2016]	"Naturalized: Africa Macaronesia: Portugal - Azores Australasia New Zealand: New Zealand Europe East Europe: Ukraine Northern America Eastern Canada: Canada - Quebec, - Nova Scotia, - Prince Edward Island, - New Brunswick, - Newfoundland North-Central U.S.A.: United States - Wisconsin Northeastern U.S.A.: United States - Massachusetts, - Michigan, - New Jersey, - Ohio, - Pennsylvania Northwestern U.S.A.: United States - Oregon, - Washington Southeastern U.S.A.: United States - Louisiana Southwestern U.S.A.: United States - California Western Canada: Canada - British Columbia Pacific North-Central Pacific: United States - Hawaii Southern America Southern South America: Argentina; Chile"

302	Garden/amenity/disturbance weed	y
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	[Disturbance-adapted weed] "Impact on community composition, structure, and interactions: Woodland ragwort may compete with native plants and may temporarily increase the density of vegetation due to its ability to establish in disturbed and often sparsely vegetated areas. It has the potential to dominate early secondary successional environments, especially in previously logged and slash-burned areas, although its abundance generally declines after two years. It can grow at densities of 90,000 plants per acre under favorable conditions. (West and Chilcote 1968, Halpern et al. 1997)." ... "Role of disturbance in establishment: Woodland ragwort primarily grows in disturbed areas (DiTomaso and Healy 2007). It establishes especially well on burned sites in coniferous forests and on exposed mineral soil (West and Chilcote 1968, Clément and Touffet 1990)."

303	Agricultural/forestry/horticultural weed	n
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"It is not a major agricultural weed because it prefers acidic soils."
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

Qsn #	Question	Answer
304	**Environmental weed**	**n**
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"Impact on ecosystem processes: Populations of woodland ragwort are usually displaced by other plants after a few years in woodland clearings (Halpern et al. 1997). Woodland ragwort may alter nutrient and water availability in the soil but is not likely to significantly alter or halt any ecological processes." ... "Although in the short-term woodland ragwort can produce many seeds, it does not generally compete with native species for more than two years. Natural successional processes will most likely result in the replacement of woodland ragwort (Senecio sylvaticus) by fireweed (Chamerion angustifolium) (Andel and Vera 1977, Halpern et al. 1997)."

305	Congeneric weed	y
	Source(s)	**Notes**
	Sindel, B. M., & Michael, P. W. (1992). Spread and potential distribution of Senecio madagascariensis Poir. (fireweed) in Australia. Australian Journal of Ecology, 17 (1), 21-26	"Abstract The potential distribution of the herbaceous weed Senecio madagascariensis Poir. (fireweed) in Australia was estimated using the Bioclimate Prediction System, BIOCLIM. Climate profiles for S. madagascariensis predicted that suitable areas occurred only in the south-eastern region of Australia. Its potential to spread outside these areas was assessed by comparing the present African and South American distributions of this species with that observed in Australia. The rate of spread of S. madagascariensis in New South Wales was exponential, although in some regions, such as the Gloucester River Valley, the rates had decreased because all farms had become infested. The results indicate that S. madagascariensis may spread and increase in abundance along the far south coast of New South Wales and in south-eastern Queensland. Coastal areas in eastern Victoria and as far north in Queensland as the Tropic of Capricorn may be invaded."
	Weber, E. 2003. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	"Senecio elegans" ... "It is invasive because it spreads rapidly and forms a continuous ground cover of dense growth, displacing native species and preventing their regeneration."

401	Produces spines, thorns or burrs	n
	Source(s)	**Notes**
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[No evidence] "Erect annual herbs 2-8 dm tall, ± sparsely crinkly pubescent and glandular pubescent at least above. Leaves oblanceolate to oblong, 2-4(-12) cm long, 0.4-1(-3.5) cm wide, pinnately veined, irregularly pinnatifid, sessile."

402	Allelopathic	
	Source(s)	**Notes**

Qsn #	Question	Answer
	Geyer, M. A. (1995). Autecological studies of two annual herbs, Senecio sylvaticus and Epilobium paniculatum: effects of biotic and abiotic factors. MSc Thesis. Oregon State University, Corvallis, OR	[Possibly] "Recent research indicates that the decline in the third season is most pronounced in plots that have a high abundance of Senecio in the second season, suggesting that autoallelopathy may contribute to the decline of Senecio (Halpem et al 1995). However, authors concluded that auto-allelopathy is probably not the sole cause of the decline, since Senecio also has difficulty establishing where its density was not high in the previous year, and that a sitewide phenomena exists (Halpern et al 1995). Further research should be done with leachates from the roots and above-ground litter from mature Senecio plants to determine the effect on the growth of germinants."

403	Parasitic	n
	Source(s)	**Notes**
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Erect annual herbs 2-8 dm tall, ± sparsely crinkly pubescent and glandular pubescent at least above." [Asteraceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	**Notes**
	Aldrich-Markham, S. 1994. Weeds. Common Groundsel Senecio vulgaris L. A PNW 466. Pacific Northwest Extension Publication • Oregon • Idaho • Washington	"Sheep and goats have rumen bacteria that detoxify the alkaloids, so they are able to consume twice their body weight of groundsel or tansy without liver damage. Grazing by sheep sometimes is used to control these weeds in pasture."
	Warburton, B. (1978). Foods of the Australian brush-tailed opossum (Trichosurus vulpecula) in an exotic forest. New Zealand Journal of Ecology, 1: 126-131	"TABLE 1. Percentage frequency of occurrence of plant fragments identified from opossum stomach contents." [Senecio sylvaticus leaves are consumed]
	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	[Low palatability, but susceptible to browsing damage] "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." [Senecio sylvaticus - Relative palatability = Low. Susceptibility to grazing/browsing damage = Moderate]

405	Toxic to animals	y
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"Woodland ragwort contains toxic pyrrolizidine alkaloids that can damage the liver in herbivores, resulting in death if enough alkaloids are consumed over several months (Christov and Evstatieva 2003, DiTomaso and Healy 2007)."

Qsn #	Question	Answer
	Aldrich-Markham, S. 1994. Weeds. Common Groundsel Senecio vulgaris L. A PNW 466. Pacific Northwest Extension Publication • Oregon • Idaho • Washington	[Related taxon is toxic] "Groundsel is especially a problem in forage crops because it is toxic to livestock. The toxins are four pyrrolizidine alkaloids, which cause irreversible liver damage. Some of the same alkaloids are found in tansy ragwort (Senecio jacobea L.), but tansy ragwort also contains two additional alkaloids that are more toxic. Poisoning occurs most commonly in situations where animals cannot separate out the toxic plants—when they are mixed with the forage in a pasture, or when they are fed in hay or silage. The liver disease is chronic and progressive, resulting in death months later in most animals, with few or no symptoms until 2 or 3 days before death. A lethal amount for cattle or horses is 7 percent of their body weight of groundsel or 5 percent of their body weight of tansy ragwort (for example, 50 pounds fresh weight of groundsel or 35 pounds fresh weight of tansy ragwort consumed by a 700-pound cow). With lesser amounts, the liver loses function, but no symptoms may be apparent until the animal is stressed (by pregnancy, a new feed, a different toxin, etc.). Then the damaged liver may not be able to purify the blood fast enough, and death is sudden."

406	Host for recognized pests and pathogens	y
	Source(s)	**Notes**
	Llácer, G. (2006). Hosts and symptoms of Plum pox virus: herbaceous hosts. EPPO Bulletin, 36(2), 227-228	"Plum pox virus (PPV) is polyphagous and very epidemic. Apart from cultivated and wild Prunus species, a large number of herbaceous plants can be hosts of the virus. We shall distinguish between experimental and natural hosts." ... "They found that Senecio sylvaticus L. (Compositae) was the most suitable host, being consistently infected by diverse isolates of PPV. Even in late summer, S. sylvaticus showed pale green vein banding and circular spots 3 weeks after inoculation."

407	Causes allergies or is otherwise toxic to humans	
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"Woodland ragwort contains toxic pyrrolizidine alkaloids that can damage the liver in herbivores, resulting in death if enough alkaloids are consumed over several months (Christov and Evstatieva 2003, DiTomaso and Healy 2007)."
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence of toxicity to humans, but possible. Toxicity to animals reported

408	Creates a fire hazard in natural ecosystems	
	Source(s)	**Notes**
	Zouhar, K., Smith, J.K., Sutherland, S. & Brooks, M.L.2008. Wildland fire in ecosystems: fire and nonnative invasive plants. Gen. Tech. Rep. RMRS-GTR-42-vol. 6. USDA Forest Service, Rocky Mountain Research Station, Ogden, UT	[Establishes after fires, but no evidence that this species increases fire risk] "The nonnative winter annual woodland groundsel (Senecio sylvaticus) is particularly prominent in slash burns following clearcuts in western hemlock zone forests of the Cascade and Coast Ranges (Dyrness 1973; Halpern 1989; Halpern and others 1997; Kraemer 1977; Morris 1958, 1969; Schoonmaker and McKee 1988; Stewart 1978; West and Chilcote 1968)."

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.	[Might contribute to fuel loads in dry habitats] "Native to Eurasia; in Hawai'i naturalized usually in open, relatively dry sites but also in wet habitats, 1,500-3,200 m, on O'ahu, Moloka'i, Maui, and Hawai'i."

409	Is a shade tolerant plant at some stage of its life cycle	n
	Source(s)	**Notes**
	Plants for a Future. 2016. Senecio sylvaticus, http://www.pfaf.org/user/Plant.aspx?LatinName=Senecio+sylvaticus. [Accessed 18 Jan 2016]	" It cannot grow in the shade."
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"It grows best in maritime climates and is shade intolerant."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	n
	Source(s)	**Notes**
	Plants for a Future. 2016. Senecio sylvaticus, http://www.pfaf.org/user/Plant.aspx?LatinName=Senecio+sylvaticus. [Accessed 18 Jan 2016]	"Suitable pH: acid and neutral soils."
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"Woodland ragwort grows very well on moist to wet, nitrogen-rich soils. It grows best in maritime climates and is shade intolerant. It is not a major agricultural weed because it prefers acidic soils."

411	Climbing or smothering growth habit	n
	Source(s)	**Notes**
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai‘i Press and Bishop Museum Press, Honolulu, HI.	"Erect annual herbs 2-8 dm tall, ± sparsely crinkly pubescent and glandular pubescent at least above."

412	Forms dense thickets	y
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"It can grow at densities of 90,000 plants per acre under favorable conditions. (West and Chilcote 1968, Halpern et al. 1997). In Anchorage, Alaska, it has been observed growing at lower densities on recently imported fill (Carlson pers. obs.)."

501	Aquatic	n
	Source(s)	**Notes**
	Flora of North America Editorial Committee. 2006. Flora of North America North of Mexico. vol. 20. New York and Oxford	[Terrestrial herb] "Annuals, (15–)30–80+ cm (tap-roots fibrous-rooted)." ... "Mildly disturbed woodlands, open, sandy sites; 100–300 m"

Qsn #	Question	Answer
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 15 Jan 2016]	"Genus: Senecio Family: Asteraceae (alt.Compositae) Subfamily: Asteroideae Tribe: Senecioneae Subtribe: Senecioninae"

503	**Nitrogen fixing woody plant**	**n**
	Source(s)	**Notes**
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Erect annual herbs 2-8 dm tall" [Asteraceae]

504	**Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)**	**n**
	Source(s)	**Notes**
	Flora of North America Editorial Committee. 2006. Flora of North America North of Mexico. vol. 20. New York and Oxford	"Annuals, (15–)30–80+ cm (tap-roots fibrous-rooted). Herbage puberulent (hairs abundant, curly). Stems single. Leaves evenly distributed; petiolate; blades obovate to oblong, 3–7(–12) × 1–3(–4) cm, usually 1–2-pinnate, bases tapered, ultimate margins dentate (distal leaves similar, clasping, bractlike)."

601	**Evidence of substantial reproductive failure in native habitat**	**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 18 Jan 2016]	No evidence. Widespread native & introduced ranges

602	**Produces viable seed**	**y**
	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.	"Achenes ca. 2.5 mm long, sparsely appressed puberulent."
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"Reproductive potential: Woodland ragwort reproduces by seed only (Andel and Vera 1977)."

603	**Hybridizes naturally**	**y**
	Source(s)	**Notes**

Qsn #	Question	Answer
	Stace, C. , van der Meijden, R. (ed.) & de Kort, I. (ed.). 2016. Interactive Flora of NW Europe - Senecio sylvaticus (Groundsel, Heath). http://wbd.etibioinformatics.nl/bis/flora.php?menuentry=soorten&id=4091. [Accessed 18 Jan 2016]	"Hybrids - Senecio x viscidulusScheele (= Senecio sylvaticus x Senecio viscosus) occurs with the parents in scattered places in England and Scotland and in M Cork; it is intermediate and has low fertility. Chromosome number: 2n=40."

604	Self-compatible or apomictic	y
	Source(s)	**Notes**
	Aldrich-Markham, S. 1994. Weeds. Common Groundsel Senecio vulgaris L. A PNW 466. Pacific Northwest Extension Publication • Oregon • Idaho • Washington	"Groundsel is self-fertile; the flowers do not require cross-pollination."
	Van Andel, J., & Vera, F. (1977). Reproductive allocation in Senecio sylvaticus and Chamaenerion angustifolium in relation to mineral nutrition. The Journal of Ecology, 65(3): 747-758	"Senecio sylvaticus was self-pollinating"

605	Requires specialist pollinators	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.	"Heads in terminal, paniculate cymes, radiate; involucre cylindrical, 5-7 mm high, principal bracts ca. 13, bracts and bracteoles green-tipped; ray florets 8- 15, rays inconspicuous, yellow, ca. 1-2 mm long; disk corollas yellow, 4-5 mm long."
	Bailey, P. 2013. Pollination Biology of the Endemic Erigeron lemmonii A. Gray, and its Insect Visitor Networks Compared to two Widespread Congeners Erigeron arisolius G.L. Nesom and Erigeron neomexicanus A. Gray (Asteraceae). PhD Dissertation. The University of Guelph, Guelph, Ontario, Canada	"Knuth (1906-1908) reported on pollinators of Senecio sylvaticus, including butterflies (66%), flies (23%), while and only 11% were bees."

606	Reproduction by vegetative fragmentation	n
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"Reproductive potential: Woodland ragwort reproduces by seed only (Andel and Vera 1977). Data from the Siuslaw National Forest of coastal Oregon indicated that each plant produces an average of 8,564 seeds (West and Chilcote 1968)."

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.	[Annual] "Erect annual herbs 2-8 dm tall"

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

Qsn #	Question	Answer
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"Potential to be spread by human activity: Seeds are easily spread by human activities. The pappus can stick to people, shoes, clothing, vehicles, or machinery, especially when wet (DiTomaso and Healy 2007)."

702	Propagules dispersed intentionally by people	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.	[A disturbance weed probably accidentally introduced in the past] "Native to Eurasia; in Hawai'i naturalized usually in open, relatively dry sites but also in wet habitats, 1,500-3,200 m, on O'ahu, Moloka'i, Maui, and Hawai'i. First collected on Maui in 1910 (Forbes 202.M, BISH)."

703	Propagules likely to disperse as a produce contaminant	
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	[Could become a contaminant of timber harvests] "The pappus can stick to people, shoes, clothing, vehicles, or machinery, especially when wet (DiTomaso and Healy 2007). This species appears to be highly associated with timber harvest in the Pacific Northwest (West and Chilcote 1968)."

704	Propagules adapted to wind dispersal	y
	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.	"pappus of numerous, usually white, simple or rarely barbellate, capillary bristles."
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"Potential for long-distance dispersal: Woodland ragwort seeds achieve wide dispersion (Clément and Touffet 1990). Each seed has a pappus, which facilitates wind dispersal."
	Geyer, M. A. (1995). Autecological studies of two annual herbs, Senecio sylvaticus and Epilobium paniculatum: effects of biotic and abiotic factors. MSc Thesis. Oregon State University, Corvallis, OR	"Wind-dispersal of seed occurs from mid-July to September."

705	Propagules water dispersed	n
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"Potential for long-distance dispersal: Woodland ragwort seeds achieve wide dispersion (Clément and Touffet 1990). Each seed has a pappus, which facilitates wind dispersal. Seeds are sticky when wet and can be transported on animals"

706	Propagules bird dispersed	n

Qsn #	Question	Answer
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"Potential for long-distance dispersal: Woodland ragwort seeds achieve wide dispersion (Clément and Touffet 1990). Each seed has a pappus, which facilitates wind dispersal. Seeds are sticky when wet and can be transported on animals"

707	Propagules dispersed by other animals (externally)	y
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"Seeds are sticky when wet and can be transported on animals (DiTomaso and Healy 2007)."

708	Propagules survive passage through the gut	y
	Source(s)	**Notes**
	Cosyns, E., Claerbout, S., Lamoot, I., & Hoffmann, M. (2005). Endozoochorous seed dispersal by cattle and horse in a spatially heterogeneous landscape. Plant Ecology, 178(2), 149-162	"Appendix A. Alphabetic ordered list of 49 plant species, within two functional groups, which were recorded less than 5 times from different dung samples of large herbivores (2.5 l) at Westhoek North and South." [Senecio sylvaticus seeds rarely found in dung samples]

801	Prolific seed production (>1000/m2)	y
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	"Data from the Siuslaw National Forest of coastal Oregon indicated that each plant produces an average of 8,564 seeds (West and Chilcote 1968)."

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	**Notes**
	Royal Botanic Gardens Kew. (2016) Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/. [Accessed 18 Jan 2016]	"Storage Behaviour: Orthodox; Storage Conditions: Long-term storage under IPGRI preferred conditions at RBG Kew, WP"
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	[Possibly Yes] "Presumably, seeds survive for a long time in soil (Clément and Touffet 1990) as viable seeds were present in the seed banks of old growth forests in the Pacific Northwest, even when no germinated plants were present in the observed vegetation. The exact amount of time for which seeds remain viable is unknown (Harmon and Franklin 1995, Halpern et al. 1997)."

803	Well controlled by herbicides	y
	Source(s)	**Notes**

Qsn #	Question	Answer
	Aldrich-Markham, S. 1994. Weeds. Common Groundsel Senecio vulgaris L. A PNW 466. Pacific Northwest Extension Publication • Oregon • Idaho • Washington	[Herbicide control for S. vulgaris would presumably be effective on S. sylvaticus] "Several herbicides control groundsel. Removing groundsel from cereals and forage grasses is not difficult, but removing it selectively from actively-growing forage legumes is almost impossible. In alfalfa, herbicide applications can be made only during the winter dormant season. In mint, selective control with herbicides is possible when the groundsel is small."

804	**Tolerates, or benefits from, mutilation, cultivation, or fire**	
	Source(s)	**Notes**
	Alaska Natural Heritage Program. (2010). woodland ragwort - Senecio sylvaticus L. University of Alaska, Anchorage. http://aknhp.uaa.alaska.edu. [Accessed 18 Jan 2016]	[Establishes after fire, but eventually get outcompeted by other vegetation] "It has the potential to dominate early secondary successional environments, especially in previously logged and slash-burned areas, although its abundance generally declines after two years."

Qsn #	Question	Answer
805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	
	Source(s)	**Notes**
	Ramadan, M. M., Murai, K. T., & Johnson, T. 2011. Host range of Secusio extensa (Lepidoptera: Arctiidae), and potential for biological control of Senecio madagascariensis (Asteraceae). Journal of Applied Entomology, 135(4): 269-284	[Possibly. S. sylvatica not tested in trials] "Secusio extensa (Lepidoptera: Arctiidae) was evaluated as a potential biological control agent for Madagascar fireweed, Senecio madagascariensis (Asteraceae), which has invaded over 400 000 acres of rangeland in the Hawaiian Islands and is toxic to cattle and horses. The moth was introduced from southeastern Madagascar into containment facilities in Hawaii, and host specificity tests were conducted on 71 endemic and naturalized species (52 genera) in 12 tribes of Asteraceae and 17 species of non-Asteraceae including six native shrubs and trees considered key components of Hawaiian ecosystems. No-choice feeding tests indicated that plant species of the tribe Senecioneae were suitable hosts with first instars completing development to adult stage on S. madagascariensis (78.3%), Delairea odorata (66.1%), Senecio vulgaris (57.1%), Crassocephalum crepidioides (41.2%), and at significantly lower rates on Emilia fosbergii (1.8%) and Erechtites hieracifolia (1.3%). A low rate of complete larval development also was observed on sunflower, Helianthus annuus (11.6%), in the tribe Heliantheae. However, sunflower was rejected as a potential host in larval-feeding and adult oviposition choice tests involving the primary host S. madagascariensis as control. Although larvae died as first instars on most test species, incomplete development and low levels of feeding were observed on nine species in the tribes Heliantheae, Cardueae and Lactuceae. Larvae did not feed on any non-Asteraceae tested, including species with similar pyrrolizidene alkaloid chemistry, crops, and six ecologically prominent native species. Because all species of Senecioneae are non-native and weedy in Hawaii, these results indicate that S. extensa is sufficiently host-specific for introduction for biological control. High levels of feeding damage observed on potted plants indicate that S. extensa can severely impact the target fireweed as well as D. odorata, a noxious weed in native Hawaiian forests."

Summary of Risk Traits:

High Risk / Undesirable Traits
• Elevation range exceeds 1000 m, demonstrating environmental versatility
• Able to grow in tropical climates
• Widely naturalized, including on Oahu, Molokai, Maui, and Hawaii
• A disturbance-adapted weed
• Other Senecio species are invasive
• Can be toxic to animals if consumed in large quantities
• Alternate host of Plum pox virus (PPV)
• Can form dense cover as an early successional plant
• Reproduces by seeds
• Hybridizes with Senecio viscosus
• Self-fertile
• Annual growth habit
• Seeds dispersed by wind, & accidentally due to human activities
• Pappus can stick to people, shoes, clothing, vehicles, or machinery, especially when wet
• Prolific seed production
• Seeds may persist in the soil

Low Risk Traits
• Unarmed (no spines, thorns or burrs)
• Palatable to sheep & goats, but toxic to others
• Shade intolerant
• Not reported to spread vegetatively
• Herbicides may provide effective control