

Family: *Asteraceae*

Taxon: *Roldana petasitis*

Synonym: *Cineraria petasitis* Sims (*basionym*)
Senecio petasitis (Sims) DC.

Common Name: velvet groundsel

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation: H(HPWRA)
Status:	Assessor Approved	Data Entry Person:	Chuck Chimera	WRA Score 12
101	Is the species highly domesticated?		y=-3, n=0	n
102	Has the species become naturalized where grown?		y=1, n=-1	
103	Does the species have weedy races?		y=1, n=-1	
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)		y=1, n=0	y
204	Native or naturalized in regions with tropical or subtropical climates		y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?		y=-2, ?=-1, n=0	y
301	Naturalized beyond native range		y = 1*multiplier (see Appendix 2), n= question 205	y
302	Garden/amenity/disturbance weed		n=0, y = 1*multiplier (see Appendix 2)	
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)	y
305	Congeneric weed		n=0, y = 1*multiplier (see Appendix 2)	
401	Produces spines, thorns or burrs		y=1, n=0	n
402	Allelopathic		y=1, n=0	
403	Parasitic		y=1, n=0	n
404	Unpalatable to grazing animals		y=1, n=-1	
405	Toxic to animals		y=1, n=0	y
406	Host for recognized pests and pathogens		y=1, n=0	
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
409	Is a shade tolerant plant at some stage of its life cycle		y=1, n=0	
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	
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	
604	Self-compatible or apomictic	y=1, n=-1	
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	n
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	n
708	Propagules survive passage through the gut	y=1, n=-1	
801	Prolific seed production (>1000/m ²)	y=1, n=-1	
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	
803	Well controlled by herbicides	y=-1, n=1	y
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: H(HPWRA)

WRA Score 12

Supporting Data:

101	2008. Funston, A.M.. Taxonomic Revision of <i>Roldana</i> (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Is the species highly domesticated? No evidence] "The species <i>R. petasitis</i> with its three varieties was placed in a complex unto itself due to its broad distribution and mixed pubescence of woolly hairs on the undersurface of the leaves and stipitate-glandular hairs on the peduncles and phyllaries."
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	2008. Funston, A.M.. Taxonomic Revision of <i>Roldana</i> (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Species suited to tropical or subtropical climate(s)? 2-high] "Distribution and phenology. Mexico, Guatemala, El Salvador, Honduras, and Nicaragua (El Salvador: Ahuachapan, Chalatenango, San Salvador, Santa Ana, San Vicente, Sonsonate; Guatemala: Alta Verapaz, Baja Verapaz, Chimaltenango, El Progreso, Guatemala, Huehuetenango, Jalapa, Jutiapa, Quezaltenango, San Marcos, Solola', Totonicapan, Zacapa; Honduras: Comayagua, Copan, El Paraiso, Intibuca', La Paz, Lempira, Morazan, Ocotepeque; Mexico: Chiapas, Hidalgo, Mexico, Oaxaca, Puebla, Tamaulipas, Veracruz; Nicaragua: Esteli', Madriz) at elevations of 1000–2500 m."
202	1986. Jeffrey, C.. The Senecioneae in East Tropical Africa: Notes on Compositae: IV. <i>Kew Bulletin</i> . 41(4): 873-943.	[Quality of climate match data? 2-high] "native of Central America."
203	2008. Funston, A.M.. Taxonomic Revision of <i>Roldana</i> (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Broad climate suitability? Yes] "...at elevations of 1000–2500 m." [elevation range >1000 m, demonstrates environmental versatility]
203	2011. Dave's Garden. PlantFiles: Velvet Groundsel, California Geranium - <i>Senecio petasitis</i> . http://davesgarden.com/guides/pf/go/63522/	[Broad climate suitability? Yes] "Hardiness: USDA Zone 9a: to -6.6 °C (20 °F) USDA Zone 9b: to -3.8 °C (25 °F) USDA Zone 10a: to -1.1 °C (30 °F) USDA Zone 10b: to 1.7 °C (35 °F) USDA Zone 11: above 4.5 °C (40 °F)"
203	2011. San Marcos Growers. Products - <i>Roldana petasitis</i> . http://www.smgrowers.com/products/plants/plantdisplay.asp?plant_id=2580	[Broad climate suitability? Yes] "Hardy to the mid 20's F but can freeze to the ground and resprout after even colder temperatures."
204	2008. Funston, A.M.. Taxonomic Revision of <i>Roldana</i> (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Distribution and phenology. Mexico, Guatemala, El Salvador, Honduras, and Nicaragua"
205	2008. Funston, A.M.. Taxonomic Revision of <i>Roldana</i> (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Does the species have a history of repeated introductions outside its natural range? Yes] " <i>Roldana petasitis</i> is a beautiful and common species. It has been widely collected and grown in cultivation."
301	2005. Sullivan, J.J./Timmins, S.M./Williams, P.A.. Movement of exotic plants into coastal native forests from gardens in northern New Zealand. <i>New Zealand Journal of Ecology</i> . 29(1): 1-10.	[Naturalized beyond native range? Yes] "Table 3. Environmental weed species present in one or more of the forest samples and/or settlements, as listed in the Regional Pest Management Strategy (Northland Regional Council, 1995) and/or the National Plant Pest Accord (2001). The site numbers follow Table 1. Common names follow Nicol (1997)." [includes <i>Senecio petasitis</i> present in numerous forested and settlement sites]
301	2008. Funston, A.M.. Taxonomic Revision of <i>Roldana</i> (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Naturalized beyond native range? Yes] "A single naturalized roadside population in Victoria, Australia, is reported in <i>Flora of Victoria</i> (ed. D. B. Forman & N. G. Walsh, 4: 968, f. 198d. 1999)."
301	2011. PlantNET. New South Wales Flora Online - <i>Roldana petasitis</i> (Sims) H. Rob. & Brettell. Royal Botanic Gardens & Domain Trust., Sydney http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Roldana~petasitis	[Naturalized beyond native range? Yes] "Distribution and occurrence: Cultivated as an ornamental, occasionally naturalized in coastal districts from the Hunter Valley to Macquarie Pass. Native of Mexico."

302	2002. Auckland Regional Council. Auckland Regional Pest Management Strategy 2002-2007. Auckland Regional Council, Auckland, NZ	[Garden/amenity/disturbance weed? A Garden escape that is becoming an environmental weed in New Zealand. See 3.04] "Pest plants banned from sale, propagation, distribution and display within the Auckland region." [Senecio petasitis (syn. Roldana petasitis) listed as a plant for Surveillance...banned from sale, propagation and distribution]
303	2007. Randall, R.P.. Global Compendium of Weeds - Roldana petasitis [Online Database]. http://www.hear.org/gcw/species/roldana_petasitis/	[Agricultural/forestry/horticultural weed? No] No evidence
304	2005. Sullivan, J.J./Timmins, S.M./Williams, P.A.. Movement of exotic plants into coastal native forests from gardens in northern New Zealand. New Zealand Journal of Ecology. 29(1): 1-10.	[Environmental weed? Yes] "Table 3. Environmental weed species present in one or more of the forest samples and/or settlements, as listed in the Regional Pest Management Strategy (Northland Regional Council, 1995) and/or the National Plant Pest Accord (2001). The site numbers follow Table 1. Common names follow Nicol (1997)." [includes Senecio petasitis present in numerous forested and settlement sites]
304	2007. Department of Environment and Climate Change (NSW). Lord Howe Island Biodiversity Management Plan. Department of Environment and Climate Change (NSW), Sydney, Australia	[Environmental weed? Yes] "Table 13. Invasive plants targeted for eradication on the LHIG" [List includes Roldana petasitis]
304	2008. Wildland Consultants. Ecological Assessment of the Kerikeri-Waipapa Structure Plan. Report No. 2018. Prepared for: Far North District Council. Wildland Consultants Ltd, Auckland, NZ	[Environmental weed? Yes] "Key Environmental Weed Species of the Kerikeri-Waipapa Structure Plan Area" [List of environmental weeds includes Senecio petasitis]
304	2010. Auckland Council. Biosecurity - Pest Plant - velvet groundsel. http://www.arc.govt.nz/albany/index.cfm?63E0F20E-14C2-3D2D-B905-50098EBBE4B9&plantcode=senpet	[Environmental weed? Yes] "Spreads in open forest. Dense foliage growth shades & crowds out native species."
304	2010. Waitakere City Council. Invasive or Environmental Weeds of Waitakere. http://www.waitakere.govt.nz/CnlSer/pw/plantweed/pdf/weedlist-env-inv.pdf	[Environmental weed? Yes] "Environmental Weeds of Waitakere: Plants on this list are environmentally damaging and present a risk in Waitakere. Some are widely distributed, some have not spread widely yet, some plants change and become weeds. So the list changes, as new weeds or old plants with new abilities become known. Regardless of their look or familiarity in the garden or landscape, all should be got rid of i.e. eradicated to stop them spreading further." [list includes Senecio petasitis]
305	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Congeneric weed? Possibly] Formerly Senecio petasitis. No other Roldana species currently listed as weeds, but several Senecio species are listed as weeds.
401	1986. Jeffrey, C.. The Senecioneae in East Tropical Africa: Notes on Compositae: IV. Kew Bulletin. 41(4): 873-943.	[Produces spines, thorns or burrs? No] "a shrubby herb about 2 m tall with broadly ovate or subrotundate weakly cordate or subtruncate shortly palmately 9-11-lobed leaves and large terminal compound corymbs of deep yellow, radiate capitula, native of Central America."
402	2011. WRA Specialist. Personal Communication.	[Allelopathic? Unknown]
403	2008. Funston, A.M.. Taxonomic Revision of Roldana (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. Annals of the Missouri Botanical Garden. 95(2): 282-337.	[Parasitic? No] "Suffruticose herbs or shrublets, 0.5–3 m tall"
404	2011. WRA Specialist. Personal Communication.	[Unpalatable to grazing animals? Unknown] Palatability unknown, but toxic properties may deter browsing.
405	2011. Fisher, C.. Poisonous Plants for Rabbits. Sacramento House Rabbit Society, Sacramento, CA www.alllearssac.org/pdf/poison.pdf	[Toxic to animals? Yes] "Poisonous Plants for Rabbits" [List includes fatal California geranium (Senecio petasitis) whole plant]

406	1982. Boesewinkel, H.J.. A list of 142 new plant disease recordings from New Zealand and short notes on three diseases. Australasian Plant Pathology. 11(4): 40-43.	[Host for recognized pests and pathogens? Possibly] "Aphelenchoides ritzemabosi has been previously reported from tomato fruit (1, 2) but on both occasions the plants themselves were not available for examination of the foliage. The present recording was made on outdoor grown tomato plants and nematodes were found at the calyx end of the fruit, in characteristic leaf lesions, in petioles, calyces and stems. The leaves and often one side of the petioles exhibited a marked yellowing and the calyx ends of fruits were brown over an area of 1-5 mm. Infestation often led to cracking of the fruit and was followed by the development of a foul smelling bacterial soft rot. Of 20 plants only two, at the end of a row, were infested. Therefore an inspection was made of nearby growing weeds and shrubs to find a possible source of the infestation. It appeared that the infestation could have originated from a severely infested shrub of Senecio petasitis which was growing at a distance of 1 m from the infested tomato plants. During transmission experiments it was possible to transmit A. ritzemabosi from tomato (After Baermann funnel extraction) to leaves of Chrysanthemum indicum L., L., Dahlia sp. cult. and Solanum nigrum L. where characteristic leaf lesions were produced."
407	2011. Dave's Garden. PlantFiles: Velvet Groundsel, California Geranium - Senecio petasitis. http://davesgarden.com/guides/pf/go/63522/	[Causes allergies or is otherwise toxic to humans? Yes] "Danger: All parts of plant are poisonous if ingested Handling plant may cause skin irritation or allergic reaction"
408	2008. Funston, A.M.. Taxonomic Revision of Roldana (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. Annals of the Missouri Botanical Garden. 95(2): 282-337.	[Creates a fire hazard in natural ecosystems? No] No evidence from native range
408	2009. Kubiak, P.J.. Fire responses of bushland plants after the January 1994 wildfires in northern Sydney. Cunninghamia. 11(1): 131-165.	[Creates a fire hazard in natural ecosystems? No] "Roldana petasitis...Fire Response...R = majority of adult plants resprouted after the fires" [May tolerate fire, but no evidence that it increases fire risk]
408	2010. New Zealand Plant Conservation Network. Flora Details - Roldana petasitis. http://nzpcn.org.nz/flora_details.asp?ID=2919	[Creates a fire hazard in natural ecosystems? No]
409	2011. Dave's Garden. PlantFiles: Velvet Groundsel, California Geranium - Senecio petasitis. http://davesgarden.com/guides/pf/go/63522/	[Is a shade tolerant plant at some stage of its life cycle? Possibly] "Sun Exposure: Full Sun; Sun to Partial Shade"
409	2011. San Marcos Growers. Products - Roldana petasitis. http://www.smgrowers.com/products/plants/plantdisplay.asp?plant_id=2580	[Is a shade tolerant plant at some stage of its life cycle? Possibly] "It prefers to be planted in full sun in wind sheltered coastal gardens as leaves are torn by wind and they will droop in high temperatures"
410	2011. San Marcos Growers. Products - Roldana petasitis. http://www.smgrowers.com/products/plants/plantdisplay.asp?plant_id=2580	[Tolerates a wide range of soil conditions? Yes] "This plant tolerates a wide range of soils and irrigation practices and although drought resistant, plants look best with occasional irrigation."
411	2008. Funston, A.M.. Taxonomic Revision of Roldana (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. Annals of the Missouri Botanical Garden. 95(2): 282-337.	[Climbing or smothering growth habit? No] "Suffruticose herbs or shrublets, 0.5–3 m tall..."
412	2010. Auckland Council. Biosecurity - Pest Plant - velvet groundsel. http://www.arc.govt.nz/albany/index.cfm?63E0F20E-14C2-3D2D-B905-50098EBBE4B9&plantcode=senpet	[Forms dense thickets? Possibly] "Spreads in open forest. Dense foliage growth shades & crowds out native species."
412	2011. WRA Specialist. Personal Communication.	[Forms dense thickets? Possibly] Most descriptions of impacts include mention of crowding out native vegetation, suggesting plant may be able to form monotypic stands.
501	2008. Funston, A.M.. Taxonomic Revision of Roldana (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. Annals of the Missouri Botanical Garden. 95(2): 282-337.	[Aquatic? No] "Suffruticose herbs or shrublets, 0.5–3 m tall..." [terrestrial]

502	2008. Funston, A.M.. Taxonomic Revision of Roldana (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Grass? No] Asteraceae
503	2008. Funston, A.M.. Taxonomic Revision of Roldana (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Nitrogen fixing woody plant? No] Asteraceae
504	2008. Funston, A.M.. Taxonomic Revision of Roldana (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Suffruticose herbs or shrublets, 0.5–3 m tall..."
601	2008. Funston, A.M.. Taxonomic Revision of Roldana (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Evidence of substantial reproductive failure in native habitat? No] No evidence
602	2008. Funston, A.M.. Taxonomic Revision of Roldana (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Produces viable seed? Yes] "Achenes glabrous, cylindrical, ca. 2 mm, ribs 10, resin glands absent; pappus bristles 6–8 mm"
603	2008. Funston, A.M.. Taxonomic Revision of Roldana (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Hybridizes naturally? Unknown] "Barkley (1990) believes...that they are normally outcrossers with generalized pollinators and that their cytological structure allows easy hybridization and introgression."
604	2008. Funston, A.M.. Taxonomic Revision of Roldana (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Self-compatible or apomictic? Unknown] "An important piece that is missing from the puzzle is the reproductive biology of the genus. Unfortunately, the breeding mechanisms of Roldana are a matter of complete speculation."
605	2008. Funston, A.M.. Taxonomic Revision of Roldana (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Requires specialist pollinators? Probably not] "Barkley (1990) believes that they function similarly to the aureoids of North America, in that they are normally outcrossers with generalized pollinators and that their cytological structure allows easy hybridization and introgression."
605	2011. Dave's Garden. PlantFiles: Velvet Groundsel, California Geranium - Senecio petasitis. http://davesgarden.com/guides/pf/go/63522/	[Requires specialist pollinators? Probably not] "Other details: This plant is attractive to bees, butterflies and/or birds"
606	2009. Weedbusters. Plant Me Instead! Bay of Plenty Region. www.bayofplenty.nz/info/media/43897/plantmeinstead.pdf	[Reproduction by vegetative fragmentation? Yes] "Cape and German ivy are scrambling perennials with wiry to woody stems, fleshy, leathery leaves with coarse serrations on each edge. Velvet groundsel has large, velvety leaves. All have dense clusters of yellow, ragwort-like flowers followed by fluffy wind-spread seeds, and stems that take root where they touch the ground and scramble over low-growing plants."
606	2010. Auckland Council. Biosecurity - Pest Plant - velvet groundsel. http://www.arc.govt.nz/albany/index.cfm?63E0F20E-14C2-3D2D-B905-50098EBBE4B9&plantcode=senpet	[Reproduction by vegetative fragmentation? Yes] "Forest margins, clearings, roadsides. Prefers semi shade...Prolific seeder, seeds dispersed by wind. Plants can also establish from stem fragments and layering"
607	2011. PlantNET. New South Wales Flora Online - Roldana petasitis (Sims) H.Rob. & Brettell. Royal Botanic Gardens & Domain Trust., Sydney http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Roldana~petasitis	"Description: Shrub or perennial herb mostly 1.5–2 m high, softly hairy." [probably reaches reproductive maturity in 2 years, possibly less]
701	2010. Auckland Council. Biosecurity - Pest Plant - velvet groundsel. http://www.arc.govt.nz/albany/index.cfm?63E0F20E-14C2-3D2D-B905-50098EBBE4B9&plantcode=senpet	[Propagules likely to be dispersed unintentionally? Yes] "Forest margins, clearings, roadsides. Prefers semi shade...Prolific seeder, seeds dispersed by wind. Plants can also establish from stem fragments and layering"

701	2011. Eurobodalla Shire Council. South Coast Weeds: Species Profile - Roldana (<i>Roldana petasitis</i>). http://www.esc.nsw.gov.au/weeds/Sheets/shrubs/S%20Roldana.htm	[Propagules likely to be dispersed unintentionally? Yes] "Usually seen only near houses where it probably becomes established due to dumping of seed-bearing garden waste. However, plants have been seen spreading into bush, probably from seed, around coastal villages in Eurobodalla. If it becomes dense enough it may displace native species."
702	2008. Funston, A.M.. Taxonomic Revision of <i>Roldana</i> (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Propagules dispersed intentionally by people? Yes] " <i>Roldana petasitis</i> is a beautiful and common species. It has been widely collected and grown in cultivation."
703	2011. Eurobodalla Shire Council. South Coast Weeds: Species Profile - Roldana (<i>Roldana petasitis</i>). http://www.esc.nsw.gov.au/weeds/Sheets/shrubs/S%20Roldana.htm	[Propagules likely to disperse as a produce contaminant? No] "Dispersal: Dumping of plants carrying seed, wind dispersal of fine seed." [No evidence that seeds have contaminated other plants, although it may be possible if cultivated in a nursery with other potted plants]
704	2008. Funston, A.M.. Taxonomic Revision of <i>Roldana</i> (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Propagules adapted to wind dispersal? Yes] "Achenes glabrous, cylindrical, ca. 2 mm, ribs 10, resin glands absent; pappus bristles 6–8 mm"
704	2011. Eurobodalla Shire Council. South Coast Weeds: Species Profile - Roldana (<i>Roldana petasitis</i>). http://www.esc.nsw.gov.au/weeds/Sheets/shrubs/S%20Roldana.htm	[Propagules adapted to wind dispersal? Yes] "Dispersal: Dumping of plants carrying seed, wind dispersal of fine seed."
704	2011. Top Tropicals. <i>Roldana petasitis</i> , <i>Senecio petasitis</i> . Top Tropicals Botanical Garden, http://toptropicals.com/catalog/uid/Roldana_petasis.htm	[Propagules adapted to wind dispersal? Yes] "Seeds are produced in profusion and are wind borne."
705	2008. Funston, A.M.. Taxonomic Revision of <i>Roldana</i> (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Propagules water dispersed? No] "Achenes glabrous, cylindrical, ca. 2 mm, ribs 10, resin glands absent; pappus bristles 6–8 mm" [No evidence, and does not typically occur near water courses]
705	2011. Eurobodalla Shire Council. South Coast Weeds: Species Profile - Roldana (<i>Roldana petasitis</i>). http://www.esc.nsw.gov.au/weeds/Sheets/shrubs/S%20Roldana.htm	[Propagules water dispersed? No] "Dispersal: Dumping of plants carrying seed, wind dispersal of fine seed."
706	2008. Funston, A.M.. Taxonomic Revision of <i>Roldana</i> (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Propagules bird dispersed? No] "Achenes glabrous, cylindrical, ca. 2 mm, ribs 10, resin glands absent; pappus bristles 6–8 mm" [not fleshy-fruited. Pappus bristles may be able to adhere to feathers, but no evidence was found to document this]
707	2011. Eurobodalla Shire Council. South Coast Weeds: Species Profile - Roldana (<i>Roldana petasitis</i>). http://www.esc.nsw.gov.au/weeds/Sheets/shrubs/S%20Roldana.htm	[Propagules dispersed by other animals (externally)? No] "Dispersal: Dumping of plants carrying seed, wind dispersal of fine seed." [No evidence, and no obvious means of obvious external attachment, although pappus bristles may possibly adhere to fur]
708	2008. Funston, A.M.. Taxonomic Revision of <i>Roldana</i> (Asteraceae: Senecioneae), a Genus of the Southwestern U.S.A., Mexico, and Central America. <i>Annals of the Missouri Botanical Garden</i> . 95(2): 282-337.	[Propagules survive passage through the gut? Unknown] "Achenes glabrous, cylindrical, ca. 2 mm, ribs 10, resin glands absent; pappus bristles 6–8 mm" [Seeds unlikely to be ingested]
801	2010. Auckland Council. Biosecurity - Pest Plant - velvet groundsel. http://www.arc.govt.nz/albany/index.cfm?63E0F20E-14C2-3D2D-B905-50098EBBE4B9&plantcode=senpet	[Prolific seed production (>1000/m2)? Unknown] "Prolific seeder, seeds dispersed by wind. Plants can also establish from stem fragments and layering"
801	2010. New Zealand Plant Conservation Network. Flora Details - <i>Roldana petasitis</i> . http://nzpcn.org.nz/flora_details.asp?ID=2919	[Prolific seed production (>1000/m2)? Unknown] "Seed: seeds produced in profusion (DOC, 1998)."
802	2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown]

803	2010. Auckland Council. Biosecurity - Pest Plant - velvet groundsel. http://www.arc.govt.nz/albany/index.cfm?63E0F20E-14C2-3D2D-B905-50098EBBE4B9&plantcode=senpet	[Well controlled by herbicides? Yes] "Grub out smaller plants & spray regrowth (10ml clopyralid/10L). Cut & stump paint larger plants with Vigilant gel. Spray (10ml clopyralid/10L). Do not use clopyralid in home gardens."
803	2011. Bay of Plenty Regional Council. Weed Index - Senecio petasitis. http://old.boprc.govt.nz/Environment/Weed215.aspx	[Well controlled by herbicides? Yes] "Chemical Control: Tordon 2G granules are very effective."
803	2011. Eurobodalla Shire Council. South Coast Weeds: Species Profile - Roldana (Roldana petasitis). http://www.esc.nsw.gov.au/weeds/Sheets/shrubs/S%20Roldana.htm	[Well controlled by herbicides? Yes] "Control: Seedlings and smaller adult plants may be hand pulled or dug out. Larger plants may need to be sprayed. If plants are carrying seed ensure this is not spread during control activities. Seed heads may need to be cut off and bagged for safe disposal before digging out the plant." [Effectiveness of herbicide treatments unknown]
804	2007. Dillon, H.. Helen Dillon's Garden Book. Frances Lincoln Ltd, London, UK	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Cuttings are easily rooted, and if the plant looks a mess at any stage, hack it back to ground level and it will rapidly renew itself."
804	2009. Kubiak, P.J.. Fire responses of bushland plants after the January 1994 wildfires in northern Sydney. <i>Cunninghamia</i> . 11(1): 131-165.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Roldana petasitis...Fire Response...R = majority of adult plants resprouted after the fires"
805	2011. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]