

Assessment date 11 January August 2016

<i>Euonymus fortunei var. radicans</i> North		Answer	Score
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?		
1.03	Does the species have weedy races?		
2.01	Species suited to Florida's USDA climate zones (0-low; 1-intermediate; 2-high) North Zone: suited to Zones 8, 9 Central Zone: suited to Zones 9, 10 South Zone: suited to Zone 10	2	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	2	
2.03	Broad climate suitability (environmental versatility)	y	1
2.04	Native or naturalized in habitats with periodic inundation North Zone: mean annual precipitation 50-70 inches Central Zone: mean annual precipitation 40-60 inches South Zone: mean annual precipitation 40-60 inches	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	unk	
3.02	Garden/amenity/disturbance weed	y	2
3.03	Weed of agriculture	unk	
3.04	Environmental weed	unk	
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	unk	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	n	-1
4.05	Toxic to animals	n	0
4.06	Host for recognised pests and pathogens	unk	0
4.07	Causes allergies or is otherwise toxic to humans	unk	0
4.08	Creates a fire hazard in natural ecosystems	n	0
4.09	Is a shade tolerant plant at some stage of its life cycle	unk	0
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	unk	0
4.11	Climbing or smothering growth habit	y	1
4.12	Forms dense thickets	unk	0
5.01	Aquatic	n	0
5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	n	0
5.04	Geophyte	y	1
6.01	Evidence of substantial reproductive failure in native habitat	n	0
6.02	Produces viable seed	y	1

6.03	Hybridizes naturally	unk	-1
6.04	Self-compatible or apomictic	unk	-1
6.05	Requires specialist pollinators	unk	0
6.06	Reproduction by vegetative propagation	y	1
6.07	Minimum generative time (years)	unk	-1
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	unk	-1
7.02	Propagules dispersed intentionally by people	y	1
7.03	Propagules likely to disperse as a produce contaminant	n	-1
7.04	Propagules adapted to wind dispersal	n	-1
7.05	Propagules water dispersed	unk	-1
7.06	Propagules bird dispersed	y	1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	y	1
8.01	Prolific seed production	unk	-1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	unk	-1
8.03	Well controlled by herbicides	unk	1
8.04	Tolerates, or benefits from, mutilation or cultivation	y	1
8.05		?	
Total Score		4	
Implemented Pacific Second Screening		Yes	
Risk Assessment Results		Evaluate	

section	# questions answered	satisfy minimum?
A		8 yes
B		6 yes
C		14 yes
total		28 yes

Assessment date 11 January August 2016

<i>Euonymus fortunei var. radicans</i> Central		Answer	Score
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?		
1.03	Does the species have weedy races?		
2.01	Species suited to Florida's USDA climate zones (0-low; 1-intermediate; 2-high) North Zone: suited to Zones 8, 9 Central Zone: suited to Zones 9, 10 South Zone: suited to Zone 10	2	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	1	
2.03	Broad climate suitability (environmental versatility)	y	1
2.04	Native or naturalized in habitats with periodic inundation North Zone: mean annual precipitation 50-70 inches Central Zone: mean annual precipitation 40-60 inches South Zone: mean annual precipitation 40-60 inches	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	unk	
3.02	Garden/amenity/disturbance weed	y	2
3.03	Weed of agriculture	unk	
3.04	Environmental weed	unk	
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	unk	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	n	-1
4.05	Toxic to animals	n	0
4.06	Host for recognised pests and pathogens	unk	0
4.07	Causes allergies or is otherwise toxic to humans	unk	0
4.08	Creates a fire hazard in natural ecosystems	n	0
4.09	Is a shade tolerant plant at some stage of its life cycle	unk	0
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	unk	0
4.11	Climbing or smothering growth habit	y	1
4.12	Forms dense thickets	unk	0
5.01	Aquatic	n	0
5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	n	0
5.04	Geophyte	y	1
6.01	Evidence of substantial reproductive failure in native habitat	n	0
6.02	Produces viable seed	y	1

6.03	Hybridizes naturally	unk	-1
6.04	Self-compatible or apomictic	unk	-1
6.05	Requires specialist pollinators	unk	0
6.06	Reproduction by vegetative propagation	y	1
6.07	Minimum generative time (years)	unk	-1
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	unk	-1
7.02	Propagules dispersed intentionally by people	y	1
7.03	Propagules likely to disperse as a produce contaminant	n	-1
7.04	Propagules adapted to wind dispersal	n	-1
7.05	Propagules water dispersed	unk	-1
7.06	Propagules bird dispersed	y	1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	y	1
8.01	Prolific seed production	unk	-1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	unk	-1
8.03	Well controlled by herbicides	unk	1
8.04	Tolerates, or benefits from, mutilation or cultivation	y	1
8.05		?	
Total Score		4	
Implemented Pacific Second Screening		Yes	
Risk Assessment Results		Evaluate	

section	# questions answered	satisfy minimum?
A		8 yes
B		6 yes
C		14 yes
total		28 yes

Assessment date 11 January August 2016

<i>Euonymus fortunei var. radicans</i> South		Answer	Score
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?		
1.03	Does the species have weedy races?		
2.01	Species suited to Florida's USDA climate zones (0-low; 1-intermediate; 2-high) North Zone: suited to Zones 8, 9 Central Zone: suited to Zones 9, 10 South Zone: suited to Zone 10	0	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	2	
2.03	Broad climate suitability (environmental versatility)	y	1
2.04	Native or naturalized in habitats with periodic inundation North Zone: mean annual precipitation 50-70 inches Central Zone: mean annual precipitation 40-60 inches South Zone: mean annual precipitation 40-60 inches	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	unk	
3.02	Garden/amenity/disturbance weed	y	2
3.03	Weed of agriculture	unk	
3.04	Environmental weed	unk	
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	unk	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	n	-1
4.05	Toxic to animals	n	0
4.06	Host for recognised pests and pathogens	unk	0
4.07	Causes allergies or is otherwise toxic to humans	unk	0
4.08	Creates a fire hazard in natural ecosystems	n	0
4.09	Is a shade tolerant plant at some stage of its life cycle	unk	0
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	unk	0
4.11	Climbing or smothering growth habit	y	1
4.12	Forms dense thickets	unk	0
5.01	Aquatic	n	0
5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	n	0
5.04	Geophyte	y	1
6.01	Evidence of substantial reproductive failure in native habitat	n	0
6.02	Produces viable seed	y	1

6.03	Hybridizes naturally	unk	-1
6.04	Self-compatible or apomictic	unk	-1
6.05	Requires specialist pollinators	unk	0
6.06	Reproduction by vegetative propagation	y	1
6.07	Minimum generative time (years)	unk	-1
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	unk	-1
7.02	Propagules dispersed intentionally by people	y	1
7.03	Propagules likely to disperse as a produce contaminant	n	-1
7.04	Propagules adapted to wind dispersal	n	-1
7.05	Propagules water dispersed	unk	-1
7.06	Propagules bird dispersed	y	1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	y	1
8.01	Prolific seed production	unk	-1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	unk	-1
8.03	Well controlled by herbicides	unk	1
8.04	Tolerates, or benefits from, mutilation or cultivation	y	1
8.05		?	
Total Score		2	
Implemented Pacific Second Screening		Yes	
Risk Assessment Results		Evaluate	

section	# questions answered	satisfy minimum?
A		8 yes
B		6 yes
C		14 yes
total		28 yes

	Reference	Source data
1.01		Cultivated but no evidence of selection for reduced weediness
1.02		Skip to question 2.01
1.03		Skip to question 2.01
2.01	1. PERAL NAPPFAST Global Plant Hardiness. http://www.nappfast.org/Plant_hardiness/2012/PHZ%20update201230%20yr%20%20300dpi.tif (Accessed: 30 October 2015) 2. USDA Germplasm Resources Information Network. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?16263 (Accessed: 15 November 2015) 3. The Morton Arboretum. http://redwood.mortonarb.org/ScinameLookup?qid=12&id=1252 (Accessed: 18 November 2015)	No computer analysis was performed. 1. Florida North Zone: Hardiness zones 8 and 9. Central Zone: Hardiness zones 9 and 10. South Zone: Hardiness zone 10. 2. Native to China, Japan, and South Korea. 3. "USDA Hardiness Zone: 4-9"
2.02		Native range is well known.
2.03	1. The University of Melbourne. Köppen-Geiger Climate Map of the World. http://people.eng.unimelb.edu.au/mpeel/koppen.html (Accessed: 30 October 2015) 2. USDA Germplasm Resources Information Network. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?16263 (Accessed: 15 November 2015)	1. Native to Köppen-Geiger Climate Zones BWk, BSh, Cwa, Cwb, Cfa, Dwa, Dwb, Dwc, Dfa, and Dfb 2. Native to China, Japan, and South Korea.
2.04	1. Climate Charts. World Climate Maps. http://www.climate-charts.com/World-Climate-Maps.html#rain (Accessed: 30 October 2015) 2. USDA Germplasm Resources Information Network. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?16263 (Accessed: 15 November 2015)	1. Native to areas with rainfall in this range. 2. Native to China, Japan, and South Korea.
2.05	1. USDA Germplasm Resources Information Network. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?16263 (Accessed: 15 November 2015) 2. Global Biodiversity Information Facility. http://www.gbif.org/species/4271295 (Accessed: 15 November 2015) 3. Go Botany. https://gobotany.newenglandwild.org/species/euonymus/fortunei/ (Accessed: 18 November 2015)	1. Native to China, Japan, and South Korea. 2. See distribution range and map 3. Present in Connecticut, Maine, Massachusetts, Rhode Island, and Vermont
3.01		No evidence
3.02	1. NC State University. https://plants.ces.ncsu.edu/plants/all/euonymus-fortunei-var-radicans/ (Accessed: 15 November 2015)	1. "weedy in disturbed areas around houses and buildings"
3.03		No evidence
3.04		No evidence
3.05	1. Global Compendium of Weeds. http://www.hear.org/gcw/scientificnames/scinamee.htm (Accessed: 18 November 2015)	1. <i>Euonymus alatus</i> and <i>Euonymus japonicus</i> are classified as noxious weeds
4.01	1. NC State University. https://plants.ces.ncsu.edu/plants/all/euonymus-fortunei-var-radicans/ (Accessed: 15 November 2015) 2. Learn2grow. http://www.learn2grow.com/plants/euonymus-fortunei-var-radicans-argenteo-variegata/ (Accessed: 15 November 2015) 3. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1,2,&3. These features are not listed in the description of the plant
4.02		No evidence
4.03		No evidence
4.04	1. NC State University. https://plants.ces.ncsu.edu/plants/all/euonymus-fortunei-var-radicans/ (Accessed: 15 November 2015) 2. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. " This plant is frequently damaged by deer." 2. "Intense seasonal browsing with domestic goats and/or sheep is being investigated as a potential control for wintercreeper in Kentucky. This approach shows some promise because wintercreeper is reportedly a frequent favorite for most livestock under the right conditions, and it is much browsed by white-tailed deer in the winter"

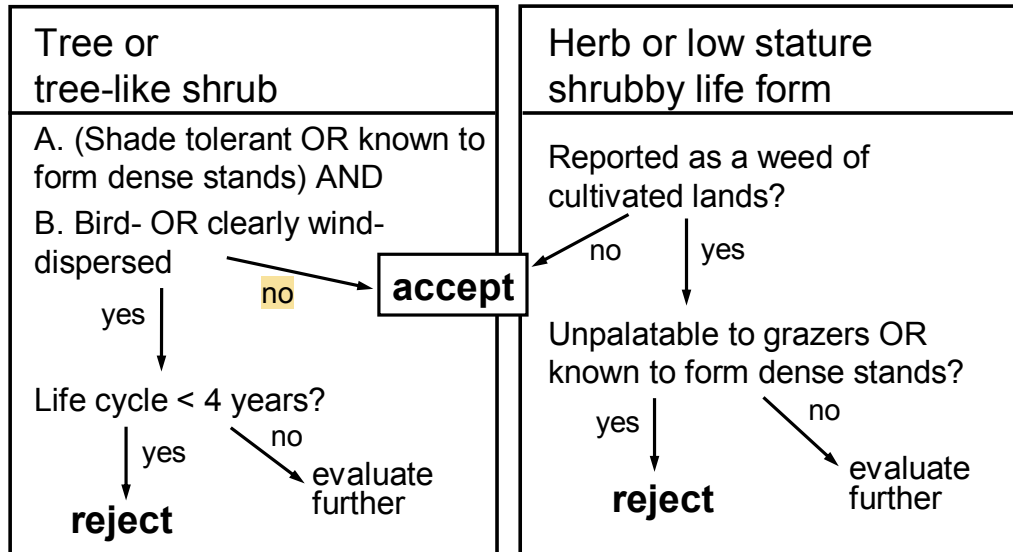
4.05	1. NC State University. https://plants.ces.ncsu.edu/plants/all/euonymus-fortunei-var-radicans/ (Accessed: 15 November 2015) 2. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. "This plant is frequently damaged by deer." 2. "Intense seasonal browsing with domestic goats and/or sheep is being investigated as a potential control for wintercreeper in Kentucky. This approach shows some promise because wintercreeper is reportedly a frequent favorite for most livestock under the right conditions, and it is much browsed by white-tailed deer in the winter"
4.06	1. NC State University. https://plants.ces.ncsu.edu/plants/all/euonymus-fortunei-var-radicans/ (Accessed: 18 November 2015)	1. "can get euonymus scale" -- unknown whether this varietal is a significant primary or alternate host
4.07	1. NC State University. https://plants.ces.ncsu.edu/plants/all/euonymus-fortunei-var-radicans/ (Accessed: 15 November 2015)	1. "Poison Part: All parts; Poison Delivery Mode: Ingestion; Symptoms: Vomiting, diarrhea, weakness, chills, coma, and convulsions; Toxic Principle: unidentified, possibly a glycoside; Severity: Toxic only if large quantities eaten" --- unlikely for this too occur under normal circumstances
4.08	1. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. "Wintercreeper leaves have a thick cuticle, so it is difficult to get the moisture content low enough to burn. Using a 500,000 BTU propane torch it took approximately 35 to 40 minutes to burn 100 square feet of wintercreeper at 100% cover. Wintercreeper can carry fire in areas where bur oak (<i>Quercus macrocarpa</i>) leaves have accumulated on top of the wintercreeper. Patches of wintercreeper where leaves have been scorched with a propane torch and allowed to desiccate in warm, dry weather for 3 days may also carry fire (personal communication [38])."
4.09	1. NC State University. https://plants.ces.ncsu.edu/plants/all/euonymus-fortunei-var-radicans/ (Accessed: 15 November 2015) 2. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. "Sun to partial shade" 2. "Several reviews suggest that wintercreeper tolerates heavy shade [1,12,17,30,52], and a few of these also suggest that it also tolerates full sun [12,17,30,52]; empirical evidence of wintercreeper's shade tolerance is limited and somewhat contradictory. Shade tolerance may vary among cultivars."
4.10	1. NC State University. https://plants.ces.ncsu.edu/plants/all/euonymus-fortunei-var-radicans/ (Accessed: 15 November 2015) 2. Learn2grow. http://www.learn2grow.com/plants/euonymus-fortunei-var-radicans/ (Accessed: 18 November 2015)	1. "range of soil types" 2. "This shade-loving ornamental does well in most conditions except for damp soils." --- insufficient evidence
4.11	1. NC State University. https://plants.ces.ncsu.edu/plants/all/euonymus-fortunei-var-radicans/ (Accessed: 15 November 2015) 2. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. "Climbing Method: aerial roots" 2. "trailing or climbing", "Aerial rootlets aid wintercreeper plants in climbing vertical surfaces"
4.12		No evidence
5.01	1. Go Botany. https://gobotany.newenglandwild.org/species/euonymus/fortunei/ (Accessed: 18 November 2015)	1. "Habitat: Terrestrial"
5.02	1. USDA Plants Database. http://plants.usda.gov/core/profile?symbol=EUFOR2 (Accessed: 15 November 2015)	1. "Growth Habit: Shrub/Vine"
5.03	1. Go Botany. https://gobotany.newenglandwild.org/species/euonymus/fortunei/ (Accessed: 18 November 2015)	1. "Growth form: the plant is a liana (a woody plant with a vine-like growth form), the plant is a shrub (a woody plant with several stems growing from the base)" --- unknown if the plant fixes nitrogen
5.04	1. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. "Raunkiaer life form: Geophyte"
6.01		No evidence
6.02	1. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. "Wintercreeper seeds are equipped with arils that are readily eaten by birds and other wildlife, which then disperse the seed"; "Wintercreeper regenerates sexually by producing fruits that are readily dispersed by birds"

6.03		No evidence
6.04	1. Learn2grow. http://www.learn2grow.com/plants/euonymus-fortunei-var-radicans-argenteo-variegata/ (Accessed: 15 November 2015) 2. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. "Self Sowing: No" 2. "Pollination and breeding system: Wintercreeper flowers are perfect [17,22,46]. No additional information is available on this topic."
6.05	1. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. "Pollination and breeding system: Wintercreeper flowers are perfect [17,22,46]. No additional information is available on this topic."
6.06	1. NC State University. https://plants.ces.ncsu.edu/plants/all/euonymus-fortunei-var-radicans/ (Accessed: 15 November 2015) 2. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. "Roots as it spreads" 2. "Wintercreeper spreads vegetatively by producing lateral shoots along the main branches and establishing new, independent plants that emerge from rootlets occurring along procumbent stems at short intervals"
6.07		No evidence
7.01		No evidence
7.02	1. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015) 2. eBay. http://www.ebay.com/itm/Wintercreeper-Euonymus-54-Ground-Cover-Plants-in-2-1-2-inch-Pots-FREE-SHIPPING-/252160005263?_trksid=p2141725.m3641.l6368 (Accessed: 18 November 2015)	1. "Wintercreeper is native to China ([76], reviews by [1,62,73]) and was introduced to North America as an ornamental ground cover in 1907" 2. Can be purchased online.
7.03		No evidence
7.04	1. Go Botany. https://gobotany.newenglandwild.org/species/euonymus/fortunei/ (Accessed: 18 November 2015)	1. See photo. No adaptation for wind dispersal.
7.05	1. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. "Wintercreeper may also be dispersed by water. A review by Remaley [52] states that it "escapes from neglected gardens and is carried by water to undisturbed forest and riparian areas". "--- insufficient evidence
7.06	1. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. "Wintercreeper seeds are equipped with arils that are readily eaten by birds and other wildlife, which then disperse the seed", "Muhlenbach [48] recorded the occurrence of a few specimens of wintercreeper (E. f. var. radicans) on one site along the railroad in St Louis, Missouri, in 1969. He notes that although this species was often cultivated as a ground cover in St Louis, there were no gardens in the vicinity [48], suggesting long-distance dispersal.", "On an old farm site in Kentucky with large scattered trees, the understory is covered by dense growth of the nonnative invasive species multiflora rose (Rosa multiflora), winged burning bush (Euonymus alatus), wintercreeper, and Oriental bittersweet (Celastrus orbiculatus). All of these species have bird-dispersed seed, suggesting that birds using the large old trees as perches "planted" seeds of the invasives (personal communication [63])."
7.07	1. Go Botany. https://gobotany.newenglandwild.org/species/euonymus/fortunei/ (Accessed: 18 November 2015)	1. See photo. No clear mechanism of attachment.
7.08	1. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. "Wintercreeper seeds are equipped with arils that are readily eaten by birds and other wildlife, which then disperse the seed", "Muhlenbach [48] recorded the occurrence of a few specimens of wintercreeper (E. f. var. radicans) on one site along the railroad in St Louis, Missouri, in 1969. He notes that although this species was often cultivated as a ground cover in St Louis, there were no gardens in the vicinity [48], suggesting long-distance dispersal."
8.01		No evidence
8.02	1. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)	1. "Seed banking: No information is available regarding occurrence or longevity of wintercreeper seed in the seed bank."

8.03	<p>1. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)</p>	<p>1. "Once established, control of wintercreeper requires complete removal of plants and roots, because it can spread vegetatively"; "On wintercreeper populations that are too large to control by hand-pulling or digging, foliar or cut-stem applications of herbicides may be effective (reviews by [1,12,30,52,54]). Cut stem application of herbicides is effective in areas where lianas are well established on or around nontarget plants or where they have grown into tree canopies or other vertical surfaces. Subsequent foliar application of herbicides will likely be required for adequate control [1,52]. Foliar applications of herbicide may be used to control large populations of wintercreeper. It may be necessary to precede foliar sprays with cut stem treatments to reduce the risk of damage to nontarget plants [1,52]. Whichever method is used, multiple herbicide treatments are needed to control wintercreeper (personal communications [38,63]) because it sprouts following top-kill." --- insufficient evidence</p>
8.04	<p>1. USDA Forest Service. http://www.fs.fed.us/database/feis/plants/vine/euofor/all.html (Accessed: 16 November 2015)</p>	<p>1. "wintercreeper is only top-killed and sprouts from roots after burning"; "plants damaged by rabbits saw a considerable regrowth of stems and leaves from March through May"; "Once established, control of wintercreeper requires complete removal of plants and roots, because it can spread vegetatively"</p>
8.05		<p>1. "As of this writing (2009), no effective biological controls were known for wintercreeper."</p>

Pacific second screening: decision rules for species with WRA scores between 1 and 6

(from Daehler *et al.* 2004)



Vines must pass both tests

Insufficient evidence to answer questions on both sides of SS=conclusion of Evaluate