

Part IV. Plant Assessment Form

For use with “Criteria for Categorizing Invasive Non-Native Plants that Threaten Wildlands”
by the California Exotic Pest Plant Council and the Southwest Vegetation Management Association

Electronic version, February 28, 2003

Table 1. Species and Evaluator Information

Species name (Latin binomial):	Vinca major L.
Synonyms:	Vinca pubescens, Vinca major var. variegata
Common names:	periwinkle, bigleaf periwinkle, greater periwinkle, blue periwinkle, myrtle
Evaluation date (mm/dd/yy):	8/17/04
Evaluator #1 Name/Title:	Mark Newhouser/Project Coordinator, Arundo Eradication and Coordination Project
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Evaluator #2 Name/Title:	Peter J. Warner; ecologist
Affiliation:	California State Parks
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Section below for list committee use—please leave blank

List committee members:	Carla Bossard, Joe DiTomaso, Cynthia Roye, Jake Sigg, Peter Warner, Matt Brooks
Committee review date:	5/16/05
List date:	enter text here
Re-evaluation date(s):	enter text here

General comments on this assessment:

enter text here

Table 2. Criteria, Section, and Overall Scores

1.1	Impact on abiotic ecosystem processes	B	Other Published
1.2	Impact on plant community	A	Rev'd, Sci. Pub'n
1.3	Impact on higher trophic levels	B	Observational
1.4	Impact on genetic integrity	D	Rev'd Sci. Pub'n

<p>Impact</p> <p><i>Enter four characters from Q1.1-1.4 below:</i></p> <p>BABD</p> <p><i>Using matrix, determine score and enter below:</i></p> <p>B</p>

2.1	Role of anthropogenic and natural disturbance	B	Other Published
2.2	Local rate of spread with no management	A	Observational
2.3	Recent trend in total area infested within state	B	No Information
2.4	Innate reproductive potential Wksht A	B (2pts)	Rev'd, Sci. Pub'n
2.5	Potential for human-caused dispersal	∩ (3 pt)	Rev'd, Sci. Pub'n
2.6	Potential for natural long-distance dispersal	∪ (0 pt)	No Information
2.7	Other regions invaded	∩ (1 pt)	Rev'd Sci Pub'n

<p>Invasiveness</p> <p><i>Enter the sum total of all points for Q2.1-2.7 below:</i></p> <p>13</p> <p><i>Use matrix to determine score and enter below:</i></p> <p>B</p>
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<p>Plant Score</p> <p><i>Using matrix, determine Overall Score and Alert Status from the three section scores and enter below:</i></p> <p>Medium</p> <p>No alert</p>

3.1	Ecological amplitude/Range	A	Observational
3.2	Distribution/Peak frequency Wksht C	D	Observational

<p>Distribution</p> <p><i>Using matrix, determine score and enter below:</i></p> <p>B</p>

Table 3. Documentation

<p>Question 1.1 Impact on abiotic ecosystem processes</p>	<p>B Other Published back</p>
<p>Identify ecosystem processes impacted: Alters natural erosional processes along drainages, thus altering hydrology (1).</p>	
<p>Rationale: enter text here</p>	
<p>Sources of information: (1) Drewitz, J. 2000. Vinca major. Bossard, C.C., J.M. Randall, and M.C. Hoshovsky, (eds). In, Invasive plants of California's wildlands. Pp. 326-329. Berkeley, California: University of California Press.</p>	
<p>Question 1.2 Impact on plant community composition, structure, and interactions</p>	<p>A Rev'd, Sci. Pub'n back</p>
<p>Identify type of impact or alteration: Once established vinca forms a dense carpet where it excludes native herbs and outcompetes native vegetation, (1,2,3,4). Areas infested with vinca can have root masses that extend several feet into the ground. In Contra Costa County, Trillium ovatum would disappear from the area one to two years after vinca invaded (5). Comparative studies on vinca found that all native and non-native plants except walnut and box elder occurred in lower densities within plots invaded with vinca compared to uninvaded plots (6).</p>	
<p>Rationale: Vinca grows quickly in moist soil and spreads rapidly.</p>	
<p>Sources of information: 1. Anonymous. Unwanted Escaped Invasive Weed, Periwinkle Vinca major. Habitat Restoration Group Flier. Date unknown.</p> <p>2. Bean, C., Russo M.J. TNC Element Stewardship Abstract. http://tncweeds.ucdavis.edu/esadocs/documnts/vincmaj.rtf 1986.</p> <p>3. DiTomaso J., Healy E. Weeds of California and Other Western States. As yet unpublished.</p> <p>4. Personal observations: Peter Warner, California State Parks and Carla Bossard. St. Mary's College.</p> <p>5. E-mail from Charli Danielson, California Native Plant Society, 2/15/05, in Cal-IPC file.</p> <p>6. E-mail from Karen Gaffney, Circuit Rider Productions, Sonoma County, 2/15/05, in Cal-IPC file</p>	
<p>Question 1.3 Impact on higher trophic levels</p>	<p>B No Information back</p>
<p>Identify type of impact or alteration: Outcompetes native vegetation which could reduce habitat for native wildlife (? Source?). The milky latex sap from members of the Apocynaceae has been implicated in dermatitis in humans, and is likely toxic to wildlife (1) but generally avoided (I haven't ever seen any patches of Vinca that have been browsed). This plant is also a likely intermediate host for the organism that causes Pierce's Disease in domestic grapevines, although that is not necessarily pertinent to this question.</p> <p>Vinca can maintain populations of Xylella, the organism that causes Pierce's Disease, at high concentration year-round, making the plant a good reservoir for this pathogen. (2).</p>	
<p>Rationale: I'm just venturing a guess that Vinca is toxic to wildlife.</p>	
<p>Sources of information: 1. Warner, PJ. 1996-2005. Personal observations from Marin, Sonoma, and Mendocino</p>	

Counties. 707-937-2278/corylus@earthlink.net	
E-mail from Kendra Baumgartner, grapevine pathologist, USDA Agricultural Research Service, UC Davis. 3/7/05. In Cal-IPC files.	
Question 1.4 Impact on genetic integrity	D Rev'd Sci Pub'n back
Identify impacts: Unlikely impacts on native taxa.	
Rationale: no closely related (congeneric) taxa in California	
Sources of information: Hickman, JC. 1993. The Jepson Manual: Higher Plants of California.	
Question 2.1 Role of anthropogenic and natural disturbance in establishment	B Other Published back
Describe role of disturbance: Clearing of understory vegetation and earthwork activities encourage establishment. Vinca has also been widely used as a ground cover and has escaped cultivation.	
Rationale: Vinca does not usually reproduce by seed and establishes through human planting and fragments that are carried downstream and establish in an area suitable for growth (1,2). Thrives in disturbed areas typical of riparian corridors. Does best in less-disturbed riparian areas such as quasi-stable floodplains that are occasionally flooded (3).	
Sources of information: 1. DiTomaso J., Healy E. Weeds of California and Other Western States. As yet unpublished.	
2. Meyers-Rice B., Randall J. "Weed Report: Vinca major, Bindweed, Wild Morning Glory." The Nature Conservancy Wildland Weeds Management and Research 1998-99 Weed Survey.	
3. E-mail from Karen Gaffney, Restoration Ecologist, Circuit Rider Productions, Sonoma County. 2/15/05	
Question 2.2 Local rate of spread with no management	A Observational
Describe rate of spread: In Huckleberry Regional Preserve, filled a drainage from plantings at the top of the ridge within ten years (1). Spreads very fast in Russian River corridor (2). Populations rapidly expand during wet periods (3).	
Rationale: enter text here	
Sources of information: 1. E-mail from Charli Danielsen, California Native Plant Society, 2/15/05	
2. E-mail from Karen Gaffney, Restoration Ecologist, Circuit Rider Productions, Sonoma County. 2/15/05	
3. Drewitz 2000	
Question 2.3 Recent trend in total area infested within state	B Observational back
Describe trend: Common in Russian River corridor and invading other river systems and coastal scrub on the North Coast (1). One source indicated that extent of vinca on a preserve was increasing but, more monitoring	

needed to be done to determine the rate of spread (2).	
Rationale: enter text here	
Sources of information: 1. E-mail from Karen Gaffney, Restoration Ecologist, Circuit Rider Productions, 2/15/05 2.Bean, C., Russo M.J. TNC Element Stewardship Abstract. http://tncweeds.ucdavis.edu/esadocs/documnts/vincmaj.rtf 1986	
Question 2.4 Innate reproductive potential	C Rev'd, Sci. Pub'n back
Describe key reproductive characteristics: Vinca spreads by arching stolons that root at the tip and by fragments that break off and are carried downstream and can root if they land in a suitable place.(1,2). Seedlings have been found in Contra Costa County (3) and on Santa Cruz Island (4).	
Rationale: Vinca is able to spread quickly from trailing stems that root at the tips. Viable seeds rarely develop on cultivated or naturalized plants.	
Sources of information: 1. Bean, C., Russo M.J. TNC Element Stewardship Abstract. http://tncweeds.ucdavis.edu/esadocs/documnts/vincmaj.rtf 1986. 2. DiTomaso J., Healy E. Weeds of California and Other Western States. As yet unpublished. 3. E-mail from Charli Danielsen, California Native Plant Society, 2/15/05. In Cal-IPC files. 4. E-mail from Ken Owen, Santa Cruz Island Native Plant Restoration Project, 3/25/05. In Cal-IPC files.	
Question 2.5 Potential for human-caused dispersal	A Rev'd, Sci. Pub'n back
Identify dispersal mechanisms: Vinca is planted as a ground cover. Plants and fragments can be dispersed by humans through careless dumping of yard waste.	
Rationale: Vinca is commonly used as an ornamental ground cover and in some areas was introduced as a medicinal herb.	
Sources of information: Bean, C., Russo M.J. TNC Element Stewardship Abstract. http://tncweeds.ucdavis.edu/esadocs/documnts/vincmaj.rtf 1986. DiTomaso J., Healy E. Weeds of California and Other Western States. As yet unpublished	
Question 2.6 Potential for natural long-distance dispersal	U No Information back
Identify dispersal mechanisms: Vinca is spread by planting and through fragments carried by flowing water.	
Rationale: Dispersal lengths are not discussed in the literature, but through planting and moving along waterways it may be possible for vinca to be dispersed over 1km.	

Sources of information: enter text here	
Question 2.7 Other regions invaded	C Rev'd, Sci. Pub'n back
Identify other regions: Vinca is found in Oregon, Washington, Idaho, Utah, Arizona, and in the southern and eastern US.	
Rationale: Vinca prefers moist and wooded habitats. Vinca may invade areas in different states with these habitat types.	
Sources of information: DiTomaso J., Healy E. Weeds of California and Other Western States. As yet unpublished	
Question 3.1 Ecological amplitude/Range	A Observational back
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Invades riparian areas and coastal scrub (1). Occurs up to 610 feet elevation in most coastal counties, Central Valley, and desert region (2)	
Rationale: enter text here	
Sources of information: 1. E-mail from Karen Gaffney, Circuit Rider Productions, 2/15/05 2. Drewitz 2000 Personal observations from weed list committee	
Question 3.2 Distribution/Peak frequency	U No Information back
Describe distribution: enter text here	
Rationale: enter text here	
Sources of information: enter text here	

Worksheet A

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Reaches reproductive maturity in 2 years or less	Unknown: 0 pts
Dense infestations produce >1,000 viable seed per square meter	No: 0 pts
Populations of this species produce seeds every year.	No: 0 pt
Seed production sustained over 3 or more months within a population annually	No: 0 pt
Seeds remain viable in soil for three or more years	No: 0 pts
Viable seed produced with <i>both</i> self-pollination and cross-pollination	No: 0 pt
Has quickly spreading vegetative structures (rhizomes, roots, etc.) that may root at nodes	Yes: 1 pt
Fragments easily and fragments can become established elsewhere	Yes: 2 pts
Resprouts readily when cut, grazed, or burned	<u>Yes</u>
	4pts 1 unknown
	B

Note any related traits: enter text here

Worksheet C - California Ecological Types

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(*sensu* Holland 1986)

Major Ecological Types	Minor Ecological Types	Code*
Marine Systems	marine systems	score
Freshwater and Estuarine Aquatic Systems	lakes, ponds, reservoirs	score
	rivers, streams, canals	score
	estuaries	score
Dunes	coastal	score
	desert	score
	interior	score
Scrub and Chaparral	coastal bluff scrub	score
	coastal scrub	D
	Sonoran desert scrub	score
	Mojavean desert scrub (incl. Joshua tree woodland)	score
	Great Basin scrub	score
	chenopod scrub	score
	montane dwarf scrub	score
	Upper Sonoran subshrub scrub	score
	chaparral	score
Grasslands, Vernal Pools, Meadows, and other Herb Communities	coastal prairie	score
	valley and foothill grassland	score
	Great Basin grassland	score
	vernal pool	score
	meadow and seep	score
	alkali playa	score
	pebble plain	score
Bog and Marsh	bog and fen	score
	marsh and swamp	D
Riparian and Bottomland	riparian forest	D
	riparian woodland	score
	riparian scrub (incl. desert washes)	D
Woodland	cismontane woodland	D
	piñon and juniper woodland	score
	Sonoran thorn woodland	score
Forest	broadleaved upland forest	score
	North Coast coniferous forest	D
	closed cone coniferous forest	score
	lower montane coniferous forest	score
	upper montane coniferous forest	score
	subalpine coniferous forest	score
Alpine Habitats	alpine boulder and rock field	score
	alpine dwarf scrub	score

* A. means >50% of type occurrences are invaded; B means >20% to 50%; C. means >5% to 20%; D. means present but ≤5%; U. means unknown (unable to estimate percentage of occurrences invaded).