

# 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

**Table 1. Species and Evaluator Information**

<b>Species name</b> (Latin binomial):	Rubus armeniacus Focke
<b>Synonyms:</b>	Rubus discolor Weihe & Nees., Rubus procerus Muller, Rubus grabowskii Weihe ex Gunther et al., Rubus praecox Bertol.
<b>Common names:</b>	Himalayan blackberry
<b>Evaluation date</b> (mm/dd/yy):	05/12/04
<b>Evaluator #1 Name/Title:</b>	Peter J. Warner
<b>Affiliation:</b>	California Department of Parks & Recreation, Mendocino District
<b>Phone numbers:</b>	707.937.9172 (w), 707.937.2278 (h)
<b>Email address:</b>	pwarner@mcn.org; pwarn@parks.ca.gov (w); corylus@earthlink.net (h)
<b>Address:</b>	P. O. Box 603, Little River, CA 95456
<b>Evaluator #2 Name/Title:</b>	enter text here
<b>Affiliation:</b>	enter text here
<b>Phone numbers:</b>	enter text here
<b>Email address:</b>	enter text here
<b>Address:</b>	enter text here

Section below for list committee use—please leave blank

<b>List committee members:</b>	Cynthia Roye, Peter Warner, Joe DiTomaso, John Randall, Alison Stanton, Jake Sigg
<b>Committee review date:</b>	8/27/2004
<b>List date:</b>	enter text here
<b>Re-evaluation date(s):</b>	enter text here

<p><b>General comments on this assessment:</b> enter text here</p>
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**Table 2. Criteria, Section, and Overall Scores**

<a href="#">1.1</a>	Impact on abiotic ecosystem processes	<b>B</b>	<b>Other Pub. Mat'l</b>
<a href="#">1.2</a>	Impact on plant community	<b>A</b>	<b>Other Pub. Mat'l</b>
<a href="#">1.3</a>	Impact on higher trophic levels	<b>A</b>	<b>Other Pub. Mat'l</b>
<a href="#">1.4</a>	Impact on genetic integrity	<b>C</b>	<b>Other Pub. Mat'l</b>

**Impact**

*Enter four characters from Q1.1-1.4 below:*

**BAAC**

*Using matrix, determine score and enter below:*

**A**

<a href="#">2.1</a>	Role of anthropogenic and natural disturbance	<b>B (2 pts)</b>	<b>Other Pub. Mat'l</b>
<a href="#">2.2</a>	Local rate of spread with no management	<b>A (3 pts)</b>	<b>Other Pub. Mat'l</b>
<a href="#">2.3</a>	Recent trend in total area infested within state	<b>B (2 pts)</b>	<b>Other Pub. Mat'l</b>
<a href="#">2.4</a>	Innate reproductive potential <a href="#">Wksht A</a>	<b>A (3 pts)</b>	<b>Other Pub. Mat'l</b>
<a href="#">2.5</a>	Potential for human-caused dispersal	<b>A (3 pts)</b>	<b>Other Pub. Mat'l</b>
<a href="#">2.6</a>	Potential for natural long-distance dispersal	<b>A (3 pts)</b>	<b>Other Pub. Mat'l</b>
<a href="#">2.7</a>	Other regions invaded	<b>C (1 pt)</b>	<b>Other Pub. Mat'l</b>

**Invasiveness**

*Enter the sum total of all points for Q2.1-2.7 below:*

**17**

*Use matrix to determine score and enter below:*

**A**

**Plant Score**

*Using matrix, determine Overall Score and Alert Status from the three section scores and enter below:*

**High  
No Alert**

<a href="#">3.1</a>	Ecological amplitude/Range	<b>A</b>	<b>Other Pub. Mat'l</b>
<a href="#">3.2</a>	Distribution/Peak frequency <a href="#">Wksht C</a>	<b>A</b>	<b>Other Pub. Mat'l</b>

**Distribution**

*Using matrix, determine score and enter below:*

**A**

**Table 3. Documentation**

<p><b>Question 1.1</b> Impact on abiotic ecosystem processes</p>	<p>B Other Pub. Mat'l <a href="#">back</a></p>
<p>Identify ecosystem processes impacted: Shading of subcanopy vegetation and ground layers, explosively flammable, reduces soil moisture.</p>	
<p>Rationale: Temporary or manageable, non-permanent impacts if plants are removed.</p>	
<p>Sources of information: 1. Hoshovsky, MC. 2000. Rubus discolor in Bossard, CC, JM Randall, and MC Hoshovsky. Invasive Plants of California's Wildlands. UC Press, Berkeley. pp. 277-281.                  2. US Department of the Interior, Bureau of Land Management @ <a href="http://www.cablm.gov/redding/redrudi.html">www.cablm.gov/redding/redrudi.html</a>.                  3. Personal observations, Cynthia Roye, 2004.                  4. Personal observations, Jake Sigg, 2004.</p>	
<p><b>Question 1.2</b> Impact on plant community composition, structure, and interactions</p>	<p>A Other Pub. Mat'l <a href="#">back</a></p>
<p>Identify type of impact or alteration: shades and outcompetes native species for light (1,2,3); may be limiting dispersal of native Rubus spp. by pre-emptive competition (4)</p>	
<p>Rationale: pre-empts virtually all other species from its subcanopy (1,2,3); inference (4)</p>	
<p>Sources of information: 1. Hoshovsky, MC. 2000. Rubus discolor in Bossard, CC, JM Randall, and MC Hoshovsky. Invasive Plants of California's Wildlands. UC Press, Berkeley. pp. 277-281.                  2. US Department of the Interior, Bureau of Land Management @ <a href="http://www.cablm.gov/redding/redrudi.html">www.cablm.gov/redding/redrudi.html</a>.                  3. Oahu Invasive Species Committee @ <a href="http://www.hear.org/oisc/oisc_target_species/rubus_ellipticus.htm">www.hear.org/oisc/oisc_target_species/rubus_ellipticus.htm</a>                  4. Warner, PJ. 2004. personal inference.</p>	
<p><b>Question 1.3</b> Impact on higher trophic levels</p>	<p>A Other Pub. Mat'l <a href="#">back</a></p>
<p>Identify type of impact or alteration: can create barriers to water access (1,2); spines can cause injury (1,2); wildlife value of forage, nesting, and shelter (3); displacement of native plant species likely to have undocumented impacts on alternative forage and shelter availability (4). Attracts rats, which can have a significant impact on bird populations.</p>	
<p>Rationale: overall negative cumulative impacts on higher trophic levels considered moderate, since forage and shelter values provide some benefits. However, undocumented negative arising from displacement of native plant species and resulting impacts on forage and shelter for wildlife and overall species and population viability could be considerable.</p>	
<p>Sources of information: 1. Hoshovsky, MC. 2000. Rubus discolor in Bossard, CC, JM Randall, and MC Hoshovsky. Invasive Plants of California's Wildlands. UC Press, Berkeley. pp. 277-281.                  2. US Department of the Interior, Bureau of Land Management @ <a href="http://www.cablm.gov/redding/redrudi.html">www.cablm.gov/redding/redrudi.html</a>.                  3. U.S. Department of Agriculture, Forest Service @ <a href="http://www.fs.fed.us/database/feis/plants/shrub/rubdis/all.html">www.fs.fed.us/database/feis/plants/shrub/rubdis/all.html</a></p>	

4. Warner, PJ. 2004. Personal inference.	
5. Underwood, Dessie. Research at Cosumnes Preserve on rat and bird populations.	
<b>Question 1.4</b> Impact on genetic integrity	C Other Pub. Mat'l <a href="#">back</a>
Identify impacts: Many native <i>Rubus</i> congeners in California; however, specific impacts are unknown.	
Rationale: Genus is well known for producing hybrids; habitat for <i>R. armeniacus</i> overlaps considerably with native taxa; probability for hybridization cited (1)	
Sources of information: Hickman, JC. 1993. The Jepson Manual: Higher Plants of California (2 <sup>nd</sup> printing). UC Press, Berkeley. p. 974.	
Observational John Randall, Peter Warner, Jake Sigg. 2004.	
<b>Question 2.1</b> Role of anthropogenic and natural disturbance in establishment	B Other Pub. Mat'l <a href="#">back</a>
Describe role of disturbance: establishes readily in areas disturbed naturally, especially by flooding (1), or by humans, including overgrazed riparian corridors, fallow agricultural areas (1,2,3)	
Rationale: Most aggressive in disturbed areas, but plants will grow in areas without substantial disturbance.	
Sources of information: 1. Hoshovsky, MC. 2000. <i>Rubus discolor</i> in Bossard, CC, JM Randall, and MC Hoshovsky. Invasive Plants of California's Wildlands. UC Press, Berkeley. pp. 277-281.	
2. U.S. Department of Agriculture, Forest Service @ <a href="http://www.fs.fed.us/database/feis/plants/shrub/rubdis/all.html">www.fs.fed.us/database/feis/plants/shrub/rubdis/all.html</a>	
3. Hoshovsky, MC. (date of publication unknown). Element stewardship abstract for <i>Rubus discolor</i> ( <i>Rubus procerus</i> ) Himalayan blackberry. The Nature Conservancy, Arlington VA @ <a href="http://www.tncweeds.ucdavis.edu/esadocs/documnts/rubudis.pdf">www.tncweeds.ucdavis.edu/esadocs/documnts/rubudis.pdf</a> .	
<b>Question 2.2</b> Local rate of spread with no management	A Other Pub. Mat'l <a href="#">back</a>
Describe rate of spread: Species capable of vegetative reproduction by cane growth and rooting at tips up to 3.3m/year (1); a relatively small stand can expand in area many times within a few years (2).	
Rationale: Vegetative reproduction by stem elongation and rooting provide mechanism for rapid growth in area of a clonal stand.	
Sources of information: 1. Hoshovsky, MC. (date of publication unknown). Element stewardship abstract for <i>Rubus discolor</i> ( <i>Rubus procerus</i> ) Himalayan blackberry. The Nature Conservancy, Arlington VA @ <a href="http://www.tncweeds.ucdavis.edu/esadocs/documnts/rubudis.pdf">www.tncweeds.ucdavis.edu/esadocs/documnts/rubudis.pdf</a> .	
2. Warner, PJ. 2004. Personal observations of <i>R. armeniacus</i> infestations in Marin, Sonoma, Mendocino Counties, 1994-2004.	
<b>Question 2.3</b> Recent trend in total area infested within state	B Other Pub. Mat'l <a href="#">back</a>
Describe trend: No reliable data, but frequent observations of nascent patches suggest that continued expansion	

of habitats infested is likely (1), although species is already widely distributed in CA (2)	
Rationale: Many habitats suitable for invasion are already infested, but locally, opportunities for additional patch establishment are abundant.	
Sources of information: 1. Warner, PJ. 2004. Personal observations of <i>R. armeniacus</i> infestations in Marin, Sonoma, Mendocino Counties, 1994-2004. 2. CalFlora @ <a href="http://www.calflora.org">www.calflora.org</a>	
<b>Question 2.4</b> Innate reproductive potential	A Other Pub. Mat'l <a href="#">back</a>
Describe key reproductive characteristics: Prolific sexual reproduction producing seed; tenacious vegetative reproduction through stem elongation and nodal rooting; various forms of asexual fruit production (parthenogenesis, pseudogamy, parthenocarpy) (1,2,3)	
Rationale: species has evolved a number of reproductive strategies	
Sources of information: 1. Hoshovsky, MC. 2000. <i>Rubus discolor</i> in Bossard, CC, JM Randall, and MC Hoshovsky. <i>Invasive Plants of California's Wildlands</i> . UC Press, Berkeley. pp. 277-281. 2. U.S. Department of Agriculture, Forest Service @ <a href="http://www.fs.fed.us/database/feis/plants/shrub/rubdis/all.html">www.fs.fed.us/database/feis/plants/shrub/rubdis/all.html</a> 3. Hoshovsky, MC. (date of publication unknown). Element stewardship abstract for <i>Rubus discolor</i> ( <i>Rubus procerus</i> ) Himalayan blackberry. The Nature Conservancy, Arlington VA @ <a href="http://www.tncweeds.ucdavis.edu/esadocs/documnts/rubudis.pdf">www.tncweeds.ucdavis.edu/esadocs/documnts/rubudis.pdf</a> .	
<b>Question 2.5</b> Potential for human-caused dispersal	A Other Pub. Mat'l <a href="#">back</a>
Identify dispersal mechanisms: ingestion of seeds (1); planting of canes (2) for fruit production, erosion control; land clearing and debris disposal (1)	
Rationale: humans enjoy blackberries; we plant them, we eat them, we disperse seeds and stems	
Sources of information: 1. Warner, PJ. 2004. Personal observations of <i>R. armeniacus</i> infestations in Marin, Sonoma, Mendocino Counties, 1994-2004. 2. U.S. Department of Agriculture, Forest Service @ <a href="http://www.fs.fed.us/database/feis/plants/shrub/rubdis/all.html">www.fs.fed.us/database/feis/plants/shrub/rubdis/all.html</a>	
<b>Question 2.6</b> Potential for natural long-distance dispersal	A Other Pub. Mat'l <a href="#">back</a>
Identify dispersal mechanisms: mammal, bird ingestion of fruits; gravity; water (1,2,3)	
Rationale: animal ingestion and riparian water flow provide numerous opportunities for long-distance dispersal	
Sources of information: 1. Hoshovsky, MC. 2000. <i>Rubus discolor</i> in Bossard, CC, JM Randall, and MC Hoshovsky. <i>Invasive Plants of California's Wildlands</i> . UC Press, Berkeley. pp. 277-281.	

<p>2. U.S. Department of Agriculture, Forest Service @ <a href="http://www.fs.fed.us/database/feis/plants/shrub/rubdis/all.html">www.fs.fed.us/database/feis/plants/shrub/rubdis/all.html</a></p> <p>3. Hoshovsky, MC. (date of publication unknown). Element stewardship abstract for Rubus discolor (Rubus procerus) Himalayan blackberry. The Nature Conservancy, Arlington VA @ <a href="http://www.tncweeds.ucdavis.edu/esadocs/documnts/rubudis.pdf">www.tncweeds.ucdavis.edu/esadocs/documnts/rubudis.pdf</a>.</p>	
<b>Question 2.7</b> Other regions invaded	C Other Pub. Mat'l <a href="#">back</a>
<p>Identify other regions: widespread in Pacific Northwest, British Columbia, North American northeast, Europe, especially in moist, disturbed habitats, such as riparian zones, marshes, estuaries, seeps, roadsides, wet swales in woodlands, forests; also noted as invasive in Hawai'i (1,2)</p>	
<p>Rationale: has been established in CA for over a century (1), and is well distributed in the state; probably has invaded most suitable habitats</p>	
<p>Sources of information: 1. Hoshovsky, MC. 2000. Rubus discolor in Bossard, CC, JM Randall, and MC Hoshovsky. Invasive Plants of California's Wildlands. UC Press, Berkeley. pp. 277-281.</p> <p>2. Oahu Invasive Species Committee @ <a href="http://www.hear.org/oisc/oisc_target_species/rubus_ellipticus.htm">www.hear.org/oisc/oisc_target_species/rubus_ellipticus.htm</a></p> <p>3. University of British Columbia @ <a href="http://www.geog.ub.ca/richmond/city/invasiveplants.htm">www.geog.ub.ca/richmond/city/invasiveplants.htm</a></p>	
<b>Question 3.1</b> Ecological amplitude/Range	A Other Pub. Mat'l <a href="#">back</a>
<p>Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Widespread in cismontane CA, particularly riparian zones, wetlands, moist areas in woodlands, forests, grasslands (2,3,4) 1885: Luther Burbank (1)</p>	
<p>Rationale: enter text here</p>	
<p>Sources of information: 1. Botanical Electronic News @ <a href="http://www.ou.edu/cas/botany-micro/ben/ben230.html">www.ou.edu/cas/botany-micro/ben/ben230.html</a></p> <p>2. Hoshovsky, MC. 2000. Rubus discolor in Bossard, CC, JM Randall, and MC Hoshovsky. Invasive Plants of California's Wildlands. UC Press, Berkeley. pp. 277-281.</p> <p>3. CalFlora @ <a href="http://www.calflora.org">www.calflora.org</a></p> <p>4. Warner, PJ. 2004. Personal observations of R. armeniacus infestations in Marin, Sonoma, Mendocino Counties, 1994-2004.</p>	
<b>Question 3.2</b> Distribution/Peak frequency	A Other Pub. Mat'l <a href="#">back</a>
<p>Describe distribution: widespread in mesic and hydric ecosystems in cismontane northern California (1,2,3)</p>	
<p>Rationale: enter text here</p>	
<p>Sources of information: 1. CalFlora @ <a href="http://www.calflora.org">www.calflora.org</a></p> <p>2. Warner, PJ. 2004. Personal observations of R. armeniacus infestations in Marin, Sonoma, Mendocino Counties, 1994-2004.</p>	

3. Hoshovsky, MC. 2000. *Rubus discolor* in Bossard, CC, JM Randall, and MC Hoshovsky. *Invasive Plants of California's Wildlands*. UC Press, Berkeley. pp. 277-281.

**Worksheet A**

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Reaches reproductive maturity in 2 years or less	<b>No: 0 pt</b>
Dense infestations produce >1,000 viable seed per square meter	<b>Yes: 2 pts</b>
Populations of this species produce seeds every year.	<b>Yes: 1 pt</b>
Seed production sustained over 3 or more months within a population annually	<b>Yes: 1 pt</b>
Seeds remain viable in soil for three or more years	<b>Yes: 2 pts</b>
Viable seed produced with <i>both</i> self-pollination and cross-pollination	<b>Yes: 1 pt</b>
Has quickly spreading vegetative structures (rhizomes, roots, etc.) that may root at nodes	<b>Yes: 1 pt</b>
Fragments easily and fragments can become established elsewhere	<b>No: 0 pts</b>
Resprouts readily when cut, grazed, or burned	<b>Yes: 1 pt</b>
	<b>9 pts      Total Unknowns</b>
	<b>A (6+ pts)</b>
<b>Note any related traits:</b> species reproduces by sexual reproduction, parthenogenesis, pseudogamy, and parthenocarpy	

## Worksheet C - California Ecological Types

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(*sensu* Holland 1986)

Major Ecological Types	Minor Ecological Types	Code*
<b>Marine Systems</b>	marine systems	score
<b>Freshwater and Estuarine Aquatic Systems</b>	lakes, ponds, reservoirs	score
	rivers, streams, canals	score
	estuaries	<b>B. 21-50%</b>
<b>Dunes</b>	coastal	score
	desert	score
	interior	score
<b>Scrub and Chaparral</b>	coastal bluff scrub	score
	coastal scrub	<b>B. 21-50%</b>
	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
<b>Grasslands, Vernal Pools, Meadows, and other Herb Communities</b>	coastal prairie	<b>B. 21-50%</b>
	valley and foothill grassland	score
	Great Basin grassland	score
	vernal pool	score
	meadow and seep	<b>C. 5-20%</b>
	alkali playa	score
	pebble plain	score
<b>Bog and Marsh</b>	bog and fen	<b>C. 5-20%</b>
	marsh and swamp	<b>B. 21-50%</b>
<b>Riparian and Bottomland</b>	riparian forest	<b>B. 21-50%</b>
	riparian woodland	<b>A. &gt;50%</b>
	riparian scrub (incl. desert washes)	<b>C. 5-20%</b>
<b>Woodland</b>	cismontane woodland	<b>C. 5-20%</b>
	piñon and juniper woodland	score
	Sonoran thorn woodland	score
<b>Forest</b>	broadleaved upland forest	<b>C. 5-20%</b>
	North Coast coniferous forest	<b>C. 5-20%</b>
	closed cone coniferous forest	<b>B. 21-50%</b>
	lower montane coniferous forest	<b>D. presen</b>
	upper montane coniferous forest	score
	subalpine coniferous forest	score
<b>Alpine Habitats</b>	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).