

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):	Cardaria pubescens (C. Meyer) Jarmol.
Synonyms:	
Common names:	hairy whitetop
Evaluation date (mm/dd/yy):	12/28/04
Evaluator #1 Name/Title:	Elizabeth Brusati, project manager
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Section below for list committee use—please leave blank

List committee members:	Joe DiTomaso, Joanna Clines, Cynthia Roye, Doug Johnson
Committee review date:	7/8/05
List date:	enter text here
Re-evaluation date(s):	enter text here

General comments on this assessment:

Least common of Cardarias, and least amount of information available.

Table 2. Criteria, Section, and Overall Scores

1.1	Impact on abiotic ecosystem processes	U	No Information
1.2	Impact on plant community	C	Rev'd, Sci. Pub'n
1.3	Impact on higher trophic levels	U	No Information
1.4	Impact on genetic integrity	D	Other Pub. Mat'l

Impact

Enter four characters from Q1.1-1.4 below:

UCUD

Using matrix, determine score and enter below:

C

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

Invasiveness

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

11

Use matrix to determine score and enter below:

B

Plant Score

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

Low
No Alert

3.1	Ecological amplitude/Range	C	Other Pub. Mat'l
3.2	Distribution/Peak frequency Wksht C	D	Observational

Distribution

Using matrix, determine score and enter below:

C

Table 3. Documentation

Question 1.1 Impact on abiotic ecosystem processes	U No Information back
Identify ecosystem processes impacted: Not as common as <i>Cardaria draba</i> . <i>Cardaria draba</i> disrupts the nitrogen cycle or reduce soil moisture availability but there was no information on this for <i>C. pubescens</i> in any of our literature.	
Rationale: enter text here	
Sources of information: enter text here	
Question 1.2 Impact on plant community composition, structure, and interactions	C Rev'd, Sci. Pub'n back
Identify type of impact or alteration: Can possibly displaces native species by forming dense monocultures. Typically, <i>C. pubescens</i> does not form extensive stands so its impact is likely to be much less than that of <i>C. draba</i> . Consequently, its impact is probably fairly small.	
Rationale: 1. Sheley R., and J. Stivers. 1999. "Whitetop." In: Biology and Management of Noxious Rangeland Weeds. Sheley R.L., Petroff J.K. [Ed.] Oregon State University Press: Corvallis. Pgs. 401-407. 2. Mulligan G.A., and J. N. Finley. 1974 The Biology of Canadian Weeds. 3. <i>Cardaria draba</i> , <i>C. chalepensis</i> , <i>C. pubescens</i> Can. J. Plant Sci. 54: 149-160.	
Sources of information: enter text here	
Question 1.3 Impact on higher trophic levels	U No Information back
Identify type of impact or alteration: May reduces biodiversity and wildlife habitat, but this is unknown. Bees use nectar (1).	
Rationale: Very little information available on this species.	
Sources of information: Sheley and Stivers 1999	
Question 1.4 Impact on genetic integrity	D Other Pub. Mat'l back
Identify impacts: none	
Rationale: No native <i>Cardaria</i> species	
Sources of information: Hickman, J. C. (ed.) 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA	
Question 2.1 Role of anthropogenic and natural disturbance in establishment	B Other Pub. Mat'l back
Describe role of disturbance: Primarily inhabits disturbed areas, such as irrigated pastures, rangelands, roadsides,	

and ditch banks, but can move into meadows and along streams. Needs open areas.	
Rationale: Scored as B because establishment seems to depend upon, or at least be greatly facilitated by, disturbance.	
Sources of information: Sheley and Stivers 1999	
Question 2.2 Local rate of spread with no management	B Other Pub. Mat'l back
Describe rate of spread: No specific information on infestations within California but probably does not spread as rapidly as <i>C. draba</i> . Can spread by 0.6 to 1.5 m radius each year.	
Rationale: enter text here	
Sources of information: DiTomaso J.M. and E. A. Healy. in prep Weeds of California and Other Western States. Sheley and Stivers 1999	
Question 2.3 Recent trend in total area infested within state	C Observational back
Describe trend: enter text here	
Rationale: enter text here	
Sources of information: DiTomaso, observational	
Question 2.4 Innate reproductive potential	B Rev'd, Sci. Pub'n back
Describe key reproductive characteristics: Perennial, with spreading root system that produces aerial shoots. Spread is primarily by persistent roots (1, 2). Plants are reported to produce about 30-560 (average 300) pods per plant. Self-incompatible. Root fragments can generate new plants (3).	
Rationale: enter text here	
Sources of information: 1. Mulligan and Findley 1974 2. Sheley and Stivers 1999 3. DiTomaso J.M., and E. A. Healy. In prep. Weeds of California and Other Western States.	
Question 2.5 Potential for human-caused dispersal	C Other Pub. Mat'l back
Identify dispersal mechanisms: Not much opportunity to spread my human means.	

Rationale: Found along roadsides and in pastures	
Sources of information: Sheley and Stivers 1999	
Question 2.6 Potential for natural long-distance dispersal	B Other Pub. Mat'l back
Identify dispersal mechanisms: Seeds spread by wind and in waterways.	
Rationale: Most spread is vegetative, but some seed is produced.	
Sources of information: Sheley and Stivers 1999	
Question 2.7 Other regions invaded	C Other Pub. Mat'l back
Identify other regions: Argentina, central and western Canada and United States (1). Listed as noxious weed in Arizona, Oregon, Utah, Washington, and Wyoming (2).	
Rationale:	
Sources of information: 1. Mulligan and Findley 1974 2. DiTomaso and Healy in prep	
Question 3.1 Ecological amplitude/Range	C Other Pub. Mat'l back
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Introduced sometime in 1800's or early 1900's, possibly in contaminated seeds. Inhabits disturbed open sites, fields, pastures, grain and vegetable crops, especially irrigated crops such as alfalfa and sugar beets, orchards, vineyards, roadsides, ditches. Often grows on moderately moist, alkaline to saline soils, but tolerates a wide range of soil types and moisture conditions. Scattered throughout California but uncommon in desert regions. More frequent in the Sacramento Valley, southwestern region, and Great Basin to 2000m (1). Grows in open, unshaded, usually disturbed areas (2).	
Rationale: Scored as A because so widespread, but I'm not sure how to fill out worksheet C	
Sources of information: 1. DiTomaso and Healy in prep 2. Sheley and Stivers 1999	
Question 3.2 Distribution/Peak frequency	D Observational back
Describe distribution: Typically only found in the northeastern part of the state near streams.	
Rationale: enter text here	

Sources of information: DiTomaso, observational.

Worksheet A[back](#)

Reaches reproductive maturity in 2 years or less	Yes: 1 pt
Dense infestations produce >1,000 viable seed per square meter	No: 0 pts
Populations of this species produce seeds every year.	Yes: 1 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	Unknown: 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	No: 0 pts
Resprouts readily when cut, grazed, or burned	Yes: 1 pt
	4 pts 1 unknown
	B (4-5 pts)
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	score
	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	D. presen
	Great Basin grassland	D. presen
	vernal pool	score
	meadow and seep	D. presen
	alkali playa	score
	pebble plain	score
Bog and Marsh	bog and fen	score
	marsh and swamp	score
Riparian and Bottomland	riparian forest	score
	riparian woodland	score
	riparian scrub (incl. desert washes)	score
Woodland	cismontane woodland	score
	piñon and juniper woodland	score
	Sonoran thorn woodland	score
Forest	broadleaved upland forest	score
	North Coast coniferous forest	score
	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).