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)**:**	Bellardia trixago (L.) All.
Synonyms:	Bartsia trixago L., Rhinanthus trixago L.
Common names:	bellardia, mediterranean lineseed
Evaluation date (mm/dd/yy)**:**	6/30/05
Evaluator #1 Name/Title:	Joseph M. DiTomaso
Affiliation:	University of California, Davis
Phone numbers:	530-754-8715
Email address:	jmditomaso@ucdavis.edu
Address:	Dept. Plant Sci., Mail Stop 4, Davis, CA 95616
Evaluator #2 Name/Title:	enter text here
Affiliation:	enter text here
Phone numbers:	enter text here
Email address:	enter text here
Address:	enter text here

Section below for list committee use—please leave blank

List committee members:	Carla Bossard, John Randall, Carri Pirosko, Dan Gluesenkamp, Gina Skurka, Brianna Richardson
Committee review date:	7/8/05
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	U	No Information
1.2	Impact on plant community	C	Other Pub. Mat'l
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	C (1 pt)	Observational
2.3	Recent trend in total area infested within state	C (1 pt)	Observational
2.4	Innate reproductive potential Wksht A	A (3 pts)	Other Pub. Mat'l
2.5	Potential for human-caused dispersal	D (0 pts)	Observational
2.6	Potential for natural long-distance dispersal	D (0 pts)	Observational
2.7	Other regions invaded	U (0 pts)	No Information

Invasiveness

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

7

Use matrix to determine score and enter below:

C

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: No information, but does not form large colonies or infestations.
Rationale:
Sources of information:
Question 1.2 Impact on plant community composition, structure, and interactions C Other Pub. Mat'l back
Identify type of impact or alteration: Bellardia is a hemiparasite and is partially dependent on host plants for obtaining nutrients. In California, bellardia can invade serpentine sites and may displace rare serpentine natives, but it rarely forms dense populations. Typically acts similar to a native.
Rationale: enter text here
Sources of information: DiTomaso and Healy. 2006. Weeds of California. UC DANR Publ. #3488.
Question 1.3 Impact on higher trophic levels U No Information back
Identify type of impact or alteration: Unknown
Rationale: enter text here
Sources of information:
Question 1.4 Impact on genetic integrity D Other Pub. Mat'l back
Identify impacts: No native Bellardia species in California.
Rationale:
Sources of information: Hickman, J. C. (ed.) 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA enter text here
Question 2.1 Role of anthropogenic and natural disturbance in establishment B Other Pub. Mat'l back
Describe role of disturbance: Appears to move into both disturbed and undisturbed areas.
Rationale: enter text here

Sources of information: DiTomaso and Healy. 2006. Weeds of California. UC DANR Publ. #3488.
Question 2.2 Local rate of spread with no management C Observational back
Describe rate of spread: General it does not expand much when in an area.
Rationale: enter text here
Sources of information: DiTomaso, observational.
Question 2.3 Recent trend in total area infested within state C Observational back
Describe trend: Does not appear to be expanding range in the state.
Rationale: enter text here
Sources of information: DiTomaso, observational.
Question 2.4 Innate reproductive potential A Other Pub. Mat'l back
Describe key reproductive characteristics: Winter annual. The biology of bellardia is poorly understood. However, the seeds of many related parasitic plants can remain viable in the soil seedbank for several years (up to about 20 years in some cases).
Rationale: The biology of these species is poorly understood.
Sources of information: DiTomaso and Healy. 2006. Weeds of California. UC DANR Publ. #3488.
Question 2.5 Potential for human-caused dispersal D Observational back
Identify dispersal mechanisms: Not much opportunity to disperse long distances.
Rationale: enter text here
Sources of information: DiTomaso, observational.
Question 2.6 Potential for natural long-distance dispersal D Observational back
Identify dispersal mechanisms: No information, but appears to have no long distance mechanism for spread.
Rationale: enter text here

Sources of information: DiTomaso, observational.
Question 2.7 Other regions invaded U No Information back
Identify other regions: No information on other habitats it invades elsewhere, but all likely that it is probably grasslands.
Rationale: enter text here
Sources of information:
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: Bellardia typically inhabits annual grasslands. In California, bellardia can invade serpentine sites and may displace rare serpentine natives. Disturbed grasslands, including serpentine grasslands, fields, roadsides.
Rationale: enter text here
Sources of information: DiTomaso and Healy. 2006. Weeds of California. UC DANR Publ. #3488.
Question 3.2 Distribution/Peak frequency D Observational back
Describe distribution: Most common on coastal foothill grasslands, but not a common species.
Rationale: enter text here
Sources of information: DiTomaso, observational.

Worksheet A

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Reaches reproductive maturity in 2 years or less	**Yes: 1 pt**
Dense infestations produce >1,000 viable seed per square meter	**Yes: 2 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	**Yes: 2 pts**
Viable seed produced with *both* self-pollination and cross-pollination	**Unknown: 0 pts**
Has quickly spreading vegetative structures (rhizomes, roots, etc.) that may root at nodes	**No: 0 pt**
Fragments easily and fragments can become established elsewhere	**No: 0 pts**
Resprouts readily when cut, grazed, or burned	**No: 0 pt**
	6 pts **1 unknown**
	A (6+ 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	**D. presen**
	valley and foothill grassland	**D. presen**
	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	**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).