

# 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**

<b>Species name (Latin binomial):</b>	Carthamus lanatus L.
<b>Synonyms:</b>	Carthamus lanatus ssp. lanatus
<b>Common names:</b>	woolly distaff thistle, false starthistle, saffron thistle, woolly safflower, woolly starthistle
<b>Evaluation date (mm/dd/yy):</b>	3/22/05
<b>Evaluator #1 Name/Title:</b>	Elizabeth Brusati, project manager
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<b>Evaluator #2 Name/Title:</b>	Joseph DiTomaso
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Section below for list committee use—please leave blank

<b>List committee members:</b>	Carla Bossard, John Randall, Carri Pirosko, Dan Gluesenkamp, Gina Skurka, Brianna Richardson
<b>Committee review date:</b>	7/8/05
<b>List date:</b>	enter text here
<b>Re-evaluation date(s):</b>	enter text here

**General comments on this assessment:**

enter text here

**Table 2. Criteria, Section, and Overall Scores**

<a href="#">1.1</a>	Impact on abiotic ecosystem processes	<b>U</b>	<b>No Information</b>
<a href="#">1.2</a>	Impact on plant community	<b>A</b>	<b>Rev'd, Sci. Pub'n</b>
<a href="#">1.3</a>	Impact on higher trophic levels	<b>A</b>	<b>Rev'd, Sci. Pub'n</b>
<a href="#">1.4</a>	Impact on genetic integrity	<b>D</b>	<b>Other Pub. Mat'l</b>

**Impact**

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

**U A A D**

*Using matrix, determine score and enter below:*

**A**

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

**Invasiveness**

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

**13**

*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:*

**Medium  
Red Alert**

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

**Distribution**

*Using matrix, determine score and enter below:*

**C**

**Table 3. Documentation**

<b>Question 1.1</b> Impact on abiotic ecosystem processes	U No Information <a href="#">back</a>
Identify ecosystem processes impacted: No information available. May impact the hydrology of the infested sites. Water loss increase on site because foliage is above ground level and does not slow the flow of water down slope as would grass species.	
Rationale: enter text here	
Sources of information: DiTomaso, observational	
<b>Question 1.2</b> Impact on plant community composition, structure, and interactions	A Rev'd, Sci. Pub'n <a href="#">back</a>
Identify type of impact or alteration: Outcompetes other species for moisture, light, and nutrients. Restricts growth of other species in low-nutrient soils (1). Forms dense stands (2). Large seeds and flat rosettes give it an early growth advantage over other species (3).	
Rationale: enter text here	
Sources of information: 1. Peirce, J. R. 1992. The biology of Australian weeds: 23. <i>Carthamus lanatus</i> L. Plant Protection Quarterly 7(3): 86-95. 2. Anonymous. 1998. Woolly Distaff Thistle Control. Marin Agricultural Land Trust, Technical Bulletin 3. Sindel, B. M. 1991. A review of the ecology and control of thistles in Australia. Weed Res 31(4): 189-201.	
<b>Question 1.3</b> Impact on higher trophic levels	A Rev'd, Sci. Pub'n <a href="#">back</a>
Identify type of impact or alteration: Causes injury to mouths and feet of livestock. Impedes passage of animals. Little or no feed or grazing value (1). Displaces palatable plants, decreasing the value of rangeland (2).	
Rationale: enter text here	
Sources of information: 1. Peirce 1992 2. Anonymous 1998	
<b>Question 1.4</b> Impact on genetic integrity	D Other Pub. Mat'l <a href="#">back</a>
Identify impacts: None	
Rationale: No native <i>Carthamus</i> species in California.	
Sources of information: Hickman, J. C. (ed.) 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA enter text here	

<b>Question 2.1</b> Role of anthropogenic and natural disturbance in establishment	B Rev'd, Sci. Pub'n <a href="#">back</a>
Describe role of disturbance: Inhabits disturbed areas, especially where the soil has been disturbed or the pasture weakened by overgrazing (1, 2).	
Rationale: enter text here	
Sources of information: 1. Burrill, L. C. 1992. Distaff thistle. Pacific Northwest Extension Publication. PNW 420. 2. Peirce 1992	
<b>Question 2.2</b> Local rate of spread with no management	A Anecdotal <a href="#">back</a>
Describe rate of spread: Numerous anecdotal reports indicate rapid spread of this plant in the coastal counties.	
Rationale: enter text here	
Sources of information: enter text here	
<b>Question 2.3</b> Recent trend in total area infested within state	A Other Pub. Mat'l <a href="#">back</a>
Describe trend: Spreading rapidly in Marin County (1) and central north coast area (2).	
Rationale: enter text here	
Sources of information: 1. Anonymous 1998 2. DiTomaso and Healy in prep	
<b>Question 2.4</b> Innate reproductive potential	B Other Pub. Mat'l <a href="#">back</a>
Describe key reproductive characteristics: Winter annual. Germinates after first spring rains. Plants flower late spring through summer, with seed produced in late summer (1). Plants can produce as many as 255 viable seeds (2). Most seeds germinate within two years but can remain viable after eight years under field conditions (3, 4). If mowed too early in season, can regrow and produce more flowers, but late season mowing probably controls plant (1).	
Rationale: enter text here	
Sources of information: 1. DiTomaso and Healy in prep. Weeds of California and Other Western States. 2. Peirce 1992 3. Groves, R. H. and P. E. Kaye. 1989. Germination and Phenology of Seven Introduced Thistle Species in Southern Australia. Australian Journal of Botany 37(4): 351-359 4. Quinlivan B.J., Peirce J.R. 1968. The Long-term Field Germination of Saffron Thistle ( <i>Carthamus lanatus</i> L.) and the Life Span of Dormant Seeds in the Geraldton Region, W.A. The Journal of the Australian Institute of	

Agricultural Science. Volume unknown: December 1968, pp. 231-232.	
<b>Question 2.5</b> Potential for human-caused dispersal	C Other Pub. Mat'l <a href="#">back</a>
Identify dispersal mechanisms: A common contaminant of grain. Seeds can attach to clothing (1). Seed can be dispersed on vehicles and by livestock (2). These mechanisms may contribute to spread but are probably not common.	
Rationale: enter text here	
Sources of information: 1. Peirce 1992 2. DiTomaso and Healy in prep	
<b>Question 2.6</b> Potential for natural long-distance dispersal	C Other Pub. Mat'l <a href="#">back</a>
Identify dispersal mechanisms: Seeds can be dispersed by water (1). Not dispersed by wind, but can attach to animal fur (2). Vast majority of seed likely fall within a few feet of the parent plant.	
Rationale: enter text here	
Sources of information: 1. DiTomaso and Healy in prep 2. Peirce 1992	
<b>Question 2.7</b> Other regions invaded	C Rev'd, Sci. Pub'n <a href="#">back</a>
Identify other regions: Native to Mediterranean. A noxious weed in Australia, where it is considered the worst weed in New South Wales (1, 2). Spread to Oregon from California (3). Also present in Texas and Oklahoma (4).	
Rationale: enter text here	
Sources of information: 1. Peirce 1992 2. Briese, D. T. 1988. Weed Status of Twelve Thistle Species in New South Wales Australia. Plant Protection Quarterly 3(4): 135-141. 3. Burrill 1992 4. DiTomaso and Healy in prep.	
<b>Question 3.1</b> Ecological amplitude/Range	B Other Pub. Mat'l <a href="#">back</a>
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Subspecies lanatus has been in California since at least 1891. Abundant in dry grasslands of the coastal areas of California. Also found a middle elevation of Sierra Nevada, in areas disturbed by gold mining (1). Present in northwestern California, central-western CA, central Sierra Nevada, southern North Coast, to 1100m (2).	

Rationale: enter text here	
Sources of information: 1. Fuller, T. C. 1979. Ecology of some Californian weeds that also occur in Australia. Proceedings of the Seventh Conference of the Asian-Pacific Weed Society, pp. 391-393. (cited in Peirce 1992)	
<b>Question 3.2</b> Distribution/Peak frequency	D Observational <a href="#">back</a>
Describe distribution: More common in the Central Coast than in Southern California. Also expanding in the North Coast region.	
Rationale: enter text here	
Sources of information: DiTomaso, observational. Dan Gluesenkamp, Audubon Canyon Ranch, pers. obs. Carla Bossard, St. Mary's College, pers. obs.	

**Worksheet A**[back](#)

Reaches reproductive maturity in 2 years or less	<b>Yes: 1 pt</b>
Dense infestations produce >1,000 viable seed per square meter	<b>No: 0 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>No: 0 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>Unknown: 0 pts</b>
Has quickly spreading vegetative structures (rhizomes, roots, etc.) that may root at nodes	<b>No: 0 pt</b>
Fragments easily and fragments can become established elsewhere	<b>No: 0 pts</b>
Resprouts readily when cut, grazed, or burned	<b>No: 0 pt</b>
	<b>4 pts      1 unknown</b>
	<b>B (4-5 pts)</b>
<b>Note any related traits:</b> enter text here	

## 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	score
<b>Dunes</b>	coastal	score
	desert	score
	interior	score
<b>Scrub and Chaparral</b>	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
<b>Grasslands, Vernal Pools, Meadows, and other Herb Communities</b>	coastal prairie	D. prese
	valley and foothill grassland	D. prese
	Great Basin grassland	score
	vernal pool	score
	meadow and seep	score
	alkali playa	score
	pebble plain	score
<b>Bog and Marsh</b>	bog and fen	score
	marsh and swamp	score
<b>Riparian and Bottomland</b>	riparian forest	score
	riparian woodland	score
	riparian scrub (incl. desert washes)	score
<b>Woodland</b>	cismontane woodland	D. prese
	piñon and juniper woodland	score
	Sonoran thorn woodland	score
<b>Forest</b>	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
<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).