

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): | Carduus acanthoides L. |
| Synonyms: | Carduus fortior |
| Common names: | Plumeless thistle, bristly thistle, giant plumeless thistle, spiny thistle |
| Evaluation date (mm/dd/yy): | 1/19/05 |
| Evaluator #1 Name/Title: | Gina Skurka |
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| Evaluator #2 Name/Title: | Joseph DiTomaso |
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Section below for list committee use—please leave blank

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| List committee members: | Carla Bossard, John Randall, Carri Piroso, 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

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|---------------------|---------------------------------------|----------|-------------------|
| 1.1 | Impact on abiotic ecosystem processes | C | Rev'd, Sci. Pub'n |
| 1.2 | Impact on plant community | B | Rev'd, Sci. Pub'n |
| 1.3 | Impact on higher trophic levels | B | Other Pub. Mat'l |
| 1.4 | Impact on genetic integrity | D | Other Pub. Mat'l |

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| <p>Impact</p> <p><i>Enter four characters from Q1.1-1.4 below:</i></p> <p>CBBD</p> <p><i>Using matrix, determine score and enter below:</i></p> <p>B</p> |
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|---------------------|---|------------------|-------------------|
| 2.1 | Role of anthropogenic and natural disturbance | C (1 pt) | Rev'd, Sci. Pub'n |
| 2.2 | Local rate of spread with no management | D (0 pts) | No Information |
| 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 | C (1 pt) | Observational |
| 2.6 | Potential for natural long-distance dispersal | C (1 pt) | Rev'd, Sci. Pub'n |
| 2.7 | Other regions invaded | C (1 pt) | Other Pub. Mat'l |

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| <p>Invasiveness</p> <p><i>Enter the sum total of all points for Q2.1-2.7 below:</i></p> <p>8</p> <p><i>Use matrix to determine score and enter below:</i></p> <p>C</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>Low</p> <p>No Alert</p> |
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| 3.1 | Ecological amplitude/Range | B | Other Pub. Mat'l |
| 3.2 | Distribution/Peak frequency Wksht C | D | Observational |

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| <p>Distribution</p> <p><i>Using matrix, determine score and enter below:</i></p> <p>C</p> |
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Table 3. Documentation

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| Question 1.1 Impact on abiotic ecosystem processes | C Rev'd, Sci. Pub'n back |
| Identify ecosystem processes impacted: Possesses taproots that are generally long, thick, fleshy, occasionally branched, and capable of penetrating the soil to depths of 40 cm or more. | |
| Rationale: Minor alteration of ecosystem processes, such as soil water table. | |
| Sources of information: Desrochers, A.M, J.F. Bain, and S.I. Warwick. 1988. The Biology of Canadian weeds. 89. <i>Carduus nutans</i> L. and <i>Carduus acanthoides</i> L. Can. J. Plant Sci. 68: 1053-1068. | |
| Question 1.2 Impact on plant community composition, structure, and interactions | B Rev'd, Sci. Pub'n back |
| Identify type of impact or alteration: Compete with desirable plants, reducing forage production. | |
| Rationale: Moderate alteration of plant community by reduction in survivorship of native species. | |
| Sources of information: Roche, C. Weeds. A Pacific Northwest Extension Publication. December 1992. Desrochers, A.M., J.F. Bain, and S.I. Warwick. The Biology of Canadian Weeds. 89. <i>Carduus nutans</i> L. and <i>Carduus acanthoides</i> L., Canadian Journal of Plant Science. 68: 1053-1068, October 1988. | |
| Question 1.3 Impact on higher trophic levels | B Other Pub. Mat'l back |
| Identify type of impact or alteration: Spiny leaves and stems hinder live-stock from grazing forage growing near them. Resumable they would do the same with wildlife. As they invade natural vegetation in parks and along roads, their spiny presence may restrict recreational activities. | |
| Rationale: Minor alterations of higher trophic level populations, communities or interactions by minor reduction in foraging sites as livestock and wildlife avoid it. | |
| Sources of information: Roche, C. Weeds. A Pacific Northwest Extension Publication. December 1992. | |
| Question 1.4 Impact on genetic integrity | D Other Pub. Mat'l back |
| Identify impacts: Plumeless thistle and musk thistle, <i>C. nutans</i> , readily hybridize with one another, and plants with intermediate characteristics may be found where their ranges overlap. Insect-pollinated. | |
| Rationale: No known hybridization with natives. | |
| Sources of information: DiTomaso, J and E. Healy. Weeds of CA and other Western States. Unpublished. | |

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| Roche, C. Weeds. A Pacific Northwest Extension Publication. December 1992. | |
| Question 2.1 Role of anthropogenic and natural disturbance in establishment | C Rev'd, Sci. Pub'n back |
| Describe role of disturbance: In general, thistles compete poorly with healthy, established grasses and other vegetation. Disturbances such as fire, overgrazing, or trampling can create prime sites for thistle colonization. Activities that disturb the soil, weaken competitive vegetation, and allow light to the soil surface speed thistle invasion and thicken thistle stands. This species is primarily restricted to highly disturbed or degraded areas. Old fields, stock ponds, and ditch berms are areas usually infested. Restoration fields can become infested with this thistle due to disturbance from discing, which exposes mineral soil and works up existing seeds. | |
| Rationale: Low invasive potential - this species requires disturbance to establish. | |
| Sources of information: Desrochers, A.M, J.F. Bain, and S.I. Warwick. 1988. The Biology of Canadian weeds. 89. <i>Carduus nutans</i> L. and <i>Carduus acanthoides</i> L. Can. J. Plant Sci. 68: 1053-1068. The Nature Conservancy Weed Report for <i>Carduus acanthoides</i> , Tall grass prairie preserves, August 25, 1999. | |
| Question 2.2 Local rate of spread with no management | D Observational back |
| Describe rate of spread: Populations in California are not often encountered. All known populations are currently being managed. | |
| Rationale: enter text here | |
| Sources of information: enter text here | |
| Question 2.3 Recent trend in total area infested within state | C Observational back |
| Describe trend: Only seems to be a couple of small populations in the state. Often controlled by CDFA. | |
| 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: Insect-pollinated. Primarily out-crossing, but self-compatible. Reproduce by seed. First flowerheads can produce large numbers of seeds, sometimes 1500 or more seeds per head. Late flowerheads produce fewer seeds, to less than 25 seeds per head. | |
| Rationale: Moderate reproductive potential, 4 points. | |
| Sources of information: DiTomaso, J and E. Healy. Weeds of CA and other Western States. Unpublished. | |

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| Question 2.5 Potential for human-caused dispersal | C Observational back |
| Identify dispersal mechanisms: Little opportunity to disperse long distances by human activities. | |
| Rationale: enter text here | |
| Sources of information: DiTomaso, observational | |
| Question 2.6 Potential for natural long-distance dispersal | C Rev'd, Sci. Pub'n back |
| Identify dispersal mechanisms: Seeds fall near the parent plant and disperse to greater distances with wind, water, birds, small mammals, and human activities. Achenes are mainly dispersed by wind and fall near the parent plant (within 50 m) with less than 1% being carried further than 100 m. | |
| Rationale: Rare dispersal more than 1 km by animals or abiotic mechanisms. | |
| Sources of information: DiTomaso, J and E. Healy. Weeds of CA and other Western States. Unpublished. Desrochers, A.M., J.F. Bain, and S.L. Warwick. 1988. The Biology of Canadian Weeds: <i>Carduus nutans</i> L. <i>Carduus acanthoides</i> . Canadian Journal of Plant Science. 68:1053-1068. | |
| Question 2.7 Other regions invaded | C Other Pub. Mat'l back |
| Identify other regions: Present in the northeast, the Great Plains states, and Texas. Plumeless thistle is a state-listed noxious weed in Arizona, California, Colorado, Washington, Wyoming, and a few central and eastern states. | |
| Rationale: Probably already present in similar areas in California. | |
| Sources of information: USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA. | |
| Question 3.1 Ecological amplitude/Range | B Other Pub. Mat'l back |
| Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Thistles typically colonize disturbed open sites, roadsides, pastures, annual grasslands, and waste areas. Eastern North Coast Ranges (se Humboldt, cw Trinity, w Glenn, ne Lake, e Colusa cos.), northern Sierra Nevada (w Nevada Co.), Modoc Plateau (ce Modoc Co.), San Francisco Bay region (nw Marin Co.), to 1300 m. | |
| Rationale: enter text here | |
| Sources of information: DiTomaso and Healy. 2006. Weeds of California. UC DANR Publ. #3488. | |

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| DiTomaso, J and E. Healy. Weeds of CA and other Western States. Unpublished. Date? | |
| Question 3.2 Distribution/Peak frequency | D Observational back |
| Describe distribution: Very uncommon in the state. | |
| Rationale: enter text here | |
| Sources of information: DiTomaso, observational. | |

Worksheet A[back](#)

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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 | Yes: 1 pt |
| Seeds remain viable in soil for three or more years | Yes: 2 pts |
| Viable seed produced with <i>both</i> 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 | Unknown: 0 pts |
| | 6 pts 2 unknowns |
| | 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 | D. present |
| | 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. present |
| | 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).