

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

Species name (Latin binomial):	<i>Cirsium arvense</i>
Synonyms:	
Common names:	Canada thistle
Evaluation date (mm/dd/yy):	5/23/03
Evaluator #1 Name/Title:	Joe DiTomaso
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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 review committee use—please leave blank

Review committee members:	Joe DiTomaso, Peter Warner, Alison Stanton, Carla Bossard, Cynthia Roye, Jake Sigg, Doug Johnson, Brianna Richardson
Committee review date:	06/06/03
List date:	enter text here
Re-evaluation date(s):	enter text here

Table 2. Criteria, Section, and Overall Scores

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

“Impact”
 Enter four characters from Q1.1-1.4 below:
CABC
 Use matrix determine the score; enter below:
B

2.1	Role of anthropogenic and natural disturbance	B 2	Other Pub. Mat'l
2.2	Local rate of spread with no management	A 3	Other Pub. Mat'l
2.3	Recent trend in total area infested within state	B 2	Observational
2.4	Innate reproductive potential	A 3	Rev'd, Sci. Pub'n
2.5	Potential for human-caused dispersal	B 2	Other Pub. Mat'l
2.6	Potential for natural long-distance dispersal	C 1	Rev'd, Sci. Pub'n
2.7	Other regions invaded	A 3	Other Pub. Mat'l

“Invasiveness”
 For questions at left, recall that an A gets 3 points, a B gets 2, a C gets 1, and a D or U gets=0. Enter the sum total of all points for Q2.1-2.7 below:
16
 Use matrix to determine score and enter below:
B

“Plant Score”
 Using matrix, determine the Overall Score and Alert Status from the three section scores and enter them below:
Medium
No Alert

3.1	Ecological amplitude	A	Other Pub. Mat'l
3.2	Distribution	C	Observational

“Distribution”
 Use matrix determine the score; enter below:
B

Worksheet A. Complete this worksheet to answer Question 2.4.

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	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	Yes: 2 pts
Resprouts readily when cut, grazed, or burned	Yes: 1 pt
Total Pts 11 Total Unknowns	
Score A	

Table 3. Documentation

Question 1.1 Impact on abiotic ecosystem processes
Identify ecosystem processes impacted: Unknown. Probably minor.
Rationale:
Sources of information: DiTomaso-Observational
Question 1.2 Impact on plant community composition, structure, and interactions
Identify type of impact or alteration: Can form dense monotypic stands. Control of Canada thistle increased plant diversity and species richness. Changes structure and composition of some habitats.
Rationale:
Sources of information: Krueger-Mangold, J. 2002. Weed Technology 16:457-463; Stachion, W.J. and R.J. Zimdahl. 1980. Weed Science 28:83-86; Nuzzo, V. 1977. Canada thistle. Element Stewardship Abstract. TNC
Question 1.3 Impact on higher trophic levels
Identify type of impact or alteration: Suggested to impact waterfowl habitat in riparian areas. Reduces forage for animals. Spines can cause mechanical injury.
Rationale:
Sources of information: Krueger-Mangold, J. 2002. Weed Technology 16:457-463; Stachion, W.J. and R.J. Zimdahl. 1980. Weed Science 28:83-86; Bayer, D. 2000. <i>Cirsium arvense</i> . In, Invasive Plants of California's Wildlands. CalEPPC. UC Press, Berkeley; Parsons, W.T. and E.G. Cuthbertson. 1992. Noxious Weeds of Australia. Inkata Press, Sydney.; Beck, K.G. 1996. Canada thistle. Range #3108. Natural Resource Series. Colorado State Univ.
Question 1.4 Impact on genetic integrity
Identify impacts: No evidence, but likely
Rationale: Related to numerous thistles in the genus <i>Cirsium</i> . No know evidence of pollen swamping but certainly possible.
Sources of information: Unknown
Question 2.1 Role of anthropogenic and natural disturbance in establishment
Describe role of disturbance: Very common in disturbed areas, but can invaded undisturbed sites as well.
Rationale:
Sources of information: Beck, K.G. 1996. Canada thistle. Range #3108. Natural Resource Series. Colorado State Univ.
Question 2.2 Local rate of spread with no management
Describe rate of spread: Extensive horizontal root system spreads up to several meters per year.
Rationale:
Sources of information: Bayer, D. 2000. <i>Cirsium arvense</i> . In, Invasive Plants of California's Wildlands. CalEPPC. UC Press, Berkeley.
Question 2.3 Recent trend in total area infested within state
Describe trend: Some control effort in northern part of state has held it in check. Likely to be spreading but only slowly.
Rationale:
Sources of information: DiTomaso- Observational
Question 2.4 Innate reproductive potential
Describe key reproductive characteristics: Dioecious species. Both sexes in clones must be within 200 ft to cross. Produces up to 64,000 seeds/sq m. Seeds viable in soil to 20 years. Roots brittle and fragment easily.
Rationale:
Sources of information: Donald, W.W. 1994. The biology of Canada thistle. Rev. Weed Sci. 6:77-101; Beck, K.G. 1996. Canada thistle. Range #3108. Natural Resource Series. Colorado State Univ.; Nuzzo, V. 1977. Canada thistle. Element Stewardship Abstract. TNC; DiTomaso, J.M. and E.A. Healy. 2005. Weeds of California. DANR (pre-print)
Question 2.5 Potential for human-caused dispersal
Identify dispersal mechanisms: Some long distance dispersal in contaminated agricultural seeds. Also in hay and in cattle and horse droppings. Also transported by water.
Rationale:
Sources of information: Nuzzo, V. 1977. Canada thistle. Element Stewardship Abstract. TNC
Question 2.6 Potential for natural long-distance dispersal
Identify dispersal mechanisms: 90% of seed land within 10 m of parent plant and only 0.2% were found 1 km from parent plant.
Rationale:

Sources of information: Nuzzo, V. 1977. Canada thistle. Element Stewardship Abstract. TNC; Bakker, D. 1960. In J.L. Harper. <i>Biology of Weeds</i> . Blackwell Scientific Publ., Oxford, Enland
Question 2.7 Other regions invaded
Identify other regions: Weedy throughout much of the world, including US, Australia and many other countries. Invades prairies and grassland in the midwest, but not really in California. Much more widespread in toehr intermountain states.
Rationale: In other states it is found in forests, meadows, prairies, grasslands, riparian areas, sand dunes, shores of lakes and streams, swamps. Currently not in all these sites in California.
Sources of information: Nuzzo, V. 1977. Canada thistle. Element Stewardship Abstract. TNC; DiTomaso, J.M. and E.A. Healy. 2005. <i>Weeds of California</i> . DANR (pre-print); Parsons, W.T. and E.G. Cuthbertson. 1992. <i>Noxious Weeds of Australia</i> . Inkata Press, Sydney; Morishita, D.W. 1999. Canada thistle. In, <i>Biology and Management of Noxious Rangeland Weeds</i> . Oregon St. Univ. Press, Corvallis.
Question 3.1 Ecological amplitude
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Invades low-lying, moist soils typical of riparian areas. Common agricultural weed and alos on streambanks. Introduced to North America in the early 17 th century.
Rationale:
Sources of information: Krueger-Mangold, J. 2002. <i>Weed Technology</i> 16:457-463; Stachion, W.J. and R.J. Zimdahl. 1980. <i>Weed Science</i> 28:83-86; Bayer, D. 2000. <i>Cirsium arvense</i> . In, <i>Invasive Plants of California's Wildlands</i> . CalEPPC. UC Press, Berkeley; Nuzzo, V. 1977. Canada thistle. Element Stewardship Abstract. TNC; DiTomaso, J.M. and E.A. Healy. 2005. <i>Weeds of California</i> . DANR (pre-print)
Question 3.2 Distribution
Describe distribution: Throughout California, except deserts. More dense in Northern California
Rationale:
Sources of information: DiTomaso-Observational

Complete the worksheet that corresponds to your state using the letter codes and instructions in Section 3.

Worksheet C - California Ecological Types

(*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
Grasslands, Vernal Pools, Meadows, and other Herb Communities	coastal prairie	D. presen
	valley and foothill grassland	D. presen
	Great Basin grassland	C. 5-20%
	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	D. presen
	riparian woodland	D. presen
	riparian scrub (incl. desert washes)	score
Woodland	cismontane woodland	score
	piñon and juniper woodland	score
	Sonoran thorn woodland	score
Forest	broadleaved upland forest	D. presen
	North Coast coniferous forest	D. presen
	closed cone coniferous forest	D. presen
	lower montane coniferous forest	D. presen
	upper montane coniferous forest	D. presen
	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).