

# 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**

|                                       |   |
|---------------------------------------|---|
| <b>Species name</b> (Latin binomial): | Dipsacus fullonum   |
| <b>Synonyms:</b>                      | In past was mistakenly called Dipsacus sylvestris Huds. in some references; binomial D. sylvestris Huds. has been used for wild teasel by majority of authors in N. America and the binomial D. fullonum L. reserved for the cultivated teasel- the opposite naming convention is used in Europe. |
| <b>Common names:</b>                  | common teasel, wild teasel, card thistle  |
| <b>Evaluation date</b> (mm/dd/yy):    | July 23, 2004   |
| <b>Evaluator #1 Name/Title:</b>       | Carri Pirosko   |
| <b>Affiliation:</b>                   | California Department of Food and Agriculture, Noxious Weed Program   |
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| <b>Address:</b>                       | 20235 Charlanne Drive, Redding, CA 96002  |
| <b>Evaluator #2 Name/Title:</b>       | Joseph M. DiTomaso  |
| <b>Affiliation:</b>                   | University of California  |
| <b>Phone numbers:</b>                 | 530-754-8715  |
| <b>Email address:</b>                 | ditomaso@vegmail.ucdavis.edu  |
| <b>Address:</b>                       | Weed Science Program, Robbins Hall, Davis, CA 95616   |

Section below for list committee use—please leave blank

|   |   |
|---|---|
| <b>List committee members:</b>              | Jake Sigg, Peter Warner, Alison Stanton, Joe DiTomaso, Cynthia Roye, John Randall |
| <b>Committee review date:</b>               | 8/27/2004   |
| <b>List date:</b>                           | enter text here   |
| <b>Re-evaluation date(s):</b>               | enter text here   |
| <b>General comments on this assessment:</b> | enter text here   |

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

|                     |                                       |          |                   |
|---------------------|---------------------------------------|----------|-------------------|
| <a href="#">1.1</a> | Impact on abiotic ecosystem processes | <b>C</b> | Rev'd, Sci. Pub'n |
| <a href="#">1.2</a> | Impact on plant community             | <b>B</b> | Rev'd, Sci. Pub'n |
| <a href="#">1.3</a> | Impact on higher trophic levels       | <b>C</b> | Rev'd, Sci. Pub'n |
| <a href="#">1.4</a> | Impact on genetic integrity           | <b>D</b> | Rev'd, Sci. Pub'n |

**Impact**

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

**CBCD**

*Using matrix, determine score and enter below:*

**B**

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

**Invasiveness**

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

**12**

*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**

**No Alert**

|                     |   |          |                   |
|---------------------|---|----------|-------------------|
| <a href="#">3.1</a> | Ecological amplitude/Range                          | <b>A</b> | Rev'd, Sci. Pub'n |
| <a href="#">3.2</a> | Distribution/Peak frequency <a href="#">Wksht C</a> | <b>C</b> | Rev'd, Sci. Pub'n |

**Distribution**

*Using matrix, determine score and enter below:*

**B**

**Table 3. Documentation**

|  |   |
|--|---|
| <p><b>Question 1.1</b> Impact on abiotic ecosystem processes</p>   | <p>C Rev'd, Sci. Pub'n <a href="#">back</a></p> |
| <p>Identify ecosystem processes impacted: light availability, nutrient impacts from persisting stalks/leaves</p>   |   |
| <p>Rationale: dead stems and flower heads can persist for a year or more, impacting light penetration at ground level, shading out native or desirable plant species</p>   |   |
| <p>Sources of information: DiTomaso, J.M. and E. Healy. Weeds of California and Other Western States, as yet published.</p>  |   |
| <p><b>Question 1.2</b> Impact on plant community composition, structure, and interactions</p>  | <p>B Rev'd, Sci. Pub'n <a href="#">back</a></p> |
| <p>Identify type of impact or alteration: can form dominant stands and on rare occasions even monocultures, has impacted threatened species in other states, can form dense and persisting litter/thatch layer</p>   |   |
| <p>Rationale: Dead stems and flower heads can persist for a year or more, impacting light levels at ground level, shading out native or desirable plant species ;</p>  |   |
| <p>Mechanisms of competition for individual plants include the wide, horizontally-oriented rosette leaves which produce heavy shading, and the deep taproot which extends to depths beyond roots of many grasses</p>   |   |
| <p>Grass litter, and the presence of other dicotyledonous species, and the overall primary productivity of the rest of the community are important factors determining the success or failure of an attempted colonization by teasel.</p>  |   |
| <p>If left unchecked, teasel quickly can form large monocultures excluding all native vegetation;</p>  |   |
| <p>Threatens to displace native species of sensitive conservation status in the UK; invading high quality natural communities including prairies, savannas, seeps and sedge meadows;</p>   |   |
| <p>One of few plants to have been investigated in detail as an alien species threatening to displace a native plant of sensitive conservation status/listed as Federally threatened (<i>Cirsium vinaceum</i>) in Central New Mexico</p>  |   |
| <p>Sources of information: DiTomaso, J.M. and E. Healy. Weeds of California and Other Western States, as yet published; Cheesman, O.D., 1998. The impact of some field boundary management practices development of <i>Dipsacus fullonum</i> L. flowering stems, and implications for conservation. Agriculture, Ecosystems and Environment 68 (1998) 41-49; Werner, P.A., 1975. The biology of Canadian weeds. Can. J. Plant Sci. 55:783-794; Glass, William, 1990. Vegetation management Manual: Cutleaved teasel and common teasel, Illinois Nature Preserves Commission, Springfield Illinois.</p> |   |
| <p><b>Question 1.3</b> Impact on higher trophic levels</p>   | <p>C Rev'd, Sci. Pub'n <a href="#">back</a></p> |
| <p>Identify type of impact or alteration: Only one reference found to impacts to cattle and humans trying to pass through a densely infested teasel area</p>   |   |
| <p>Rationale: stands become dense and impenetrable to humans or livestock;</p>   |   |
| <p>Sources of information: Werner, P.A., 1975. The biology of Canadian weeds. Can. J. Plant Sci. 55:783-794</p>  |   |

|   |  |
|---|--|
| <b>Question 1.4</b> Impact on genetic integrity   | D Rev'd, Sci. Pub'n <a href="#">back</a> |
| Identify impacts: Rated as "minor" because the potential does exist according to the literature, see cited reference below. No native species of <i>Dipsacus</i> in California, so hybridization is not relevant.   |  |
| Rationale: No hybrids involving this species have been described; however, since isolation of species of <i>Dipsacus</i> is mainly geographic and ecological, it is probable that extensive hybridization could be expected when species do come in contact.  |  |
| Sources of information: Ehrendorfer, F., 1965. Dispersal mechanisms, genetic systems, and colonizing abilities in some flowering plant families. Pages 331-352 in H.G Baker and G.L. Stebbins, eds. The genetics of colonizing species. Academic Press, New York.   |  |
| <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: Usually establishment requires either anthropogenic or natural disturbance.   |  |
| Rationale: Usually establishment requires either anthropogenic or natural disturbance.<br>Teasel sometimes occurs in high quality prairies, savannas, seeps, and sedge meadows, BUT roadsides, dumps, and heavily disturbed areas are the most common habitats of teasel.   |  |
| Sources of information: Glass, William, 1990. Vegetation management Manual: Cutleaved teasel and common teasel, Illinois Nature Preserves Commission, Springfield Illinois.   |  |
| <b>Question 2.2</b> Local rate of spread with no management   | B Rev'd, Sci. Pub'n <a href="#">back</a> |
| Describe rate of spread: Based on literature cited below, teasel likely ranks somewhere in between "increases, but less rapidly" to "stable".   |  |
| Rationale: Populations of teasel have been collected from the same field and roadsides for up to 25 years, explanations for the longevity of the population on one site are lacking.<br>It is suspected that teasel numbers fluctuate greatly and the spread of a population is relatively slow compared to other weeds because the generation time of teasel is longer than 1 year and there is no vegetative reproduction                   |  |
| Sources of information: Werner, P.A., 1975. The biology of Canadian weeds. Can. J. Plant Sci. 55:783-794.   |  |
| <b>Question 2.3</b> Recent trend in total area infested within state  | C Observational <a href="#">back</a>     |
| Describe trend: Statewide, teasel likely ranks somewhere in between "increases, but less rapidly" to "stable". Over the entire state it probably has not expanded its range in the past several years.  |  |
| Rationale: Personal observation: teasel infestations in roadside meadows have expanded greatly within a 2-3 year timeframe; while some seem to be fairly stable in overall range/expansion potential.<br>Teasel has spread rapidly in the last 20-30 years- this rapid range expansion probably was aided by construction of the interstate highway system ; because of teasel's use as a horticulture plant, this has aided in its dispersal |  |

|  |  |
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| Sources of information: Personal Observation- C. Piroosko and J.M. DiTomaso  |  |
| <b>Question 2.4</b> Innate reproductive potential  | B Rev'd, Sci. Pub'n <a href="#">back</a> |
| Describe key reproductive characteristics: enter text here   |  |
| <p>Rationale: a single plant might be expected to produce approx. 3,000 seeds;</p> <p>In fields presenting optimal conditions, teasel rosettes may grow rapidly and flower in their 2nd year, while in less suitable areas the rosettes grow more slowly and populations may consist of plants on a 3- or 4- year reproductive cycle;</p>  |  |
| Sources of information: Werner, P.A., 1975. The biology of Canadian weeds. Can. J. Plant Sci. 55:783-794; Glass, William, 1990. Vegetation management Manual: Cutleved teasel and common teasel, Illinois Nature Preserves Commission, Springfield Illinois.   |  |
| <b>Question 2.5</b> Potential for human-caused dispersal   | A Rev'd, Sci. Pub'n <a href="#">back</a> |
| Identify dispersal mechanisms: roadside constructions/maintenance; horticulture/nursery trade; dried flower arrangements and gardening   |  |
| <p>Rationale: Can be dispersed to greater distances with water, mud, soil movement, human activities, and possibly animals; often found along steep roadside banks of new highways where potential for severe erosion is high, connected with highway construction.</p> <p>Popular in dried flower arrangements and thus could be spread by persons collecting plants for such dried arrangements; because of teasel's use as a horticulture plant, this has aided in its dispersal.</p> |  |
| Sources of information: DiTomaso, J.M. and E. Healy. 2005. Weeds of California and Other Western States, (in press)  |  |
| <b>Question 2.6</b> Potential for natural long-distance dispersal  | C Rev'd, Sci. Pub'n <a href="#">back</a> |
| Identify dispersal mechanisms: Most seed do not travel long distances- while, water is the primary mode of long distance dispersal, seeds designed to endure submersion in water for long periods of time  |  |
| <p>Rationale: Most seed fall near plant base (99.9%), but can be dispersed to greater distances with water, mud, soil movement, human activities, and possibly animals; seeds can float in water up to 22 days without loss of viability; .</p>  |  |
| Sources of information: DiTomaso, J.M. and E. Healy. Weeds of California and Other Western States, as yet published. Werner, P.A., 1975. The biology of Canadian weeds. Can. J. Plant Sci. 55:783-794; Glass, William, 1990. Vegetation management Manual: Cutleved teasel and common teasel, Illinois Nature Preserves Commission, Springfield Illinois.  |  |

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|---|--|
| <b>Question 2.7</b> Other regions invaded   | C Rev'd, Sci. Pub'n <a href="#">back</a> |
| Identify other regions: Seems to invade similar ecological types in California as in other states and regions   |  |
| <p>Rationale: North Coast, Klamath Ranges, central and southern Sierra Nevada foothills, San Francisco Bay region, 10 1700m. Most contiguous states, except some southern and north-central states; Very dense patches found in northeastern US and northwestern US;</p> <p>Currently invades: fallow fields, pastures, roadside, waste places, ditches, riparian sites and other disturbed sties; invading high quality natural communities including prairies, savannas, seeps and sedge meadows</p>      |  |
| Sources of information: DiTomaso, J.M. and E. Healy. Weeds of California and Other Western States, as yet published.  |  |
| <b>Question 3.1</b> Ecological amplitude/Range  | A Rev'd, Sci. Pub'n <a href="#">back</a> |
| Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: It looks to invade in seven ecological types, widespread.  |  |
| <p>Rationale: Currently invades: fallow fields, pastures, roadside, waste places, ditches, riparian sites and other disturbed sties; invading high quality natural communities including prairies, savannas, seeps and sedge meadows</p> <p>Teasel grows in open sunny habitats, ranging from wet to dry conditions, while wet conditions are optimal</p>   |  |
| Sources of information: DiTomaso, J.M. and E. Healy. Weeds of California and Other Western States, as yet published; Cheesman, O.D., 1998. The impact of some field boundary management practices development of <i>Dipsacus fullonum</i> L. flowering stems, and implications for conservation. Agriculture, Ecosystems and Environment 68 (1998) 41-49; Rayner, J.N. (ed.), 1961. Surfaced temperature frequencies for North America and Greenland. Arctic Meteorol. Res. Group Publ. 33,, Montreal, Que. |  |
| <b>Question 3.2</b> Distribution/Peak frequency   | C Rev'd, Sci. Pub'n <a href="#">back</a> |
| Describe distribution: Fairly widestread distribution, some parameters listed below for establishment   |  |
| <p>Rationale: A typical teasel population might occupy 2,000 m2 of a field or extend for several kilometers along a roadway</p> <p>Currently invades: fallow fields, pastures, roadside, waste places, ditches, riparian sites and other disturbed sties; invading high quality natural communities including prairies, savannas, seeps and sedge meadows</p> <p>Teasel grows in open sunny habitats, ranging from wet to dry conditions, while wet conditions are optimal</p>                              |  |
| Sources of information: Werner, P.A., 1975. The biology of Canadian weeds. Can. J. Plant Sci. 55:783-794; Cheesman, O.D., 1998. The impact of some field boundary management practices development of <i>Dipsacus fullonum</i> L. flowering stems, and implications for conservation. Agriculture, Ecosystems and Environment 68 (1998) 41-49; Rayner, J.N. (ed.), 1961. Surfaced temperature frequencies for North America and Greenland. Arctic Meteorol. Res. Group Publ. 33,, Montreal, Que.            |  |

**Worksheet A**

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|  |                                  |
|--|----------------------------------|
| Reaches reproductive maturity in 2 years or less   | <b>No: 0 pt</b>                  |
| Dense infestations produce >1,000 viable seed per square meter                             | <b>Yes: 2 pts</b>                |
| Populations of this species produce seeds every year.                                      | <b>No: 0 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>Yes: 1 pt</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>5 pts      Total Unknowns</b> |
|  | <b>B (4-5 pts)</b>               |

**Note any related traits:** a few seeds are produced by selfing, while most seed produced through cross pollination; no vegetative reproduction; a rosette forms a flowering stalk only after attaining a critical size of approximately 30 cm in diameter, so doesn't necessarily reach reprod. maturity in 2 years or less

## 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                           | C. 5-20%  |
|  | rivers, streams, canals                            | C. 5-20%  |
|  | 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. presen |
|  | valley and foothill grassland                      | D. presen |
|  | Great Basin grassland                              | C. 5-20%  |
|  | vernal pool  | score     |
|  | meadow and seep                                    | C. 5-20%  |
|  | alkali playa                                       | score     |
|  | pebble plain                                       | score     |
| <b>Bog and Marsh</b>   | bog and fen  | C. 5-20%  |
|  | marsh and swamp                                    | D. presen |
| <b>Riparian and Bottomland</b>                                       | riparian forest                                    | score     |
|  | riparian woodland                                  | score     |
|  | riparian scrub (incl. desert washes)               | D. presen |
| <b>Woodland</b>  | cismontane woodland                                | score     |
|  | 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).