

# 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>	Chondrilla juncea L.
<b>Synonyms:</b>	
<b>Common names:</b>	skeleton weed, devil's grass, hogbite, gum succory, naked weed
<b>Evaluation date (mm/dd/yy):</b>	2/8/05
<b>Evaluator #1 Name/Title:</b>	Elizabeth Brusati, project manager
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<b>Evaluator #2 Name/Title:</b>	Joseph M. DiTomaso
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Section below for list committee use—please leave blank

<b>List committee members:</b>	Jake Sigg, Peter Warner, Bob Case, John Knapp, Elizabeth Brusati
<b>Committee review date:</b>	7/8/05
<b>List date:</b>	enter text here
<b>Re-evaluation date(s):</b>	enter text here

<p><b>General comments on this assessment:</b> enter text here</p>
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**Table 2. Criteria, Section, and Overall Scores**

<a href="#">1.1</a>	Impact on abiotic ecosystem processes	<b>B</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>U</b>	No Information
<a href="#">1.4</a>	Impact on genetic integrity	<b>D</b>	Other Pub. Mat'l

**Impact**

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

**BBUD**

*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>	Observational
<a href="#">2.3</a>	Recent trend in total area infested within state	<b>B (2 pts)</b>	Observational
<a href="#">2.4</a>	Innate reproductive potential <a href="#">Wksht A</a>	<b>A (3 pts)</b>	Rev'd, Sci. Pub'n
<a href="#">2.5</a>	Potential for human-caused dispersal	<b>B (2 pts)</b>	Rev'd, Sci. Pub'n
<a href="#">2.6</a>	Potential for natural long-distance dispersal	<b>B (2 pts)</b>	Rev'd, Sci. Pub'n
<a href="#">2.7</a>	Other regions invaded	<b>B (2 pts)</b>	Other Pub. Mat'l

**Invasiveness**

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

**15**

*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>	Other Pub. Mat'l
<a href="#">3.2</a>	Distribution/Peak frequency <a href="#">Wksht C</a>	<b>D</b>	Observational

**Distribution**

*Using matrix, determine score and enter below:*

**B**

**Table 3. Documentation**

<b>Question 1.1</b> Impact on abiotic ecosystem processes	B Rev'd, Sci. Pub'n <a href="#">back</a>
Identify ecosystem processes impacted: Reduces soil nitrogen.	
Rationale: Strong competitor for nitrogen. <i>C. juncea</i> is capable of reducing the level of nitrogen by the equivalent of 56kg/ha of artificial nitrogen.	
Sources of information: 1. Panetta, F. D. and J. Dodd 1987. The biology of Australian weeds. 16. <i>Chondrilla juncea</i> L. Journal of the Australian Institute of Agricultural Science 53(2): 83-95 2. Liao, J. D., S. B. Monsen, V. J. Anderson, and N. L. Shaw. 2000. Seed biology of rush skeletonweed in sagebrush steppe. Journal of Range Management 53(5): 544-549.	
<b>Question 1.2</b> Impact on plant community composition, structure, and interactions	B Rev'd, Sci. Pub'n <a href="#">back</a>
Identify type of impact or alteration: Outcompetes other plants for nitrogen and other nutrients (1, 2). Grows in dense monocultures in other western states, but has not reached this level of density in California (2). Dense near Folsom Dam and in three or four counties (3).	
Rationale: Presence of seedlings and young plants reduce seed mortality of <i>Chondrilla</i> (1).	
Sources of information: 1. Panetta, F. D. and J. Dodd 1987. The biology of Australian weeds. 16. <i>Chondrilla juncea</i> L. Journal of the Australian Institute of Agricultural Science 53(2): 83-95 2. Joe DiTomaso, UC Davis, pers. obs. 3. Bob Case, California Native Plant Society, pers. obs..	
<b>Question 1.3</b> Impact on higher trophic levels	U No Information <a href="#">back</a>
Identify type of impact or alteration: no information	
Rationale: enter text here	
Sources of information: enter text here	
<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>Chondilla</i> 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 cultivated areas and open, waste areas with disturbed soil (1). The optimal level of disturbance is equivalent to wheat/fallow cultivation and greater or lesser disturbance produces lower population levels (2). Mostly a roadside invader, but can expand away from roads into roadside corridors with grass or trees (3).	
Rationale: enter text here	
Sources of information: 1. Panetta, F. D. and J. Dodd. 1987. The biology of Australian weeds. 16. Chondrilla juncea L. Journal of the Australian Institute of Agricultural Science 53(2): 83-95 2. Wapshere, A. J., S. Hasan, and L. Caresche. 1974. The ecology of Chondrilla juncea in the western Mediterranean. Journal of Applied Ecology 11(2): 783-799 3. Personal communication, Carri Piroosko, CA Dept. of Food and Agriculture .	
<b>Question 2.2</b> Local rate of spread with no management	B Observational <a href="#">back</a>
Describe rate of spread: Slowly expanding in at least some areas.	
Rationale: El Dorado County is no longer attempting to eradicate this weed (we are one of the counties to have given up after huge efforts in the 60's-80's). Don't have concrete expansion numbers since we are no longer mapping this weed but is contining to slowly expand in our county (roughly 10% per year --- but hard to put a percentage on expansion) (1).	
Sources of information: 1. Personal communication, Wendy West, UC Cooperative Extension, El Dorado county. 2. Personal communication, Carri Piroosko, CA Dept. of Food and Agriculture	
<b>Question 2.3</b> Recent trend in total area infested within state	B Observational <a href="#">back</a>
Describe trend: Probably expanding within state, slowly to moderately (1, 2).	
Rationale: enter text here	
Sources of information: 1. Personal communication, Wendy West, UC Cooperative Extension, El Dorado county. 2. Personal communication, Carri Piroosko, CA Dept. of Food and Agriculture	
<b>Question 2.4</b> Innate reproductive potential	A Rev'd, Sci. Pub'n <a href="#">back</a>
Describe key reproductive characteristics: Herbaceous. Long-lived perennial in Australia but behaves as a biennial in its native range. An individual plant can produce >20,000 seeds, but first year plants produce 250-350 seeds (1). In Australia, plants produced up to 27600 seeds with 80-90% viability (2). Produces seeds over a long period each year and plants less than one year old can reproduce (3). Adventitious buds at the top of the tap root and along the major laterals give rsie to daughter rosettes in undisturbed plants. Root break easily with soil	

<p>disturbance. Adventitious shoots can arise from root fragments throughout the year (3). According to one study, most seeds lose viability within 1 year (4). However, data from a North American study suggested that non-germinating seeds are viable and may be able to persist past one year (5). However, seed viability decreases to 2% by the third year (6). All reproduction is vegetative or from asexual seed production (6).</p>	
<p>Rationale: enter text here</p>	
<p>Sources of information: 1. Sheley R.L., J. M. Hudak, and R. T. Grubb. 1999. "Rush Skeletonweed" In: Biology and Management of Noxious Rangeland Weeds, Sheley R.L., Petroff J.K. [Ed.] Oregon State University Press: Corvallis.</p> <p>2. Dodd, J. and F. D. Panetta. 1987. Seed production by skeleton weed (<i>Chondrilla juncea</i> L.) in western Australia in relation to summer drought. <i>Australian Journal of Agricultural Research</i> 38(4): 689-705</p> <p>3. Panetta and Dodd 1987</p> <p>4. Wapshere, A. J., S. Hasan, and L. Caresche. 1974. The ecology of <i>Chondrilla juncea</i> in the western Mediterranean. <i>Journal of Applied Ecology</i> 11(2): 783-799</p> <p>5. Liao, J. D., S. B. Monsen, V. J. Anderson, and N. L. Shaw. 2000. Seed biology of rush skeletonweed in sagebrush steppe. <i>Journal of Range Management</i> 53(5): 544-549.</p> <p>6. DiTomaso, J., and E. Healy. in prep. Weeds of California and Other Western States.</p>	
<p><b>Question 2.5</b> Potential for human-caused dispersal</p>	<p>B Rev'd, Sci. Pub'n <a href="#">back</a></p>
<p>Identify dispersal mechanisms: Contaminant of hay. Could be spread by attaching to livestock (see question 2.6), but probably only contributes to a minor degree to long distance transport (1). Can disperse along highways (2).</p>	
<p>Rationale: Seeds were found contaminating hay in Australia during long-distance transport of fodder to drought affected areas (1).</p>	
<p>Sources of information: 1. Panetta and Dodd 1987</p> <p>2. Bob Case, California Native Plant Society, pers. obs.</p>	
<p><b>Question 2.6</b> Potential for natural long-distance dispersal</p>	<p>B Rev'd, Sci. Pub'n <a href="#">back</a></p>
<p>Identify dispersal mechanisms: Wind, attachment to fur.</p>	
<p>Rationale: Seed possesses a pappus, which facilitates wind dispersal. Rough seed coat with teeth can attach to animals (1).</p>	
<p>Sources of information: 1. Panetta and Dodd 1987</p>	
<p><b>Question 2.7</b> Other regions invaded</p>	<p>B Other Pub. Mat'l <a href="#">back</a></p>
<p>Identify other regions: Listed as a noxious weed in Australia (1). As of 2000, covered 2.5 million ha of rangeland in the Pacific northwest and California. Invades sagebrush steppe in Idaho (2). Does not seem to be in sagebrush areas of California yet.</p>	

Rationale:	
Sources of information: 1. Panetta and Dodd 1987 1. Liao et al. 2000.	
<b>Question 3.1</b> Ecological amplitude/Range	A 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: Occurs in disturbed soils of roadsides, croplands, semi-arid pastures, rangelands, and residential properties. Grows best on well-drained sandy or gravelly soils in climates with cool winters and hot, relatively dry summers. Tolerates a wide range of environmental conditions, including rain from 250mm (10in) to >1200mm (50in)/year. Present in North Coast, Cascade Range, northern Sierra Nevada, Central Valley, San Francisco Bay Area, South Coast Range, and South Coast, to 600m (1). Very widespread in California (2). Only occasionally in wildland areas, mostly grasslands. Most often found along roadsides.	
Rationale: enter text here	
Sources of information: 1. DiTomaso and Healy in press 2. Personal communication, Carri Piroosko, CA Dept. of Food and Agriculture .	
<b>Question 3.2</b> Distribution/Peak frequency	D Observational <a href="#">back</a>
Describe distribution: Not very common in California. Biocontrol agents have been shown to reduce populations in other western states.	
Rationale: enter text here	
Sources of information: Observational, DiTomaso	

**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>Yes: 2 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>Yes: 1 pt</b>
Seeds remain viable in soil for three or more years	<b>No: 0 pts</b>
Viable seed produced with <i>both</i> self-pollination and cross-pollination	<b>No: 0 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>Yes: 1 pt</b>
	<b>6 pts      Total Unknowns</b>
	<b>A (6+ pts)</b>

**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*
<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	D. presen
	Sonoran desert scrub	score
	Mojavean desert scrub (incl. Joshua tree woodland)	score
	Great Basin scrub	D. presen
	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	score
	valley and foothill grassland	D. presen
	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. presen
	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	D. presen
	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).