

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):	Centaurea x pratensis Thuill.
Synonyms:	Centaurea debeauxii Gren. & Godr., Centaurea jacea L. x Centaurea nigra L.
Common names:	meadow knapweed
Evaluation date (mm/dd/yy):	5/3/05
Evaluator #1 Name/Title:	Gina Skurka and Elizabeth Brusati
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Section below for list committee use—please leave blank

List committee members:	Carla Bossard, John Randall, Carri Pirosko, 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

1.1	Impact on abiotic ecosystem processes	C	Other Pub. Mat'l
1.2	Impact on plant community	B	Other Pub. Mat'l
1.3	Impact on higher trophic levels	C	Other Pub. Mat'l
1.4	Impact on genetic integrity	D	Other Pub. Mat'l

Impact

Enter four characters from Q1.1-1.4 below:

CBCD

Using matrix, determine score and enter below:

B

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

Invasiveness

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

14

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

3.1	Ecological amplitude/Range	B	Other Pub. Mat'l
3.2	Distribution/Peak frequency Wksht C	D	Observational

Distribution

Using matrix, determine score and enter below:

C

Table 3. Documentation

<p>Question 1.1 Impact on abiotic ecosystem processes</p>	<p>C Other Pub. Mat'l back</p>
<p>Identify ecosystem processes impacted: Taproot with a wooly crown, plants grow 0.4 - 1 meter tall. Taproot may change soil water content.</p>	
<p>Rationale: enter text here</p>	
<p>Sources of information: Meadow Knapweed. A Guide to Weeds in British Columbia. www.weedsbc.ca/weed_desc/meadow.html.</p>	
<p>Question 1.2 Impact on plant community composition, structure, and interactions</p>	<p>B Other Pub. Mat'l back</p>
<p>Identify type of impact or alteration: Can invade rangeland and pastures, causing reduction in carrying capacity. Forms dense stands. It can also result in reduced yields in hayfields. Meadow knapweed out competes grasses and other pasture species and is difficult to control due to its extensive root system. This level of infestation have not occurred in California and may require more nothern climates.</p>	
<p>Rationale: enter text here</p>	
<p>Sources of information: Meadow Knapweed. A Guide to Weeds in British Columbia. www.weedsbc.ca/weed_desc/meadow.html.</p> <p>Meadow Knapweed. Proposal for listing as an A-rated Weed. Personal communication from Carri Pirosko, California Department of Food and Agriculture 5/5/05</p> <p>Carri Pirosko, California Dept. of Food and Agriculture, pers. obs.</p>	
<p>Question 1.3 Impact on higher trophic levels</p>	<p>C Other Pub. Mat'l back</p>
<p>Identify type of impact or alteration: Low palatability to grazing animals. Reduce winter forage for Elk.</p>	
<p>Rationale: Negligible impact; causes no perceivable change in higher trophic level populations, communities, or interactions.</p>	
<p>Sources of information: Meadow Knapweed. A Guide to Weeds in British Columbia. www.weedsbc.ca/weed_desc/meadow.html.</p> <p>Meadow Knapweed. Proposal for listing as an A-rated Weed. Personal communication from Carri Pirosko, California Department of Food and Agriculture 5/5/05.</p>	
<p>Question 1.4 Impact on genetic integrity</p>	<p>D Other Pub. Mat'l back</p>
<p>Identify impacts: Brown knapweed (<i>C. jacea</i>) and black knapweed (<i>C. nigra</i>) produce fully fertile hybrids (meadow knapweed) that appear to be weedier than either of the parents. May hybridize with YST. Not known to hybridize with native species.</p> <p>No native <i>Centaurea</i> species.</p>	

Rationale: enter text here	
Sources of information: Roche, B.F. Jr. , C.T. Roche. Identification, Introduction, Distribution, Ecology, and Economics of Centaurea Species. Noxious Range Weeds. 1991. 274-291. Ed. James L.F. et al. Westview Press, Boulder, San Francisco, Oxford. Hickman, J. C. (ed.) 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA	
Question 2.1 Role of anthropogenic and natural disturbance in establishment	B Other Pub. Mat'l back
Describe role of disturbance: Meadow knapweed inhabit disturbed places in the northwestern region and the San Francisco Bay region, to 500 m. Typically it grows on roadsides and disturbed areas, where it forms dense stands that hinder re-establishment of native species. Meadow knapweed does not need disturbance to establish new populations. One example is the only known infestation in Colorado that is not overgrazed and has a riparian area that has been described as "very healthy." The existing native plant community is quite diverse and the infestation is in all the different plant communities.	
Rationale:	
Sources of information: DiTomaso, J. M. E.A. Healy. Weeds of California and Other Western States. As yet unpublished. Meadow Knapweed. A Guide to Weeds in British Columbia. www.weedsbc.ca/weed_desc/meadow.html . Meadow Knapweed. Proposal for listing as an A-rated Weed. Personal communication from Carri Pirosko, California Department of Food and Agriculture 5/5/05.	
Question 2.2 Local rate of spread with no management	A Observational back
Describe rate of spread: Existing populations are small but rapidly spreading. Has doubled in less than 10 years in Siskiyou and Del Norte Counties.	
Rationale: enter text here	
Sources of information: Meadow Knapweed. Proposal for listing as an A-rated Weed. Personal communication from Carri Pirosko, California Department of Food and Agriculture 5/5/05.	
Question 2.3 Recent trend in total area infested within state	A Observational back
Describe trend: Currently, meadow knapweed has a limited distribution in California. Meadow knapweed presently occurs in a limited distribution in Siskiyou, Humboldt, and Del Norte Counties. Fewer than 10 known sites. All locations are relatively small, but the weed is spreading at an alarming rate. See Carri's report for current management efforts.	
Rationale: enter text here	

Sources of information: Meadow Knapweed. Proposal for listing as an A-rated Weed. Personal communication from Carri Pirosko, California Department of Food and Agriculture 5/5/05.	
Question 2.4 Innate reproductive potential	B Other Pub. Mat'l back
Describe key reproductive characteristics: Meadow knapweed has sterile outer flowers. Primarily reproduce by seed and to some extent by short lateral shoots from the parent plants. Root and crown fragments resprout when disturbed by heavy equipment or cultivation. Suspected to have upwards of 30 seeds per seedhead.	
Rationale: 5 points	
Sources of information: DiTomaso, J.M., E.A Healy. Weeds of California and Other Western States. As yet unpublished (J. DiTomaso files, KND 8/10/04, hardcopy at Cal-IPC). Roche, B.F. Jr. , C.T. Roche. Identification, Introduction, Distribution, Ecology, and Economics of Centaurea Species. Noxious Range Weeds. 1991. 274-291. Ed. James L.F. et al. Westview Press, Boulder, San Francisco, Oxford. Meadow Knapweed. Proposal for listing as an A-rated Weed. Personal communication from Carri Pirosko, California Department of Food and Agriculture 5/5/05.	
Question 2.5 Potential for human-caused dispersal	C Other Pub. Mat'l back
Identify dispersal mechanisms: Seeds carried by irrigation water systems and vehicles. All indications are that it will spread along road systems and thus increase potential to infest highly valued wildlands such as Botanical Areas and Wilderness Areas. Was used as forage. Present as contaminant in ship ballast. Transplanted into gardens. Infestation in Humboldt County resulted from an overturned hay truck. These methods of dispersal can occur but are not common.	
Rationale: enter text here	
Sources of information: Meadow Knapweed. Proposal for listing as an A-rated Weed. Personal communication from Carri Pirosko, California Department of Food and Agriculture 5/5/05. Roche, B.F. Jr. , C.T. Roche. Identification, Introduction, Distribution, Ecology, and Economics of Centaurea Species. Noxious Range Weeds. 1991. 274-291. Ed. James L.F. et al. Westview Press, Boulder, San Francisco, Oxford.	
Question 2.6 Potential for natural long-distance dispersal	C Other Pub. Mat'l back
Identify dispersal mechanisms: Seeds are carried in rivers, but generally grow in areas not adjacent to water so long distance dispersal by natural means in very uncommon.	
Rationale: enter text here	

Sources of information: Roche, B.F. Jr. , C.T. Roche. Identification, Introduction, Distribution, Ecology, and Economics of Centaurea Species. Noxious Range Weeds. 1991. 274-291. Ed. James L.F. et al. Westview Press, Boulder, San Francisco, Oxford.	
Question 2.7 Other regions invaded	B Observational back
Identify other regions: The earliest records of meadow knapweed in the Pacific Northwest are from Multnomah and Lane counties, Oregon, between 1910 and 1920. Occurs at elevations up to 6600 feet in the mountains of Central Europe. In Washington State, it grows in the more mesic meadow and pasture areas, usually in openings in forested areas or along drainages. Further, hybrids such as meadow knapweed can exhibit greater adaptability to new conditions, beyond that of either the brown or black parent stock. In several western states, meadow knapweed has been found growing in : irrigated meadows, along riparian areas, in dry sagebrush upland country, dry-land meadows, aspen stands, and under mixed conifer stands.	
Rationale: Scoring as A because has a limited distribution in California but occurs in a number of habitats in the northwest.	
Sources of information: Meadow Knapweed. Proposal for listing as an A-rated Weed. Personal communication from Carri Pirosko, California Department of Food and Agriculture 5/5/05.	
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: Introduced from Europe in early 1900s, by 1960 meadow knapweed was well established in the valley between the Coast and Cascade Ranges from British Columbia to northern California. In the past 100 yrs, it has demonstrated a superior ability to move and occupy a yet undefined niche in the more mesic grasslands at lower and middle elevations. Del Norte County, southern edge of Crescent City, gravel bars in Klamath National Forest, meadow in Siskiyou County.	
Rationale: enter text here	
Sources of information: Roche, B.F. Jr. , C.T. Roche. Identification, Introduction, Distribution, Ecology, and Economics of Centaurea Species. Noxious Range Weeds. 1991. 274-291. Ed. James L.F. et al. Westview Press, Boulder, San Francisco, Oxford.	
Question 3.2 Distribution/Peak frequency	D Observational back
Describe distribution: Very limited distribution in California so far.	
Rationale: enter text here	
Sources of information: Meadow Knapweed. Proposal for listing as an A-rated Weed. Personal communication from Carri Pirosko, California Department of Food and Agriculture 5/5/05.	



Worksheet A[back](#)

Reaches reproductive maturity in 2 years or less	Yes: 1 pt
Dense infestations produce >1,000 viable seed per square meter	Unknown: 0 pts
Populations of this species produce seeds every year.	Yes: 1 pt
Seed production sustained over 3 or more months within a population annually	No: 0 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	Yes: 1 pt
	5 pts Total Unknowns
	B (4-5 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	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
Grasslands, Vernal Pools, Meadows, and other Herb Communities	coastal prairie	score
	valley and foothill grassland	score
	Great Basin grassland	score
	vernal pool	score
	meadow and seep	D. present
	alkali playa	score
	pebble plain	score
Bog and Marsh	bog and fen	score
	marsh and swamp	score
Riparian and Bottomland	riparian forest	D. present
	riparian woodland	D. present
	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).