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)**:**	*Crupina vulgaris*
Synonyms:	
Common names:	Common crupina
Evaluation date (mm/dd/yy)**:**	August 1, 2003
Evaluator #1 Name/Title:	Joe DiTomaso
Affiliation:	UC Davis
Phone numbers:	530-754-8715
Email address:	DiTomaso@vegmail.ucdavis.edu
Address:	Weed Science Program, Robbins Hall, Univ. California, Davis CA 95616
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:	Jake Sigg, Peter Warner, Doug Johnson, Joe DiTomaso, Brianna Richardson
Committee review date:	August 1, 2003
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	**B**	**Other Pub. Mat'l**
1.2	Impact on plant community	**C**	**Other Pub. Mat'l**
1.3	Impact on higher trophic levels	**C**	**Other Pub. Mat'l**
1.4	Impact on genetic integrity	**D**	**Observational**

"Impact"

Enter four characters from Q1.1-1.4 below:

BCCD

Use matrix determine the score; enter below:

B

2.1	Role of anthropogenic and natural disturbance	**B 2**	**Rev'd, Sci. Pub'n**
2.2	Local rate of spread with no management	**B 2**	**Other Pub. Mat'l**
2.3	Recent trend in total area infested within state	**D 0**	**Other Pub. Mat'l**
2.4	Innate reproductive potential	**B 2**	**Rev'd, Sci. Pub'n**
2.5	Potential for human-caused dispersal	**C 1**	**Other Pub. Mat'l**
2.6	Potential for natural long-distance dispersal	**C 1**	**Rev'd, Sci. Pub'n**
2.7	Other regions invaded	**B 2**	**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:

10

Use matrix to determine score and enter below:

C

"Plant Score"

Using matrix, determine the Overall Score and Alert Status from the three section scores and enter them below:

Low

No Alert

3.1	Ecological amplitude	**A**	**Rev'd, Sci. Pub'n**
3.2	Distribution	**D**	**Other Pub. Mat'l**

"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	**No: 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 *both* self-pollination and cross-pollination	**Yes: 1 pt**
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	**No: 0 pt**
5 pts	**Total Unknowns**
B (4-5 pts)	

Table 3. Documentation

Question 1.1 Impact on abiotic ecosystem processes
Identify ecosystem processes impacted: Can increase soil erosion, but has not done so in California to date.
Rationale:
Sources of information: Thill, D.C., C.T. Roche and D.L. Zamora. 1999. Common crupina. Pp. 189-201. In, Biology and Management of Noxious Rangeland Weeds. Eds. R.L. Sheley and J.K. Petroff, Oregon State Univ. Press, Corvallis.
Question 1.2 Impact on plant community composition, structure, and interactions
Identify type of impact or alteration: Forms dense populations that dominate forages or disrupt and deplete rangelands, and reduces biodiversity of many native ecosystems. Not as dominant in California. Densities in other states ranged from 161 to 323 plants per m^2.
Rationale:
Sources of information: Thill, D.C., C.T. Roche and D.L. Zamora. 1999. Common crupina. Pp. 189-201. In, Biology and Management of Noxious Rangeland Weeds. Eds. R.L. Sheley and J.K. Petroff, Oregon State Univ. Press, Corvallis.
Question 1.3 Impact on higher trophic levels
Identify type of impact or alteration: Poor forage for wildlife. In other states it has degraded habitat for some wildlife species.
Rationale:
Sources of information: Thill, D.C., C.T. Roche and D.L. Zamora. 1999. Common crupina. Pp. 189-201. In, Biology and Management of Noxious Rangeland Weeds. Eds. R.L. Sheley and J.K. Petroff, Oregon State Univ. Press, Corvallis.
Question 1.4 Impact on genetic integrity
Identify impacts: Probably none.
Rationale: No other species of Crupina in California.
Sources of information: DiTomaso, observational
Question 2.1 Role of anthropogenic and natural disturbance in establishment
Describe role of disturbance: Adapted to a wide range of habitats, but prefers disturbed sites. Biological characteristics favor movement to undisturbed sites even more than yellow starthistle.
Rationale:
Sources of information: Thill, D.C., C.T. Roche and D.L. Zamora. 1999. Common crupina. Pp. 189-201. In, Biology and Management of Noxious Rangeland Weeds. Eds. R.L. Sheley and J.K. Petroff, Oregon State Univ. Press, Corvallis.; Roche, C.T. and D.C. Thill. 2001. Biology of common crupina and yellow starthistle, two Mediterranean winter annual invaders in western North America. Weed Sci. 49:439-447.
Question 2.2 Local rate of spread with no management
Describe rate of spread: Spread rapidly in other states but not as rapidly in California.
Rationale:
Sources of information: Thill, D.C., C.T. Roche and D.L. Zamora. 1999. Common crupina. Pp. 189-201. In, Biology and Management of Noxious Rangeland Weeds. Eds. R.L. Sheley and J.K. Petroff, Oregon State Univ. Press, Corvallis.; DiTomaso, observational
Question 2.3 Recent trend in total area infested within state
Describe trend: CDFA efforts have reduced populations in California. Currently it is considered very uncommon.
Rationale:
Sources of information: DiTomaso, J.M. and E. A. Healy. 2005. Weeds of California. Div. Nat. Agr. Res. Univ. California (in press)
Question 2.4 Innate reproductive potential
Describe key reproductive characteristics: both self and cross pollination. Seed produced every year, but seed so large that it does not produce >1000 per m^2. Seed longevity about 3 years or less in soil.
Rationale:
Sources of information: Thill, D.C., C.T. Roche and D.L. Zamora. 1999. Common crupina. Pp. 189-201. In, Biology and Management of Noxious Rangeland Weeds. Eds. R.L. Sheley and J.K. Petroff, Oregon State Univ. Press, Corvallis.; DiTomaso, J.M. and E. A. Healy. 2005. Weeds of California. Div. Nat. Agr. Res. Univ. California (in press); Zamora, D. L. and Thill, D. C. 1989 Seed bank longevity of common crupina (Crupina vulgaris) in natural populations. Weed Technol. 3:166-169.; Thill, D. C., Zamora, D. L., and Kambitsch, D. L. 1985. Germination and viability of common crupina (Crupina vulgaris) achenes buried in the field. Weed Sci. 33:344-348.

Question 2.5 Potential for human-caused dispersal
Identify dispersal mechanisms: Recreational vehicles can spread seeds over long distance but this is very uncommon.
Rationale:
Sources of information: Thill, D.C., C.T. Roche and D.L. Zamora. 1999. Common crupina. Pp. 189-201. In, Biology and Management of Noxious Rangeland Weeds. Eds. R.L. Sheley and J.K. Petroff, Oregon State Univ. Press, Corvallis.
Question 2.6 Potential for natural long-distance dispersal
Identify dispersal mechanisms: Seed blow about 5 feet with wind. Deer and rodents also move seed but short distances. Can move through animal digestive tract. Movement over 1 km probably very uncommon.
Rationale:
Sources of information: Thill, D.C., C.T. Roche and D.L. Zamora. 1999. Common crupina. Pp. 189-201. In, Biology and Management of Noxious Rangeland Weeds. Eds. R.L. Sheley and J.K. Petroff, Oregon State Univ. Press, Corvallis.; Thill, D. C., Zamora, D. L., and Kambitsch, D. L. 1986. The germination and viability of excreted common crupina (Crupina vulgaris) achenes. Weed Sci. 34:237-241.; Prather, T. S., Callihan, R. H., and Thill, D. C. 1991. Common crupina: biology, management and eradication. Curr.Inf.Ser.Coop.Ext.Serv.Univ.Idaho. (880).
Question 2.7 Other regions invaded
Identify other regions: Economic pest in rangelands of southern Russia. Other western states, but often in rangelands where it is not yet found in California.
Rationale:
Sources of information: Thill, D.C., C.T. Roche and D.L. Zamora. 1999. Common crupina. Pp. 189-201. In, Biology and Management of Noxious Rangeland Weeds. Eds. R.L. Sheley and J.K. Petroff, Oregon State 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: First discovered in US (Idaho) in 1968 and in California in 1975. Found in many habitats but not all in California. However, its range is expected to increase because of its wide tolerance to temperature and photoperiod conditions. In addition, it has only been here for a short period and may not have had the opportunity to spread yet.
Rationale:
Sources of information: Thill, D.C., C.T. Roche and D.L. Zamora. 1999. Common crupina. Pp. 189-201. In, Biology and Management of Noxious Rangeland Weeds. Eds. R.L. Sheley and J.K. Petroff, Oregon State Univ. Press, Corvallis.; Roche, C.T. and D.C. Thill. 2001. Biology of common crupina and yellow starthistle, two Mediterranean winter annual invaders in western North America. Weed Sci. 49:439-447.; DiTomaso, J.M. and E. A. Healy. 2005. Weeds of California. Div. Nat. Agr. Res. Univ. California (in press); Patterson, D. T. and Mortensen, D. A. 1985. Effects of temperature and photoperiod on common crupina (Crupina vulgaris). Weed Sci. 33:333-339.
Question 3.2 Distribution
Describe distribution: Forested areas and some scrubland.
Rationale:
Sources of information: Thill, D.C., C.T. Roche and D.L. Zamora. 1999. Common crupina. Pp. 189-201. In, Biology and Management of Noxious Rangeland Weeds. Eds. R.L. Sheley and J.K. Petroff, Oregon State Univ. Press, Corvallis.; DiTomaso, J.M. and E. A. Healy. 2005. Weeds of California. Div. Nat. Agr. Res. Univ. California (in press); Quibell, C.F. 1991. Notes. Crupina vulgaris. Madrono 38(4):296.

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	**score**
	valley and foothill grassland	**D. presen**
	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	**D. presen**
	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	**D. presen**
	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).