

Part IV. Plant Assessment Form

For use with “Criteria for Categorizing Invasive Non-Native Plants that Threaten Colorado’s Wildlands and Agriculture”
By the Colorado Noxious Weed Advisory Committee

Electronic version: December 4, 2008

Table 1. Species and Evaluator Information

Species name (Latin binomial):	Cytisus scoparius (L.) Link
Synonyms:	
Common names:	Scotch broom
Evaluation date (mm/dd/yy):	4/28/10
Evaluator #1 Name/Title:	Joseph Vassios / Graduate Research Assistant
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Evaluator #2 Name/Title:	Dr. Scott Nissen / Professor
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Section below for list committee use—please leave blank

List committee members:	enter text here
Committee review date:	enter text here
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	<p>Impact</p> <p><i>Enter four characters from Q1.1-1.4 below:</i></p> <p>CCBU</p> <p><i>Using matrix, determine score and enter below:</i></p> <p>C</p>	<p>Wildlands Plant Score</p> <p><i>Using matrix, determine Overall Score and Alert Status from the first, second, and third section scores and enter below:</i></p> <p>Limited No Alert</p>
1.2	Impact on plant community	C	Rev'd, Sci. Pub'n		
1.3	Impact on higher trophic levels	B	Other Pub. Mat'l		
1.4	Impact on genetic integrity	U	Other Pub. Mat'l		
2.1	Role of anthropogenic and natural disturbance	B (2 pts)	Rev'd, Sci. Pub'n	<p>Invasiveness</p> <p><i>Enter the sum total of all points for Q2.1-2.7 below:</i></p> <p>14</p> <p><i>Use matrix to determine score and enter below:</i></p> <p>B</p>	
2.2	Local rate of spread with no management	B (2 pts)	Other Pub. Mat'l		
2.3	Recent trend in total area infested within state	U (0 pts)	Other Pub. Mat'l		
2.4	Innate reproductive potential Wksht A	A (3 pts)	Rev'd, Sci. Pub'n		
2.5	Potential for human-caused dispersal	A (3 pts)	Other Pub. Mat'l		
2.6	Potential for natural long-distance dispersal	C (1 pt)	Other Pub. Mat'l		
2.7	Other regions invaded	A (3 pts)	Other Pub. Mat'l		
3.1	Ecological amplitude/Range	U	Other Pub. Mat'l	<p>Distribution</p> <p><i>Using matrix, determine score and enter below:</i></p> <p>U</p>	
3.2	Distribution/Peak frequency Wrksht B	U	Other Pub. Mat'l		

4.1	Poisonous to livestock	B (2pts)	Other Pub. Mat'l
4.2	Detrimental to economic crops	D (0 pts)	Other Pub. Mat'l
4.3	Detrimental to management of agricultural system, rangeland and pasture	C (1 pt)	Other Pub. Mat'l
4.4	Human impacts Wrksht C	A (3 pts)	Other Pub. Mat'l

Agricultural / Human Impact

Enter the sum total of all points for Q4.1-4.4 below:

6

Use matrix to determine score and enter below:

B

Agricultural Plant Score

Using matrix, determine Overall Score and Alert Status from the second, third and fourth section scores and enter below:

Moderate

Red Alert

Table 3. Documentation

Question 1.1 Impact on abiotic ecosystem processes	C Other Pub. Mat'l back
Identify ecosystem processes impacted: May impact nutrient levels in the soils. Stands may also increase risk of fire.	
Rationale: Associates with nitrogen fixing bacteria. Will fix nitrogen year-round where winters are mild.	
Sources of information: DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Western States, Vol.1. University of California, Agriculture and Natural Resources. Oakland, CA.	
Question 1.2 Impact on plant community composition, structure, and interactions	C Rev'd, Sci. Pub'n back
Identify type of impact or alteration: Seedlings may impact establishment of coniferous species. Often infests edges of forests and pastures.	
Rationale: Can outcompete conifer seedlings, decreasing the chances of successful revegetation of disturbed sites. Plants are also very drought tolerant, but not very shade tolerant. May grow on edges of forests, but will not tolerate low light levels under forest canopy.	
Sources of information: DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Western States, Vol.1. University of California, Agriculture and Natural Resources. Oakland, CA.	
Potter, K.J.B., D.J. Kriticos, M.S. Watt, A. Leriche. 2008. The current and future potential distribution of <i>Sytisus scoparius</i> : a weed of pastoral systems, natural ecosystems and plantation forestry. <i>Weed Research</i> . 49: 271-282.	
Question 1.3 Impact on higher trophic levels	B Rev'd, Sci. Pub'n back
Identify type of impact or alteration: May lead to decreases in suitable habitat, decrease value of grazing areas, and be poisonous to animals and humans.	
Rationale: May occlude desirable species that provide habitat and forage for livestock and wildlife. Has invaded abandoned pastures in Europe and pastures that are extensively used for grazing. Flowers and seeds contain quinolizidine alkaloids that can be toxic to humans and animals.	
Sources of information: DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Western States, Vol.1. University of California, Agriculture and Natural Resources. Oakland, CA.	
Potter, K.J.B., D.J. Kriticos, M.S. Watt, A. Leriche. 2008. The current and future potential distribution of <i>Sytisus scoparius</i> : a weed of pastoral systems, natural ecosystems and plantation forestry. <i>Weed Research</i> . 49: 271-282.	
Question 1.4 Impact on genetic integrity	U Other Pub. Mat'l back
Identify impacts: There are no <i>Cytisus</i> species known to occur in Colorado.	
Rationale: enter text here	

Sources of information: USDA Plants Database. 2010. <i>Cytisus scoparius</i> L. Accessed online Apr.27. http://plants.usda.gov/java/profile?symbol=CYSC4 .	
Question 2.1 Role of anthropogenic and natural disturbance in establishment	B Rev'd, Sci. Pub'n back
Describe role of disturbance: Possesses the ability to capitalize on disturbance, especially in former pastures and tree plantations. Also able to become established in relatively undisturbed areas.	
Rationale: Can become established in disturbed sites such as, former pastures, logged sites, burned sites, roadsides, and pastures. May also invade sites where little or no disturbance has occurred.	
Sources of information: DiTomaso, J.M. and E.A. Healy. 2007. <i>Weeds of California and Western States</i> , Vol.1. University of California, Agriculture and Natural Resources. Oakland, CA. Potter, K.J.B., D.J. Kriticos, M.S. Watt, A. Leriche. 2008. The current and future potential distribution of <i>Sytisus scoparius</i> : a weed of pastoral systems, natural ecosystems and plantation forestry. <i>Weed Research</i> . 49: 271-282.	
Question 2.2 Local rate of spread with no management	B Other Pub. Mat'l back
Describe rate of spread: Will spread seed over small distances with explosive seed pods. Plants are long-lived and seeds may survive for many years.	
Rationale: Seed spread short distances when seed pods burst. Since plants are long lived and produce seed annually for approximately 5 years, there is a reasonable chance for spread. Seed life of 30 years or more in the soil will also contribute to its ability to spread.	
Sources of information: DiTomaso, J.M. and E.A. Healy. 2007. <i>Weeds of California and Western States</i> , Vol.1. University of California, Agriculture and Natural Resources. Oakland, CA.	
Question 2.3 Recent trend in total area infested within state	B Other Pub. Mat'l back
Describe trend: Not currently known to exist in Colorado.	
Rationale: Not currently known to exist in Colorado.	
Sources of information: USDA Plants Database. 2010. <i>Cytisus scoparius</i> L. Accessed online Apr.27. http://plants.usda.gov/java/profile?symbol=CYSC4 .	
Question 2.4 Innate reproductive potential	A Rev'd, Sci. Pub'n back
Describe key reproductive characteristics: Produces seed, both self-pollinated and cross-pollinated. Plants produce seed annually once they reach 3-5 years old, producing up to 3,500 seed pods per year. Seeds may remain viable for 30 or more years, and plant will regrow from crowns once aboveground biomass has been removed.	

Rationale: enter text here	
Sources of information: DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Western States, Vol.1. University of California, Agriculture and Natural Resources. Oakland, CA.	
Question 2.5 Potential for human-caused dispersal	A Other Pub. Mat'l back
Identify dispersal mechanisms: Human caused disturbance such as logging may increase opportunity for establishment. Mechanical equipment used for removal of Scotch broom may transport seed to new locations, as well as transport by animals and other human activities.	
Rationale: enter text here	
Sources of information: DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Western States, Vol.1. University of California, Agriculture and Natural Resources. Oakland, CA.	
Question 2.6 Potential for natural long-distance dispersal	C Other Pub. Mat'l back
Identify dispersal mechanisms: Limited long-distance natural dispersal may occur. If flowing water is present, seeds may be transported long distances downstream.	
Rationale: enter text here	
Sources of information: DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Western States, Vol.1. University of California, Agriculture and Natural Resources. Oakland, CA.	
Question 2.7 Other regions invaded	A Other Pub. Mat'l back
Identify other regions: Exists in California, Washington, Nevada, Oregon, Idaho, Montana, and a range of eastern states. Can occur in open forests, riparian corridors, and grasslands. Representing the three major groups: riparian, grassland, and woodland.	
Rationale: Is an exotic weed that is present in the states listed above. In these areas it is known to exist in riparian corridors, grasslands, coastal scrub, oak woodlands, and open forests. Areas similar to these that exist in Colorado are identified above.	
Sources of information: DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Western States, Vol.1. University of California, Agriculture and Natural Resources. Oakland, CA.	
Question 3.1 Ecological amplitude/Range	U Other Pub. Mat'l back
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Not currently known to exist in Colorado	
Rationale: enter text here	

Sources of information: USDA Plants Database. 2010. Cytisus scoparius L. Accessed online Apr.27. http://plants.usda.gov/java/profile?symbol=CYSC4 .	
Question 3.2 Distribution/Peak frequency	U Other Pub. Mat'l back
Describe distribution: Not currently known to exist in Colorado	
Rationale: enter text here	
Sources of information: USDA Plants Database. 2010. Cytisus scoparius L. Accessed online Apr.27. http://plants.usda.gov/java/profile?symbol=CYSC4 .	
Question 4.1 Poisonous to Livestock	B Other Pub. Mat'l back
Describe impacts in terms of high probability of death, long-term health impacts, or short-term health impacts: Contains compounds that make it mildly toxic to livestock, but is generally unpalatable to livestock.	
Rationale: Seeds and flowers contain quinolizidine alkaloids that can toxic to livestock when ingested. Toxicity problems are usually rare, but can result in digestive system disturbance, or neurological problems including trembling or uncoordinated gait. Usually unpalatable to livestock, except for goats.	
Sources of information: DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Western States, Vol.1. University of California, Agriculture and Natural Resources. Oakland, CA.	
Question 4.2 Detrimental to Economic Crops	D Other Pub. Mat'l back
Describe impacts to all aspects of cropping systems (see guidelines): Although troublesome in grasslands, likely not detrimental in annual cropping systems.	
Rationale: enter text here	
Sources of information: DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Western States, Vol.1. University of California, Agriculture and Natural Resources. Oakland, CA.	
Question 4.3 Detrimental to Mgmt of Agricultural System, Rangeland and Pasture	C Other Pub. Mat'l back
Describe impacts to water diversion systems, increased water use, reduced forage for livestock: Since may displace native species in pastures and is toxic to cattle, may negatively impact livestock forage in some areas.	
Rationale: enter text here	
Sources of information: DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Western States, Vol.1.	

University of California, Agriculture and Natural Resources. Oakland, CA.	
Question 4.4 Human Health Impacts	A Other Pub. Mat'l back
Describe key human impacts such as; irritants, property values, recreational values, and industry impacts: May be toxic if ingested by humans. Also may displace native species and result in decreased property values, especially in forested areas with disturbance. Also, stands can result in an increase in fire danger.	
Rationale: enter text here	
Sources of information: DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Western States, Vol.1. University of California, Agriculture and Natural Resources. Oakland, CA.	

Worksheet A

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Reaches reproductive maturity in 2 years or less	No: 0 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	Unknown: 0 pts
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	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	Yes: 1 pt
	7 pts 1 unknown
	A (6+ pts)
Note any related traits: Produces seed, both self-pollinated and cross-pollinated. Plants produce seed annually once they reach 3-5 years old, producing up to 3,500 seed pods per year. Seeds may remain viable for 30 or more years, and plant will regrow from crowns once aboveground biomass has been removed.	

Worksheet B - Colorado Ecological Types and Land Use

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Major Ecological and Land Use Types	Minor Ecological and Land Use Types	Code*
Freshwater and Aquatic Systems	lakes, ponds, reservoirs	score
	rivers, streams, canals	score
Riparian and wetlands	Riparian forest	score
	Riparian shrublands	score
	Wet meadows	score
Grasslands	Shortgrass prairie	score
	Tallgrass prairie	score
	Sandsage prairie	score
	Montane meadows	score
Irrigated Agriculture	Hay meadows	score
	Irrigated crops (alfalfa, corn, sugar beets)	score
Dryland Agriculture	Dryland crops (wheat, corn, millet, dryland grass hay, sunflowers, mustard for biodiesel)	score
Developed Lands	Urban, exurban, industrial	score
Arid Shrublands	Sagebrush shrublands	score
	Foothills shrublands	score
	Gambel oak shrublands	score
Woodlands	Pinyon - juniper	score
	Ponderosa pine	score
	Limber pine	score
Forest	Lodgepole pine	score
	Spruce-fir	score
Alpine	Boulder and rock fields	score
	Dwarf shrublands	score
	Tundra	score
Barrens (lower elevation)	Dunes	score
	Rock outcrops	score
	Canyonlands	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).

Worksheet C – Human Impacts

Human health impacts; irritants (sap), spines, poisonous, and/or smoke impacts	Yes: 1 pt
Property values are decreased due to increased risk of fire	Yes: 1 pt
Decreased property value due to moderate to heavy infestations	Yes: 2 pts
Decreased land value for recreational use; boating, fishing, camping, etc.	Yes: 1 pt
Impact of listing detrimental to industry; agriculture, horticulture, nursery, and/or seed	No: 0 pt
	5 pts Total Unknowns
	A (4+ pts)
Note any related traits: enter text here	