

WEED RISK ASSESSMENT FORM

Botanical name:	<u><i>Cytisus scoparius</i> (L.) Link</u>	
Common name:	<u>English broom, Scotch broom</u>	
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Outcome score:

A. Climatic Comparison		
	Yes	No
This species is present or may potentially establish in the following eco-geographic regions:		
1 South Coastal	Yes	
2 Interior-Boreal		No
3 Arctic-Alpine		No
This species is unlikely to establish in any region in Alaska		

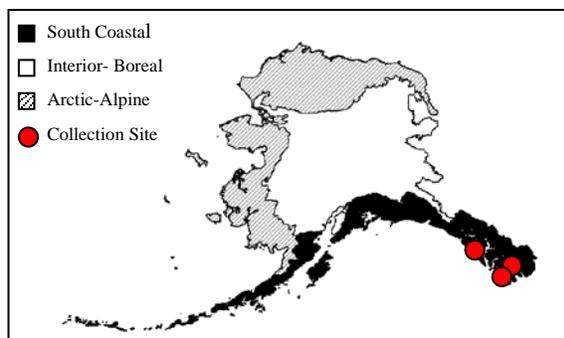
	B. Invasiveness Ranking	Total (Total Answered*) Possible	Total
1	Ecological impact	40 (40)	26
2	Biological characteristic and dispersal ability	25 (25)	17
3	Ecological amplitude and distribution	25 (25)	18
4	Feasibility of control	10 (10)	8
	Outcome score	100 (100) ^b	69
	Relative maximum score [†]		0.69

* For questions answered "unknown" do not include point value for the question in parentheses for "Total Answered Points Possible."

[†] Calculated as ^a/_b.

A. CLIMATIC COMPARISON:

	1.1 Has this species ever been collected or documented in Alaska?
Yes	Yes – continue to 1.2
	No – continue to 2.1
	1.2. Which eco-geographic region has it been collected or documented (see inset map)? <i>Proceed to Section B. Invasiveness Ranking.</i>
Yes	South Coastal
	Interior-Boreal
	Arctic-Alpine



Documentation: *Cytisus scoparius* has been collected from Sitka (UAM 2003), reported from Ketchikan and Prince of Wales Island (M. Shephard – pers. comm.).

Sources of information:

University of Alaska Museum. University of Alaska Fairbanks. 2004.

<http://hispidamuseum.uaf.edu:8080/home.cfm>

Shephard, M. Vegetation Ecologist, USDA, Forest Service, Forest Health Protection, State and Private Forestry, 3301 C Street, Suite 202, Anchorage, Alaska 99503 Division. Tel: (907) 743-9454 - Pers. com.

2.1. Is there a 40% or higher similarity (based on CLIMEX climate matching) between climates any where the species currently occurs and

a. Juneau (South Coastal Region)?

Yes – record locations and similarity; proceed to Section B.
Invasiveness Ranking

No

b. Fairbanks (Interior-Boreal)?

Yes – record locations and similarity; proceed to Section B.
Invasiveness Ranking

No No

c. Nome (Arctic-Alpine)?

Yes – record locations and similarity; proceed to Section B.
Invasiveness Ranking

No No

– If “No” is answered for all regions, reject species from consideration

Documentation: Range of the species includes British Isles, central and southern Europe (Hoshovsky 1986). Its northern limits are probably due to low winter temperatures. It withstands winter temperatures to -13°F and requires 150 frost free days (USDA 2002). Fairbanks typically has 140 frost free days, but winter temperatures reach -60°F. Nome has approximately 80 frost free days and likely minimum temperatures -54°F (WRCC 2001). *Cytisus scoparius* is therefore unlikely to establish in the Interior-Boreal and Arctic-Alpine ecoregions.

Sources of information:

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy. Arlington, VA.

USDA (United States Department of Agriculture), NRCS (Natural Resource Conservation Service). 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

WRCC - Western Regional Climate Center 2001. Desert Research Institute. <http://www.wrcc.dri.edu> [16 April 2001].

B. INVASIVENESS RANKING

1. ECOLOGICAL IMPACT

1.1. Impact on Natural Ecosystem Processes

- | | |
|--|----|
| A. No perceivable impact on ecosystem processes | 0 |
| B. Influences ecosystem processes to a minor degree (e.g., has a perceivable but mild influence on soil nutrient availability) | 3 |
| C. Significant alteration of ecosystem processes (e.g., increases sedimentation rates along streams or coastlines, reduces open water that are important to waterfowl) | 7 |
| D. Major, possibly irreversible, alteration or disruption of ecosystem processes (e.g., the species alters geomorphology; hydrology; or affects fire frequency, altering community composition; species fixes substantial levels of nitrogen in the soil making soil unlikely to support certain native plants or more likely to favor non-native species) | 10 |
| U. Unknown | |

Score

7

Documentation:

Identify ecosystem processes impacted:

Scotch broom stands prevents reforestation and create a high fire hazard. Additionally, it produces a sparse, readily decomposable litter. There is concern that its vigorous

growth inhibits establishment of other species (Bossard et al. 2000, Hoshovsky 1986).

Rational:

Sources of information:

Bossard, C.C., J.M. Randall, M.C. Hoshovsky. 2000. Invasive plants of California's wildlands. University of California Press. 360 pp.

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy. Arlington, VA.

1.2. Impact on Natural Community Structure

- A. No perceived impact; establishes in an existing layer without influencing its structure 0
- B. Influences structure in one layer (e.g., changes the density of one layer) 3
- C. Significant impact in at least one layer (e.g., creation of a new layer or elimination of an existing layer) 7
- D. Major alteration of structure (e.g., covers canopy, eradicating most or all layers below) 10
- U. Unknown

Score

Documentation:

Identify type of impact or alteration:

Scotch broom can grow so dense that is often impenetrable and prevents the establishment of the native plants (Hoshovsky 1986, Prasad 2002). There is generally a much reduced low-herbaceous layer under scotch broom canopy (M. L. Carlson – pers. obs.)

Rational:

Sources of information:

Carlson, M. L., Assistant Research Professor – Botany, Alaska Natural Heritage Program, University of Alaska Anchorage, 707 A Street, Anchorage, Alaska. Tel: (907) 257-2790 – Pers. obs.

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy. Arlington, VA.

Prasad, R. 2002. Scotch broom, *Cytisus scoparius* L. in British Columbia. Natural Resources Canada. <http://www.pfc.cfs.nrcan.gc.ca/biodiversity/broom%5Fe.html>.

1.3. Impact on Natural Community Composition

- A. No perceived impact; causes no apparent change in native populations 0
- B. Influences community composition (e.g., reduces the number of individuals in one or more native species in the community) 3
- C. Significantly alters community composition (e.g., produces a significant reduction in the population size of one or more native species in the community) 7
- D. Causes major alteration in community composition (e.g., results in the extirpation of one or several native species, reducing biodiversity or change the community composition towards species exotic to the natural community) 10
- U. Unknown

Score

Documentation:

Identify type of impact or alteration:

Scotch broom can form pure stands and reduce number of native species in the community (Hoshovsky 1986).

Rational:

Sources of information:

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy. Arlington, VA.

1.4. Impact on higher trophic levels (cumulative impact of this species on the animals, fungi, microbes, and other organisms in the community it invades)

- A. Negligible perceived impact 0
- B. Minor alteration 3
- C. Moderate alteration (minor reduction in nesting/foraging sites, reduction in habitat connectivity, interference with native pollinators, injurious components such as spines, toxins) 7
- D. Severe alteration of higher trophic populations (extirpation or endangerment of an existing native species/population, or significant reduction in nesting or foraging sites) 10
- U. Unknown

Score

5

Documentation:

Identify type of impact or alteration:

When scotch broom's growth becomes too dense it eliminates forage sites for deer. It is slightly toxic and unpalatable for browse animals (Hoshovsky 1986). Bumblebee and solitary bee pollinators find *Cytisus scoparius* highly desirable and may therefore draw pollination services away from native plants (M. L. Carlson – pers. obs.)

Rational:

Sources of information:

Carlson, M. L., Assistant Research Professor – Botany, Alaska Natural Heritage Program, University of Alaska Anchorage, 707 A Street, Anchorage, Alaska. Tel: (907) 257-2790 – Pers. obs.

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy. Arlington, VA.

Total Possible

40

Total

26

2. BIOLOGICAL CHARACTERISTICS AND DISPERSAL ABILITY

2.1. Mode of reproduction

- A. Not aggressive reproduction (few [0-10] seeds per plant and no vegetative reproduction) 0
- B. Somewhat aggressive (reproduces only by seeds (11-1,000/m²)) 1
- C. Moderately aggressive (reproduces vegetatively and/or by a moderate amount of seed, <1,000/m²) 2
- D. Highly aggressive reproduction (extensive vegetative spread and/or many seeded, >1,000/m²) 3
- U. Unknown

Score

3

Documentation:

Describe key reproductive characteristics (including seeds per plant):

Scotch broom may reproduce vegetatively or by seed. Plants can produce anywhere from 700 to 60,000 seeds per plant (Bossard et al. 2000, Waloff and Richards 1977).

Rational:

Sources of information:

Bossard, C.C., J.M. Randall, M.C. Hoshovsky. 2000. Invasive plants of California's wildlands. University of California Press. 360 pp.

Waloff, N. and O.W. Richards. 1977. The effect of insect fauna on growth mortality and natality of broom, *Sarothamnus scoparius*. Journal of Applied Ecology 14:787-798.

2.2. Innate potential for long-distance dispersal (bird dispersal, sticks to animal hair, buoyant fruits, wind-dispersal)

- A. Does not occur (no long-distance dispersal mechanisms) 0
- B. Infrequent or inefficient long-distance dispersal (occurs occasionally despite lack of adaptations) 2
- C. Numerous opportunities for long-distance dispersal (species has adaptations such as pappus, hooked fruit-coats, etc.) 3

U. Unknown

Score **3**

Documentation:

Identify dispersal mechanisms:

Broom fruits open explosively, seeds may be scattered many meters (Hoshovsky 1986, Prasad 2002). The seed is also distributed by water, birds and other animals (Bossard et al. 2000, Hoshovsky 1986).

Rational:

Sources of information:

Bossard, C.C., J.M. Randall, M.C. Hoshovsky. 2000. Invasive plants of California's wildlands. University of California Press. 360 pp.

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy. Arlington, VA.

Prasad, R. 2002. Scotch broom, *Cytisus scoparius* L. in British Columbia. Natural Resources Canada.
<http://www.pfc.cfs.nrcan.gc.ca/biodiversity/broom%5Fe.html>

2.3. Potential to be spread by human activities (both directly and indirectly – possible mechanisms include: commercial sales, use as forage/revegetation, spread along highways, transport on boats, contamination, etc.)

- | | |
|---|---|
| A. Does not occur | 0 |
| B. Low (human dispersal is infrequent or inefficient) | 1 |
| C. Moderate (human dispersal occurs) | 2 |
| D. High (there are numerous opportunities for dispersal to new areas) | 3 |
| U. Unknown | |

Score **3**

Documentation:

Identify dispersal mechanisms:

Scotch broom is frequently planted in gardens and as a soil binder along highway cuts and fills. It spreads rapidly along the roads by passing vehicles and in gravel hauled from river bottoms (Bossard et al. 2000, Hoshovsky 1986).

Rational:

Sources of information:

Prasad, R. 2002. Scotch broom, *Cytisus scoparius* L. in British Columbia. Natural Resources Canada.
<http://www.pfc.cfs.nrcan.gc.ca/biodiversity/broom%5Fe.html>

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy. Arlington, VA.

2.4. Allelopathic

- | | |
|------------|---|
| A. No | 0 |
| B. Yes | 2 |
| U. Unknown | |

Score **0**

Documentation:

Describe effect on adjacent plants:

Scotch broom is not listed as allelopathic (USDA 2002).

Rational:

Sources of information:

USDA (United States Department of Agriculture), NRCS (Natural Resource Conservation Service). 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

2.5. Competitive ability

- A. Poor competitor for limiting factors 0
- B. Moderately competitive for limiting factors 1
- C. Highly competitive for limiting factors and/or nitrogen fixing ability 3
- U. Unknown

Score 3

Documentation:

Evidence of competitive ability:

Cytisus scoparius is strong competitor and can dominate a plant community, forming a dense Monospecific stand (Bossard et al. 2000). This plant can fix nitrogen throughout the year in regions with mild winters (Wheeler et al. 1979).

Rational:

Sources of information:

Bossard, C.C., J.M. Randall, M.C. Hoshovsky. 2000. Invasive plants of California's wildlands. University of California Press. 360 pp.

Wheeler, C.T., D.A. Perry, O. Helgerson, J.C. Gordon. 1979. Winter fixation of nitrogen in Scotch broom (*Cytisus scoparius* L.). *New Phytologist* 82: 697-701.

2.6. Forms dense thickets, climbing or smothering growth habit, or otherwise taller than the surrounding vegetation

- A. No 0
- B. Forms dense thickets 1
- C. Has climbing or smothering growth habit, or otherwise taller than the surrounding vegetation 2
- U. Unknown

Score 2

Documentation:

Describe grow form:

Within the first year broom plants can grow over 3 feet tall. It grows very densely and is often impenetrable, preventing the establishment of the native plants (Hoshovsky 1986, Prasad 2002).

Rational:

Sources of information:

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy. Arlington, VA.

Prasad, R. 2002. Scotch broom, *Cytisus scoparius* L. in British Columbia. Natural Resources Canada. <http://www.pfc.cfs.nrcan.gc.ca/biodiversity/broom%5Fe.html>

2.7. Germination requirements

- A. Requires open soil and disturbance to germinate 0
- B. Can germinate in vegetated areas but in a narrow range or in special conditions 2
- C. Can germinate in existing vegetation in a wide range of conditions 3
- U. Unknown

Score 0

Documentation:

Describe germination requirements:

Germination requires scarification and soaking. Germination is greatest when seeds are buried less than 1 inch deep in a fine textured substrate; no germination occurs when seeds are buried 4 inches deep (Hoshovsky 1986).

Rational:

Sources of information:

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy. Arlington, VA.

2.8. Other species in the genus invasive in Alaska or elsewhere

- A. No 0
- B. Yes 3
- U. Unknown

Score

3

Documentation:

Species:

Cytisus multiflorus (L'Heritier) Sweet and *C. striatus* (Hill) Rothm. are weedy species that are found on the Pacific Coast (McClintock 1993, USDA 2002).

Sources of information:

McClintock, E. 1993. *Cytisus*. In J. C. Hickman (ed.) The Jepson Manual of Higher Plants of California. University of California Press, Berkley. Pp. 1400.
 USDA (United States Department of Agriculture), NRCS (Natural Resource Conservation Service). 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

2.9. Aquatic, wetland, or riparian species

- A. Not invasive in wetland communities 0
- B. Invasive in riparian communities 1
- C. Invasive in wetland communities 3
- U. Unknown

Score

0

Documentation:

Describe type of habitat:

Scotch broom invades pastures, cultivated fields, roadsides, dry scrubland, native grasslands, dry riverbeds and other waterways (Hoshovsky 1986, Whitson et al. 2000).

Rational:

Sources of information:

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy, Arlington, VA.
 Whitson, T. D., L. C. Burrill, S. A. Dewey, D. W. Cudney, B. E. Nelson, R. D. Lee, and R. Parker. 2000. Weeds of the West. The Western Society of Weed Science in cooperation with the Western United States Land Grant Universities, Cooperative Extension Services. University of Wyoming. Laramie, Wyoming. 630 pp.

Total Possible	25
Total	17

3. DISTRIBUTION

3.1. Is the species highly domesticated or a weed of agriculture

- A. No 0
- B. Is occasionally an agricultural pest 2
- C. Has been grown deliberately, bred, or is known as a significant agricultural pest 4
- U. Unknown

Score

4

Documentation:

Identify reason for selection, or evidence of weedy history:

Scotch broom is frequently planted in gardens and as a soil binder along highway cuts and fills (Coombs and Turner 1995, Hoshovsky 1986). It is appears for sale as a nursery product (USDA 2002).

Rational:

Sources of information:

Coombs E.M. and C.E. Turner. 1995. Scotch broom *Cytisus scoparius* Pea Family –

Fabaceae (Leguminosae). Biological Control of Weeds in the West.
 Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy, Arlington, VA.
 USDA (United States Department of Agriculture), NRCS (Natural Resource Conservation Service). 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

3.2. Known level of impact in natural areas

- A. Not known to cause impact in any other natural area 0
- B. Known to cause impacts in natural areas, but in dissimilar habitats and climate zones than exist in regions of Alaska 1
- C. Known to cause low impact in natural areas in similar habitats and climate zones to those present in Alaska 3
- D. Known to cause moderate impact in natural areas in similar habitat and climate zones 4
- E. Known to cause high impact in natural areas in similar habitat and climate zones 6
- U. Unknown

Score 3

Documentation:

Identify type of habitat and states or provinces where it occurs:

Scotch broom invades native grasslands, dry riverbeds, other waterways, and clearcuts in states of the Pacific Northwest. In California scotch broom has become extensively naturalized in grassland areas (Hoshovsky 1986). It may be threatening Garry oak woodlands in British Columbia (Prasad 2002).

Sources of information:

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy, Arlington, VA.

Prasad, R. 2002. Scotch broom, *Cytisus scoparius* L. in British Columbia. Natural Resources Canada.

<http://www.pfc.cfs.nrcan.gc.ca/biodiversity/broom%5Fe.html>.

3.3. Role of anthropogenic and natural disturbance in establishment

- A. Requires anthropogenic disturbances to establish 0
- B. May occasionally establish in undisturbed areas but can readily establish in areas with natural disturbances 3
- C. Can establish independent of any known natural or anthropogenic disturbances 5
- U. Unknown

Score 3

Documentation:

Identify type of disturbance:

Bare soil caused by disturbance is very conducive for seedling establishment (Hoshovsky 1986, Prasad 2002). Scotch Broom can regenerate only where the canopy is disturbed by fire, substrate instability, logging or grazing (Hoshovsky 1986).

Rational:

Sources of information:

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy, Arlington, VA.

Prasad, R. 2002. Scotch broom, *Cytisus scoparius* L. in British Columbia. Natural Resources Canada.

<http://www.pfc.cfs.nrcan.gc.ca/biodiversity/broom%5Fe.html>.

3.4. Current global distribution

- A. Occurs in one or two continents or regions (e.g., Mediterranean region) 0
- B. Extends over three or more continents 3
- C. Extends over three or more continents, including successful introductions in arctic or subarctic regions 5

U. Unknown

Score

3

Documentation:

Describe distribution:

Scotch broom is native to the British Isles as well as central and southern Europe to the Canary Islands (USDA, ARS 2004). It has become widely naturalized in North America (Hoshovsky 1986) as well as India, Iran, New Zealand, Australia, and South Africa (Prasad 2002).

Rational:

Sources of information:

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy. Arlington, VA.

Prasad, R. 2002. Scotch broom, *Cytisus scoparius* L. in British Columbia. Natural Resources Canada.

<http://www.pfc.cfs.nrcan.gc.ca/biodiversity/broom%5Fe.html>

USDA, ARS, National Genetic Resources Program. *Germplasm Resources Information Network - (GRIN)* [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: <http://www.ars-grin.gov/var/apache/cgi-bin/npgs/html/taxon.pl?27512> (06 May 2004)

3.5. Extent of the species U.S. range and/or occurrence of formal state or provincial listing

- | | | |
|----|--|---|
| A. | 0-5% of the states | 0 |
| B. | 6-20% of the states | 2 |
| C. | 21-50%, and/or state listed as a problem weed (e.g., “Noxious,” or “Invasive”) in 1 state or Canadian province | 4 |
| D. | Greater than 50%, and/or identified as “Noxious” in 2 or more states or Canadian provinces | 5 |
| U. | Unknown | |

Score

5

Documentation:

Identify states invaded:

In western North America, scotch broom has now become established along the inland valleys of the Pacific Northwest, from British Columbia to central California (Hitchcock and Cronquist 1990). It is found in 25 states (USDA 2002) Listed as Noxious in California, Hawaii, Idaho, Oregon, and Washington (Invaders Database System 2003).

Rational:

Sources of information:

Hitchcock, C.L., A. Cronquist. 1990. Flora of the Pacific Northwest. University of Washington Press, Seattle and London. 730p.

Invaders Database System. The University of Montana. 2003. Montana Noxious Weed Trust Fund. Department of Agriculture. <http://invader.dbs.umt.edu/>

USDA (United States Department of Agriculture), NRCS (Natural Resource Conservation Service). 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

Total Possible

25

Total

18

4. FEASIBILITY OF CONTROL

4.1. Seed banks

- | | | |
|----|---|---|
| A. | Seeds remain viable in the soil for less than 3 years | 0 |
| B. | Seeds remain viable in the soil for between 3 and 5 years | 2 |
| C. | Seeds remain viable in the soil for 5 years and more | 3 |

U. Unknown

Score **3**

Documentation:

Identify longevity of seed bank:

Seeds remain viable for over 80 years (Bossard et al. 2000, Coombs and Turner 1995, Hoshovsky 1986, Prasad 2002).

Rational:

Sources of information:

Bossard, C.C., J.M. Randall, M.C. Hoshovsky. 2000. Invasive plants of California's wildlands. University of California Press. 360 pp.

Coombs E.M. and C.E. Turner. 1995. Scotch broom *Cytisus scoparius* Pea Family – Fabaceae (Leguminosae). Biological Control of Weeds in the West.

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy. Arlington, VA.

Prasad, R. 2002. Scotch broom, *Cytisus scoparius* L. in British Columbia. Natural Resources Canada.

<http://www.pfc.cfs.nrcan.gc.ca/biodiversity/broom%5Fe.html>

4.2. Vegetative regeneration

- | | |
|---|---|
| A. No resprouting following removal of aboveground growth | 0 |
| B. Resprouting from ground-level meristems | 1 |
| C. Resprouting from extensive underground system | 2 |
| D. Any plant part is a viable propagule | 3 |
| U. Unknown | |

Score **2**

Documentation:

Describe vegetative response:

Plants can resprout after burning or cutting, particularly during the rainy season (Bossard et al. 2000, Hoshovsky 1986).

Rational:

Sources of information:

Bossard, C.C., J.M. Randall, M.C. Hoshovsky. 2000. Invasive plants of California's wildlands. University of California Press. 360 pp.

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista monspessilanus*. Scotch Broom, French Broom. The Nature Conservancy. Arlington, VA.

4.3. Level of effort required

- | | |
|---|---|
| A. Management is not required (e.g., species does not persist without repeated anthropogenic disturbance) | 0 |
| B. Management is relatively easy and inexpensive; requires a minor investment in human and financial resources | 2 |
| C. Management requires a major short-term investment of human and financial resources, or a moderate long-term investment | 3 |
| D. Management requires a major, long-term investment of human and financial resources | 4 |
| U. Unknown | |

Score **3**

Documentation:

Identify types of control methods and time-term required:

Handpulling, cutting or mowing can be effective. However, broom easily resprouts and seeds are long-lived. Therefore long-term monitoring is needed (Hoshovsky 1986).

Rational:

Sources of information:

Hoshovsky, M. 1986. Element Stewardship Abstract for *Cytisus scoparius* and *Genista*

Total Possible	10
Total	8

Total for 4 sections Possible	100
Total for 4 sections	69

References:

- Bossard, C.C., J.M. Randall, M.C. Hoshovsky. 2000. Invasive plants of California's wildlands. University of California Press. 360 pp.
- Carlson, M. L., Assistant Research Professor – Botany, Alaska Natural Heritage Program, University of Alaska Anchorage, 707 A Street, Anchorage, Alaska. Tel: (907) 257-2790 – Pers. obs.
- Coombs E.M. and C.E. Turner. 1995. Scotch broom *Cytisus scoparius* Pea Family – Fabaceae (Leguminosae). Biological Control of Weeds in the West.
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