WEED RISK ASSESSMENT FORM

Botanical name: *Elymus repens* (L.) Gould.

Common name: quackgrass

Assessors:

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Outcome score:

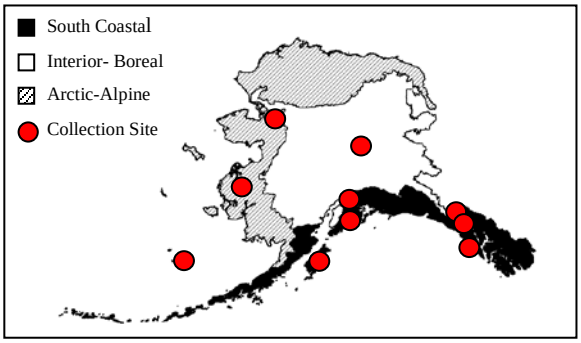
A.	**Climatic Comparison**		
	This species is present or may potentially establish in the following eco-geographic regions:		
1	South Coastal	Yes	
2	Interior-Boreal	Yes	
3	Arctic-Alpine	Yes	
	This species is unlikely to establish in any region in Alaska		

B.	**Invasiveness Ranking**	Total (Total Answered*) Possible	Total
1	Ecological impact	40 (40)	20
2	Biological characteristic and dispersal ability	25 (25)	15
3	Ecological amplitude and distribution	25 (25)	19
4	Feasibility of control	10 (10)	5
	Outcome score	100 (100)[b]	59
	Relative maximum score†		0.59

* 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)? *Proceed to Section B. Invasiveness Ranking.*
Yes	South Coastal
Yes	Interior-Boreal
Yes	Arctic-Alpine



Documentation: *Elymus repens* has been reported from all ecoregions of Alaska (Hultén 1968, Densmore et al. 2001, AKEPIC 2004).
Sources of information:
AKEPIC Mapping Project Inventory Field Data. 2004. Available: http://akweeds.uaa.alaska.edu/
Densmore, R.V., P.C. McKee and C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.
Hultén, E. 1968. Flora of Alaska and Neighboring Territories. Stanford University Press, Stanford, CA. 1008 p.

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

c. Nome (Arctic-Alpine)?
Yes – *record locations and similarity; proceed to Section B. Invasiveness Ranking*
No
– *If "No" is answered for all regions, reject species from consideration*

Documentation:
Sources of information:

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:
Quackgrass consumes soil moisture and limiting nutrients (Batcher 2002). It may alter secondary succession following fires, where its cover can dramatically increase (Snyder 1992).
Rational:

Sources of information:
Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.
Snyder, S.A. 1992. *Elytrigia repens*. In:Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available:

http://www.fs.fed.us/database/feis/ [May 7, 2004].

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 5

Documentation:
Identify type of impact or alteration:
Establishes in an existing layer, changes the density of the layer, and often forms a new layer on disturbed substrates (Irina Lapina – pers. obs.).
Rational:

Sources of information:
Lapina, I. Botanist, Alaska Natural Heritage Program, University of Alaska Anchorage, 707 A Street, Anchorage, Alaska. Tel: (907) 257-2710 – Pers. obs.

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 5

Documentation:
Identify type of impact or alteration:
The species is able to exclude native vegetation, resulting in an overall loss of biodiversity in other climates (Batcher 2002). This plant is not observed in undisturbed plant communities in Alaska and does not appear to pose an imminent threat natural community composition (J. Conn, M. Shephard – pers. com., Densmore et al. 2000).
Rational:
Elymus repens is a cool-season grass that can photosynthesize and grow during early spring. It can suppress species that grow in warmer season (Batcher 2002).
Sources of information:
Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.
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Densmore, R. V., P. C. McKee, and C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.
Shephard, M. Vegetation Ecologist Forest Health Protection State & Private Forestry, 3301 C Street, Suite 202, Anchorage, AK 99503 (907) 743-9454; fax 907 743-9479.

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,	7

toxins)

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 3

Documentation:

Identify type of impact or alteration:

Elymus repens provides cover for numerous small rodents, birds, and waterfowl n grassland systems. It is allelopathic (Batcher 2002). This grass is highly palatable to grazing animals (USDA 2002).

Rational:

Sources of information:

Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. 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.

Total Possible 40

Total 20

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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/m^2) 1

C. Moderately aggressive (reproduces vegetatively and/or by a moderate amount of seed, <1,000/m^2) 2

D. Highly aggressive reproduction (extensive vegetative spread and/or many seeded, >1,000/m^2) 3

U. Unknown

Score 2

Documentation:

Describe key reproductive characteristics (including seeds per plant):

Quackgrass is an aggressive perennial reproducing by seed and spreading by a shallow mass of rhizomes. Each stem can produce up to 400 seeds, although 20 to 40 is common.

Rational:

Sources of information:

Snyder, S.A. 1992. *Elytrigia repens*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [May 7, 2004].

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 2

Documentation:

Identify dispersal mechanisms:
Seeds dispersal mechanisms are unknown, although seeds remain viable after passing through the digestive systems of many domestic animals (Batcher 2002).
Rational:

Sources of information:
Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.

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:
Quackgrass is planted for livestock. It has been used to revegetate mine tailings (Snyder 1992) and is often a contaminant in hay and straw (Royer and Dickinson 1999).
Rational:

Sources of information:
Royer, F., and R. Dickinson. 1999. Weeds of the Northern U.S. and Canada. The University of Alberta press. 434 pp.
Snyder, S.A. 1992. *Elytrigia repens*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [May 7, 2004].

2.4. Allelopathic

A.	No	0
B.	Yes	2
U.	Unknown	

Score 2

Documentation:
Describe effect on adjacent plants:
This grass is allelopathic. It produces ethylacetate, cyclic hydroxamic acids, and several other phytotoxins from its shoots and roots. These compounds can suppress the growth or reproductive vigor of competing plants (Batcher 2002).
Rational:

Sources of information:
Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.

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 2

Documentation:
Evidence of competitive ability:
Quackgrass competes strongly with cultivated crops. Its production of allelopathic toxins contributes to its high level of competitiveness (Batcher 2002). Without soil disturbance, this plant does not appear to compete strongly with native grasses and forbs in Alaska (J. Conn – pers. com.).
Rational:

Sources of information:
Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.
Conn, J. Weed Scientist, USDA Agricultural Research Service PO Box 757200 Fairbanks, Alaska 99775 tel: (907) 474-7652; fax (907) 474-6184. – Pers. com.

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 1

Documentation:
Describe grow form:
Elymus repens can form dense stands (Batcher 2002), but is generally not significantly taller than other grasses and forbs.
Rational:

Sources of information:
Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.

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:
The species requires open soil and disturbance to germinate (Densmore et al. 2001). Seeds germinate either in the fall or spring. Alternating temperatures are required for germination (15° to 25° C diurnal fluctuations) (Batcher 2002).
Rational:

Sources of information:
Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.
Densmore, R. V., P. C. McKee, and C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.

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

A. No 0
B. Yes 3
U. Unknown

Score 3

Documentation:
Species:
Elymus sibiricus L.
Sources of information:
Hultén, E. 1968. Flora of Alaska and Neighboring Territories. Stanford University Press, Stanford, CA. 1008 p.

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:
This grass can invade gardens, yards, crop fields, roadsides, ditches, and other disturbed, moist areas. It can also colonize mixed-grass prairies and open woodlands (Batcher 2002). However, it is often a serious pest in alkaline wetlands in arid regions of Oregon and California (M. L. Carlson – pers. obs.)
Rational:

Sources of information:
Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.
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.

Total Possible 25
Total 15

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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:
It is a serious threat in crops and gardens (Batcher 2002, Densmore et al. 2001). Many palatable hybrid crosses of quackgrass and other species have been developed and planted for livestock (Snyder 1992).
Rational:

Sources of information:
Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.
Densmore, R. V., P. C. McKee, and C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.

Snyder, S.A. 1992. *Elytrigia repens*. In:Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [May 7, 2004].

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 2

Documentation:

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

Elymus repens is invading the land between riparian and upland habitats in Selver Creek Preserve (Idaho – Batcher 2002). This grass has invaded natural areas in Oregon and Ohio (Batcher 2002). It invades Wisconsin oak-hickory forest openings (Snyder 1992).

Sources of information:

Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.

Snyder, S.A. 1992. *Elytrigia repens*. In:Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [May 7, 2004].

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:

This plant in not observed in undisturbed plant communities in Alaska (Densmore et al. 2001). Once established on disturbed sites it can easily colonize adjacent undisturbed areas (Batcher 2002, Snyder 1992).

Rational:

Sources of information:

Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.

Densmore, R. V., P. C. McKee, and C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.

Snyder, S.A. 1992. *Elytrigia repens*. In:Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [May 7, 2004].

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 5

Documentation:

Describe distribution:

It is native to Eurasia (temperate Europe and Central Asia: Afghanistan, India, Pakistan). It is now found in South America (Argentina and Chile), North Africa, Australia, New Zealand, Indonesia, and occurs even in Greenland (Batcher 2002, Hultén 1968).

Rational:

Sources of information:

Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.

Hultén, E. 1968. Flora of Alaska and Neighboring Territories. Stanford University Press, Stanford, CA. 1008 p.

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:

It has now been reported from every state in the U.S. and throughout Canada. Listed as Noxious in 27 states of the United States and 5 Canadian provinces (Invaders Database System 2003, USDA 2002). It is classified as a noxious weed in Alaska (Alaska Administrative Code 1987). It is economically detrimental in agricultural fields and rarely invades undisturbed soils in Alaska (J. Conn – pers. com.).

Rational:

Sources of information:

Alaska Administrative Code. Title 11, Chapter 34. 1987. Alaska Department of Natural Resources. Division of Agriculture.

Conn, J. Weed Scientist, USDA Agricultural Research Service PO Box 757200 Fairbanks, Alaska 99775 tel: (907) 474-7652; fax (907) 474-6184. – Pers. comm.

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 19

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 0

Documentation:
Identify longevity of seed bank:
Studies in Alaska showed that seed viability is reduced significantly after burial for 21 months (Conn and Farris 1987, Batcher 2002).
Rational:

Sources of information:
Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.
Conn, J.S. and M.L. Farris. 1987. Seed viability and dormancy of 17 weed species after 21 months in Alaska. Weed Science. 35: 524-529.

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:
It has vigorous vegetative regeneration from rhizomes (Batcher 2002).
Rational:

Sources of information:
Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. 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:
Successful control measures currently include applying herbicides, burning, tilling, and combinations of these three methods. Monitoring for two years after treatment is recommended (Batcher 2002). Unfortunately, most current control techniques are not effective in natural communities (J. Conn – pers. com.).
Rational:

Sources of information:
Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.
Conn, J. Weed Scientist, USDA Agricultural Research Service PO Box 757200

Fairbanks, Alaska 99775 tel: (907) 474-7652; fax (907) 474-6184. – Pers. com.

Total Possible	10
Total	5
Total for 4 sections Possible	100
Total for 4 sections	59

References:

Alaska Administrative Code. Title 11, Chapter 34. 1987. Alaska Department of Natural Resources. Division of Agriculture.

AKEPIC Mapping Project Inventory Field Data. 2004. Available: http://akweeds.uaa.alaska.edu/

Batcher, M.S. 2002. Element Stewardship Abstract for *Elytrigia repens* var. *repens* (L.) Desv. ex B.D. Jackson Synonyms: *Agropyron repens* L. (Beauv.), *Elymus repens* (L.) Gould Quackgrass. The Nature Conservancy. Arlington, VA.

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Hultén, E. 1968. Flora of Alaska and Neighboring Territories. Stanford University Press, Stanford, CA. 1008 pp.

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