

**WEED RISK ASSESSMENT FORM**

Botanical name: *Hordeum murinum* ssp. *leporinum* (Link) Arcang.

Common name: leporinum barley, lepor barley, rabbit barley, hare barley

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**Outcome score:**

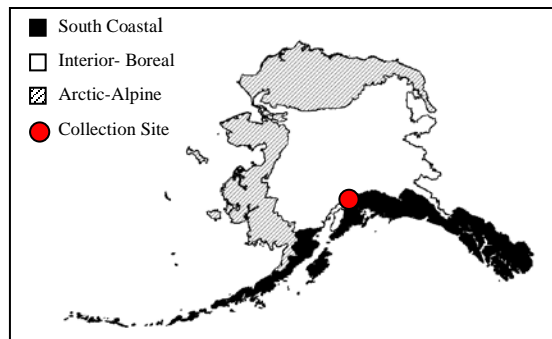
<b>A. Climatic Comparison</b>		
This species is present or may potentially establish in the following eco-geographic regions:		
1	South Coastal	No
2	Interior-Boreal	Yes
3	Arctic-Alpine	No

<b>B. Invasiveness Ranking</b>	Total (Total Answered*)	Total
1	Ecological impact	40 (40)
2	Biological characteristic and dispersal ability	25 (25)
3	Ecological amplitude and distribution	25 (25)
4	Feasibility of control	10 (10)
	Outcome score	100 (100) <sup>b</sup>
	Relative maximum score†	60 <sup>a</sup>
		0.60

\* For questions answered "unknown" do not include point value for the question in parentheses for "Total Answered Points Possible."  
 † Calculated as <sup>a</sup>/<sub>b</sub>.

**A. CLIMATIC COMPARISON:**

1.1. Has this species ever been collected or documented in Alaska?	
<b>Yes</b>	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>	
<b>Yes</b>	South Coastal
	Interior-Boreal
	Arctic-Alpine



Documentation: *Hordeum murinum* ssp. *leporinum* has been collected in the Matanuska and Susitna valleys in Alaska (AK Weed Database 2004).

Sources of information:

AK Weeds Database. 2004. Database of exotic vegetation collected in Alaska. University of Alaska, Alaska Natural Heritage Program – US Forest Service – National Park Service Database. Available: <http://akweeds.uaa.alaska.edu/>

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

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

No

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

Documentation: The climatic similarity between Juneau and Fairbanks and areas where this species occurs is low (CLIMEX 1999, USDA 2002). This low similarity suggests that establishment of *Hordeum murinum* ssp. *leporinum* in South Coastal and Arctic-Alpine ecogeographic regions is unlikely.

Sources of information: CLIMEX for Windows, Version 1.1a. 1999. CISRO Publishing, Australia. 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.

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## 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 

3
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Documentation:

Identify ecosystem processes impacted:

*Laporinum* barley is likely reduces soil moisture and nutrients.

Rational:

Sources of information:

#### 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 3

**Documentation:**

Identify type of impact or alteration:

A high-density establishment of leporinum barley has been observed in an existing layer of vegetation in Southcentral Alaska (I. Lapina – pers. obs.). It becomes the dominant component of mixed crop pastures in Australia and New Zealand (Cocks and Donald 1973, Govey et al. 2003, Popay 1981).

Rational:

Sources of information:

Cocks, P.S. and C.M. Donald. 1973. The germination and establishment of two annual pasture grasses (*Hordeum leporinum* Link. and *Lolium rigidum* Gaud.). Australian Journal of Agricultural Research 24: 1-10.

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

Groves, R.H., M.P. Austin and P.E. Kaye. 2003. Competition between Australian native and introduced grasses along a nutrient gradient. Austral Ecology 28: 491-498.

Popay, A.I. 1981. Germination of seeds of five annual species of barley grass. The Journal of Applied Ecology 18(2): 547-558.

**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:

Leporinum barley can reduce the number of native individuals in forb and grass communities (Cocks and Donald 1973, Govey et al. 2003).

Rational:

Sources of information:

Cocks, P.S. and C.M. Donald. 1973. The germination and establishment of two annual pasture grasses (*Hordeum leporinum* Link. and *Lolium rigidum* Gaud.). Australian Journal of Agricultural Research 24: 1-10.

Groves, R.H., M.P. Austin and P.E. Kaye. 2003. Competition between Australian native and introduced grasses along a nutrient gradient. Austral Ecology 28: 491-498.

**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 7

**Documentation:**

Identify type of impact or alteration:

Awns of mature plants can cause serious injury to the eyes, nose, and throat of grazing animals (Klott 1981, Warr 19981, Whitson et al. 2000). This plant also hosts several diseases (Klott 1981).

Rational:

Sources of information:

Klott, P.M. 1981. A reassessment of the ecology of barley grass in Australia. *Hordeum leporinum*, *Hordeum glaucum*, weeds, invading pastures. Proceedings of the sixth Australian Weeds Conference; Broadbeach International Hotel, City of Gold Coast, Queensland, 13-18 September.

Warr, G.J. 1981. Barley grass *Hordeum leporinum* can lower sheep production. Penetrating awns injure sheep. The agricultural gazette of New South Wales 92(1): 27-28.

Whitson, T. D., L. C. Burrill, S. A. Dewey, D. W. Cudney, B. E. Nelson, R. D. Lee, 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	30
Total	18

**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<sup>2</sup>) 1
- C. Moderately aggressive (reproduces vegetatively and/or by a moderate amount of seed, <1,000/m<sup>2</sup>) 2
- D. Highly aggressive reproduction (extensive vegetative spread and/or many seeded, >1,000/m<sup>2</sup>) 3
- U. Unknown

Score	3
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**Documentation:**

Describe key reproductive characteristics (including seeds per plant):

*Leporinum* barley reproduces by seeds that are produced in large numbers (Halloran and Pennell 1981).

Rational:

Sources of information:

Halloran, G.M. and A.L. Pennell. 1981. Regenerative potential of barley grass (*Hordeum leporinum*). The Journal of Applied Ecology 18(3): 805-813.

**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
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**Documentation:**

Identify dispersal mechanisms:

Seeds can be transported by attachment to animal hair and by wing (Cocks and Donald 1973).

Rational:

Sources of information:

Cocks, P.S. and C.M. Donald. 1973. The germination and establishment of two annual pasture grasses (*Hordeum leporinum* Link. and *Lolium rigidum* Gaud.). Australian Journal of Agricultural Research 24: 1-10.

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

Documentation:

Identify dispersal mechanisms:

Seed can be transported by entanglement in commercial wool or as a contaminant in seed and hay (Cocks and Donald 1973, Klott 1981, USDA, ARS 2005). It can be dispersed with sled god bedding (J. Conn – pers. com.).

Rational:

Sources of information:

Cocks, P.S. and C.M. Donald. 1973. The germination and establishment of two annual pasture grasses (*Hordeum leporinum* Link. and *Lolium rigidum* Gaud.). Australian Journal of Agricultural Research 24: 1-10.

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

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?300618> (April 14, 2005).

2.4. Allelopathic

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

Score

Documentation:

Describe effect on adjacent plants:

No records are found concerning allelopathy.

Rational:

Sources of information:

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

Documentation:

Evidence of competitive ability:

Leporinum barley can invade pastures and dominate native forb and grass communities (Cocks and Donald 1973, Groves et al. 2003).

Rational:

Leporinum barley has several features which give it a potential advantage over native

or resident species. It has high seed production and earlier, more rapid and more complete germination than other annual grasses (Cocks and Donald 1973, Groves et al. 2003, Halloran and Pennell 1981). Milthorpe (1961) found that in mixed cultures rapidly-germinating plant species tend to dominate over more slowly-germinating species. Leporinum barley is able also germinate at lower seed moisture content and over a broader range of temperatures. Germination is strongly stimulated by short periods of wetting. The long awns provide a competitive advantage by making seeds difficult for animals to eat and by assisting natural seed burial (Cocks and Donald 1973, Halloran and Pennell 1981, Piggin et al. 1973).

Sources of information:

Cocks, P.S. and C.M. Donald. 1973. The germination and establishment of two annual pasture grasses (*Hordeum leporinum* Link. and *Lolium rigidum* Gaud.). Australian Journal of Agricultural Research 24: 1-10.

Groves, R.H., M.P. Austin and P.E. Kaye. 2003. Competition between Australian native and introduced grasses along a nutrient gradient. Austral Ecology 28: 491-498.

Halloran, G.M. and A.L. Pennell. 1981. Regenerative potential of barley grass (*Hordeum leporinum*). The Journal of Applied Ecology 18(3): 805-813.

Milthorpe, F.L. 1961. The nature and analysis of competition between plants of different species. Mechanisms in Biological Competition 15: 334-355.

Piggin, C.McE., M.L. Hallett, and D.F. Smith. 1973. The germination response of seed of some annual pasture plants to alternating temperatures. Seed Science and Technology 1: 739-748.

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 0

Documentation:

Describe grow form:

Leporinum barley is not characterized by a climbing or smothering growth habit. It can grow up to 10 inches tall (Hitchcock et al. 1969, Whitson et al. 2000).

Rational:

Sources of information:

Hitchcock, C.L., A. Cronquist, and M. Ownbey. 1969. Vascular plants of the Pacific Northwest. Part 1: Vascular Cryptogams, Gymnosperms, and Monocotyledons. Seattle, WA: University of Washington Press. 914 p.

Whitson, T. D., L. C. Burrill, S. A. Dewey, D. W. Cudney, B. E. Nelson, R. D. Lee, 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.

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 2

Documentation:

Describe germination requirements:

Leporinum barley typically establishes on bare soils but is likely able to establish in vegetated areas also (Cocks and Donald 1973, Piggin et al. 1973, Popay 1981).

Rational:

Sources of information:

Cocks, P.S. and C.M. Donald. 1973. The germination and establishment of two annual pasture grasses (*Hordeum leporinum* Link. and *Lolium rigidum* Gaud.). Australian Journal of Agricultural Research 24: 1-10.

Piggin, C.McE., M.L. Hallett, and D.F. Smith. 1973. The germination response of seed of some annual pasture plants to alternating temperatures. Seed Science and Technology 1: 739-748.

Popey, A.I. 1981. Germination of seeds of five annual species of barley grass. The Journal of Applied Ecology 18(2): 547-558.

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

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

Score 

3
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**Documentation:**

Species:

*Hordeum jubatum* L., *H. pusillum* Nutt., and *H. vulgare* are considered weeds in the United States (USDA 2002, Whitson et al. 2000).

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.

Whitson, T. D., L. C. Burrill, S. A. Dewey, D. W. Cudney, B. E. Nelson, R. D. Lee, 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.

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
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**Documentation:**

Describe type of habitat:

Leporinum barley occupies ruderal places such as roadsides and the margins of cultivated land. In Australia this grass occupies annual pastures, while in New Zealand it is a greater problem in sheep pastures and alfalfa crops (Cocks and Donald 1973, Davison 1971).

Rational:

Sources of information:

Cocks, P.S. and C.M. Donald. 1973. The germination and establishment of two annual pasture grasses (*Hordeum leporinum* Link. and *Lolium rigidum* Gaud.). Australian Journal of Agricultural Research 24: 1-10.

Davison, A.W. 1971. The ecology of *Hordeum murinum* L.: II. The ruderal habit. The Journal of Ecology 59(2): 493-506.

Total Possible 

25
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Total 

17
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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
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**Documentation:**

Identify reason for selection, or evidence of weedy history:

Leporinum barley was introduced during the eighteenth and nineteenth centuries to North and South America, Australia and New Zealand where it has become a weed of considerable economic importance (Cocks and Donald 1973, Davison 1971, Popey 1981).

Rational:

Sources of information:

Cocks, P.S. and C.M. Donald. 1973. The germination and establishment of two annual pasture grasses (*Hordeum leporinum* Link. and *Lolium rigidum* Gaud.). Australian Journal of Agricultural Research 24: 1-10.

Davison, A.W. 1971. The ecology of *Hordeum murinum* L.: II. The ruderal habit. The Journal of Ecology 59(2): 493-506.

Popey, A.I. 1981. Germination of seeds of five annual species of barley grass. The Journal of Applied Ecology 18(2): 547-558.

**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 

1
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**Documentation:**

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

Many annual grass pastures in Australia are invaded and become dominated by leporinum barley (Cock and Donald 1973).

Sources of information:

Cocks, P.S. and C.M. Donald. 1973. The germination and establishment of two annual pasture grasses (*Hordeum leporinum* Link. and *Lolium rigidum* Gaud.). Australian Journal of Agricultural Research 24: 1-10.

**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
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**Documentation:**

Identify type of disturbance:

Leporinum barley readily establishes in areas subject to regular grazing and trampling. It becomes dominant with increasing intensity of grazing (Groves et al. 2003).

Rational:

Sources of information:

Groves, R.H., M.P. Austin and P.E. Kaye. 2003. Competition between Australian native and introduced grasses along a nutrient gradient. Austral Ecology 28: 491-498.

**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
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**Documentation:**

Describe distribution:

*Leporinum barley* is believed to have originated in Eurasia. Its native range extends from Middle Europe south to Northern Africa and west to Western Asia and the Caucasus (USDA, ARS 2005). It has become naturalized in North and South America, Australia, and New Zealand (Halloran and Pennell 1981, Davison 1971).

Rational:

Sources of information:

Davison, A.W. 1971. The ecology of *Hordeum murinum* L.: II. The ruderal habit. The Journal of Ecology 59(2): 493-506.  
 Halloran, G.M. and A.L. Pennell. 1981. Regenerative potential of barley grass (*Hordeum leporinum*). The Journal of Applied Ecology 18(3): 805-813.  
 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?300618> (April 14, 2005).

**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 

4
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**Documentation:**

Identify states invaded:

The species range in North America extends along both the West and East Coasts. *Hordeum murinum* ssp. *leporinum* is not considered noxious in North America (Invaders Database System 2003, USDA 2002).

Rational:

Sources of information:

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	17

**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
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**Documentation:**

Identify longevity of seed bank:

One viable seed of leporinum barley was found in 200-year old adobe bricks from Northern Mexico (Spira and Wagner 1983). Additional information on leporinum

barley seed viability is lacking, but seeds of other *Hordeum* species appear to remain viable for long periods (Haferkamp et al. 1953).

Rational:

Sources of information:

Haferkamp et al. 1953. Studies on aged seeds. I. Relation of age of seed to germination and longevity. *Agronomy Journal* 45: 434-437.

Spira, T.P. and L.K. Wagner. 1983. Viability of seeds up to 211 years old extracted from adobe brick buildings of California and Northern Mexico. *American Journal of Botany* 70(2): 303-307.

#### 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
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Documentation:

Describe vegetative response:

*Leporinum* barley can resprout after removal of aboveground growth.

Rational:

Sources of information:

#### 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
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Documentation:

Identify types of control methods and time-term required:

Grazing, mowing, and herbicides can be used to reduce the *leporinum* barley content in pastures. *Leporinum* barley is known to be strongly resistant to number of herbicides (Klott 1981, Stephenson 1993).

Rational:

Sources of information:

Klott, P.M. 1981. A reassessment of the ecology of barley grass in Australia. *Hordeum leporinum*, *Hordeum glaucum*, weeds, invading pastures. Proceedings of the sixth Australian Weeds Conference; Broadbeach International Hotel, City of Gold Coast, Queensland, 13-18 September.

Stephenson, D.W. 1993. Barley grass control with herbicides in subterranean clover pasture. 2. Effect on pasture and wheat in the year following spraying. *Australian Journal of Experimental Agriculture* 33: 743-749.

Total Possible 

10
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Total 

8
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**Total for 4 sections Possible**

90
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**Total for 4 sections**

60
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## References:

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