**WEED RISK ASSESSMENT FORM**

<table>
<thead>
<tr>
<th>Botanical name:</th>
<th><em>Mycelis muralis (L.) Dumort.</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Common name:</td>
<td>wall lettuce</td>
</tr>
</tbody>
</table>

**Assessors:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Institution</th>
<th>Address</th>
<th>Tel. (Area Code)</th>
<th>Fax (Area Code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irina Lapina</td>
<td>Botanist, Alaska Natural Heritage Program</td>
<td>University of Alaska</td>
<td>Anchorage, 707 A Street, Alaska 99501</td>
<td>(907) 257-2710</td>
<td>(907) 257-2789</td>
</tr>
<tr>
<td>Matthew L. Carlson, Ph.D.</td>
<td>Assistant Professor, Alaska Natural Heritage Program</td>
<td>University of Alaska Anchorage, 707 A Street, Anchorage, Alaska 99501</td>
<td>(907) 257-2790; fax (907) 257-2789</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Reviewers:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Institution</th>
<th>Address</th>
<th>Tel. (Area Code)</th>
<th>Fax (Area Code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeff Conn, Ph.D.</td>
<td>Weed Scientist, USDA Agricultural Research Service</td>
<td>PO Box 757200 Fairbanks, Alaska 99775</td>
<td>tel: (907) 474-7652; fax (907) 474-6184</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jeff Heys</td>
<td>Exotic Plant Management Program Coordinator, National Park Service, Alaska</td>
<td>Region - Biological Resources Team, 240 W. 5th Ave, #114, Anchorage, AK 99501</td>
<td>tel: (907)644-3451, fax: 644-3809</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jamie M. Snyder</td>
<td>UAF Cooperative Extension Service</td>
<td>2221 E. Northern Lights Blvd. #118</td>
<td>Anchorage, AK 99508-4143</td>
<td>(907) 786-6310</td>
<td>(907) 743-9448</td>
</tr>
<tr>
<td>Julie Riley</td>
<td>Horticulture Agent, UAF Cooperative Extension Service</td>
<td>2221 E. Northern Lights Blvd. #118</td>
<td>Anchorage, AK 99508-4143</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chris McKee</td>
<td>Wildlife Biologist, USDI Geological Survey</td>
<td>PO Box 74633 Fairbanks, AK 99707</td>
<td>tel: (907) 455-0636; fax (907) 455-0601</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Page Spencer, Ph.D.</td>
<td>Ecologist, National Park Service, Alaska</td>
<td>Region - Biological Resources Team, 240 W. 5th Ave, #114, Anchorage, AK 99501</td>
<td>tel: (907) 644-3448</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lindsey Flagstad</td>
<td>Alaska Natural Heritage Program</td>
<td>University of Alaska</td>
<td>Anchorage, 707 A Street, Anchorage, Alaska 99501</td>
<td>(907) 257-2786; fax (907) 257-2789</td>
<td></td>
</tr>
</tbody>
</table>

**Outcome score:**

**A. Climatic Comparison**

<table>
<thead>
<tr>
<th>Eco-geographic Region</th>
<th>Presence/Establishment</th>
<th>South Coastal</th>
<th>Interior-Boreal</th>
<th>Arctic-Alpine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**B. Invasiveness Ranking**

<table>
<thead>
<tr>
<th>Invasiveness Category</th>
<th>Total (Total Answered*)</th>
<th>Total Possible</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Ecological impact</td>
<td>40 (40)</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>2 Biological characteristic and dispersal ability</td>
<td>25 (23)</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>3 Ecological amplitude and distribution</td>
<td>25 (25)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>4 Feasibility of control</td>
<td>10 (10)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Outcome score</td>
<td>100 (98)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>30&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

Relative maximum score<sup>†</sup> = 0.31

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

† Calculated as <sup>a/b</sup>.
A. CLIMATIC COMPARISON:

<table>
<thead>
<tr>
<th></th>
<th>Has this species ever been collected or documented in Alaska?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes – continue to 1.2</td>
</tr>
<tr>
<td>No</td>
<td>No – continue to 2.1</td>
</tr>
</tbody>
</table>

1.1. Which eco-geographic region has it been collected or documented (see inset map)?

---

1.1. Has this species ever been collected or documented in Alaska?

Yes

Yes – continue to 1.2

No

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

Interior-Boreal

Arctic-Alpine

Documentation: *Mycelis muralis* has been reported from Ketchikan, Wrangell, and Kuiu Island in South Coastal Alaska (AK Weeds Database 2004).

Sources of information:


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

a. Juneau (South Coastal Region)?

Yes

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

No

b. Fairbanks (Interior-Boreal)?

Yes

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

No

c. Nome (Arctic-Alpine)?

Yes

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

No

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

---

Documentation: The species’ range includes Røros and Dombås, Norway (Lid and Lid 1994), which has a 76% and 63% climatic match with Nome, and 55% and 52% climatic match with Fairbanks, respectively using CLIMEX matching program. However, its northern limit in Europe follows approximately the 19.4° F mean January isotherm (Clabby and Osborne 1958). These conditions are not typical for Arctic-Alpine and Interior-Boreal ecogeographic regions. This suggests that establishment of *Mycelis muralis* in Interior-Boreal and Arctic-Alpine ecogeographic regions is unlikely.


---

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 10
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)

1.2. Impact on Natural Community Structure

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

Documentation:
Identify ecosystem processes impacted:
Wall lettuce is an early successional species with minimal cover (Clabby and Osborne 1999) that likely has low impacts on ecosystem processes.

Rational:
Sources of information:

1.3. Impact on Natural Community Composition

A. No perceived impact; causes no apparent change in native populations
B. Influences community composition (e.g., reduces the number of individuals in one or more native species in the community)
C. Significantly alters community composition (e.g., produces a significant reduction in the population size of one or more native species in the community)
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)
U. Unknown

Documentation:
Identify type of impact or alteration:
Wall lettuce percent cover in vegetation is low, often less then 10%, but can approach 40%. The numbers of plants ranged from 1 to 16 per m² in Irish woodland (Clabby and Osborn 1999).

Rational:
Sources of information:

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
B. Minor alteration
C. Moderate alteration (minor reduction in nesting/foraging sites, reduction in habitat
connectivity, interference with native pollinators, injurious components such as spines, 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)

U. Unknown

Score 3

Documentation:
Identify type of impact or alteration:
A number of insects and parasites have been observed for wall lettuce. Mycorrhizal relationships are known to occur on wall lettuce. Latex production may act as an anti-herbivory device (Clabby and Osborn 1999).

Rational:

Sources of information:

Total Possible 40
Total 7

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):
Wall lettuce reproduces exclusively by seed. A plant may produce up to 500 seeds in shaded sites and up to 11,500 seeds in more open sites (Clabby and Osborne 1999).

Rational:

Sources of information:

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:
Achenes possess pappus and may be dispersed by wind (Douglas 1955).

Rational:

Sources of information:
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.)

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Does not occur</td>
</tr>
<tr>
<td>1</td>
<td>Low (human dispersal is infrequent or inefficient)</td>
</tr>
<tr>
<td>2</td>
<td>Moderate (human dispersal occurs)</td>
</tr>
<tr>
<td>3</td>
<td>High (there are numerous opportunities for dispersal to new areas)</td>
</tr>
<tr>
<td>U</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

**Documentation:**

Identify dispersal mechanisms:

Wall lettuce can be dispersed along the transportation corridors (M. Shephard – pers. com.).

**Rational:**

Sources of information:


---

2.4. Allelopathic

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>Yes</td>
</tr>
<tr>
<td>U</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

**Documentation:**

Describe effect on adjacent plants:

There is no data concerning allelopathy.

**Rational:**

Sources of information:

---

2.5. Competitive ability

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Poor competitor for limiting factors</td>
</tr>
<tr>
<td>1</td>
<td>Moderately competitive for limiting factors</td>
</tr>
<tr>
<td>3</td>
<td>Highly competitive for limiting factors and/or nitrogen fixing ability</td>
</tr>
<tr>
<td>U</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

**Documentation:**

Evidence of competitive ability:

Wall lettuce almost always occurs as a component of sparse vegetation and is rarely found in closed swards. It may compete with co-occurring species in closed woodland vegetation (Clabby and Osborn 1999).

**Rational:**

Sources of information:


---

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

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>1</td>
<td>Forms dense thickets</td>
</tr>
<tr>
<td>2</td>
<td>Has climbing or smothering growth habit, or otherwise taller than the surrounding vegetation</td>
</tr>
</tbody>
</table>
### 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 | 0 |

**Documentation:**

Describe germination requirements:
Wall lettuce germinates mainly on barren or sparsely vegetated sites (Clabby and Osborn 1999).

**Rational:**

Sources of information:

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

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

**Documentation:**

Species:
The genus *Mycelis* is monotypic (USDA 2002).

Sources of information:

### 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 | 0 |

**Documentation:**

Describe type of habitat:
Wall lettuce is a species of moist to mesic forests in the lowland and montane zones. It is commonly found in open woods, wood margins and woodland clearings, but also occurs in scrub, and on walls and rock outcrops (Clabby and Osborne 1999, Cronquist 1955, Douglas et al. 1998, Gubanov et al. 1995).

**Rational:**

---
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 0

Documentation:
Identify reason for selection, or evidence of weedy history:
The species is not known as an agricultural weed.
Rational:

Sources of information:

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

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

Though wall lettuce occurs mainly on disturbed sites (Clabby and Osborn 1999), it has been observed to invade forest communities in Oregon (M.L. Carlson – pers. obs.). Wall lettuce has been found along old logging roads in Southeast Alaska (AK Weeds Database 2004).

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.

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

Documentation:
Identify type of disturbance:
Wall lettuce habitats are often associated with natural or anthropogenic disturbances such as storms, fires, and clearcuts (Clabby and Osborne 1999).
Rational:
Sources of information:

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

Documentation:
Describe distribution:
Wall lettuce is native to most of temperate continental Europe. Its distribution extends eastward to Turkey and the Caucasus Mountains and north in Norway at 68.5° N. Wall lettuce also occurs in North Africa, North America, and New Zealand (Clabby and Osborne 1999).
Rational:
Sources of information:

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

Documentation:
Identify states invaded:
Wall lettuce has been found in Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New York, Oregon, Vermont, and Washington (USDA 2002). Mycelis muralis is exotic to North America but is not noxious (Invaders Database System 2003, USDA 2002).
Rational:
Sources of information:
### 4. FEASIBILITY OF CONTROL

#### 4.1. Seed banks

<table>
<thead>
<tr>
<th>Option</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Seeds remain viable in the soil for less than 3 years</td>
<td>0</td>
</tr>
<tr>
<td>B. Seeds remain viable in the soil for between 3 and 5 years</td>
<td>2</td>
</tr>
<tr>
<td>C. Seeds remain viable in the soil for 5 years and more</td>
<td>3</td>
</tr>
<tr>
<td>U. Unknown</td>
<td></td>
</tr>
</tbody>
</table>

**Documentation:**

Identify longevity of seed bank:

In laboratory experiments, dry seeds stored in a refrigerator remained viable for at least 3 years. Seeds stored at room temperature lost viability after 2 years (Clabby and Osborne 1999).

**Rational:**

In Kellman’s (1974) study the number of viable seeds declined during the 3 years of monitoring, suggesting a short period of seed viability.

**Sources of information:**


#### 4.2. Vegetative regeneration

<table>
<thead>
<tr>
<th>Option</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. No resprouting following removal of aboveground growth</td>
<td>0</td>
</tr>
<tr>
<td>B. Resprouting from ground-level meristems</td>
<td>1</td>
</tr>
<tr>
<td>C. Resprouting from extensive underground system</td>
<td>2</td>
</tr>
<tr>
<td>D. Any plant part is a viable propagule</td>
<td>3</td>
</tr>
<tr>
<td>U. Unknown</td>
<td></td>
</tr>
</tbody>
</table>

**Documentation:**

Describe vegetative response:

Wall lettuce does not regenerate vegetatively (Clabby and Osborn 1999).

**Rational:**

**Sources of information:**


#### 4.3. Level of effort required

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

**Documentation:**

Identify types of control methods and time-term required:

Control options have not been investigated. Kellman (1974) suggested that wall lettuce will not persist on sites with established perennials.
References:


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


