First steps for a monitoring program: The division of mining, land, and water turns its attention to invasive plants

Heather McEachen¹, and Kimberly Maher²

¹Alaska Department of Natural Resources, Division of Mining, Land, and Water, Northern Region Office, 3700 Airport Way, Fairbanks, AK 99709, heather.mceachen@alaska.gov. ²Alaska Department of Natural Resources, Division of Mining, Land, and Water, Northern Region Office, 3700 Airport Way, Fairbanks, AK 99709, kimberley.maher@alaska.gov.

Recognizing its potential contribution to decreasing the spread of invasive plants, the Department of Natural Resources (DNR) Division of Mining, Land, and Water (DMLW) Northern Region Office (NRO) has increased its attention to invasive plants during routine inspections of material sale sites and leased lands. We discuss the implementation of an annual staff training program and developing protocol for identifying and surveying invasive plants. The NRO’s protocol for surveying includes identifying invasive plants present based on a reference list designating species as high priority (e.g., white sweet clover, bird vetch) or low priority (e.g., foxtail barley, prostrate knotweed). This list was developed in consultation with the Division of Agriculture’s Invasive Plant Program. Also noted is percent cover (using the Braun-Blanquet cover-abundance scale) and whether the infestation is widespread or concentrated. Results of the monitoring program are presented, including 2014-2016 material site visits that include over 50 material sites along the major highways in Northern Alaska from Tok to the North Slope. From these initial inspections, it appears that NRO-managed material sites may contribute to the spread of invasive plants through the movement of gravel.
FIRST STEPS FOR A MONITORING PROGRAM: THE DIVISION OF MINING, LAND, AND WATER TURNS ITS ATTENTION TO INVASIVE PLANTS

Heather McEachen and Kimberley Maher
Alaska Department of Natural Resource,
Division of Mining, Land, and Water,
Northern Region Office- Lands Section
Division Mission:
To provide for the appropriate use and management of Alaska's state owned land and water, aiming toward maximum use consistent with the public interest.
• Manages general state land
• Provides
  ▪ leases
  ▪ easements
  ▪ permits
  ▪ and material sales
ANNUAL STAFF TRAINING ON INVASIVE PLANT SPECIES

- Presentation to develop awareness of invasive species (2014-16)
- Fresh sample identification
  - Target species
  - Native species that may be confused for target species
PRELIMINARY INVASIVE PLANT SPECIES SURVEYS (2014-16)

• Material sites- could be a source of invasives through the movement of gravel
• Lease tracts- lease holders have long term interest in the site
PRELIMINARY INVASIVE PLANT SPECIES SURVEYS (2014-16)

- Established survey protocol
- Developed lists of high priority and low priority species, in consultation with Division of Ag
- Created cheat sheets
- Set up a geodatabase for use in the Collector app for iPads
METHODS

• 390 Material Sites
• 4-year rotating inspection schedule
• 5 trained staff members
• 142 sites inspected for invasives during 2014-2016 field seasons
• Also looked at 20 lease sites
RESULTS

- 77% weed free
- 109 of 142 material sites had no invasives identified.
- 18 sites had high priority species (e.g. White Sweet Clover) present.
- 16 sites had low priority species (e.g. Foxtail Barley) only.
- No invasive plants found on lease sites.
- **Hotspots**
  - Elliott Hwy (10 sites)
  - Steese Hwy (4 sites)
  - Delta Area (11 sites)

### Invasive Species Presence
- **Low Priority Species**
- **Both Low and High Priority Species**
- **High Priority Species**
- **No Invasive Species Identified**

#### Elliott Highway
**(# of sites affected)**

<table>
<thead>
<tr>
<th>High Priority Species</th>
<th>Low Priority Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrowleaf Hawksbeard</td>
<td>White Sweet Clover</td>
</tr>
<tr>
<td>Foxtail Barley</td>
<td>Pineapple Weed</td>
</tr>
<tr>
<td>Dandelion</td>
<td>Common Plantain</td>
</tr>
<tr>
<td>Alsike Clover</td>
<td></td>
</tr>
</tbody>
</table>

#### Steese Highway

#### Delta Area

<table>
<thead>
<tr>
<th>Hotspots</th>
<th>Elliott Hwy</th>
<th>Steese Hwy</th>
<th>Delta Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sites</td>
<td>10</td>
<td>4</td>
<td>11</td>
</tr>
</tbody>
</table>

### Graphs
- Map of Elliott Highway highlighting hotspots and invasive species.
- Chart showing the number of sites affected by invasive species with categories for coverage.

### Data
- **5-25% cover**
- **<5% cover**

### Locations
- Narrowleaf Hawksbeard
- White Sweet Clover
- Foxtail Barley
- Pineapple Weed
- Dandelion
- Common Plantain
- Alsike Clover
RESULTS

SPECIES WITHIN THE NORTHERN REGION

- Foxtail Barley 27%
- Narrowleaf Hawksbeard 16%
- White Sweet Clover 13%
- Common Plantain 10%
- Dandelion 10%
- Pineapple Weed 10%
- Alsike Clover
- Lamb's quarters
- Peppergrass
- Prostrate Knotweed
- Quackgrass
Permit issued Spring 2016 for the Doyon, Ltd exploratory drilling in Nenana Basin required development and compliance with an approved invasive species plan

- Preventative measures
- Monitoring activities concurrent to the project
- Post-project monitoring activities

INITIAL SUCCESSES
During Aug 2016, ConocoPhillips responded to our request to remove the foxtail barley lining approximately 0.2 miles along the Tarn Rd, next to Drill Site 2P in the Kuparuk River Unit.
In Sept 2016, after DMLW inspection at their ~20 material sites on state land (with invasives present at 6), Sumitomo Metal Mining Pogo, LLC requested assistance from DMLW to develop an invasive species management plan.
FUTURE DIRECTIONS

- Continue staff trainings; invite additional stakeholders to the annual fresh sample trainings
- Populate our geodatabase with material site and lease tract data on presence of invasive species
- Expand the application of the data collection other DMLW inspections
- Refine and improve our data collection protocol
- Look at ways to incorporate invasive management plans into new authorizations
THANKS!

QUESTIONS?

COMMENTS?