

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

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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



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Alaska Dept. of Natural Resources



Division of Mining, Land, and Water

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.

Division of Mining, Land, and Water



Lands Section

- **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**



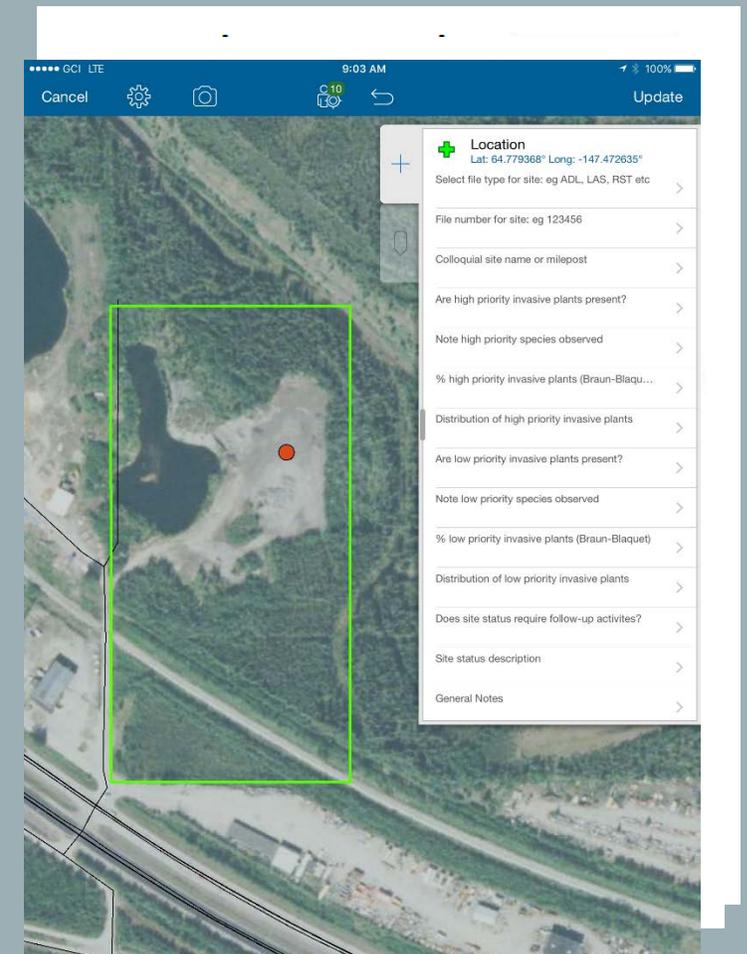
PRELIMINARY INVASIVE PLANT SPECIES SURVEYS (2014-16)

- **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**

 **Location**
Lat: 64.779368° Long: -147.472635°

Select file type for site: eg ADL, LAS, RST etc >

File number for site: eg 123456 >

Colloquial site name or milepost >

Are high priority invasive plants present? >

Note high priority species observed >

% high priority invasive plants (Braun-Blaqu... >

Distribution of high priority invasive plants >

Are low priority invasive plants present? >

Note low priority species observed >

% low priority invasive plants (Braun-Blaquet) >

Distribution of low priority invasive plants >

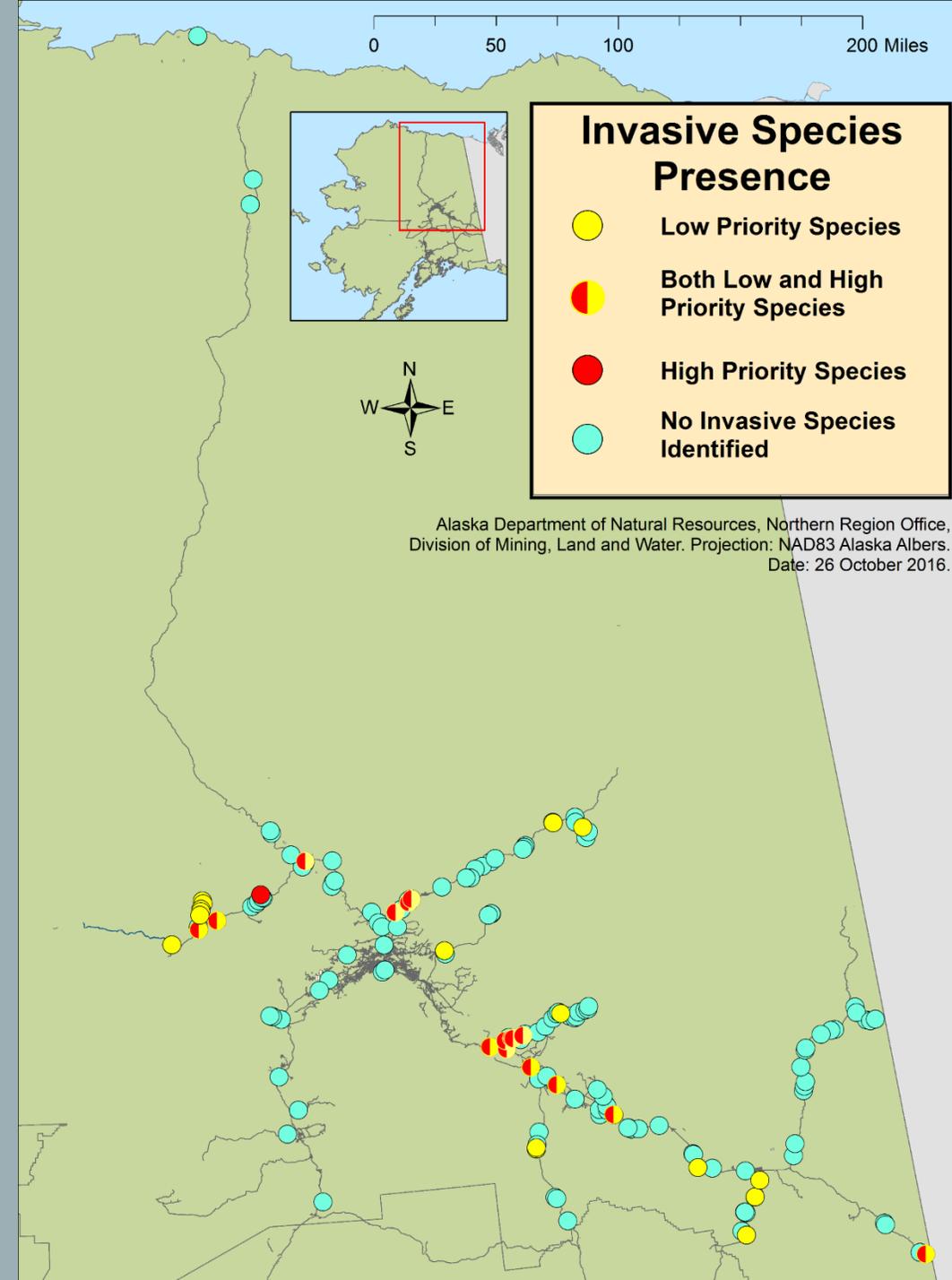
Does site status require follow-up activites? >

Site status description >

General Notes >

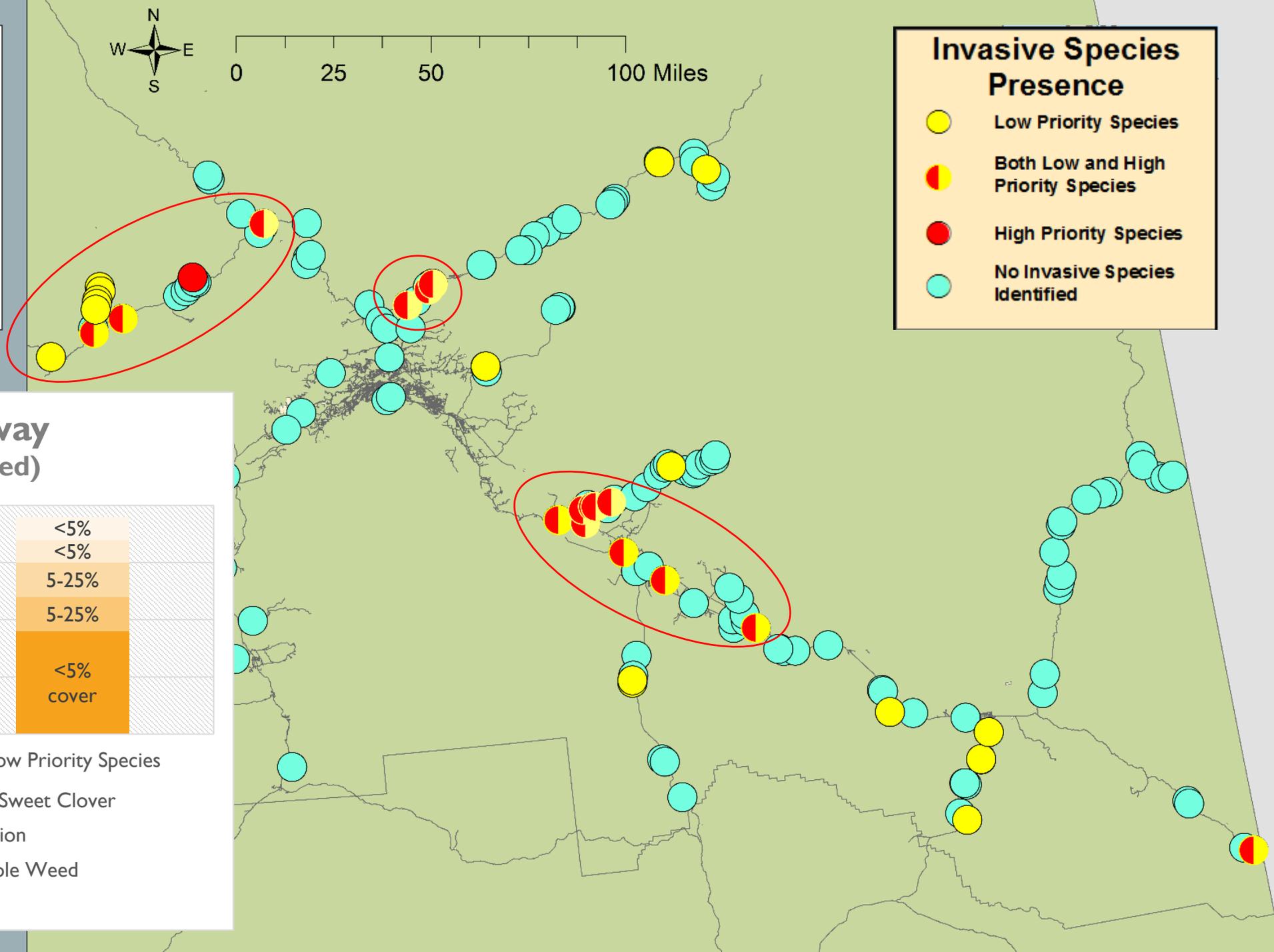
RESULTS

- **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

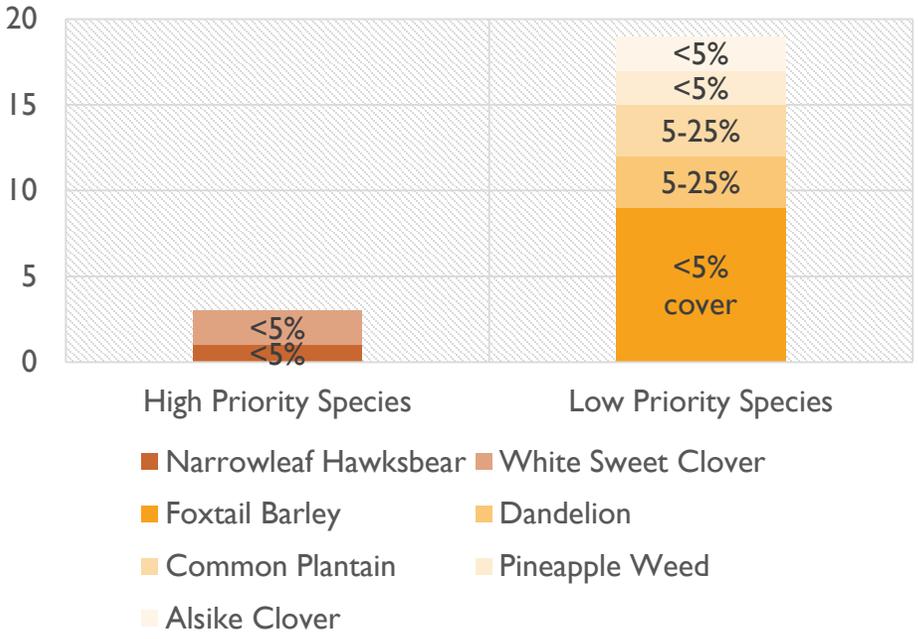
- Elliott Hwy (10 sites)
- Steese Hwy (4 sites)
- Delta Area (11 sites)



Invasive Species Presence

- Low Priority Species
- Both Low and High Priority Species
- High Priority Species
- No Invasive Species Identified

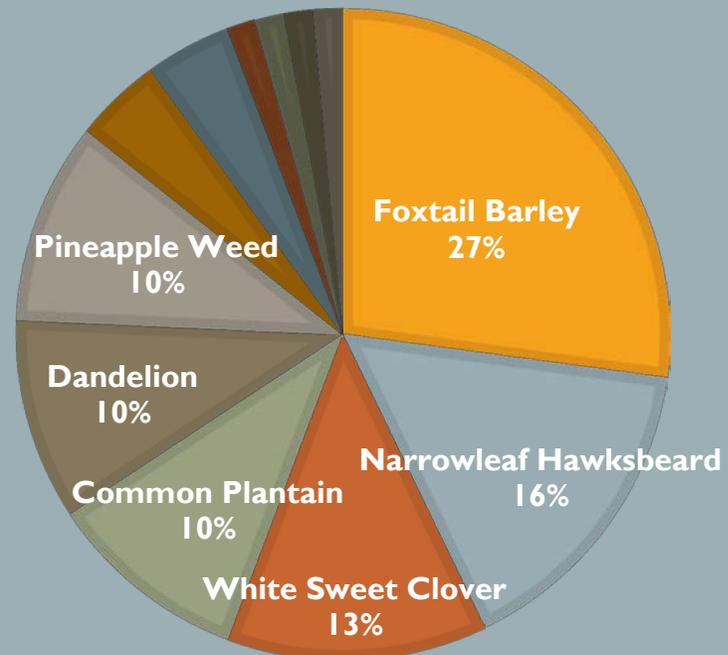
Elliott Highway (# of sites affected)



RESULTS

SPECIES WITHIN THE NORTHERN REGION

- Foxtail Barley
- Narrowleaf Hawksbeard
- White Sweet Clover
- Common Plantain
- Dandelion
- Pineapple Weed
- Alsike Clover
- Lamb's quarters
- Peppergrass
- Prostrate Knotweed
- Quackgrass



INITIAL SUCCESSES

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**

Doyon, Limited
Nenana Basin—Invasive Plant Species Management Plan

Invasive Species Risk
Increasing use and development in the Nenana Basin is elevating the chance of introducing invasive plant species. Invasive species compete with native species and have the potential to negatively impact the natural ecosystems, ecology, and agricultural economics of the area.

Nenana Basin


Totchaiket Road


Doyon's Commitment and Management Goals:
Doyon, Limited (Doyon) is presently exploring for oil and gas in the Nenana Basin. Recognizing that other stakeholders have an interest in developing resources in the basin, Doyon commits to ensure its operations do not impact other industries or the present habitat by introducing invasive species as a result of project activities. The following management goals make up the Doyon Invasive Species Management Plan:

1. **Identify and assess** primary operations related to project activities that can lead to the introduction and spread of invasive species into the Nenana Basin.
2. Develop **preventative measures** to reduce introduction of invasive species.
3. Develop a **monitoring program** to assess whether invasive species develop after project activities are completed.

1) Identify and Assess—how invasive species introduced into an area
There are three primary sources that lead to the introduction and spread of invasive species due to construction related activities:

- construction equipment that had been operating at a previously contaminated site
- gravel and fill embankment sources
- seed mixes purchased for revegetation

Continual re-evaluation of project activities will strive to identify other potential mechanisms for invasive species introduction.

Definitions:

- Native Species – Occur naturally in a region, either evolving there or arriving and becoming established without human assistance.
- Non-native/Exotic Species – Introduced outside of its natural past or present distribution but does not result in competition with native species.
- Invasive Species – Non-native species that disrupts and replaces native species
- Noxious Species – Any species designated by a Federal, State or county government as injurious to public health, agriculture, recreation, wildlife or property.

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



INITIAL SUCCESSES



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?**