Integrated Pest Management on Kenai National Wildlife Refuge

John Morton
Kenai National Wildlife Refuge
1,800+ miles of seismic lines
3,016 miles of road, crossing anadromous streams at 381 locales
1.4 million vehicles per year on the Sterling Highway
238,800 acres on 55,000 private parcels
2.2% human population growth = 1,000 new residents/year = 1.5 housing units/day
175 miles wildland-urban interface
Invasive plants on Kenai Peninsula

- 115 exotic plant species
- 27,772 records since 2002 mostly associated with roads
- 50+ new species poised to invade from Anchorage
REFUGE MANDATES

- ANILCA: conserve fish & wildlife populations and habitats in their *natural diversity*
- Wilderness Act: leave [it] *unimpaired* for future use and enjoyment as wilderness
- NWRS Improvement Act: ensure that the *biological integrity, diversity, and environmental health* of the System are maintained
Kenai Refuge is still relatively pristine at the landscape scale (2 million acres)

255 permanent systematically-distributed plots across 2 million acres

<3% contaminated with 3 exotic plant species
But is infested wherever the human footprint occurs (7,000 acres)

- Slemmons 2005
- BAER 2005,06
- Hanson Horse Trail 2006
- Swanson Oil Field 2007 & 09

~84% infested with 62 exotic plant species
IPM goal is to keep interior of Kenai Refuge weed free

- Target access points
- Target species that are peninsula-wide priorities or do not yet occur on the refuge
- Work with Hilcorp to manage 14,000-acres leased lands
- Work with AK-DOT to manage highway construction and maintenance
- Work outside refuge through CWMA
- Use weed-free certified gravel and other best management practices
- Research
- Outreach
Spatially-explicit targets (all species)

- 29 trail heads
- 6 boat launches
- 2 horse trails
- Soldotna hangar
- Float plane launch
- Refuge facilities yard
Species-specific targets

- Bird vetch
- White sweet clover
- Reed canary grass
- *Hieracium* spp.
- Elodea
4th Annual Invasive Weed Workshop
Join us to learn about alien plants invading the Kenai Peninsula
Thursday May 18th, 2006
Kenai Peninsula College, Homer Campus
Kachemak Bay Campus

Aquarium plant threatens Peninsular waterways

Responsible Landscaping
For Southcentral Alaska

SundaeLion
Kasak National Wildlife Refuge
Headquarters in Soldotna
FREE ICE CREAM
Sunday, June 4
1-4 PM

Clarion

U.S. Fish & Wildlife Service
Invasive Flora of Kenai Peninsula

Trot to the Wildside Series
Trot to the Wildside Series
Chapter 1

HUMAN DIMENSIONS OF AQUATIC INVASIVE SPECIES IN ALASKA: LESSONS LEARNED WHILE INTEGRATING ECONOMICS, MANAGEMENT AND BIOLOGY TO INCENTIVIZE EARLY DETECTION AND RAPID RESPONSE

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ABSTRACT

This chapter draws human and ecological systems research to analyze resource management decisions for endemic aphids (Aphidius), Alaska’s first

The Blackberry Skeletonizer, Schreckensteinia festaliella (Hübner) (Lepidoptera: Schreckensteinidae) in Alaska

by Matt Bruno1, Matt Goff1, and Kristin Delbos1

The Blackberry Skeletonizer, Schreckensteinia festaliella (Hübner, 1919), now appears to be present in eastern Alaska. A Paleotropical species, S. festaliella was first reported in Canada by Foulds et al. (2005) and has more recently been documented from as close to Alaska as British Columbia (Foulds et al., 2010). This species had not reported from Alaska by Ferris et al. (2015). Although no specimens are available for definitive confirmation, two recent observations are consistent with its presence in the state.

The first was a moth photographed by Matt Goff in Sitka, on June 26, 2008 (Baggiello record 070602) that was tentatively identified from the photographs of S. festaliella. Derek Skeie made a corresponding observation on Anchor, U.S. Garden, June 2010.

The second record is from a Forest Inventory and Analysis Program pilot project (Anderson et al., 2015) on Totin National Wildlife Refuge. Twenty-six sixes had been sent to Research and Testing Laboratory, Lubbock, Texas, for next-generation sequencing on an Illumina MiSeq using the 301-AFLP/302-AFLP primer set (Zhao et al., 2011) targeting COI, yielding a

Figure 1. Photo of Schreckensteinia festaliella, Sitka, Alaska, 20 June 2008 by Matt Goff (http://images.res.org/191/134/1342180551.jpg).

First record of a cluster fly (Calliphoridae: Pollenia) in Alaska

by Zdenek Blaschke

Cluster flies (Calliphoridae: Pollenia) are usually found in Alaska in the summer months as they migrate north from their northernmost overwintering grounds when the weather in Alaska becomes warm enough for them to begin their activity. A cluster fly found on the Kenai Peninsula, south of Anchorage. This is the first record of a cluster fly in Alaska, and serves as a reminder of the importance of continued early detection and rapid response to invasive species.

Figure 2. Cluster fly, Calliphoridae: Pollenia, Alaska, June 2015.
Kenai Refuge Special Use / ROW Permit Stipulations

- ...prevent introduction of invasive species and any treatments required
- ...implement site-specific pre-construction monitoring and mitigation plan for invasives
- ...use gravel source certified as weed-free
- ...power/high-pressure wash or steam-clean all potential seed transport surfaces (wheeled/tracked equipment, helicopter skids and boots of work crews)
Certified Weed-Free Program

- Certified weed-free forage for pack livestock on refuge
- Certified weed-free gravel (580,000 cubic yards!) on the MP 58-79 Sterling Highway project that bisects refuge
- Certified weed-free soil for bank restoration, pad remediation and other projects on refuge
Early Detection
Rapid Response

Sports Lake (Feb 2017)

Sports Lake (May 2017)
## Exotic plants eradicated from Kenai Refuge

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achillea ptarmica</td>
<td>sneezeweed</td>
</tr>
<tr>
<td>Asperugo procumbens</td>
<td>German madwort</td>
</tr>
<tr>
<td>Betula pendula var. dalecarlica</td>
<td>European white birch</td>
</tr>
<tr>
<td>Cytisus scoparius</td>
<td>Scotch broom</td>
</tr>
<tr>
<td>Elodea spp.</td>
<td>Hybrid waterweed</td>
</tr>
<tr>
<td>Melilotus officinalis</td>
<td>(yellow) sweetclover</td>
</tr>
<tr>
<td>Polygonum convolvulus</td>
<td>black bindweed</td>
</tr>
<tr>
<td>Senecio integerrimus var. exaltatus</td>
<td>Columbia ragwort</td>
</tr>
<tr>
<td>Sonchus arvensis</td>
<td>field sowthistle</td>
</tr>
<tr>
<td>Sorbaria sorbifolia</td>
<td>false spirea</td>
</tr>
<tr>
<td>Tanacetum vulgare</td>
<td>common tansy</td>
</tr>
<tr>
<td>Typha latifolia</td>
<td>broadleaf cattail</td>
</tr>
<tr>
<td>Viburnum opulus var. americanum</td>
<td>American cranberrybush</td>
</tr>
</tbody>
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