

Landowner: City and Bureau of Juneau (CBJ)
Date: June 2010
Assisted by: Dana White
GPS Coordinates: 58.273805,-134.513254
Land Cover: Base of the ski hill in between the lifts and lodge.
Predominant soil: Alpine Muskeg
Size of Area to be Treated: ~1 A

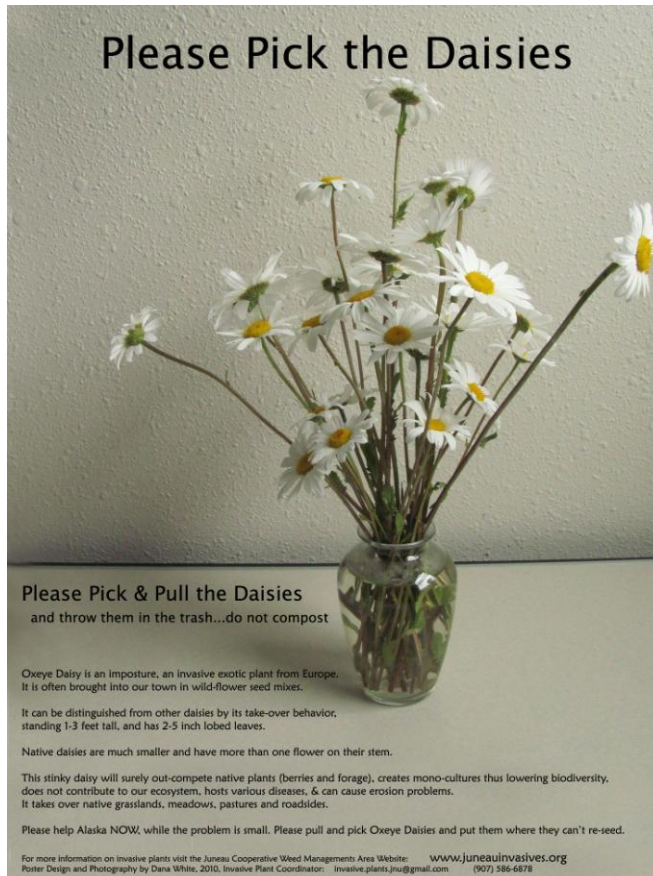
PURPOSE (Check all that apply)					
<input checked="" type="checkbox"/>	Invasive Weeds	<input checked="" type="checkbox"/>	Minimize negative impact on soil, water, air, plant, animal & humans	<input checked="" type="checkbox"/>	Educate community, high school students, and target skier and users of the mountain.
Target Pest Name		Oxeye Daisy <i>Leucanthemum vulgare</i> Lam			
Management method (selected alternative)		<p>Mechanical control by digging up as much of the plant as possible with hopes to prevent it from seeding.</p> <p>There will be no use of herbicides at this time.</p> <p>Promote: Please Pick the Daisies campaign and discourage oxeye daisies in Juneau.</p>			
Application techniques (i.e., rate, timing, and method)		<p>Pull before plants go to seed; prevent flower heads from remaining on the ground-- as they can seed without their stalk, and remove as much root as possible.</p> <p>Plant parts will be pulled, double plastic bagged, and thrown in the trash (which will be buried at Capital Waste (CBJ Waste facility).</p> <p>I am hoping to get the high school kids on this project. The freshman biology class at JDHS would be able to have a field trip, if we found transportation. It would engage about 70 students.</p>			
Additional specifications		<p>I will only take this project on if we can get several adults to help herd the youth and keep them on track.</p> <p>Disposable Rubber gloves and some hand digging tools will be used.</p> <p>General safety and instructions will be given on site.</p>			



Notes:

Herbicides will not be used at this time. Potential harm to nearby streams and waterfronts, and children playing nearby are worthy considerations to not apply herbicides to this site. Eagle Crest is a recreational outlet and native habitat for many people and wild animals that may use this area for forage. Much of the site is disturbed soil from the construction of the ski lifts. It looks like someone might have tried to add some flowers and may have used a wild flower seed mix with this invasive plant. Hopefully we can pull them.

Two community pulls were held for Oxeye Daisy near the lodge at the Eagle Crest Ski area on North Douglas Island. Contact was made with the City and the Managers of the facility. Outreach material was displayed during BioBlitz and posters were distributed to the lodge and community areas for hopeful semi-permanent display. The second pull was coordinated with the Juneau-Douglas High School weed pull and biology class field trip.



Eagle Crest: Oxeye Daisy

BioBlitz: June 26, 2010 coinciding with Alaska Invasive Weed Awareness Week. AACD IPC partnered with CES and Fish and Game as a taxon leader, provided an elaborate display of information (including coloring books and stations for kids), and followed up with a mid-day weed pull.

Exploring Biodiversity in Our Backyard The clock starts ticking at noon on June 26, 2010 and stops at noon on June 27, 2010. Join Dana White, Juneau Invasive Plant Coordinator, Alaska Association of Conservation Districts (AACD); and UAF- Cooperative Extension Service 4H leaders. Learn to identify common invasive plants, why we care, the basics of a G.P.S. unit, and volunteer to help pull a few weeds at Eagle Crest. (Limited enrollment – 12 teams)

Saturday, June 26 3:00 PM Oxeye Daisy Weed Pull

Free BBQ starting at 4:30 for everyone!
Lots of fun and activities for the entire family!
The clock starts at noon on June 26 and ends at noon June 27.

What is BioBlitz?

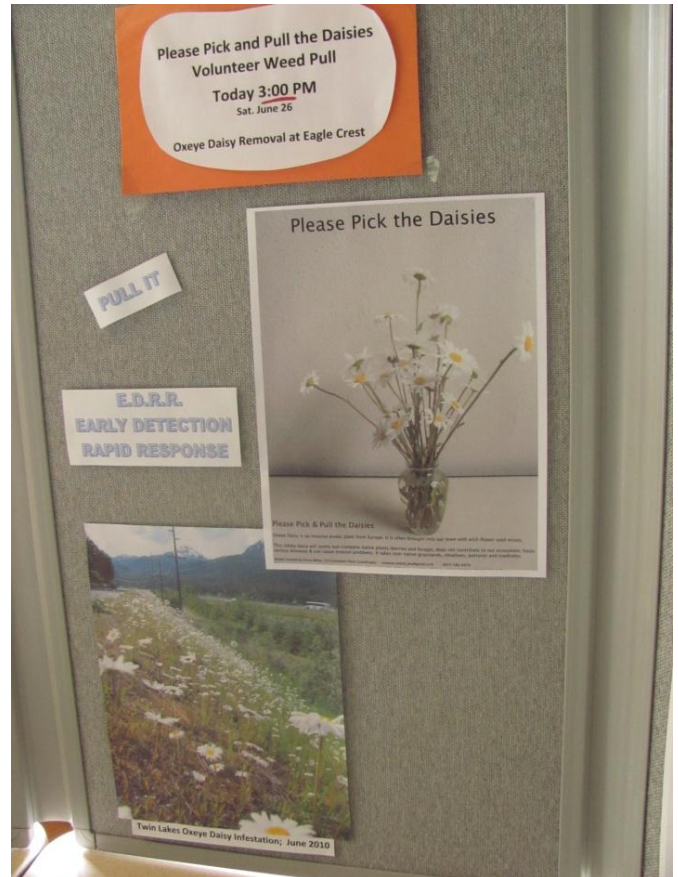
<http://www.wildlife.alaska.gov/index.cfm?adfg=education.blitz>

BioBlitz Schedule

[See the complete BioBlitz schedule of activities \(PDF file 588 K\)](#)

6/26/10

Approximately 250 scientists and community members participated in a successful BioBlitz. All ages were represented.



Eagle Crest: Oxeye Daisy



BioBlitz Oxeye Daisy Weed Pull
Invader Alert using GPS, Invasive Plant taxa team lead
by Dana White, AACD, IPC. 2010

Eight people joined me for the 1:30 Invader Alert using GPS. Many visited the outreach table and most of the material I brought was distributed throughout the community. A few people participated in the afternoon's weed pull.



Display in lodge for BioBlitz



GPS Invader Alert Team: Noticing and Marking Invasive Plants

9/27-28/2010

Juneau Douglas High School Weed Pull and classroom introduction to Terrestrial Invasive Plants:

The last week of September I received a call from JDHS professor, Henry Hopkins who said he had 60-75 High School Biology Students who could pull weeds for a couple of hours-if we could provide a bus (the school didn't have funding). I secured a couple of busses from First Student Bus Company, who donated their time and gas, and presented terrestrial invasive plants to the three different classes with a follow up weed pull at Eagle Crest ski area.

Over 50 kids, and several chaperones helped pull oxeye daisy near the lower lifts & buildings. All students and sponsors were provided with color prints of the USFS-USDA Selected Invasive Plants of Alaska ID books and an hour classroom lecture about terrestrial invasive plants.

Eagle Crest: Oxeye Daisy

We dug Oxeye Daisy for a couple of hours filling 8 full 30gallon bags with plant material and roots. Several color posters were also offered at the lodge with hopes that others who visit may also be aware. An article was published in the Juneau Empire. http://juneauempire.com/stories/092910/loc_713424111.shtml

Wednesday, September 29, 2010

Story last updated at 9/29/2010 - 10:41 am

Oxeye daisies didn't stand a chance

By Sarah Day | JUNEAU EMPIRE

Oxeye daisies at Eaglecrest fought a losing battle against 60-70 Juneau-Douglas High School freshmen Tuesday morning.

Students in Henry Hopkins' biology class, Andrea Stasyszen's math class and Kristy Germain's English class (the trio teaches as part of learning community) learned about invasive plant species and took a field trip to combat one area of the problem.

Student Kathryn Noreen said the oxeye daisies "kind of are everywhere" past the lodge at Eaglecrest. Classmate Logan Jones said the plant is not only invasive, but also aggressive.

Student Hannah Cassell said they learned that the oxeye daisy ranks a 61 or 62 on a scale of 100 - 100 being the most aggressive on the Alaska Natural Heritage Program list. "We're going to be filling up the bags as much as possible," she said.

Dana White, invasive plant coordinator for the Alaska Association of Conservation Districts, spoke to the classes at JDHS on Monday about different invasive species and was helping pull daisies Tuesday. Noreen said the biology class also did a big plant project for two to three weeks.

The students enjoyed getting out of the classroom and into fresh air. Hopkins said as far as invasive species go, he's more concerned with green crab and Atlantic salmon "but they're hard to address with a school class." Plants are easier, he added.

Juneau also struggles with Japanese and Bohemian knotweed, Hopkins said, but said it's hard to make a dent with a school class.

"This is a more realistic project," he said, adding that it brings hands-on science and community involvement to students. "Kids enjoy getting out of the classroom for any and all reasons ... If you can connect learning, everybody wins."

Hopkins said the field trip was made possible by First Student Bus, Inc., and White.

White said her job includes community outreach education and organizing weed pulls and eradication efforts.

"They're going to know what oxeye daisy looks like the rest of their lives," she said.

Normally, weeds and invasive species aren't talked about and people tend to have the opinion "weeds, who cares?" White said. This project brings issues involving invasive plant species into the forefront. If invasive species aren't dealt with, they can over crowd and kick out native plants and change the environment.

White said if people are having problems with invasive plants on their property they can contact her at invasive.plants.jnu@gmail.com or (907) 586-6878. She said her position is paid for by 2009 stimulus funds.

• Contact reporter Sarah Day at 523-2279 or at sarah.day@juneauempire.com.



Photos by Michael Penn

We have First Student Inc. to thank for donating over \$300 for the busses and drivers for the four hours.

Discussion and Recommendations:

While we were there it should be noted that the majority of the infestation is at the base of the lodges and lifts, as we worked from the outside edges of the infestation (inward) we realized there is no way we could pull this entire infestation without a serious amount of manual labor. But for the sake of demonstration, education, and to get the community interested it is a still a worthy project.

At this time the infestation does not seem to stretch farther than the first serious turn in the road, past the second lift--except for a small clump noted to be at the top of the hill. This infestation could potentially spread up the hill in the disturbed areas around the road. The plants were assumingly brought in with a wild flower seed mix and planted near the lodge where they are the thickest.

If this infestation is not eradicated, as time continues, the aggressive Oxeye Daisy, Forget-Me-Nots, and Creeping Buttercup will continue to spread up the hill side into newly disturbed soils and along the corridor created by the road and maintenance vehicles.

Oxeye Daisy and other invasive plants can be an aggressive competitor to the native muskeg vegetation, thus potentially altering habitat by reducing native forage. It is not too late to prevent the spread, but it might be in a few years.

At this time there has been word that a small infestation is at the top of the hill. It would be awesome if we could contain the infestation at the bottom of the hill; and eradicate the small infestation at the top of the hill next year (since the snow has already prevented this opportunity this year).

If manual control is continued I estimate a 100 hours of labor, preferably a team of four, for four days.
If an herbicide, such as Transline is applied, it would be the cost of herbicide plus one day's labor.

Also noted on site are creeping buttercups, forget-me-nots, and reed canary grass.

The reed canary grass needs to be addressed in the future before it gets out of control in the lower muskeg. It is a single stand small enough to be dealt with.

This information has been entered into the AKEPIC database.

Photos taken during the high school weed pull were accidentally lost during a file transfer, technical glitch. ☹

Impacts

The greatest impact of oxeye daisy is on forage production of infested pastures and meadows. Cattle avoid oxeye daisy and therefore any pasture infested with dense stands of oxeye daisy will decrease forage available for grazing. Dense stands of oxeye daisy can decrease plant diversity and increase the amount of bare soil in an area. The full extent of ecological, environmental, economical and sociological impacts from oxeye daisy are not well documented.

Management

Because oxeye daisy is such a showy, pretty plant, proper management is often neglected. It is often an ingredient in wildflower seed mixes, so consumers should read the label carefully to be sure oxeye daisy is not present. In addition, landowners often avoid mowing the plant because it looks so pretty on their lawn or in their gardens. Therefore, education and awareness are critical for adequate management.

Mechanical

Oxeye daisy should be mowed as soon as flowers appear to reduce seed production. Mowing may have to be repeated during a long growing season because mowing may stimulate shoot production and subsequent flowering. Root systems are shallow and the plant can be dug up and removed. Be sure to remove the entire

root system, though, as remaining roots may produce new shoots. Hand removal will have to be continued for several years because seeds may remain viable in the soil for a long time.

Chemical

Oxeye daisy is slightly tolerant to 2,4-D unless applied at very high rates (5 pounds/acre). In southwestern Montana, 1.5 pints/acre picloram plus 1 quart/acre 2,4-D gave 100 percent control for two years on one site. However, researchers do not recommend this treatment for long term control. Transline® is also labeled for use on oxeye daisy. Transline should be applied at one third to one pint/acre when plants are young and actively growing. Because oxeye daisy is not a superior competitor for nutrients, some researchers believe fertilizer applied in combination with herbicide will enhance grass yield and hinder oxeye daisy performance. In a mountain meadow in eastern Washington, nitrogen applied at eighty pounds per acre (with no herbicide) was the most cost-effective chemical treatment of oxeye daisy. Forage production increased by 500 percent when a high level of nitrogen fertilizer was applied.

Biological control

No biological controls have been discovered for oxeye daisy.

Conclusion

Oxeye daisy has become an aggressive invader of pastures, meadows and roadsides throughout the United States. In western pastures and meadows, it can form dense stands which choke out other vegetation and decrease forage production. Because of the plant's beauty and showiness, conscientious management by many landowners has been neglected. Persistent mowing, chemical applications and grazing can be effective methods to control oxeye daisy. Integrating various techniques will give the best success of control.

By: Jane M. Krueger and Roger L. Sheley, graduate research assistant and Extension noxious weed specialist, respectively, Department of Land Resources and Environmental Sciences, Montana State University, Bozeman

Non-Native Plant Species of Alaska

Oxeye daisy

***Leucanthemum vulgare* Lam.**

Synonyms: *Chrysanthemum leucanthemum* L., *Leucanthemum leucanthemum* (L.) Rydb.

Other common names: white daisy

Family: Asteraceae (Compositae)

Description

Oxeye daisy is a shallow-rooted plant with numerous stems from 1 to 3 feet tall. Stalked basal leaves are spatula-shaped, broadly toothed, and 2 to 5 inches long and 2 inches wide. The stem leaves are alternate, smooth, and glossy. The leaf stalks are short and clasp the stem. Solitary heads composed of white ray florets and yellow disc florets, 1 to 2 inches in diameter, are produced at the ends of stems. Seeds have no pappus (Hultén 1968, Royer and Dickinson 1999, Whitson et al. 2000).

In Alaska, the native arctic daisy (*Dendranthema arcticum*) could be confused with *Leucanthemum vulgare*. Arctic daisy is confined to rocky seashores and estuaries throughout coastal Alaska and is more low-growing, with wedge-shaped rather than spatulate basal leaves. All other Alaskan composite species with white ray flowers have either entire leaves or highly dissected leaves.

Ecological Impact

Impact on community composition, structure, and interactions: Oxeye daisy forms dense colonies, decreasing overall vascular plant diversity. It can quickly replace up to 50% of the grass species in pastures. The entire plant has a disagreeable odor and grazing animals avoid it. Moreover, the plant contains polyacetylenes and thiophenes that are generally highly toxic to insect herbivores. Oxeye daisy can host chrysanthemum stunt, aster yellows, tomato aspermy viruses, and several nematode species (Royer and Dickinson 1999). There is no known allelopathy potential.

Impact on ecosystem process: In heavy infestations there is an increase in the potential for soil erosion.

Eagle Crest: Oxeye Daisy

Biology and Invasive Potential

Reproductive potential: This species is a perennial that can spread both vegetatively and by seed. The plant flowers during its second year. Primarily insect pollinated, visitors include the insects from a number of different orders. Plant normally produces 1300 to 4000 fruits (Howarth and Welliams 1968). Seeds remain viable in the seed bank for at least 2-3 years.

Role of disturbance in establishment: Cutting, mowing, trampling and grazing promote establishment.

Potential for long-distance dispersal: Fruits are dispersed by wind, as well as in dung, but the fruits lack elongated pappus adapted for wind dispersal.

Potential to be spread by human activity: Seeds can be moved with timber, contaminated forage grass and legume seed. The plant continues to appear for sale in nurseries.

Germination requirements: Seedling germination is greater under increased moisture and is inhibited by continuous darkness. Dense groundcover can prevent establishment. Chilling and drought appear to have no effect on germination rates. *Growth requirements:* Oxeye daisy is adapted to coarse and medium textured soil, pH 5.2-7. No cold stratification required for germination. It withstands temperatures to -28°F, and requires 130 frost-free days (USDA 2002). This species has moderate summer porosity, and no coppice potential.

Listing: Noxious in Colorado, Minnesota (Secondary N. Weed), Montana (Cat. 1), Ohio, Washington (Class B), Wyoming (USDA 2002).

Distribution and Abundance

Introduced from Europe as an ornamental, it has escaped cultivation and is now common in native grasslands, pastures, waste areas, meadows, and roadsides. Oxeye daisy is a serious weed of 13 crops in 40 countries. In the U.S. it is found in every state. It was introduced to the Pacific Northwest in the late 1800's.

Native and current distribution: Native to Europe (Mediterranean to Scandinavia) and Siberia. Populations have established in E. Asia, Iceland, Greenland, North and South America, Hawaii, Australia, and New Zealand (Hultén 1968).

Management

Oxeye daisy is easily killed by intensive cultivation. Herbicides active on oxeye daisy are available; these herbicides are not, however, specific. Application of nitrogen fertilizer is almost as effective as the herbicides at reducing canopy cover. Effective biocontrol insects or pathogens have not been found.

References:

- Howarth, S.E. and J.T. Welliams. 1968. Biological flora of the British Isles. *Chrysanthemum Leucanthemum* L. *Journal of Ecology* 56:585-595.
- Hultén, E. 1968. *Flora of Alaska and Neighboring Territories*. Stanford University Press, Stanford, CA. 1008 pp.
- Royer, F. and R. Dickinson. 1999. *Weeds of the Northern U.S. and Canada*. The University of Alberta press. 434 pp.
- 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.

Alaska Natural Heritage Program

Environment and Natural Resources Institute

University of Alaska Anchorage

707 A Street, Anchorage, Alaska 99501

Phone (907) 257-2780 Fax (907) 257-2789

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South Coastal

Interior- Boreal

Arctic-Alpine

Collection Site