Juneau Cooperative Weed Management Area

Management Plan
2010-2015

JUNEAU
COOPERATIVE WEED
MANAGEMENT AREA

Introduction

Invasive plants are non-native species that have the potential to cause harm to ecosystems, the economy, and human and animal health. By competing with and displacing native plants, invasive plant infestations can alter plant community structure, nutrient cycling and hydrological processes; increase soil erosion and sedimentation; and reduce species diversity and ecosystem productivity.

Due to its remoteness and intact ecosystems, Southeast Alaska has suffered fewer impacts from invasive plants than other states. However, invasive plants are becoming more prevalent in the region, and more than 20 species of invasive plants have been found in Juneau alone. Most invasive plants found within the City and Borough of Juneau (CBJ) occur primarily in developed areas and along roadways and trails. Unless action is taken to control and eliminate these invaders, these species will eventually invade Juneau's intact wetland, forest, riparian, and coastal ecosystems. Unchecked, invasive plants could ultimately impact local fishing and tourism industries as well as diminish quality of life in the CBJ.

Background of JNU- CWMA

Following the discovery of garlic mustard in downtown Juneau in 2000, a diverse group of people established an ad-hoc work group known as Juneau Invasive Plants Action (JIPA). Initially, JIPA focused on eradication of garlic mustard as its primary mission. As knowledge about the existence and potential impacts of invasive plants in Juneau increased, this small group of dedicated agency representatives and community members expanded their efforts to include public education and outreach and worked on specific projects that addressed other weed species in the CBJ. During the past 9 years an informal group of individuals from federal and state agencies, tribal and non-profit organizations, and the general public have worked on the invasive plant issue in Juneau as Juneau Invasive Plant Action (JIPA). Recently, JIPA has formalized as a Cooperative Weed Management Area (CWMA).

A CWMA is a partnership of various groups that manage invasive species in a defined area. CWMAs are local organizations that bring together landowners and land managers to coordinate action and share expertise and resources to manage invasive plant species. CWMAs often function under the authority of a mutually developed Memorandum of Understanding or Cooperative Agreement and are governed by a steering committee. Together, CWMA partners develop a comprehensive weed management plan for their area. Currently, there are 5 CWMAs in Alaska.

To increase their effectiveness and access to funding sources, JIPA established itself as the Juneau Cooperative Weed Management Area (JNU-CWMA) in 2008 by introducing an organizational charter and circulating a Memorandum of Agreement (MOA, Appendix A). Current members of the JNU-CWMA include the City and Borough of Juneau (CBJ), Alaska Cooperative Extension Service, US Forest Service (USFS), Juneau Watershed Partnership (JWP), USDA Natural Resources Conservation Service (NRCS), Central Council Tlingit and Haida Indian Tribes of Alaska (CCTHITA), Alaska Department of Transportation and Public Facilities (ADOTPF) and the Alaska Department of Fish and Game (ADFG). Additional agencies, organizations, businesses, tribal entities, and the public are welcomed and encouraged to participate in or become a member of the JNU-CWMA.

JNU-CWMA Participation

Participants of the JNU-CWMA include MOU signatories and supporters who contribute to weed control efforts by attending JNU-CWMA meetings, assisting with public outreach activities, taking part in specific projects, and/or exchanging information. To the extent permitted by the governing body and available resources, each MOU signatory agrees to provide where appropriate:

- Land access for weed surveys;
- Scientific and technical expertise;
- Prevention and control efforts;
- work time;
- Resources such as maps, imagery, reports, data, and equipment;
- In-kind support.

In addition, MOU signatories are encouraged to attend monthly meetings (based on seasonal schedules), host a JNU-CWMA meeting once a year, and volunteer to take and distribute meeting notes at least once each year . Future projects to facilitate participation include creating an online communications portal and providing training opportunities for members.

Goals and Strategies

This plan is intended to be a long-term guide for the JNU-CWMA to work toward the collective goals of managing, controlling and/or eradicating invasive plant species of concern in Juneau for the years 2010 to 2015. This plan is a living document that can and should be modified to reflect changes in priorities and opportunities, as agreed upon by the MOU signatories.

The JNU-CWMA has identified five key strategies for addressing invasive plants in Juneau: inventory and monitoring, prevention, control and management, habitat protection and rehabilitation, and education and outreach. Each of these strategies is discussed in further detail below, accompanied by specific actions.

Inventory and Monitoring

The JNU-CWMA will be the lead organization for invasive plants inventory and monitoring in the CBJ. Inventory and monitoring is critical to preventing introductions of new species and the spread of existing species, and is an important aspect of habitat protection and rehabilitation.

Proposed Actions:

- Obtain existing information on the distribution of invasive plants in the CBJ
- Conduct additional inventories to build upon existing information.
- Develop and maintain an invasive plant Geographic Information System.
- Monitor priority infestations to assess potential spread.
- Monitor infestations where eradication/control measures have been implemented to determine their effectiveness.
- Identify, monitor, and prevent existing and potential weed vectors through partnerships with local businesses, government, and resource agencies.
- Utilize technical experts to verify invasive weed sightings.
- Work with the Alaska Committee for Noxious and Invasive Plants Management to streamline the Exotic Plants Information Clearinghouse as a user-friendly public interface invasive weed reporting.

Prevention

Preventing both new infestations and the spread of existing invasive plants is the most efficient and effective approach to maintaining intact ecosystems and avoiding potential economic impacts from invasive plants once they have established. Public education and outreach is an important part of prevention, but additional actions that address the spread or introduction of invasive plants are necessary. These actions include working with local businesses, nonprofits, and government agencies to ensure that potential invasive plant vectors are monitored and measures are taken wherever possible to prevent the spread or introduction of these species.

Proposed Actions:

- Develop Best Management Practices (BMPs) that prevent the spread or introduction of invasive plants during construction projects. These practices should include proper equipment cleaning, appropriate weed and seed disposal, material inspection, herbicide use, minimizing soil disturbance and the retention, recycling, or re-establishment of native vegetation.

- Create an Invasive Plant Control and Prevention Plan (IPCPP)for contractors, developers, and project permitting agencies.
- Where invasive plant populations occur on state or CBJ lands, require IPCPPs for new or re-developments.
- Research, develop, and promote seed mixes and landscaping/gardening plants for Juneau that do not threaten native plant communities.
- Collaborate with the CBJ and ADOTPF to develop road maintenance plans that reduce the introduction and spread of invasive plants along roadways.

Control and Management

One of the central functions of a CWMA is to provide support for the control and management of invasive plants. Juneau's remote location and restricted accessibility likely limits the threat of invasion by non-native plants. However, our dependence on natural resources by local sport/commercial fishing and tourism industries makes control and management of invasive plants an important factor in protecting the integrity of local ecosystems and the economy.

Proposed Actions:

- Develop Eradication Plans for the CWMA's top species of concern (Appendix B)
- Initiate, facilitate, and support small-scale research projects on invasive plant control and management, and share results with the public.
- Support the establishment of CWMA's in other communities throughout Southeast Alaska.
- Establish a framework for "Early Detection and Rapid Response" to identify and control new populations of weeds.
- Ensure that control and eradication projects include re-vegetation plans that give priority to native plants and are compatible with the local vegetation.
- Initiate, facilitate, or support small-scale research projects on weed control and management, and share results with the public.

Education and Outreach

The JNU-CWMA is committed to community outreach and education as an integral part of each of the strategies listed above, and our overall invasive plant management goals. Outreach and education can influence decisions and actions that can reduce and prevent the spread of invasive plants in Juneau and throughout the region.

Proposed Actions:

- Host plant identification workshops for targeted local groups such as the Master Gardeners, Discovery Southeast, UAS Environmental Club, Juneau Alpine Club, etc.
- Further develop the JNU-CWMA website content, including developing an invasive plant information repository, facilitating information exchange and discussion, and linking to pertinent websites that would be helpful for local residents, developers, and resource managers
- Create and distribute place-based brochures, maps and other informational materials

- Develop or adapt educational and outreach program materials for the Juneau School District, landowners and other interested audiences.
- Actively participate in outreach opportunities such as the Juneau Home and Garden Show, Earth Day and other local events, by tabling or presenting weeds information.
- Support the establishment of CWMA's in other communities throughout Southeast Alaska.
- Interact with local schools and the University of Alaska Southeast to assist with student education and work projects that address local weeds issues.

Conclusion

The JNU-CWMA is a group of concerned agency representatives and community who are dedicated to working collaboratively to help control and eliminate invasive plants in Juneau, Alaska. Invasive plants reduce the biological, recreational and economic value of our land and waterways, can decrease our native plant populations, and degrade salmon habitat and our other aquatic ecosystems. Preserving the health and diversity of native plant and wildlife species and their habitats is thus vital to the economic and ecological well being of Juneau and all of Alaska.

References

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Appendices

Appendix A: Juneau Cooperative Weed Management Area- Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING

Pulling Together the Juneau Cooperative Weed Management Area

INTRODUCTION

Public, private and tribal landowners, land managers and land users throughout the City and Borough of Juneau are concerned with invasive plant infestations, commonly known as weeds. Both existing infestations and those that could occur in the future are of concern. Invasive plant infestations reduce the biological, agricultural, recreational and economic value of the land, decrease native plant populations and can also degrade salmon habitat and other aquatic ecosystems. Preserving the health and diversity of native plant and wildlife species and their habitats is thus vital to the economic and ecological well being of Juneau and all of Alaska.

The goal of the Juneau Cooperative Weed Management Area (JNU-CWMA) is to prevent the reproduction and spread of weeds into, within and from the WMA (Weed Management Area). The area covered by the JNU-CWMA encompasses the City and Borough of Juneau. Because prevention is the most efficient and effective approach, both ecologically and economically, the first focus of the JNU-CWMA within this goal will be on preventing the initial introduction of invasive weeds into the WMA.

Weed Management Areas typically focus on finding solutions across the landscape rather than focusing strictly on specific land ownerships. Taking a landscape-scale view places specific weeds and treatment sites in context with the geographic distribution of invasive species, susceptible habitats and management feasibility.

PURPOSE

The purpose of the Memorandum of Understanding (MOU) is:

1. to recognize the JNU-CWMA, and

2. to establish the basis for participants to work together to achieve the common goals of:
    a. preventing, containing and/or eradicating invasive plant infestations, by, but not limited to:
        - recognizing introduction vectors and monitoring for invasive plant and seed importation;
        - promoting public awareness and land stewardship skills through education;
        - encouraging contracts for work that disturbs or imports soil or fill materials to have an invasive plants control and prevention plan;
        - supporting the full implementation of appropriate control efforts; and

    b. restoring natural ecosystem function to the extent feasible.

By creating a framework to accomplish mutually beneficial projects and activities, the MOU promotes cooperation among signatories and their partners. Each of the signatories will benefit from shared resources, combined expertise, shared responsibilities, a unified strategy, consistency of methods and collective results. All signatories are accepted as equal partners in this MOU.

THE SIGNATORIES' UNDERSTANDING

We, the Signatories, collectively agree to the following actions:

1. Each signatory to this Memorandum of Understanding has primary responsibility for the lands and waters under its jurisdiction. To the extent permitted by the governing body and resources of each signatory, the signatories agree to provide where appropriate:

    a. Land access for weed surveys;
    b. Sharing scientific and technical expertise;
    c. Participation in prevention and control efforts;
    d. Contribution of work time;
    e. Sharing resources when possible, including maps, imagery, reports, surveys and equipment;
    f. In-kind support.

2. Members of JNU-CWMA include but are not limited to, any private citizen and other CWMA's in Alaska or elsewhere.

3. Any information furnished to the Forest Service under this instrument is subject to the Freedom of Information Act (5 U.S.C. 552).

4. This Memorandum of Understanding in no way restricts signatories from participating in similar activities with other public or private agencies, organizations or individuals.

5. All signing parties will handle their own activities and utilize their own resources, including the expenditure of their own funds in pursuing the objectives of this MOU.

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6. Nothing in this Memorandum of Understanding obligates the signatories to expend funds, commit resources, provide volunteers or employees or enter into any contracts or other obligations. Any endeavor or transfer of anything of value involving reimbursement or contributions of funds between the parties to this MOU will be handled in accordance with applicable laws, regulations, and procedures including those for Government and, if appropriate University of Alaska, procurement and printing. Such endeavors will be outlined in separate agreements that shall be made in writing by representatives of the parties and shall be independently authorized by appropriate statutory or University of Alaska Board of Regents' authority. This MOU does not provide such authority. Specifically this MOU does not establish authority for noncompetitive award to the parties of this agreement of any contract or other agreement. Any contract or agreement for

training or other services must fully comply with all applicable requirements for competition.

7. JWP (Juneau Watershed Partnership) agrees to:
    a. Provide coordination for the start-up of the JNU-CWMA;
    b. Work with other entities willing to provide support staff for the organization as funding allows.

MODIFICATION AND TERMINATION

This agreement will become effective from the date of last signature and will remain in effect until **September 30, 2012** at which time it will expire unless extended prior to the expiration date. Any signatory may terminate their involvement in the JNU-CWMA by providing 60-day written notice at any time before the date of expiration.

This MOU may be amended as necessary by mutual consent of the majority of signatories through a written amendment signed and dated by said majority.

JNU-CWMA Contact

The regional contacts for this agreement are:

Beverly Schoonover
Juneau Watershed Partnership
PO Box 20649
Juneau, AK 99802
(907) 586-6853
jwp@alaska.net

Samia Savell
Natural Resource Conservation Service
175 South Franklin Suite 424
Juneau, AK 99801
(907) 586-7220
samia.savell@ak.usda.gov

Appendix B: JNU- CWMA Top Ten Species of Concern

Oxeye Daisy

Leucanthemum vulgare Lam.

Family
Asteraceae (Sunflower)

Other Names
White Daisy

Description
Oxeye Daisy is a short-lived perennial plan with numerous stems from 1-3 feet tall. Flowering heads are solitary at the end of the branches, with white ray flowers and yellow disk flowers. Basal and stem leaves are stalked and spatula shaped, and are 2-5 inches long and 2 inches wide. The plant has shallow and branched rhizomes. (AKEPIC, 2005)

Similar Species
Native Arctic Daisy and Shasta Daisy

Impacts
Oxeye Daisy can out compete and displace native colonies. The plant contains chemicals that are toxic to insect herbivores and can host various plant diseases.

Biology /Ecology
Oxeye Daisy is a perennial plant that flowers in the second year and can spread vegetativly and by seed. It is primarily insect-pollinated.

Bohemian Knotweed

Polygonum x bohemicun P.F. Zika & A.L. Jacobson

Family
Polygonaceae

Other Names
Giant Knotweed, Japanese Knotweed

Description
Knotweed is a perennial shrub, with stems that grow up to 10 feet tall and are hollow and red, with thickened nodes where the lead stalk meets the stem. Leaves are spade or heart shaped, with hairs being short and unicellular. (AKEPIC, 2005)

Similar Species
Black Bindweed, Bukhara fleeceflower, Cultivated knotweed

Impacts
Knotweed is an aggressive species that can dominate native vegetation and prevent native seed germination. Knotweed can clog and choke waterways and lower the quality of habitat for fish and wildlife. (AKEPIC, 2005)

Biology /Ecology
Bohemian knotweed reproduces via vegetative regeneration of rhizomes and fresh stems.

Reed Canarygrass
***Phalaris arundinacea* L**

Family
Poaceae

Other Names
Canarygrass

Description
Reed canary grass is a robust, cool-season, sod-forming perennial plant that produces culms of ½ to 5 feet in height from creeping rhizomes. Flowers are arranged in dense, branched panicles that are 2 ½ to 7 inches long. The species is morphologically variable, with more than 10 varieties. (AKEPIC, 2005)

Similar Species
Orchard grass (*Dactylis glomerata* L); Bluejoint (*Calamagrostis canadensis* (Michx.) P. Beauv.)

Impacts
Reed canarygrass forms dense, persistent, monotypic stands in wetlands that exclude and displace other plants and may also slow stream flow, eliminating the scouring action needed to maintain the gravel river bottoms necessary for salmon reproduction. It may also alter soil hydrology. (AKEPIC, 2005)

Biology /Ecology
Reed canarygrass reproduces from seed and through stout, creeping rhizomes. It is adapted to fine and medium textured soils with PH levels ranging from 5.5 to 8, and is highly tolerant of anaerobic soils. (AKEPIC, 2005)

Ornamental Jewelweed
Impatiens glandulifera Royle

Family
Balsaminaceae

Other Names
Himalayan balsam, Policeman's helmet, Touch-me-not, Indian jewelweed

Description
Ornamental jewelweed is an herbaceous annual plant growing 3-6 feet tall. Stems are erect, hollow, smooth, and hairless. Flower color ranges from pink to purple to red. The fruit is a capsule that explodes at touch when ripe, ejecting large, black seeds. (AKEPIC, 2005)

Similar Species
Native jewelweed, *Impatiens noli-tangere* L.

Impacts
This species reduces the growth of native plant species and eventually replaces them through aggressive competition, forming dense stands. Furthermore, the presence of ornamental jewelweed alters the composition and behavior of pollinating insects and decreases wildlife habitat. (AKEPIC, 2005)

Biology /Ecology
Ornamental jewelweed reproduces entirely by seed; a single plant can produce up to 2,500 seeds, which are viable for 18 months or more and can germinate under water. (AKEPIC, 2005)

White Sweetclover
Melilotus alba Medik.

Family
Fabaceae

Other Names
While melilot, honey clover, honey-lotus, tree clover, white millet

Description
This is a biennial plant that can reach 2-5 feet tall and is often branched. Plants typically flower and die during the second year of growth. Flowering occurs from June to October. (AKEPIC, 2005)

Similar Species
Yellow sweetclover, *Melilotus officianalis* (L.) Lam.

Impacts
This species forms large monolithic stands along rivers in southeast, southcentral, and interior Alaska. It alters soil conditions by fixing nitrogen, and can alter sedimentation rates of river ecosystems. (AKEPIC, 2005)

Biology /Ecology
Each plant is capable of producing up to 350,000 seeds that can remain viable in the soil for up to 81 years. Large seed banks are common, and it can self-pollinate as well as outcross. In mild climates, the species re-sprouts easily when cut or grazed. It tends to establish extensively in early successional river communities. (AKEPIC, 2005)

Orange Hawkwee/ Yellow Hawkweed
Hieraceum aurantiacum L. / *Hieracium pratense*

Family
Asteraceae

Other Names
Devil's Paintbrush, king-devil

Description
A perennial plant with shallow, fibrous roots, stolons, and well-developed basal rosettes. Stems and leaves exude milky latex when cut or broken. Stems reach a height of 12 inches and bear up to 30 red and orange flowers. (AKEPIC, 2005)

Similar Species
Mouseear hawkweed, *Hieracium pilosella* L.

Impacts
This species forms a dense mat of plants in which no other species can grow, lowering diversity and reducing habitat and forage value in grasslands. It likely reduces soil moisture and nutrient availability, and tends to hybridize with other native and exotic hawkweeds. (AKEPIC, 2005)

Biology /Ecology
Orange hawkweed typically produces 12-30 seeds per flower, and sends out 4-8 stolons each season. It can re-sprout from any pieces left in the soil. It is commonly used as an ornamental, and is therefore often found in urban areas. (AKEPIC, 2005)

Perennial Sowthistle
Sonchus arvensis L. ssp. *uliginosus*

Family
Asteraceae

Other Names
Moist sowthistle

Description
Despite the common name, sowthistles resemble dandelions more than they do true thistles. Perennial sowthistle usually grows 2-4 feet high and has an extensive root system that grows up to 10 feet deep. All parts of the plant contain a milky white juice. (AKEPIC, 2005)

Similar Species
Annual sowthistle, *Sonchus oleraceus* L.

Impacts
At high densities this species can drastically reduce water resources and possibly decrease native plant diversity. It is also host to a number of plant pests. (AKEPIC, 2005)

Biology /Ecology
Reproduces by seeds and horizontal roots. Spreading rootstocks are the primary means of invasion into new areas, as plants are capable of producing new plants from buds on a rhizome up to 2 feet in depth. (AKEPIC, 2005)

Garlic Mustard
Alliaria petiolata (Bieb.) Cavara & Grande

Family
Brassicaceae

Other Names
Sauce-alone, jack-in-the-hedge, poor man's garlic

Description
A taproot, herbaceous biennial with an erect stem that in unbranched below the inflorescence. It can grow over 3 feet tall but is general between 12 and 18 inches. First year plants are rosettes of dark kidney-shaped leaves with scalloped edges; second year plants have branched stems that are sparsely hair below. (AKEPIC, 2005)

Similar Species
Large-leafed avens, *Geum macrophyllum*

Impacts
Garlic mustard can dominate the understory of forested areas and out-compete native species for light, moisture, nutrients, and space. It readily spreads into many undisturbed forests and species-rich sites, where it alters habitat suitability for birds, mammals and amphibians, and produces chemicals which interfere with the growth of native plant species. (AKEPIC, 2005)

Biology /Ecology
Adapted to sand, loam, and clay soil textures, and frequently grows in well-fertilized sites with PH levels from 5.5-7.0. Usually associated with calcareous soils and moist, shaded areas. In the absence of disturbance garlic mustard gradually declines to a low, stable level, but it can rapidly become more abundant with renewed disturbance. An individual plant can produce up to 8,000 seeds, and seeds may remain viable for 4-5 years. (AKEPIC, 2005)

Common Tansy
Tanacetum vulgare L.

Family
Asteraceae

Other Names
Golden buttons, garden tansy, bitter buttons, hind-head, parsley-fern, ginger-plant

Description
Common tansy is a rhizomatous perennial plants that grows 1 ½ to 6 feet high. The stems are often purplish-red at the base. Stems have 20-200 yellow flowerheads without ray florets. The plant produces a strong odor reminiscent of creosote. (AKEPIC, 2005)

Similar Species
Tansy ragwort, *Senecio jacobaea* L.
Lake Huron tansy, *Tanaceteum bipinnatum* L.

Impacts
Common tansy is an alternate host for many plant viruses, and tends to restrict water flow in streams and irrigation ditches. (AKEPIC, 2005)

Biology /Ecology
This species can spread quite aggressively by both seed and rootstalks, and though it prefers disturbed sites it has been observed growing in undisturbed beach meadows in Haines, AK. It has been used widely as an ornamental and medicinal, and has escaped and become widely established. (AKEPIC, 2005)

Smooth Cordgrass

Spartina alterniflora Losiel

Family
Poaceae

Other Names
Spartina

Description
Plants grow 2-4 feet, with long hairless stems and dense colorless flowers. Leaf blades are 8-24 inches long, tough, greenish in color. Plants are deciduous and grow in the intertidal zone between mean high water and mean low water. (AACD, 2005)

Similar Species
Salt Meadow Cordgrass, Dense-Flower Cordgrass, English Cordgrass

Impacts
Spartina is not yet found in Alaska as of 2005, but continued migration from California into British Colombia poses a threat to SE Alaska's coastal habitat. Spartina spreads by seed and rhizomes, and grow in ring-shaped clones that develop into extensive monoculture stands. Spartina growth can lead to the conversion of mudflats, estuaries and marshes into meadows, and the loss of this habitat could be devastating for SE Alaska salmon, invertebrates, birds, plants and other wildlife. (AACD, 2005)

Biology /Ecology
Cordgrass colonizes in mudflats in tidal, saltwater or brackish waters. Spartina can also be transported by water. Spartina is hard to identify, and small infestations can be hand-pulled or dug out of mud. (Must include shoots and roots to be effective.) (AACD, 2005)

Appendix C: JNU- CWMA Other Species of Concern

Large Leaf Lupin
European Mountain Ash
Eurasian water milfoil
Dames Rocket
Thistle
Spotted Knapweed