

# **Fairbanks Cooperative Weed Management Area Strategic Plan**

**February, 2010**

## **I. INTRODUCTION:**

Invasive plant species have become an area of great interest in recent years. Efforts to prevent infestations and control established communities are of importance to numerous agencies and organizations, as well as private citizens. While Alaska is far removed, both geographically and climatically, from areas of high invasive plant infestations, there is still a great need for a cohesive invasive plant management program.

Control of specific invasive plants and sites remains a critical component of an effective strategy. However, successful long-term solutions to the problem of invasive plants and noxious weeds must include an integrated approach to weed management. A cooperative weed management area utilizes a broad-scale, landscape approach that places specific species and treatment sites in context with geographic distribution of invasive plants, susceptible habitats and feasibility of management. The focus of the weed management area is to find solutions to invasive plant problems across a landscape, rather than strictly focusing on control within specific land ownerships.

The Fairbanks Cooperative Weed Management Area (CWMA) was convened in 2005 by the Fairbanks Soil and Water Conservation District (FSWCD) in partnership with US Forest Service's Forest Health Protection- State and Private Forestry Division. The CWMA is composed of all interested agencies, organizations, and other groups throughout the Fairbanks area through a signed cooperative agreement, referred to as the Memorandum of Understanding (MOU), which formally recognizes the organization and intent of the group. The following plan further outlines the strategic, landscape approach with an emphasis on early detection and rapid response to specific invasive plant species in interior Alaska.

## **II. PURPOSE:**

The Fairbanks CWMA is intended to bring together those responsible for invasive plant management within the region, to develop common management objectives, set realistic management priorities, facilitate effective control, and coordinate efforts along logical geographic boundaries.

## **III. COOPERATIVE WEED MANAGEMENT AREA GOALS:**

The following are the five primary goals of the CWMA:

1. Prevent the introduction and spread of designated noxious weeds<sup>1</sup> and other invasive<sup>2</sup> plants into and within the Fairbanks CWMA.
2. Reduce the extent and density of newly established invasive plants to minimize spread.
3. Implement effective, safe, and economic control methods for targeted species.
4. Facilitate cooperation among those working to manage invasive plants within Interior Alaska
5. Educate citizens of the Fairbanks CWMA about invasive plants and their possible impacts.

#### **IV. STEERING COMMITTEE:**

Cooperators of the weed management area currently include agencies, non-profit organizations, and other interested and concerned groups. A steering committee may be organized from interested cooperators to jointly accomplish the following:

- Develop and maintain an up to date, comprehensive inventory of invasive plant species recorded for the Alaska Interior;
- Establish control priorities and develop specific management objectives;
- Develop priorities for area-wide educational and public awareness material;
- Coordinate the efficient use of resources and personnel to control designated infestations; and
- Ensure science-based management of designated invasive plants utilizing an integrated approach.

#### **V. COOPERATIVE WEED MANAGEMENT AREA BOUNDARIES:**

The Fairbanks CWMA follows the boundaries of the FSWCD (Appendix A), as well as outlying areas where invasive plant species may become problematic. These boundaries will encompass areas of immediate concern, will allow for maximum impact of time invested in planning, and will help prioritize the region's invasive plant management resources.

#### **VI. TARGETED INVASIVE PLANTS CURRENTLY RECORDED WITHIN THE FAIRBANKS COOPERATIVE WEED MANAGEMENT AREA**

A number of plant surveys have been completed within the Fairbanks CWMA and six invasive species were singled out as being of special concern (Table 1). The list was created by Fairbanks CWMA members by selecting the known invasive species to be present in Interior Alaska, and determining which ones have the potential to be most harmful to the economy, the environment, and to human health. The purpose of the list below, and the intent of this plan, is to narrow the list of species for coordinated

---

<sup>1</sup> Noxious weeds are problematic species listed by various US states and by the Federal Noxious Weed Act of 1974.

<sup>2</sup> Invasive species are defined by Executive Order 13112.

management to those that are of particular concern or highly invasive and of limited distribution.

**TABLE 1: CURRENT LIST OF TARGETED INVASIVE PLANT SPECIES PRESENT WITHIN THE FAIRBANKS COOPERATIVE WEED MANAGEMENT AREA**

USDA CODE	Latin Name	Noxious Weeds <sup>3</sup>	AK Noxious Weed <sup>4</sup>	Common Name	AKNHP RANKING <sup>5</sup>
GABI3	<i>Galeopsis bifida</i>			splitlip hempnettle	40
HOJU	<i>Hordeum jubatum</i>			Foxtail Barley	63
LIVU2	<i>Linaria vulgaris</i> <sup>6</sup>	✓	✓	butter and eggs	69
MEAL12	<i>Melilotus alba</i>			white sweetclover	80
SOAR2	<i>Sonchus arvensis</i> <sup>7</sup>	✓	✓	perennial sowthistle	61
VICR	<i>Vicia cracca</i> <sup>6</sup>		✓	bird vetch	73

<sup>3</sup> **Noxious Weeds** – Species currently listed as noxious weeds by one or more states in the US according to the USDA Plants Database at <http://plants.usda.gov>

<sup>4</sup> **AK Noxious Weeds** – Also currently listed as a noxious weed by Alaska State Statute (11 AAC 34.020)

<sup>5</sup> **AKNHP Ranking** is an Alaska-specific invasiveness ranking (a high rank indicates greater invasiveness) provided by the Alaska Natural Heritage Program. Current ranking and methodology available at: [http://akweeds.uaa.alaska.edu/akweeds\\_ranking\\_page.htm](http://akweeds.uaa.alaska.edu/akweeds_ranking_page.htm)

<sup>6</sup> **AK Restricted Noxious Weeds** – Restricted to maximum allowable tolerances. (11 AAC 34.020)

<sup>7</sup> **AK Prohibited Noxious Weeds** – (11 AAC 34.020)

## **VII. INTEGRATED MANAGEMENT SYSTEM FOCUSING ON EARLY DETECTION AND RAPID RESPONSE:**

Integrated pest management "... is a system for the planning and implementation of selected methods of management for preventing, containing, or controlling undesirable plant species or group of species using all available strategies and techniques." (Federal Noxious Weed Act, 1974).

Together these strategies and techniques are economically and environmentally more effective than any single option. Control methods are available and prescribed on a species/infestation specific basis. Elements of integrated management included in this plan are: prevention and education/awareness, early detection and rapid response, inventory, control, and monitoring.

### **A. Prevention and Education/Awareness**

Prevention measures are practices that reduce the potential for the introduction, establishment and spread of weeds. Because prevention is the most cost effective and successful way to manage noxious weeds, it is considered a high priority for strategic planning. The following list of land management activities are key areas to implement prevention methods, including, but not limited to:

- Forest management
- Road and railroad construction/reconstruction and maintenance
- Construction and use of sand and gravel extraction sites
- Range management activities
- Recreational activities (including construction and maintenance of recreational sites, and areas of concentrated use such as campsites, trailheads and trails, and off-road vehicle use)
- Mining activities
- Wildlife management and enhancement projects
- Fire suppression and rehabilitation
- Farm management
- Residential land management
- Commercial land management

Education and awareness programs foster public understanding of the threat invasive plants can pose to the diverse natural resources of Interior Alaska. Education can also help describe the techniques used to manage weeds and the role humans play in the dispersal and establishment of invasive weeds. Education also includes the training of district and agency personnel, private landowners, and the general public in weed identification, management techniques, monitoring protocols, and other skills needed for the management of noxious and invasive weeds. Awareness provides an important first step in the detection of new invaders. Education efforts for the Fairbanks CWMA will focus on the six targeted species as well as new and potential invaders to improve awareness of

these species and facilitate public reporting of early infestations as part of an early detection network.

#### B. Early Detection/Rapid Response

After prevention activities, early detection and rapid response is considered the next highest priority to mitigate the introduction and spread of invasive weeds. The goal for early detection and rapid response is to find incipient populations of invasive plants and eradicate them before they begin to spread. This approach, as defined by the National Invasive Species Council (2003), is the most effective means for eradicating invasive species and is intended to be the keystone of invasive plant management within the Fairbanks CWMA. Many of the necessary elements of an early detection and rapid response system currently exist for Interior Alaska. This includes several baseline inventories for non-native plants within the Fairbanks CWMA and tools for assessing current and future weed infestations such as species-specific invasiveness rankings.

#### C. Inventory

The collection, documentation, and storage of information (i.e. inventory) of the extent and location of invasive weeds within the Fairbanks CWMA is a critical part of integrated management. A current inventory of weed species provides necessary information for establishing site-specific and regional priorities, management objectives, and for prescribing treatment methods.

#### D. Control Methods

Under the integrated approach, all control methods are considered. Specific treatment prescriptions are determined by the biology of the particular plant species, site characteristics, and management objectives. Successful management and eradication of invasive plant infestations requires several years of control and follow-up monitoring. The following management techniques of noxious weed control will be considered on a site-specific and plant species basis:

**Physical/Mechanical:** The use of physical or mechanical methods for weed control can be effective on small infestations of annual or biennial species. Hand pulling, mowing, tilling, and burning are commonly used to physically destroy weeds or interfere with their reproduction. To be effective, control must take place before seed production. Plants that have flowered must be removed from the site and destroyed. Repeated mowing or tilling during the growing season is required with most weed species. Generally this approach is not recommended as a sole method for control of species that spread vegetatively.

**Cultural/Land Use:** Cultural practices are activities that purposefully enhance and maintain the growth of desired vegetation. Practices that

retain, enhance, or introduce desirable plant species that out-compete invasive plant species can serve as important prevention and control measures. Examples that are applicable include seeding, planting, fertilizing, and retaining brush and canopy cover where appropriate. Control measures that are designed to maintain or enhance perennial vegetation in a healthy state or maintain soil cover are important practices in slowing the spread of invasive plants. Minimizing the extent and duration of exposed soil during management actions can also reduce the risk of weed establishment.

**Chemical:** Herbicides are an effective and efficient tool for the control of noxious weeds. Chemical control methods, along with appropriate cultural practices, are likely to be the best option for larger infestations and for tough to control perennial species. Herbicide application and rates are dependent on specific site characteristics, target plant, location, non-target vegetation and land use. Herbicides are a particularly important method of control when complete eradication of a plant population is the management objective. Treatment at the earliest stage of invasion will greatly reduce the future need for additional herbicide applications. It is critical to follow all label instructions, site-specific directions, and safety precautions when using any herbicide.

**Biological:** Biological weed control involves the deliberate introduction and establishment of natural enemies to reduce a target plant's competitive or reproductive capacities. Insects are the most common agent released against noxious weeds. Plant pathogens, such as fungi, are increasing in use. Biological control can be a slow process, often requiring 10 to 20 years to be effective. Its purpose is not eradication, but a reduction in densities and rate of weed spread to an acceptable level. It is most effective on dense weed infestations over large areas. As such, this is not expected to be a control option in the near future for the Fairbanks CWMA.

## E. Monitoring

Monitoring is the collection of information to determine the effectiveness of management actions in meeting the prescribed objectives. Invasive weed management focuses upon density and rate of spread and their effects. If eradication is a management goal, monitoring of the site for several years following treatment is essential. A species is considered to be locally eradicated when the seed bank has been extinguished. Persistent species will likely take five or more years of follow-up control and monitoring.

Cooperators are also interested in the effectiveness of prescribed actions on a target plant and the response of desirable vegetation. Monitoring will help

determine if management activities are accomplishing the goals and objectives established by Fairbanks CWMA partners.

## **VIII. SPECIES CLASSIFICATION, PRIORITIZATION AND MANAGEMENT OBJECTIVES:**

The following species classifications are based on current inventory data collected within the Fairbanks CWMA. This list will be updated as needed with approval of the Fairbanks CWMA Steering Committee and revised no later than January, 2012.

### **A. Invasive and Noxious Weed Classification:**

- **A - New Invaders:** High priority invasive plants found to occur in the Fairbanks CWMA with very limited distribution and density. For these species, eradication is currently considered a feasible goal within the CWMA.
- **B - Established Invaders:** High priority invasive plants wide spread throughout the Fairbanks CWMA. For these species, containment through control along transportation corridors and outlying infestations is currently considered feasible. Several of these species are grown as agricultural and/or horticultural crops, but the focus of the Fairbanks CWMA is control in natural areas.
- **C - Naturalized Invaders:** Invasive plant species firmly established throughout the Fairbanks CWMA, but are of low invasiveness ranking and not a management priority of the CWMA.
- **Potential Invaders:** Invasive plants not known to be located within the Fairbanks CWMA but with imminent potential for introduction, or not currently known to spread from ornamental plantings. If found within the Fairbanks CWMA, they will immediately be moved to the new invaders list and will be targeted for eradication.

TABLE 2: INVASIVE PLANT SPECIES CLASSIFICATION			
Potential Invaders to the Fairbanks CWMA	New Invaders	Established Invaders	Naturalized Invaders
Eurasian watermilfoil <i>Myriophyllum spicatum</i>	Reed Canarygrass <i>Phalaris arundinacea</i>	White sweetclover <i>Melilotus alba</i>	Clover <i>Trifolium spp.</i>
Spotted Knapweed <i>Centaurea biebersteinii</i>	Cheat Grass <i>Bromus tectorum</i>	European bird cherry <i>Prunus padus</i>	Common dandelion <i>Taraxacum officinale</i>
Purple Loosestrife* <i>Lythrum salicaria</i>	Oxeye Daisy <i>Leucanthemum vulgare</i>	Bird vetch* <i>Vicia cracca</i>	Prostrate knotweed <i>Polygonum aviculare</i>
Leafy Spurge* <i>Euphorbia esula</i>	Field Bindweed* <i>Convolvulus arvensis</i>	Yellow toadflax* <i>Linaria vulgaris</i>	Common plantain* <i>Plantago major</i>
Ornamental Jewelweed <i>Impatiens glandulifera</i>	Narrowleaf Hawkweed <i>Hieracium umbellatum</i>	Siberian peashrub <i>Caragana arborescens</i>	Common chickweed <i>Stellaria media</i>
Orange hawkweed <i>Hieracium aurantiacum</i>		Yellow sweetclover <i>Melilotus officinalis</i>	Shepherd's purse <i>Capsella bursa-pastoris</i>
Canada Thistle* <i>Cirsium arvensis</i>		Yellow alfalfa <i>Medicago sativa</i>	Lambsquarter <i>Chenopodium album</i>
Tansy ragwort <i>Senecio jacobaea</i>		Foxtail Barley, <i>Hordeum jubatum</i>	Pineapple weed <i>Matricaria discoidea</i>
Bull Thistle <i>Cirsium vulgare</i>		Smooth Brome <i>Bromus inermis</i>	Peppergrass <i>Lepidium densiflorum</i>
		Perennial sowthistle* <i>Sonchus arvensis</i>	
		Quackgrass* <i>Elymus repens</i>	
		Timothy <i>Phleum pratense</i>	
		Narrowleaf hawksbeard <i>Crepis tectorum</i>	
		Spreading bluegrass <i>Poa pratensis ssp. irrigata</i>	
		Wild buckwheat* <i>Polygonum convolvulus</i>	
		Hempnettle* <i>Galeopsis spp.</i>	

Refer to page 7 for the definitions of classification categories in Table 2.

\*Currently listed as a noxious weed by Alaska State Statute (11 AAC 34.020)

**B. General Management Priorities for the Fairbanks Cooperative Weed Management Area:**

1. Prevent the establishment of potential invaders (Table 2).
2. Eradicate new invaders and any species subsequently introduced from the list of potential invaders (early detection/rapid response).
3. Facilitate control efforts along transportation corridors and areas of concentrated activities, such as roads, trails, campgrounds, trailheads, parking lots, airstrips, and gravel pits and/or control satellite infestations.
4. Reduce the density or slow the spread of widespread established invaders.

**C. Management Objective Definitions:**

1. Eradicate. The noxious or invasive weed species is eliminated from the Fairbanks CWMA, including all viable seeds and/or vegetative propagules.
2. Control. Seed production is prevented throughout the target patch, and the area coverage of the weed is decreased over time. Prevent the weed species from dominating the vegetation of the area but accept low levels of the weed.
3. Contain. Weeds are geographically contained and are not increasing beyond the perimeter of the infestation. Treatment within established infestations may be limited, but populations are controlled or eradicated outside those areas.

**IX. SPECIFIC MANAGEMENT RECOMMENDATIONS:**

**A. Education/Awareness**

Creating awareness of invasive plants to Interior Alaska resources and the need to manage these weeds will provide the foundation for active treatments, early alert programs, and prevention practices. Continued education of practitioners may ensure that effective strategies and new technologies will be incorporated into management actions. Efforts should generally focus on those species that are new or potential invaders to increase the likelihood of identifying and eradicating infestations early in their establishment. The following Education/Awareness focus will be incorporated into the Fairbanks CWMA strategy for managing noxious weeds:

1. Conduct annual invasive weed workshops and tours.

2. Conduct periodic weed pull events that include interested groups such as garden clubs, youth groups, and recreation clubs.
3. Develop brochures and pamphlets specific to the CWMA. Examples include weed-free forage, early alert posters, and local overview of existing invasive plants.
4. Post weed identification signs and other outreach materials at trailheads, road turnouts, and other public places.
5. Provide presentations to classrooms and special interest groups such as horse councils, Off Highway Vehicles (OHV) groups, fishing groups, etc.
6. Facilitate communication and coordination of cooperators and partners in the CWMA.
7. Develop demonstration plots for management techniques.
8. Develop annual accomplishment briefs about current projects and programs.

#### B. Recommended Prevention Strategies

Cooperators will strive to integrate appropriate prevention measures into management activities and promote the use of practices that reduce rates of weed spread throughout the Fairbanks CWMA. Cooperators will work with agencies, organizations, and individuals in the development and implementation of prevention practices that could be effective in reducing dispersal and establishment. The following measures are provided as examples. Adopted practices need not be limited to those listed below.

1. Minimize disturbance in areas or habitats highly susceptible to weed invasion, and when disturbance is necessary mitigate the potential impacts.
2. Maintain existing weed free areas.
3. Encourage the use of native plant species when applicable.
4. Encourage the use of high quality seed that is free of noxious weeds.
5. Promote and support the use of “certified noxious weed free”, and/or other weed free feeds and bedding.
6. Keep gravel pits free of weeds and mitigate the use of gravel from pits already infested.

7. Clean equipment and vehicles, by washing or using compressed air, when transporting between infested sites.
8. Limit access through heavily infested areas, where feasible.
9. Maintain an early alert program where cooperators and interested people communicate the location of potential invasive plants or locations of new invasive plant infestations.

### C. Inventory

A coordinated weed inventory should be maintained for the entire management area as funding and personnel allow. At a minimum, the inventory will include information required to meet standards of the Alaska Exotic Plant Information Clearinghouse (AKEPIC User Manual, 2008). The agencies involved will be responsible for furnishing necessary maps for the lands under their jurisdiction. All cooperators will offer input into the location and types of infestation.

A statewide database, the Alaska Exotic Plant Information Clearinghouse, will house geospatial data of invasive and noxious weeds recorded within the Fairbanks CWMA. Cooperators should include their inventory and treatment efforts to this resource to facilitate sharing of information among those working to identify and manage infestations within the Fairbanks CWMA.

Table 2 summarizes the current list of invasive and noxious weeds recorded by inventories by a variety of agencies throughout the CWMA. The information can also be accessed at <http://akweeds.uaa.alaska.edu>. The summary provides an initial assessment of the extent and distribution of problem weeds within the management area. This inventory will be continually updated with new reports of weed infestations, inventories and management efforts.

### D. Species Management Objectives

It is assumed that the elements of education, prevention, early detection, and inventory will be integrated concurrently with specific control actions. Management objectives are listed for each weed species in Table 2. The objectives are developed in context with the geographic distribution, habitat relationships, invasiveness, relative abundance, and treatment feasibility of specific weeds.

#### 1. Long-Term Spread of Weeds:

Monitoring of weed spread and/or suppression will be accomplished through existing database tools and GIS layer through the Alaska Exotic Plant Information Clearinghouse. Inventory to re-map infestations should be completed in five years to compare with previous surveys. Yearly

treatment summaries will also be used to assess weed spread. All management activities should be included in the Alaska Exotic Plant Information Clearinghouse under the “control” attribute, listing the type of control as: manual, mechanical; broadcast, spot or aerial herbicide or other (see AKEPIC User Manual, 2008).

## **X. FUNDING:**

The Fairbanks CWMA will seek funding from various sources in order to preserve our organization and continue to provide weed control in Interior Alaska. Since all agencies must deal with limited resources, single agencies are unable to purchase all the needed equipment and hire all the needed personnel to sustain an effective management program. Therefore the Fairbanks CWMA will seek grant funding, and also work cooperatively to share resources.

### Expand the use of Cooperative Agreements and Resource Sharing

1. Facilitate and encourage the development of cooperative agreements for sharing skills and resources. This may include the sharing of personnel, equipment, computer technology, chemicals, inventory and monitoring data, and educational materials. Cooperators will also share skills of available experts and technicians, and jointly sponsor training and informational meetings.
2. Supporters will cooperatively work to eliminate agency and organizational barriers that decrease or limit the efficient use of skills and resources.

## **X. REFERENCES:**

AKEPIC – Alaska Exotic Plant Information Clearinghouse. 2005. Invasive plants of Alaska. Alaska Association of Conservation Districts Publication. Anchorage, Alaska.

AKEPIC (Alaska Exotic Plant Information Clearinghouse) Database User Manual –. 2008. (<http://akweeds.uaa.alaska.edu/>) accessed May 2009.

Federal Noxious Weed Act of 1974. Pub. L. 93-629, Jan. 3, 1975, 88 Stat. 2148 (7 U.S.C. 2801 et seq.)

National Invasive Species Council. 2003. General guidelines for the establishment and evaluation of invasive species early detection and rapid response systems. Version 1. 16p.

*This plan was developed using the Kenai Peninsula Cooperative Weed Management Area's Strategic Plan & Anchorage CWMA's invasive plant ranking list.*

# APPENDIX A: Fairbanks Cooperative Weed Management Area Boundaries

