

**Agency: Department of Natural Resources****Project Title:****Project Type: Other**

# Canada Thistle Infestations Eradication and Control

**State Funding Requested: \$125,000****House District: Anchorage Areawide (16-32)**

Future Funding May Be Requested

**Brief Project Description:**

The DNR proposes to partner with the Anchorage Cooperative Weed Management Area (CWMA) to control Canada thistle infestations. Efforts will focus on eradicating populations that threaten to impact other areas or key resources.

**Funding Plan:**

Total Project Cost:	\$170,000
Funding Already Secured:	(\$0)
FY2012 State Funding Request:	<u>(\$125,000)</u>
Project Deficit:	\$45,000

*Funding Details:*

n/a

**Detailed Project Description and Justification:**

Canada thistle (*Cirsium arvense*), has a limited distribution on the mainland portions of Southcentral and Interior Alaska where little to no C. thistle is located outside of the Anchorage Cooperative Weed Management Area (CWMA) boundaries. These areas have had extensive inventory work completed that identifies the Anchorage CWMA boundaries as the hot spot for C. thistle. Other CWMA's with small C. thistle infestations are working to eradicate the infestations. Beginning to manage C. thistle within the Anchorage CWMA boundaries will prevent its spread to adjacent areas. The Anchorage area includes lands with habitats that support moose, bear, dall sheep, salmon and other valuable resources. Beginning to manage C. thistle will prevent impacts to these valuable resources.

Little to no infestations of C. thistle in Anchorage have been managed since discovery of C. thistle in 2008. Through this project, we intend to control C. thistle infestations in Anchorage by reducing the size and extent of infestations to background levels. C. thistle control will focus on infestations along pathways to other areas of Alaska, and pathways to valued habitats. Records indicate that approximately 35 acres of C. thistle are present in the Anchorage area.

**Project Timeline:**

The proposed project will seek to reduce the infested area to approximately half the current area within 2-5 years.

**Entity Responsible for the Ongoing Operation and Maintenance of this Project:**

Division of Agriculture, Plant Materials Center

**Grant Recipient Contact Information:**

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Has this project been through a public review process at the local level and is it a community priority?  Yes  No

*For use by Co-chair Staff Only:*

# Backup for Eradicate and Control Canada Thistle Infestations within Anchorage CWMA:

1. **Long-Term Conservation Outcome(s):** Elaborate on the long-term conservation outcome(s) summarized previously in the application; discuss what makes this outcome(s) achievable and important.

With the exception of the Anchorage area, the mainland of Alaska is largely uninfested with Canada thistle (*Cirsium arvense*). Outside of the Anchorage area local CWMA groups are actively managing their small infestations of *C. thistle*. Some areas such as the Kenai Peninsula CWMA have been aggressively managing *C. thistle*, and may be able to declare the weed eradicated from their area in the foreseeable future. Within the Anchorage CWMA boundaries public lands host habitats important to fish, moose, bear, dall sheep, waterfowl and other wildlife. These habitats are threatened by *C. thistle* invasion from the approximately 35 recorded acres of *C. thistle* present in Anchorage. The infestations in the Anchorage area also threaten to spread to adjoining areas such as the Kenai Peninsula, Prince William Sound, and the Matanuska and Susitna Valleys. These adjoining areas contain some of the larger productive agricultural lands in Alaska that may become seriously threatened by *C. thistle* if action is not taken in the Anchorage area. The proposed project seeks to protect Anchorage's valuable habitats and adjoining areas from infestation of *C. thistle*.

Records of infestations in the Anchorage area are shared through the Alaska Exotic Plant Information Clearinghouse (AKEPIC, <http://akweeds.uaa.alaska.edu/>). These records show 114 infestations that cover approximately 35 total acres are present in the Anchorage area. Individual recorded infestations are each less than or equal to a half acres in size. While these records result from significant survey efforts, there is still potential that unknown infestations, particularly small infestations are present. The recorded infestations are reasonably small, and present a high probability for good control if aggressive action is taken. Through this project we propose to reduce the gross infested area within the Anchorage CWMA boundaries to less than half of its current recorded size within the next 2-5 years.

Large public lands hosting valuable habitat for fish, wildlife and plant life exist within and neighboring the Anchorage area. These areas are threatened by the expanding populations of *C. thistle*, due to the invasive plants aggressive nature and general lack of value to wildlife relying on forage and browse. The proposed project will use the existing inventory information, and new sightings of infestations to identify those infestations that pose the greatest risk to these valuable areas. Simply quantifying distance from an infestation to these high value landscapes along their common pathways (e.g. roads, rivers) will prioritize management within the Anchorage CWMA. Management through such prioritization will ensure that the risk of invasion of *C. thistle* to these high valued habitats will be reduced.

Adjoining areas not under management by the Anchorage Borough or Anchorage CWMA are also at risk of invasion by *C. thistle* from the existing populations in the Anchorage area. At present there are at least 6 infestations along the two major highways heading out of the Anchorage area towards the neighboring Kenai Peninsula and Matanuska Susitna CWMAs. To prevent the spread of *C. thistle* to these areas infestations along major pathways leading out of the Anchorage area will be managed.

Management of *C. thistle* to reduce the gross size of recorded infestations in the targeted area thereby reducing the risk of invasion to lands of high value to fish and wildlife, and adjoining areas is important and achievable. As stated above *C. thistle* is highly invasive and has a limited distribution in Alaska, presenting a unique opportunity to prevent impacts to natural resources, and its spread throughout the human footprint. The proposed outcome is achievable because significant inventory effort has occurred recording the majority of infestations in the CWMA allowing for prioritization of management decisions.

Successful management to reach the goal of reducing gross size of infestations and risk to uninfested areas hinges on employment of proven integrated vegetation management (IVM) techniques. Fortunately the Kenai Peninsula CWMA has implemented control of a single large infestation (approximately 1 acre) in their area that resulted in near

eradication of the infestation after three years of treatment. The IVM practices they used involved mowing the infestation multiple times during the season to prevent the *C. thistle* from setting seed, and taxing the carbohydrate reserves in the roots. Mowing was followed by application of appropriate herbicides in early fall when *C. thistle* is actively transporting carbohydrates from the leaves and stems to the roots for storage over the winter. The project resulted in significant reduction in percent cover of the plants allowing for revegetation of the area after only three summers of treatment. For infestations of similar size in the Anchorage CWMA we will employ similar techniques. Smaller infestations will be treated appropriately with plans developed on a case by case basis.

2. **Threats and/or Opportunities:** Elaborate on the relationship of threats and/or opportunities to the long-term conservation outcome(s) and describe which of these threats and/or opportunities will be addressed in the project.

Three major threats and a corresponding opportunity to desired conservation outcomes exist in the Anchorage CWMA for this project. These threats include increased presence of *C. thistle* and subsequent impacts to high valued areas, potential for re-introduction of *C. thistle* through contaminated products (e.g. nursery stock), and public outcry against the use of herbicides to manage invasive species. Each threat has a corresponding opportunity.

If action is not taken to manage *C. thistle* in the Anchorage area the infestations will continue to expand. As these infestations spread there is definite reason to believe they will be move along roads and trails to public lands, rivers, and agricultural lands. Infestation of these areas will decrease the productivity of these lands for fish, wildlife, agriculture, and other natural resources. Taking action now while the *C. thistle* infestations are still manageable presents us with the opportunity to prevent these high value areas from being impacted by *C. thistle*.

Re-introduction is always a standing threat to successful management of invasive species, and subsequent protection of valued habitats from associated invasive species impacts. Two projects are presently underway that will reduce the risk of re-infestation of these areas after management. First, the State of Alaska has established a position within the Division of Agriculture to update regulations and determine strategies to prevent introductions and spread of invasive plants. Through this process gaps in inspection and enforcement will be identified and brought to the attention of State Government. Second, the Division of Agriculture is currently working on an "Invasive Species Free Cooperator" program with greenhouse, nursery, and landscaping and other "green industry" businesses. Through this program the Division of Agriculture intends to foster cooperation in preventing introductions and managing existing infestations by guiding consumers to products with reduced risk of contamination (e.g. bare root trees, locally produced products) and encourage homeowners with infestations to manage them.

In Alaska invasive weed managers have struggled to initiate applications of herbicides when necessary due to fears of public outcry. However, the National Park Service, U.S. Fish and Wildlife Service, and the U.S. Forest Service are in various stages of developing their National Environmental Policy Act documents for application of herbicides in relation to invasive plant management. Concerns related to the proposed actions typically focus on the need for monitoring impacts and questioning if the actions will actually succeed. Public application of herbicides to public rights of way will require permits in Alaska, however, we feel we can address public concerns. The Integrated Vegetation Management (IVM) methods likely to be used are proven successful in Alaska, and impacts to resources are likely minimal in comparison to the permanent changes *C. thistle* can inflict to ecosystems. Using these arguments we feel the public will support application of herbicides in these circumstances to protect natural resource productivity for future generations. Further accomplishing these actions will encourage other CWMA's and land managers throughout Alaska to implement appropriate actions instead of shying away from public herbicide projects.

3. **Activities:** Elaborate on the primary activities that will be employed through the grant. Explain how these activities address the threats, opportunities and/or conservation outcome(s) described above. How do these activities relate to established plans (management, conservation, recovery, etc.)?

Three primary activities are proposed to manage *C. thistle* in the Anchorage area. First, infestations of *C. thistle* in the area will be prioritized for management based on their proximity to pathways of spread, and potential to spread along those pathways to key habitats or outside of the Anchorage area where little to no *C. thistle* is present. Second, infestations identified for management will have appropriate IVM practices developed and implemented. Third, outreach to increase public awareness of the problem, identify new infestations and encourage private property owners to manage and prevent introductions will be developed and disseminated. Each of these activities are summarized in more detail below.

Prioritization of infestations for management will be accomplished through data collected by The University of Alaska Fairbanks Cooperative Extension Service (UAF CES) who has completed significant inventory work in the Anchorage area for invasive weeds. The data from CES surveys and reports from others are stored on a website hosted by the Alaska Natural Heritage Program (<http://akweeds.uaa.alaska.edu/>). The data can be used in GIS with layers that identify pathways of spread and high value habitats to identify infestations of high priority for management. High priority infestations for management include those that threaten to invade public lands. Particularly important public lands that include riparian areas supporting salmon, lands adjacent to wetlands, or lands valued as recreational areas will be given increased priority. Infestations that are close to these priority areas, and/or are located along pathways that directly lead to these priority areas will be identified for management. Further, infestations found on the two highways leaving the Anchorage area will be considered a priority to prevent further spread of *C. thistle* beyond the Anchorage area. Through these activities we will decrease the threat that *C. thistle* will spread to and affect resource production on agricultural and public lands.

Management of *C. thistle* using IVM practices have been used in Alaska for infestations of similar size to those that may be addressed in this project. Using these experiences we can address each infestation targeted for management in the Anchorage area individually and develop appropriate IVM practices accordingly. Small infestations consisting of a single plant may be hand dug, while larger infestations will likely warrant spot spraying with an appropriate herbicide. Infestations that are quite large or dense will likely be treated with multiple mowing during the season to prevent seed set, followed by a late summer/early fall application of an appropriate herbicide. Using appropriate IVM techniques will not only increase project success, but reduce the potential for public misconceptions that the program only seeks to spray herbicides without consideration of other approaches.

Outreach to increase public awareness of the problem, identify new infestations and encourage private property owners to management and prevent introductions will be accomplished through this project. We will develop and distribute rack cards identifying *C. thistle* as an invasive weed and whom to report suspected infestations to. On the Kenai Peninsula this approach was effective at getting reports of small infestations that can be dealt with immediately. Submitting press releases and attending local gardening information sources such as the weekly radio program "The Garden Party with Jeff Lowenfels" will be included in the outreach associated with this project. Through this outreach we suspect new infestations may be reported and landowners will be encouraged to manage infestations on their land with appropriate IVM practices. Encouraging reporting and management will allow for prioritization of additional infestations and prevent re-infestation of priority infestations that are treated. Teaching prevention techniques through outreach will also prevent further accidental infestations from occurring through controllable pathways.

4. **Outcomes and Indicators:** Describe the general monitoring approach that will be used to assess progress on one or more of the indicators presented previously in the application. Please note any challenges or limitations you anticipate in conducting this monitoring or the interpretation of anticipated results.

In Alaska monitoring project success can be done with a protocol developed by the Alaska Natural Heritage Program (<http://akweeds.uaa.alaska.edu/>). The uniform record keeping allows for submission of information to the Heritage Program who makes the data available online for anyone to view and learn from. Data gathered when monitoring includes the location of the infestation, area covered, density measured in both percent cover and stem count, and the control practices performed at that individual infestation. In addition to this information the Division of Ag will use a submeter accurate GPS unit to map the actual shape of the infestation and track changes to the area covered by the infestation over time. Each infestation will be visited three times per season for monitoring and treatment as appropriate. Inventory will be performed of areas in Anchorage that have a high potential of being infested with *C. thistle*. Through the survey of new areas and monitoring existing infestations targeted for management we can update our information on the extent of *C. thistle* in the Anchorage area and monitor our progress at reducing the size of infestations. Further, inputting the new data from monitoring into GIS along with the new inventory data will identify if we have reduced the risk of *C. thistle* invasion to the priority areas used in identifying infestations for management.

Two primary challenges exist in monitoring effectiveness of this project. First, inventory of all potential *C. thistle* habitats in the Anchorage area will be difficult to accomplish. We will survey areas considered most likely to be infested with *C. thistle*, and secondarily rely on voluntary passive reporting of infestations encouraged through outreach associated with the project. These two methods of gathering data should provide us with a nearly complete picture of the extent of *C. thistle* infestations in the Anchorage area; however, there is always the chance that some infestations will be missed. Second, when interpreting the data resulting from management additional inventory, and confirmed new reports of invasion we may discover that the current believed extent of *C. thistle* in Anchorage is underestimated. As stated previously our goal is to reduce the gross area of infestations in the Anchorage area by half over the next two to five years. Discovering additional infestations that were previously unrecorded may inflate the gross infested area in Anchorage. However, we feel the current inventory records are fairly thorough and do not suspect any significant changes in the gross infested area.

5. **Project Team:** List key individuals and describe their qualifications relevant for project implementation.

**Gino Graziano** works with the Division of Agriculture on invasive weed and agricultural pest management issues. He is presently working to develop Alaska's Strategic Plan for invasive weeds and agricultural pest management, and will be working to update regulations pertaining to invasive weeds and agricultural pests. Gino has worked on a variety of projects including development of Citizen Early Detection Program, spotted knapweed eradication, weed free forage and gravel certification, management of white sweetclover, development of public service announcements for invasive weeds, coordination and development of Cooperative Weed Management Areas, and certification of the "green industry" as invasive species prevention cooperators. Gino is the Chair of the board for the Alaska Committee for Noxious and Invasive Plant Management to which he has served as a board member for the last three years. Gino is interested in prioritizing management to protect key resources and quantifying how effective these strategies are at protecting key resources.

**Michael Rasy** is Statewide IPM Technician with UAF Cooperative Extension Service. He came to Alaska in 1994 and worked for State Parks and the Municipality of Anchorage in their landscaping division. In Michael's 9 years with CES he has taught IPM for Master Gardeners classes and given presentations at the Alaska Greenhouse & Nursery Conference, the Pesticide Safety & Education Conference, Annual CNIPM Conference and at the Alaska Forum on the Environment. He diagnoses insect, disease and weed specimens for hundreds of residents and horticulture business each year. Michael's passion is trees. He is a certified arborist and tree risk assessor.