



Integrated Pest Management Plan for Chugach State Park in the Municipality of Anchorage, Alaska

IPM Plan Effective Dates:	May 17, 2023 to May 16, 2025
Management Area Name/Location:	Chugach State Park (Alaska Department of Natural Resources, Division of Parks & Outdoor Recreation)
General Site Description:	Forests, meadows, trails, trailheads, campgrounds, landscaping, roads, parking areas, and utility ROWs
Land Uses:	Outdoor recreation, transportation, and utility ROWs
Name of Person in Charge:	Tim Stallard, Alien Species Control, LLC (Contractor for the Anchorage Cooperative Invasive Species Management Area (ANC-CISMA))
Certified Applicator Name(s):	Tim Stallard, Paul Bennetts, Gino Graziano (UAF Cooperative Extension Service), Hannah Thompson (Anchorage Soil and Water Conservation District), new ASC and partner staff.
Certification Numbers:	Stallard (10901-2605-4/6/9); Bennetts (10670-2405-4/9); Graziano (10748-25120-2/14); Thompson (10803-2406-4/9) New ASC and partner staff: Certifications pending.

1. Action Thresholds

Check the types or categories of pests that might present a problem or need to be controlled at this management site:

✓	Category
✓	Vegetation
	Insects
	Fungus
	Rodents
	Other (describe below)

For each pest category listed above, describe the level at which the pest becomes a problem which requires control measures to be taken.

This IPM addresses the control of “moderately” (rank 60-61), “highly” (rank 70-79) and “extremely” (rank 80+) invasive plants species as defined by the Alaska Invasive Plant Ranking system (scale of 1-100). Several current and potential future species are invading natural areas of Chugach State Park and if not controlled, will displace native plant communities that provide ecological functions (e.g. habitat, nutrient cycling) and public values (e.g. aesthetics, food production) in Chugach State Park.

The invasive plant species are: 1) orange hawkweed (*Hieracium aurantiacum*, rank 79), 2) reed canarygrass (*Phalaris arundinacea*, rank 83), 3) bird vetch (*Vicia cracca*, rank 73), 4) spotted knapweed (*Centaurea stoebe*, rank 86), 5) European bird cherry (*Prunus padus*, rank 74), creeping (Canada) thistle (*Cirsium arvense*, rank 76), white sweetclover (*Melilotus alba*, rank 82), meadow hawkweed (*Hieracium caespitosum*, rank 79), yellow toadflax (*Linaria vulgaris*), and oxeye daisy (*Leucanthemum vulgare*, rank 61)

Action threshold: the presence of a one or more individual plants of each of these species in Chugach State Park is a problem due to their high levels of invasiveness and potential to spread.

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2. Monitor and Identify Pests

How often will the management area be inspected for the presence of pests?

Chugach State Park is nearly half a million acres. However, most invasive species are known to be or will be found in areas with high public (or utility) use such as roads, trails, trailheads, campgrounds, and utility ROWs.

High use areas will be inspected throughout the growing season for the presence of invasive plants on a regular (monthly or more frequently), but informal basis by CSP Park Rangers, CISMA members or contractors, and interested members of the public (off-duty biologists, trained recreationalists, etc.).

Readily accessible and known invasive plant populations will be surveyed two or more times during the growing season to monitor their populations and response to management. Remote areas with known populations will be surveyed one or more times per year.

Which locations will be inspected?

All known locations of highly and extremely invasive plant species in CSP will be inspected each year. New invasive plant reports from park rangers and citizens will be surveyed to confirm species and extent of the infestation as soon as possible.

What methods will be used for identifying and quantifying the presence of pests?

Known and potential new areas of infestation will be inspected visually on foot within CSP. Infestations are quantified through visual estimation of number of plants, infestation area, and/or by mapping the boundary infestations in a GIS.

How will pest species be identified?

All species are readily identifiable in the field based on various morphological characteristics viewed with the naked eye to people with adequate training or experience. Identifications will be confirmed by members or contractors from the ANC-CISMA or others trained in invasive plant identification using the “Identification of Non-Native Plants in Alaska” guide produced by the UAA Alaska Center for Conservation Science or other identification resources.

Describe record keeping procedures:

Herbicide application records will be written on paper forms and/or reported in a smartphone application. Records will include required data fields from the DEC reporting template (including record of each control applied, with date, location, extent of invasive plants presence, etc.). Records will be stored in digital and paper formats for redundancy.

Pre and post treatment inspection will include the date, location, and extent of invasive plants present. Post treatment inspections will evaluate the effectiveness of treatment with recommendations for follow up action.

The electronic records and paper files are located at the Contractor’s (Alien Species Control) office. Information from inspections and applications will be retained for future reference and to help guide control decisions. A short report on surveys, control efforts, and results will be provided to CSP management and the ANC-CISMA each year.

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3. Prevent Pests

For each pest category listed under Section 1, describe preventative measures that will be taken:

Vegetation:

We will encourage and advise Chugach State Park management to take several steps to prevent the introduction of invasive plants. During landscaping and other park improvements only non-invasive species will be planted and certified weed free topsoil and gravel should be specified if available (material sources will be informally inspected if certified weed-free products are not available). Prior to construction, routine maintenance, and patrolling activities, CSP staff and contractors should clean vehicles, equipment, boots, etc. after working in an area known to be infested with invasive plants (such as the Seward highway corridor, Anchorage, etc.).

Public education and outreach efforts will help prevent the introduction of invasive plants. The ANC-CISMA and its partners conduct regular educational / outreach activities in the Municipality of Anchorage including presentations, invasive weed smackdowns, social media posts, radio PSAs, etc.. This outreach includes the message to the public of preventing the spread of invasive species by cleaning footwear, gear, pets, etc. to remove potential seeds prior to entering natural areas.

The ANC-CISMA will encourage DOT&PF and it's contractors to take proactive steps to reduce the opportunities for introduction and spread of invasive plants during road and trail work in and near CSP.

How often will preventative measures be applied?

Preventive measures will be ongoing.

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4. Control Measures

For each pest category listed under Section 1, list potential non-chemical control measures that may be used:

Cultural Controls:	<p>Vegetation:</p> <p>Most invasive plant populations are in natural areas where cultural manipulation of the environment does not normally take place, would not be desirable, nor would be effective on aggressive invasive plants.</p> <p>In park landscaping, no invasive plants will be installed. And all plants, topsoil, and other materials brought in should be inspected for invasive plants. Cleared or bare ground in landscaped areas should be seeded with fast spreading non-invasive species or tarped and covered with</p>
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	wood chips to prevent open soil that would be prime for invasion by invasive plants.
Mechanical Controls:	<p>Hand pulling: Can be somewhat effective on very small populations of certain invasive plants. Hand pulling typically will not eradicate the population but can slow down the spread and buy time until more effective control measures can occur. By species:</p> <ul style="list-style-type: none"> -white sweetclover – fairly effective for small populations - bird vetch – modestly effective for small populations - European bird cherry – fairly effective for small trees, small populations - Spotted knapweed – somewhat effective, very small populations - creeping thistle – not pleasant to pull, but somewhat effective on very small populations <p>Not effective or even counterproductive for reed canarygrass and hawkweed</p> <p>Mechanical – tarping/cover This method has been tried at great expense but poor results in Anchorage for reed canarygrass, bird vetch (in CSP), and creeping thistle. The invasive plants tend to escape the tarps and spread beyond. The long seed viability means the tarps need to stay down for several years – and everything underneath dies – complete revegetation is required.</p> <p>Mechanical – mowing/cutting Ineffective or counterproductive for most of these species. Mowing can help slow and contain the spread of bird vetch, but it will not eradicate it and is not a desirable approach when vetch is growing on native plants or landscaping.</p>

For each pest category listed under Section 1, describe the characteristics needed in any chemical controls that may be used:

Product must be a systemic herbicide to ensure that the entire plant including the roots are controlled. These species are hard to control, and typically only certain herbicides applied at the correct time will work. Residual control is very helpful for species with long seed viabilities and a wide range of germination times.

For each pest category listed under Section 1, list potential chemical controls that may be used:

Target Pest	Product Name	EPA Registration Number
Reed canarygrass	Cornerstone 5 Plus or Round Roundup Custom Aquatic (glyphosate)	1381 – 241 (Cornerstone 5); 524-343 (Roundup);
European bird cherry / chokecherry	Cornerstone 5 Plus or Round Roundup Custom Aquatic (glyphosate); OR Garlon 4 Ultra or Triclopyr 4 plus 2,4-D LV4	1381 – 241 (Cornerstone 5); 524-343 (Roundup); 62719-527 (Garlon 4); 81927-11 (Triclopyr 4); 34704-124 (2,4-D LV4)
Orange or meadow hawkweed	Milestone or Transline	62719-519 (Milestone) or 62719-259 (Transline)
Yellow toadflax	Cornerstone 5 Plus or Round Roundup Custom Aquatic (glyphosate)	1381 – 241 (Cornerstone 5); 524-343 (Roundup);
White sweetclover	Milestone or Transline	62719-519 (Milestone) or 62719-259 (Transline)
Bird vetch	Milestone or Transline	62719-519 (Milestone) or 62719-259 (Transline)
Spotted knapweed	Milestone or Transline	62719-519 (Milestone) or 62719-259 (Transline)
Creeping thistle	Milestone or Transline	62719-519 (Milestone) or 62719-259 (Transline)
Oxeye daisy	Milestone or Transline	62719-519 (Milestone) or 62719-259 (Transline)

Describe how treated areas will be re-inspected and evaluated for effectiveness of controls:

Following application of controls (cultural, mechanical, or chemical), ANC-CISMA contractors and/or members will re-inspect each treated area in the current season and following growing seasons to determine if the applied controls achieved the target control level. Reapplication of control methods will likely be necessary to achieve full control.

ANC-CISMA contractors and/or members will evaluate the effectiveness of controls. If control actions did not achieve the target control level, the certified applicator will recommend modifications or additional controls.

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