

2013



ANNUAL REPORT



ALASKA

PLANT MATERIALS CENTER

STATE OF ALASKA - DEPARTMENT OF NATURAL RESOURCES - DIVISION OF AGRICULTURE

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In 1972 the Alaska Plant Materials Center (PMC) was established within the Alaska Department of Natural Resources, Division of Agriculture. The PMC's mission is to **"serve Alaska's needs in the production of native plants and traditional crops."** The PMC continues to adapt and expand to serve Alaska's agricultural needs. The PMC added a new Horticulture Evaluation Program in 2013 to complement existing programs.

Major areas of focus for the PMC include developing adapted forage and horticulture plant varieties to suit Alaska, technical reclamation assistance, techniques for revegetation and erosion control, invasive plant and pest management, seed cleaning and testing and plant pathogen testing. The PMC utilizes 405 acres outside Palmer for native plant seed cultivation, research, technology and knowledge transfer.

The Division of Agriculture funds the PMC, although some funding comes from non-state sources, such as the U.S. Department of Agriculture (USDA), U.S. Bureau of Land Management (BLM) and U.S. Forest Service (USFS).

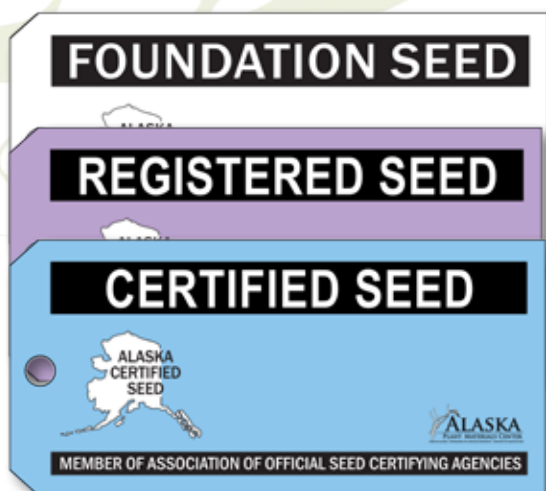
PMC Projects & Services

- Revegetation & Erosion Control Assistance
- Foundation Seed Sales
- Seed Cleaning & Conditioning
- Quantitative Seed Analysis
- Diagnosis & Management of Plant Pathogens
- Seed Potato Certification, Sales & Disease Control
- Invasive Plant & Agricultural Pest Program
- Soil Testing & Analysis
- Forage Trials & Evaluation
- Horticulture Trials & Evaluation
- Ethnobotany Teaching Garden
- Educational Program / PMC Facility Use





Foundation Seed Program

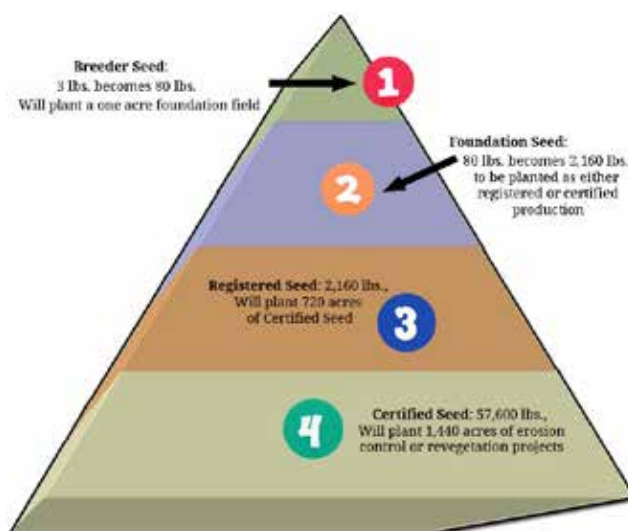


Certified Seed tags; used to identify seed of known origin and quality.

The Plant Materials Center's mission is to produce high-quality seed that is well-suited to Alaska's climate and soils, will produce economic benefits, and is available to commercial growers. The foundation seed program provides seed to producers for cultivar seed production. Certification assures that plants have been properly handled and meet the high standards of pedigree retention, varietal purity and viability; and that they are free of weeds, diseases, and physical damage. Certification also encourages the production of adapted seed varieties for agricultural interests and revegetation needs throughout Alaska.

Certified Seed Classes

- **Breeder Seed:** Seed or vegetative material directly controlled by the originating plant breeder, institution, or supplier of the source plants used for the initial and recurring increase of foundation seed.
- **Foundation Seed:** Seed that is the progeny of breeder seed. Production is carefully supervised to maintain specific genetic and physical purity.
- **Registered Seed:** Registered seed is the progeny of foundation seed and must be handled carefully to maintain satisfactory genetic and physical purity.
- **Certified Seed:** Certified seed is the progeny of foundation or registered seed, which has the genetic and physical purity needed for certification.



The Seed Increase Pyramid illustrates the multi-phased seed increase process, whereby 3 pounds of breeder seed is increased to a commercially usable quantity. Clean seed yields are based on an 80 lbs/acre. The planting rate is based on 3 lbs/acre for seed production and 40 lbs/acre for reclamation.

Research Seed Distributions

Seed from the Alaska Plant Materials Center was distributed to several organizations for research, field trials and education purposes.

- | | | |
|------------------|------------------------|-------------------------|
| • Thual Barley | • Iris | • Meadow Barley |
| • Nip Oats | • False Mayweed | • 'Arctared' Red Fescue |
| • Toral Oats | • Beach Fleabane | • Rough Bentgrass |
| • Ingal Wheat | • Nodding Locoweed | • Alpine Milkvetch |
| • Beach Lovage | • Field Oxytrope | • Staghorn Cinquefoil |
| • Columbine | • Tilesius' Wormwood | • Dwarf Fireweed |
| • Geranium | • Alpine Sweetvetch | • Wainwright |
| • Goldenrod | • Beach Wildrye | • Slender Wheatgrass |
| • Yarrow | • Largeglume Bluegrass | |
| • Eskimo Potato | • 'Norcoast' | |
| • Jacob's Ladder | • Bering Hairgrass | |



Excess seed produced by the PMC is available to research and educational organizations.

Foundation Seed Program

2013 Harvest

The PMC harvested, cultivated, rogued and planted 27 different crops of grasses, forbs, and grains on the production fields during the 2013 growing season. The PMC's flagship Wintersteiger combine continues to perform admirably, bringing seed cleaning features to the field. Some of the 2013 crops harvested included:

Ninilchik Nootka alkaligrass

Cantwell Downy wildrye

Solomon Thickspike wheatgrass

'Nortran' Tufted Hairgrass

'Norcoast' Bering Hairgrass

Nelchina Spike trisetum

Kotzebue Arctic wild chamomile

Henderson Ridge Red fescue

'Sourdough' Bluejoint reedgrass

'Kenai' Polargrass

'Egan' American sloughgrass

Bebral Winter Rye

Knik Iris



The PMC's Wintersteiger combine conditions seed as it is collected.

Seed increase fields of Toral oats, Ingal wheat, Nogal wheat, Ceal oats and Bebral rye were planted in 2013 and will be further increased in 2014 for future sales of foundation level seed.

Production fields of 'Norcoast' Bering tufted hairgrass, 'Alyeska' Wideleaf polargrass, 'Arctared' Red fescue and 'Gruening' Alpine bluegrass that were planted in 2012 suffered serious winter injury and will be reestablished in 2014 and 2015.

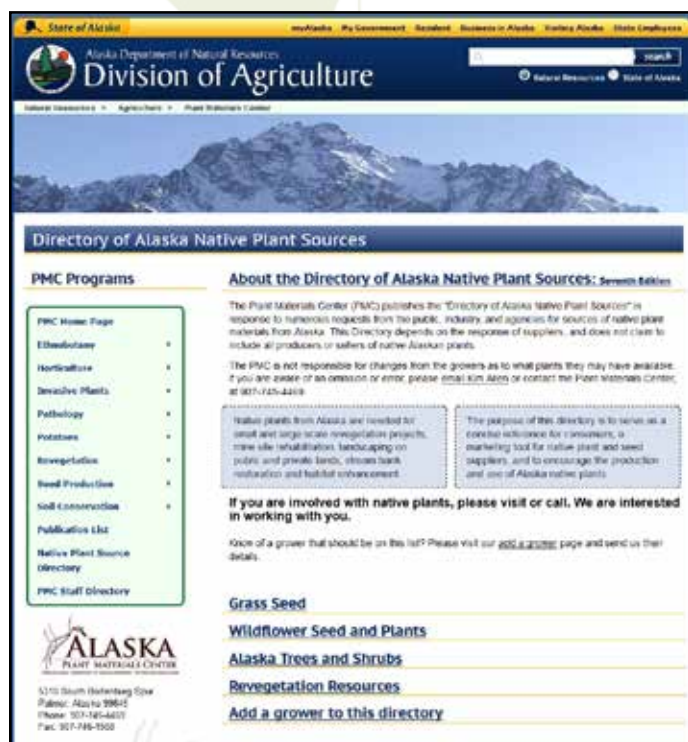
Older fields below the seed harvest threshold removed in 2013 include; Ninilchik Nootka alkaligrass, Kotzebue Arctic wild chamomile, 'Egan' American sloughgrass, Cantwell Downy wildrye, and 'Nortran' Tufted Hairgrass. These removed fields will be reestablished for further seed production in the future.

Kobuk Dwarf fireweed, Norton Sound Alpine milkvetch, Franklin Bluffs Nodding locoweed and Black Rapids Field locoweed were harvested for the PMC seed increase again in 2013 with the intent of larger production fields being established in 2014 and 2015.

Commercial Development of Native Plants

The PMC maintains a program to develop accessions and cultivars of native plants for growers across Alaska. Since that time, 5 cultivars and 32 named germplasm releases have originated from the PMC.

Native plant species are already adapted to the extreme climate of Alaska, and are most likely to do well under cultivation. There is a steady demand for seed stock for revegetation and reclamation purposes. Native plant species are required to support public infrastructure projects, such as roads and airports, as well as private industry, including exploration activities for the mining and petrochemical sectors.



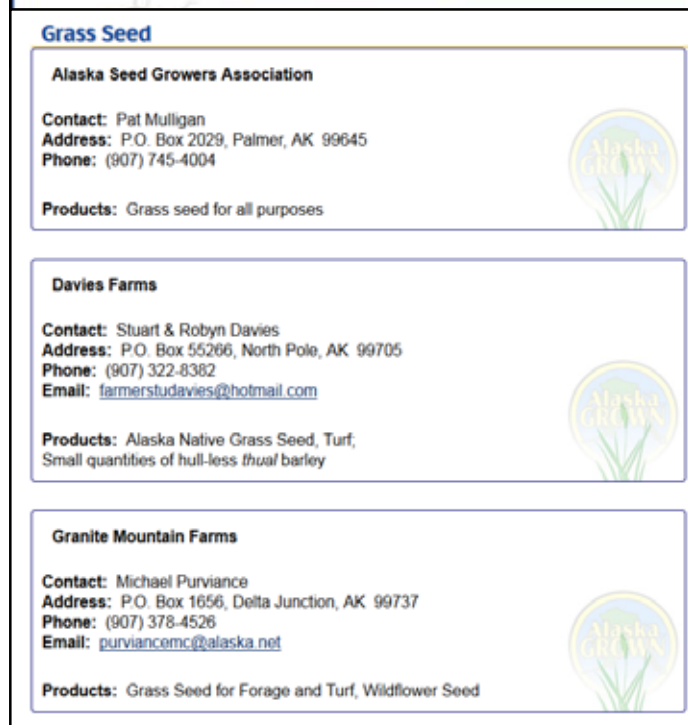
Directory of Alaska Native Plant Sources

The PMC has a comprehensive directory of many in-state producers of native Alaskan plants. This reference includes growers of trees and shrubs, grass and wildflower seed producers, and suppliers offering revegetation consultations and resources. Buyers with internet access can visit <http://plants.alaska.gov/nativeplantindex.htm> and quickly determine where to acquire native plant seed and plant materials.

Currently in its 7th edition, the Native Plant Source Directory lists growers and businesses who provide:

- Grass seed
- Wildflower seed and plants
- Alaska trees and shrubs
- Revegetation sources

The Native Plant Source Directory continues to be updated. The directory depends on the response of suppliers and does not claim to include all producers or sellers of native Alaskan plants.



Commercial Development of Native Plants

Mat-Su Riparian Plant Material Development Final Report

The final report for the Mat-Su Riparian Plant Development will be released in 2014. The U.S. Fish and Wildlife Service (USFWS) began efforts to replace creek culverts in the Mat-Su Borough with the goal of improving salmon habitat. The PMC supports their four-year project by providing native plant materials to revegetate disturbances with native plant materials.

Collections of seed began in 2010 and continued each year thereafter. Collections were from wild areas, box gardens created by the PMC and the PMC's own fields. Below are the final results of what was collected.

2010

The following quantities of seed were collected in 2010:

<i>Calamagrostis canadensis</i>	Wild collection	0.4g
<i>Chamerion angustifolium</i>	Wild collection	110.3g
<i>Lupinus nootkatensis</i>	Wild collection	35.13g
<i>Geranium erianthum</i>	Wild collection	52.12g
<i>Carex mertensii</i>	Wild collection	60.9g
<i>Aquilegia formosa</i>	PMC field harvest	280g
<i>Delphinium glaucum</i>	PMC field harvest	99g
<i>Deschampsia cespitosa</i>	PMC field harvest	unknown

Total amount collected in 2010 was 637.85g

2011

2011 was focused on growing seedling from the seed collected the previous year and establish field and box garden plantings. *C. canadensis* and *D. cespitosa* seedlings were planted in the field and box garden.

Seedlings from *C. angustifolium*, *A. formosa*, *G. erianthum* and *C. mertensii* were planted in the box garden.

During that summer the following wild seed collections were made:

<i>C. angustifolium</i>	230g
<i>G. erianthum</i>	50g
<i>Lupinus nootkatensis</i>	18g

Total amount collected in 2011 was 298g



Commercial Development of Native Plants

2012

The following quantities of seed were collected in 2012:

<i>C. canadensis</i>	PMC field	1,200g
<i>Deschampsia cespitosa</i>	PMC field	3,100g
<i>C. Canadensis</i>	Box garden	4.8g
<i>D. cespitosa</i>	Box garden	248g
<i>C. angustifolium</i>	Box garden	49g
<i>Lupinus nootkatensis</i>	Box garden	193g
<i>Aquilegia formosa</i>	Box garden	63g
<i>Carex mertensii</i>	Box garden	72g
<i>C. angustifolium</i>	Wild collection	61g
<i>L. nootkatensis</i>	Wild collection	648g
<i>A. formosa</i>	Wild collection	20g
<i>C. mertensii</i>	Wild collection	37g

Total amount of seed collected and harvested in 2012 5,695g

2013

The 2013 growing season was unusually warm which affected the seed formation of the species in production. The amount of seed harvested was greatly reduced from the year before.

<i>C. canadensis</i>	PMC field	10.6g
<i>D. cespitosa</i>	PMC field	135g
<i>C. angustifolium</i>	Box garden	146g
<i>A. formosa</i>	Box garden	40.28g
<i>C. mertensii</i>	Box garden	88.6g
<i>C. angustifolium</i>	Wild collection	164g

Total amount of seed collected and harvested in 2012 584.48g



PMC staff collecting seeds.

Total Seed Collected for project:

7,215.33g

Vegetative Material Production

Dormant cuttings from *Salix alaxensis*, *Salix lasiandara* and *Populus balsamifera* were collected in the spring of 2012. Over 170 cuttings were rooted and planted in a fenced area at the PMC. From 2011-2013 all of the species established very well. Cuttings remain available for harvest when necessary.

Commercial Development of Native Plants

Seeds of Success Program

Seeds of Success (SOS) is the national native seed collection program led by the Bureau of Land Management (BLM) in partnership with a variety of federal agencies and non-federal organizations. SOS's mission is to collect wild native seed for research, development, germplasm conservation and ecosystem restoration. The long-term conservation outcome of the SOS program is to support BLM's Native Plant Materials Development Program, whose mission is to increase the quality and quantity of native plant materials available for restoring and supporting resilient ecosystems. Healthy ecosystems provide the essential ecological services upon which all life depends, including our own.

Activities

The main activities for the calendar year 2013 were:

- **New field plantings**
- **Maintenance of box garden and field plantings**
- **Cleaning the 2013 seed collections and seed increases**

New Field Plantings

BLM representatives selected the following species for seed increase during the 2013 growing season:

- | | |
|-------------------------------------|-----------|
| • <i>Calamagrostis purpurascens</i> | AK930-463 |
| • <i>Arctagrostis latifolia</i> | AK930-465 |
| • <i>Bromus inermis</i> | AK930-480 |
| • <i>Festuca rubra</i> | AK930-497 |



Plugs placed outside to 'harden off.'

All of these species belong to the *Poaceae* family. They have a fibrous root system which makes them especially suitable for revegetation purposes. Germination tests were conducted to determine germination potential of the seed. Seed was then planted in the greenhouse in mid-March. Once the plugs were established they were taken outside to harden off. They were then planted in the field by the first week of July.

Maintenance of Field Box & Garden Plantings

Most of the species planted in 2012 were established and harvested for the first time in the summer of 2013. Yields among them varied significantly. The only species that did not overwinter was *Agrostis scabra*. Current and past attempts to establish plantings from plugs showed that plants produced seed the same year they were transplanted. No live plants were discovered the following spring. A weed management plan was implemented in 2013. It included mechanical and chemical methods. Field plantings were fertilized in the beginning of the season.

Cleaning 2013 Seed Collections & Seed Increases

BLM staff obtained 70 seed collections during 2013. That fall the seed was brought to the PMC for cleaning. Number of seeds per gram and the number of seed per lot was calculated. Total weight of this seed exceeded 4 pounds. Out of these collections, 10,000 seeds from each lot will be sent to the Plant Introduction Station in Pullman, WA. The remainder will be stored at the PMC.

Seed Cleaning & Conditioning

Seed conditioning/cleaning is a critical step in producing a high-quality seed product that is free of contaminants. PMC seed cleaning facilities handle seed from its own fields as well as seed from the Alaska Seed Growers Association, private companies and other state and federal agencies.

There are two main seed processing facilities at the PMC. The 'large seed house' processes all lots of seed greater than 100lbs. and the 'small seed lot facility' that processes seed lots less than 100lbs. or those that are used for cleaning and conditioning trials. Both facilities operate primarily in the winter months when field activities are complete. Typically, more than one machine will be necessary to thoroughly condition a seed lot to its maximum purity and germination. Commercial seed cleaning services are provided by the PMC when requested and charged by the hour. Hourly and setup rates may vary from year to year depending on the condition of each seed lot submitted for cleaning.



Pure Beach wildrye (*Leymus mollis*) seed

Seed cleaning is the separation by physical characteristics of seed; such as size, length, width, thickness, weight (specific gravity) and surface texture. Each piece of equipment works with one or more of these physical characteristics to separate targeted seed from the rest of the contents within a seed lot. PMC staff choose which equipment to use first based on the characteristics of unwanted material and condition of the seed determined by a pre clean sample taken after harvest.

Because seasons extend across calendar years, figures reported below are correlated with the harvest year.

- 2013 Cleaning Season
 - 31,529lbs. of cleaned seed (pre-clean weight: 89,258lbs.)

The PMC harvested 41 seed lots in 2013 for processing. These foundation seed lots will be cleaned and conditioned in the PMC's small seed facility. An additional 89 bags (roughly 75,000lbs.) of bulk seed were accepted from commercial producers to be processed in the larger facility during the winter of 2013/14. This seed will be cleaned, conditioned, tested and labelled prior to being returned to the producers for eventual sales within the state.

Due to the closure of the USDA, Agricultural Research Service in Alaska in 2011, the PMC came into possession of the seed germplasm they left behind. Inventory and storage of these materials began in December, 2012. In 2013 the PMC started reconditioning these seeds lots planning to increase selected seed lots for further production and evaluation in 2015.

Foundation Seed Sales

The PMC makes high quality certified seed available to Alaskan agricultural producers each spring and fall.

2013 Spring Sale

This spring 34 lots of grasses, 15 lots of forbs and 9 lots of grain were offered for sale.

'Egan'

'Sourdough'

'Nugget'

Sales = \$2,598.56

Knik Germplasm wild iris

'Caiggluk' Tilesius' Wormwood

Paxson Germplasm alpine sweetvetch

Sales = \$89.04

Lidal Barley

Wooding Barley

Toral Oats

Sales = \$1,533.28

Total Spring Seed Sale = \$4,220.88



2013 Fall Sale

The fall sale offered 25 lots of grasses, 8 lots of forbs and 9 lots of grain available for sale.

Nugget: 65lbs.

Sales = \$1,095.95

With shipping = \$ 1,360.97

Henderson Ridge: 5lbs.

Sales = \$73.20

Gruening: 1lb.

Sales = \$49.95

With shipping = \$142.10

Nip Oats: 200lbs.

Sales = \$115.66

Lidal Barley: 200lbs.

Sales = \$150.12

With shipping = \$265.24

Total Fall Seed sale = \$1,484.88

Total Fall Seed Sale With Shipping = \$1,768.31

Total 2013 Seed Sale = \$5,705.76

Total 2013 Seed Sale with Shipping = \$5,989.19



Barley from the Alaska Plant Materials Center

Revegetation & Erosion Control

Revegetation is the process of covering bare ground (usually raw mineral soils) with perennial plants. Revegetation is implemented when vegetative cover has been destroyed or damaged, the soil has been mixed or removed, leaving material poorly suited for plant growth. The use of native plants for revegetation is encouraged because they resemble surrounding vegetative communities, are unlikely to be invasive and do not compete with other native plants. The PMC has assisted numerous agencies and private companies in the design of reclamation and revegetation projects.

Research priorities at the PMC include the use of dormant seedlings to extend planting seasons, cost-effective methods of willow planting and wetland ecosystem restoration. By using native plant materials, disturbed sites can be restored as close as possible to their original composition.

Erosion Control with Vegetation

Erosion (the displacement of solids by the agents of wind, water, ice or movement in response to gravity) is a problem that growers, contractors and engineers have faced for decades. Erosion causes soil and nutrient loss, and can result in sediment loading of stream channels. This can have a negative impact on fisheries and plant ecosystems. Construction, urban development and changes in climate all contribute to the many causes of erosion.

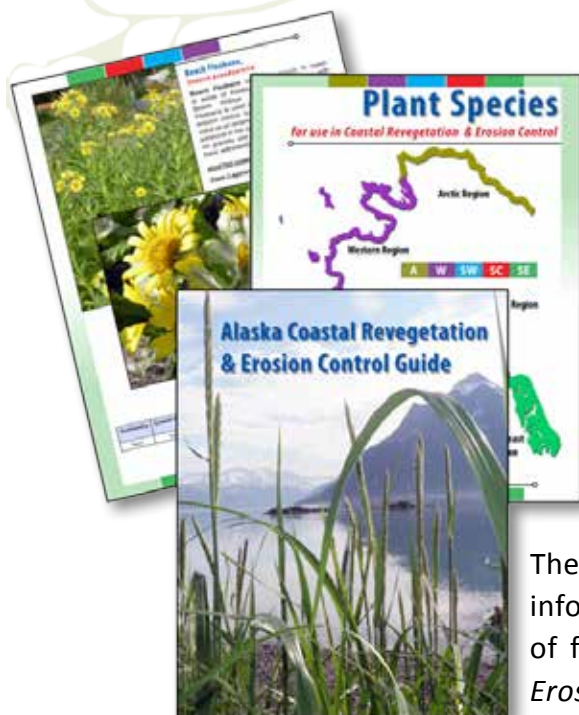
The PMC provides technical advice and project assistance on erosion control. Awareness of potential areas of erosion, as well as applicable federal and state regulations, can mitigate future problems and facilitate successful projects. The PMC only deals with erosion control issues **not** directly affecting life or safety. For these concerns, contact a professional engineer.

Stormwater Pollution Prevention Plans (SWPPPs) are plans that address erosion and sedimentation problems on construction projects larger than 1 acre. SWPPPs are based on best management practices (BMPs) and are required for certain construction activities. Three members of the PMC staff have received certification as Alaska Certified Erosion and Sediment Control Leads (AK_CESCL) and can assist in preparation of the vegetation component of a SWPPP.



Revegetation & Erosion Control

Alaska Coastal Revegetation & Erosion Control Guide



The *Alaska Coastal Revegetation and Erosion Control Guide*, written by Stoney Wright and Phil Czapla of the Alaska Plant Materials Center, is an informational resource created to assist professionals involved in construction or cleanup activities in Coastal Alaska. The publication was originally published in 2010. A second edition was printed in 2011 and continues to be a valuable resource.

This easy to navigate publication includes species suggestions, plant profiles, descriptions of vegetative communities and detailed case studies for regions in Alaska. It features a step-by-step guide to planning a revegetation project.

The *Alaska Coastal Revegetation and Erosion Control Guide* includes information on techniques for planting, wild harvest and the protection of fragile coastal resources. The *Alaska Coastal Revegetation and Erosion Control Guide* was funded in part by a grant from the USDA Natural Resource Conservation Service. It can be found online at http://plants.alaska.gov/pdf/Coastal-Reveg_web_2013_v2.pdf.

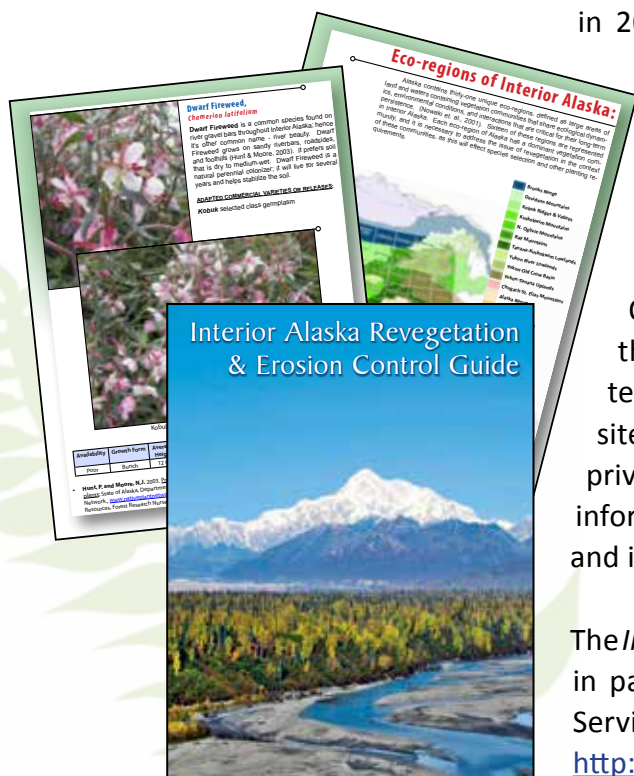
Interior Alaska Revegetation & Erosion Control Guide

The *Interior Alaska Revegetation and Erosion Control Guide* was created in 2011 and remains useful to developers and engineers. Topics include plants and projects relevant to Interior Alaska. Major geographic regions considered include:

- Alaska and Brooks Ranges
- Minto and Yukon Flats
- Tanana and Copper River Valleys

One major impact to the natural environment covered in this guide is wildfire. Other topics include project planning, techniques for dealing with permafrost, wetlands and mining sites. Case studies highlight past projects completed by the private and public sector. These studies are a great resource for information exchange and to see how other entities have designed and implemented revegetation plans to meet project goals.

The *Interior Alaska Revegetation and Erosion Control Guide* was funded in part by a grant from the USDA Natural Resource Conservation Service. The guide is available for browsing and download at http://plants.alaska.gov/pdf/interior_reveg_web.pdf.



Revegetation & Erosion Control

Revegetation Projects

Native Plant Commercialization

Approximately 69 native species accessions, including *Bromus sitchensis* from Southeast Alaska communities, were sowed into containers on April 24th, 2012 to establish seedlings. Each accession had 32 plugs. They were transplanted into PMC fields on August 13th-14th, 2013 and irrigated routinely to help them establish.

Field evaluations will start summer 2014 and will keep records on the performance of these accessions and the plants within the accessions. Recordings on foliage, seed and resistance characteristics will be documented. Seed will be collected from every plant within each accession. The top 10 plants, based on field notes, will be used for at least one additional cycle of establishment and selection. This second cycle will occur in summer 2015.



Assessment of Erosion and Plant Cover on the Trans Alaska Pipeline Right-of-Way (ROW) and Evaluation of Gasline and Pump Stations, Mileposts 0 to 800, Mileposts 0 to 142 Final Report

The purpose of this report was to provide an overview of the current condition of the Trans Alaska Pipeline Right-of-Way (ROW) work pad. Included in this report is an evaluation of the existing gas pipeline and pump stations. This report is an update to the previous survey conducted between September of 1991 and June of 1992.

A mile-by-mile survey was conducted between August and September of 2011 along the entire length of the Trans Alaska Pipeline ROW work pad and the gas line. Site specific data such as vegetative cover, taxonomy, GPS location and photographs were recorded at each mile post. Erosion present at or between the mileposts was also noted. This report can be found online at <http://plants.alaska.gov/pdf/2013TAPSGasline.pdf>.



Revegetation & Erosion Control

Kodiak Revegetation Project

This project focuses on the removal of Bohemian Knotweed (*Polygonum x bohemicum*) and slope stabilization/revegetation of an existing site. The site is approximately 7,000 square feet in area and was revegetated with the following native grasses:

- Tufted hairgrass (*Deschampsia cespitosa*)
- Bluejoint reedgrass (*Calamagrostis canadensis*)
- Red fescue (*Festuca rubra*).

Erosion control blankets (Coconut bio-net), high performance flexible growth medium (HP-FGM) and slow release organic fertilizer (Sustain 4-6-4) will be utilized, in order to minimize erosion and promote growth of the previously mentioned grasses. Efforts began July 22nd, 2013 and ceased July 26th, 2013. This project is funded in joint collaboration by the PMC and Kodiak Soil and Water Conservation District. (SWCD).



Plant Pathology Laboratory

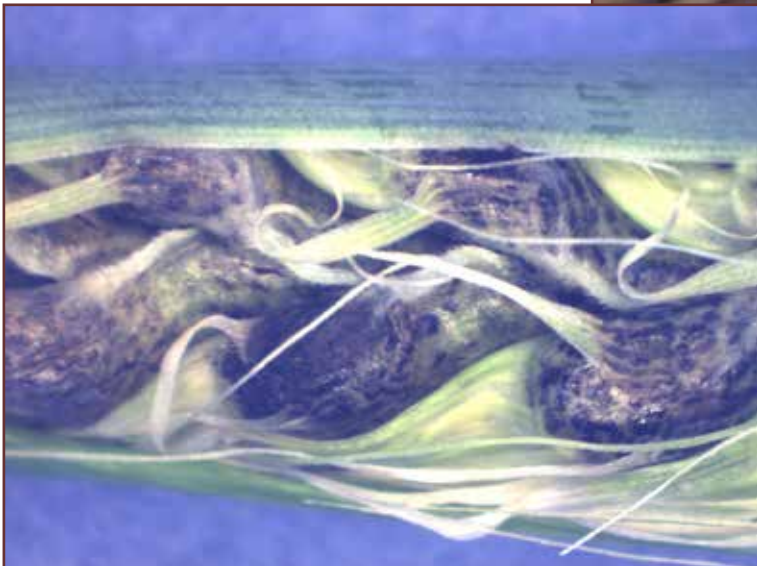
The main focus of the Plant Pathology Laboratory is diagnosis and management of plant pathogens and investigations into fungal endophytes in native and cultivated grasses. The lab performs culturing of microorganisms and microscopic examination and serological, protein and nucleic acid based tests. As part of the horticulture program, the lab operates variety trials, screens for disease resistance, manages disease and insects and conducts outreach to the public.

2013 Accomplishments:

1. Fungal endophyte toxin sampling continued in the Homer area. Collected 32 samples from 4 locations: 20 samples were processed for lolitrem B (a tremorgen), and 12 samples processed for ergovaline (a vasoconstrictor). Only 1 sample was above the detection limit of the HPLC (High Performance Liquid Chromatography) and was below the published clinical symptom threshold. Management recommendations, including grazing management, were made to the horse owners.
Five samples were also taken from the Palmer Musk Ox Farm and were negative for endophytes.
2. Processed 76 peony samples for Tobacco Rattle Virus (TRV) from 8 producers statewide. Seventeen were confirmed positive for TRV. Management recommendations were made to the growers.
3. Potato leaf samples were tested for PLRV, PVS, and PVX; 44 samples total from 3 growers. Six stem samples for bacterial ring rot (caused by *Clavibacter michiganensis* subsp. *sepedonicus*) were also taken.
4. Met with growers of diverse crops, including: apple, cucurbits, lettuce, peony, wheat, *Meconopsis* (Himalayan blue poppy), raspberry, and native grasses. Diagnosed issues and made management recommendations.
5. Attended the Nursery and Greenhouse Conference, Fairbanks, AK, January 24th-25th, 2013. Also, attended the Produce Growers Conference, Palmer, AK, February 19th-20th, 2013. Presented "Endophytes in Alaska" at the NRCS Spring Technical Committee Meeting, Palmer, AK, May 29th, 2013. Met with the Alaska Pioneer Fruit Growers on August 3rd, and September 5th, 2013.



Peony infected with Tobacco rattle virus (TRV)



Barley infected with loose smut (*Ustilago nuda*)

Seed Analysis Laboratory

The **Alaska State Seed Lab** at the PMC conducts seed analysis for growers, state and federal agencies, private industry and academic institutions. Testing is conducted in accordance with the Association of Official Seed Analysts (AOSA) standards. The seed lab maintains reference material and an extensive herbarium of seeds from northern latitudes to aid in seed identification.

Seed Lab Services:

- Viability testing
- Germination testing
- Tetrazolium testing
- Purity testing
- Noxious weed exams
- Seed Counts
- Grain moisture testing



The Alaska state seed lab is the only certified seed lab in the state.

Seed Testing Activity

Seed Lab Tests						
Year	Purity	Germination	Noxious Weed	TZ	Seed per gram	Total
2013	135	201	87	3	1	427

Seed Lab Projects:

Mat-Su Plant Material Development

Main activities during the 2013 growing season included:

- *Field plantings and box garden maintenance*
- *Field plantings and box garden seed harvest*
- *Wild seed collections*
- *Seed cleaning*

Filed plantings and box garden maintenance

The 2013 growing season was somewhat unusual. The PMC fields experienced a late snowfall in May, very short transition from winter to summer and very warm summer temperatures with little precipitation. Seed formation and development was greatly affected by unseasonably warm weather. Seed yields were just a fraction of what is usually harvested.

Field plantings and box garden harvest

During the months of August and September multiple harvests in the box garden and the field were conducted. Seed yield of cool season grasses planted in the field was affected by unusually warm weather. Forbs planted in the box garden performed well.

Wild seed collection

PMC staff collected seed from fall fireweed (*Chamerion angustifolium*) from the Palmer Fishhook Rd. area.

Seed cleaning

During the 2013 growing season the following amounts of seed were obtained after cleaning:

Aquilegia Formosa..... 40.28g (box garden)

Seed Analysis Laboratory

Calamagrostis canadensis 10.6g (field)
Carex mertensii..... 88.6g (box garden)
Chamerion angustifolium 164g (wild collection)
Chamerion angustifolium 146g (box garden)
Deschampsia beringensis 135g (field)
Total weight:584.48g or 1.3lbs

Alaska Plant Material Development Project (Seeds of Success)

Main activities during 2013 growing season included:

New field plantings

Bureau of Land Management representatives selected the following species for seed increase during 2013 growing season:

Calamagrostis purpurascens ... AK930-463
Arctagrostis latifolia AK930-465
Bromus inermis..... AK930-480
Festuca rubra..... AK930- 497

Maintenance of field and box garden plantings

Most of the species planted in 2012 were established and harvested for the first time in the summer of 2013. Yields among them varied significantly. The only species that did not overwinter was *Agrostis scabra*. Current and past attempts to establish a planting from plugs showed that plants produced seed in the same year they were transplanted. No live plants were discovered the following spring.

Cleaning 2013 seed collections and seed increases

BLM staff obtained 70 seed collections in 2013. The collection of seed was delivered to the Plant Materials Center (PMC) where it was cleaned in the fall. The number of seed per gram and the approximate number of seed in the seed lot was calculated. Total weight of the clean seed exceeded four pounds.

10,000 seeds from each collection was sent to the Plant Introduction Station in Pullman, WA. The rest will be stored at the PMC.

Seed was harvested from plantings established in 2011 and 2012.

The following species were harvested:

Achillea sibirica..... AK 930-89
Calamagrostis canadensis AK 930-457
Chamerion latifolium..... AK 930-71
Chamerion latifolium..... AK 930-391
Deschampsia beringensis AK 930-452
Poa alpina..... AK930-92
Sanguisorba canadensis AK 930-81
Wilhelmsia physodes AK 930-85
Trisetum spicatum AK 930-389



Festuca Rubra growing in a PMC field.



Cleaned seed collections.

Soil Testing & Analysis Laboratory

There are many variables to consider when planning a field, garden or revegetation project. Temperature, moisture, aspect, region and species selection all affect the results and success of a project. An important, but often overlooked, variable to consider when choosing a growing site is the soil type. Soils, along with many other environmental factors, play a large role in a project's success. Soil temperature, nutrient capacity, water holding capacity and physical makeup are all factors which may have a negative or positive impact on plant growth.

The soils laboratory at the Plant Materials Center supports in-house projects and field trials through the collection and analysis of soils from all over Alaska. Knowing the type and potential limitations of a soil can provide a higher success rate for field crops and revegetation projects. Soil sampling methods include the use of a clear PVC bore hole probe and a hand powered auger. The PMC Soils Laboratory can conduct chemical constituent testing of collected soil samples but it does not currently offer soil testing services to the general public.



Soil sieves are used to separate a soil profile into constituent parts for analysis.

Chemical Testing & Analysis

Utilizing colorimetric, titrimetric and electronic methods the PMC tests soil for a variety of macronutrients (nitrogen, phosphorus, potassium, calcium and magnesium) and micronutrients (iron, copper, zinc, chlorine and manganese). Electro-conductivity (EC) and pH can be calculated and measured from collected samples or in the field. Once chemical data is obtained, nutrient deficiencies and toxicities can be identified and fertilizer ratios recommended for the project area.



Texture & Bulk Density Analysis

Physical characteristics of a soil, such as texture and bulk density, can be gathered and analyzed at the PMC Soils Laboratory. These physical characteristics can affect both plant growth and the erosion potential of a site. Once divided using a column of soil sieves, the soil remaining within each sieve is weighed again and calculated into a percentage of sand, silt and clay. These percentages allow the lab technician to categorize each soil sample using the USDA textural triangle. Bulk density testing can also be performed to determine possible soil compaction, water content and porosity.

Soil Testing & Analysis Laboratory

2013 Activities

Erosion Control

- Answered revegetation questions in regards to project implementation and choosing seed mixtures to the general public.
- Assisted with seeding and erosion control specifications for DOT projects around Alaska.
- Collected baseline soil and vegetation data for DOT local projects within the Mat-Su and Anchorage area.

Forage & Soils Lab

- Forage Growth Curve project is currently in progress. Staff members are collecting field data every 2 weeks in 8 regions throughout Alaska. Publication will be compiled during the winter of 2014/2015.
- Establishing and managing 7 forage field trials at the PMC.
- Currently running nutrient analysis on several hay field soil samples throughout Alaska.
- Tested and analyzed nutrient composition for several soil samples collected from asparagus trial study areas.
- Forage plots are in their 2nd year of evaluation. Currently there are 7 existing fields consisting of 5 native grasses, that are being compared with historically cultivated Brome and Timothy grasses.
- Additional forage evaluation plots for Denali alfalfa and Kenland red clover will be planted during the 2014 growing season. Evaluations will include nutrient composition, yield production and seed production .
- Assisting with revegetation and erosion control efforts in Northern, Central, and Southeast regions for DOT. Will be assisting in baseline soil and vegetation data collection (preconstruction phase) in each region during the 2014 growing season.
- Forage Growth Curve Project is in its 3rd and final year of evaluation and data collection for NRCS. This project has evaluation sites in 8 regions across Alaska.



Digging a soil pit for observation.



A PMC Agronomist displays an upper level horizon of soil.

Educational Facilities

The Plant Materials Center has and ADA accessible conference space available for presentations, meetings, workshops and training sessions for use by our staff or outside agencies and organizations. The meeting-space is equipped with an interactive whiteboard system with webinar capabilities, teleconference lines and flexible room configurations that can accommodate up to 30 individuals.

The PMC program staff offers professional and educational presentations and hands-on trainings related to our projects and on-going research. Off-site presentations can be facilitated upon request.



The conference room at the PMC can accommodate groups of up to 30 individuals, in a variety of room configurations.

2013 Educational Programs:

- Coordinated with Mat-Su Conservation Services and the Wasilla Soil and Water Conservation District to host 2 school groups to learn techniques for harvesting dormant willows. The harvested willows will be stored until used for a Mat-Su Valley stream restoration project.
- Coordinated with the Copper River Watershed Program, provided programs on Alaska native plant seed, developed a multipurpose landscape garden, invasive vs. native plants and techniques of growing native seed. These programs plus donations of native seed were given to several school groups and community groups in Cordova.
- Organized and hosted an “Invasive Plant Identification and Field Methods” course for local Soil and Water Conservation District seasonal staff.
- Presented information on invasive and native plants to Mat-Su College students.
- Provided guided ethnobotany tours for groups including K-12 education classes, university classes and tribal groups from Chickaloon, Eklutna and Knik Tribes.
- Implementation of monthly “Alaska Native Plant Study” classes open to the public.
- Presented information on ethnobotany and native plants to Alaska Botanical Society, Alaska Native Plant Society, Anchorage Master Gardeners and attendees at the Alaska Plant as Food and Medicine Symposium in Girdwood.
- Participated in Anchorage Museum’s “Outdoor Edibles” Program with a demonstration of Edible and Medicinal Plants



Students harvest willow as part of an ethnobotany class.



School groups participating in an ethnobotany class.

Potato Disease Control

Potatoes are one of the principal crops grown on Alaskan farms, creating a net value over 3.5 million dollars annually. Alaska's potato crop is free of many serious pests and diseases common to the contiguous United States. Many potato pests and diseases are carried in or on tubers used for seed. These diseases can cause significant losses reducing yield and quality. Seed tubers, produced under strict protocols at the PMC, are sold annually to growers to be increased over the next several years. This system enables the grower to maintain yields by replacing older diseased seed with clean, certified seed of known quality.



Diseased potatoes.

The Plant Material's Center Potato Disease Control program provides varietally pure certified seed potato stock, free from disease causing organisms to commercial growers. The importation of seed potatoes risks the introduction of pests presently unknown in Alaska. The risks are considerable and seed importation is discouraged.

History

Potatoes have been grown in Alaska for centuries. The potato is vegetatively propagated and consequently has unique production problems. Replanting tubers from year to year can build up populations of disease causing organisms. This situation prevailed in the late 1970's before the Plant Materials Center was established. Alaskan potato farmers prior to the 1970's were plowing under rotting fields.

Alaska now has a limited generation seed potato propagation system which allows eight years of certification eligibility. To minimize diseases introduced from imported seed the PMC acquired pathogen-tested stocks and propagated them for experimental use. Home gardeners can be a source of disease introduction and many varieties were acquired in an effort to replace these imports. The PMC has screened over 600 varieties for adaptation to high latitudes. Russet Norkota, Shepody, CalWhite, German Butterball, Cherry Red and French Fingerling are now commercially grown in Alaska.

Pathogen Testing

Seed provided by the PMC is used as the initial stock for a multi-year certified seed production scheme. All production undergoes rigorous testing for disease prior to sale. Seed potatoes for export must meet the importing countries' phytosanitary requirements, usually requiring lab testing to ensure compliance.

The diseases of primary concern are:

- **Bacterial Ring Rot (BRR)**
- **Potato Spindle Tuber Virus (PSTV)**
- **Potato Virus S (PVS)**
- **Potato Leafroll Virus (PLRV)**
- **Potato Virus A (PVA)**
- **Potato Virus X (PVX)**
- **Potato Mop-top Virus (PMTV)**
- **Potato Virus M (PVM)**
- **Potato Virus Y (PVY)**

Disease-Tested Seed Potato Production

The local availability of disease-tested seed reduces the risk of introducing potentially epidemic diseases. Using seed in which diseases are absent or at manageable levels has been shown to greatly reduce the risk of loss. Commercial growers should obtain clean seed potato stock from the PMC whenever possible.

Disease-tested potato plants are mass propagated in a sterile environment. The process takes 18 months from start to finish. Growers place orders for seed tubers during the November or December prior to production, which provides the lead time required to propagate the thousands of plants needed the following spring. Requested varieties are obtained either from existing stocks in the clone bank or from similar programs in the U.S. or Canada. If the only source of tissue is a diseased tuber, radical treatments can be used to obtain disease-free stock.

Potato Disease Control



In-vitro stocks, called mother plants, are used to propagate plantlets that will be planted in May. Mother plants are tested for viruses as well as bacterial and fungal contaminants. Once identified as clean, propagation begins in the sterile environment. Test tube plantlets are planted in two gallon pots in the greenhouse each May. Each plantlet can produce 5 or more new plantlets every 30 days.

Irrigation drip tubes are installed in each pot, allowing for automatic watering and fertilizing. The plants are monitored daily for the next 3 months. In mid-August, leaf samples are taken and virus testing is performed. After testing, the potatoes are harvested and placed in storage. Seed growers pick up their orders the following spring and apply for certification after their planting is complete.

Small amounts of the seed provided to growers are retained and field planted at the PMC. These plantings are an additional level of quality control and are monitored during the growing season for disease and for trueness to variety. The harvest from this planting also provides a back up to the tissue culture bank if a problem should arise. The PMC currently has 150 named varieties in the field and tissue culture bank.

Seed Potato Certification

The **Seed Potato Certification** program is designed to provide growers with potato seed stock that is a varietally pure and relatively free from disease causing organisms. State of Alaska Seed Regulation **11 AAC 34.075(J)** requires that all potatoes sold, offered for sale or represented as seed potatoes be certified. Certification is designed to identify and remove from use those seed lots which have become diseased or are otherwise of reduced value for use as seed. These results are achieved by the voluntary compliance of seed growers with certification regulations. The Alaska Seed Growers, Inc. is the delegated authority for seed certification in Alaska.

Growers manage their seed production to limit the possible exposure to diseases, but re-infection can occur from outside influences. Grower produced certified seed potatoes are sold to other seed growers, table stock growers, garden supply retailers and gardeners throughout Alaska. Certified seed has been inspected twice during the growing season and has met low levels of disease tolerances allowed for seed. Certified seed potatoes produced in Alaska are far superior to seed produced outside.



Variety Development

The search for improved varieties is a continuous process. Alaska's farmers are looking for a potato that bulks early, has a high level of disease resistance, requires minimal fertilizing and tastes good. The PMC cooperates with farmers, the University of Alaska and the USDA to look for new varieties and produce pathogen tested seed of new and upcoming varieties for trials.

Commercial growers have shifted from white-skinned to russet-skinned varieties during the last 10 years. Gardeners buy significant quantities of certified seed and often purchase novelty varieties with unique colors, flavors and shapes. Many of these recently introduced varieties are now found in farmers' markets.

There are thousands of potato cultivars in the world. Millions are spent annually on breeding programs in search of better potatoes. Alaskans have planted and observed hundreds of different potato varieties for a century. Some improved varieties make older ones obsolete, though there is still demand for heirloom varieties.

Potato Disease Control

There are many varieties of potato beyond traditional russets, whites, and reds. A veritable cornucopia of shape, size, color, texture and flavor is available. As new and unusual potato varieties are requested and obtained by the PMC, they are tested for diseases, purified and then propagated. Observations are made of horticultural characteristics, plant type, flower color, tuber shape and color, yield and storage characteristics. Novelty potatoes are prized by some Alaskan growers. The PMC maintains these cultivars to provide an in-state source to limit the importation of seed potatoes which could introduce exotic diseases.

Outreach

In addition to the production of the pathogen-tested seed and performing certification inspections, the Potato Disease Control program provides information concerning variety selection, planting, fertility levels, pesticides, irrigation, crop management, harvest systems, bruise management, storage methods, nutrition, true seed production, new variety development and disease control methods to Alaskan potato growers and gardeners.

2013 Activities

Potato Variety Trial

The potato variety trial was planted on June 3rd, 2013. The planting was comprised of 20 feet of row of each of 28 named varieties and 134 advanced selections obtained from the colored flesh breeding project. Approximately 80% of the plants emerged by June 25th. Weed control was accomplished with Matrix at 1oz. per acre rate followed by 1 inch of irrigation after application. Irrigation began June 26th at the rate of 1 inch per week until the rainy season began in late August. Biweekly scouting for pest and disease was conducted and flowering was observed by late July. Wireworm, knotweed, tansy ragwort, shepherds purse, narrow leaf hawksbear and lambs quarters were all observed but their populations were low and no additional eradication was necessary. Potato virus X (PVX) and Rhizoctonia were also noted in late July. Several rows were infected by Early Blight but control efforts were not deemed necessary. Vines were removed 99 days after planting (September 9th) and the field was dug on September 25th. Harvest was difficult due to excessive rain.



Characteristic leaf and stem discoloration arising from Late blight, *Phytophthora infestans*.



Potatoes come in a variety of colors and shapes.



Alaska potato growers are looking for a better russet skinned variety, a better red skinned and yellow flesh variety. Currently, white skinned varieties are performing adequately. Funding for this 4 year project was discontinued when the USDA closed in Alaska. However, during this 4 year trial, 150 lines were selected for continued trials. Ultimately, 16 were selected to forward to the original breeder for evaluation. Several of the final selections are being maintained as tissue cultures at the PMC to provide planting stock for the seed growers continued evaluation.

Invasive Plants & Agricultural Pests

The Invasive Weeds and Agricultural Pest Management Program for the Division of Agriculture is housed at the Plant Materials Center. As outline in **Alaska Statute 03.05.027**, this program coordinates with state and federal agencies, universities, conservation districts, state and land users, public groups and private organizations to develop management programs, provide outreach materials to target audiences and develop and maintain regulations pertaining to invasive plants and agricultural pests. During 2013 this program was actively involved in monitoring, control and outreach activities across Alaska with the goal of educating the public and industry cooperators on how they can participate in management efforts.

In addition to management activities, the coordinator attends local and statewide planning meetings and conferences and participates in strategic planning, field management and invasive species education.

The Division of Agriculture has many tools for use in the prevention, regulation and enforcement of invasive plants including the authority to declare pests, inspect infestation, quarantine and eradicate these pests. Alaska's Plant Health and Quarantine law (**11 AAC 34**) specifies labeling and transporation requirements for any seed sold in the state, as well as prohibited and restricted noxious weed lists.

Prevention is the most critical aspect of a management program. Strong prevention measures such as quaranting and inspection of imported commodities that are common vectors of infestation can be the least expensive way to limit the spread of invasive plants and agricultural pests. The resources and management expenses required to combat established invaders can be considerable.

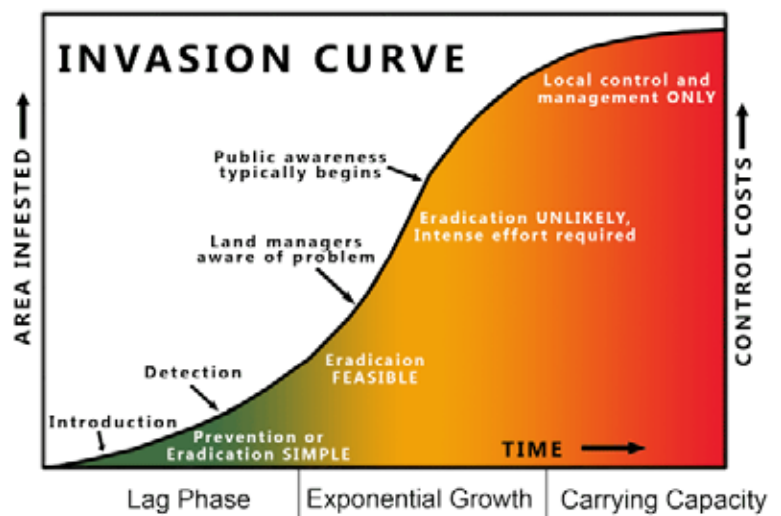
The invasive plant coordinator provided input on database management for the Alaska Exotic Plants Information Clearinghouse (AKEPIC),

<http://aknhp.uaa.alaska.edu/botany/akepic/>, online monitoring system and collaborated on invasive species modeling with UAF Cooperative Extension Service.

The coordinator worked with several organization in 2013 to identify weed control initiatives. Notable projects include continuing the Weed Free Certification program, Canada thistle management in Anchorage, and efforts to manage the freshwater invasive plant Elodea. Coordination with statewide agencies is essential to effectively address invasive plant issues. The Division of Agriculture is continuing efforts to cooperate with the horticulture and agriculture industries.

Ongoing projects include:

- Canada thistle management in the Anchorage and Mat-Su areas
- Invasive freshwater aquatic plants management efforts, focusing on Elodea spp.
- Weed Free Forage and Gravel Certification Programs
- Ongoing coordination and outreach to the horticulture industry



Invasive Plants & Agricultural Pests

Strategic Plan

The invasive plants program at the PMC has developed a strategic plan to address the threat of invasive weeds and agricultural pests to Alaskan agriculture and natural resources.

Strategic Plan for Invasive Plants and Agricultural Pests in Alaska

The strategic plan was developed as a result of meetings of interested persons, and a community survey. Soil and Water Conservation Districts from across the state were involved in the review of the plan, as were the Cooperative Extension Service, state and federal agencies. These collaborative efforts resulted in a plan that addresses the goals of many concerned stakeholders in Alaska.

At the core of the plan are 8 goals. Within each of goal, objectives have been identified, as well as action strategies to accomplish these tasks. Each section of the plan deals with an individual goal.

The invasive weeds and agricultural pest management program is tasked with regular updates to the plan, including the accomplishments of the Division of Agriculture and its partners, as well as any new action strategies.

Having a strategy for invasive weeds and agricultural pest management will help guide natural resource management in Alaska for years to come. The goals and objectives in the plan will serve to support organizations and to inform newcomers about invasive species and agricultural pests here in Alaska.

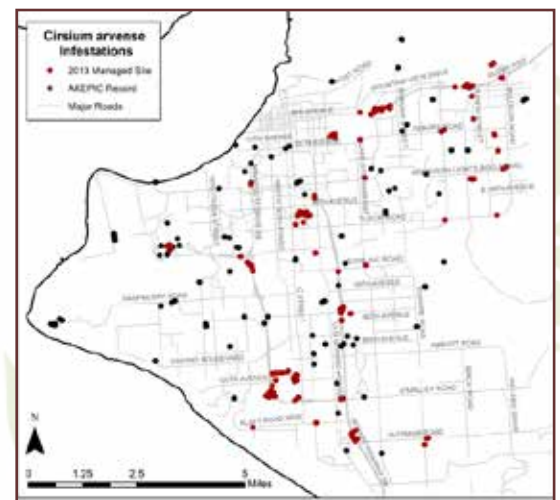
For more information about the *Strategic Plan for Invasive Weed and Agricultural Pest Management in Alaska* visit <http://plants.alaska.gov/invasives/strategic-plan.htm>.

Canada Thistle

Anchorage

2013 Canada Thistle Report

Canada thistle is a noxious invasive weed that threatens wild and agricultural lands in most of North America. In Alaska infestations are mostly limited to Anchorage and some communities in Southeast Alaska. Efforts began in 2010 to contain the Canada thistle infestations in Anchorage and continue to date. In 2013 the Department of Natural Resources (DNR) compiled previous management data to understand the effectiveness of previous mechanical and manual strategies in collaboration with the U.S. Forest Service (USFS). This report can be found at <http://plants.alaska.gov/pdf/Canada-Thistle-Management-Plan-Final.pdf>.



Map depicting known locations of Canada thistle in Anchorage, 2013.

Invasive Plants & Agricultural Pests

The year's objectives were to identify high priority infestations of Canada thistle in the Anchorage's Cooperative Weed Management Area (CWMA) boundaries and to immediately begin control work. Several management practices were completed throughout the Canada thistle growing season including mechanical and manual removal. A total of 47 infestation sites amounting to ~30 acres were surveyed, quantified and managed. Ten of these were newly found infestations amounting to ~0.7 acres. Management began August 12th and ran through early October.

Outreach Efforts

Community education, involvement and reporting are important components to understanding and surveying for invasive noxious weeds. In 2013, approximately 700 rack cards, 200 stickers and 3 Anchorage public transportation bus advertisements were created. This material included descriptive and informative identification for Canada thistle as well as contact information for reported suspected infestations.

Collectively these outreach efforts resulted in positive identification of 3 new Canada thistle infestations.



Kodiak

The PMC worked with the local Kodiak Soil and Water Conservation District (SWCD) to target all known Canada thistle infestations. In Kodiak, 17 infestations have been identified on public and private land. Kodiak SWCD works to educate landowners about best management practices, implements control efforts, and surveys for new infestations. Since 2004, Kodiak SWCD has been able to actively control or eradicate over 15 of the 17 known infestations.

Mat-Su

With roadside infestations in Anchorage, the Mat-Su Valley has been identified as a high-risk area for Canada thistle. Program staff coordinated with Palmer and Wasilla Soil and Water Conservation Districts to survey probable habitat for Canada thistle along roadsides and in new developments. Three new infestations were identified and mechanically managed in 2013 in the Palmer area and future plans for monitoring and continued surveys have been made.

Interior

Canada thistle was found in Steven's Village during a U.S. Fish and Wildlife Service (USFWS) invasive plant survey of burned areas. This site is the farthest north infestation, making it a priority for eradication. Program staff partnered with the Fairbanks SWCD to treat and monitor the newly found infestation. No re-growth of Canada thistle was observed at the site after treatment later in the season but monitoring will continue.

Invasive Plants & Agricultural Pests

Elodea

Elodea, the first submerged freshwater aquatic invasive plant, has been identified in waterways in Anchorage, Fairbanks, Cordova, and the Kenai Peninsula. Elodea is a particularly injurious aquatic perennial plant that has compromised water quality, grown so abundantly that boat traffic is hindered, reduced dissolved oxygen and severely impacted native fisheries in areas outside its native range. Elodea spreads easily through fragmentation, which puts Alaska's unimpacted water bodies at risk for new infestations.

Elodea's non-native distribution in Alaska has prompted ADNR, ADEC and ADF&G to declare elodea as a priority management issue by signing a Memorandum of Understanding (MOU); recognizing its capacity to degrade fish habitat and displace native fauna. In January 2013, the MOU was drafted and signed by the Department's Commissioners and delegated ADNR as leads with the project. On the ground in 2013, staff coordinated with regional Cooperative Weed Management Area organizations to establish a local management strategy, survey high-risk waterbodies, secure permits and provide outreach to target audiences.

Program staff partnered to develop an integrated pest management plan for the Kenai Peninsula infestations with the goal of eradicating Elodea. These efforts have involved public meetings, outreach to landowners and stakeholders, securing funding through partner organizations, and applying for permits. The management action will be implemented in 2014 and will involve herbicide applications to all known infested waterbodies (Beck, Daniels and Stormy Lakes).



Elodea on a paddle demonstrating how this invasive plant can impede recreation and habitat.



Participation in the Pacific Northwest Economic Region Summit

The Pacific Northwest Economic Region (PNWER) Summit meeting has identified and prioritized invasive species as an economic threat to the U.S., provinces and territories. The Invasive Species Council hosted a series of presentations from state and provincial land management agencies and legislative representatives to discuss emerging and ongoing invasive species issues. Program staff presented on the unique challenges facing Alaska's invasive species management and policy efforts at the Summit meeting in July, 2013.

Statewide Coordination

One of the largest roles for the Invasive Plants & Agricultural Pests program is the coordination and statewide support for management efforts. This includes working with state and federal agencies, local organizations, the public, and industry groups to ensure that current policies and regulations are meeting statewide needs, implementing priority management efforts statewide, and building awareness. The program accomplishes this by participating in local Cooperative Weed Management Area planning efforts, sitting on the board of the professional organizations such as the Committee for Noxious and Invasive Plant management (CNIPM), and maintaining a statewide strategic plan.



Invasive Plants & Agricultural Pests

Weed Free Certification Programs

Land managers are increasingly concerned with the spread of selected highly invasive weeds to new areas such as natural areas, rivers and wetlands. Work is being done to address the introduction and spread of invasive weeds to these high-value areas through construction practices, seeding specifications and weed free products.

The Division of Agriculture has certification programs for both forage and gravel materials, offering producers and gravel pit managers the opportunity to have their products certified weed free during the growing season. Each program is based on national standards and is adapted for Alaska.

 Alaska Department of Natural Resources
Division of Agriculture

Weed Free Forage and Gravel Inspector Certification Training
for anyone interested in becoming an inspector or
wants to learn more about the Weed Free Certification Programs

at the
Alaska Plant Materials Center
5310 S. Bodenburg Spur, Palmer, AK 99645
(907) 745-4469

on
Wednesday, May 14th
9am-4pm

Training is free of charge, but pre-registration is required. Please follow this link
to register for the class: <https://www.surveymonkey.com/s/WeedFreeCertification>

- Bring a lunch or plan on chipping in to order a pizza!
- Afternoon session will include a demonstration field inspection so come with appropriate attire
- Training will be available by Webinar, though we recommend in-person attendance for any first-time inspectors

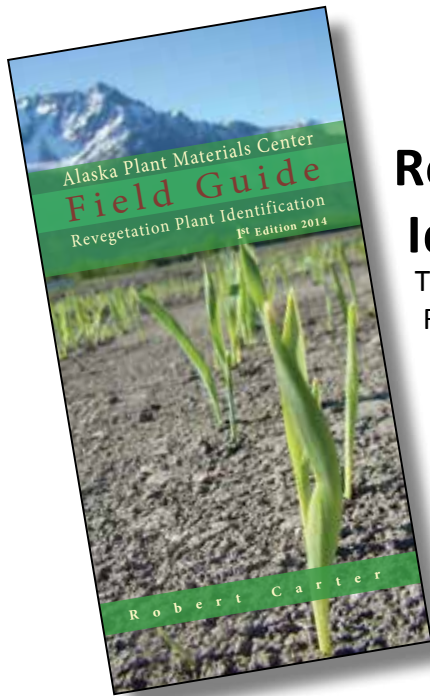
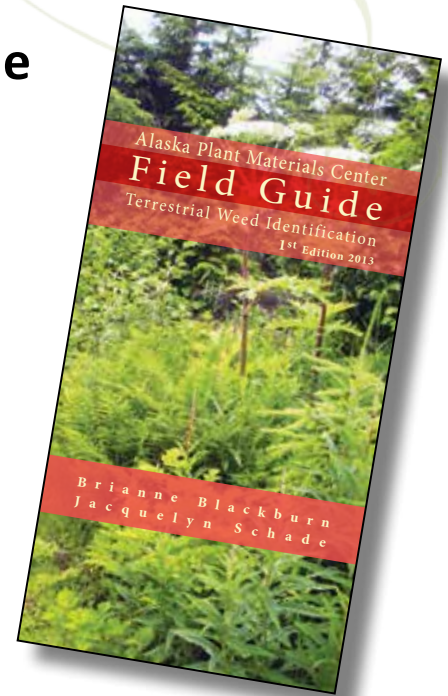
  

(Co-hosted by the Division of Agriculture
and UAF Cooperative Extension Service)

Publications by PMC Authors

Terrestrial Weed Identification Field Guide 1st edition

The Alaska Plant Materials released the first edition of the Terrestrial Weed Identification Field Guide during 2013. The purpose of this publication is to help the community and professionals identify weeds whose presence does, or is likely to, cause harm to the economy, environment or human health. This publication is 106 pages total and is available on request through the Plant Materials Center or online at <http://plants.alaska.gov/pdf/TerrestrialWeedIdentificationGuide.pdf> . This publication was created by Brianne Blackburn and Jacquelyn Schade and edited by PMC staff.



Revegetation Plant Identification Field Guide 1st edition

The Alaska Plant Materials also released the first draft edition of the Revegetation Plant Identification Field Guide during 2013. The purpose of this publication is to help the community and professionals identify plants that are useful in revegetation and reclamation projects. This publication is 94 pages total and is available on request through the Plant Materials Center or online at <http://plants.alaska.gov/pdf/RevegetationFieldGuide.pdf>. A final edited first edition was later released in 2014. This publication was created by Robert Carter and edited by PMC staff.

Potato Variety Trial Project Report

In 2013 the Alaska Plant Materials released the Potato Variety Trial Project Report. The purpose of this project was to provide information, participation in evaluation trials and ultimately provide planting stock for the seed growers. This publication is 3 pages total and is available on request through the Plant Materials Center or online at http://plants.alaska.gov/PotatoVarietyReport_2013.pdf. This publication was created William Campbell.

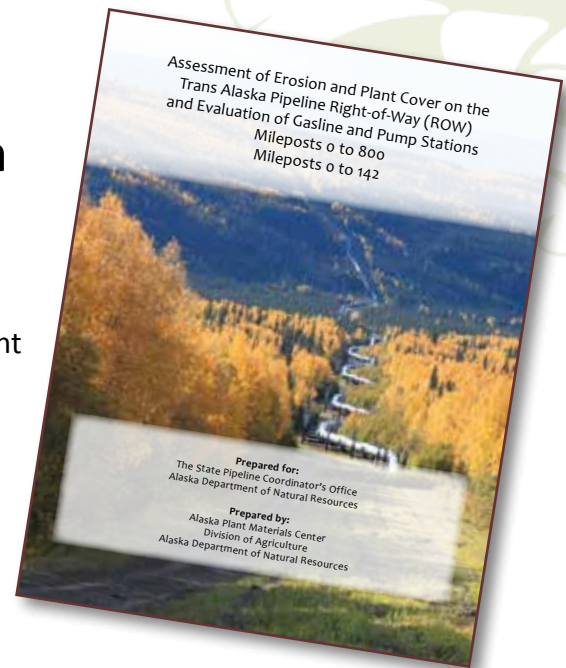


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Publications by PMC Authors

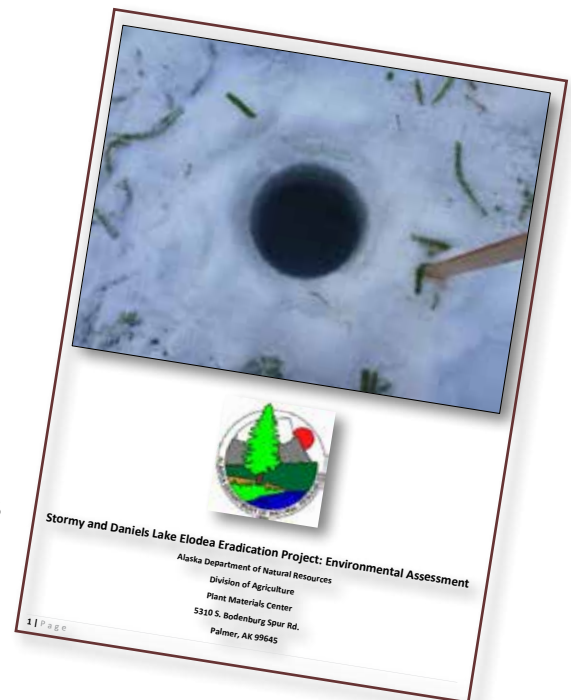
Assessment of Erosion and Plant Cover on the Trans Alaska Pipeline Right-of-Way (ROW) and Evaluation of Gasline and Pump Stations

The TAPS owners prepared the documents for the BLM and for the ADNR as part of the Grant and Lease process. Following construction they were required to submit the final ROW alignment for purposes of the annual ROW assessment. The purpose of this report is to provide an overview of the current condition of the Trans Alaska Pipeline Right-of-Way (ROW) work pad. Included with this survey is an evaluation of the existing gas pipeline and pump stations. This report is an update to the previous survey conducted between September of 1991 and June of 1992. This report was compiled by multiple PMC staff and totals 947 pages and is available on request through the Plant Materials Center or online at <http://plants.alaska.gov/pdf/2013TAPSGasline.pdf>.



Stormy and Daniels Lake Elodea Eradication Project: 2013 Environmental Assessment

Stormy Lake is a 403 surface-acre natural lake located 8.5 miles northeast of Nikiski, and is surrounded by lands managed by the Alaska Department of Natural Resources (ADNR) and the Kenai National Wildlife Refuge (KNWR). Daniels Lake is a 621 surface-acre natural lake and is located 2 miles northeast of Nikiski and is surrounded entirely by private land. ADNR has developed an Environmental Assessment (EA) that proposes eradicating the invasive aquatic plant elodea using pesticides outlined in this report. This report was compiled by Brianne Blackburn and totals 129 pages. It is available on request through the Plant Materials Center or online at <http://plants.alaska.gov/pdf/2013EASTorMyDanielsLakeElodeaEradication.pdf>. A supplemental EA will be comprised in 2014.



Numerous other outreach materials created by PMC Publications Staff are available on request or by visiting <http://plants.alaska.gov/PMCPubsIndex.html> and searching for 2013.

Staff Presentations

Blackburn, Brianne

Dealing with Invasive Weeds in the Mat-Su February, 2013. Presented to: Wasilla Conservation Series, 20 members of the public and Mat-Su College students. Wasilla, AK.

Elodea: Alaska's First Freshwater Aquatic Plant March, 2013. Presented to: Western Aquatic Plant Management Society Annual Meeting, Western state aquatic plant management experts and industry representatives. Coeur d' Alene, ID.

Invasive Plant Best Management Practices and Weed Free Programs March, 2013. Presented to: Alaska Department of Transportation Environmental Expo, DOT's central region environmental engineers and construction managers. Anchorage, AK.

Elodea in Alaska April, 2013. Presented to: Kenai Cooperative Weed Management Area Annual Workshop, U.S. Forest Service, Bureau of Land Management, ADF&G, agricultural producers and the public. Homer, AK.

Wasilla Soil & Water Conservation District Staff Training May, 2013. Presented to: Wasilla SWCD Manager and field staff. Wasilla, AK.

Blackburn, Brianne and Heather Stewart

Canada Thistle Management Strategy June, 2013. Presented to: Concord Hills Homeowners Association Board. Anchorage, AK.

Weed Challenges in Alaska present at the Invasive Species Session of The Pacific Northwest Economical Region (PNWER) Annual Summit July, 2013. Presented to: Pacific Northwest region legislators and agency land management representatives including Alaska representatives from UAA's Natural Heritage Program, UAF Cooperative Extension Service, ADF&G, USFWS and USFS. Anchorage, AK.

Alaska Division of Agriculture Regulations Update; Poster Presentation on Canada Thistle Management, Alaska Invasive Species Conference November 2013. Presented to: Representatives from UAF, Cooperative Extension, BLM, USFS, ADF&G, USFWS, Alaska Association of Conservation Districts, and others. Fairbanks, AK.

Sand Lake Elodea Public Meeting December, 2013. Presented to: DNR, DEC, ADF&G, Anchorage SWCD, homeowners and general public. Anchorage, AK.

Staff Presentations

Hunt, Peggy

Ethnobotany and Native Plants 2013. Presented to: Alaska Botanical Society, Alaska Native Plant Society, Anchorage Master Gardeners, and attendees at the Alaska Plants as Food and Medicine Symposium. Girdwood, AK.

Outdoor Edibles 2013. Presented to: Anchorage Museum, general public. Anchorage, AK.

Steinalge, Todd

Endophytes in Alaska May, 2013. Presented to: NRCS Spring Technical Committee Meeting. Palmer, AK.

PMC Staff

Mat-Su Outdoorsman Show March, 2013. Presented to general public. Wasilla, AK.

