

2011-2012



# CONSOLIDATED ANNUAL REPORT



# ALASKA

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PLANT MATERIALS CENTER

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

# 2011 - 2012

## CONSOLIDATED ANNUAL REPORT

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In 1972 the Northern Latitude Plant Materials Center (PMC) was established within the Alaska Department of Natural Resources, Division of Agriculture. The PMC's mission is to **develop and transfer state-of-the-art plant science technology to support the Alaskan agriculture industry**. The PMC continues to adapt and expand to serve Alaska's agricultural needs. Newer programs such as the Invasive Weeds and Agricultural Pests Program, the Ethnobotany Teaching Garden, Soil Analysis Lab and Plant Pathology Lab complement existing programs.

Major areas of focus for the PMC are developing adapted plant varieties, technical reclamation assistance, and techniques for revegetation and erosion control. The PMC uses 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), US. Bureau of Land Management (BLM) and U.S. Forest Service (USFS).

## PMC Projects & Programs      Services offered by the PMC

- Revegetation and Erosion Control Assistance
- Foundation Seed Sales
- Seed Cleaning and Conditioning
- Diagnosis and Management of Plant Pathogens
- Quantitative Seed Analysis
- Seed Potato Certification, Sales & Disease Control
- Invasive Plant and Agricultural Pest Program
- Rural Village Seed Production Project
- Soil Testing and Analysis
- The Ethnobotany Teaching Garden
- Educational Program / PMC Facilities
- Forage Trials and Evaluations





## **Alaska Plant Materials Center Consolidated Annual Report 2011-2012**

The Alaska Plant Materials Center is a unique asset to Alaska farmers. The PMC provides foundation seed, seed cleaning and conditioning services, and is a source of native plants to Alaska's producers. The PMC has the only certified seed testing laboratory in the state, and is expanding its soil and pathology analysis capabilities.

The PMC conducts research into revegetation and erosion control. In 2012, the Plant Materials Center released two publications: the Interior Alaska Revegetation & Erosion Control Guide and the Alaska Forage Manual. The Invasive Plants and Agricultural Pest Program saw significant changes as well: Brianne Blackburn took over as the Invasive Plant Coordinator and is currently reviewing Alaska's Seed regulations. The Soil Testing and Analysis lab continued to expand in 2011 and 2012, and is currently involved in a nutrient study of Alaskan forage crops.

The PMC created a Plant Pathology Laboratory which focuses on the diagnosis and management of plant pathogens, as well as investigations into fungal endophytes in native and cultivated grasses. The PMC has also expanded its Horticulture Program considerably, and is currently conducting growth trials for food crops such as garlic. The Horticulture Program provides a vital service to Alaska growers, developing and maintaining adapted varieties of ornamentals such as peony. This program will support smaller-scale growers and gardeners in the state.

The Rural Village Seed Production Program continues to support native plant production in rural Alaska. Participating rural communities had cleared plots of land and planted revegetation crops in 2012, and some had started harvesting in 2012. The funding for this project continues through 2013.

The Plant Materials Center plays a vital role in supporting Alaskan agriculture. This report contains details about specific PMC programs and accomplishments for 2011 and 2012.

Sincerely,

A handwritten signature in blue ink that reads "Franci Havemeister".

Franci Havemeister  
Director

# Foundation Seed Program

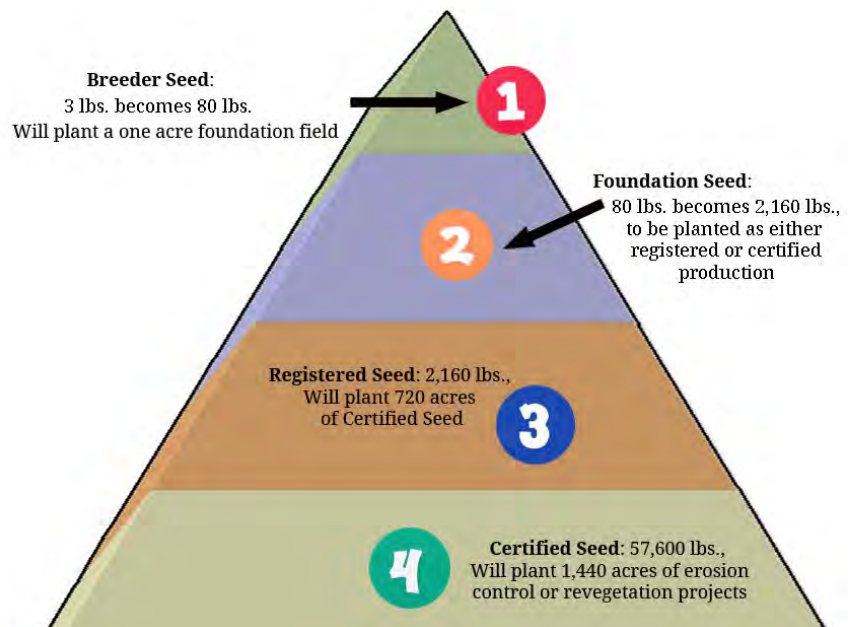
The Plant Materials Center's mission is to make high-quality seed available to growers; seed that is well-suited to Alaska's climate and soils and that will produce economic benefits for the growers. The foundation seed program provides seed to producers for cultivar seed production. Certification verifies that plants have been handled in such a way as to meet 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, so as 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.



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



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

In 2011 and 2012, seed from the Alaska Plant Materials Center was distributed to several organizations for research, field trials, and education purposes.

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



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

# Foundation Seed Program

## 2011 Harvest

During the 2011 season, the PMC harvested, cultivated, rogued, and planted 43 different crops of grasses, forbs, and grains on the production fields at the PMC. The PMC's flagship Wintersteiger combine continues to perform admirably, bringing seed cleaning features to the field. The 2011 crop harvest included:

- **Ninilchik** Nootka alkaligrass
- **Cantwell** Downy wildrye
- **Solomon** Thickspike wheatgrass
- **Nelchina** Spike trisetum
- **Kotzebue** Arctic wild chamomile
- **'Arctared'** Red fescue
- **Henderson Ridge** Red fescue
- **'Sourdough'** Bluejoint reedgrass

The summer season started with cultivation of land and planting three different grasses (**Norcoast**, **Arctared**, and **Alyeska**) in twenty-four 100 ft. long rows each.



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

Production fields of **'Caiggluk'** Tilesii's wormwood, **'Norcoast'** Bering tufted hairgrass, **'Alyeska'** Wideleaf polargrass, **'Arctared'** Red fescue, **'Gruening'** Alpine bluegrass, and **Lowell Point** Meadow barley were planted. Fields of **Ninilchik**, **Council**, **Wainwright**, **Andrew Bay**, and **'Nugget'** planted in 2011 produced seed this year. A field of **'Bebral'** Rye was also planted.

**Kobuk** Dwarf fireweed, **Norton Sound** Alpine milkvetch, **Franklin Bluffs** Nodding locoweed, and **Black Rapids** Field locoweed were planted into increase boxes. Seedlings of **Lowell Point** Meadow barley and **'Gruening'** Alpine bluegrass were planted in the fields in late August. **'Caiggluk'** Tilesius' wormwood was planted from seed during the first week of August.

## 2012 Harvest

The 2012 crop harvest included the following species:

- **Nugget** Alpine bluegrass
- **Cantwell** Downy wildrye
- **Solomon** Thickspike wheatgrass
- **Nelchina** Spike trisetum
- **Kotzebue** Arctic wild chamomile
- **'Arctared'** Red fescue
- **Henderson Ridge** Red fescue
- **'Sourdough'** Bluejoint reedgrass

Two farms in North Pole asked for their seedling fields to be inspected for potential certification of seed. Two fields of **'Gruening'** Alpine Bluegrass, one field of **'Egan'** sloughgrass and two fields of **Kotzebue** Arctic Wild Chamomile were inspected and pre-certified, pending final seed cleaning results.

# 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 at 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 comprehensive directory of all 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 access to the directory can quickly determine where to acquire native plant seed and plant material.

The Directory of Alaska Native Plant Sources was redesigned in 2011 to facilitate easy interaction between growers and the PMC. The Native Plant Source Directory is linked at [plants.alaska.gov](http://plants.alaska.gov).

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

- Grass seed;
- Wildflower seed and plants;
- Alaska trees and shrubs; and
- Revegetation resources.

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.

The screenshot shows the website for the Alaska Department of Natural Resources, Division of Agriculture. The main heading is "Directory of Alaska Native Plant Sources: Seventh Edition". On the left is a navigation menu with items like Home, Revegetation & Erosion Control, Seed Cleaning Services, Seed Testing & Analysis, Native Plant Source Directory, Invasive Species Control, Potato Disease Control, Rural Village Seed Production, Soil Testing & Analysis, and Publications. The main content area includes "About the Directory of Native Plant Sources" with a disclaimer, a list of "Activities" (Grass Seed, Wildflower Seed and Plants, Alaska Trees and Shrubs, Revegetation Resources, Add a grower to this directory), and contact information for the Alaska Plant Materials Center.

### Grass Seed

#### Alaska Seed Growers Association

**Contact:** Pat Mulligan  
**Address:** P.O. Box 2029, Palmer, AK 99645  
**Phone:** (907) 745-4004

**Products:** Grass seed for all purposes

#### Davies Farms

**Contact:** Stuart & Robyn Davies  
**Address:** P.O. Box 55266, North Pole, AK 99705  
**Phone:** (907) 322-8382  
**Email:** [farmerstudavies@hotmail.com](mailto:farmerstudavies@hotmail.com)

**Products:** Alaska Native Grass Seed, Turf, Small quantities of hull-less *thual* barley

#### Granite Mountain Farms

**Contact:** Michael Purviance  
**Address:** P.O. Box 1656, Delta Junction, AK 99737  
**Phone:** (907) 378-4526  
**Email:** [purviancemc@alaska.net](mailto:purviancemc@alaska.net)

**Products:** Grass Seed for Forage and Turf, Wildflower Seed



# Commercial Development of Native Plants

## Mat-Su Riparian Revegetation & Seed Increase

The PMC began work in 2010 on the Mat-Su Riparian Revegetation Project. The U.S. Fish and Wildlife Service (USFWS) is working on replacing culverts on creeks in the Mat-Su Borough, with the goal of improving salmon habitat. The PMC will support this four-year project by providing native plant material to revegetate disturbances when culverts are replaced.

In the 2010, PMC staff collected seed material from several locations in the Matanuska and Susitna valleys. Dormant whips of willow (*Salix lasiandra*, *Salix alaxensis*) and cottonwood (*Populus balsamifera*) were harvested and planted in an outdoor fenced area to provide a source of future cuttings for stream bank revegetation. Merten's sedge (*Carex mertensii*) and Goat's beard (*Aruncus dioicus*), as well as dormant cuttings of Red elderberry (*Sambucus racemosa*) and Red Osier dogwood (*Cornus stolonifera*) were collected.

Raised outdoor planting boxes were installed to support the Mat-Su riparian revegetation project in 2010. The new boxes were used in 2011 for seed increases. Plant plugs grown in the greenhouse in the spring were transplanted into the planting boxes in the summer of 2011. The seeds collected through this project continue to be maintained in the germplasm repository.



The box propagation garden at the PMC was used for the Mat-Su Riparian Revegetation and Seed Increase project

### 2012 Activities

#### Wild Seed Collections

PMC staff collected wild seed collection from Lazy Mountain in mid August. Seed from wild stands of *Lupinus nootkatensis*, *Aquilegia formosa*, and *Carex mertensii* were collected. A stand of tall fireweed, *Chamerion angustifolium* was found at a site on Palmer Fishhook Rd. Seed was collected and cleaned.

Amount of seed after cleaning	
<i>Lupinus nootkatensis</i>	648 g
<i>Aquilegia formosa</i>	20 g
<i>Carex mertensii</i>	37 g
<i>Chamerion angustifolium</i>	61 g

Staff collected seed of *Bromus Sitchensis* from Southeast Alaska in 2012. Seeds will be grown in the PMC fields for evaluation and increase. This species is being considered for use in future revegetation projects.

# Seed Cleaning and Conditioning

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

There are two main seed processing facilities at the PMC: a **seed house** that processes lots of seed over 100 lbs, and a **small seed lot**. Both facilities operate primarily in the winter months when the field activities are completed. Typically, more than one machine will be necessary to completely condition a given seed lot to maximum purity and germination. Commercial seed cleaning is priced at an hourly rate, currently \$42.

Seed can be separated by physical characteristics 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. The handler chooses which equipment to use first based on the characteristics of unwanted material and condition of the seed.

The seed cleaning 'season' is concentrated in the winter months when field activities have slowed down. As seasons extend across calendar years, figures reported below are correlated with the harvest year.

- **2011 Cleaning Season** (October 2010 - August 2011):
  - 65,571 lbs of cleaned seed (pre-clean weight: 94,610 lbs)
- **2012 Cleaning Season** (October 2011 - March 2013):
  - 22,400 lbs seed processed (pre-clean weight > 100,000 lbs)

The PMC has 64 harvested lots yet to be processed for the 2012 season in the small seed lot cleaning facility, of 141 bulk bags total of seed to process in the larger facility.



*Pure Beach Wildrye (Leymus mollis) seed*

With the 2011 closure of USDA, Agricultural Research Service in Alaska, the PMC came into possession of the seed and clonal germplasm left behind. Inventory and storage of this material began in December, 2011.

In 2012, staff investigated databases and software options available for tracking inventory and recording the seed cleaning and conditioning activities. Inventory management software alternatives are being considered for implementation in 2013.

'How-to' guides and historical cleaning records of the small lot cleaning facility have been digitized , printed and bound for easier more efficient setup and cleaning within the small lot facility.

# Foundation Seed Sales

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

## 2011 Seed Sales

Two seed sales were held in 2011.

**Spring Seed Sale:** ran from April 7<sup>th</sup> – 22<sup>nd</sup>. Thirty lots of 11 different forbs (Selected Class) were available, along with twenty-two lots of 13 different grains. Fifty-five lots of 19 different “Foundation” and “Selected Class Release” grasses were offered as well. A total of 2,826 lbs. of grains, 284.10 lbs. of grasses, and 3,836.1 grams of forbs were sold to 13 farmers.



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Alaska Department of Natural Resources  
**Division of Agriculture**  
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**Annual Seed Sale of Native Alaskan Grass, Forbs, and Foundation Grains**

**Forbs Offered for Sale**

Forbs offered for sale:

Scientific Name	Common Name	Release Name	Lot #	Test Date	% Purity	% Germ.	Grams Available	Unit	Price per gram	Adjusted Price / gram	Order Quantity	Order Cost
<i>Achillea millefolium boreale</i>	Boreal Yarrow	Twenty Mile	04PMC13	11/12/2008	70.75	88	4072.38	g	\$0.44	\$0.27		\$0.00
<i>Achillea millefolium boreale</i>	Boreal Yarrow	Twenty Mile	03PMC21	4/4/2011	91.66	92	5528	g	\$0.44	\$0.33		\$0.00
<i>Artemisia stelleriana</i>	Dusty Miller	Shemya	06PMC123	3/18/2010	99.93	88	108	g	\$0.44	\$0.39		\$0.00
<i>Artemisia stelleriana</i>	Dusty Miller	Shemya	06PMC123	3/18/2010	99.93	88	57.88	g	\$0.44	\$0.39		\$0.00
<i>Artemisia stasi</i>	Tiass's Wormwood/Strikweed	'Caagluk'	06PMC128	5/6/2011	99.44	83	5361.4	g	\$0.44	\$0.38		\$0.00
<i>Artemisia stasi</i>	Tiass's Wormwood/Strikweed	'Caagluk'	07PMC109	5/6/2011	92.1	96	13756.2	g	\$0.44	\$0.40		\$0.00
<i>Artemisia stasi</i>	Tiass's Wormwood/Strikweed	'Caagluk'	06PMC118	8/23/2010	93.88	88	31	g	\$0.44	\$0.36		\$0.00
<i>Artemisia stasi</i>	Tiass's Wormwood/Strikweed	'Caagluk'	06PMC107	3/22/2011	91.79	67	4961	g	\$0.44	\$0.27		\$0.00
<i>Potentilla fruticulosa</i>	Staghorn Cinquefoil	Meentasa	09PMC100	12/7/2009	95.38	70	17600	g	\$0.84	\$0.29		\$0.00
<i>Potentilla fruticulosa</i>	Staghorn Cinquefoil	Meentasa	09PMC101	1/11/2010	99.83	93	4390	g	\$0.84	\$0.41	16	\$6.56
<i>Potentilla fruticulosa</i>	Staghorn Cinquefoil	Meentasa	10PMC102	1/6/2011	99.33	89	4676	g	\$0.84	\$0.26		\$0.00

An online order form boosted seed orders in the fall 2011 seed sale

**Fall Seed Sale:** held from September 9<sup>th</sup> to 30<sup>th</sup>. Thirty-nine lots of forbs, sixty lots of grasses, and nine lots of grain were available for purchase. The sale was promoted in Division of Agriculture newsletter, and an improved on-line ordering system was implemented. The PMC received many more requests for forbs (flowering non-grass plants) during the fall sale.

## 2012 Seed Sales

Many species of Grains, Grasses and Forbs were offered for sale in 2012.

**Spring Seed Sale:** Sixteen pounds of grass seed to four growers. The varieties sold were ‘Gruening’ Alpine Bluegrass, Niniilchik Nootka Alkaligrass, ‘Nugget’ Kentucky Bluegrass and ‘Sourdough’ Bluejoint Reedgrass. Two growers purchased 1450 lbs of ‘Thual’, ‘Lidal’ and ‘Datal’ Barley. 900 lbs of ‘Ingal’ and ‘Nogal’ Wheat was sold to two growers. One grower also purchased 200 lbs of ‘Nip’ and ‘Toral’ Oats.

**Fall Seed Sale:** Staff inventoried, evaluated, priced, announced, listed, and advertised online twenty “Foundation” and “Selected Class Release” (39 lots) of grasses; eight cultivars of grain; and eight “Foundation” and “Selected Class Release” (13 lots) of forbs. These were on sale from September 10 – 21. Fall seed sales do not usually sell much seed. This fall was true to form, with only one order, for one pound of Iris seed.



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 follows activities where the vegetative cover has been destroyed or damaged, and the soil has been mixed or removed to leave 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. Using native plant material, disturbed sites can be brought back to a condition as close as possible to what was there before the disturbance.

## 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 also cause sediment loading of stream channels, which can negatively impact on fisheries and plant ecosystems. Construction, urban development and climate changes are just a few of the many causes of erosion.

The PMC provides technical advice and project assistance on erosion control issues. Being aware of potential areas of erosion, as well as applicable federal and state regulations can reduce future problems and facilitate successful projects. The PMC only directly deals with erosion control issues *not* 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 in size. SWPPPs are based on best management practices, and are required for certain construction activities. The PMC can assist in preparing the vegetation component of a SWPPP. Three members of the Plant Materials Center staff have received certification as Alaska Certified Erosion and Sediment Control Leads (AK-CESCL).

## Revegetation Projects

### Kanuti Pit

The PMC, in cooperation with the Alaska Department of Transportation (DOT&PF), has overseen the implementation and monitoring of the revegetation of the Kanuti gravel pit (material site 65-9-031-2) located at Milepost 105 of the Dalton Highway. Planted species have become established, and natural re-invasion of native non-seeded species is occurring. PMC Staff photographed the site in 2011 and again in 2012. All species appeared to be performing well.



*Seeded grass performance at Kanuti Pit, August 2011*



*Kanuti Pit materials site, August 2012*

# Revegetation & Erosion Control

## Alaska Coastal Revegetation & Erosion Control Guide

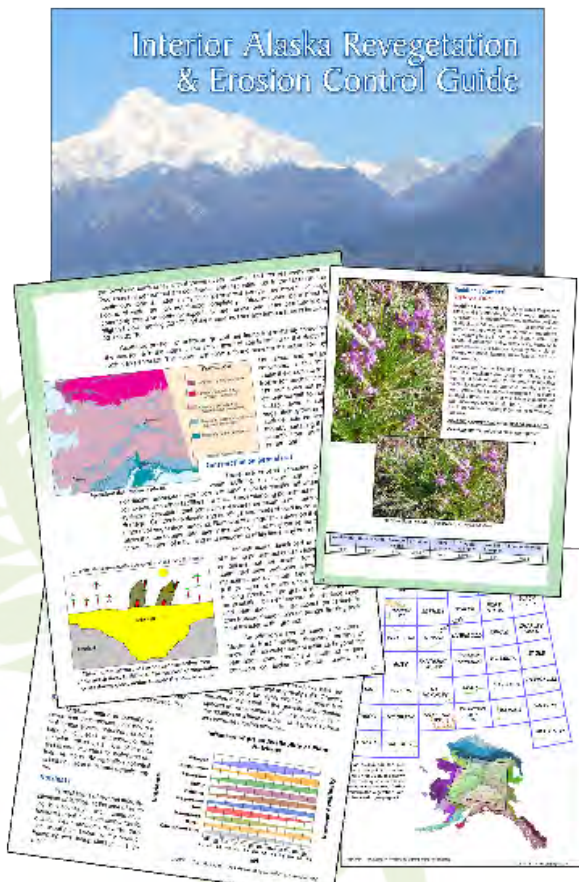


The Alaska Coastal Revegetation and Erosion Control Guide is an information resource created to assist professionals involved in construction or cleanup activities in coastal areas of Alaska. The authors are Stoney Wright and Phil Czapl of the Alaska Plant Materials Center. The publication was originally published in 2010. A second edition was printed in 2011.

This publication contains species suggestions, descriptions of vegetation communities, and detailed case studies for each region of Alaska. It features a step-by-step guide to planning a revegetation project. The guide includes plant profiles and case studies for each region of Alaska, creating a reference that is easy to navigate.

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 & 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 [plants.alaska.gov](http://plants.alaska.gov).

## Interior Alaska Revegetation & Erosion Control Guide



In 2012, the PMC published the Interior Alaska Revegetation and Erosion Control Guide, covering plants and projects relevant to interior Alaska. The document will serve to assist the public with revegetation and erosion projects in Alaska's Interior. Major geographic regions considered include:

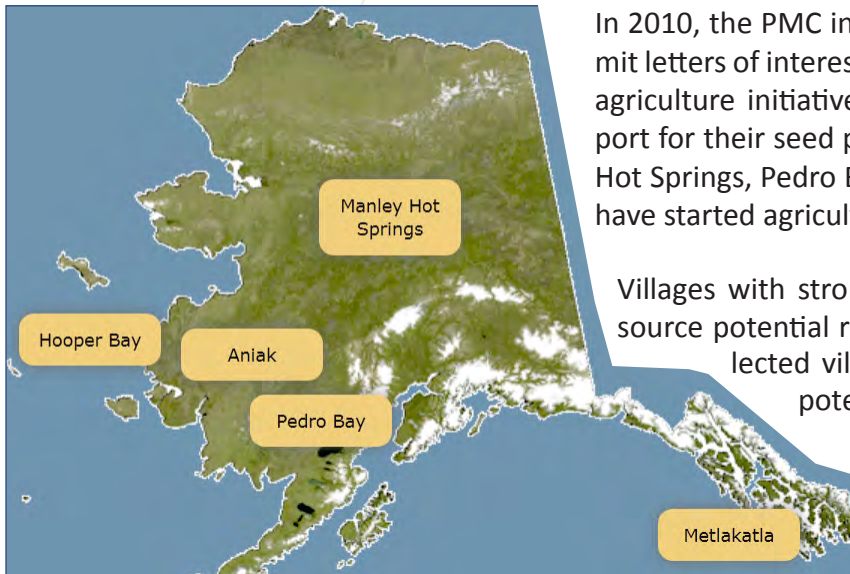
- Alaska and Brooks Ranges
- Minto and Yukon Flats
- Tanana and Copper River Valleys

One major impact to the natural environment covered in this book is Wildfire. Other topics covered including project planning and techniques for dealing with permafrost, wetlands, and mining sites. Case studies highlights 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 & 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 [plants.alaska.gov](http://plants.alaska.gov).

# Rural Village Seed Production Project

The purpose of the Rural Village Seed Production Project (RVSP) is to stimulate the development of Agricultural businesses in Alaska by working directly with rural communities to produce sustainable revegetation crops. The American Recovery and Reinvestment Act of 2009 provided \$2.24 million in funding for this project, through the USDA Forest Service. The grant is intended to increase village income through natural resource development, business growth job opportunities and low-tech business operations tailored for rural Alaska. The PMC provides resources and training; helping rural Alaskans to develop successful native seed production programs.



The RVSP agricultural programs are distributed across Alaska. Find this map online on the RVSP section of [plants.alaska.gov](http://plants.alaska.gov)

In 2010, the PMC invited rural communities across Alaska to submit letters of interest in this unique program. In 2011, five of these agriculture initiatives were chosen to receive grant-funded support for their seed production efforts. Aniak, Hooper Bay, Manley Hot Springs, Pedro Bay and Metlakatla, shown on the map at left, have started agricultural development activities.

Villages with strong community support and natural plant resource potential receive assistance from the PMC. The five selected villages had local plant resources identified for potential increase and harvest. Community profiles were prepared for each village.

In the first phase of the RVSP, training and equipment requirements for each village were determined. PMC staff continue working with communities to help establish and coordinate seed production, purchase equipment, prepare planting sites, and develop seed purchase agreements. PMC staff provided soil analysis for some potential sites in 2011.

Training occurs in villages and at the PMC facility in Palmer. Participants receive instruction on harvesting procedures, seed cleaning techniques, equipment operation and maintenance, pest management, noxious weed identification, and seed storage procedures. Hands-on training at the PMC continued in 2011, demonstrating proper equipment usage, crop management, and seed processing techniques. The final phase of the project is represented by sustainable seed production operations in villages.

Participating communities are building an industry that provides the agricultural materials needed to rehabilitate disturbed lands such as gravel pits, mines and airports. The RVSP's goal of establishing sustainable jobs for rural Alaskans, while promoting sound natural resource use, is compatible with the mission of the Alaska Division of Agriculture: to encourage agricultural development in Alaska. Planting, production, harvesting, and seed cleaning are supervised and monitored by the PMC for the duration of the project. Communities are preparing to make the transition to full self-support in 2013.

Villages across Alaska were visited during the summer seasons to evaluate progress and train local participants to use farm and seed cleaning equipment.



Seedlings were grown into plugs at PMC greenhouses, and planted at RVSP participant communities.

# Rural Village Seed Production Project

Village achievements for 2011 and 2012 are listed below.

## Aniak

Located on the south bank of the Kuskokwim River, Aniak has a previously established farm that they want to refurbish for this project. They have several acres available to use. So far Aniak has:

- Constructed drying boxes for their wild harvested seeds
- Ordered equipment and supplies
- Participated in invasive weed training at the PMC.
- Prepared two previous farm plots for production in Summer 2013.
- Harvested *Calamagrostis canadensis* and *Chamerion angustifolium* in Summer, 2012.
- During the 2012 Aniak Fair, community hosted a Youth Scavenger Hunt for native and invasive plants.



## Hooper Bay

Hooper Bay is located on the Bering Sea coast of Southwestern Alaska, in the Yukon Delta National Wildlife Refuge. *Leymus mollis* is the primary species that this community will harvest. Hooper Bay is surrounded by sand dunes populated with this native species.



- Areas for wild harvested have been identified and staked
- The community purchased supplies and equipment and made preliminary harvest Summer 2012.
- Made a preliminary harvest in Summer 2012, is cleaning and storing seed.
- The RVSP team is helping the community to identify other species with good potential for wetland revegetation.

## Manley Hot Springs

Located in interior Alaska at the end of the Eliot Highway, this community has the advantage of being on the road system.

- Two sites have been chosen and cleared in Summer 2012 for planting; 5 acres in the flood plain and an acre on a bluff.
- Species of interest have been started as plugs in the PMC greenhouse, including *Calamagrostis canadensis*, *Artemisia tilesii*, and *Iris setosa*. Planting will occur in spring of 2013.



# Rural Village Seed Production Project

## Metlakatla

The southeast Alaska community of Metlakatla is situated on Annette Island, near Ketchikan. The village has had past experience with native seed production, and were quick to adopt the project concept and gain community support.

- First Community to join RVSP.
- Cleared 2 acres of land for field production in 2011
- Planted *Calamagrostis canadensis* and *Deschampsia beringensis* in Summer 2012
- Harvest and onsite cleaning of 2012 seeds
- Developing two other plots for lupine, beach wild rye, and potentially *Carex* species
- Started community composting program.



## Pedro Bay

Pedro Bay is located on the Alaska Peninsula. The project is sponsored by the Pedro Bay Corporation. The project will be purchasing equipment necessary to clean harvested seeds on site. So far, Pedro Bay has:

- Cleared 3 acres of land in 2011.
- Planted *Calamagrostis canadensis*, *Achillea millefolium* and *Polemonium caeruleum* - Summer 2012
- Built seed cleaning and storage building on site
- Conducted wild harvest of *Chamerion angustifolium* and *Leymus mollis*
- Purchased most of the necessary equipment for soil preparation and planting



## Noatak

The village of Noatak is located in Northwest Alaska, along the banks of the Noatak River. It is in very close proximity to the Red Dog Mine. PMC Staff began working with the Village of Noatak in 2012, to get them up and running with the Rural Village Seed Production Project. The village has a great working relationship with the Red Dog Mine, which represents a known market for wild harvested sedges, forbs, and grass species.



# Horticulture Trials

The horticulture program at the Plant Materials Center was established in 2012 to assist in the production of agricultural and ornamental crops in Alaska. Horticulture is the science and business of cultivating fruits, vegetables, flowers or ornamental crops. The research conducted at the PMC will help to determine the best techniques and practices in growing cultivars and varieties that perform well in Southcentral Alaska and other areas within the state.

## Garlic Winter-Hardiness Trials

PMC staff planted several varieties of garlic in the fall of 2012, to gauge their ability to over-winter in southcentral Alaska. Six types of garlic were planted, including two different varieties of each type. Results of this field trial will be used to determine which varieties survive winters in Southcentral Alaska and still produce quality heads or bulbs. Data will be collected throughout the 2013 growing season and the crop will be harvested at the end of the growing season. The heads will then be cured and measured for quality and size. The best varieties will be saved for seed garlic to be used in future trials.



## Future Projects

The upcoming growing season will be a busy time for the horticulture program. The main focus will be preparing the soils for future field trials and the permanent collections. The PMC has a vast collection of perennial plants that will be used in field trials and placed on display, ranging from currants to peonies. During the next couple of years, the PMC will also acquire new specimens to add to its current collections.

## Onion Trials

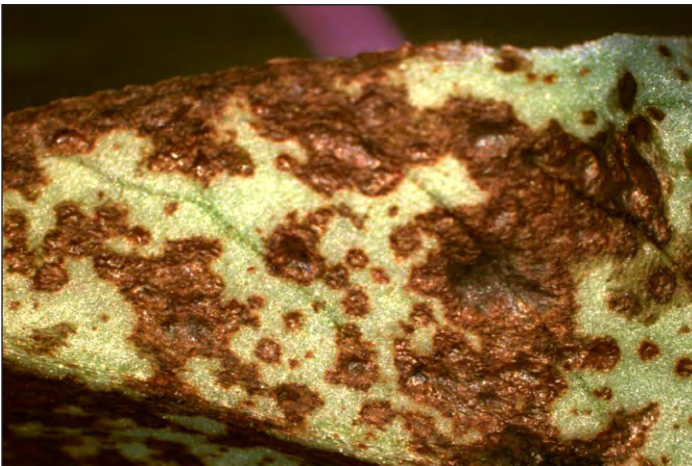
An observation field trial with fifteen varieties of onions will be planted for the 2013 growing season. Data will be collected and documented throughout the growing season. The onions will be harvested, cured and measured for grade standards in the Fall of 2013. The onions will then be properly stored to determine storage quality of each variety. Results of this field trial will be used to determine which varieties will be used in future trials.

# Plant Pathology Laboratory

The Pathology laboratory of the Alaska Plant Materials Center commenced operations in April of 2012. The main focus of the lab has been diagnosis and management of plant pathogens, as well as investigations into fungal endophytes in native and cultivated grasses. We are capable of culturing microorganisms and microscopic examination, as well as performing serological, protein, and nucleic acid based tests. As part of the horticulture program, we operate variety trials, screen for disease resistance, manage disease and insects, and conduct outreach to the public.

The Pathology/Endophyte Laboratory's major accomplishments to date include:

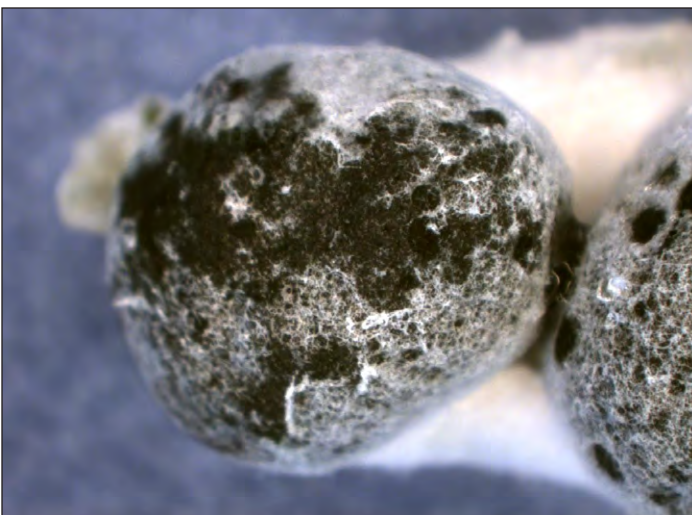
1. Work on potential endophyte poisoning of horses in the Homer, AK area. Seed and stem samples from 7 locations were tested for endophyte presence, 100 by microscopy, and 207 by immunoblot. Toxin testing was completed for 78 samples from the same locations. An additional 10 samples were submitted to Oregon State University for toxin analyses. Results indicated endophyte presence and toxin production at most locations. Recommendations were made, covering grazing management, control of noxious weeds, pasture renovation, and reseedling.
2. A suspected endophyte poisoning in Palmer, AK was investigated. Stem samples from 150 plants were tested by immunoblot, all were negative for endophyte presence.
3. Testing of 40 seed lots and 17 field plots of native/cultivated grasses for presence of fungal endophytes. Testing for ergot alkaloids was also performed on 39 seed lots.
4. Staff met with local producers and PMC staff to discuss disease and insect issues. Staff diagnosed the causal organisms, outlined epidemiology, and made recommendations for management at the PMC, Spring Creek Farm and Sun Circle Farm.
5. As the PMC Horticulture program develops; the Pathology lab will assist with testing of materials, management of disease and insect issues, and continued outreach to the public.



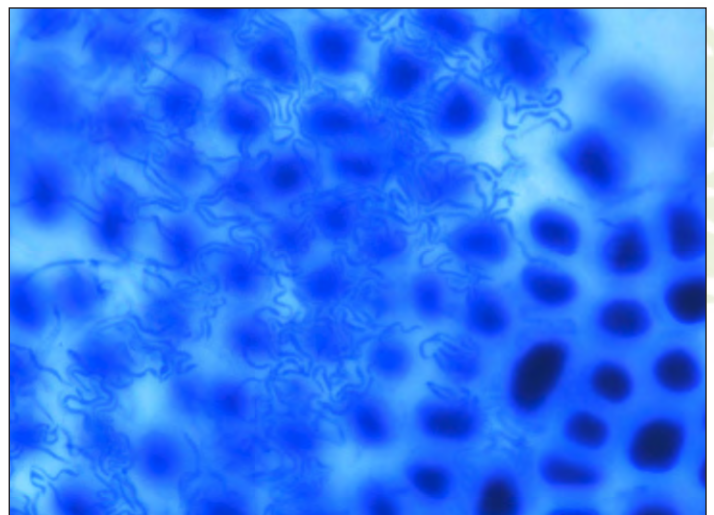
*Chocolate spot (Botrytis sp.) on faba bean*



*Botrytis cinerea on peony*



*Sclerotia (Sclerotinia sp.) found on cucumber stem*



*Fungal endophyte (Neotyphodium sp.) in red fescue seed*

# Quantitative 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; and
- 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
2011	159	217	75	10	111	572
2012	148	206	83	1	40	478

Seed lab staff participate in the following projects:

## Mat-Su Riparian Plant Material Development:

*This partnership between the U.S. Fish and Wildlife Service (USFWS) and the PMC exists to develop native seed and vegetative material for use in riparian revegetation in the Mat-Su Borough.*



### 2011 Activities:

Maintenance of field and box garden plantings continued in 2011. Wild collections of fireweed, geranium, and lupine were harvested, and all the seed of wild collections was cleaned.

### 2012 Activities:

## Alaska Native Plant Material Development Project

*(Seeds of Success):*

*This project is cooperative effort between the Bureau of Land Management (BLM) and the PMC to develop a storehouse of local native seed for revegetation and rehabilitation of disturbed BLM lands.*



### 2011 Activities

2011 Seeds of Success collections were cleaned. 124 species were collected, with a weight of clean seed totalling over 12 lbs. Seed collections from previous years were sent to the national seed lab in Pullman, WA. Cleaned seed was stored in a low temperature and low humidity environment to ensure the longest possible viability. For all species, plugs were grown in the greenhouse and then transplanted into production boxes. Plugs of the three grass species (*P. alpina*, *A. scabra*, and *A. mertensii*) were transplanted in the field. The rest of the species were planted in an outdoor box garden, which allowed for easier maintenance.

# Quantitative Seed Analysis Laboratory

Bureau of Land Management (BLM) representatives selected the following species for seed increase in 2012:

- *Trisetum spicatum*
- *Chamerion latifolium*
- *Deschampsia cespitosa*
- *Calamagrostis canadensis*
- *Agrostis scabra*
- *Artemisia arctica*
- *Leymus mollis*

## 2012 Activities

Germination tests were conducted to determine the germination potential of the seed lots. Seed was seeded in the greenhouse in the beginning of April. In early June, seedlings were taken outside to harden. All species were planted in their permanent location by first week of July.

### Cleaning of 2012 seed collections and seed increases

During 2012, BLM staff obtained forty seed collections. Seed was brought to the Plant Materials Center (PMC) where it was cleaned. Number of seed per gram and the approximate number of seed in the seed lot was calculated. Total weight of the clean seed exceeds four and a half pounds.

Out of these collections 10,000 seeds of each seed lot will be sent to the Plant Introduction Station in Pullman, WA and the rest will be kept at the PMC.

Four seed lots were selected for seed increase in 2013:

- *Calamagrostis purpurascens*
- *Arctagrostis latifolia*
- *Bromus inermis*
- *Festuca rubra*

Seed was harvested from plantings established in 2011. Following amounts of clean seed were obtained:

Species	Cleaned weight
<i>Carex mertensii</i>	26 g
<i>Chamerion latifolium</i>	46 g
<i>Oxytropis campestris</i>	50 g
<i>Sanguisorba canadensis</i>	6.6 g
<i>Wilhelmsia physodes</i>	20 g
<i>Achillea sibirica</i>	96 g
<i>Poa alpina</i>	920 g
<i>Hedysarum alpinum</i>	122 g
<i>Chamerion latifolium</i>	7.3 g



Cleaned seed of native plant species from BLM's Seeds of Success program

## Increase Boxes

The increase box gardens proved in 2011 to be a good way to manage smaller accessions. This summer Norton Sound Germplasm alpine milkvetch and Kobuk Germplasm dwarf fireweed each have their own box out of the current 61 boxes. Some of the other boxes have accessions from the Cold Regions Project, Chugach National Forest Project, Native Plant Nursery, and Ethnobotany.

## Germplasm Exchange

Agency clients, such as the Agriculture Research Service (ARS), U.S. Forest Service (USFS), the Alaska Department of Transportation and Public Facilities (DOT&PF), and the Division of Forestry (DOF), rely on the State Seed Lab for plant material testing. Seed grown at the PMC, intended for use by the above agencies, is also evaluated.

**Polargrass for New Hampshire grass trials.** An extension agent in New Hampshire contacted the Alaska Plant Materials Center, wanting to grow 'Kenai' and 'Alyeska' Polargrass cultivars in the northeastern US. Seeds of each cultivar were selected and sent along with growth information.

# Soil Testing and 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 outcome of a project. An important, and 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 the success of a project. Soil temperature, nutrient capacity, water holding capacity, and physical makeup are all factors which may have a negative and/or positive effect 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 the state of Alaska. Knowing the type and potential limitations of a soil can provide a higher success rate for field crops and revegetation projects. Due to limited resources at this time, the PMC soils laboratory does not offer soil testing services to the general public. Soil sampling methods include the use of a clear PVC bore hole probe and a hand powered auger. The PMC can conduct chemical constituent testing of collected soil samples.



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

## Chemical Testing and 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/or measured from collected samples or in the field. Once chemical data is obtained, nutrient deficiencies and/or toxicities can be identified, and fertilizer ratios recommended for the project area.

## Texture and Bulk Density Analysis

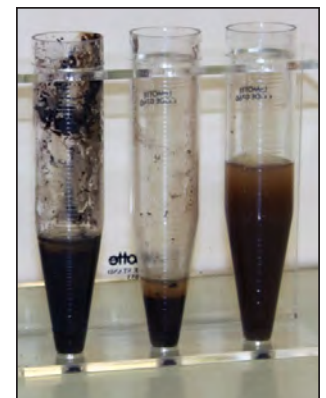
Physical characteristics of a soil, such as texture and bulk density can be obtained and analyzed within the PMC. These physical characteristics can affect both plant growth and indicate the erosion potential of a site. Once divided using a column of soil sieves, the soil remaining within each sieve 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.

## 2011 Activities

- Staff tested and analyzed soil samples for NRCS Telida erosion control project
- Collected soils samples from PMC fields and locations across the state for the purpose of nutrient analysis, in conjunction with seed production and nutrient study
- Conducted field nutrient tests for forage producers, for the Alaska Forage Manual

## 2012 Activities

- Collected samples across six regions of Alaska for the purpose of forage nutrient analysis
- Completed testing of textural analysis for various revegetation projects throughout Alaska
- Surveyed multiple points across the Trans-Alaska Pipeline System for possible erosion sites
- Collected field analysis and samples for endophyte testing near Homer and Halibut Cove Alaska
- Tested and analyzed soil samples, then developed fertilizer recommendations for various hay producers all over Alaska



# Trans-Alaska Pipeline Vegetation Survey

In 2011, the Alaska Plant Materials Center entered into a cooperative agreement with the Bureau of Land Management, the State Pipeline Coordinators Office and Alyeska Pipeline Service Company to conduct a vegetation survey along the Trans-Alaska Pipeline System (TAPS). PMC Staff visited each mile of the 800 mile line during the summer of 2011 and 2012, taking note of all observed plant species, including those classed as invasive and non-native, the percent ground cover at the site and any signs of erosion.

This project follows a nearly identical survey completed by the PMC in 1992. The final report is expected to be released in late 2013.



PMC staff conducted a comprehensive vegetation survey of the Trans Alaska Pipeline System in 2011 and 2012.



Erosion control fabric is used to establish vegetation cover along the pipeline

**mile 517**

Notes: mile 517      20% Vegetation Cover

Alaska Vegetation Classification (Viereck et al., 1992): I.C.2.

**Native Plants:**


- Birch, *Betula* L.
- Fireweed, *Chamerion angustifolium* L.
- Goosefoot, *Chenopodium* L.
- Red fescue, *Festuca rubra* L.
- Spruce, *Picea*
- Quaking aspen, *Populus tremuloides*

**Non-Native Plants:**


- Smooth Brome, *Bromus inermis*
- Italian ryegrass, *Lolium perenne* L. ssp. *multiflorum*

**Invasive Plants:**


- Foxtail barley, *Hordeum jubatum*
- Dandelion, *Taraxacum*



View of pipeline



View looking north



View looking south

**mile 222**

Notes: mile 222      75% Vegetation Cover

Alaska Vegetation Classification (Viereck et al., 1992): I.C.2.a


**Native Plants:**

- Pussytoes, *Antennaria* Gaertn.
- Manzanita, *Arctostaphylos* Adans.
- Alpine milkvetch, *Astragalus* L.
- Aster, *Aster* L.
- Fireweed, *Chamerion angustifolium* L.
- Shrubby Cinquefoil, *Dasiphora fruticosa*
- Mountain-avens, *Dryas* L.
- Slender wheatgrass, *Elymus Trachycaulus*
- Horsetail, *Equisetum* L.
- Sweetvetch, *Hedysarum* L.
- Juniper, *Juniperus* L.
- Lichenocloralichen, *Lichenochora*
- Moss, *Lycopodium* L.
- Spruce, *Picea*
- Plantain, *Plantago* L.
- Balsam poplar, *Populus Balsamifera*
- Willow, *Salix* L.
- Buffaloberry, *Shepherdia canadensis* L.
- Tofieldia, *Tofieldia*
- Grass, *Graminae*


**Non-Native Plants:**

**Invasive Plants:**


- Foxtail barley, *Hordeum jubatum*



View of pipeline



View looking north



View looking south

PMC staff collected an inventory of plant species and photos of the vegetation community for each mile of the Trans-Alaska Pipeline.

# Research Activity

## Aleutian Fern Propagation Trials

Starting in 2010, PMC staff attempted cultivation of Aleutian Shield fern, *Polystichum aleuticum*, a species native to the Aleutians. This fern was selected by the US Fish and Wildlife Service (USFWS) for review under the Endangered Species Act. Listed as endangered in 1988, the intent of this study was to assess the continued accuracy of that designation for the Aleutian Shield fern plant.

In late 2010, fronds were collected by USFWS staff from the Alaska Maritime National Wildlife Refuge and provided to the PMC, with the intention to develop a nursery stock consisting of at least 1,000 mature sporophytes, plus genetic material a germplasm repository.

PMC staff developed a spore propagation protocol, based on past research and the unique needs of the plant. Prothalli growth was observed on several of the experiments by early 2011. Evaluation continued through 2011 and was discontinued in 2012.

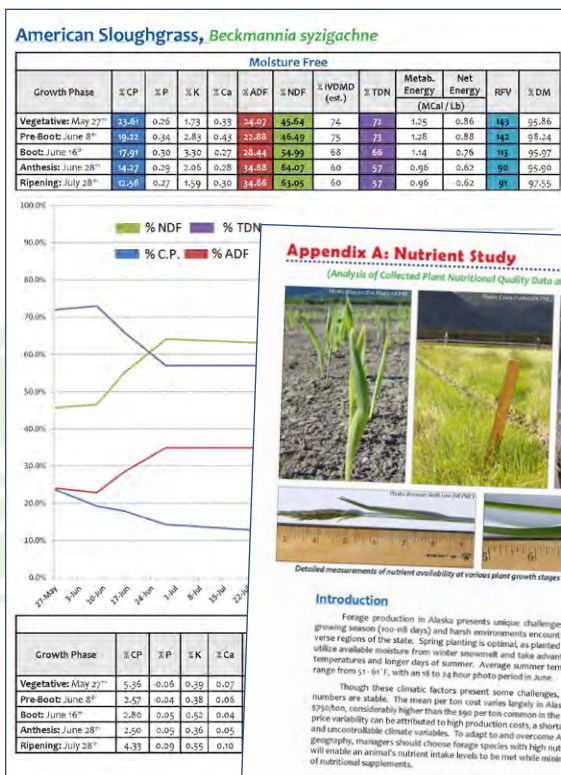


Spores received by the PMC, thought to be *Polystichum aleuticum*, turned out to be *Cystopteris*, another fern. Propagation research has ceased.



*Cystopteris* sporophytes grown from provided plant material

The ferns that grew from the spores collected by USFWS ended up being *Cystopteris*, a delicate fern which grows in the same locality as *Polystichum aleuticum*. As of the end of 2012, the research was discontinued pending new spore collection. From the PMC's perspective, further experiments are warranted to assess the temperature / light requirements of *Polystichum aleuticum*, as well as the viability of spores.

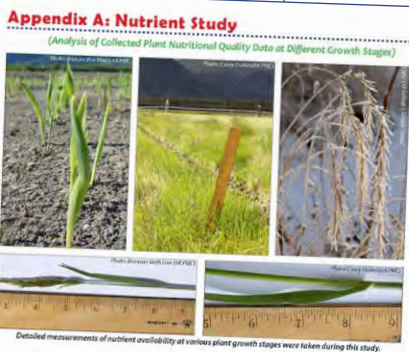


## Forage Trials and Evaluations

Alaska is a vast state with diverse environmental conditions. Producing forage in Alaska can present unique challenges. The PMC currently has thirty-five acres of field being utilized for research in forage production trials.

Grass and legume species were seeded and plant evaluations such as growth curve production, yield production, and nutrient quality will be documented as the growth trials progress. Additional forage trials are being held across the state, from the Tanana/Yukon Flats southward to the Kenai Peninsula. Ultimately results from these trials will be used to provide technical forage assistance.

Data from forage growth trials were used for the nutrient study in the Alaska Forage Manual. A more comprehensive forage growth curve / nutrient study for the USDA Natural Resource Conservation Service continued through 2012. Completion is expected in Fall of 2013.



**Introduction**

Forage production in Alaska presents unique challenges, due to the short growing season (90-110 days) and harsh environments encountered throughout diverse regions of the state. Spring planting is optimal, as planted species are able to utilize available moisture from winter snowmelt and take advantage of the warmer temperatures and longer days of summer. Average summer temperatures in Alaska range from 51-61°F, with an 18 to 24 hour photo period in June.

Though these climatic factors present some challenges, forage production is possible, considerably higher than the 500 per ton common in the lower 48. The high price variability can be attributed to high production costs, a shortage of available hay and uncontrollable climate variables. To adapt to and overcome Alaska's climate and will enable an animal's nutrient intake levels to be met while minimizing the expense of nutritional supplements.

# Educational Facilities

The Plant Materials Center provides facilities and programs designed to reach out to the public and share our program knowledge or host workshops and trainings for others. Our staff offers professional and education presentations on-site or at conferences, school events or other hands-on training. The Plant Materials Center caters to school, home-school, club, and professional groups. Activities at the PMC can provide real-life revegetation and horticulture experience to students, offering hands-on learning in contrast to classroom reading.

The PMC has conference space available for presentations, meetings, educational workshops and training sessions. The in-house meeting space is equipped with an interactive whiteboard system with webinar capabilities, conference telephone lines and flexible room configuration options.



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



*The Interactive whiteboard at the Plant Materials Center can be used to facilitate presentations and webinars.*

## 2011 Education / Training

- Five groups totalling approximately 280 students visited the PMC in the spring to harvest willow cuttings for summer conservation / revegetation plantings. Harvest occurred while the willows were still dormant. Students came from all over the Mat-Su Valley and learned about the mission and programs of the PMC. The similarity of the students' efforts in conservation and the PMC's revegetation activities was a common thread in discussions.
- Fifty four students from Houston Middle School came to learn about the Plant Materials Center. These students participated in hands-on activities and took evaluation projects back to their classroom.
- 20 middle school students from Grace Academy School toured the PMC and met with professional staff. They learned about seed cleaning, potato culture, seed testing, revegetation, rural seed production, and plant evaluation.
- The Alaska Agriculture in the Classroom hosted a training workshop at the PMC for two days in 2011. PMC staff and other professionals shared activities for teachers to use in their classroom.
- The Division of Forestry held classes for new firefighters at the PMC in 2011, as well as a retreat.
- The PMC hosted weed-free inspector certification, pesticide applicator and plant identification training sessions.

## 2011 Outreach Activities

- In 2011, the PMC conference room was used for legislative hearings and "Farm to School" strategic planning meetings involving teachers and superintendents from across Alaska. The Alaska Seed Growers Association, Division of Agriculture, and the PMC Advisory Board also held meetings.
- Native seeds were given to UAA students and professors at for research regarding metal up-take. The team reviewed techniques, research, and past work of the PMC, and discussed activities with staff agronomists.
- Polargrass for New Hampshire grass trials. An extension agent in New Hampshire inquired about growing 'Kenai' and 'Alyeska' polargrass in his climate. Seeds were selected and sent along with growth information.
- PMC Staff in 2011 assisted USDA Natural Resources Conservation Service (NRCS) by sharing knowledge with the NRCS state agronomist about how to grow Alaskan native plants. NRCS has identified pollinator plants as a high priority in Alaska. Pollinator plants being grown at the PMC will be distributed to NRCS districts throughout Alaska and the growing techniques will be taught to interested landowners and farmers.



# Educational Facilities

## 2012 Education / Training

- **NRCS Red Fescue Plant Guide.** PMC staff collaborated with the Idaho Plant Materials Center to prepare a plant guide for Red Fescue, *Festuca rubra*. Drawing from experience with 'Arctared' and Henderson Ridge germplasm Red fescue, PMC staff participated in drafting and review of this document, published by the USDA, NRCS.
- **Rhodiola programs.** Five different groups contacted the PMC about growing and harvesting *Rhodiola rosea* or *Rhodiola integrifolia*. The groups are from Valdez, Wasilla, Anchorage, Talkeetna, and Palmer. Due to the recent interest in these plant's chemical properties as "adaptogens" and the success of the Alberta *Rhodiola Rosea* Grower's Organization (AARGO), one organization (Alaska *Rhodiola Rosea* Growers) has formed a cooperative and been operating for three years. Other groups are just starting and inquired about differences between Alaska's native *Rhodiola integrifolia* and Russia's *Rhodiola rosea*.
- **On Farm Food Safety Workshop** program hosted at the PMC in the conference room and greenhouse in November
- **Adult Bark Beetle and Wood Boring Insect Identification Workshop.** The Division of Agriculture brought nationally recognized experts Jim Labonte and Josh Vlach from the Oregon Department of Agriculture (ODA) in summer, 2012 for an insect identification workshop. Over twenty participants participated in this training opportunity, gaining hands-on experience with insect identification.
- **Weed Free Forage and Gravel training seminar.** Hosted at the PMC in May, in partnership with the UA Cooperative Extension Service and Alaskan Soil & Water Conservation Districts. The course was also available as a webinar to online participants. 25 participants learned about Alaska's Weed Free Certification programs and the process of becoming qualified to certify fields and material sites as "weed free." The course was taught by Phil Kaspari and Gino Graziano, and covered standards and requirements, as well as weed identification and field sessions. Inspector Certification exams were offered at the end of the class.



Participants in the Adult Bark Beetle and Wood Boring Insect Identification Workshop, hosted at the Alaska PMC

## 2012 Outreach Activities:

- Staff presented programs in the Ethnobotany Traditional Teaching Garden to Anchorage Master Gardeners, Mat-Su Garden Club, Alaska Botanical Garden, Alaska Native Plant Society, State Forestry Board, Knik Fish Camp and several groups interested in rain-garden plants.
- Potato Grower's Meeting, hosted in March, 2012. Coordinated by Alaska Division of Agriculture. 25 participants.
- Poster sessions were given at many different venues, including the Alaska State Fair, Alaska Greenhouse and Nursery Conference, Future Farmers of America Alaska Conference, Fall Harvest Dinner, and Weed Free Forage Class.
- The PMC is working with several Alaska Tribes and organizations on past and present uses of plants, for subsistence, traditional knowledge, gardening, and agriculture. PMC staff hosted meetings with Knik Tribal Council, Chickaloon, Eklutna, and an inter-tribal program sponsored by the Matanuska-Susitna School District.
- PMC staff attended several intercultural Pow wow's and Potlatch's to discuss native Alaskan plants and the Ethnobotany Garden. These included the Native Village of Eklutna Powwow, the 4th Annual Family Tribal Celebration and Health Fair sponsored by Chickaloon Village Traditional Council and Knik Tribal Council, Camp Knik K'Kalta Fish Camp Potlatch, Hiland Correctional Center Potlatch, and the Midnight Sun Powwow.

## 2012 Conference Hosting

- Palmer Soil & Water Conservation District Training
- Wasilla Soil & Water Conservation District Training
- Marketing Seminar – Rural Village Seed Production Project
- Division of Parks and Recreation Annual Meeting
- Cooperative Extension: Pesticide Applicator Training
- Walking the Red R.O.A.D. (Respect, Opportunity, Ability, Duty) Class
- Alaska State Grange Annual meeting
- Forest Pest Conference: Inspection
- Certified Crop Advisor Testing
- Alaska Seed Grower's Annual Meeting
- Mat-Su Master Gardeners Conference
- Division of Forestry Board Meeting

# 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.

The Plant Materials Center's **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, when Alaska potato farmers 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.



*Diseased potatoes*

The diseases of primary concern are:

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

## 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. 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 US 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



*Plantlet grown in a sterile environment at the PMC*

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 five or more new plantlets every 30 days.

Irrigation drip tubes are installed in each pot, allowing for automatic watering and fertilization. The plants are monitored daily for the next three 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 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 soil or other sources. 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 an on-going process. Alaska's farmers are looking for a potato that bulks early, has a high level of disease resistance, requires minimal fertilization and tastes good. To this end, the PMC cooperates with farmers, the University of Alaska, and the USDA to look for new varieties, producing pathogen tested seed of new and upcoming varieties for trials.

Commercial growers have shifted from white-skinned to russet-skinned varieties during the last ten 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.

## 2011 Activities

The potato disease control program produced 1300 lbs of Generation-Zero (G0) seed in the greenhouse and maintained 176 varieties, both in the field and in tissue culture. There were 80 varieties in production as certified seed on 116 acres in Alaska during the year.



*A variety of color and shapes*



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

Late blight, a serious fungal disease, was reported on a farm in Delta Junction late in the 2011 growing season. Sampling identified the U.S. 8 strain. Late blight can be spread by spores over large areas in a very short time. Late blight requires a live host for reproduction, and is caused by the fungus *Phytophthora infestans*. Growers were advised to carefully grade seed and to dispose of culls in a manner that limits the risk of disease spread.

## 2012 Activities

The program produced 740 lbs of G0 seed in the greenhouse and maintained 178 varieties in the field and in tissue culture. There were 91 varieties in production as certified seed on 120 acres in Alaska. 15 growers purchased seed from the PMC in 2012.

In March, the PMC hosted a potato growers meeting focusing on the risk of late blight and management strategies, featuring a potato specialist from the University of North Dakota. At this meeting, the Alaska Seed Grower's Association voted to require more frequent inspections of fields over one acre in size. No late blight was found in commercial fields in 2012.

# Invasive Weeds & Agricultural Pests

The Invasive Weeds and Agricultural Pest Management Program for the Division of Agriculture is housed at the Plant Materials Center. As outlined in Alaska Statute [03.05.027](#), this program coordinates with state and federal agencies, Universities, Conservation Districts, state land users, public groups, and private organizations to develop management programs, provide outreach materials to target audiences, and develop and maintain regulation pertaining to invasive weeds and agricultural pests. During 2011 and 2012, 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, on-the-ground management, and invasive species education.

The Division of Agriculture has many tools that pertain to the prevention, regulation and enforcement of invasive plants including the authority to declare pests, inspect infested areas, quarantine, and eradicate pests. Alaska's **Plant Health and Quarantine** laws ([11 AAC 34](#)) specify labeling and transportation requirements for any seed sold in the state, as well as prohibited and restricted noxious weed lists.

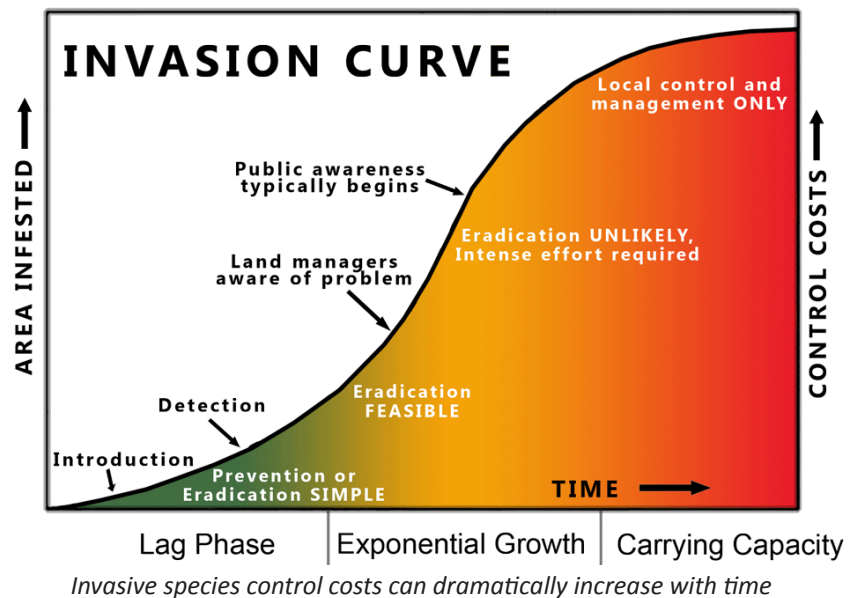
Prevention is the most critical aspect of a management program. Strong prevention measures such as quarantine and inspection of imported commodities that are common vectors of infestation can be the least expensive way to limit the spread of invasive plants and agricultural pests. The resources and management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

The invasive plant coordinator provided input on database management for the AKEPIC ([akweeds.uaa.alaska.edu](http://akweeds.uaa.alaska.edu)) online monitoring system and collaborated on invasive species modeling with UAF Cooperative Extension Service.

The coordinator worked with several organizations in 2011 and 2012 to identify weed control initiatives. Notable projects include Canada thistle management in Anchorage, the development of a Weed Free Gravel certification program and DNR efforts to manage freshwater invasive plants. Coordination is essential to effectively address invasive species 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 Management Efforts, focusing on *Elodea* spp.*
- *Weed Free Forage and Gravel Certification Programs*
- *Ongoing coordination and outreach to the Horticulture Industry*
- *Inventory and monitoring of Early Detection and Rapid Response Species*



# Invasive Weeds & Agricultural Pests

## Strategic Plan

A comprehensive statewide strategic plan for invasive weed and agricultural pest management in Alaska was approved in 2011. The strategic plan allows for flexibility in the implementation of action strategies and identification of emerging issues. It provides overall direction to the DNR, Division of Agriculture, partners, and stakeholders in the prevention and management of invasive species and agricultural pests.

This plan was developed in cooperation with state and federal agencies, industry and conservation organizations. The resulting “Strategic Plan for Invasive Weed and Agricultural Pest Management and Prevention in Alaska” helps guide the Division of Agriculture and its partners while allowing for flexibility in implementing action strategies and identification of emerging issues.

The draft plan was released for public comment in February of 2011, and the final plan was approved in July. You can find the Strategic Plan online, at [plants.alaska.gov](http://plants.alaska.gov).



*Strategic Plan for Invasive Weed & Agricultural Pest Management and Prevention in Alaska*

## Eradication and Control Initiatives

### Purple Loosestrife Replacement

In 2011, the invasive weed program launched a Purple Loosestrife replacement campaign, in collaboration with the US Fish and Wildlife Service. This effort was aimed at raising awareness of the risks Purple Loosestrife poses to wetlands and salmon habitat in Alaska, and to promote voluntary removal of loosestrife planted in Anchorage gardens.

Public Service Announcements on area radio stations and banner ads on local busses were used to publicise the program and direct Anchorage residents to a web page with information about the loosestrife replacement program. Staff distributed over 3500 mailings and visited homes to offer no-cost replacement of loosestrife with non-invasive ornamental plant alternatives. Seven plants were replaced through the program.

Purple loosestrife eradication efforts in 2011 consisted of monitoring known infestations at known infestation sites, such as westchester lagoon.



*Ads on People Mover busses were used to raise awareness of Purple Loosestrife infestations*



# Invasive Weeds & Agricultural Pests

## Spotted Knapweed Eradication

Spotted knapweed, *Centaurea stoebe*, is targeted for eradication in Alaska because it presents a serious threat to natural and agricultural resources, and has a relatively limited distribution in Alaska. Previous work identified Spotted knapweed as present or having historically occurred at only 23 locations. Prior to 2011, only 5 small persistent Spotted knapweed infestations were documented. In 2011 and 2012 field seasons, each site was visited. If plants were found, they were removed. This cooperative effort involved program staff and partner agencies.

Late in 2011, interagency contacts reported a new infestation of Spotted knapweed near the Jonesville Mine site in Sutton. Because the infestation was discovered late in the season, it was mapped and subsequently treated during the 2012 field season. Staff coordinated with the Alaska DNR, Division of Mining Land and Water (DMLW) and mine staff to inventory and monitor the site. Eventually, the less than ½ acre site was treated with herbicide. The Spotted knapweed eradication grant was funded through USFWS, with funds from the 2009 American Recovery and Reinvestment Act funds.

## Anchorage Canada Thistle Management

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. A strategic management plan for Canada thistle was created with the U.S. Forest Service an Anchorage Area Management Plan in 2011. This plan can be found in the invasive plants section of [plants.alaska.gov](http://plants.alaska.gov).



Ads highlighting the invasive Canada Thistle plant were placed on Anchorage busses in the summer of 2011/2012

Canada thistle containment efforts continued throughout the 2011 and 2012 field seasons, with continued funding from the US Forest Service. Additional funds from the National Fish and Wildlife Foundation supported State efforts to mechanically control priority larger infestations on state-owned right-of-ways (ROW), in coordination with DOT. PMC staff manually pulled, bagged, and removed small infestations on state and municipal land, coordinating with the Municipality of Anchorage and the Anchorage Parks Foundation. The planned use of herbicides for priority Canada thistle sites in Anchorage on state owned ROWs for the 2012 field season was delayed, but application is planned in 2013.

Outreach efforts in 2012 were aimed at raising public awareness of Canada thistle and locating new infestations. Through these efforts and further surveys of the Anchorage and Eagle River roadways, 13 new infestations were found, documented and managed where possible. In total, management efforts in 2012 controlled over 23 acres of Canada thistle in Anchorage, approximately 4 acres of which being newly reported infestations.



Anchorage area Canada thistle infestations

# Invasive Weeds & Agricultural Pests

## Early Detection and Rapid Response

Early detection of and rapid response to invasive species threats is an ongoing function of the Division's Invasive Plant Control program. Both Giant Hogweed (*Heracleum mantegazzianum*) and Purple Loosestrife (*Lythrum salicaria*) are known to have previously established in Alaska. This project has focused on inventory and monitoring of these high priority species in fish and wildlife habitat in South-central and Southeast Alaska.

**Giant Hogweed:** PMC staff surveyed nine Southeast Alaska communities for new infestations of Giant hogweed, including the community of Kake which has the only known infestation of Giant hogweed in Alaska. This infestation was manually controlled and plants were removed for the third season in a row. 150 individual plants were observed in 2011, falling to less than 100 plants in 2012. No new infestations were found at any survey sites.

**Purple Loosestrife:** In partnership with Soil and Water Conservation Districts, seven waterbodies with proximate development and human activity were surveyed for Purple loosestrife. No infestations were found.



Giant hogweed in Kake, Alaska

Photo: Andrew Weaver

## Education and Coordination

In addition to management activities, the coordinator attends and participates in local and statewide planning meetings and conferences to facilitate invasive species strategic planning, on-the-ground management, and education assistance throughout the state. PMC staff participated in the following events in 2011 and 2012:

- USDA Forest Service-Forest Health Protection Coordination Meeting
- Citizens for Noxious and Invasive Plant Management, 2011 and 2012 Alaska Invasive Species Conference: Poster presentations and activity summary
- Ad-hoc statewide Elodea Strategy and Communication Working Groups
- Department of Transportation Environmental Expo 2011 and 2012
- Cooperative Weed Management Area planning for Kenai, Mat-Su, and Anchorage area CWMAs
- Alaska Pest Risk Assessment Committee meeting.
- Alaska Greenhouse and Nursery Conference.

Staff presented posters for the CNIPM invasive species conferences in September, 2011 and 2012



# Invasive Weeds & Agricultural Pests

## Weed Free Forage and Gravel Certification



The **Weed-Free Certification** programs strive to prevent invasive species from being distributed through contaminated gravel, hay and straw. Both are voluntary inspection programs that allow producers to certify and offer a value-added product to land managers wishing to limit the spread of invasive weeds within Alaska's landscape. Brochures detailing each program were created and sent to soil and water conservation districts, agencies and industry contacts.

### Certified Weed Free Forage

This voluntary weed-free forage certification allows local forage producers the ability to offer a weed-free product to forage users who travel in the backcountry or are concerned about the spread of invasive plants.

### Weed Free Gravel Certification

This program is new to Alaska. With funding from the Bureau of Land Management, program staff coordinated efforts to research the existence and spread of invasive weeds via gravel in Alaska. In 2010 and 2011 program staff surveyed gravel pits in the interior of Alaska, looking for non-native and invasive weeds. The results of this survey were used to develop certification standards and practices for the Weed-Free Gravel program. In the spring of 2012 the first gravel pit inspector training was offered and over 20 people attended.

#### Help control the spread of invasive species in Alaska: Specify Weed-Free Gravel for projects in sensitive areas.

Invasive (non-native) plant species can negatively affect natural resources and human health. If these plants become established in wildlands, they have potential to negatively impact natural resources, wildlife and recreation. Please help keep these harmful plants from spreading to Alaska's natural areas, rivers and wetlands.

Land and project managers concerned with the spread of highly invasive weeds can help, by specifying only **Weed-Free** gravel and fill for construction projects in pristine habitats.

Certification also gives producers a way to assure that their products have reduced potential for transport and dispersal of listed weed species, and can be used in the most sensitive areas.



Sweetclover infestation at a remote Alaskan materials site



Noxious weeds can colonize barren soils at gravel pits

#### Inspector Training and Certification

Inspector training sessions are held each spring and are offered to new and recertifying inspectors. Gravel inspectors are trained alongside Weed Free Forage Inspectors. Training is hosted by the Division of Agriculture and the Cooperative Extension Service.

An inspector certification is valid for 5 years, although annual



#### Where can Certified Weed-Free Forage & Straw be Purchased?

Visit your local feed store and ask if they sell "Certified Weed-Free" Forage or Straw. This is a specialty product and large orders should be coordinated with producers well in advance. Contact your local Soil and Water Conservation District for a list of participating producers.

<b>Anchorage</b> (907) 677-7645 (SOIL) <a href="http://aswcd.org">aswcd.org</a>	<b>Mid Yukon-Kuskokwim</b> (907) 676-0336 <a href="http://midyukonkuskokwimswcd.com">midyukonkuskokwimswcd.com</a>
<b>Fairbanks</b> (907) 479-1213 <a href="http://fairbankssoilwater.org">fairbankssoilwater.org</a>	<b>Palmer</b> (907) 745-1441 <a href="http://palmersoilandwater.org">palmersoilandwater.org</a>
<b>Homer</b> (907) 235-8177 x106 <a href="http://homerswcd.org">homerswcd.org</a>	<b>Salcha-Delta</b> (907) 895-6279 <a href="http://salchadeltaswcd.org">salchadeltaswcd.org</a>
<b>Kenai</b> (907) 283-8732 x108 <a href="http://kenaisoilandwater.org">kenaisoilandwater.org</a>	<b>Upper Susitna</b> (907) 733-7923 <a href="http://www.usswcd.org">www.usswcd.org</a>
<b>Kenny Lake</b> (907) 359-4455	<b>Wasilla</b> (907) 357-4563 x103 <a href="http://www.wasillaswcd.org">www.wasillaswcd.org</a>
<b>Kodiak</b> (907) 486-5574 <a href="http://kodiaksoilandwater.org">kodiaksoilandwater.org</a>	

For more information about Alaska's Weed-Free Forage & Straw Certification Program, or to become an inspector, contact:

**Brianne Blackburn**  
Invasive Species Coordinator  
Alaska Division of Agriculture  
(907) 745-8785  
[Brianne.Blackburn@Alaska.gov](mailto:Brianne.Blackburn@Alaska.gov)



#### Alaska Department of Natural Resources Division of Agriculture

### Certified Weed-Free Forage & Straw



The Weed-Free Forage & Straw Certification program strives to reduce the transport and dispersal of noxious or undesirable weeds within Alaska's landscape. Forage and straw producers can provide a value-added product through adherence to certification standards and field inspections. Please help prevent the spread of weed species by choosing **Weed-Free**.



Outreach materials were prepared for the Certified Weed-Free forage and gravel programs in 2012.

# Awards and Recognition

## 2011 Meritorious Service Award

[USDA NATURAL RESOURCES CONSERVATION SERVICE]

The United States Department of Agriculture, Natural Resource Conservation Service recognized Stoney Wright in April 2012, for his 33 years of plant materials service to Alaska as manager of the Plant Materials Center. Stoney is a leader in the development of plant species for northern latitudes, and has authored many technical documents which have benefited natural resource conservation efforts in Alaska, including the award-winning "Alaska Coastal Revegetation and Erosion Control Guide." Stoney's dedication to the development of plant materials products has been a tremendous asset to NRCS.

## 2012 Certificate of Excellence

[AMERICAN SOCIETY OF AGRONOMY]

The American Society of Agronomy recognized the Alaska Coastal Revegetation & Erosion Control Guide and the Interior Alaska Revegetation & Erosion Control Guide with a Certificate of Excellence, through the Extension Community Educational Materials Awards Program. The purpose of this program is to provide Society members a chance to share their creative and useful educational materials and programs with colleagues and to receive recognition for their superior achievement.



## 2011 Educational Achievement Award

[INTERNATIONAL EROSION CONTROL ASSOCIATION]

The Alaska Coastal Revegetation and Erosion Control Guide was awarded the 2011 Educational Achievement Award from the International Erosion Control Association. This award highlights an outstanding training program, public program or tool used



International **Erosion Control** Association

within the industry which demonstrates advancement in erosion and sediment control education based on experience and factual knowledge.



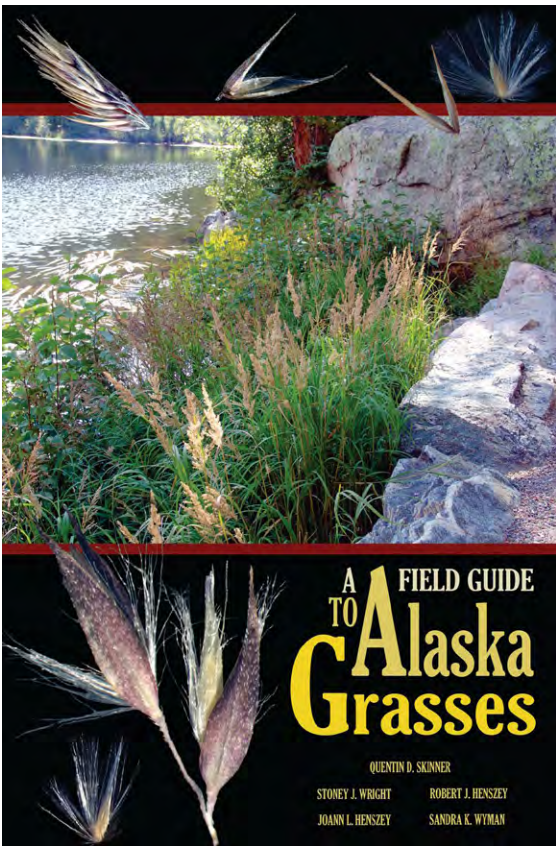
*The International Erosion Control Association recognized the Alaska Coastal Revegetation & Erosion Control Guide with an Educational Achievement Award*

# Publications by PMC Authors

## A Field Guide to Alaska Grasses

Summer, 2012 saw the publication of A Field Guide to Alaska Grasses, a full-color, 380-page book with the most complete inventory of Alaskan grass species to date. It covers 167 grass species, providing detailed taxonomic descriptions, distribution maps, a comprehensive glossary and hundreds of photographic plates.

The book's lead author is Dr. Quentin Skinner, Professor Emeritus of the University of Wyoming. Stoney Wright, manager of the Plant Materials Center, is a co-author, along with Sandra Wyman of the U.S. Bureau of Land Management, Robert Henszey of the U.S. Fish & Wildlife Service, and JoAnn Henszey of the University of Alaska Fairbanks. PMC staff provided assistance with species and habitat identification, and detail about the suitability of Native Alaska Grasses for revegetation applications, and accompanied the author in collection trips across the state

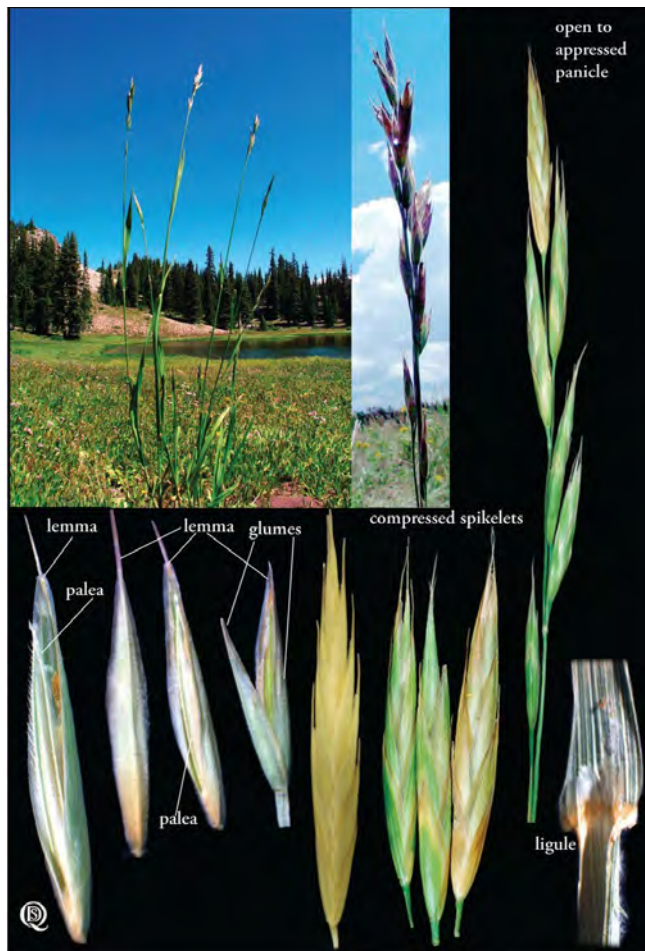


*A Field Guide to Alaska Grasses is a comprehensive agronomic reference book, published in 2012.*



A Field Guide to Alaska Grasses is the culmination of five years of work, funded through a partnership with the Alaska Department of Natural Resources, the Natural Resources Conservation Service, the U.S. Forest Service, the U.S. Bureau of Land Management and the U.S. Fish & Wildlife Service. The authors visited nearly every region of the state to document the various grass species, beginning in 2009 and 2010.

A Field Guide to Alaska Grasses is available online, linked at [plants.alaska.gov](http://plants.alaska.gov).



# Staff Presentations & Publications

## Staff Presentations [2011]

**Blackburn, Brianne.** Invasive Plant Program Activities. February, 2011. Presentation to 2011 Annual Resource Forester's Meeting. Anchorage, AK

**Blackburn, Brianne.** Invasive Plant Program Activities and Regulations. October 2011. Presentation and poster session for 2011 Alaska Invasive Species Conference. Citizens for Noxious and Invasive Plant Management (CNIPM). Fairbanks, AK

**Blackburn, Brianne.** Invasive Plant Program Activities and Upcoming Regulation Changes. November, 2011. Presentation to Board of Forestry. Fairbanks, AK.

## Staff Presentations [2012]

**Hunt, Peggy.** Alaska Plant Materials Center programs. May, 2012. Presentation to Alaskan Plants as Food and Medicine Symposium, Alaska Native Tribal Health Consortium. Anchorage, AK.

**Hunt, Peggy.** Subsistence Adaptations: Container gardens for traditional plants and medicines for elders. May, 2012. Presentation to Alaskan Plants as Food and Medicine Symposium, Alaska Native Tribal Health Consortium. Anchorage, AK.

**Hunt, Peggy.** Growing Alaska's Native Pantry and Medicine Cabinet. March, 2012. Presentation to 6<sup>th</sup> Annual Spring Garden Conference, Alaska Botanical Garden. Anchorage AK.

**Blackburn, Brianne.** State of Alaska Invasive Species Programs and Priorities. January, 2012 Presentation to Alaska Legislature. Juneau, AK

**Blackburn, Brianne.** Elodea and the Risks of Aquatic Invasive Plants to Mat-Su Borough. May, 2012 Presentation to Matanuska Susitna Borough Lake Monitoring Program, Palmer AK.

**Blackburn, Brianne.** Invasive Plant Program Activities and Regulations. October 2012. Presentation and poster session for 2011 Alaska Invasive Species Conference. Citizens for Noxious and Invasive Plant Management (CNIPM). Kodiak, AK

**Blackburn, Brianne.** Spartina and the Risks to Alaska. November, 2012. Presentation to UAF Cooperative Extension Service Integrated Pest Management Webinar series

**Blackburn, Brianne.** Invasive Plant Programs. February, 2012. Presentation to UAA, Mat-Su College

## Staff Publications [2011]

**Wright, Stoney J. & Czapl, P. K.** 2011. Alaska Coastal Revegetation & Erosion Control Guide 2<sup>nd</sup> Edition. State of Alaska, Department of Natural Resources, Division of Agriculture, Plant Materials Center. 236 pp.

URL: [dnr.alaska.gov/ag/akpmc/pdf/Coastal-Reveg-Guide\\_web.pdf](http://dnr.alaska.gov/ag/akpmc/pdf/Coastal-Reveg-Guide_web.pdf)

**Graziano, Gino A.** 2011. Strategic Plan for Invasive Weed & Agricultural Pest Management and Prevention in Alaska. State of Alaska, Department of Natural Resources, Division of Agriculture, Plant Materials Center. 40 pp.

URL: [dnr.alaska.gov/ag/akpmc/invasives/strategic-plan.htm](http://dnr.alaska.gov/ag/akpmc/invasives/strategic-plan.htm)

## Staff Publications [2012]

**Czapl, Phil K. & Wright, S. J.** 2012. Interior Alaska Revegetation & Erosion Control Guide. State of Alaska, Department of Natural Resources, Division of Agriculture, Plant Materials Center. 138 pp.

URL: [dnr.alaska.gov/ag/akpmc/pdf/interior-reveg\\_web.pdf](http://dnr.alaska.gov/ag/akpmc/pdf/interior-reveg_web.pdf)

**Dinkel, Casey L. & Czapl, P. K.** 2012. Alaska Forage Manual. State of Alaska, Department of Natural Resources, Division of Agriculture, Plant Materials Center, Palmer, AK. 114 pp.

URL: [dnr.alaska.gov/ag/akpmc/pdf/forage-manual.pdf](http://dnr.alaska.gov/ag/akpmc/pdf/forage-manual.pdf)

