Species Selection

A lone specimen of Beach Fleabane (*Senecio psuedoarnica*) on a gravelly beach site in northwest Alaska, near Nome

Section 3:

1. Adapted Plants
   - *Coastal Regions of Alaska*
   - *Vegetation Communities*
   - *Revegetation Suggestions*
2. Plant Species

Adapted Plants

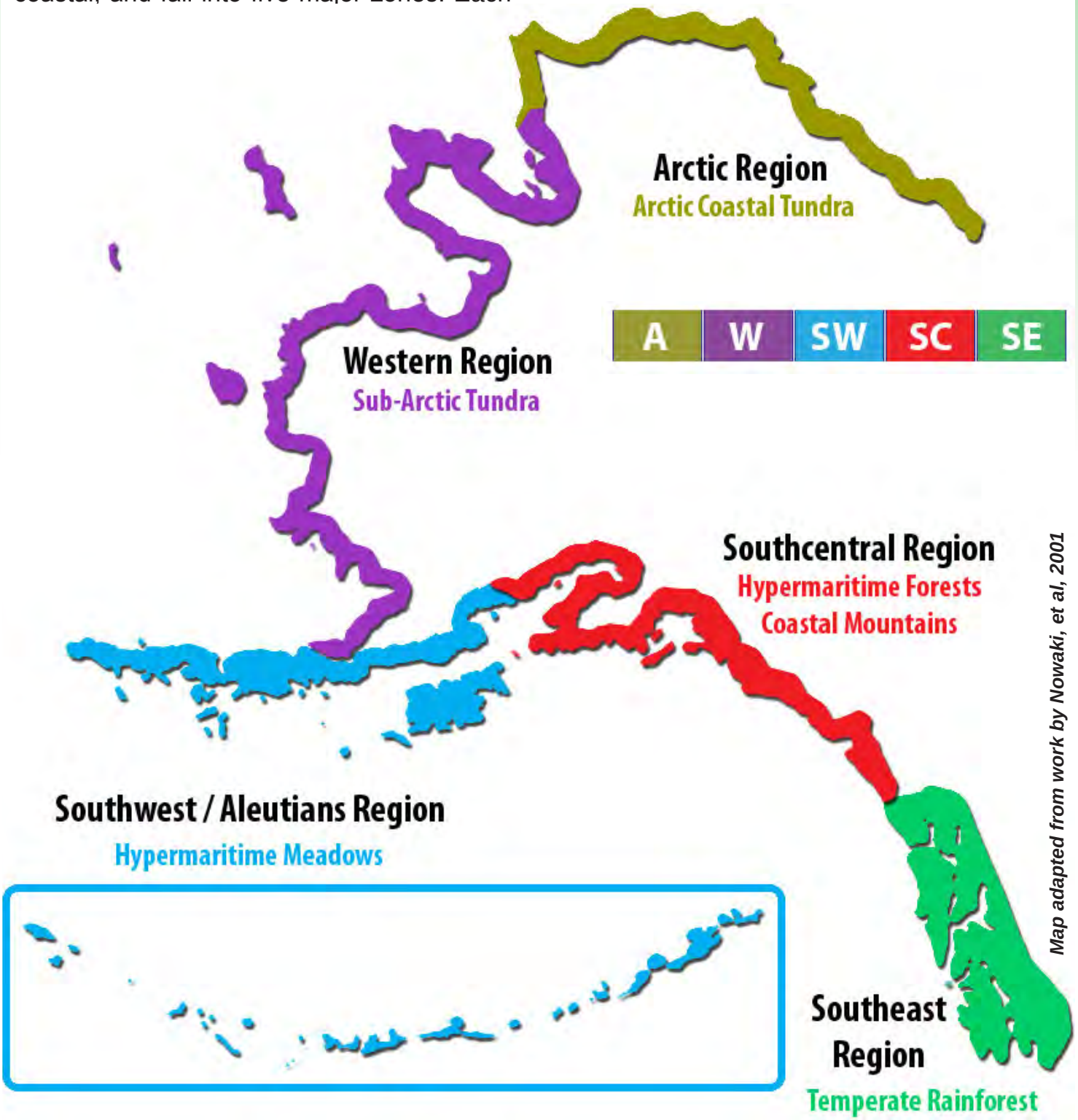
Selecting an appropriate species mixture

Reedgrass, Hairgrass, Alpine Bluegrass, and Red Fescue are present in this St. Lawrence Island plant community

Species diversity is a critical component of true revegetative success. Predicting which species will become established at a site is an inexact science. However, selecting native plant varieties which are adapted to the region and the specific characteristics of the site is key. The use of several different plant species increases diversity of the stand and increases the ability of the vegetated area to withstand unforeseen complications or changing site conditions. It is always prudent to use more than one species in a seed mix. The charts within this section can be used to develop adapted planting mixtures appropriate for each region of Alaska.

Coastal Regions of Alaska:

Alaska contains thirty-one unique eco-regions, defined as large areas of land and waters containing vegetation communities that share ecological dynamics, environmental conditions, and interactions that are critical for their long-term persistence. (Nowaki et al, 2001). Nineteen of these regions are coastal, and fall into five major zones. Each region of Alaska has a dominant vegetation community, and it is necessary to address the issue of revegetation in the context of these communities, as this will effect species selection and other planting requirements. The species suggestions in this section are color-coded by region, as indicated below.



Map adapted from work by Nowaki, et al, 2001

Revegetation Suggestions:

How to use the Species Chart :

1. Estimate soil moisture conditions. (**Saturated, Average, Very Dry**)
2. Select the soil type based on the Uniform Soil Classification engineering soil classification table.

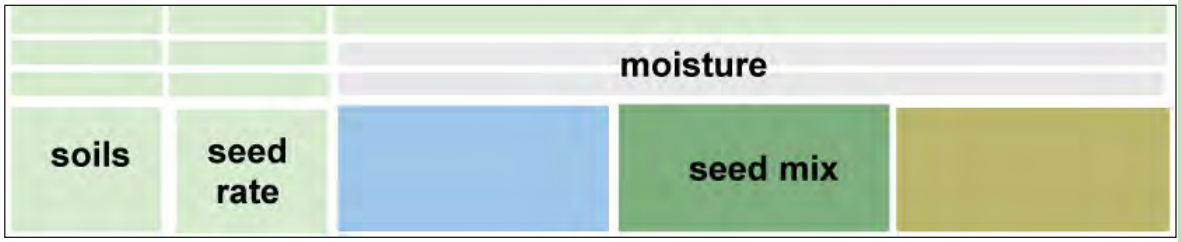
Uniform Soil Classification Table	
Symbol	**Soil Type**
GW	well-graded gravel
GP	poorly-graded gravel
GM	silty gravel
GC	clayey gravel
SW	well-graded sand
SP	poorly-graded sand
SM	silty sand
SC	clayey sand
ML	silt
MH	elastic silt
CL	lean clay
CH	flat clay
OL	organic clay/silt - low plasticity
OH	organic clay/silt -high plasticity
PT	peat - high organic

3. Select an effective seed mix from the of primary and secondary species lists for the region.

   Primary Species, selected from the primary species list for the region, should account for 80–100% of the seed mix. (relative weighting indicated by a '**1**' or '**2**' preceding the species name on chart for the region). If soil conditions at the site are uniform, a two or three species mix composed of exclusively primary species will suffice. Conversely, if soil conditions vary considerably, secondary species should be included as well.

   Secondary Species represent the smallest percentage of a seed mix, often species that are costly or in short supply. (indicated by a '**3**' on chart for the region). Secondary material adds a degree of variability to the mix and is recommended to address special environmental concerns such as stream crossings. Material for a given secondary species should not exceed 5% of the total mix.

4. Seeding rates for the entire mix are listed in the column "Seed Rate." This number is interchangeable for either lbs / acre or kg / hectare.
5. If the site is determined to be an erosion hazard, add no more than 10% Annual Ryegrass to the previously developed mix. This species, while giving temporary erosion protection, competes for nutrients with long-term perennial species. Also, Annual Ryegrass is a highly palatable forage species that can attract herbivores (i.e. moose and deer). Annual ryegrass cannot be used in conjunction with Alpine Bluegrass (*Poa alpina*). The allelopathic effects of Annual Ryegrass will kill Alpine Bluegrass.



Revegetation Suggestion Chart Structure

Vegetation Communities:

ARCTIC REGION

Above:
Thermal degradation, caused by melting permafrost, is evident within this sedge-grassland community in arctic Alaska

Left:
***Carex aquatilis* (Water sedge), and *Saxifraga cernua* (Drooping Saxifrage) on the arctic coastal plain**

Next Page:
***Leymus mollis* (Beach Wildrye) colonizes a dune in the Prudhoe Bay oilfield**

Revegetation Suggestions:

ARCTIC REGION

Photo: Stoney Wright (AK PMC)

Primary Species:

- 'Gruening' **Alpine Bluegrass**, *Poa alpina*
- 'Egan' **American Sloughgrass**, *Beckmannia syzigachne*
- 'Norcoast' **Bering Hairgrass**, *Deschampsia beringensis*
- 'Tundra' **Glaucous Bluegrass**, *Poa glauca*
- 'Alyeska' **Polargrass**, *Arctagrostis latifolia*
- 'Arctared' **Red Fescue**, *Festuca rubra*
- 'Nortran' **Tufted Hairgrass**, *Deschampsia caespitosa*

Secondary Species:

- Council **Arctic Bluegrass**, *Poa arctica*
- Tin City **Arctic Bluegrass** (viviparous form), *Poa arctica*
- **Annual Ryegrass**, *Lolium multiflorum*
- Kotzebue **Arctic Wild Chamomile**, *Tripleurospermum maritima*
- 'Sourdough' **Bluejoint Reedgrass**, *Calamagrostis canadensis*
- Black Rapids' **Field Oxytrope**, *Oxytropis campestris*
- Franklin Bluffs **Nodding Locoweed**, *Oxytropis deflexa*
- 'Caiggluk' **Tilesius' Wormwood**, *Artemisia tilesii*
- Safety **Viviparous Fescue**, *Festuca viviparoidea*

Revegetation Suggestions:

ARCTIC REGION

The northern portion of Alaska consists of the Beaufort Coastal Plain, Kobuk Ridges and Hills, and the Brooks Range Foothills eco-regions. The climate is dry, and experiences extremes of sunlight. During the growing season, the arctic sun does not set for several weeks. Summers are short and cool, and winters are long and cold. Continuous permafrost often results in saturated organic soils.

Arctic Alaska supports a mixed shrub-sedge tussock plant community. Vegetation communities have low species diversity, low plant biomass & slow rates of growth, which results in a delayed recovery from disturbance (Oceanographic Institute of Washington, 1979). Many grasses are available in 'hardy' varieties that are best suited for the harsh conditions on the North Slope of Alaska.

Soil Group *(Refer to Soil Type Chart)*	**Seed Rate** *(Refer to Directions)*	**Species/Cultivar Selection** *(Refer to Species/Cultivar Characteristic Chart For Category Ratings)*		
High Organic		Suggest fertilizer only. If seeding is stipulated use suggestions for SW, SP, SM, SC soils.		
GW, GP		Suggest scarification and fertilizer only. If seeding is stipulated use suggestions for GM, GC soils and moisture.		
		Soil Moisture Characteristics		
		Saturated (Hydric)	**Average (Mesic)**	**Very Dry (Xeric)**
GM, GC	**20**	**1** 'Arctared' red fescue **1** 'Alyeska' polargrass **2** 'Tundra' glaucous bluegrass **2** 'Norcoast' Bering hairgrass **3** 'Egan' American sloughgrass **3** 'Boreal' red fescue	**1** 'Arctared' red fescue **1** 'Alyeska' polargrass **1** 'Tundra' glaucous bluegrass **2** 'Nortran' tufted hairgrass **2** 'Gruening' alpine bluegrass	**1** 'Arctared' red fescue **1** 'Alyeska' polargrass **1** 'Tundra' glaucous bluegrass **2** 'Gruening' alpine bluegrass
SW, SP, SM, SC	**40**	**1** 'Arctared' red fescue **1** 'Alyeska' polargrass **1** 'Tundra' glaucous bluegrass **2** 'Gruening' alpine bluegrass **2** 'Nortran' tufted hairgrass **3** 'Norcoast' Bering hairgrass **3** 'Caiggluk' Tilesy wormwood	**1** 'Arctared' red fescue **1** 'Alyeska' polargrass **1** 'Tundra' glaucous bluegrass **2** 'Gruening' alpine bluegrass **2** 'Nortran' tufted hairgrass **3** 'Norcoast' Bering hairgrass **3** 'Caiggluk' Tilesy wormwood	**1** 'Arctared' red fescue **1** 'Alyeska' polargrass **1** 'Tundra' glaucous bluegrass **2** 'Gruening' alpine bluegrass **2** 'Nortran' tufted hairgrass **3** 'Norcoast' Bering hairgrass **3** 'Caiggluk' Tilesy wormwood
ML, CL, OL **MH, CH, OH**	**30**	**1** 'Arctared' red fescue **1** 'Alyeska' polargrass **2** 'Tundra' glaucous bluegrass **2** 'Norcoast' Bering hairgrass **3** 'Egan' American sloughgrass		

Vegetation Communities:

WESTERN REGION

Photo: Andy Nolan

Photo: Stoney Wright (AK PMC)

Above: Typical Beach Wildrye community, adapted to the sandy and gravelly soils of Safety Sound

Right: *Ligusticum scotium (*Beach Lovage)

Below: Both *Honckenya peploides* (Sandwort) and *Leymus mollis* (Beach Wildrye) are adapted to sandy environs, such as this beach near Nome

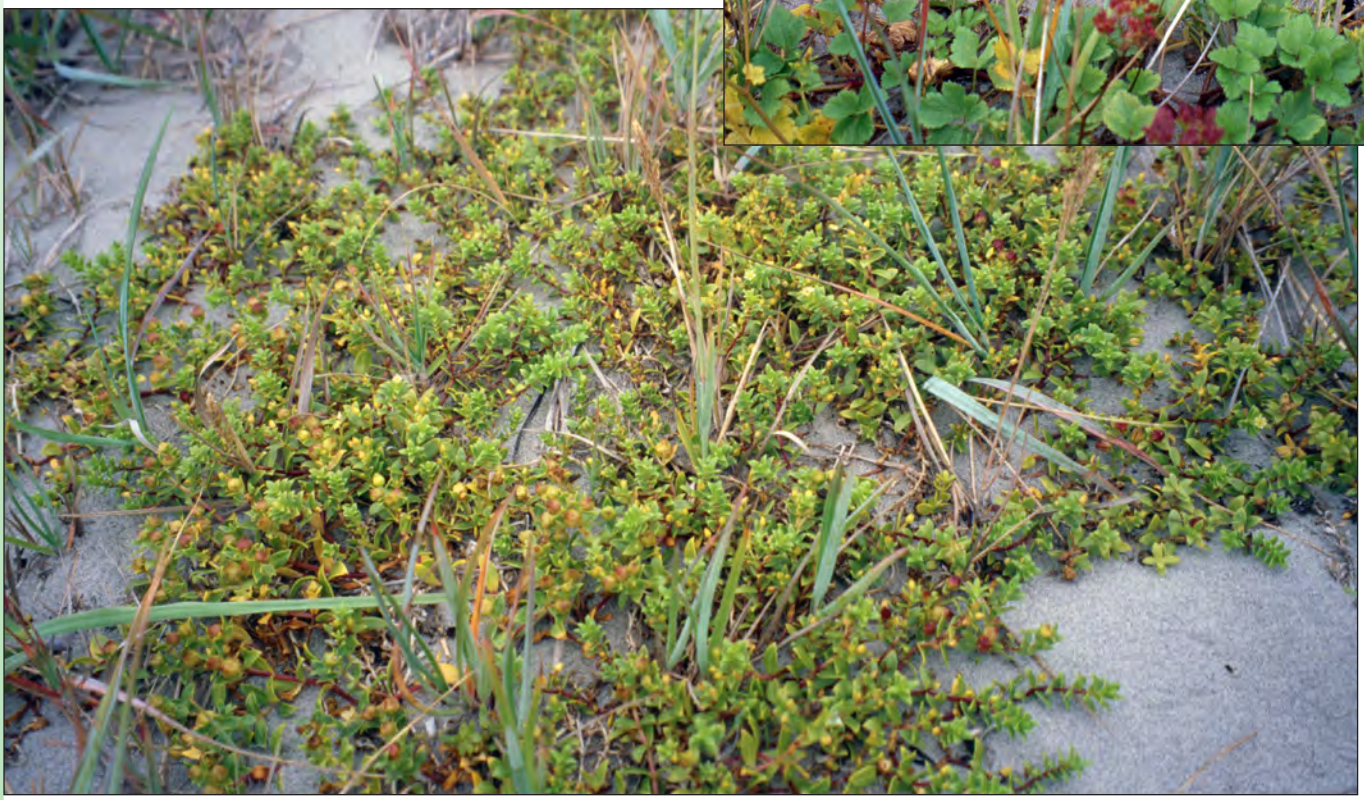


Photo: Stoney Wright (AK PMC)

Revegetation Suggestions:

WESTERN REGION

The western Alaska region stretches from the Kotzebue Sound lowlands to the Bristol Bay lowlands, encompassing the Seward Peninsula, the Yukon-Kuskokwim Delta, and the Bering Sea islands. Bering tundra is present at Kotzebue, transitioning to a subarctic tundra plant community all the way south to Bristol Bay.

Primary Species:

- 'Gruening' **Alpine Bluegrass**, *Poa alpina*
- 'Egan' **American Sloughgrass**, *Beckmannia syzigachne*
- 'Norcoast' **Bering Hairgrass**, *Deschampsia beringensis*
- 'Tundra' **Glaucous Bluegrass**, *Poa glauca*
- 'Alyeska' **Polargrass**, *Arctagrostis latifolia*
- 'Kenai' **Polargrass**, *Arctagrostis latifolia*
- 'Arctared' **Red Fescue**, *Festuca rubra*
- 'Boreal' **Red Fescue**, *Festuca rubra*
- Wainwright **Slender Wheatgrass**, *Elymus trachycaulus*
- 'Nortran' **Tufted Hairgrass**, *Deschampsia caespitosa*

Secondary Species:

- Teller **Alpine Bluegrass**, *Poa alpina*
- Paxson **Alpine Sweetvetch**, *Hedysarum alpinum*
- **Annual Ryegrass**, *Lolium multiflorum*
- Council **Arctic Bluegrass**, *Poa arctica*
- Tin City **Arctic Bluegrass** (vivparous form), *Poa arctica*
- Kotzebue **Arctic Wild Chamomile**, *Tripleurospermum maritima*
- Clam Lagoon **Beach Fleabane**, *Senecio pseudoarnica*
- Casco Cove **Beach Lovage**, *Ligusticum scoticum*
- 'Sourdough' **Bluejoint Reedgrass**, *Calamagrostis canadensis*
- Twenty Mile **Boreal Yarrow**, *Achillea millefolium*
- Kobuk **Dwarf Fireweed**, *Chamerion latifolium*
- Black Rapids **Field Oxytrope**, *Oxytropis campestris*
- Nome **Glaucous Bluegrass**, *Poa glauca*
- Lowell Point **Meadow Barley**, *Hordeum brachyantherum*
- Franklin Bluffs **Nodding Locoweed**, *Oxytropis deflexa*
- Ninilchik' **Nootka Alkaligrass**, *Puccinellia nutkaensis*
- Pioneer Peak **Nootka Reedgrass**, *Calamagrostis nutkaensis*
- Nelchina **Spike Trisetum**, *Trisetum spicatum*
- 'Caiggluk' **Tilesius' Wormwood**, *Artemisia tilesii*
- Safety **Viviparous Fescue**, *Festuca viviparoidea*
- Knik **Wild Iris**, *Iris setosa*

Revegetation Suggestions:

WESTERN REGION

Western Alaska has a polar climate. Summer temperatures are moderated by the Bering Sea, but winter temperatures are more continental in nature due to sea ice that forms in the winter. Precipitation is light in the region, averaging between 12 and 24 inches per annum. (WRCC, ongoing). Dominant plant species include sedges, forbs, and low-shrubs.

Soil Group *(Refer to Soil Type Chart)*	**Seed Rate** *(Refer to Directions)*	**Species/Cultivar Selection** *(Refer to Species/Cultivar Characteristic Chart For Category Ratings)*		
High Organic		Suggest fertilizer only. If seeding is stipulated use suggestion for MH, CH, OH Hydric.		
GW, GP		Suggest scarification and fertilizer only. If seeding is stipulated use suggestions for SW, SP, SM, SC soils.		
		Soil Moisture Characteristics		
		Saturated (Hydric)	**Average (Mesic)**	**Very Dry (Xeric)**
GM, GC	**20**	**1** 'Norcoast' Bering hairgrass **1** 'Arctared' red fescue **1** 'Egan' American sloughgrass **2** 'Nortran' tufted hairgrass **2** 'Boreal' red fescue **2** 'Alyeska' polargrass **3** 'Caiggluk' Tilesy wormwood	**1** 'Arctared' red fescue **1** 'Norcoast' Bering Hairgrass **1** 'Tundra' glaucous bluegrass **2** 'Boreal' red fescue **2** 'Alyeska' polargrass **2** 'Nortran' tufted hairgrass **2** 'Gruening' alpine bluegrass **3** 'Caiggluk' Tilesy wormwood	**1** 'Arctared' red fescue **1** 'Norcoast' Bering Hairgrass **1** 'Gruening' alpine bluegrass **2** 'Nortran' tufted hairgrass **2** 'Tundra' glaucous bluegrass **2** 'Boreal' red fescue **3** 'Sourdough' bluejoint reedgrass **3** Wainwright slender wheatgrass
SW, SP, SM, SC	**40**	**1** 'Arctared' red fescue **1** 'Norcoast' Bering hairgrass **1** 'Nortran' tufted hairgrass **1** 'Gruening' alpine bluegrass **2** 'Alyeska' polargrass **2** 'Kenai' polargrass **2** 'Tundra' glaucous bluegrass **3** 'Sourdough' bluejoint reedgrass	**1** 'Arctared' red fescue **1** 'Norcoast' Bering hairgrass **1** 'Nortran' tufted hairgrass **1** 'Gruening' alpine bluegrass **2** 'Alyeska' polargrass **2** 'Kenai' polargrass **2** 'Tundra' glaucous bluegrass **3** 'Sourdough' bluejoint reedgrass	**1** 'Arctared' red fescue **1** 'Norcoast' Bering hairgrass **1** 'Nortran' tufted hairgrass **1** 'Gruening' alpine bluegrass **2** 'Alyeska' polargrass **2** 'Kenai' polargrass **2** 'Tundra' glaucous bluegrass **3** 'Sourdough' bluejoint reedgrass
ML, CL, OL **MH, CH, OH**	**30**	**1** 'Norcoast' Bering hairgrass **1** 'Egan' American sloughgrass **1** 'Arctared' red fescue **2** 'Alyeska' polargrass **2** 'Boreal' red fescue **3** 'Caiggluk' Tilesy wormwood	*Note: If the area to be revegetated is adjacent to a coast line, consider using local Beach Wild-rye transplants instread.*	*Note: If the area to be revegetated is adjacent to a coast line, consider using local Beach Wild-rye transplants instread.*

Vegetation Communities:

SOUTHWEST REGION

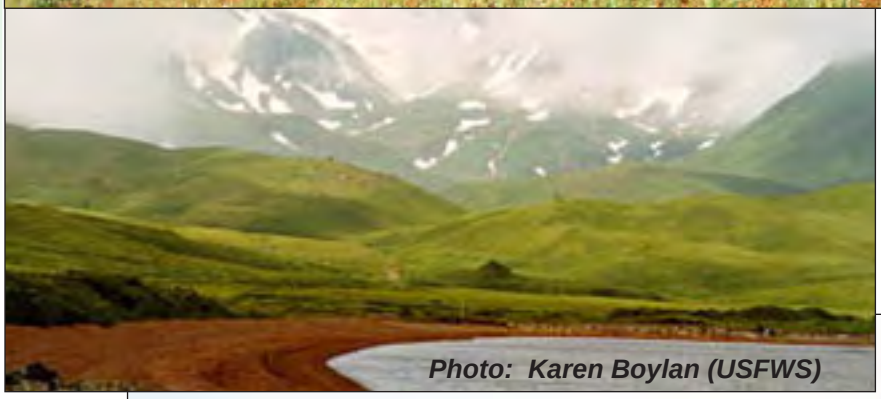


Photo: Karen Boylan (USFWS)

Above: Hypermaritime meadow environment, characteristic of southwestern Alaska and the Aleutian Islands

Left: Adak island grassland community

Below: Beach Wildrye is a large component of this hypermaritime grassland on Adak Island

Photos: (top, bottom of page): Stoney Wright (AK PMC)

Revegetation Suggestions:

SOUTHWEST REGION

The area of southwest Alaska is vast, stretching from Kodiak Island to the island of Attu at the end of the Aleutian Chain. This area also encompasses the southern edge of Bristol Bay, and is home to several distinct eco-regions, including Bristol Bay, the Alaska Peninsula, the Aleutian Islands, and Kodiak Island. The southwest region has a maritime climate with seasonal temperatures of 34 to 41 degrees. Climatically, the Aleutian islands are classified as arctic environment, based on the 10˚ C isotherm, defined as a region where the mean temperature does not go above 50˚ degrees Fahrenheit in July. Precipitation is abundant and these eco-regions are void of permafrost.

Primary Species:

- 'Gruening' **Alpine Bluegrass**, *Poa alpina*
- 'Norcoast' **Bering Hairgrass**, *Deschampsia beringensis*
- 'Kenai' **Polargrass**, *Arctagrostis latifolia*
- 'Arctared' **Red Fescue**, *Festuca rubra*
- 'Boreal' **Red Fescue**, *Festuca rubra*
- 'Caiggluk' **Tilesius' Wormwood**, *Artemisia tilesii*
- 'Nortran' **Tufted Hairgrass**, *Deschampsia caespitosa*

Secondary Species:

- Teller **Alpine Bluegrass**, *Poa alpina*
- **Annual Ryegrass**, *Lolium multiflorum*
- Adak (viviparous form) **Arctic Bluegrass**, *Poa arctica*
- Council **Arctic Bluegrass**, *Poa arctica*
- Clam Lagoon **Beach Fleabane**, *Senecio pseudoarnica*
- Casco Cove **Beach Lovage**, *Ligusticum scoticum*
- 'Benson' **Beach Wildrye**, *Leymus mollis*
- 'Reeve' **Beach Wildrye**, *Leymus arenarius*
- 'Sourdough' **Bluejoint Reedgrass**, *Calamagrostis canadensis*
- Twenty Mile **Boreal Yarrow**, *Achillea millefolium*
- Shemya **Dusty Miller Artemisia**, *Artemisia stelleriana*
- Nome **Glaucous Bluegrass**, *Poa glauca*
- Andrew Bay **Large-glume Bluegrass**, *Poa macrocalyx*
- Attu **Longawn Sedge**, *Carex macrochaeta*
- Lowell Point **Meadow Barley**, *Hordeum brachyantherum*
- Pioneer Peak **Nootka Reedgrass**, *Calamagrostis nutkaensis*
- Henderson Ridge **Red Fescue**, *Festuca rubra*
- Safety **Viviparous Fescue**, *Festuca viviparoidea*
- Knik **Wild Iris**, *Iris setosa*

Revegetation Suggestions:

SOUTHWEST REGION

Shrub communities of willow, birch, and alder are present along coastlines in the eastern portions of the Aleutian island chain (Nowacki, et Al, 2001). Lichen and grass communities are also interspersed throughout the region. Moist tundra is found along the lower elevations of the Alaska Peninsula. Mixed forests of spruce, Balsam Poplar, cottonwood, Quaking Aspen, and Paper Birch are also present.

Kodiak Island has trees of Sitka Spruce and Black Cottonwood. Shrubs of willow and alder thickets as well as forb/grass meadows predominate most of the island.

Soil Group *(Refer to Soil Type Chart)*	**Seed Rate** *(Refer to Directions)*	**Species/Cultivar Selection** *(Refer to Species/Cultivar Characteristic Chart For Category Ratings)*		
High Organic		Suggest fertilizer only. If seeding is stipulated use suggestion below.		
GW, GP		Suggest scarification and fertilizer only. If seeding is stipulated use suggestions below.		
		Soil Moisture Characteristics		
		Saturated (Hydric)	**Average (Mesic)**	**Very Dry (Xeric)**
GM, GC	**40**	**1** 'Norcoast' Bering hairgrass **1** 'Boreal' red fescue **2** 'Arctared' red fescue **2** 'Nortran' tufted hairgrass **2** 'Caiggluk' Tilesy wormwood **3** 'Sourdough' Bluejoint reedgrass *Note: If the area to be revegetated is adjacent to a coast line, consider using local Beach Wild-rye transplants instread.*	**1** 'Norcoast' Bering hairgrass **1** 'Boreal' red fescue **2** 'Arctared' red fescue **2** 'Nortran' tufted hairgrass **2** 'Caiggluk' Tilesy wormwood **3** 'Sourdough' Bluejoint reedgrass *Note: If the area to be revegetated is adjacent to a coast line, consider using local Beach Wild-rye transplants instread.*	**1** 'Norcoast' Bering hairgrass **1** 'Boreal' red fescue **2** 'Arctared' red fescue **2** 'Nortran' tufted hairgrass **2** 'Caiggluk' Tilesy wormwood **3** 'Sourdough' Bluejoint reedgrass *Note: If the area to be revegetated is adjacent to a coast line, consider using local Beach Wild-rye transplants instread.*
SW, SP, SM, SC				
ML, CL, OL				
MH, CH, OH				

Vegetation Communities:

SOUTHCENTRAL REGION

Photo: Josh Brekken (Oasis Environmental)

Above: A vegetation community, consisting of *Puccinellia, Deschampsia*, and *Leymus* species on the coastal mud flats, near the Port of Anchorage on Cook Inlet

Right: A spruce - alder community along the southern coast of Homer. Note the steeply sloping terrain and the Cow parsnip in the foreground

Photo: Stoney Wright (AK PMC)

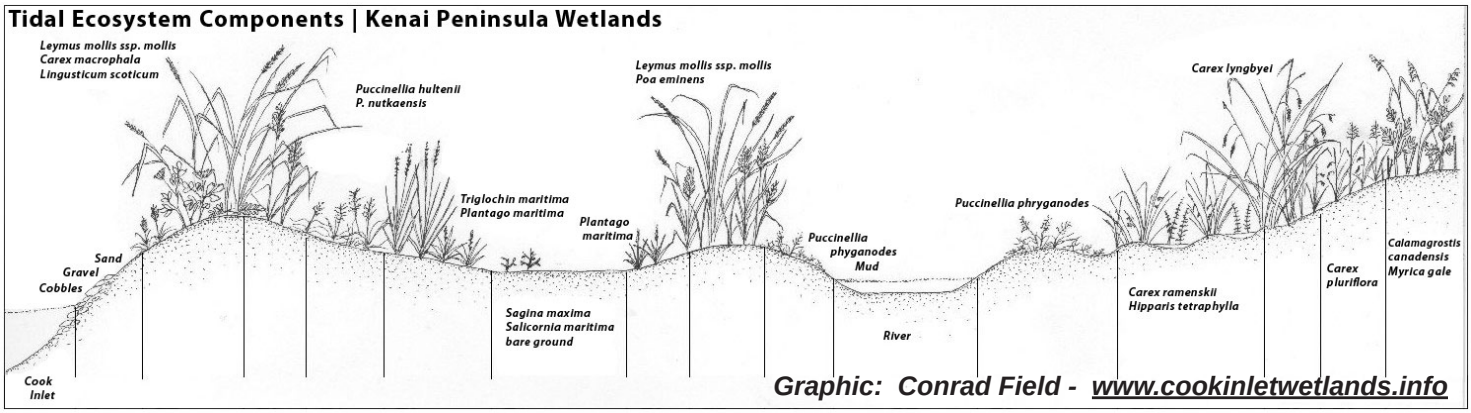
Below: Hairgrass, Fescue, Alkaligrass and Beach Wildrye are present in this Kenai Peninsula vegetation community

Photo: Stoney Wright (AK PMC)

Revegetation Suggestions:

SOUTHCENTRAL REGION

Coastal species visible in this photo of the upper Cook Inlet include spruce, mosses and sedges and grass



Primary Species:

- 'Gruening' **Alpine Bluegrass**, *Poa alpina*
- 'Egan' **American Sloughgrass**, *Beckmannia syzigachne*
- 'Norcoast' **Bering Hairgrass**, *Deschampsia beringensis*
- 'Alyeska' **Polargrass,** *Arctagrostis latifolia*
- 'Kenai' **Polargrass,** *Arctagrostis latifolia*
- Wainwright **Slender Wheatgrass**, *Elymus trachycaulus*
- 'Boreal' **Red Fescue**, *Festuca rubra*
- 'Nortran' **Tufted Hairgrass**, *Deschampsia caespitosa*

Revegetation Suggestions:

SOUTHCENTRAL REGION

Southcentral Alaska is classified as a temperate coastal hypermaritime forest, although the northern portions of Cook Inlet are best described as a continental boreal forest. Eco-regions found in southcentral are the Alaska Range, Cook Inlet Basin, Chugach-St. Elias mountains and the Gulf of Alaska coast. This region is generally free of permafrost, but it does exist in portions of the Alaska Range and Cook Inlet basin.

Willow, birch, and alder occupy the lower valleys of the Alaska Range. Forests of spruce can be found growing in the wet organic soils of Cook Inlet with aspen and birch growing on less waterlogged soils. Willow and alder communities grow along the basin slopes.

Secondary Species:

- Teller **Alpine Bluegrass**, *Poa alpina*
- Paxson **Alpine Sweetvetch**, *Hedysarum alpinum*
- **Annual Ryegrass**, *Lolium multiflorum*
- Adak (viviparous form) **Arctic Bluegrass**, *Poa arctica*
- Council **Arctic Bluegrass**, *Poa arctica*
- Clam Lagoon **Beach Fleabane**, *Senecio pseudoarnica*
- Casco Cove **Beach Lovage**, *Ligusticum scoticum*
- 'Benson' **Beach Wildrye**, *Leymus mollis*
- 'Reeve' **Beach Wildrye**, *Leymus arenarius*
- Butte **Beautiful Jacob's Ladder**, *Polemonium pulcherrimum*
- 'Sourdough' **Bluejoint Reedgrass**, *Calamagrostis canadensis*
- Twenty Mile **Boreal Yarrow**, *Achillea millefolium*
- Kobuk **Dwarf Fireweed**, *Chamerion latifolium*
- Nome **Glaucous Bluegrass**, *Poa glauca*
- Tok **Jakutsk Snow Parsley**, *Cnidium cnidiifolium*
- Andrew Bay **Large-glume Bluegrass**, *Poa macrocalyx*
- Attu **Longawn Sedge**, *Carex macrochaeta*
- Lowell Point **Meadow Barley**, *Hordeum brachyantherum*
- Ninilchik **Nootka Alkaligrass**, *Puccinellia nutkaensis*
- Pioneer Peak **Nootka Reedgrass**, *Calamagrostis nutkaensis*
- Nelchina **Spike Trisetum**, *Trisetum spicatum*
- 'Caiggluk' **Tilesius' Wormwood**, *Artemisia tilesii*
- Safety **Viviparous Fescue**, *Festuca viviparoidea*
- Knik **Wild Iris**, *Iris setosa*

Revegetation Suggestions:

SOUTHCENTRAL REGION

The Gulf of Alaska eco-region is a temperate rainforest of spruce and hemlock with wetland sedge and grass communities growing along. Snow is abundant in this region. The Chugach-St. Elias mountains are part of a transitional zone, from maritime to continental. Alder shrublands grow in the lower elevations with Sitka Spruce and Mountain Hemlock growing in the valleys. Temperatures in southcentral Alaska are moderated by the Pacific Ocean.

Grass / sedge meadows are prevalent at low elevations along the coasts (Selkregg, 1977). Cordova and Valdez, situated along the eastern edge of Prince William Sound, hold records for the highest recorded rainfall and snowfall in Alaska, respectively (WRCC, ongoing).

Soils in the Anchorage basin consist largely of glacial silt, with peat bogs existing in lowland areas. Mud-flats are prevalent in the intertidal zone in upper Cook Inlet, while rocky and sandy beaches define most of Prince William Sound's coastline.

Soil Group *(Refer to Soil Type Chart)*	**Seed Rate** *(Refer to Directions)*	**Species/Cultivar Selection** *(Refer to Species/Cultivar Characteristic Chart For Category Ratings)*		
High Organic		Suggest fertilizer only. If seeding is stipulated use suggestions for MH, CH, OH Mesic or Xeric depending on site.		
GW, GP		Suggest scarification and fertilizer only. If seeding is stipulated use suggestions for GM, GC and soil moisture.		
		Soil Moisture Characteristics		
		Saturated (Hydric)	**Average (Mesic)**	**Very Dry (Xeric)**
GM, GC	**20**	**1** 'Norcoast' Bering hairgrass **1** 'Egan' American sloughgrass **1** 'Kenai' polargrass **1** 'Arctared' red fescue **2** 'Nortran' tufted hairgrass **2** 'Boreal' red fescue **2** 'Alyeska' polargrass **3** 'Sourdough' bluejoint reedgrass	**1** 'Norcoast' Bering hairgrass **1** 'Arctared' red fescue **1** 'Gruening' alpine bluegrass **2** Wainwright slender wheatgrass **2** 'Boreal' red fescue **2** 'Kenai' polargrass **2** 'Nortran' tufted hairgrass **3** 'Caiggluk' Tilesy wormwood **3** 'Sourdough' bluejoint reedgrass	**1** 'Arctared' red fescue **1** Wainwright slender wheatgrass **1** 'Nortran' tufted hairgrass **1** 'Gruening' alpine bluegrass **2** 'Norcoast' Bering hairgrass **2** 'Boreal' red fescue
SW, SP, SM, SC	**40**			
ML, CL, OL				
MH, CH, OH	**30**	**1** 'Norcoast' Bering hairgrass **1** 'Arctared' red fescue **1** 'Egan' American sloughgrass **2** 'Alyeska' polargrass **2** 'Gruening' alpine bluegrass	*Note: If the area to be revegetated is adjacent to a coast line, consider using local Beach Wildrye transplants instread.*	*Note: If the area to be revegetated is adjacent to a coast line, consider using local Beach Wildrye transplants instread.*

Vegetation Communities:

SOUTHEAST REGION

Above:
Honckenya peploides **(Sandwort),** ***Leymus mollis*** **(Beach Wildrye), and** ***Deschampsia sp.*** **(Hairgrass) on a beach near Petersburg**

Left:
Characteristic understory vegetation in southeast Alaska's coastal temperate rainforest

Photos: Andy Nolan

Revegetation Suggestions:

SOUTHEAST REGION

Southeast Alaska has a maritime climate, with cool summers, warm winters and annual precipitation rates reaching 200 inches per year (WRRC, ongoing). The region includes the Alexander Archipelago eco-region consisting of large, mountainous islands, alluvial fans, uplifted estuaries, and old-growth forests.

Soils in this region fall into three broad groups: well-drained soils (largely consisting of stones), mineral soils of impeded drainage, and organic soils such as peat and loam. The mineral soils of impeded drainage tend to occur in drainage ways, outwash plains, and the sidewalls of sloping valleys (Selkregg, 1977).

Southeast Alaska is part of the coastal temperate rain forest. Dominant conifer tree species are Sitka Spruce, Western Hemlock, Mountain Hemlock, Western Red Cedar and Alaskan Yellow Cedar. Alder, cottonwood, and birch are dominant in low lying areas and major river channels. Tree species diversity diminishes as latitude increases (Strittholt et al, 2006).

Primary Species:

- 'Gruening' **Alpine Bluegrass**, *Poa alpina*
- 'Egan' **American Sloughgrass**, *Beckmannia syzigachne*
- 'Norcoast' **Bering Hairgrass**, *Deschampsia beringensis*
- 'Kenai' **Polargrass**, *Arctagrostis latifolia*
- 'Boreal' **Red Fescue**, *Festuca rubra*
- 'Nortran' **Tufted Hairgrass**, *Deschampsia caespitosa*

Secondary Species:

- **Annual Ryegrass**, *Lolium multiflorum*
- Clam Lagoon **Beach Fleabane**, *Senecio pseudoarnica*
- Casco Cove **Beach Lovage**, *Ligusticum scoticum*
- 'Benson' **Beach Wildrye**, *Leymus mollis*
- 'Reeve' **Beach Wildrye**, *Leymus arenarius*
- 'Sourdough' **Bluejoint Reedgrass**, *Calamagrostis canadensis*
- Twenty Mile **Boreal Yarrow**, *Achillea millefolium*
- Andrew Bay **Large-glume Bluegrass**, *Poa macrocalyx*
- Lowell Point **Meadow Barley**, *Hordeum brachyantherum*
- Ninilchik **Nootka Alkaligrass**, *Puccinellia nutkaensis*
- Pioneer Peak **Nootka Reedgrass**, *Calamagrostis nutkaensis*
- 'Caiggluk' **Tilesius' Wormwood**, *Artemisia tilesii*
- Knik **Wild Iris**, *Iris setosa*

Revegetation Suggestions:

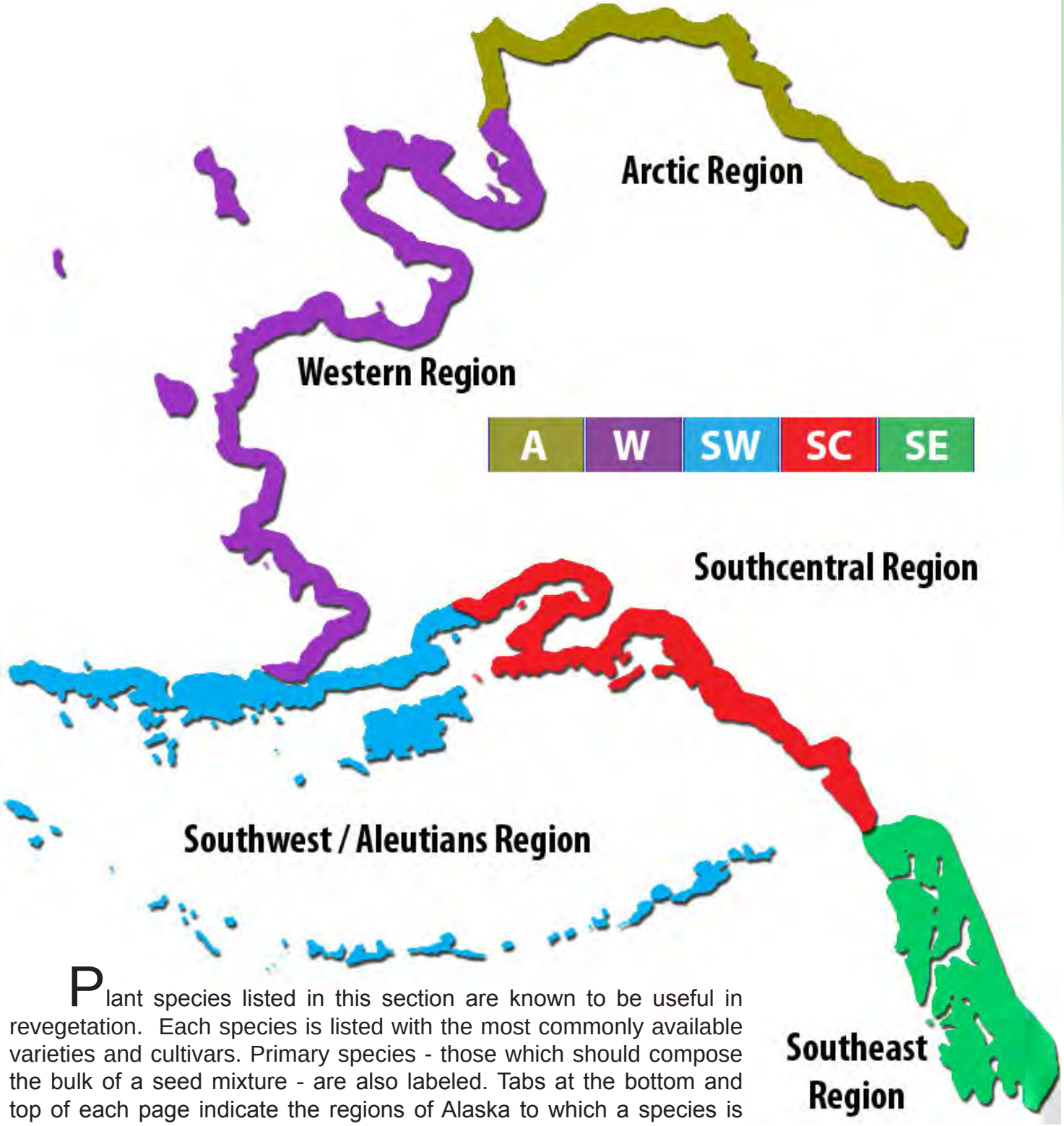
SOUTHEAST REGION

Wetlands are prevalent across the region. Coastal areas support willows, sedges, and mosses. Understory vegetation includes shrubs and young conifers. Shrub species include Sitka Alder, Rusty Menziesia, Devils Club, salmonberry, huckleberry, and currant. Meadows are found at low elevations along the coast, and consist of grasses such as Beach Wildrye, Fescue, and Bluejoint Reedgrass, as well as sedges and Arrowgrass (Selkregg, 1977).

Soil Group *(Refer to Soil Type Chart)*	**Seed Rate** *(Refer to Directions)*	**Species/Cultivar Selection** *(Refer to Species/Cultivar Characteristic Chart For Category Ratings)*		
High Organic		Suggest fertilizer only. If seeding is stipulated use suggestion below.		
GW, GP		Suggest scarification and fertilizer only. If seeding is stipulated use suggestions below.		
		Soil Moisture Characteristics		
		Saturated (Hydric)	**Average (Mesic)**	**Very Dry (Xeric)**
GM, GC	30	**1** 'Norcoast' Bering hairgrass **1** 'Boreal' red fescue **2** 'Arctared' red fescue **2** 'Nortran' tufted hairgrass **3** 'Caiggluk' Tilesy wormwood **3** 'Sourdough' bluejoint reedgrass **3** 'Gruening' alpine bluegrass *Note: If the area to be revegetated is adjacent to a coast line, consider using local Beach Wildrye transplants instread.*	**1** 'Norcoast' Bering hairgrass **1** 'Boreal' red fescue **2** 'Arctared' red fescue **2** 'Nortran' tufted hairgrass **3** 'Caiggluk' Tilesy wormwood **3** 'Sourdough' bluejoint reedgrass **3** 'Gruening' alpine bluegrass *Note: If the area to be revegetated is adjacent to a coast line, consider using local Beach Wildrye transplants instread.*	**1** 'Norcoast' Bering hairgrass **1** 'Boreal' red fescue **2** 'Arctared' red fescue **2** 'Nortran' tufted hairgrass **3** 'Caiggluk' Tilesy wormwood **3** 'Sourdough' bluejoint reedgrass **3** 'Gruening' alpine bluegrass *Note: If the area to be revegetated is adjacent to a coast line, consider using local Beach Wildrye transplants instread.*
SW, SP, SM, SC				
ML, CL, OL				
MH, CH, OH				

Plant Species

for use in Coastal Revegetation & Erosion Control



Plant species listed in this section are known to be useful in revegetation. Each species is listed with the most commonly available varieties and cultivars. Primary species - those which should compose the bulk of a seed mixture - are also labeled. Tabs at the bottom and top of each page indicate the regions of Alaska to which a species is adapted. If not all varieties will grow in that region, the variety or varieties that will are listed above the tab at the bottom portion of the page.

Boreal Yarrow,
Achillea millefolium

Boreal Yarrow does well in coastal settings, but has sufficient adaptability to be useful in inland areas also. Yarrow has the ability to create the appearance of a natural meadow stand in reseeded areas; the presence of the white/cream flowers breaks up the usual homogeneity of grass plantings.

Boreal Yarrow is a colonizer, found in meadows and fields, in both wet and dry areas. It grows on soil and gravel. It is a long lived perennial.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Twenty Mile selected class germplasm

Twenty Mile **Boreal Yarrow**, *Achillea millefolium*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Sod	24 in.	6.0-8.0	Poor	Good	Good	Strong

Polargrass,
Arctagrostis latifolia

Polargrass is a species that is ideal for forage and revegetation in Alaska (Mitchell, 1987). Polargrass is adapted to moderately wet areas (Wright, 1992). It is tolerant of low temperatures and acidic soils. Polargrass is a pioneer species in disturbed areas, especially those that are moist and acidic (Walkup, 1991). Polargrass does not grow well with fertilization or competition.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

'Kenai' is from southern Alaska, and should be planted appropriately.

'Alyeska' is suitable for revegetation in western and arctic Alaska (Mitchell, 1980).

'Alyeska' **Polargrass**, *Arctagrostis latifolia*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Fair	Sod	24 in.	4.9-6.8	Poor	Poor	Good	Weak

'Alyeska' 'Alyeska' 'Kenai' 'Kenai' 'Kenai'

Dusty Miller,
Artemisia stelleriana

Dusty Miller can be used in landscape applications throughout Alaska where the species does well. The best performance can be expected on sandy to gravelly soils (Wright, 2007). *Artemisia stelleriana* grows naturally in sunny, sandy conditions. It is found in coastal areas and is tolerant of ocean spray.

Artemesia stellerania is an interesting species because it is native to North America only on the western-most Aleutian Islands, including Shemya Island. The concept of Dusty Miller being native to such a limited region of North America discounts the fact that the original Aleut population conducted trade with societies in Asia, where the species is native and widespread. Other common names for this plant are Old Woman, Beach Wormwood, and Hoary Sagebrush - all referring to the characteristics of it leaves.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Shemya selected class germplasm

Shemya **Dusty Miller**, *Artemisia stelleriana*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Stolons	12 in.	5.0-7.5	Good	Good	Good	Strong

Tilesius' Wormwood,
Artemisia tilesii

Tilesius' Wormwood is a broadleaf forb with a wide range of adaptations throughout Alaska (Wright, 1992). Tilesius' Wormwood is a perennial, non-woody sagebrush species. It has been found on many different soil types. Tilesius' Wormwood prefers sun. The common name, stinkweed, refers to its smell when the leaves are crushed.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

'Caiggluk'

'Caiggluk' **Tilesius' Wormwood**, *Artemisia tilesii*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	20 in.	4.0-8.5	Poor	Excellent	Good	Strong

American Sloughgrass,
Beckmannia syzigachne

American Sloughgrass has a high potential for wetland reclamation. Additionally, the species benefits wildlife by providing forage and seed for waterfowl. Revegetation and erosion control plantings in seasonally wet places between 60 degrees north latitude and the Arctic Circle will benefit from including Sloughgrass as part of the seed mix.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

'Egan'

'Egan' **American Sloughgrass**, *Beckmannia syzigachne*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Good	Bunch	18 in.	5.5-7.5	Good	Poor	Excellent	Moderate

Bluejoint Reedgrass,
Calamagrostis canadensis

Bluejoint Reedgrass is found throughout Alaska on both dry and wet sites. Commercial availability can be limited, and the seed expensive. Bluejoint provides good erosion control because of its aggressive rhizomes and root structure. It can be used to successfully reclaim strip mine sites and oil spills. Bluejoint Reedgrass can thrive in very cold conditions.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

'Sourdough'

'Sourdough' **Bluejoint Reedgrass**, *Calamagrostis canadensis*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Fair	Sod	36 in.	4.5-8.0	Poor	Good	Good	Strong

Nootka Reedgrass,
Calamagrostis nutkaensis

Nootka Reedgrass is appropriate for revegetation throughout southeast and southcentral Alaska. Nootka Reedgrass is a perennial, tufted grass with short rhizomes. It grows in clumps, and requires wet soil (NRCS, 2007). This reedgrass species is found in bogs, marshes, and freshwater swamps.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Pioneer Peak selected class germplasm

Pioneer Peak **Nootka Reedgrass**, *Calamagrostis nutkaensis*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Sod	24 in.	5.5-8.0	Good	Poor	Excellent	Strong

Longawn Sedge,
Carex macrochaeta

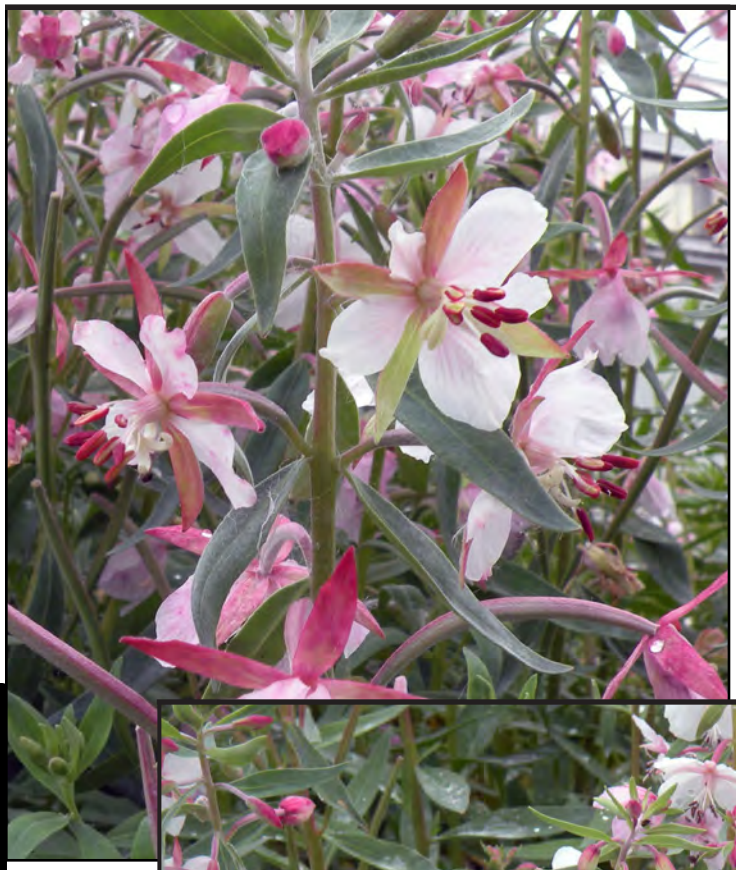
Longawn sedge is quite common along coastal areas of Alaska, growing in wet places both in the mountains and along the shore. It is rare inland. Longawn Sedge is suggested for use in revegetation if coastal wetlands are impacted. It is best for revegetating disturbed and eroded coastal grasslands.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Attu selected class germplasm

Attu **Longawn Sedge**, *Carex macrochaeta*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Sod	12 in.	5.0-6.0	Good	Poor	Excellent	Strong



Dwarf Fireweed,
Chamerion latifolium

Dwarf Fireweed is a common species found on river gravel bars throughout Alaska; hence it's other common name - river beauty. Dwarf Fireweed grows on sandy river bars, roadsides, and foothills (Hunt & Moore, 2003). It grows where the soil is dry to medium-wet. Dwarf Fireweed is a natural perennial colonizer; it will live for several years and helps stabilize the soil.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Kobuk selected class germplasm

Kobuk **Dwarf Fireweed**, *Chamerion latifolium*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	12 in.	4.8-7.0	Poor	Poor	Good	Weak

Bering Hairgrass,
Deschampsia beringensis

Bering Hairgrass is recommended for revegetation use in coastal regions of western and southwestern Alaska, and in some northern maritime regions (Mitchell, 1985). Bering Hairgrass is found along muddy shores in southern Alaska. It grows well in waterlogged soils. Bering Hairgrass is tolerant of moist and salty conditions.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

'Norcoast'

'Norcoast' **Bering Hairgrass**, *Deschampsia beringensis*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Good	Bunch	20 in.	5.5-7.2	Excellent	Poor	Good	Strong

Tufted Hairgrass,
Deschampsia caespitosa

Tufted Hairgrass is well adapted to northern regions of Alaska (Mitchell, 1985). Tufted Hairgrass is a cool season bunch grass. It will grow in most any soil. In the wild, Tufted Hairgrass is found in moist or boggy areas. An arctic species, Tufted Hairgrass is well suited for many of Alaska's harshest environments. It is not recommended for revegetation of streambank areas, however, since the tufted fibrous roots provide limited bank stabilization (Mitchell, 1986).

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

'Nortran'

'Nortran' **Tufted Hairgrass**, *Deschampsia caespitosa*

Availability	Growth Form	Average Height	PH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Good	Bunch	20 in.	4.8-7.2	Poor	Good	Good	Strong

Slender Wheatgrass,
Elymus trachycaulus

Slender Wheatgrass is a natural colonizer, adapted to dry rocky and gravelly soil. Slender Wheatgrass is the largest commercially produced perennial grass in Alaska, both in volume and in the number of producers. This species can be found in the wild on moist to dry soils, under trees and in full sun. Slender Wheatgrass grows on either alkaline or acidic substrate. Although it is short lived, Slender Wheatgrass can colonize and stabilize an area, allowing other plants to subsequently become established.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Wainwright selected class germplasm

Wainwright **Slender Wheatgrass**, *Elymus trachycaulus*

Availability	Growth Form	Average Height	PH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Excellent	Bunch	20 in.	5.6-9.0	Excellent	Excellent	Good	Strong

Red Fescue,
Festuca rubra

Red Fescue is outstanding for erosion control, although the overly aggressive, sod-forming nature of this species often makes the species unacceptable in reclamation. Red Fescue's aggressive nature may be utilized to prevent the invasion of native shrub species such as alder and willow.

Red Fescue is a colonizer of disturbed areas, and it provides long-term stabilization as well. It needs little maintenance, establishes quickly, and survives for many years. Red Fescue will survive in sun and shade; in cold and hot; in dry and moist; and in a broad range of pH (in both acidic and alkaline soils).

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

'Arctared' **Red Fescue**, *Festuca rubra*

'Arctared' is the most winter-hardy variety of Red Fescue. It is especially well adapted to the harsh arctic environment.

'Boreal' is adapted for use across Alaska, including western Alaska and along the southern coast.

Henderson Ridge selected class germplasm is best adapted to the western Aleutians. In coastal and southcentral Alaska, Henderson Ridge can be used for revegetating mines, highways, and similar sites.

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor - Excellent	Sod	14 - 18 in.	5.0-7.5	Poor	Good	Good	Strong
	'Arctared' 'Boreal'	**'Arctared', 'Boreal' Henderson Ridge**	**'Arctared' 'Boreal' Henderson Ridge**		**'Arctared' 'Boreal'**	**'Arctared'**	

Viviparous Fescue,
Festuca viviparoidea

Viviparous Fescue reproduces by an asexual means called vivipary. Instead of producing seed, Viviparous Fescue produces small plantlets where the seed heads would be in other grasses. When these plantlets are sufficiently developed, they separate from the parent to fall to the ground. If the plantlet finds a suitable habitat, it will grow. Viviparous Fescue is intended for use in arctic, western, southcentral, and southwest Alaska. Viviparous Fescue can be a colonizer in mountainous country. In the wild, it is found in alpine tundra and on rocky slopes. If the purpose of a revegetation project is to stabilize soil in an arctic to sub-arctic area, then Viviparous Fescue is ideal.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Safety selected class germplasm

Safety **Viviparous Fescue**, *Festuca viviparoidea*

Availability	Growth Form	Average Height	PH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	6 in.	6.0-7.5	Poor	Excellent	Poor	Strong

Alpine Sweetvetch,
Hedysarum alpinum

Alpine Sweetvetch is an easily recognized and frequently encountered legume. This species is most often found on dry, gravelly soils, especially near rivers. It is suspected of being a nitrogen-fixing species. Alpine Sweetvetch is recommended for use in southcentral and western Alaska.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Paxson selected class germplasm

Paxson **Alpine Sweetvetch**, *Hedysarum alpinum*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	24 in.	6.0-8.0	Poor	Poor	Good	Strong

Meadow Barley,
Hordeum brachyantherum

Meadow Barley is an important coastal grass species, frequently found in wet areas and often on fine soils such as clays. Meadow Barley is not found north of the Brooks Range. At times, it grows on rocky or gravelly sites, provided adequate moisture exists. Meadow Barley has a moderate lifespan, and it propagates well by seed. It starts growth after snowmelt, with seed maturing in September. Meadow Barley is competitive with annual grasses.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Lowell Point selected class germplasm

Lowell Point **Meadow Barley**, *Hordeum brachyantherum*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	24 in.	6.0-8.5	Good	Good	Good	Weak

Wild Iris,
Iris setosa

Wild Iris is best used on wet soil and in seed mixes with non-competitive grasses. It is best adapted for southcentral, southeast, and southwest Alaska. Wild Iris can be found throughout most of Alaska in bogs, meadows, and on lake shores. It is also found in drier areas where the seed has taken hold.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Knik selected class germplasm

Knik **Wild Iris**, *Iris setosa*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Sod	12 in.	5.0-7.5	Good	Poor	Excellent	Strong

Beach Wildrye,
Leymus arenarius

Beach Wildrye has high potential in coastal restoration, especially in foredunes and other sandy sites throughout coastal Alaska (Wright, 1994). Beach Wildrye grows wild in Alaska mainly along the coast on sandy beaches. It can successfully revegetate areas unsuitable for other species. Prior planning is essential, however, as Beach Wildrye does not tolerate excessive foot traffic. Beach Wildrye does not compete well with other grasses (Wright, 1994).

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

'Reeve' is available as seed. This cultivar was developed from European sources.

'Reeve' **Beach Wildrye**, *Leymus arenarius*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Sod	24 in.	6.0-8.0	Excellent	Good	Good	Weak

Beach Wildrye,
Leymus mollis

Beach Wildrye should be used in sandy areas with high erosion potential. Revegetation with sprigs is a preferred method of revegetating highly erodible areas (Wright, 1994). Beach Wildrye sprigs can effectively and quickly recolonize coastal areas, especially where there are dunes and blowing sand conditions. It provides good erosion control because of its aggressive vegetative growth.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

'Benson' is available only from vegetative cuttings (sprigs). Seed is not available.

'Benson' **Beach Wildrye**, *Leymus mollis*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Sod	24 in.	6.0-8.0	Excellent	Good	Good	Weak

Beach Lovage,
Ligusticum scoticum

Beach Lovage is in the parsley family. The species is quite common on coastal sites and is an important native plant to include in revegetation seed mixes. Along the sea coast look for Beach Lovage in crevices where rocks have eroded, with soils formed. This plant can grow in many locations, but prefers sunny, well-drained soil. As its name implies, Beach Lovage can withstand salt sprays from the ocean.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Casco Cove selected class germplasm

Casco Cove **Beach Lovage**, *Ligusticum scoticum*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	16 in.	6.0-8.5	Excellent	Poor	Good	Strong

Annual Ryegrass,
Lolium multiflorum

Annual Ryegrass provides a quick, temporary cover. It should be limited to 10% or less of a seed mix, because Annual Ryegrass uses nutrients intended for the perennial species in the mix. Also, a heavy plant cover can slow the growth of perennial species. Annual Ryegrass is also very attractive to herbivores, which can increase potential vehicle/animal conflicts.

Annual Ryegrass, *Lolium multiflorum*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Excellent	Annual	16 in.	5.0-7.9	Excellent	Poor	Good	Moderate

Field Oxytrope,
Oxytropis campestris

Field Oxytrope is a legume adapted to rocky and gravelly dry soils. Field Oxytrope is an early colonizer of disturbed sites. As with most legumes, Field Oxytrope fixes nitrogen in the soil, and may increase soil fertility.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Black Rapids selected class germplasm

Black Rapids **Field Oxytrope**, *Oxytropis campestris*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	8 in.	5.5-8.5	Poor	Excellent	Poor	Strong

Nodding Locoweed,
Oxytropis deflexa

Nodding Locoweed is highly adapted to gravelly sites, and it is intended for use in reclamation and revegetation in the northern and western portions of Alaska. Nodding Locoweed is a perennial legume found growing along riverbanks, meadows, and waste places in nature (Hulten, 1968). It is a natural colonizer of dry, rocky soils. Many of its characteristics are common to many arctic plants; low-growth habit, taproot, hairy leaves, and prolific flowering.

Large seeds enable Nodding Locoweed to survive in inhospitable environments. Since it is a legume, it adds nitrogen to the soil, helping other plants to survive and create a healthy ecosystem. Arctic plant studies of nitrogen fixing plants in Alaska have found that rhizobia are associated with locoweed (Allen et al., 1995). This indicates the importance of adding legumes to a revegetation mix.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Franklin Bluffs selected class germplasm

Franklin Bluffs **Nodding Locoweed**, *Oxytropis deflexa*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	8 in.	6.5-8.0	Poor	Excellent	Poor	Weak

Alpine Bluegrass,
Poa alpina

Alpine Bluegrass is a species widely adapted throughout Alaska. As the name implies, the species is adapted to high elevation areas. It also performs well on drier sites. Seed availability is limited. Availability of seed should be researched before Alpine Bluegrass is included in a planting plan.

Alpine Bluegrass grows in a wide range of habitats and soil conditions in the wild. Some of these are: dry slopes, gravelly sites, rocky sites, alpine and sub-alpine sites, and meadows. *Poa alpina* is a perennial grass that can serve as the pioneer species for a revegetation project. Once established, other plants can follow. *Poa alpina* is tolerant to climatic, soil, fire, and drought conditions. This flexibility makes the species important for high altitude revegetation. Alpine Bluegrass also has low nutrient needs.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

'Gruening' is a variety that can be established on dry soil as long as there is some irrigation.

Teller selected class germplasm is a native collection of *Poa alpina* intended for general revegetation projects throughout Alaska.

'Gruening' **Alpine Bluegrass**, *Poa alpina*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor - Fair	Bunch	6 - 8 in.	5.0-7.2	Poor	Good	Poor	Weak

'Gruening' Teller | Teller | 'Gruening' Teller | 'Gruening' | 'Gruening'

Arctic Bluegrass (viviparous form), *Poa arctica*

Arctic Bluegrass (viviparous) is unique in that it reproduces via asexual reproduction. These varieties produce small plantlets in the seedhead in place of true seed. These varieties are adapted to the entire Aleutian Archipelago, performing best on dry upland sites in the region. ***Adak*** and ***Tin City*** Arctic Bluegrass are both the same species - the difference is the environmental conditions where they were collected.

In the wild, viviparous Arctic Bluegrass is found as raised clumps on gravel, wet meadows, and soils near wetlands. It is a cosmopolitan species, being able to grow on both acidic outcrops and calcareous substrate. Viviparous Arctic Bluegrass can be found on rocks, gravel, soil, moss, sand, silt, and clay (Aiken, et al., 1995). Geese graze specifically on *Poa arctica*, which means that, in terms of restoration, viviparous Arctic Bluegrass will attract geese to the project- thus creating a more diverse habitat (Aiken et al., 1995).

Tin City **Arctic Bluegrass** (viviparous form), *Poa arctica*

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Adak selected class germplasm

Tin City selected class germplasm

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	12 in.	5.0-7.8	Good	Good	Good	Strong

Adak Adak Tin City Tin City

Arctic Bluegrass,
Poa arctica

Seed producing varieties of **Arctic Bluegrass** are available. This species can be used on a wide variety of soils throughout Alaska, but it will work best in the western and arctic regions. In the wild, Arctic Bluegrass is found as raised clumps on gravel, wet meadows, and soils near wetlands. It is able to grow on both acidic outcrops and calcareous substrate. It can be found on rocks, gravel, soil, moss, sand, silt, and clay (Aiken, et al., 1995). Arctic Bluegrass's tolerance of acidity is an important characteristic for mine reclamation. A wetness loving species, Arctic Bluegrass, can effectively grow where other grasses might die due to too much water.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Council selected class germplasm produces true seed.

Council **Arctic Bluegrass**, *Poa arctica*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	12 in.	5.0-7.8	Poor	Good	Good	Strong

Glaucous Bluegrass,
Poa glauca

Glaucous Bluegrass can be found on many types of soil - from slightly acidic to slightly basic; in very dry to slightly moist areas; and on gravel, sand, or organic matter. It is a pioneer species, forming tussocks in disturbed areas. This provides a cover where willows and forbs can become established (Aiken, et al., 1995). In the extreme arctic, Glaucous Bluegrass's growth form is short and erect. In other areas of Alaska, it is more spreading.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

'Tundra' is a variety best suited for revegetation in extreme northern areas with severe environmental conditions (Mitchell, 1980).

Nome selected class germplasm is a relatively common grass on dry mineral soils in the state. This variety has a wider use range than 'Tundra'; however, it is not recommended for use in the arctic region.

'Tundra' **Glaucus Bluegrass**, *Poa glauca*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor - Fair	Bunch	10 - 12 in.	5.0-8.0	Good	Excellent	Poor	Strong

Nome Nome 'Tundra' Nome 'Tundra'

Large-glume Bluegrass,
Poa macrocalyx

Large-glume Bluegrass is a perennial bunch grass found along coastlines inland of the primary coastal dunes and Beach Wildrye communities. It is found wild in Alaska along seashores from the Panhandle to the Aleutians and along western Alaskan coastlines. For coastal tundra and seashore revegetation with a native grass, Large-glume Bluegrass requires very little maintenance. It grows well on sandy beaches, marshes, slopes, and medium wet substrate.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Andrew Bay selected class germplasm is intended for use in revegetation and erosion control in coastal regions of Alaska from the Juneau area westward through the Aleutians, and northward on the western coast to roughly Scammon Bay.

Andrew Bay **Large-glume Bluegrass**, *Poa macrocalyx*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	16 in.	5.0-8.0	Excellent	Excellent	Good	Strong

Beautiful Jacob's Ladder,
Polemonium pulcherrimum

Beautiful Jacob's Ladder is highly adapted to gravelly soils. It has a colorful appearance, and can add to the visual impact to a revegetation project. Using this species enhances diversity, in addition to aesthetic considerations. It grows in alpine, subalpine, mid and low elevation sites. When used in seed mixes at 5% by weight, Beautiful Jacob's Ladder performs vigorously.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Butte selected class germplasm

Butte **Beautiful Jacob's Ladder**, *Polemonium pulcherrimum*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	16 in.	6.5-8.5	Good	Excellent	Poor	Weak

Nootka Alkaligrass,
Puccinellia nutkaensis

Nootka Alkaligrass is a species that occupies a very specific niche in coastal Alaska. It is used on revegetation projects where the site is sometimes flooded by extremely high tides or storm surges. This species does best on silty or gravelly coastal soils and is most often found in southcentral and southeast Alaska. *Puccinellia nutkaensis* is a common grass found in the nooks and crannies of rocks and boulders in the tidal zone.

Since Nootka Alkaligrass is a grass of the seacoast and salt marshes, it grows naturally in salty soil; it requires lots of water to grow, but does not like to be submerged (USDA, 2004). Plants that coexist with Nootka Alkaligrass, and yet do better in submerged, more salty areas, are *Carex lyngbyei* and *Poa eminens* (Snow et al., 1984).

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Ninilchik selected class germplasm

Ninilchik **Nootka Alkaligrass**, *Puccinellia nutkaensis*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Sod	8 in.	6.0-8.5	Excellent	Poor	Excellent	Weak

Beach Fleabane,
Senecio pseudoarnica

Beach Fleabane commonly occurs in coastal areas of Alaska, often in association with Beach Wildrye (*Leymus mollis*). Beach Fleabane is used primarily for revegetation and erosion control, but may have some secondary value as an ornamental. This forb is a rhizomatous perennial in the composite (aster) family. Growing on gravelly and sandy seashores, Beach Fleabane withstands the salt spray from the ocean.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Clam Lagoon selected class germplasm

Clam Lagoon **Beach Fleabane**, *Senecio pseudoarnica*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Sod	24 in.	6.0-8.0	Excellent	Excellent	Good	Strong

Arctic Wild Chamomile,
Tripleurospermum maritima

Arctic Wild Chamomile, a perennial forb, grows on Alaska's northwestern seashores and the arctic coast. This species is used for revegetation, restoration, and landscape seeding. Arctic Wild Chamomile seeds are often incorporated into revegetation mixes for northern Alaska. It grows on most types of soil and drainage. Arctic Wild Chamomile will add color and beauty to vegetation establishment.

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Kotzebue selected class germplasm

Kotzebue **Arctic Wild Chamomile**, *Tripleurospermum maritima*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	8 in.	4.0-8.5	Good	Excellent	Good	Strong

Spike Trisetum,
Trisetum spicatum

Spike Trisetum is used for revegetation of dry sites with mineral soils. The species has nearly a world-wide distribution and is one of the more cosmopolitan grasses. *Trisetum spicatum* is a common grass, found in the wild on disturbed sandy or silty soils, on both acid and alkaline substrates, and on rocks, gravel, clay, or tilled earth (Aiken et al., 1999). Spike Trisetum has a high root / shoot ratio. This enables it to be useful for soil building and erosion control (Hardy, 1989).

ADAPTED COMMERCIAL VARIETIES OR RELEASES:

Nelchina selected class germplasm

Nelchina **Spike Trisetum**, *Trisetum spicatum*

Availability	Growth Form	Average Height	pH Range	Saline Tolerance	Drought Tolerance	Wet Soil Tolerance	Competitiveness
Poor	Bunch	18 in.	4.9-7.5	Poor	Good	Good	Strong