

1986 PROGRESS REPORT
for the
CONSERVATION PLANT PROJECT

Alaska Plant Materials Center
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CONSERVATION PLANT PROJECT

INTRODUCTION

Since the establishment of the Alaska Plant Materials Center (PMC) in 1972 native and introduced plants have been screened and evaluated for conservation uses.

In the spring of 1979, the Conservation Plant Project was established with one full time agronomist, and in 1982 a second agronomist was added.

This project follows seven basic steps to establish a resource of conservation plants for use in land reclamation, wildlife habitat improvement, and erosion control. They are:

- 1) Define and anticipate conservation problems and establish priorities, 2) Research and assemble candidate plant materials, 3) Conduct initial evaluations, 4) Establish small scale seed or vegetative increase, 5) Advanced and final testing and field evaluation plantings, 6) Establish large scale seed or vegetative increase, 7) Release as a variety or cultivar.

The following describes each step in the evaluation process:

1. DEFINE AND ANTICIPATE CONSERVATION PROBLEMS AND ESTABLISH PRIORITIES

The PMC attempts to anticipate the plant materials needs in Alaska by familiarizing ourselves with regulations and laws regarding development and reclamation, and contacting regulator agencies, land and resource management agencies, developers, and private groups for their input. For example, the Alaska Department of Fish and Game suggested that the PMC evaluate sedges, arrow grass (Triglochin maritimum), and Plantain (Plantago sp.) for waterfowl habitat improvement.

2. RESEARCH AND ASSEMBLE CANDIDATE PLANT MATERIALS

Once a species has been identified for evaluation the search for seed or vegetative materials begins. The plant material may be collected by PMC staff, interested parties, or the PMC may request plant material from the National Plant Materials Center, Regional Plant Introduction Centers, universities, agricultural experiment stations, and foreign countries.

After the PMC receives the plant materials, each collection is referred to as an accession, and is given an accession number. This number will identify this collection, and the accompanying records, and will remain with the collection and its progeny throughout the evaluation.

3. INITIAL EVALUATION

When the Center receives an adequate number of accessions of a species preferably 20 to 40, initial evaluation plots are established. For herbaceous material these plots are single row plantings, 20 feet in length for each accession with usually 3 feet between accessions. For woody

material the spacing is 8 to 10 feet between plants, 20 feet between rows and each row usually contains 10 plants.

The plots of herbaceous perennials are established and maintained for the seedling year plus three full years. For example, if a collection of Beach Wildrye is planted in May, 1979, the plot is maintained until the spring of 1983. Woody evaluations are set up for a minimum of 10 years. Annual and biennial species, as their name implies, are maintained for one and two years, respectively.

Due to the small amounts of seed collected, and the low germination that frequently occurs, irrigation, and fertilizer are applied during the establishment period. By mid-summer irrigation is stopped, and no additional fertilizer is applied.

The evaluation process involves rating each accession against a "standard" if one is available. A standard is the best available variety of the species for Alaska. For instance, if Red fescues (Festuca rubra) were being evaluated, variety 'Arctared' would be used as the standard of comparison. If no standard exists comparisons are made against the best accession of the species tested in the past or all the accessions of the species are rated against each other.

The rating systems can be tailored to a plant's intended use, or toward a specific characteristic. All evaluations rate: hardiness, vigor, seed production, and adaptation. Additional ratings can include attractiveness, leaf or flower color, and wildlife preference or palatability.

The total number of accessions under evaluation each year varies. For a list of species evaluated from 1974 to date, see Tables 1 through 5.

Table 1. List of Grass Species Tested in Initial Evaluations.

Scientific Name	Common Name	No. of Accessions		Total
		1974-78	1979-84	
Agropyron boreale	Boreal Wheatgrass	1		1
Agropyron hybrid	Wheatgrass		7	7
Agropyron intermedium	Intermediate Wheatgrass		5	5
Agropyron macrourum	Wheatgrass	1		1
Agropyron pectiniforme	Crested Wheatgrass	1	23	24
Agropyron x sitanion hybrid	Wheatgrass		1	1
Agropyron spicatum	Bluebunch Wheatgrass	2	29	31
Agropyron subsecundum	Bearded Wheatgrass	1	26	27
Agropyron trachycaulum	Wheatgrass	5	19	24
Agropyron trichophorum	Stiffhair Wheatgrass		1	1
Agropyron violaceum	Violet Wheatgrass	5	6	11
Agropyron yukonense	Yukon Wheatgrass	2	3	5
Agrostis alba	Red Top		1	1
Agrostis canina	Velvet Bentgrass	1	6	7
Agrostis gigantea	Giant Bentgrass	1	3	4
Agrostis species	Bentgrass	1		1
Agrostis stolonifera	Creeping Bentgrass		6	6
Agrostis tenuis	Colonial Bentgrass	2	15	17
Alopecurus aequalis	Shortawn Foxtail	4	7	11
Alopecurus alpinus	Alpine Foxtail		3	3
Alopecurus arundinaceus	Creeping Foxtail	8	15	23
Alopecurus geniculatus	Water Foxtail	1	3	4
Alopecurus pratensis	Meadow Foxtail	11	19	30
Arctagrostis latifolia	Polar Grass	1	2	3
Beckmannia erucaeformis	Sloughgrass	2	6	8
Bromus aleutensis	Aleutian Brome		2	2
Bromus brizaeformis	Rattle Brome		2	2
Bromus ciliatus	Fringed Brome		13	13
Bromus commutatus	Hairy Brome	1	8	9
Bromus hordeaceus	Brome		1	1
Bromus inermis	Smooth Brome	12	44	56
Bromus inermis x pumpellianus	Brome cross	1		1
Bromus marginatus	Mountain Brome	1	23	24
Bromus pumpellianus	Pumpelly Brome		4	4
Bromus racemosus	Bald Brome		11	11
Bromus riparius	Riparian Brome		33	33
Bromus secalinus	Chess Brome	1	2	3
Bromus sitchensis	Alaska Brome		3	3
Bromus unioloides	Rescue Brome	2		2
Bromus species	Brome		1	1
Calamagrostis canadensis	Bluejoint Reedgrass		11	11
Calamagrostis inexpansa	Northern Reedgrass	1	2	3
Calamagrostis nutkaensis	Pacific Reedgrass	1	1	2
Calamagrostis purpurascens	Purple Reedgrass	1		1
Calamagrostis species	Reedgrass		5	5
Dactylis glomerata	Orchard Grass		115	115

Table 1. List of Grass Species Tested in Initial Evaluations, continued.

<u>Scientific Name</u>	<u>Common Name</u>	<u>No. of Accessions</u>		<u>Total</u>
		<u>1974-78</u>	<u>1979-84</u>	
Danthonia intermedia	Intermediate Datgrass		1	1
Deschampsia beringensis	Bering Hairgrass	1		
Deschampsia caespitosa	Tufted Hairgrass	3	14	17
Deschampsia flexuosa	Wavy Hairgrass		6	6
Elymus angustus	Wildrye	1	1	1
Elymus arenarius	Beach Wildrye	17	1	18
Elymus arvensis	Wildrye	1		1
Elymus glaucus	Blue Wildrye	1	21	22
Elymus innovatus	Fuzzyspike Wildrye	3	1	4
Elymus junceus	Russian Wildrye		3	3
Elymus karatoriensis	Korean Wildrye	1		1
Elymus sibiricus	Siberian Wildrye	21	7	28
Elymus x Agropyron	Wildrye-Wheatgrass cross		3	3
Festuca altaica	Fescue	4	1	5
Festuca arundinacea	Meadow Fescue	21	15	36
Festuca ovina	Sheep Fescue	3	35	38
Festuca pratensis	Meadow Fescue	6		6
Festuca rubra	Red Fescue	21	14	35
Festuca rupicaprina	Fescue	1		1
Festuca scabrella	Rough Fescue		4	4
Glyceria grandis	American Mannagrass	1		1
Hierochloa odorata	Sweetgrass		4	4
Hordeum brachyantherum	Barley	1		1
Hordeum vulgare	Barley	1		1
Koeleria gracilis	Koeleria		9	9
Lolium multiflorum	Annual Ryegrass	6	8	14
Lolium perenne	Perennial Ryegrass	30	4	34
Lolium temulentum	Darnel Ryegrass		5	5
Phalaris arundinacea	Reed Canarygrass	5	19	24
Phalaris canariensis	Canarygrass	1	9	10
Phalaris coerulescens	Canarygrass	2		2
Phalaris minor	Littleseed Canarygrass		13	13
Phleum commutatum	Mountain Timothy		6	6
Poa alpina	Alpine Bluegrass	8	14	24
Poa alpigena	Bluegrass	1	1	2
Poa ampla	Big Bluegrass	1	6	7
Poa angustifolia	Bluegrass	1	8	9
Poa arctica	Arctic Bluegrass	1		1
Poa brachyanthera	Bluegrass	1		1
Poa canbyi	Canby Bluegrass	3	6	9
Poa compressa	Canada Bluegrass	9	13	22
Poa eminens	Shore Bluegrass		1	1
Poa epigena	Bluegrass	1		1
Poa glauca	Greenland Bluegrass	6	2	8
Poa interior	Inland Bluegrass	1		1
Poa lanata	Bluegrass	1		1
Poa nemoralis	Wood Bluegrass	5	18	23
Poa nevadensis	Nevada Bluegrass		2	2
Poa nevskii	Bluegrass	1		1
Poa palustris	Fowl Bluegrass	9	17	26

Table 1. List of Grass Species Tested in Initial Evaluations, continued.

Scientific Name	Common Name	No. of Accessions		
		1974-78	1979-84	Total
<i>Poa pratensis</i>	Kentucky Bluegrass	19	27	46
<i>Poa rupicola</i>	Timberline Bluegrass	1		1
<i>Poa species</i>	Bluegrass		4	4
<i>Poa stenantha</i>	Trinius Bluegrass	1	1	1
<i>Poa subcaerulea</i>	Bluegrass		2	2
<i>Poa trivialis</i>	Roughstalk Bluegrass	1	11	12
<i>Stipa columbiana</i>	Subalpine Needlegrass		5	5
<i>Stipa comata</i>	Needle and Thread		1	1
<i>Stipa richardsonii</i>	Richardson Needlegrass		2	2
<i>Stipa viridula</i>	Green Needlegrass	2		2

Table 2. List of Forb Species Tested in Initial Evaluations.

Scientific Name	Common Name	No. of Accessions		
		1974-78	1979-84	Total
<i>Achillea borealis</i>	Yarrow	1		1
<i>Achillea lanulosa</i>	Western Yarrow	1		1
<i>Achillea millefolium</i>	Common Yarrow	1		1
<i>Achillea sibirica</i>	Siberian Yarrow	1		1
<i>Aquilegia viridiflora</i>	Greenflower Columbine		1	1
<i>Artemisia Tilesii</i>	Sage	2		2
<i>Aster sibiricus</i>	Siberian Aster	1		1
<i>Atriplex hortensis</i>	Saltbush	2	11	13
<i>Calendula officialis</i>	Potmarigold Calendula	1		1
<i>Carthamus tinctorius</i>	Safflower		127	127
<i>Centaurea cyanus</i>	Cornflower	1		1
<i>Cherianthus allionii</i>	Plains Erysimum	1		1
<i>Chrysanthemum carinatum</i>	Annual Chrysanthemum	1		1
<i>Chrysanthemum coronarium</i>	Crowndaisy Chrysanthemum	1		1
<i>Chrysanthemum leucanthemum</i>	Oxeyedaisy	1	1	2
<i>Cichorium intybus</i>	Common Chicory	1		1
<i>Collinsia heterophylla</i>	Collinsia	1		1
<i>Compositae species</i>		1		1
<i>Conioselinum chinense</i>	Hemlock Parsley	1		1
<i>Coreopsis lanceolata</i>	Lance Coreopsis	1		1
<i>Coreopsis tinctoria</i>	Plains Coreopsis	1		1
<i>Echinacea purpurea</i>	Purple Echinacea		1	1
<i>Epilobium angustifolium</i>	Fireweed		20	20
<i>Epilobium latifolium</i>	River Beauty		14	14
<i>Epilobium species</i>	Willow herb		11	11
<i>Eschscholzia caespitosa</i>	Poppy	1		1
<i>Eschscholzia californica</i>	California Poppy	1		1
<i>Geranium species</i>	Geranium	1		1
<i>Gilia achilleaeefolia</i>	Yarrow Gilia	1		1
<i>Gilia capitata</i>	Globe Gilia	1		1
<i>Gilia leptantha</i>	Gilia	1		1
<i>Gilia tricolor</i>	Birdseye Gilia	1		1
<i>Gysophila muralis</i>	Cushion Gysophila	1		1
<i>Gysophila paniculata</i>	Babysbreath	1		1
<i>Helianthus annuus</i>	Common Sunflower	3	13	15
<i>Hesperis matronalis</i>	Dames Rocket	1		1
<i>Iris species</i>	Iris	1		1
<i>Ligusticum scoticum</i>	Beach Lovage	1		1
<i>Limnanthes alba</i>	Meadowfoam	17		17
<i>Limnanthes douglasii</i>	Douglas Meadowfoam	4		4
<i>Limnanthes floccosa</i>	Meadowfoam	1		1
<i>Linaria maroccana</i>	Morocco Toadflax	1		1
<i>Linum lewisii</i>	Lewis Flax	1		1
<i>Nemophila maculata</i>	Spotted Nemophila	1		1
<i>Nemophila menzeizii</i>	Baby Blue-eyes	1		1
<i>Papaver alboroseum</i>	Poppy		5	5
<i>Papaver lapponicum</i>	Poppy		1	1
<i>Papaver nudicaule</i>	Iceland Poppy	1	2	3
<i>Penstemon strictus</i>	Rocky Mountain Penstemon		1	1
<i>Phacelia campanularia</i>	Harebell	1		1

Table 3. List of Legume Species Tested in Initial Evaluations.

Scientific Name	Common Name	No. of Accessions		Total
		1974-78	1979-84	
Astragalus aboriginum	Indian Milkvetch	1	1	2
Astragalus alpinum	Alpine Milkvetch		20	20
Astragalus americanus	American Milkvetch	1		1
Astragalus cicer	Cicer Milkvetch		24	24
Astragalus eucosmus	Milkvetch	1		1
Astragalus nuttallianus	Milkvetch		1	1
Astragalus Williamsii	Williams Milkvetch	1		1
Astragalus species	Milkvetch	1		1
Cornilla coronata	Crownvetch		1	1
Cornilla varia	Crownvetch		32	32
Dalea alopecuroides	Foxtail Dalea	4		4
Galega officinalis	Common Goatsrue	1		1
Hedysarum alpinum	Alpine Sweetvetch		32	32
Hedysarum boreale	Northern Sweetvetch		3	3
Hedysarum Mackenzii	Mackenzie Sweetvetch		17	17
Hedysarum species	Sweetvetch	3		3
Lathyrus cicer	Flatpod Peavine	1		1
Lathyrus japonicus	Beach Pea		3	3
Lathyrus maritimus	Beach Pea	2	7	9
Lathyrus palustris	Marsh Peavine	3		3
Lathyrus sativus	Grass Peavine	4		4
Lathyrus sylvestris	Flat Peavine		4	4
Lathyrus species	Peavine	1		1
Lathyrus tingitanus	Tangier Peavine	1		1
Lespedeza capitata	Roundhead Lespedeza		5	5
Lespedeza stipulacea	Korean Lespedeza		2	2
Lespedeza striata	Common Lespedeza		2	2
Lotus caucasicus	Russian Trefoil		9	9
Lotus corniculatus	Birdsfoot Trefoil		35	35
Lotus ornithopodioides	Coralgem Deervetch	1		1
Lotus pedunculatus	Trefoil		13	13
Lotus tenuis	Trefoil		5	5
Lupinus arcticus	Arctic Lupine	1	6	7
Lupinus luteus	European Yellow Lupine	1		1
Lupinus nootkatensis	Nootka Lupine	9	19	28
Lupinus polyphyllus	Washington Lupine		1	1
Lupinus species	Lupine	3	5	8
Lupinus succulentus	Arroyo Lupine	1	4	5
Medicago falcata	Sicklepod Alfalfa	2	7	9
Medicago falcata x media	Alfalfa Hybrid	2		2
Medicago lupulina	Black Medic	3	10	13
Medicago polymorpha	Bur Clover		17	17
Medicago sativa	Alfalfa	1	132	133
Melilotus alba	White Sweet Clover		33	33
Melilotus arvensis	Sweet Clover		2	2
Melilotus hirsuta	Hairy Sweet Clover		2	2
Melilotus officinalis	Yellow Sweet Clover		21	21

Table 3. List of Legume Species Tested in Initial Evaluations, continued.

Scientific Name	Common Name	No. of Accessions		Total
		1974-78	1979-84	
<i>Onobrychis arenaria</i>	Hungarian Sainfoin		44	44
<i>Onobrychis transcaucasica</i>	Sainfoin		35	35
<i>Onobrychis viciifolia</i>	Common Sainfoin		39	39
<i>Oxytropis campestris</i>	Plains Crazyweed	3	20	23
<i>Oxytropis deflexa</i>	Dropper Crazyweed	1	2	3
<i>Oxytropis gracilis</i>	Crazyweed	1		1
<i>Oxytropis Maydelliana</i>	Crazyweed	1	1	2
<i>Oxytropis nigrescens</i>	Black Crazyweed	1	2	3
<i>Oxytropis sericea</i>	Silky Crazyweed	1	2	3
<i>Oxytropis species</i>	Crazyweed	5	7	12
<i>Oxytropis viscida</i>	Yellow Hair Crazyweed		4	4
<i>Psoralea bituminosa</i>	Arabian Scurfpea	1		1
<i>Tetragonolobus requienii</i>	Squarepod Deervetch	1		1
<i>Trifolium agrarium</i>	Hop Clover		3	3
<i>Trifolium ambiguum</i>	Kura Clover		18	18
<i>Trifolium arvense</i>	Rabbitfoot Clover	1		1
<i>Trifolium campestre</i>	Large Hop Clover		9	9
<i>Trifolium dubium</i>	Suckling Clover	1	2	3
<i>Trifolium hybridum</i>	Alsike Clover	8	31	39
<i>Trifolium pratense</i>	Red Clover	13	58	71
<i>Trifolium repens</i>	White Clover	9	17	26
<i>Trifolium vesiculosum</i>	Arrowleaf Clover		2	2
Unknown		1		1
<i>Vicia cracca</i>	Bird Vetch	1		1
<i>Vicia dasycarpa</i>	Woollypod Vetch	1	1	2
<i>Vicia faba</i>	Broad Bean		7	7
<i>Vicia tenuifolia</i>	Bramble Vetch		1	1

Table 4. List of Wetland Species Tested in Initial Evaluations.

Scientific Name	No. of Accessions	
	Common Name	
	1974-78	1979-84
<i>Caltha palustris</i>	Common Marsh Marigold	1 1
<i>Carex aquatilis</i>	Water Sedge	1 1
<i>Carex atrata</i>	Black Sedge	1 1
<i>Carex atrofusca</i>	Sedge	1 1
<i>Carex Bigelowii</i>	Bigelow's Sedge	6 6
<i>Carex Buxbaumii</i>	Sedge	2 2
<i>Carex brunnescens</i>	Button Sedge	1 1
<i>Carex canescens</i>	Sedge	1 1
<i>Carex capillaris</i>	Sedge	6 6
<i>Carex dioica</i>	Sedge	6 6
<i>Carex flava</i>	Sedge	3 3
<i>Carex Gmelini</i>	Sedge	1 1
<i>Carex lachenalii</i>	Lachenal Sedge	11 11
<i>Carex lasiocarpa</i>	Woolfruit Sedge	1 1
<i>Carex limosa</i>	Mud Sedge	2 2
<i>Carex macloviana</i>	Sedge	1 1
<i>Carex magellanica</i>	Sedge	1 1
<i>Carex maritima</i>	Sedge	1 1
<i>Carex maritima</i>	Mertens Sedge	1 1
<i>Carex pauciflora</i>	Sedge	1 1
<i>Carex rostrata</i>	Beaked Sedge	4 4
<i>Carex rhynchochrysa</i>	Sedge	1 1
<i>Carex saxatilis</i>	Sedge	6 6
<i>Carex species</i>	Sedge	32 32
<i>Carex vaginata</i>	Sedge	2 2
<i>Eleocharis palustris</i>	Spikerush	2 2
<i>Eriophorum angustifolium</i>	Narrowleaf Cottongrass	13 13
<i>Eriophorum Scheuchzeri</i>	Cottongrass	3 3
<i>Eriophorum species</i>	Cottongrass	7 7
<i>Iris setosa</i>	Wild Flag	5 5
<i>Juncus alpinus</i>	Alpine Rush	3 3
<i>Juncus bufonius</i>	Toad Rush	6 6
<i>Juncus filiformis</i>	Rush	1 1
<i>Juncus species</i>	Rush	3 3
<i>Juncus triglumis</i>	Rush	3 3
<i>Kobresia myosuroides</i>	Kobresia	1 1
<i>Luzula multiflora</i>	Field Woodrush	8 8
<i>Luzula species</i>	Woodrush	3 3
<i>Menyanthes trifoliata</i>	Buckbean	2 2
<i>Parnassia palustris</i>	Northern Grass of Parnassus	1 1
<i>Plantago maritima</i>	European Seaside Plantain	34 34
<i>Potentilla palustris</i>	Marsh Cinquefoil	9 9
<i>Ranunculus hyperboreus</i>	Buttercup	1 1
<i>Scirpus species</i>	Bulrush	1 1
<i>Scirpus tabernaemontani</i>	Tabernaemontanus Bulrush	4 4
<i>Triglochin maritimum</i>	Shore Arrow Grass	23 23
<i>Triglochin palustris</i>	Arrow Grass	17 17

Table 5. List of Woody Species Tested in Initial Evaluations.

Scientific Name	Common Name	No. of Accessions		Total
		1974-78	1979-84	
<i>Abies lasiocarpa</i>	Alpine Fir	1		1
<i>Acer tataricum</i>	Tartarian Maple	1		1
<i>Aesculus</i> sp.	Horsechestnut	1		1
<i>Alnus tenuifolia</i>	Thinleaf Alder	1		1
<i>Amelanchier alnifolia</i>	Saskatoon Serviceberry	2		2
<i>Amorpha fruticosa</i>	Indigobush Amorpha	1		1
<i>Ampelopsis brevipedunculata</i>	Ampelopsis	1		1
<i>Arctostaphylos uva-ursi</i>	Bearberry	1		1
<i>Artemisia abrotanum</i>	Oldman Wormwood	1		1
<i>Artemisia frigidum</i>	Fringed Sage	1		1
<i>Betula papyrifera</i>	Paper Birch	1		1
<i>Buxus suffruticosa</i>	Truedwarf Boxwood	1		1
<i>Campsis radicans</i>	Common Trumpet creeper	1		1
<i>Caragana arborescens</i>	Siberian Peashrub	2		2
<i>Caragana decorticans</i>	Afghanistan Peashrub	1		1
<i>Caragana microphylla</i>	Littleleaf Peashrub	1		1
<i>Caryopteris species</i>	Bluebeard	1		1
<i>Ceanothus americanus</i>	Jerseytea Ceanothus	1		1
<i>Chamaecyparis nootkatensis</i>	Alaska Cypress	1		1
<i>Clematis tangutica</i>	Golden Clematis	1		1
<i>Cornus stolonifera</i>	Red Osier Dogwood	4	19	23
<i>Cotoneaster acutifolia</i>	Peking Cotoneaster	1		1
<i>Cotoneaster racemiflora</i>	Redbead Cotoneaster	2		2
<i>Cotoneaster species</i>	Cotoneaster	1		1
<i>Crataegus ambigua</i>	Russian Hawthorne	1		1
<i>Crataegus arnoldiana</i>	Hawthorne	1		1
<i>Crataegus lauta</i>	Franklin Hawthorne	1		1
<i>Dryas drummondii</i>	Yellow Dryas	1		1
<i>Elaeagnus angustifolia</i>	Russian Olive	3		3
<i>Elaeagnus commutata</i>	Silverberry	2		2
<i>Elaeagnus umbellata</i>	Autumn Elaeagnus	5		5
<i>Euonymus americanus</i>	Brook Euonymus	1		1
<i>Euonymus bungeanus</i>	Winterberry Euonymus	1		1
<i>Euonymus nanus</i> var. <i>turkestanicus</i>	Dwarf Euonymus	1		1
<i>Euonymus yedoensis</i>	Yeddo Euonymus	1		1
<i>Euonymus vulgaris</i>	Common Euonymus	1		1
<i>Fraxinus excelsior</i>	European Ash	1		1
<i>Gleditsia species</i>	Honeylocust	1		1
<i>Hamamelis virginica</i>	Common Witchhazel	1		1
<i>Juglans mandshurica</i>	Manchu Walnut	1		1
<i>Juniperus communis</i>	Common Juniper	2		2
<i>Juniperus horizontalis</i>	Creeping Juniper	2		2
<i>Larix sibirica</i>	Siberian Larch	2		2
<i>Ligustrum vulgare</i>	European Privet	2		2
<i>Lonicera alpigena</i>	Alps Honeysuckle	1		1
<i>Lonicera coerulea</i>	Sweetberry Honeysuckle	1		1
<i>Lonicera demissa</i>	Moronei Honeysuckle	1		1

Table 5. List of Woody Species Tested in Initial Evaluations, continued.

Scientific Name	Common Name	No. of Accessions		Total
		1974-78	1979-84	
<i>Lonicera maackii</i>	Amur Honeysuckle	1		1
<i>Lonicera myrtilloides</i>	Box Honeysuckle	1		1
<i>Lonicera olgae</i>	Olga Honeysuckle	1		1
<i>Lonicera prolifera</i>	Grape Honeysuckle	1		1
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	2		2
<i>Lonicera species</i>	Honeysuckle	1		1
<i>Malus baccata</i>				
var. <i>mandshurica</i>	Manchurian Crabapple	1		1
<i>Malus diversifolia</i>	Crabapple	1		1
<i>Malus hupehensis</i>	Crabapple	1		1
<i>Malus zumi</i>	Zumi Crabapple	1		1
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	1		1
<i>Philadelphus lewisii</i>	Lewis Mockorange	1		1
<i>Physocarpus species</i>	Ninebark	1		1
<i>Picea glauca</i>	White Spruce	4		4
<i>Picea sitchensis</i>	Sitka Spruce	2		2
<i>Pinus banksiana</i>	Jack Pine	1		1
<i>Pinus contorta</i>	Lodgepole Pine	2		2
<i>Pinus mugo</i>	Mugo Pine	1		1
<i>Pinus resinosa</i>	Red Pine	1		1
<i>Pinus sylvestris</i>	Scotch Pine	4		4
<i>Populus balsamifera</i>	Balsam Poplar	5		5
<i>Populus balsamifera</i>				
x <i>trichocarpa</i>	Poplar	1		1
<i>Populus canadensis</i>				
var. <i>eugenia</i>	Carolina Poplar	1		1
<i>Populus nigra</i>	Black Poplar	1		1
<i>Populus petrowskyana</i>	Petrowsky Poplar	1		1
<i>Populus simoni</i>	Simon Poplar	1		1
<i>Populus species</i>	Poplar		42	42
<i>Potentilla fruticosa</i>	Shrubby Cinquefoil	5		5
<i>Prunus armeniaca</i>	Apricot	1		1
<i>Prunus cerasifera</i>	Myrobalan Plum	1		1
<i>Prunus japonica</i>	Chinese Bushcherry	1		1
<i>Prunus virginiana</i>				
var. <i>melanocarpa</i>	Black Chokecherry	1		1
<i>Prunus padus</i> var. <i>commutata</i>	Harbinger Europ. Birdcherry	1		1
<i>Prunus species</i>	European Birdcherry		15	15
<i>Prunus tomentosa</i>	Manchu Cherry	1		1
<i>Prunus virginiana</i>				
var. <i>melanocarpa</i>	Black Common Chokecherry	1		1
<i>Quercus macrocarpa</i>	Bur Oak	1		1
<i>Rhus canadensis</i>	Sumac	1		1
<i>Rhus copallina</i>	Flameleaf Sumac	1		1
<i>Rhus trilobata</i>	Skunkbush Sumac	1		1
<i>Ribes laxiflorum</i>	Trailing Black Currant	1		1
<i>Ribes species</i>	Red Currant	2		2
<i>Ribes triste</i>	American Red Currant	1		1
<i>Robinia fertilis</i>	Locust	2		2
<i>Rosa aciculata</i>	Prickly Rose	2		2

Table 5. List of Woody Species Tested in Initial Evaluations, continued.

Scientific Name	Common Name	No. of Accessions		Total
		1974-79	1979-84	
<i>Rosa hispida</i>	Rose	1		1
<i>Rosa laxa</i> var. <i>alba</i>	Turkestan Rose	1		1
<i>Rosa</i> species	Named varieties of Roses	34		34
<i>Rosa spinosissima</i>				
var. <i>altaica</i>	Altai Scotch Rose	1		1
<i>Rubus idaeus</i> var. <i>strigosus</i>	American Red Raspberry	2		2
<i>Rubus</i> species	Named Raspberry varieties	9		9
<i>Salix alaxensis</i>	Feltleaf Willow	35		35
<i>Salix alba</i> var. <i>vitellina</i>	Yellowstem White Willow	2		2
<i>Salix berclayi</i>	Berclay Willow	1		1
<i>Salix bebbiana</i>	Bebb Willow	2		2
<i>Salix brachycarpa</i>	Barrenground Willow	1		1
<i>Salix glauca</i>	Grayleaf Willow	4		4
<i>Salix lasiandra</i>	Pacific Willow	4		4
<i>Salix monticola</i>	Park Willow	1		1
<i>Salix purpurea</i> var. <i>nana</i>	Purple Osier Willow	1		1
<i>Salix</i> species	Willow	51	29	80
<i>Sambucus racemosa</i>	European Red Elderberry	2		2
<i>Shepherdia argentea</i>	Silver Buffaloberry	1		1
<i>Shepherdia canadensis</i>	Soapberry	1		1
<i>Sorbus acuparia</i>	European Mountain Ash	1		1
<i>Sorbus sitchensis</i>	Pacific Mountain Ash	1		1
<i>Spirea macrothyrsa</i>	Spirea	1		1
<i>Spirea nipponica</i>	Nippon Spirea	1		1
<i>Syringa oblata</i>	Early Lilac	1		1
<i>Syringa palibinana</i>	Manchurian Lilac	1		1
<i>Syringa wolfii</i>	Wolfs Lilac	1		1
<i>Tamarix pentandra</i> var. <i>rubra</i>	Five Stamen Tamarisk	1		1
<i>Thuja plicata</i>	Giant Arborvitae	1		1
<i>Tsuga heterophylla</i>	Western Hemlock	1		1
<i>Tsuga mertensiana</i>	Mountain Hemlock	1		1
<i>Viburnum dilatatum</i>	Linden Viburnum	1		1
<i>Viburnum edule</i>	High Bush Cranberry	1		1
<i>Viburnum opulus</i>	European Cranberrybush	3		3
<i>Viburnum orientale</i>	Ural Viburnum	1		1

WETLAND INITIAL EVALUATIONS

In response to increasing interest in wetland revegetation, and waterfowl habitat restoration, the PMC established a wetland initial evaluation plot on the PMC grounds. It was planted in June, 1983. At the same time work was initiated on developing an evaluation plot in a disturbed wetland area. The area that was selected is in the Hayfield Flats near Wasilla Creek. The plot is flooded by backwater from Cottonwood Creek at high tide. Since the area had not been disturbed, we removed the existing vegetation by spraying with Roundup and rototilling a 50 by 50 foot plot. The Hayfield Flats plot was planted on July 10-11, 1984.

During the two years of wetland evaluations, 244 accessions of sedges, rushes, arrow grass, plantain, and other species were directly seeded into plots and planted as transplants at both the PMC and Hayfield Flats locations. The most vigorous performers from the 1983 PMC planting are ten accessions of Seaside Plantain. After only one summer's growth, several accessions of sedges and arrow grass were performing well at the PMC. At the Hayfield Flats plot the plants were small and did not appear as vigorous as those at the PMC. The best performers at Hayfield Flats were arrow grasses, plantains, and rushes.

The wetland evaluation plots are very labor intensive to maintain and alternative methods for assessing wetland species and planting techniques for revegetation are being explored.

WOODY EVALUATION PLOT

Many species of woody plants have been evaluated in the woody evaluation plot (Table 5). However, in recent years emphasis has been placed primarily on native willow and poplar collections and secondarily on chokecherry and red osier dogwood collections. In June, 1984, 60 accessions were being evaluated in the plot and in July, 1984, 99 new accessions were added bringing the number of accessions per taxa to: Poplar, 44 accessions; Willow, 79 accessions; Red osier dogwood, 20 accessions; and Chokecherry, 16 accessions.

Woody plants are evaluated for 10 years in the initial phase of the program. They are scrutinized for their suitability for streambank protection, erosion control, windbreaks, and habitat enhancement. However, to speed the evaluation process, accessions that show potential are tentatively selected for advanced testing.

Currently, five willows, Salix alexensis, S. hebbiana, S. brachycarpa, S. barclayi, and S. lasiandra, and two poplars, Populus petrowskiana and P. balsamifera are undergoing advanced testing. So far only one accession, S. hebbiana has shown that it is not well suited for its selection as a potential windbreak shrub. Three of the ten shrubs were blown down in the evaluation plot. The other accessions continue to be evaluated for various purposes.

4. SMALL SCALE INCREASE

When an accession under initial evaluation has exhibited superior qualities, seed, or vegetative cuttings are collected and planted to produce the additional stock needed for further testing. Table 6 shows the number of accessions selected for advanced testing.

Table 6. Initial Evaluation Plots 1979 - 1984.

Plot	Number of Accessions Planted	Number selected for increase	Number planted in advance test plots
1979 grass plot	481	15	8
1979 forb plot	173	1	0
1980 grass plot	220	7	3
1980 forb plot	420	0	0
1982 grass plot	28	0	0
1982 forb plot	94	2	0
1983 grass plot	13	1	0
1983 forb plot	149	0	0
1983 wetland plot	111	1	0
1984 wetland plot	230	0	0
Woody plot ¹	402	7	7

1. The numbers for this plot include all woody species evaluated since 1976.

5. ADVANCED TESTING AND FIELD EVALUATION PLANTINGS

This aspect of the program allows plant material to be evaluated in a wide range of edaphic and climatic conditions. Also some important species that may have failed at Palmer can thrive at other locations, and these plots provide the opportunity to evaluate the accessions' performance elsewhere. Also at this time field plantings of an accession are conducted with the assistance of interested farmers. Farmers or nurseries are provided seed or vegetative material and are allowed to grow the material as they choose. Results from these plantings aid in the development of cultural and management techniques for the accession.

6. LARGE SCALE INCREASE

Plant material will be grown from Breeder Blocks established and maintained at the PMC for foundation level production. The progeny from foundation production will be made available to private growers for further increase and distribution. This step may be conducted prior to, at the same time or, after step 7, cultivar release.

7. CULTIVAR RELEASE

When an accession has proven to be superior through the evaluation process, and specific cultural and management techniques have been developed, then the accession may be released.

If it is agreed that the accession is superior and a need exists for the material, the accession will be named, released, and promoted. All releases by the Alaska Plant Materials Center will be a cooperative effort with the Soil Conservation Service, USDA. Other agencies are invited to join in releases if they have interests in the species or intended uses.

	2 # of Blocks	4	5							
1	6									1
2	'Merion' Kentucky Bluegrass									2
3	'Banff' Kentucky Bluegrass									3
4	'Park' Kentucky Bluegrass									4
5	etc.									5
6										6
7										7
8										8
9										9
0										10
1										11
2										12
3										13
4										14
5										15
6										16
7										17
8										18
9										19
0										20
1										21
2										22
3										23
4										24
5										25
6										26
7										27
8										28
9										29
0										30
1										31
2										32
3										33
4										34
5										35
6										36
7										37
8										38
9										39
0										40
1										41
2										42
3										43
4										44
5										45
6										46
7										47
8										48
9										49
0										50
1										51
2										52

Figure 2. Typical Plot Layout.

Typical Plot Layout

<-----> 10' <----->	
4' 	
Nugget Kentucky Bluegrass	Merion Kentucky Bluegrass
Park Kentucky Bluegrass	Banff Kentucky Bluegrass
Sydsport Kentucky Bluegrass	Fylking Kentucky Bluegrass
Poa ampla	Troy Kentucky Bluegrass
Sherman Big Bluegrass	Canbar Canby Bluegrass
Tundra Bluegrass	Reubans Canada Bluegrass
Poa glauca T08867	Poa alpina
Agropyron subsecundum 371698	Sodar Streambank Wheatgrass
Nordan Crested Wheatgrass	Agropyron subsecundum Canada
Fairway Crested Wheatgrass	Agropyron violaceum
Summit Crested Wheatgrass	Agropyron boreal
Critana Thickspike Wheatgrass	Agropyron yukonense
Fults Alkaligrass	Vantage Reed Canarygrass
Climax Timothy	Engmo Timothy
Elymus arenarius	Elymus sibiricus 34560
Elymus sibiricus 1966	Elymus sibiricus 2144
Norcoast Bering Hairgrass	Tufted Hairgrass
Sourdough Bluejoint	Calamagrostis canadensis Delta
Meadow Foxtail	Alopecurus geniculatus
Garrison Creeping Foxtail	Arctared Red Fescue
Boreal Red Fescue	Festuca scabrella
Beckmannia	Pennlawn Red Fescue
Durar Hard Fescue	Highlight Red Fescue
Covar Sheep Fescue	Manchar Smooth Brome
Alyeska	Carlton Smooth Brome
Tellesy Sage	Pumpelly Brome

ADVANCED EVALUATION AND DEMONSTRATION PLOTS (AEDP)

Introduction

Advanced Evaluation and Demonstration Plots are established throughout Alaska for three main purposes. The first is the Advanced or Final Evaluation of plant materials that have performed well at the Palmer PMC for a period of at least three years. This offsite evaluation is important so that a plant's adaptability and range of suitability can be determined. If the plant does well at this stage it may be released as a new variety.

The second purpose is for Demonstration plantings of plant material already recommended for the area. These recommendations are taken from The Revegetative Guide for Alaska. These plantings allow local people to view the varieties and allows for changes to be made in the Guide, if necessary.

The third reason for AEDP is to provide a centralized area for local plantings by the Cooperative Extension agents and other cooperators. This allows the agent to tailor the plot to local interests. The plots also give the agent a "classroom" where specific plant materials may be viewed and worked with by local farmers, students, and other groups interested in farming or gardening.

The Advanced Evaluation Plots are evaluated at least once a year. The accessions are rated for vigor, percent stand, and numerous other hardiness and disease resistant related characteristics. However, we have found that vigor and percent stand give a reliable indication of how the different accessions compare with each other. The next page is an example of the evaluation sheets that will be presented in this report (Figure 1). The following numbers followed by brief explanations correspond to numbers on the example evaluation sheet.

1. Location and title of Evaluation Plot.
2. Number of evaluation blocks. This number may range from 1 to 3 blocks.
3. Year of Record--the year that evaluation data was collected.
4. Vigor--this number can range from 1 to 9. One is the best and 9 is the worst rating. The rating is determined by comparison with other accessions of the same species, if possible, and is based on color, height, health, flowering and/or seed production. The rating is also based on the evaluator's knowledge of the plant and its expected performance. If more than one block is planted, this number will be an average of the ratings for each block.
5. Percent Stand--this number represents the percentage of the ground that is covered by the accession. Only live plant material is included, litter from previous years growth and other species are not included. If more than

one block is planted, this number will be an average of the ratings for each block.

6. The accession that is being rated. The accession that is being rated. The accession is identified by its varietal and common name or its common name and its accession number.

Following the sample evaluation page is Figure 2 which shows a typical plot layout.

PMC ADVANCED EVALUATION PLOT

The collection of 50 grasses used in advanced and demonstration plantings were placed in rows and were evaluated in the spring and fall of each growing season. There were no replications of this planting.

Most accessions exhibited better than average vigor and had 85 percent or more cover by the end of the 1984 growing season. Grasses showing an exceptionally good performance include 'Sydsport' Kentucky Bluegrass, Big Bluegrass (PI387931), 'Engmo' Timothy, Geniculated Foxtail (PI314565), 'Arctared', 'Boreal', and 'Pennlawn' Red Fescue, Creeping Red Fescue, Rough Fescue (PI236849), 'Highlight' Sheep Fescue, and 'Manchar' Smooth Brome.

Agent Materials Center

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84

	1 Block of Plantings	vigor	stand	%	vigor	stand	%					
1	'Nugget' Kentucky Bluegrass	5	80	3	90							1
2	'Merion' Kentucky Bluegrass	5	70	3	90							2
3	'Banff' Kentucky Bluegrass	5	60	3	90							3
4	'Park' Kentucky Bluegrass	5	95	3	95							4
5	'Sydsport' Kentucky Bluegrass	3	90	1	100							5
6	'Fylking' Kentucky Bluegrass	5	100	5	100							6
7	'Troy' Kentucky Bluegrass	3	80	3	80							7
8	'Big Bluegrass 387931	3	90	1	90							8
9	'Sherman' Big Bluegrass	3	75	3	40							9
0	'Canbar' Canby Bluegrass	5	90	3	90							10
1	'Reubans' Canada Bluegrass	3	95	5	80							11
2	'Tundra' glaucous Bluegrass	5	90	3	95							12
3	Glaucus Bluegrass T08867											13
4	Alpine Bluegrass 235492, 236892											14
5	'Sodar' Streambank wheatgrass	3	80	3	95							15
6	Bearded wheatgrass 371698	5	90	5	95							16
7	Bearded wheatgrass 236693	5	75	3	95							17
8	'Nordan' Crested wheatgrass	5	75	5	85							18
9	'Fairway' Crested wheatgrass	5	90	3	95							19
0	'Summit' Crested wheatgrass	3	90	3	90							20
1	Violet wheatgrass T12050	5	90	3	95							21
2	Boreal wheatgrass T12048	5	80	3	90							22
3	Yukon wheatgrass T12051	5	80	3	95							23
4	'Critana' Thickspike wheatgrass	5	80	3	95							24
5	'Fults' Alkaligrass	3	95	3	100							25
5	'Vantage' Reed Canarygrass	3	100	3	95							26
7	'Engmo' timothy	3	90	1	85							27
8	'Climax' timothy	1	100	3	95							28
9	Beach wildrye 345978	3	10	5	30							29
0	Siberian wildrye 345600	3	90	3	90							30
1	Siberian wildrye 2144	3	90	3	90							31
2	Siberian wildrye 1996	5	75	5	80							32
3	'Norcoast' Bering hairgrass	1	85	3	90							33
4	Tufted hairgrass 372690	1	95	5	100							34
5	Bluejoint	5	40	5	85							35
5	'Sourdough Bluejoint	5	10	5	75							36
7	Meadow foxtail	3	90	3	90							37
8	Geniculated foxtail 314565	3	90	1	100							38
9	Garrison Creeping foxtail	1	90	3	85							39
0	'Arctared' Creeping red fescue	3	80	1	100							40
1	'Boreal' Creeping red fescue	1	95	1	100							41
2	'Pennlawn' Creeping red fescue	1	90	1	100							42
3	Rough fescue 236849	1	80	1	100							43
4	American Sloughgrass T12053	5	75	5	95							44
5	'Durar' Hard fescue	5	60	3	95							45
5	'Highlight' Sheep fescue	3	95	1	100							46
7	'Covar' Sheep fescue	5	75	3	100							47
8	'Manchar' Smooth Brome	3	100	1	100							48
9	'Carlton' Smooth Brome	3	95	3	100							49
9	'Alyeska' Polar grass	5	90	5	90							50
1	Telley Sage T12052											51
2												52

KODIAK

Kodiak Advanced Evaluation and Demonstration Plot
 Location: Kalsin Bay; 32 mi. south of Kodiak City
 Established: June 1, 1983 Size: 4 acres. Soils: Sand.

Cooperators:

Soil Conservation Service, USDA; Cooperative Extension Service, U. of A;
 Agricultural Experiment Station, U. of A; Alaska Dept. of Transportation;
 Kodiak Soil Conservation District; Lucky Horse Shoes 4-H.

Site History: This site was selected June 7, 1982. The site was then cleared, sprayed with herbicides, fenced, and prepared in July and August, 1982. Initial planting of the site occurred 5/31/83. Twice yearly evaluations have occurred since planting. Since establishment and initial planting state equipment has been used to maintain the plot.

Costs:

KODIAK				
Date	Activity	Travel	Per diem	Other
6/7/82	Select Site	184.00	297.00	14.00
7/15/82	Fence & Herbicide	314.00	450.00	520.00
8/8/82	Rotovate	390.00	640.00	20.00
5/31/83	Plant site, take John Deere	805.00	600.00	420.00
9/26/83	Sign & Eval	312.00	425.00	
6/11/84	Rototill & Eval	314.00	335.00	
9/23/84	Rotovate & Eval	824.00	820.00	
8/26/85		<u>50.00</u>	<u>240.00</u>	
Subtotal as of 10/84		\$3,193.00	\$3,807.00	974.00
Total	\$7,774.00			

Results

In June of 1983, 50 accessions of advance test plant material were planted. The complete 1983 array, with the exception of Glaucus Bluegrass T08867 and Alpine Bluegrass 235492, 236892, was planted 3 times within the Kodiak plot. The Glaucus Bluegrass and Alpine Bluegrass were each planted once because of low seed supply.

By September 21, 1983, all of the accessions had germinated and produced measurable stands. The plots were again evaluated on June 6, 1984, and as expected some accessions had winterkilled. By August 26, 1985, the weaker survivors of the previous years had died out. Competition with the native hairgrass probably contributed to the death of some of the accessions.

Glaucus Bluegrass (T08867), Rough Fescue, and 'Vantage' Reed Canarygrass performed the best. The first two accessions have been selected for advanced testing because of their excellent performance at the PMC in Palmer.

Other accessions that performed well were 'Norcoast' Bering hairgrass and 'Boreal' Red Fescue, as well as 'Arctared' Red Fescue. Surprisingly, Beach Wildrye, Meadow Foxtail, 'Durar' Hard Fescue, and 'Garrison' Creeping Foxtail failed to survive. 'Garrison', Meadow Foxtail, and 'Durar' are recommended by the Revegetative Guide for Alaska. The Beach Wildrye is a PMC selection; poor performance probably can, to some extent, be attributed to the severe native hairgrass competition.

In addition to the advanced evaluation blocks, a demonstration planting of recommended varieties from the Guide was planted in June of 1983. Each variety was planted in a 20' x 60' block. The demonstration area contained the 13 varieties. Each variety was grown in two soil pH levels and three fertilizer regimes. To achieve the two pH levels each block was divided in half. One half received lime at the rate of 3,050 lb/a; the other received none. The block was then divided into thirds for fertilizer treatment. Fertilizer (20-20-10) was applied at the rates of 0 lb/a, 240 lb/a, and 480 lb/a. 'Boreal' Red Fescue and 'Norcoast' Bering Hairgrass outperformed all the other varieties of grass in all the categories. Alsike Clover provided the best, and only, legume performance. Although Alsike performed well in comparison to other legumes at Kodiak, it did not perform as well as would be expected elsewhere.

Once again 'Garrison' Creeping Foxtail and 'Durar' did not survive. Meadow Foxtail only survived when limed. White Dutch Clover, another recommended variety for Kodiak also failed to survive.

At the request of Kodiak ranchers the PMC planted 5 varieties of Alfalfa, 3 varieties of Bromes, and 1 variety of Red Clover in June 1983. These species prefer more alkaline soils than those found in the plot so the plots were limed at a rate of 7,950 lbs/a. Despite the lime application

all Alfalfas and Red Clover had died by 9/84. When the three varieties of brome are compared, 'Polar', 'Carlton', and 'Manchar' performed best to worst, respectively.

Much has been said in this section about the problem of native hairgrass competition within the plots. Discovery of this problem has provided useful information on the potential difficulties for establishing any future range or pasture seedings on Kodiak Island. Prior to planting, the PMC used a good herbicide (Roundup) to kill existing vegetation. The resulting kill was very good, and still the native grasses produced an excellent stand from seed remaining in the soil. It is doubtful whether a rancher could afford the cost associated with the herbicide application that would probably be necessary to establish and maintain good introduced pastures or large scale introduced range seedings. It appears that proper management of native rangeland is the only practical approach for the ranchers. This subject is worthy of additional investigation since these comments are based on limited observations.

Revegetating large deep disturbances resulting from construction will not have the rapid re-invasion by hairgrass. Therefore it will be necessary to seed these areas to prevent erosion.

Without local assistance the question arises whether or not the PMC can continue to work at this plot. High transportation costs involved in transporting equipment from Palmer to Kodiak is becoming prohibitive.

Although, the high cost of maintaining this plot, i.e., transporting equipment from Palmer to Kodiak, may prevent the PMC from continuing maintenance work at the site. Evaluations can and will continue if local assistance is provided.

Table 8. Kodiak Evaluations.

diak		83		84		85			
3 Blocks of Plantings		vigor	stand %	vigor	stand %	vigor	stand %		
1	'Nugget' Kentucky Bluegrass	2	98	4	100	4	80		1
2	'Merion' Kentucky Bluegrass	4	100	5	47	5	50		2
3	'Banff' Kentucky Bluegrass	4	70	6	73	7	33		3
4	'Park' Kentucky Bluegrass	4	70	9	20	8	15		4
5	'Sydsport' Kentucky Bluegrass	2	100	7	23	7	22		5
6	'Fylking' Kentucky Bluegrass	3	93	5	67	5	56		6
7	'Troy' Kentucky Bluegrass	3	97	8	33	-	-		7
8	Big Bluegrass 387931	4	100	8	23	-	-		8
9	'Sherman' Big Bluegrass	1	100	-	-	-	-		9
0	'Canbar' Canby Bluegrass	4	90	8	27	-	-		10
1	'Reubans' Canada Bluegrass	1	100	5	63	-	-		11
2	'Tundra' glaucus Bluegrass	5	63	-	-	-	-		12
3	Glaucus Bluegrass T08867 *	3	100	3	100	3	60		13
4	Alpine Bluegrass 235492, 236892 *	3	70	1	100	-	-		14
5	'Sodar' Streambank wheatgrass	2	97	-	-	-	-		15
6	Bearded wheatgrass 371698	5	87	-	-	-	-		16
7	Bearded wheatgrass 236693	3	93	-	-	-	-		17
8	'Nordan' Crested wheatgrass	2	93	-	-	-	-		18
9	'Fairway' Crested wheatgrass	4	90	-	-	-	-		19
0	'Summit' Crested wheatgrass	4	73	-	-	-	-		20
1	Violet wheatgrass T12050	3	100	-	-	-	-		21
2	Boreal wheatgrass T12048	3	97	-	-	-	-		22
3	Yukon wheatgrass T12051	2	100	-	-	-	-		23
4	'Critana' Thickspike wheatgrass	1	100	-	-	-	-		24
5	'Fults' Alkaligrass	5	47	-	-	-	-		25
6	'Vantage' Reed Canarygrass	2	100	2	90	2	90		26
7	'Engmo' timothy	4	100	6	97	7	30		27
8	'Climax' timothy	2	97	7	67	5	33		28
9	Beach wildrye 345978	5	13	-	-	-	-		29
0	Siberian wildrye 345600	1	100	6	83	-	-		30
1	Siberian wildrye 2144	2	97	-	-	-	-		31
2	Siberian wildrye 1996	5	23	-	-	-	-		32
3	'Norcoast' Bering hairgrass	2	100	7	47	3	74		33
4	Tufted hairgrass 372690	2	97	4	92	6	33		34
5	Bluejoint	4	97	6	88	7	61		35
6	'Sourdough' Bluejoint	3	93	5	63	5	63		36
7	Meadow foxtail	2	100	-	-	-	-		37
8	Geniculated foxtail 314565	1	100	8	33	-	-		38
9	Garrison Creeping foxtail	5	67	-	-	-	-		39
0	'Arctared' Creeping red fescue	4	100	7	60	7	65		40
1	'Boreal' Creeping red fescue	1	100	2	100	4	75		41
2	'Pennlawn' Creeping red fescue	2	100	4	87	6	60		42
3	Rough fescue 236849	2	100	1	100	1	100		43
4	American Sloughgrass T12053	5	93	-	-	-	-		44
5	'Durar' Hard fescue	4	73	8	30	-	-		45
6	'Highlight' Sheep fescue	2	100	6	60	-	-		46
7	'Covar' Sheep fescue	4	83	-	-	-	-		47
8	'Manchar' Smooth Brome	2	100	6	50	7	43		48
9	'Carlton' Smooth Brome	4	100	5	73	5	63		49
0	'Alyeska' Polar grass	2	93	-	-	-	-		50
1	Tellesy Sage T12052								51
11 evaluations based on averages of three replications unless otherwise noted.									52
Based on 1 plot.									

Delta Advanced Evaluation and Demonstration Plot:

Location : MP 1408 Alaska Highway.

Established: June 21, 1983.

Size: 3 acres.

Soil: Silt Loam.

Cooperators: Soil Conservation Service, USDA; Cooperative Extension Service, U of A; Agricultural Experiment Station, U of A; Big Delta Soil Conservation Dist; Future Farmers; Future Farmers Alumni; Alaska Farmer Co-op; W-D Seed Co.; Area farmers; Delta School Dist, Vo-Ag.

Site History: The Delta trial site was selected and prepared by Mike Carlson, Delta Vo-Ag Instructor, and the Soil Conservation Service staff prior to the 6-21-83 planting date. The site was in excellent condition when the PMC staff arrived and planting started immediately. Twice yearly evaluations have been conducted since planting.

Costs:

Delta				
Date	Activity	Travel	Per diem	Other
6/21/83	Plant	110.00	220.00	50.00
8/25/83	Evaluate	0	80.00	0
5/15/84	Clean & Evaluate	0	240.00	
6/27/84	Plant	0	80.00	
8/15/84	Evaluate	0	90.00	
5/21/85	Evaluate	0	160.00	0
8/06/85	Evaluate	0	80.00	0
Subtotal as of 8/06/85		110.00	950.00	50.00

Results:

On June 21, 1983 the plot was planted with 50 accessions of advanced test plant material. The complete 1983 array, with the exception of Alpine Bluegrass 235492, 236892, and Glaucus Bluegrass T08867, was replicated 3 times within the Delta plot. Low seed supplies allowed Glaucus Bluegrass and Alpine Bluegrass to be planted only once.

Two of the replications were broadcast planted in 4' x 8' blocks within 200'x16' advanced evaluation plots. The third replication was drill-seeded using a Planet Jr., in 20-foot rows, 3 feet apart, in a plot measuring 40 feet by 75 feet.

By August 25, 1983 all the accessions within each replication produced measurable stands.

By August 6, 1985, 7 accessions were completely eliminated from the advanced plots by winterkill. They were 'Reubans' Canada Bluegrass, 'Nordan' Crested Wheatgrass, 'Fairway' Crested Wheatgrass, 'Fults' Alkaligrass, 'Vantage' Reed Canarygrass, 'Highlight' Sheep Fescue, and 'Covar' Sheep Fescue. The best performance in the Advanced Plots was recorded for Glaucus Bluegrass T08867, Alpine Bluegrass 235492, 236892, Violet Wheatgrass T12050, Siberian Wildrye 345600, 'Norcoast' Hairgrass, Tufted Hairgrass 372690, 'Sourdough' Bluejoint, 'Arctared' Creeping Red Fescue, and American Sloughgrass T12053. The only legume remaining in the Demonstration Block was 'Aurora' Alsike Clover in the unfertilized block.

The best performance recorded in the Demonstration Block was for 'Alyeska' Polargrass, 'Arctared' Creeping Red Fescue, and 'Polar' Brome.

All the 1984 woody plantings planted on June 27, 1984, survived to the first summer. This planting included 1-0 stock of 'Roland' Pacific Willow, Petrowsky Poplar, 'Rhode' Feltleaf Willow, Balsam Poplar, 'Oliver' Barrenground Willow, Mountain Willow, and 'Wilson' Bebb willow. On August 6, 1985 all willow were performing satisfactorily, with the exception of Pacific willow which had a 30% kill. On June 27, 1984, the broadcast-seeded Advanced Evaluation plots each had an accession of Tellesy Sage added to them.

The Delta Evaluation plot is an example of excellent cooperation by local groups. All of the cooperators, especially Mike Carlson, and the Future Farmers must be commended for their work. These local efforts have kept the cost of this plot well below the cost of other large scale plots. Additionally, the plot is presentable and well maintained.

lta		83		84		85			
	3 Blocks of Plantings	vigor	stand %	vigor	stand %	vigor	stand %		
1	'Nugget' Kentucky Bluegrass	4	97	4	97	4	93		1
2	'Merion' Kentucky Bluegrass	6	93	4	100	6	74		2
3	'Banff' Kentucky Bluegrass	4	93	2	100	7	53		3
4	'Park' Kentucky Bluegrass	2	90	4	67	5	93		4
5	'Sydsport' Kentucky Bluegrass	2	82	3	70	6	100		5
6	'Fylking' Kentucky Bluegrass	4	87	6	80	9	36		6
7	'Troy' Kentucky Bluegrass	4	83	5	57	7	63		7
8	Big Bluegrass 387931	4	83	2	70	3	97		8
9	'Sherman' Big Bluegrass	2	97	9	17	9	17		9
10	'Canbar' Canby Bluegrass	4	90	8	33	9	17		10
11	'Reubans' Canada Bluegrass	6	88	-	-	-	-		11
12	'Tundra' glaucus Bluegrass	3	97	6	72	7	47		12
13	Glaucus Bluegrass T08867 *	5	95	3	100	5	100		13
14	Alpine Bluegrass 235492, 236892 *	5	60	1	60	1	80		14
15	'Sodar' Streambank wheatgrass	2	90	6	67	7	60		15
16	Bearded wheatgrass 371698	4	100	4	82	4	93		16
17	Bearded wheatgrass 236693	5	83	8	28	8	30		17
18	'Nordan' Crested wheatgrass	2	100	-	-	-	-		18
19	'Fairway' Crested wheatgrass	4	93	-	-	-	-		19
20	'Summit' Crested wheatgrass	4	83	5	50	7	47		20
21	Violet wheatgrass T12050	6	88	2	97	2	100		21
22	Boreal wheatgrass T12048	6	100	4	90	4	90		22
23	Yukon wheatgrass T12051	6	97	4	87	6	83		23
24	'Critana' Thickspike wheatgrass	3	97	6	83	9	25		24
25	'Fults' Alkaligrass	2	90	-	-	-	-		25
26	'Vantage' Reed Canarygrass	6	90	-	-	-	-		26
27	'Engmo' timothy	4	100	5	67	7	33		27
28	'Climax' timothy	4	100	9	10	9	10		28
29	Beach wildrye 345978	8	12	3	22	8	7		29
30	Siberian wildrye 345600	4	92	1	97	4	100		30
31	Siberian wildrye 2144	2	92	3	97	7	95		31
32	Siberian wildrye 1996	6	90	4	100	6	57		32
33	'Norcoast' Bering hairgrass	3	93	2	85	2	100		33
34	Tufted hairgrass 372690	2	90	2	93	2	95		34
35	Bluejoint	2	90	4	97	2	100		35
36	'Sourdough' Bluejoint	4	83	2	93	2	100		36
37	Meadow foxtail	6	100	7	47	8	45		37
38	Geniculated foxtail 314565	2	100	9	17	9	17		38
39	Garrison Creeping foxtail	4	93	7	43	8	23		39
40	'Arctared' Creeping red fescue	4	87	2	92	1	100		40
41	'Boreal' Creeping red fescue	2	98	4	97	1	100		41
42	'Pennlawn' Creeping red fescue	4	90	4	92	6	62		42
43	Rough fescue 236849	4	87	3	92	2	100		43
44	American Sloughgrass T12053	6	100	2	100	1	100		44
45	'Durar' Hard fescue	5	83	4	98	4	100		45
46	'Highlight' Sheep fescue	6	83	-	-	-	-		46
47	'Covar' Sheep fescue	5	80	-	-	-	-		47
48	'Manchar' Smooth Brome	2	100	6	73	7	45		48
49	'Carlton' Smooth Brome	4	100	8	60	7	40		49
50	'Alyeska' Polar grass	4	100	3	97	1	100		50
51	Telley Sage T12052 **			5	75	5	75		51
Evaluations based on averages of three replication unless otherwise noted.									
based on one plot									
based on two plots									

Kenny Lake Advanced Evaluation & Demonstration Plot
Established: May 15, 1984 Size: 1 acre.
Soil: Kenny Lake Silt Loam.

Cooperators:

Soil Conservation Service, USDA;
Kenny Lake Soil Conservation District;
Bill Sutton, area farmer.

Site history: The Plant Materials Center has been active in the Kenny Lake area since 1980. In May 1980, an offsite evaluation plot was established on property owned by Ken Hoisington, MP 11 Edgerton Highway. The Initial Evaluations on this plot indicated high survival rates for legumes that would not survive elsewhere in Alaska. The need for a plot with more public access seemed necessary. Therefore, in the spring of 1984, Bill Sutton agreed to provide use of an acre of land adjacent to the Edgerton Highway.

On May 15, 1984, the site was prepared and planted. On August 14, 1984, a fence was erected and the site was rotovated with PMC equipment. The fencing and labor was supplied by the Soil Conservation Service.

Costs:

Kenny Lake

<u>Date</u>	<u>Activity</u>	<u>Fare</u>	<u>P/D</u>	<u>Other</u>
5/14/84	Plant & Prepare	0	160.00	180.00
8/13/84	Rotovate eval.	0	340.00	
5/20/85	Replant	0	80.00	20.00
8/6/85	Evaluate	0	40.00	0.
Subtotal as of 8/85		0	620.00	200.00
Total	\$820.00			

Results:

The area used for the evaluation plot is a former farm field. After planting it was learned that the site had not received herbicide treatments the previous year. Had this been known prior to planting, corrective measures could have been taken. The three advanced evaluation plots were destroyed by weed competition. These plots were replanted in 1985.

The Demonstration Plots performed a little better. With the exception of a portion of the 'Sodar' Wheatgrass block, all the blocks produced measurable stands. The demonstration plot was laid out similar to other demonstration plots: 10'x60' blocks with the first 20' receiving no fertilizer, the second 20' received 260 pounds 20-20-10 per acre, and the third received 520 pounds per acre. No lime was applied.

All of the planted varieties of Alfalfa (Drylander, Anik, Vernal, Beaver, and Peace) and 'Altaswede' Red Clover produced measurable stands during the seedling year.

On August 6, 1985, evaluation data were salvaged from the advanced plots that had been overrun by weeds. Within these plots 'Arctared' Red Fescue, Rough Fescue, Siberian Wildrye 345600, Alpine Bluegrass, and Artemesia Tilesii performed the best.

The demonstration plots continued, in the most part, to do well. Outstanding performance was recorded for 'Engmo' timothy, 'Boreal' Red Fescue, 'Aurora' Alsike Clover, and 'Alaskland' Red Clover. 'Sodar' wheatgrass, 'Merion' Kentucky Bluegrass, and White Dutch Clover failed to survive.

'Anik' alfalfa was the only variety that had survived but it was not performing well.

Ruby Advanced Evaluation & Demonstration Plot

Location: Ruby Farm

Established: May 20, 1984.

Size: 1 acre

Soil: Silt loam

Cooperators:

Yukon-Koyukuk School District and the school students of Ruby.

Site History: In December of 1983 the Plant Materials Center (PMC) was contacted by John Dart, Farm Manager and Vo-Ag Instructor, at the Ruby Farm, regarding the possibility of establishment of a plot at Ruby. An agreement was reached with the Yukon-Koyukuk School District to cover travel costs as the PMC had not budgeted for a plot at Ruby. Lodging was provided by John Dart.

Costs:

Date	Activity	Travel	Ruby	
			Per diem	Other
5/20/84	Plant site	0	0	186.00
8/28/84	Evaluate & clean	276.00	0	0
9/9/85	Evaluate	<u>320.00</u>	<u>0</u>	<u>0</u>
	Subtotal as of 9/85	596.00	0	186.00
	Total \$782.00			

Results:

Shortly after arriving at Ruby and after reviewing the previous year's agricultural plantings it became apparent that serious soil fertility and chemistry problems existed at the farm. As a result soil scientists, Drs. Chin LuPing, Univ. of Alaska Agricultural Experiment Station, Palmer, and George Mitchell, Cooperative Extension Service, were called upon to conduct a brief soil study.

The Ruby plots varied from plots established elsewhere as they included grain plantings. The yield data is quite interesting. Yields were low for barley and wheat and will probably continue to be low until fertility or chemistry problems are corrected. Barley yields were very low: 'Thual' 5.8 bu/a 'Datal' 5.2 bu/a, and 'Otal' 5.2 bu/a. Wheat was equally low: 'Nogel' 10 bu/a and 'Ingal' 2.2 bu/a. 'Toral' oats produced a respectable 73 bu/a. 'Bebral' Rye and 'Candle' Rape were also planted. The rye did not survive and the rape was removed. This yield data was collected by John Dart and does not address grain quality.

The three advanced evaluation plots contained the complete 1984 array of accessions, however because of low seed supply Rough Fescue and Alpine Bluegrass were only replicated twice. Each accession was planted in 4'x8' blocks. Plots 1 and 2 were planted by adults; 3 was set aside for planting by students. Each interested student, was given 2 accessions to plant and maintain.

By August 29, 1984, only two accessions 'Garrison' Creeping Foxtail and 'Fults' Alkaligrass failed to produce measurable stands.

Usually little data is collected the first year, as there is very little information worthy of comment. The Ruby plot was an exception. Beach Wildrye has consistently shown low seedling vigor and poor stand establishment elsewhere, however the blocks at Ruby were superior. These seedling plants were comparable to two to three-year-old plants grown elsewhere. The reason for the outstanding performance has yet to be determined.

The demonstration plots contained all of the available varieties recommended by the Revegetative Guide for Alaska. All the varieties with the exception of 'Garrison' Creeping Foxtail, produced at least fair stands.

The demonstration plots at Ruby, as elsewhere were fertilized at three different rates. Each variety was planted in a 10'x60' block. The first 20' received no fertilizer; the second, 320 pounds of 20-20-10 per acre and the third, 650 pounds of 20-20-10 per acre. No lime applications were made.

The next evaluations of the plantings at Ruby was conducted on September 9, 1985. Outstanding performances were recorded for 'Nugget' Kentucky Bluegrass, Glaucus Bluegrass, Alpine Bluegrass, Bearded

wheatgrass 371698, Yukon Wheatgrass, 'Norcoast' Hairgrass, Tufted Hairgrass 372690, 'Sourdough' Bluejoint, 'Egan' American Sloughgrass, and 'Alyeska' Polargrass.

Table 10. Ruby Evaluations.

		84		85					
3 Blocks of Plantings		vigor	stand %	vigor	stand %				
'Nugget' Kentucky Bluegrass	2	88	2	85					1
'Merion' Kentucky Bluegrass	2	77	-	-					2
'Banff' Kentucky Bluegrass	6	80	-	-					3
'Park' Kentucky Bluegrass	2	97	-	-					4
'Sydsport' Kentucky Bluegrass	2	82	9	20					5
'Fylking' Kentucky Bluegrass	2	93	8	27					6
'Troy' Kentucky Bluegrass	6	55	-	-					7
Big Bluegrass 387931	4	60	5	58					8
'Sherman' Big Bluegrass	2	77	-	-					9
'Canbar' Canby Bluegrass	4	77	-	-					10
'Reubans' Canada Bluegrass	4	80	7	12					11
'Tundra' glaucous Bluegrass	3	97	3	95					12
Glaucus Bluegrass T08867	1	100	1	100					13
Alpine Bluegrass 235492, 236892 *	2	95	1	100					14
'Sodar' Streambank wheatgrass	2	97	-	-					15
Bearded wheatgrass 371698	3	83	1	100					16
Bearded wheatgrass 236693	4	93	-	-					17
'Nordan' Crested wheatgrass	4	67	-	-					18
'Fairway' Crested wheatgrass	6	67	-	-					19
'Summit' Crested wheatgrass	4	87	-	-					20
Violet wheatgrass T12050	2	100	2	100					21
Boreal wheatgrass T12048	1	100	2	93					22
Yukon wheatgrass T12051	1	100	1	95					23
'Critana' Thickspike wheatgrass	2	100	-	-					24
'Fults' Alkaligrass	-	-	-	-					25
'Vantage' Reed Canarygrass	1	100	2	95					26
'Engmo' timothy	4	100	4	85					27
'Climax' timothy	1	100	5	81					28
Beach wildrye 345978	1	73	2	83					29
Siberian wildrye 345600	2	100	3	100					30
Siberian wildrye 2144	3	100	8	60					31
Siberian wildrye 1996	7	43	8	43					32
'Norcoast' Bering Hairgrass	1	100	1	100					33
Tufted hairgrass 372690	2	100	1	100					34
Bluejoint	1	100	3	100					35
'Sourdough' Bluejoint	2	97	1	100					36
Meadow foxtail	3	97	6	68					37
Geniculated foxtail 314565	1	100	-	-					38
Garrison Creeping foxtail	-	-	-	-					39
'Arctared' Creeping red fescue	2	100	1	100					40
'Boreal' Creeping red fescue	2	97	2	100					41
'Pennlawn' Creeping red fescue	4	83	3	95					42
Rough fescue 236849 *	1	100	5	80					43
American Sloughgrass T12053	2	73	1	100					44
'Durar' Hard fescue	7	40	8	27					45
'Highlight' Sheep fescue	2	90	7	43					46
'Covar' Sheep fescue	7	50	-	-					47
'Manchar' Smooth Brome	5	90	4	100					48
'Carlton' Smooth Brome	6	73	7	100					49
'Alyeska' Polar grass	2	97	1	100					50
Telley Sage T12052	2	97	3	100					51
11 evaluations based on averages of three replications unless otherwise noted.									52
Based on two plots.									

City of Kenai Advanced Evaluation and Demonstration Plot

Location: Adjacent to Kenai City Airport.

Established: June 6, 1984

Size: 2 acres.

Soil: Spoil.

Cooperators:

City of Kenai

Cooperative Extension Service

Local landscape firms.

History: Following Agricultural Agent, Walter Them's transfer to Kenai from Kodiak, he noted the need for an Advanced Evaluation and Demonstration plot in the Kenai area. Having worked with the Kodiak site, Walter was familiar with the plot system. He found overwhelming support in the City Government of Kenai.

The City provided the land, hauled in soil, erected a fence, and laid a waterline. The site was prepared and planted using rented and donated equipment on June 6, 1984. On September 27, 1984, during a scheduled evaluation trip, the site was heavily rotovated with PMC machinery. Some vandalism and theft has been reported at the site.

Kenai

Date	Activity	Travel	Per diem	Other
6/8/84	Prepare & plant	0	160.00	141.00
9/27/84	Rotovate & eval.	0	320.00	300.00
5/29/85	Evaluate	0	80.00	0.
8/15/85	Evaluate	0	160.00	0.
As of 8/85		0	720.00	441.00
Total	\$1161.00			

Results:

All of the advanced plots produced measurable stands during the seedling year.

The Kenai plot also received a demonstration planting of material recommended in the Revegetative Guide for Alaska.

Results:

All of the advanced plots produced measurable stands during the seedling year.

The Kenai plot also received a demonstration planting of material recommended in the Revegetative Guide for Alaska.

During 1985 the plot was evaluated on May 29 and August 15. Walter Them, Extension Agent, maintained the area to a very presentable condition during 1985.

Within the advanced plots 'Fylking' Kentucky Bluegrass, Alpine Bluegrass, 'Engmo' Timothy, and Geniculated Foxtail performed exceptionally well. On the other hand, all the Wheatgrasses, 'Canbar' Bluegrass, Siberian Wildrye 1996, 'Sourdough' Bluejoint, and 'Cover' Sheep Fescue, failed to survive.

In the demonstration plantings the most successful varieties were: 'Norcoast' Hairgrass, 'Park' Kentucky Bluegrass, 'Boreal' Red Fescue, and 'Engmo' Timothy. The poorest performance was recorded for 'Aurora' Alsike Clover, White Dutch Clover, and 'Garrison' Creeping Foxtail.

ai

84

85

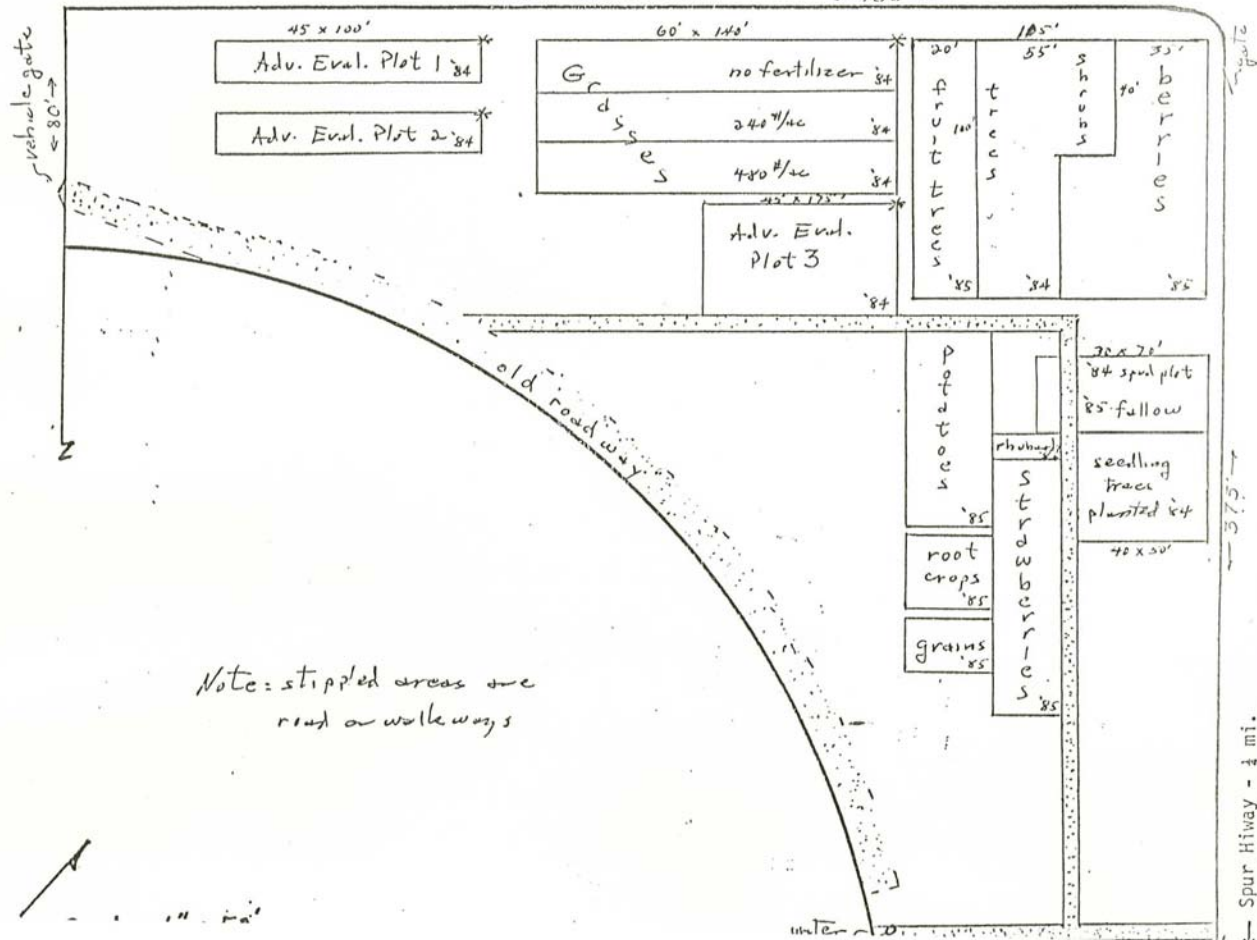
3 Blocks of Plantings	vigor	stand %	vigor	stand %				
'Nugget' Kentucky Bluegrass	6	67	4	70				1
'Merion' Kentucky Bluegrass	4	77	4	73				2
'Banff' Kentucky Bluegrass	2	87	5	65				3
'Park' Kentucky Bluegrass	5	80	2	85				4
'Sydsport' Kentucky Bluegrass	4	73	2	85				5
'Fylking' Kentucky Bluegrass	4	78	1	95				6
'Troy' Kentucky Bluegrass	4	78	4	75				7
Big Bluegrass 387931	4	48	3	60				8
'Sherman' Big Bluegrass	1	87	9	15				9
'Canbar' Canby Bluegrass	5	90	-	-				10
'Reubans' Canada Bluegrass	3	92	8	33				11
'Tundra' glaucous Bluegrass	4	65	9	5				12
Glaucous Bluegrass T08867	2	77	2	90				13
Alpine Bluegrass 235492, 236892 *	1	97	1	95				14
'Sodar' Streambank wheatgrass	4	78	-	-				15
Bearded wheatgrass 371698	6	45	-	-				16
Bearded wheatgrass 236693	7	38	-	-				17
'Nordan' Crested wheatgrass	4	88	-	-				18
'Fairway' Crested wheatgrass	6	88	-	-				19
'Summit' Crested wheatgrass	6	73	-	-				20
Violet wheatgrass T12050	6	47	-	-				21
Boreal wheatgrass T12048	6	55	-	-				22
Yukon wheatgrass T12051	5	60	-	-				23
'Critana' Thickspike wheatgrass	4	73	-	-				24
'Fults' Alkaligrass	6	68	-	-				25
'Vantage' Reed Canarygrass	3	82	9	7				26
'Engmo' timothy	1	98	1	100				27
'Climax' timothy	2	93	6	100				28
Beach wildrye 345978	4	13	8	5				29
Siberian wildrye 345600	3	90	4	63				30
Siberian wildrye 2144	2	90	7	30				31
Siberian wildrye 1996	6	38	-	-				32
'Norcoast' Bering hairgrass	2	90	2	90				33
Tufted hairgrass 372690	1	65	3	90				34
Bluejoint	3	75	5	53				35
'Sourdough' Bluejoint	7	47	-	-				36
Meadow foxtail	4	80	7	55				37
Geniculated foxtail 314565	1	100	1	100				38
Garrison Creeping foxtail	6	80	8	15				39
'Arctared' Creeping red fescue	4	67	3	95				40
'Boreal' Creeping red fescue	1	95	2	95				41
'Pennlawn' Creeping red fescue	2	85	2	95				42
Rough fescue 236849	1	80	1	100				43
American Sloughgrass T12053 *	5	50	3	58				44
'Durar' Hard fescue	6	60	7	20				45
'Highlight' Sheep fescue	3	75	8	22				46
'Covar' Sheep fescue	5	65	-	-				47
'Manchar' Smooth Brome	4	75	9	20				48
'Carlton' Smooth Brome	4	72	9	15				49
'Alyeska' Polar grass	6	47	-	-				50
Tellesy Sage T12052	2	80	2	65				51
11 evaluations based on the average of 3 replications unless otherwise noted.								52
Based on two plots.								

First Street

First Street

KENAI PLANT TEST SITE

← 43.5' →



MAIN STREET LOOP

← Spur Highway - 4 mi. →

Table 12. Tok Evaluations.

k		85									
	1 Block of Plantings	vigor	stand %								
1	'Nugget' Kentucky Bluegrass	3	100								1
2	'Merion' Kentucky Bluegrass	3	90								2
3	'Banff' Kentucky Bluegrass	5	70								3
4	'Park' Kentucky Bluegrass	1	100								4
5	'Sydsport' Kentucky Bluegrass	3	90								5
6	'Fylking' Kentucky Bluegrass	5	50								6
7	'Troy' Kentucky Bluegrass	7	100								7
8	Big Bluegrass 387931	3	95								8
9	'Sherman' Big Bluegrass	1	100								9
0	'Canbar' Canby Bluegrass	5	50								10
1	'Reubans' Canada Bluegrass	3	75								11
2	'Tundra' glaucous Bluegrass	5	95								12
3	Glaucus Bluegrass T08867	5	80								13
4	Alpine Bluegrass 235492, 236892	5	90								14
5	'Sodar' Streambank wheatgrass	1	60								15
6	Bearded wheatgrass 371698	5	75								16
7	Bearded wheatgrass 236693	3	50								17
8	'Nordan' Crested wheatgrass	6	40								18
9	'Fairway' Crested wheatgrass	5	50								19
0	'Summit' Crested wheatgrass	5	60								20
1	Violet wheatgrass T12050	1	70								21
2	Boreal wheatgrass T12048	5	50								22
3	Yukon wheatgrass T12051	7	30								23
4	'Critana' Thickspike wheatgrass	3	70								24
5	'Fults' Alkaligrass	3	75								25
6	'Vantage' Reed Canarygrass	3	25								26
7	'Engmo' timothy	7	75								27
8	'Climax' timothy	1	100								28
9	Beach wildrye 345978	0	0								29
0	Siberian wildrye 345600	1	100								30
1	Siberian wildrye 2144	5	30								31
2	Siberian wildrye 1996	3	10								32
3	'Norcoast' Bering hairgrass	1	90								33
4	Tufted hairgrass 372690	7	60								34
5	Bluejoint	5	90								35
6	'Sourdough' Bluejoint	1	80								36
7	Meadow foxtail	0	0								37
8	Genuiculated foxtail 314565	7	50								38
9	Garrison Creeping foxtail	0	0								39
0	'Arctared' Creeping red fescue	5	90								40
1	'Boreal' Creeping red fescue	1	75								41
2	'Pennlawn' Creeping red fescue	1	100								42
3	Rough fescue 236849	1	95								43
4	American Sloughgrass T12053	1	100								44
5	'Durar' Hard fescue	7	40								45
6	'Highlight' Sheep fescue	5	80								46
7	'Covar' Sheep fescue	7	20								47
8	'Manchar' Smooth Brome	3	85								48
9	'Carlton' Smooth Brome	1	90								49
0	'Alyeska' Polar grass	3	75								50
1	Telley Sage T12052	1	80								51
2	Pumpelly Brome	5	60								52

Fairbanks Advanced Evaluation and Demonstration Plot
Location: Intersection Parks Highway and Chena Ridge Road
Established: May 23, 1985 Size: 5 acres. Soil: Silt Loam.

Cooperators:

University of Alaska
Cooperative Extension Service
Soil Conservation Service
Fairbanks Soil Conservation District
Alaska Department of Transportation

History: In 1984 the site was selected and permission for use was given by Alaska Department of Transportation. Also during 1984 the site preparation began. The area was sprayed with Roundup and cultivated. The site was planted with two advanced evaluation plots and one demonstration plot.

Date	Activity	Travel	<u>Fairbanks</u> Per diem	Other
6/ /84	Herbicide	-	-	300.00
5/23/85	Plant site	-	160.00	50.00
8/9/85	Evaluate	-	<u>80.00</u>	<u>-</u>
			240.00	350.00
Grand Total \$590.00				

The Fairbanks plot was typical of a plot established on old farm ground; weed growth surpassed the plantings. The area was mowed to prevent more weed development during 1986. No measurements were taken but all of the accessions became established. Fall evaluation data will be available in 1986.

Bethel Evaluation Plot

Location: Bethel

Established: 6/10/85

Cooperators:

Cooperative Extension Service.

Site History: This site was provided by the Cooperative Extension Service on land provided by the City of Bethel. The intent was to spread topsoil over the existing sand and tundra to form the substrate for the plot. However, the topsoil area was not completed in time for planting so the plot was planted on Bethel sandy soil.

Cost:

Date	Activity	<u>Bethel</u> Fare	P/D	Other
6/10/85	Plant	125.00	106.00	100.00
9/5/85	Evaluate	<u>0</u>	<u>0</u>	<u>0</u>
		125.00	106.00	100.00

Grand total \$331.00.

Results:

The 1985 plot contained the complete array of species typical of previously planted plots. All species produced measurable stands with the exception of Beach Wildrye and Meadow Foxtail. Beach Wildrye often does not germinate well the first year its been planted and Meadow Foxtail was contaminated with Annual Rye. Several accessions performed well during this first growing season but the evaluations are not truly valuable until after at least one winter. Some of the accessions that have performed the best thus far include: 'Park' Kentucky Bluegrass, Siberian Wildrye, 2144 Geniculated Foxtail, 'Arctared' Red Fescue, and Tellesy Sage.

Table 13. Bethel Evaluations.

thel

85

	1 Block of Plantings	1081A	stand N						
1	'Nugget' Kentucky Bluegrass	3	60						1
2	'Merion' Kentucky Bluegrass	5	50						2
3	'Banff' Kentucky Bluegrass	5	40						3
4	'Park' Kentucky Bluegrass	1	75						4
5	'Sydsport' Kentucky Bluegrass	3	70						5
6	'Fylking' Kentucky Bluegrass	5	70						6
7	'Troy' Kentucky Bluegrass	5	20						7
8	Big Bluegrass 387931	5	50						8
9	'Sherman' Big Bluegrass	1	85						9
0	'Canbar' Canby Bluegrass	3	60						10
1	'Reubans' Canada Bluegrass	1	40						11
2	'Tundra' glaucous Bluegrass	3	80						12
3	Glaucus Bluegrass T08867	1	50						13
4	Alpine Bluegrass 235492, 236892	3	50						14
5	'Sodar' Streambank wheatgrass	1	80						15
6	Bearded wheatgrass 371698	5	50						16
7	Bearded wheatgrass 236693	5	45						17
8	'Nordan' Crested wheatgrass	1	60						18
9	'Fairway' Crested wheatgrass	3	50						19
0	'Summit' Crested wheatgrass	5	20						20
1	Violet wheatgrass T12050	3	70						21
2	Boreal wheatgrass T12048	5	40						22
3	Yukon wheatgrass T12051	3	65						23
4	'Critana' Thicksipke wheatgrass	3	60						24
5	'Fults' Alkaligrass	1	90						25
6	'Vantage' Reed Canarygrass	1	65						26
7	'Engmo' timothy	3	65						27
8	'Climax' timothy	1	90						28
9	Beach wildrye 345978	-	-						29
0	Siberian wildrye 345600	2	80						30
1	Siberian wildrye 2144	1	90						31
2	Siberian wildrye 1996	5	40						32
3	'Norcoast' Bering hairgrass	5	50						33
4	Tufted hairgrass 372690	3	50						34
5	Bluejoint	3	40						35
6	'Sourdough Bluejoint	5	20						36
7	Meadow foxtail	1	90					contaminated w/Wildrye	37
8	Geniculated foxtail 314565	1	90						38
9	Garrison Creeping foxtail	3	60						39
0	'Arctared' Creeping red fescue	1	90						40
1	'Boreal' Creeping red fescue	1	80						41
2	'Pennlawn' Creeping red fescue	3	70						42
3	Rough fescue 236849	1	90						43
4	American Sloughgrass T12053	5	50						44
5	'Durar' Hard fescue	5	60						45
6	'Highlight' Sheep fescue	3	20						46
7	'Covar' Sheep fescue	5	70						47
8	'Manchar' Smooth Brome	5	50						48
9	'Carlton' Smooth Brome	1	95						49
0	'Alyeska' Polar grass	3	20						50
1	Telley Sage T12052	1	90						51
2									52

Aniak Evaluation Plot
Location: Mariswood Farm
Established: 6/11/85

Cooperators:
Hal and Jane Niebergall

Site History: The Niebergalls are interested in several aspects of rural agriculture. One of their interests includes identifying grass species that would be suitable for soil stabilization in the mid-Kuskokwim Region. The Niebergalls provided space for two plots each of which measured 36x60 feet. One plot was placed on newly cleared and cultivated land and the other, adjacent to the first was placed on land that had been farmed for one year.

Cost:

<u>Aniak</u>				
<u>Date</u>	<u>Activity</u>	<u>Fare</u>	<u>P/D</u>	<u>Other</u>
6/11/85	Plant	125.00	106.00	100.00
9/24/85	Evaluate	<u>268.00</u>	<u>15.00</u>	<u>30.00</u>
		393.00	121.00	130.00
Grand total \$644.00.				

Results:

The 1985 plot contained the complete array of species typical of previously planted plots. All species produced measurable stands with the exception of Beach Wildrye and Meadow Foxtail. Beach Wildrye often does not germinate well the first year its been planted and the Meadow Foxtail was contaminated with Annual Rye. Several accessions performed well during this first growing season but the evaluations are not truly valuable until after at least one winter. Some of the accessions that have performed the best include: Siberian Wildrye, 345600, Geniculated Foxtail, and 'Boreal' Red Fescue.

Table 14. ANiak Evaluations.

Aniak

85

	1 Block of Plantings	to 34	stand 2						
1	'Nugget' Kentucky Bluegrass	2	75						1
2	'Merion' Kentucky Bluegrass	4	40						2
3	'Banff' Kentucky Bluegrass	2	63						3
4	'Park' Kentucky Bluegrass	4	40						4
5	'Sydsport' Kentucky Bluegrass	2	80						5
6	'Fylking' Kentucky Bluegrass	3	65						6
7	'Troy' Kentucky Bluegrass	4	55						7
8	Big Bluegrass 387931	5	30						8
9	'Sherman' Big Bluegrass	4	50						9
0	'Canbar' Canby Bluegrass	4	60						10
1	'Reubans' Canada Bluegrass	1	83						11
2	'Tundra' glaucous Bluegrass	4	53						12
3	Glaucus Bluegrass T08867	2	68						13
4	Alpine Bluegrass 235492, 236892	4	45						14
5	'Sodar' Streambank wheatgrass	3	65						15
6	Bearded wheatgrass 371698	3	65						16
7	Bearded wheatgrass 236693	5	35						17
8	'Nordan' Crested wheatgrass	3	55						18
9	'Fairway' Crested wheatgrass	2	85						19
0	'Summit' Crested wheatgrass	1	83						20
1	Violet wheatgrass T12050	3	43						21
2	Boreal wheatgrass T12048	3	30						22
3	Yukon wheatgrass T12051	6	18						23
4	'Critana' Thickspike wheatgrass	3	78						24
5	'Fults' Alkaligrass	1	85						25
6	'Vantage' Reed Canarygrass	1	90						26
7	'Engmo' timothy	3	95						27
8	'Climax' timothy	1	100						28
9	Beach wildrye 345978	-	-						29
0	Siberian wildrye 345600	1	95						30
1	Siberian wildrye 2144	3	90						31
2	Siberian wildrye 1996	6	40						32
3	'Norcoast' Bering hairgrass	3	60						33
4	Tufted hairgrass 372690	4	25						34
5	Bluejoint	6	10						35
6	'Sourdough Bluejoint	6	10						36
7	Meadow foxtail	-	-	contaminated w/Annual Rye					37
8	Geniculated foxtail 314565	1	90						38
9	Garrison Creeping foxtail	3	65						39
0	'Arctared' Creeping red fescue	3	78						40
1	'Boreal' Creeping red fescue	1	100						41
2	'Pennlawn' Creeping red fescue	3	83						42
3	Rough fescue 236849	10	90						43
4	American Sloughgrass T12053	5	28						44
5	'Durar' Hard fescue	5	35						45
6	'Highlight' Sheep fescue	4	65						46
7	'Covar' Sheep fescue	2	100						47
8	'Manchar' Smooth Brome	6	18						48
9	'Carlton' Smooth Brome	1	95						49
0	'Alyeska' Polar grass	3	75						50
1	Tellesy Sage T12052	2	100						51
2									52

MINING AND INDUSTRIAL EVALUATION PLOTS (MIEP)

Fewer MIEP's are established than Advanced Evaluation and Demonstration Plots. The MIEPs are usually designed for reclamation and/or erosion control and are located in diverse geographical and ecological locations. The plots are developed in a manner consistent with the clients intended final management practice, i.e., "Fertilize it once and forget about it." The practice of minimal maintenance is generally necessary for industry to eliminate costly yearly maintenance programs. Therefore, the plots are established with minimal surface preparation and are only fertilized at the time of planting. The plantings are then evaluated for their ability to survive on these harsh sites with no maintenance. Top soil is not used, and the plantings are made on the substrate that is expected to be available when reclamation occurs.

The MIEP also serves as an advanced evaluation of plant materials that have been selected at the PMC for their outstanding performance. In addition, the program also evaluates new techniques of planting and maintenance which could make the entire reclamation or erosion control process more cost effective.

The cooperator is allowed to set some of the parameters in the testing procedures, so that the test will provide useful data for the client's particular conditions. These plots also allow the PMC to make meaningful recommendations when similar conditions are encountered by someone other than the original client.

This class of evaluation plots probably provide the most important and useful information to the Conservation Plant Project.

Placer Amex Woody Evaluation Plot

Location: Lone Ridge Test Pit. Beluga Coal Field.

Size: 100'x100'. Soil: Spoil. Established: 6-18-82.

Cooperators:

Placer Amex.

Site History: This site was planted on June 18, 1982 at the request of Placer Amex. The site was prepared in a manner representative of what might be encountered during mine reclamation.

Costs:

Date	Placer Amex		
	Travel	Per Diem	Other
6/18/82	0	0	0
9/13/83	0	0	0
6/12/84	0	0	0

Results:

The Placer Amex test site is strictly an evaluation of willow and willow planting techniques. Woody plant evaluation is longer term than that for grasses or other herbaceous plant material. Therefore these results should be considered inclusive.

The plantings at this site included 5 willow species; Feltleaf Willow (L-113), Barrenground Willow (L-104), Pacific Willow (L-161), Barclay Willow (L-171), and Bebb Willow (L-143), and three planting techniques; dormant and rooted cuttings, and bundles.

Thus far, rooted cuttings of Feltleaf Willow have performed the best followed by Pacific Willow and Barrenground Willow. All of the rooted cuttings outperformed dormant cuttings. The most impressive growth occurred with the bundle technique using Feltleaf Willow.

Fort Richardson Evaluation Plot
Location: Fort Richardson Recharge Pit.
Established: 6/1/83
Size: 1 1/2 acres
Soil: Gravel.

Cooperators:

U.S. Army

Site History: The PMC required a gravel pit to properly evaluate plant materials. The environmental section at Fort Richardson offered the use of a site. The site contains a 1 block planting plot and 31, 1/20-acre hydroseeded blocks. The entire site was seeded in a 2-day period using the PMC smallplot hydroseeder.

Costs:

Fort Richardson				
Date	Activity	Travel	Per diem	Other
6/1/83	Plant	0	0	816.00
9/27/83	Evaluate	0	0	0
5/30/84	Evaluate	0	0	0
9/25/84	Evaluate	0	0	0
8/30/85	Evaluate	0	0	0
Total	\$816.00			

Results:

The hydroseeded plots failed. It appears that the dry period immediately after the seeding contributed to the failure. When the rains started the high concentration of native weed seeds germinated and probably out-competed the seeded varieties. This planting will be attempted again in the future. Any future planting will be timed to take advantage of late June rains.

The hand-seeded evaluation plot, on the other hand, produced a satisfactory stand the seedling year. The complete 1983 array was planted. The only accessions that did not produce measurable stands were 'Alyeska' Polargrass, Tufted Hairgrass 372690, 'Norcoast' Bering Hairgrass, and 'Fults' Alkaligrass. The 1985 evaluation of this plot indicated that the following accessions exhibited superior performance: Rough fescue 236849, 'Fylking' Bluegrass, and Alpine Bluegrass.

Fort Richardson		83		84		85				
1 Block of Plantings		vigor	stand %	vigor	stand %	vigor	stand %			
'Nugget' Kentucky Bluegrass	7	10	7	30	5	25				1
'Merion' Kentucky Bluegrass	7	20	3	90	7	10				2
'Banff' Kentucky Bluegrass	5	50	7	30	3	60				3
'Park' Kentucky Bluegrass	5	60	1	90	5	70				4
'Sydsport' Kentucky Bluegrass	3	50	5	40	5	50				5
'Fylking' Kentucky Bluegrass	1	75	1	70	1	80				6
'Troy' Kentucky Bluegrass	3	30	7	40	5	60				7
Big Bluegrass 387931	3	50	3	50	7	45				8
'Sherman' Big Bluegrass	1	60	3	70	7	40				9
'Canbar' Canby Bluegrass	3	70	5	60	5	30				10
'Reubans' Canada Bluegrass	7	75	-	-	-	-				11
'Tundra' glaucus Bluegrass	9	70	-	-	-	-				12
Glaucus Bluegrass T08867	1	80	5	70	7	15				13
Alpine Bluegrass 235492, 236892	3	60	1	50	1	60				14
'Sodar' Streambank wheatgrass	5	80	3	50	3	90				15
Bearded wheatgrass 371698	5	70	1	85	3	60				16
Bearded wheatgrass 236693	5	60	7	20	3	50				17
'Nordan' Crested wheatgrass	1	85	-	-	-	-				18
'Fairway' Crested wheatgrass	3	90	-	-	-	-				19
'Summit' Crested wheatgrass	1	90	-	-	-	-				20
Violet wheatgrass T12050	5	50	5	10	5	30				21
Boreal wheatgrass T12048	7	50	3	80	3	70				22
Yukon wheatgrass T12051	5	60	3	70	5	40				23
'Crittana' Thickspike wheatgrass	5	75	-	-	-	-				24
'Fults' Alkaligrass	-	-	-	-	-	-				25
'Vantage' Reed Canarygrass	5	35	7	10	7	10				26
'Engmo' timothy	3	40	5	60	7	20				27
'Climax' timothy	1	75	5	70	5	30				28
Beach wildrye 345978	9	5	-	-	-	-				29
Siberian wildrye 345600	3	50	1	100	5	40				30
Siberian wildrye 2144	1	75	3	100	6	25				31
Siberian wildrye 1996	5	40	7	60	3	60				32
'Norcoast' Bering hairgrass	-	-	-	-	-	-				33
Tufted hairgrass 372690	-	-	-	-	-	-				34
Bluejoint	7	10	-	-	-	-				35
'Sourdough' Bluejoint	7	10	-	-	-	-				36
Meadow foxtail	3	75	-	-	-	-				37
Geniculated foxtail 314565	1	90	5	60	-	-				38
Garrison Creeping foxtail	3	40	7	20	7	25				39
'Arctared' Creeping red fescue	5	75	3	85	3	75				40
'Boreal' Creeping red fescue	3	75	3	90	5	75				41
'Pennlawn' Creeping red fescue	5	60	3	95	3	80				42
Rough fescue 236849	1	80	1	100	1	80				43
American Sloughgrass T12053	7	10	-	-	-	-				44
'Durar' Hard fescue	5	25	5	60	5	60				45
'Highlight' Sheep fescue	3	70	3	90	5	75				46
'Covar' Sheep fescue	5	25	5	40	7	45				47
'Manchar' Smooth Brome	1	60	7	70	5	30				48
'Carlton' Smooth Brome	3	60	5	90	4	35				49
'Alyeska' Polar grass	-	-	-	-	7	10				50
Telley Sage T12052										51
										52

Terror Lake Hydro Evaluation Plot
Location: Adjacent to Terror Lake Access road
@ 1900' elevation & 80' elevation
Established: 6/8/83
Size: 2, 75'X20'.
Soil: Spoil, sandy-silty gravel.

Cooperators:

Alaska Power Authority
Kodisk Electric Association
U.S. Fish & Wildlife Service.

Site History: Because of erosion and reclamation concerns the PMC was contacted to develop seed mixes for the hydroproject. In return, the sponsors of the hydroproject agreed to establish the plots. Two sites were selected, a low and a high elevation plot at 80-foot elevation, the other a high elevation plot at 1900-foot elevation, respectively.

Costs:

Date	Activity	Terror Lake		
		Travel	Per diem	Other
6/8/83	Plant site	0	0	50.00
9/22/83	Evaluate	0	0	0
6/12/84	Weathered out	0	0	0
9/25/84	Weathered out	0	0	0
8/27/85	Evaluate	75.00	0	0
Total		\$125.00		

Results:

The results of the 1983 evaluation indicated Alpine Bluegrass, Tufted Hairgrass 372690, 'Norcoast Bering' Hairgrass, Rough Fescue 236849, 'Boreal' Red Fescue, and Common Bluejoint performed the best. 'Garrison' Creeping Foxtail, and 'Fults' Alkaligrass failed to produce measurable stands.

The 1985 evaluation indicated that on the low elevation plot 9 accessions survived. Nine accessions also survived on the high elevation plot.

The majority of the surviving accessions are doing quite well.

	1 Block of Plantings	vigor	stand %	vigor	stand %			
1	'Nugget' Kentucky Bluegrass	5	20	-	-			1
2	'Merion' Kentucky Bluegrass	3	30	-	-			2
3	'Banff' Kentucky Bluegrass	-	-	-	-			3
4	'Park' Kentucky Bluegrass	7	10	-	-			4
5	'Sydsport' Kentucky Bluegrass							5
6	'Fylking' Kentucky Bluegrass							6
7	'Troy' Kentucky Bluegrass							7
8	Big Bluegrass 387931	5	10	-	-			8
9	'Sherman' Big Bluegrass	-	-	-	-			9
10	'Canbar' Canby Bluegrass							10
11	'Reubans' Canada Bluegrass							11
12	'Tundra' glaucous Bluegrass	3	30	-	-			12
13	Glaucus Bluegrass T08867	5	10	-	-			13
14	Alpine Bluegrass 235492, 236892	1	50	-	-			14
15	'Sodar' Streambank wheatgrass							15
16	Bearded wheatgrass 371698							16
17	Bearded wheatgrass 236693							17
18	'Nordan' Crested wheatgrass							18
19	'Fairway' Crested wheatgrass							19
20	'Summit' Crested wheatgrass							20
21	Violet wheatgrass T12050	3	60	-	-			21
22	Boreal wheatgrass T12048	7	30	-	-			22
23	Yukon wheatgrass T12051	5	50	-	-			23
24	'Crittana' Thickspike wheatgrass							24
25	'Fults' Alkaligrass	-	-	-	-			25
26	'Vantage' Reed Canarygrass	3	70	1	100			26
27	'Engmo' timothy	3	40	-	-			27
28	'Climax' timothy	3	30	-	-			28
29	Beach wildrye 345978	1	40	-	-			29
30	Siberian wildrye 345600	3	70	-	-			30
31	Siberian wildrye 2144	5	40	-	-			31
32	Siberian wildrye 1996	5	10	-	-			32
33	'Norcoast' Bering hairgrass	3	70	1	100			33
34	Tufted hairgrass 372690	1	100	3	75			34
35	Bluejoint	1	90	1	100			35
36	'Sourdough' Bluejoint	3	80	1	100			36
37	Meadow foxtail	5	30	-	-			37
38	Geniculated foxtail 314565	1	100	-	-			38
39	Garrison Creeping foxtail	-	-	-	-			39
40	'Arctared' Creeping red fescue	7	20	5	75			40
41	'Boreal' Creeping red fescue	1	100	1	100			41
42	'Pennlawn' Creeping red fescue	3	90	3	100			42
43	Rough fescue 236849	1	100	1	100			43
44	American Sloughgrass T12053	5	10	-	-			44
45	'Durar' Hard fescue	7	10	-	-			45
46	'Highlight' Sheep fescue	5	75	-	-			46
47	'Covar' Sheep fescue	-	-	-	-			47
48	'Manchar' Smooth Brome							48
49	'Carlton' Smooth Brome							49
50	'Alyeska' Polar grass	3	90	-	-			50
51	Telley Sage T12052							51
52								52

1 Block of Plantings	100%	stand	100%	stand				
'Nugget' Kentucky Bluegrass	3	80	-	-				1
'Merion' Kentucky Bluegrass	5	30	-	-				2
'Banff' Kentucky Bluegrass	5	20	-	-				3
'Park' Kentucky Bluegrass	7	15	-	-				4
'Sydsport' Kentucky Bluegrass								5
'Fylking' Kentucky Bluegrass								6
'Troy' Kentucky Bluegrass								7
Big Bluegrass 387931	3	20	-	-				8
'Sherman' Big Bluegrass	5	50	-	-				9
'Canbar' Canby Bluegrass								10
'Reubans' Canada Bluegrass								11
'Tundra' glaucus Bluegrass	3	40	-	-				12
Glaucus Bluegrass T08867	5	40	-	-				13
Alpine Bluegrass 235492, 236892	1	70	3	80				14
'Sodar' Streambank wheatgrass								15
Bearded wheatgrass 371698								16
Bearded wheatgrass 236693								17
'Nordan' Crested wheatgrass								18
'Fairway' Crested wheatgrass								19
'Summit' Crested wheatgrass								20
Violet wheatgrass T12050	7	20	-	-				21
Boreal wheatgrass T12048	5	10	-	-				22
Yukon wheatgrass T12051	5	25	-	-				23
'Critana' Thickspike wheatgrass								24
'Fults' Alkaligrass	-	-	-	-				25
'Vantage' Reed Canarygrass	1	70	-	-				26
'Engmo' timothy	1	40	-	-				27
'Climax' timothy	3	80	-	-				28
Beach wildrye 345978	5	20	-	-				29
Siberian wildrye 345600	5	50	-	-				30
Siberian wildrye 2144	3	70	-	-				31
Siberian wildrye 1996	7	15	-	-				32
'Norcoast' Bering hairgrass	1	100	1	100				33
Tufted hairgrass 372690	1	100	1	100				34
Bluejoint	3	90	1	100				35
'Sourdough Bluejoint	5	25	3	75				36
Meadow foxtail	3	80	-	-				37
Geniculated foxtail 314565	3	75	-	-				38
Garrison Creeping foxtail	-	-	-	-				39
'Arctared' Creeping red fescue	5	60	7	10				40
'Boreal' Creeping red fescue	3	80	3	90				41
'Pennlawn' Creeping red fescue	5	30	5	60				42
Rough fescue 236849	3	80	-	-				43
American Sloughgrass T12053	5	15	-	-				44
'Durar' Hard fescue	7	5	-	-				45
'Highlight' Sheep fescue	7	40	9	80				46
'Covar' Sheep fescue	7	10	-	-				47
'Manchar' Smooth Brome								48
'Carlton' Smooth Brome								49
'Alyeska' Polar grass	5	10	-	-				50
Telley Sage T12052								51
								52

Usibelli Mine Reclamation Plot.
Location: Healy.
Established: 06/23/83, 06/26/84.
Size: 100'x20'. Soil: Spoil.

Cooperators: Usibelli Coal Co.

Site History: These sites were provided by Usibelli Coal Co. in June, 1983 and June, 1984. The sites represent what may be the final soils encountered during the actual reclamation of the mine. Neither of the sites received any traditional agricultural preparation. The hand seeded plots were "scarified" by hand, and the hydroseeded plots were planted as they were.

Costs:

Date	Activity	Healy		
		Travel	Per diem	Other
6/25/83	Plant	150	0	75
9/12/83	Evaluate	0	0	0
5/24/84	Evaluate	0	0	0
6/26/84	Hydroseed	0	320	810
8/16/84	Evaluate	0	0	0
9/12/85	Evaluate	0	50	0
Subtotal as of 9/85		150	370	885
Total \$1,405.00				

Results:

The 1983 planting consisted of a typical advanced evaluation broadcast plot. The plot contained the complete 1983 array with the exception of Glaucus Bluegrass T08867 and Alpine Bluegrass. Seed was not available for these two accessions. During the 1983 seedling year all the accessions produced measurable stands. The evaluations conducted during 1984, indicated 'Egan' American Sloughgrass performed the best, in fact, the accession has spread out of its initial planting site. Other accessions that performed well were Big Bluegrass 387931, Bearded Wheatgrass 371698, 'Tundra' Bluegrass, Boreal Wheatgrass T12048, Rough Fescue 236849, 'Norcoast' Hairgrass, Tufted Hairgrass 372690, and 'Arctared' Red Fescue.

In 1984 Tellesy Sage was added to the plot. By 1985 the sage had performed well. Also on June 26, 1984, fourteen 1/10-acre and two

1/20-acre hydroseeded blocks were established. Although a portion of the area was overseeded by a restoration contractor, the plots all produced measurable stands. The hydroseeded plots are intended to compare Usibelli seedmix components with state and university recommended plant material. They also permitted larger scale planting of material that has performed well. Unfortunately, the mining operation changed direction and these plots were destroyed.

belli Coal Mine		83		84		85			
1 Block of Plantings		vigor	stand	vigor	stand	vigor	stand		
'Nugget' Kentucky Bluegrass		1	60	3	75	3	100		1
'Merion' Kentucky Bluegrass		5	25	7	40	7	80		2
'Banff' Kentucky Bluegrass		7	30	5	30	9	90		3
'Park' Kentucky Bluegrass		3	80	1	100	5	100		4
'Sydsport' Kentucky Bluegrass		5	80	5	80	5	100		5
'Fyking' Kentucky Bluegrass		3	50	3	70	5	100		6
'Troy' Kentucky Bluegrass		7	20	3	50	5	100		7
Big Bluegrass 387931		3	90	1	100	1	100		8
'Sherman' Big Bluegrass		1	60	-	-	-	-		9
'Canbar' Canby Bluegrass		3	60	7	75	-	-		10
'Reubans' Canada Bluegrass		5	70	9	45	-	-		11
'Tundra' glaucus Bluegrass		3	95	5	50	1	100		12
Glaucus Bluegrass T08867									13
Alpine Bluegrass 235492, 236892									14
'Sodar' Streambank wheatgrass		3	70	9	40	-	-		15
Bearded wheatgrass 371698		1	90	3	100	1	100		16
Bearded wheatgrass 236693		7	10	1	100	-	-		17
'Nordan' Crested wheatgrass		5	90	-	-	-	-		18
'Fairway' Crested wheatgrass		1	90	-	-	-	-		19
'Summit' Crested wheatgrass		3	60	-	-	-	-		20
Violet wheatgrass T12050		7	15	1	100	3	100		21
Boreal wheatgrass T12048		7	10	1	100	1	100		22
Yukon wheatgrass T12051		5	25	3	100	3	100		23
'Crittana' Thickspike wheatgrass		3	83	7	85	9	65		24
'Fults' Alkaligrass		1	95	-	-	-	-		25
'Vantage' Reed Canarygrass		7	15	-	-	-	-		26
'Engmo' timothy		3	90	1	100	7	100		27
'Climax' timothy		1	100	5	10	-	-		28
Beach wildrye 345978		7	5	-	-	-	-		29
Siberian wildrye 345600		3	70	3	100	3	95		30
Siberian wildrye 2144		1	50	3	100	3	100		31
Siberian wildrye 1996		5	10	5	80	5	85		32
'Norcoast' Bering hairgrass		3	30	1	100	1	100+		33
Tufted hairgrass 372690		1	90	1	100	1	100		34
Bluejoint		5	10	3	100	1	85		35
'Sourdough' Bluejoint		5	5	3	100	3	100		36
Meadow foxtail		5	90	3	100	5	100		37
Geniculated foxtail 314565		1	100	3	100	-	-		38
Garrison Creeping foxtail		5	60	5	100	7	80		39
'Arctared' Creeping red fescue		3	60	3	100	1	100		40
'Boreal' Creeping red fescue		1	90	1	100	3	100		41
'Pennlawn' Creeping red fescue		5	60	3	100	3	80		42
Rough fescue 236849		5	40	1	100	1	100		43
American Sloughgrass T12053		1	100	1	150	1	150		44
'Durar' Hard fescue		7	50	3	100	7	40		45
'Highlight' Sheep fescue		5	70	5	100	5	90		46
'Covar' Sheep fescue		5	80	7	50	9	20		47
'Manchar' Smooth Brome		3	80	3	100	3	100		48
'Carlton' Smooth Brome		5	70	3	100	5	100		49
'Alyeska' Polar grass		5	10	2	100	3	100		50
Tellesy Sage T12052				1	100	1	50		51
									52

Valley Coal Evaluation Plot
Location: Premier Mine area, NE of Palmer.
Established: 6/30/83, 5/29/84.
Size: 2, 20'x100'.
Soil: Spoil.

Cooperators:
Hawley Resources

Site history:

The Hawley Resource Corporation contacted the PMC early in 1983 regarding plots at their mine lease site. On June 30, 1983 the PMC established two advanced evaluation plots of herbaceous plant material. In addition, 75 willow bundles were planted. These bundles represented four species: Feltleaf Willow, Barrenground Willow, Barclay Willow, and Scouler Willow.

The bundles originally were planted on a steep easily erodible slope that failed and had to be recontoured the year after planting. The bundles were destroyed, but another planting of rooted cuttings and dormant bundles was conducted on July 16, 1984.

On May 29, 1984, the PMC planted another herbaceous plot at the Premier site. This time a two-acre area was planted with a mix of native material.

Costs:

Valley Coal				
Date	Activity	Travel	Per diem	Other
6/28/83	Plant	0	0	75.00
10/5/83	Evaluate	0	0	0
5/29/84	Seed	0	0	25.00
9/5/84	Evaluate	0	0	0
	Total			100.00

Results:

The 1983 Advanced Evaluation Plots contained the complete 1983 array with the exception of Glaucus Bluegrass T08867 and Alpine Bluegrass 235492, 236892. The camp plot was planted, as the name implies, next to the company camp. This site was highly compacted and has been used as a staging and parking area. The drill pad site was a recently cleared area with exposed native soil.

During the 1983 hunting season both plots were used as parking lots. This, of course, was hard on the plots. At the end of the 1984 growing season

the grasses exhibiting the best performance at the camp plot included: 'Banff', 'Sydsport', and 'Sherman' Bluegrass; 'Sodar', 'Fairway', and Yukon Wheatgrass (T12051); 'Climax' Timothy, Meadow Foxtail, 'Pennlawn' Red Fescue, Rough Fescue (236849), and 'Carlton' and 'Manchar' Smooth Brome.

At the drillpad plot, the best performers included: 'Sherman' and 'Reubans' Bluegrass, Bearded Wheatgrass 371698, Violet Wheatgrass T12050, 'Vantage' Reed Canarygrass, 'Engmo' Timothy, Siberian Wildrye 1996, 'Norcoast' Bering Hairgrass, and 'Arctared' Red Fescue.

The 1984 plantings performed very well during the first growing season.

Valley Coal Camp Site		83		84		85				
1 Block of Plantings		vigor	stand %	vigor	stand %	vigor	stand %			
'Nugget' Kentucky Bluegrass	3	20	5	40	7	70				1
'Merion' Kentucky Bluegrass	5	30	5	80	5	60				2
'Banff' Kentucky Bluegrass	3	90	3	95	3	80				3
'Park' Kentucky Bluegrass	1	100	5	70	5	75				4
'Sydsport' Kentucky Bluegrass	1	90	3	75	3	75				5
'Fylking' Kentucky Bluegrass	5	100	5	90	5	70				6
'Troy' Kentucky Bluegrass	7	60	5	25	7	30				7
Big Bluegrass 387931	5	50	5	75	7	30				8
'Sherman' Big Bluegrass	3	75	3	95	3	65				9
'Canbar' Canby Bluegrass	7	10	7	40	7	10				10
'Reubans' Canada Bluegrass	5	50	5	70	5	60				11
'Tundra' glaucous Bluegrass	3	75	5	55	9	10				12
Glaucus Bluegrass T08867										13
Alpine Bluegrass 235492, 236892										14
'Sodar' Streambank wheatgrass	3	95	3	80	7	30				15
Bearded wheatgrass 371698	5	65	5	70	5	40				16
Bearded wheatgrass 236693	7	20	5	45	7	25				17
'Nordan' Crested wheatgrass	3	100	5	65	5	50				18
'Fairway' Crested wheatgrass	1	100	3	90	3	80				19
'Summit' Crested wheatgrass	3	100	5	75	6	50				20
Violet wheatgrass T12050	5	85	5	50	5	50				21
Boreal wheatgrass T12048	5	80	6	35	7	25				22
Yukon wheatgrass T12051	3	100	3	80	50	40				23
'Critana' Thickspike wheatgrass	3	100	5	75	7	20				24
'Fults' Alkaligrass	5	50	7	60	-	-				25
'Vantage' Reed Canarygrass	7	50	5	60	7	20				26
'Engmo' timothy	3	100	4	80	7	60				27
'Climax' timothy	1	100	3	75	9	20				28
Beach wildrye 345978	7	10	-	-	-	-				29
Siberian wildrye 345600	5	80	4	90	6	35				30
Siberian wildrye 2144	3	80	5	75	3	50				31
Siberian wildrye 1996	7	70	7	50	5	30				32
'Norcoast' Bering hairgrass	5	65	5	45	5	35				33
Tufted hairgrass 372690	1	100	5	50	7	50				34
Bluejoint	3	75	4	65	7	40				35
'Sourdough' Bluejoint	5	60	5	50	7	30				36
Meadow foxtail	5	100	3	85	5	50				37
Geniculated foxtail 314565	1	100	5	60	-	-				38
Garrison Creeping foxtail	7	60	5	50	-	-				39
'Arctared' Creeping red fescue	3	80	5	60	5	70				40
'Boreal' Creeping red fescue	3	85	4	50	7	40				41
'Pennlawn' Creeping red fescue	1	90	1	85	5	60				42
Rough fescue 236849	5	80	3	80	7	50				43
American Sloughgrass T12053	5	100	5	85	7	10				44
'Durar' Hard fescue	7	95	5	85	6	40				45
'Highlight' Sheep fescue	3	75	5	75	7	65				46
'Covar' Sheep fescue	7	80	4	90	7	25				47
'Manchar' Smooth Brome	5	25	3	75	5	50				48
'Carlton' Smooth Brome	3	90	3	85	3	90				49
'Alyeska' Polar grass	3	80	3	65	3	50				50
Telley Sage T12052										51
										52

1 Block of Plantings	1081A	stand N	1081A	stand N					
'Nugget' Kentucky Bluegrass	3	90	7	70					1
'Merion' Kentucky Bluegrass	5	85	5	50					2
'Banff' Kentucky Bluegrass	5	80	7	33					3
'Park' Kentucky Bluegrass	7	40	9	30					4
'Sydsport' Kentucky Bluegrass	3	95	7	80					5
'Fylking' Kentucky Bluegrass	1	95	5	25					6
'Troy' Kentucky Bluegrass	7	50	7	60					7
Big Bluegrass 387931	5	60	7	30					8
'Sherman' Big Bluegrass	1	100	3	20					9
'Canbar' Canby Bluegrass	3	80	7	75					10
'Reubans' Canada Bluegrass	1	100	3	60					11
'Tundra' glaucus Bluegrass	7	80	7	20					12
Glaucus Bluegrass T08867									13
Alpine Bluegrass 235492, 236892									14
'Sodar' Streambank wheatgrass	3	75	-	-					15
Bearded wheatgrass 371698	7	75	3	40					16
Bearded wheatgrass 236693	5	40	7	20					17
'Nordan' Crested wheatgrass	3	50	7	10					18
'Fairway' Crested wheatgrass	1	90	7	30					19
'Summit' Crested wheatgrass	3	75	5	60					20
Violet wheatgrass T12050	7	50	3	20					21
Boreal wheatgrass T12048	7	60	5	25					22
Yukon wheatgrass T12051	7	60	5	45					23
'Critana' Thicksipke wheatgrass	5	40	7	30					24
'Fults' Alkaligrass	3	50	9	20					25
'Vantage' Reed Canarygrass	1	100	1	75					26
'Engmo' timothy	1	100	3	75					27
'Climax' timothy	-	-	-	-					28
Beach wildrye 345978	-	-	-	-					29
Siberian wildrye 345600	7	90	7	30					30
Siberian wildrye 2144	5	50	7	45					31
Siberian wildrye 1996	3	80	3	75					32
'Norcoast' Bering hairgrass	3	85	3	50					33
Tufted hairgrass 372690	1	85	-	-					34
Bluejoint	7	50	7	40					35
'Sourdough' Bluejoint	1	80	7	50					36
Meadow foxtail	3	100	5	70					37
Geniculated foxtail 314565	1	100	7	25					38
Garrison Creeping foxtail	3	90	7	50					39
'Arctared' Creeping red fescue	3	85	3	60					40
'Boreal' Creeping red fescue	1	100	4	80					41
'Pennlawn' Creeping red fescue	1	100	5	40					42
Rough fescue 236849	3	90	5	50					43
American Sloughgrass T12053	7	95	5	30					44
'Durar' Hard fescue	5	85	7	40					45
'Highlight' Sheep fescue	1	100	5	80					46
'Covar' Sheep fescue	1	50	7	10					47
'Manchar' Smooth Brome	1	90	5	50					48
'Carlton' Smooth Brome	3	90	5	70					49
'Alyeska' Polar grass	5	50	5	20					50
Telley Sage T12052									51
									52

Diamond Alaska Coal Co. Evaluation Plot.

Location: Beluga test pit.

Established: 9/12/83, 6/13/84.

Size: 800ft.

Soil: Spoil, silt, clay, gravel.

Cooperators:

Diamond Alaska Coal Company.

Site history:

Diamond Alaska Coal Company requested both woody and herbaceous plots, these plots were also further modified to compare fall versus spring plantings and level versus 3:1 slope plantings.

For evaluation purposes the PMC is treating the plots as six plantings, two herbaceous plots, and four woody plots.

The evaluation data is then compared.

Cost:

Date	Activity	Diamond Shamrock		
		Travel	Per diem	Other
9/12/83	Plant	0	0	\$45.00
6/12/84	Plant	0	0	50.00
8/28/84	Evaluate	0	0	0
8/30/85	Evaluate	0	0	0
Total		\$90.00		90.00

Results:

Both of the herbaceous evaluations have become established very well. There appears to be no important difference between either the spring or fall plantings. Outstanding performances for both plots have been recorded for Alpine Bluegrass, 'Vantage' Reed Canarygrass, 'Engmo' Timothy, 'Norcoast' Bering Hairgrass, Tufted Hairgrass, Geniculated Foxtail, 'Egan' American Sloughgrass, and 'Alyeska' Polargrass. These observations are based on only two years of evaluation.

Woody Plantings at Diamond Alaska's Coal Test Pits

On September 7-8, 1983, the PMC traveled to Diamond Shamrock's Beluga Coal Lease area to initiate the evaluation of several woody test species. One hundred thirty rooted cuttings of Salix alexensis, S. brachycarpa, S. barclayi, S. lasiandra, S. bebbiana, and Cornus stolonifera were planted at the two test pits, the red and blue pits. The cuttings were divided evenly between the two pits and between a level and 3:1 site at each pit. At the time of planting, the substrate was very mucky and difficult to walk on. The substrate appeared to be favorable for the survival of the cuttings.

The site was revisited on June 11-12, 1984 and again on August 28, 1984. The survival of the cuttings was 90% or better for all species at each planting site, except for S. bebbiana. Four of the S. bebbiana cuttings were lost when the toe of the 3:1 slope failed. The cuttings were not fertilized at the time of planting and some yellowing was observed in the foliage of all species except C. stolonifera. However, yellowing foliage was also observed in other woody test plantings that had been made at the site that had also been fertilized.

In June, 1984, an additional 150 plantings of rooted cuttings of S. alexensis, S. brachycarpa, S. barclayi, and Cornus stolonifera were made. These plantings were to provide a comparison between fall and spring plantings. Again the cuttings were divided between the red and blue pits and the level and 3:1 slope planting sites at each pit. Summer survival for the spring planting was 90% or better for each species at each planting location except for the S. brachycarpa plantings at the red pit level site. Only 10% of the S. brachycarpa cuttings survived at this site.

1 Block of Plantings	100%	stand %	100%	stand %				
'Nugget' Kentucky Bluegrass	5	60	1	90				1
'Merion' Kentucky Bluegrass	3	40	3	100				2
'Banff' Kentucky Bluegrass	1	70	1	100				3
'Park' Kentucky Bluegrass	3	40	5	70				4
'Sydsport' Kentucky Bluegrass	3	50	7	60				5
'Fylking' Kentucky Bluegrass	3	80	5	100				6
'Troy' Kentucky Bluegrass	3	25	9	30				7
Big Bluegrass 387931	6	15	3	95				8
'Sherman' Big Bluegrass	5	30	5	85				9
'Canbar' Canby Bluegrass	4	40	7	85				10
'Reubans' Canada Bluegrass	1	75	5	90				11
'Tundra' glaucus Bluegrass	3	75	-	-				12
Glaucus Bluegrass T08867	3	60	1	100				13
Alpine Bluegrass 235492, 236892	5	25	1	100				14
'Sodar' Streambank wheatgrass	3	40	9	30				15
Bearded wheatgrass 371698	5	10	3	30				16
Bearded wheatgrass 236693	5	20	3	60				17
'Nordan' Crested wheatgrass	4	30	7	15				18
'Fairway' Crested wheatgrass	3	50	9	25				19
'Summit' Crested wheatgrass	4	30	7	40				20
Violet wheatgrass T12050	5	15	5	30				21
Boreal wheatgrass T12048	4	20	1	70				22
Yukon wheatgrass T12051	4	15	1	50				23
'Critana' Thickspike wheatgrass	4	15	9	50				24
'Fults' Alkaligrass	1	35	9	40				25
'Vantage' Reed Canarygrass	1	60	1	100				26
'Engmo' timothy	1	90	1	100				27
'Climax' timothy	1	98	1	100				28
Beach wildrye 345978	3	10	3	10				29
Siberian wildrye 345600	1	50	5	60				30
Siberian wildrye 2144	5	40	3	70				31
Siberian wildrye 1996	3	40	5	50				32
'Norcoast' Bering hairgrass	1	50	5	95				33
Tufted hairgrass 372690	3	50	1	100				34
Bluejoint	3	25	3	30				35
'Sourdough' Bluejoint	5	20	3	70				36
Meadow foxtail	1	20	3	100				37
Geniculated foxtail 314565	3	75	1	100				38
Garrison Creeping foxtail	3	40	1	100				39
'Arctared' Creeping red fescue	1	40	2	100				40
'Boreal' Creeping red fescue	2	40	3	80				41
'Pennlawn' Creeping red fescue	2	40	3	90				42
Rough fescue 236849	1	60	5	90				43
American Sloughgrass T12053	4	30	1	100				44
'Durar' Hard fescue	5	30	7	50				45
'Highlight' Sheep fescue	3	40	7	60				46
'Covar' Sheep fescue	3	40	5	60				47
'Manchar' Smooth Brome	4	20	7	30				48
'Carlton' Smooth Brome	3	40	3	40				49
'Alyeska' Polar grass	5	25	1	90				50
Telley Sage T12052	3	60	3	90				51
								52

1 Block of Plantings	vigor	stand %	vigor	stand %			
'Nugget' Kentucky Bluegrass	3	60	3	90			1
'Merion' Kentucky Bluegrass	3	40	3	100			2
'Banff' Kentucky Bluegrass	-	-					3
'Park' Kentucky Bluegrass	1	50	1	100			4
'Sydsport' Kentucky Bluegrass	1	70	5	80			5
'Fylking' Kentucky Bluegrass	3	80	1	95			6
'Troy' Kentucky Bluegrass	3	35	7	30			7
Big Bluegrass 387931	5	15	3	60			8
'Sherman' Big Bluegrass	3	25	7	10			9
'Canbar' Canby Bluegrass	5	25	7	30			10
'Reubans' Canada Bluegrass	3	70	5	50			11
'Tundra' glaucus Bluegrass	3	25	9	10			12
Glaucus Bluegrass T08867	1	50	1	80			13
Alpine Bluegrass 235492, 236892	3	35	1	100			14
'Sodar' Streambank wheatgrass	5	15	7	10			15
Bearded wheatgrass 371698	3	25	1	75			16
Bearded wheatgrass 236693	5	20	1	50			17
'Nordan' Crested wheatgrass	3	25	9	5			18
'Fairway' Crested wheatgrass	3	25	5	10			19
'Summit' Crested wheatgrass	1	85	7	10			20
Violet wheatgrass T12050	3	45	1	90			21
Boreal wheatgrass T12048	3	35	3	40			22
Yukon wheatgrass T12051	1	75	1	90			23
'Critana' Thickspike wheatgrass	3	75	-	-			24
'Fults' Alkaligrass	5	10	-	-			25
'Vantage' Reed Canarygrass	3	10	1	100			26
'Engmo' timothy	3	60	1	100			27
'Climax' timothy	1	95	3	100			28
Beach wildrye 345978	3	30	1	60			29
Siberian wildrye 345600	1	90	5	90			30
Siberian wildrye 2144	3	80	7	30			31
Siberian wildrye 1996	5	10	-	-			32
'Norcoast' Bering hairgrass	3	80	1	100			33
Tufted hairgrass 372690	1	90	1	100			34
Bluejoint	5	15	3	35			35
'Sourdough' Bluejoint	5	10	3	20			36
Meadow foxtail	3	65	3	90			37
Geniculated foxtail 314565	1	100	1	100			38
Garrison Creeping foxtail	3	45	3	70			39
'Arctared' Creeping red fescue	3	75	1	100			40
'Boreal' Creeping red fescue	3	80	1	75			41
'Pennlawn' Creeping red fescue	1	90	3	100			42
Rough fescue 236849	3	60	3	100			43
American Sloughgrass T12053	1	90	1	100			44
'Durar' Hard fescue	5	10	7	30			45
'Highlight' Sheep fescue	3	75	7	30			46
'Covar' Sheep fescue	5	10	9	5			47
'Manchar' Smooth Brome	5	15	7	40			48
'Carlton' Smooth Brome	3	30	5	60			49
'Alyeska' Polar grass	3	50	1	100			50
Tellesy Sage T12052							51
							52

Shemya Evaluation Plot
Location: Shemya AFB
Established: 10-22-83.
Size: 2, 75'x20'. Soil: Sand.

Cooperators:

U.S. Army Corps of Engineers.
U.S. Airforce.

Site history:

The PMC was contacted by the Corps of Engineers to assist in developing recommendations for controlling blowing sand. Previous attempts to establish vegetation failed. The onsite investigations required a minimum stay of five days. This was enough time to develop an erosion and revegetation plan, and determine the cause of the previous failure. In fact enough time remained to plant two plots.

Cost:

Shemya Plot			
Date	Travel	Per Diem	Materials
10-22-83	0	0	\$50.00
7-9-85	0	0	0

Results:

To date the recommendations suggested by the PMC have not been implemented. But the problem (blowing sand) continues. The PMC was aware from the beginning that evaluation of the two plots would be difficult. The site was not visited in 1984, however, in 1985 assistance was requested again by the U.S. Air Force. This ensuing trip allowed evaluation of the plots. The plots were completely covered by sand and destroyed. Additional work is expected in Shemya at the requests of either the U.S. Air Force or U.S. Army Corps of Engineers.

Bethel Small Boat Harbor
Location: Lousetown Slough, Bethel
Established: May 14, 16, 1984
Size: 2 acres.
Soil: River Silt

Cooperators: U.S. Army Corps of Engineers.

Site History: The Corps of Engineers requested assistance from the PMC in stabilizing the shoreline of the federal portion of the new small boat harbor. The PMC felt this would be an excellent opportunity to observe the performance of 'Norcoast' Bering Hairgrass and Sloughgrass under actual revegetation conditions, evaluate the performance of the other grass species in a fresh water wetland environment, and assess planting techniques.

Costs:

Date	Activity	Travel	Per diem	Other
8/83	Reconnaissance	0	0	0
5/14-16/84	Plant	0	0	0
8/84	Evaluate	0	0	0

Results:

The area consisted of 30 - 40 foot wide tidal-influenced shoreline. The substrate was mucky and very difficult to walk on. Some natural reinvansion of sedges, mat forming rush, Feltleaf Willow, and Sloughgrass was occurring.

Most of the area was seeded with two grasses, 'Norcoast' Bering Hairgrass (*Deschampsia beringensis*), and Sloughgrass, (*Beckmannia syzigachne*). One small area was planted with sprigs of Beach Wildrye (*Elymus arcanus*), while another small area was planted in rows with 36 grasses from the advanced test program.

The PMC had envisioned this project to be an excellent opportunity to observe the performance of 'Norcoast' and Sloughgrass under actual revegetation conditions, evaluate the performance of the other grass species in a fresh water wetland environment, and assess planting techniques. Unfortunately, the harbor began to receive intensive use within two weeks of the planting and by summer's end very little evidence remained to indicate that special effort had been made to stabilize the shoreline.

Although the heavy use of the boat harbor precluded any evaluation of the performance of the grasses, we were able to draw some tentative conclusions regarding planting techniques. We found traditional grass seeded preparations to be difficult in the soft mucky substrate and to be of questionable value. Some of the seed appeared to have been incorporated into the substrate, but much of the seed was free to be transported as sand

down the shoreline with the movement of the tides. In comparison planting the sprigs of Beach Wildrye proceeded quickly and efficiently. The sprigs remained in place while the area remained undisturbed.

After two growing seasons, no Beach Wildrye sprigs were remaining but the upper part of the shoreline was colonized by Beckmannia and Hairgrass. It was impossible to determine if the Beckmannia or Hairgrass came from a natural seed source or if it had been seeded. Our seed mix was a 50-50 mix of Beckmannia and Hairgrass yet Beckmannia provided much more cover than Hairgrass.

Natural reinvasion of other species, including sedges, a mat-forming rush, and Feltleaf willow continued. In those areas where revegetation occurred the substrate had become easier to walk on.

Gasline Streambank Protection Project

Location: Seven stream crossings along Enstar Gasline
running from Beluga to the Little Susitna River

Established: 6/18--20/84.

Cooperator:
Enstar Natural Gas Company

Site History:

Costs:

Date	Activity	Travel	Per diem	Other
6/18-20/84	Plant	0	0	25.00
10/3/85	Evaluate	30.00	0	0

Results:

The natural gas pipeline traveling from Beluga to the Matanuska Valley crossed seven streams that required special attention for bank protection. The PMC cooperated with the Enstar Natural Gas Company and Alaska Department of Fish and Game to plant these sensitive areas. This cooperative effort provided the Conservation Plant Project an opportunity to test three riparian willows from the advanced test collection in an actual revegetation situation. In addition to S. alexensis, S. lasiandra, and S. barclayi, poplar was also collected from the Matanuska River floodplain for planting. Not only was the performance of these species an important aspect of this planting, but planting techniques were also investigated. Bundles of willow and poplar, as well as rooted cuttings and dormant cuttings were planted.

The type of plant material used depended on the characteristics of the stream crossing. In those areas where erosion was the highest the four foot willow bundles were placed in shallow trenches end to end in parallel rows. They were staked in place and partially covered with soil. The space in between the rows was planted with dormant and rooted cuttings. The dormant and rooted cuttings were used by themselves in areas where erosion was less severe. Total plant materials used were: 40 bundles; 200 dormant cuttings; and 300 rooted cuttings.

Although we were unable to return to the planting sites at the end of the growing season, we had received reports that the stream crossings were revegetating well.

In October, 1985 the stream crossings were visited by helicopter. We did not land at all of the sites but it was apparent from the air that revegetation was not occurring at all the sites. Flood waters appeared to have washed the plantings from several streambank locations. However, in those areas where the plantings remained, the plants were growing

quite well. Other planting techniques, such as brush matressing may have been more appropriate for the highly erosive sites.

Murphy Dome Extension Evaluation Plot
Location: Murphy Dome Road Extension. Mile 4.3
Established: 6/26/84. Size: 100'X20'. Soil: Silt.

Cooperators:

Alaska Department of Transportation.

Site history:

This site was offered by DOT for PMC revegetation trials since the road extension was not scheduled for DOT revegetation efforts. The site was selected 8/83.

Costs: none.

Results:

This site was planted on 6/26/84 with 'Egan' American Sloughgrass. The seeding is adjacent to the road in a ditched area. High levels of water are present after breakup. The first attempts to plant the site on May 19, 1984 failed because heavy snowpack remained from the previous winter.

The site was evaluated on 8/15/84. A very good stand had emerged.

By August 9, 1985, the planting had become well established and was performing very well.

Arco Kuperuk Evaluation Plots

Location: Kuperuk Oil field Mine site D and 2D Access Road.

Established: 9-12-84. Size: 2, 100'X16'. Soil: A) Spoil B) Gravel.

Cooperator:

ARCO Alaska

Site history:

The PMC required an arctic evaluation site, and after learning the PMC and ARCO were interested in some common issues, ARCO provided an evaluation site at the Kuperuk Oil Field. Traditionally, the PMC conducts spring plantings but ARCO, as well as other industries, is also investigating fall or dormant seeding. The PMC began by planting two dormant plots. These were followed by two spring/summer plots in 1985.

Costs:

ARCO Kuperuk

Date	Activity	Travel	Per diem	Other
8/23/84	Select sites	0	0	0
9/12/84	Plant	0	0	0

Results:

On September 12, 1984 two fall (dormant) plantings were established in ARCO's Kuperuk Unit. One of the plot sites was on a gravel fill (2C Access Road). The other was located on spoil at mine site D.

During the winter of 84-85 the mine site D plot was destroyed by construction activity. During June, 1986, a new site at mine site D was selected. This area is limited to non-motorized access so further destruction is not likely.

The spring plantings were accomplished on July 2-15, 1985 at both the 2C Access Road site and Mine Site D. A new fall planting was established at Mine Site D on August 21, 1985.

The one remaining fall planting (2C) was evaluated on August 20, 1985. Only 'Vantage' Reed Canarygrass, 'Covar' Sheep Fescue, 'Garrison' Creeping Foxtail, Meadow foxtail, and Siberian Wildrye 1996 failed to produce measurable stands.

The spring planting (7-2-85) at this site did not perform as well in stand establishment. At this site 20 accessions failed to produce measurable stands.

A factor that will influence evaluations at this site is intense goose use. Geese were observed grazing on this plot and numerous uprooted seedlings and vegetation were observed on August 20, 1985.

The mine site D spring plot (7-15-85) performed very poorly, only two accessions, 'Fairway' Crested wheatgrass and 'Summit' Crested wheatgrass produced measurable stands. It is expected that these two accessions will winterkill. The comparison between the spring and fall planting will be very interesting.

Continued evaluations of these plots is very important.

Chena Flood Control Project
Location: North Pole/Eielson
Established: June 17, 1985
Size: 3+ acres
Soil: Silt.

Cooperators:

U.S. Army Corps of Engineers.

History: The U.S. Army Corps of Engineers was interested in establishing permanent cover on the Chena Flood Control Project. The grass cover is intended to prevent excessive tree and shrub establishment and must be capable of withstanding extended periods of flooding. In addition, to the species trials, some areas were disced and left to revegetate without assistance to determine the natural rate of reinvasion by local species.

Costs:

Chena Flood Control Project

Date	Activity	Travel	Per diem	Other
6/17/85	Plant	0	160.00	50
8/9/85	Evaluate	0	0	0
Total		\$210.00		

Results:

First year evaluation was completed only on the advanced evaluation plot. The other plots were looked at and it was determined that all had become established. An additional planting of Sloughgrass at Piledrive slough was well established.

Figures 4, 5, 6, and 7 describe the location of the plots and the treatments.

ATTACHMENT A
VEGETATION EVALUATION PLOTS

Silt Blanket Vegetation Evaluation Plot

Location: Silt blanket, south Nike Site Road, west of seeded sign, east end of plot approximately half way in silt blanket (see location map).

Size: 415 feet x 208 feet, two acres

Date seeded: 17 June 1985

The two acre plot was disked (3 passes). Three passes were sufficient to evenly disk in the existing stand of smooth brome-manchar, and a small strip of willow. From the east side, a five foot buffer (disked only) was used followed by establishing 8, 25 feet by 200 feet plots (0.11 acre). This left approximately 1 acre (west side - closes to dam and ramp) disked. Frank will fertilize and seed later with machinery.

The eight plot layout is attached. Each plot was fertilized with 50 lbs. of 20-20-20 (500 lbs./acre). Seed and fertilizer were spread with the use of a cyclone hand spreader.

Rate of seeding per plots are as follows:

Arctared Red Fescue	45 lbs/acre
Bluejoint Reedgrass	5 lbs/acre
Disk and Fertilize	0
Engmo Timothy	20 lbs/acre
Garrison Creeping Foxtail	26 lbs/acre
Meadow Foxtail	20 lbs/acre
Slough grass	10 lbs/acre
Disk only	0

Floodway Vegetation Plot

Location: Nike site road - floodway - first opening - traveling west to east. North side of road.

Size: 208' x 208' (1 acre)

Date Seeded: 18 June

The one acre plot was disked three times - poor tilage - numerous wood debris from floodway clearing. Southwest corner was also scrapped with the dozer then disked. This procedure broke up the 4-8' organic material fairly well and mixed well with the underlying sand. This is where the 52 evaluation seed plots were placed. These 52 plots are 4' x 8' and are seeded with the standard seed varieties tested in various locations in Alaska. The total 52 plots were fertilized with 25 pounds 20-20-20. Two 0.11 acre plots (25'x200') were seeded with sourdough bluejoint (5 lbs/acre) and arctared red fescue (48 lbs/acre) the plots were fertilized with 50 lbs 20-20-20 each (500 lbs/acre). One irregular strip was fertilized (25 lbs 20-20-20) but not seeded. Remaining plot area - no action. Pictures taken.

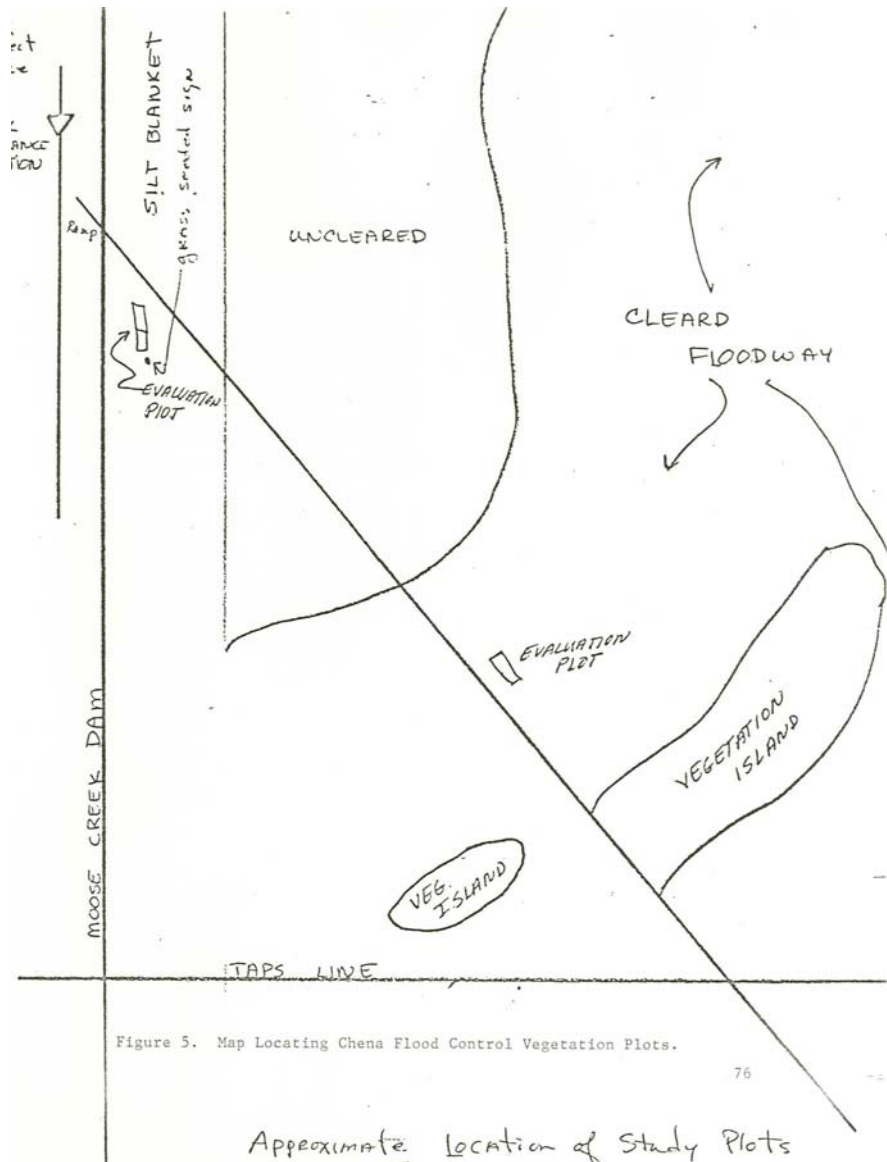
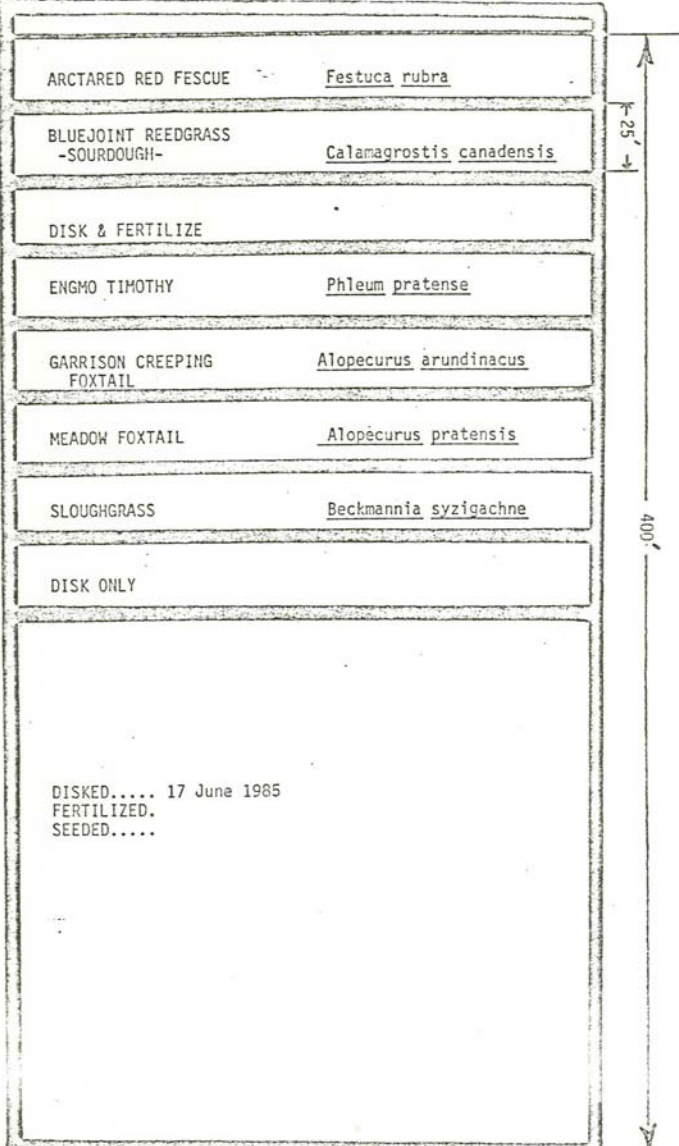


Figure 5. Map Locating Chena Flood Control Vegetation Plots.

Approximate location of Study Plots

Figure 6. Map of Silt Blanket Demonstration Planting.



DISKED

BLUEJOINT REEDGRASS - SOURDOUGH

Calamagrotis canadensis

Seeded 5 lbs/ ac
Fertilizer 500 lbs./ ac. 20-20-20

Plot size: 0.11 ac.

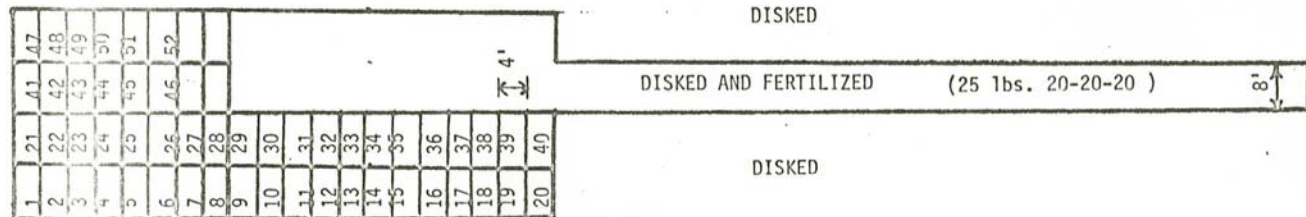
25'

ARCTARED RED FESCUE

Festuca rubra

Seeded 48 lbs/ ac

Fertilizer 500 lbs./ ac. 20-20-20



FLOODWAY EVALUATION PLOT

PLANTED 18 June 1985

Figure 7. Map of Floodway Evaluation Plot.

	1 Block of Plantings	100%	100%						
1	'Nugget' Kentucky Bluegrass	5	15						1
2	'Merion' Kentucky Bluegrass	1	45						2
3	'Banff' Kentucky Bluegrass	3	20						3
4	'Park' Kentucky Bluegrass	1	25						4
5	'Sydsport' Kentucky Bluegrass	1	30						5
6	'Fylking' Kentucky Bluegrass	7	10						6
7	'Troy' Kentucky Bluegrass	1	10						7
8	Big Bluegrass 387931	3	30						8
9	'Sherman' Big Bluegrass	1	60						9
10	'Canbar' Canby Bluegrass	5	10						10
11	'Reubans' Canada Bluegrass	1	70						11
12	'Tundra' glaucous Bluegrass	3	80						12
13	Glaucus Bluegrass T08867	1	60						13
14	Alpine Bluegrass 235492, 236892	1	100						14
15	'Sodar' Streambank wheatgrass	1	85						15
16	Bearded wheatgrass 371698	3	75						16
17	Bearded wheatgrass 236693	3	60						17
18	'Nordan' Crested wheatgrass	1	80						18
19	'Fairway' Crested wheatgrass	3	100						19
20	'Summit' Crested wheatgrass	1	95						20
21	Violet wheatgrass T12050	5	80						21
22	Boreal wheatgrass T12048	7	100						22
23	Yukon wheatgrass T12051	3	100						23
24	'Critana' Thickspike wheatgrass	1	100						24
25	'Fults' Alkaligrass	3	95						25
26	'Vantage' Reed Canarygrass	1	100						26
27	'Engmo' timothy	3	100						27
28	'Climax' timothy	1	100						28
29	Beach wildrye 345978	5	10						29
30	Siberian wildrye 345600	1	100						30
31	Siberian wildrye 2144	3	100						31
32	Siberian wildrye 1996	7	80						32
33	'Norcoast' Bering hairgrass	3	100						33
34	Tufted hairgrass 372690	5	70						34
35	Bluejoint	7	40						35
36	'Sourdough' Bluejoint	5	75						36
37	Meadow foxtail	1	100						37
38	Geniculated foxtail 314565	1	100						38
39	Garrison Creeping foxtail	3	85						39
40	'Arctared' Creeping red fescue	5	100						40
41	'Boreal' Creeping red fescue	3	75						41
42	'Pennlawn' Creeping red fescue	1	95						42
43	Rough fescue 236849	1	100						43
44	American Sloughgrass T12053	3	30						44
45	'Durar' Hard fescue	7	10						45
46	'Highlight' Sheep fescue	7	10						46
47	'Covar' Sheep fescue	7	10						47
48	'Manchar' Smooth Brome	1	100						48
49	'Carlton' Smooth Brome	3	100						49
50	'Alyeska' Polar grass	1	55						50
51	Telley Sage T12052	1	75						51
52	Pumpelly Brome	5	100						52

Denali Mine Evaluation Plot

Location: Off Denali Highway near Susitna River

Established: June 19, 1985. Size: 60'x60' + Soil: Spoil

Cooperators:

Valdez Creek Mining Co.
Bureau of Land Management

Site History: In May of 1985 the PMC was contacted by both BLM and representatives of Valdez Creek Mining Company regarding revegetation plots on the mine site.

Costs:

Denali Mine

Date	Activity	Travel	Per diem	Other
6/19/85	Plant	.0	160.00	50
9/8/85	Evaluate	0	-	-

Results:

On June 19, 1985 a single standard evaluation plot was established on mine property. Site preparation was provided by the company. No top soil was used in the plots.

In addition to the standard plot the back slope around the site was seeded with mix containing 25% 'Kamalinski 7' Siberian Wildrye, 50% 'Arctared' red fescue, 20% Beckmannia syzigachne, and 5% 'Sourdough' Bluejoint. This mixture was applied at the rate of 45 pounds per acre and fertilized with 20-20-10 fertilizer at a 425\$/ac rate.

A woody evaluation was also established. This planting consisted of 11 poplar Populus balsamifera L120, 10 Feltleaf willow, Salix alaxensis L113, and 5 Cornus stolonifera.

The September 8, 1985 evaluation showed that all the accessions within the advanced evaluation plot produced measurable stands. The seeding on the back slope produced 60% cover which is considered to be a good performance. The woody plantings also survived the first year well. Poplar showed high vigor and 100% survival; Feltleaf willow also exhibited high vigor and 90% survival. The Cornus had an 80% survival rate and medium vigor.

	1 Block of Plantings	1	stand							
1	'Nugget' Kentucky Bluegrass	1	100							1
2	'Merion' Kentucky Bluegrass	1	100							2
3	'Banff' Kentucky Bluegrass	1	100							3
4	'Park' Kentucky Bluegrass	3	100							4
5	'Sydsport' Kentucky Bluegrass	5	100							5
6	'Fylking' Kentucky Bluegrass	7	80							6
7	'Troy' Kentucky Bluegrass	5	60							7
8	'Big Bluegrass 387931	3	75							8
9	'Sherman' Big Bluegrass	1	75							9
10	'Canbar' Canby Bluegrass	5	75							10
11	'Reubans' Canada Bluegrass	1	100							11
12	'Tundra' glaucus Bluegrass	5	40							12
13	Glaucus Bluegrass T08867	1	65							13
14	Alpine Bluegrass 235492, 236892	1	80							14
15	'Sodar' Streambank wheatgrass	1	95							15
16	Bearded wheatgrass 371698	5	40							16
17	Bearded wheatgrass 236693	3	20							17
18	'Nordan' Crested wheatgrass	1	85							18
19	'Fairway' Crested wheatgrass	1	90							19
20	'Summit' Crested wheatgrass	3	65							20
21	Violet wheatgrass T12050	3	25							21
22	Boreal wheatgrass T12048	3	30							22
23	Yukon wheatgrass T12051	1	50							23
24	'Critana' Thickspike wheatgrass	5	45							24
25	'Fults' Alkaligrass	3	100							25
26	'Vantage' Reed Canarygrass	7	35							26
27	'Engmo' timothy	3	100							27
28	'Climax' timothy	1	100							28
29	Beach wildrye 345978	3	10							29
30	Siberian wildrye 345600	3	100							30
31	Siberian wildrye 2144	1	100							31
32	Siberian wildrye 1996	3	15							32
33	'Norcoast' Bering hairgrass	1	100							33
34	Tufted hairgrass 372690	1	100							34
35	Bluejoint	1	40							35
36	'Sourdough Bluejoint	7	15							36
37	Meadow foxtail	1	65							37
38	Geniculated foxtail 314565	1	100							38
39	Garrison Creeping foxtail	3	70							39
40	'Arctared' Creeping red fescue	3	80							40
41	'Boreal' Creeping red fescue	3	65							41
42	'Pennlawn' Creeping red fescue	1	95							42
43	Rough fescue 236849	1	100							43
44	American Sloughgrass T12053	3	100							44
45	'Durar' Hard fescue	7	75							45
46	'Highlight' Sheep fescue	3	85							46
47	'Covar' Sheep fescue	7	65							47
48	'Manchar' Smooth Brome	3	95							48
49	'Carlton' Smooth Brome	5	65							49
50	'Alyeska' Polar grass	1	65							50
51	Telley Sage T12052	1	100							51
52	Pumpelly Brome	3	30							52

GRASS FIELD PLANTINGS

Field plantings are large scale plantings, (1 acre or more) of one accession which are usually planted by cooperating land owners in regions with different soils and climates than those encountered at the PMC. The cooperators are allowed to decide what management methods are best suited to their environments, and operations. These plantings are designed to determine the practicality of growing an accession under actual use conditions. It is quite conceivable that a new species or variety that has shown excellent potential for certain purposes during Initial and Advanced Evaluation, may not be practical for large scale use. Problems may be encountered using traditionally available farm equipment for seeding, harvesting, or other management practices.

Also the cooperator may decide that the plant material may have other uses than for what it was originally intended. All the information gathered by the cooperators will be assembled with PMC data to develop management practices.

The Field Planting stage may be initiated before or after variety release. Thus far, the PMC has chosen to conduct this phase prior to release, in order to minimize unforeseen problems.

At this time one accession of grass, Siberian wildrye, 'Kamalinski 7', and 'Egan' American Sloughgrass have been put in field plantings. As of September 1985 the following cooperators have agreed to try the material.

Siberian Wildrye 'Kamalinski 7'

Cooperator	Acreage intended for planting	Acres planted	Yr.seed provided	Year planted	Area of Planting	Comments
J. Nash	1	1	83	83	Palmer	Very good stand
P. Mulligan	1	0	83	--	--	Seed returned to PMC
T. Williams	1	1 1/2	83	83	Pt. MacK	Fair stand; seed harvested '84
C. Oxford	1	0	83	--	--	Seed returned to PMC
B. Hollembaek	1	0	83	--	Delta	
U of A, AES	2	2	83	83	Palmer	Fair stand
B. Etchell	1	1	83	83	Kenny Lake	Fair stand
ADF&G	5	5	84	84	Delta	Bison trials
L. Petty	1	1	84	84	Fairbanks	Excellent stand.
E. Lackey	2-5		85		Pt. MacK	To be evaluated in '86
T. Williams	2-5		85		Pt. MacK	"
H. Baskin	1-3		85		Pt. MacK	"
D. McCombs	1-3		85		Pt. MacK	"
D. Botens	1/2		85		Wasilla	"
H. Horton	1-1/2		85		Willow	

Cooperator	Acreage intended for planting	Acres planted	Yr. seed provided	Year planted	Area of planting	Comments
J. Strue	1-1/2		85		62 Parks	To be evaluated in '86
M. Hoskins	1-1/2		85		Talkeetna	"
M. Marsh	1-1/2		85		Trapper's Cr.	"
F. Taperica	1-1/2		85		Healy	"
P. Bungart	2-1/2-3		85		Nenana	"
L. Petty	2-5		85		Fairbanks	"
M. Carlson	2-5		85		Delta	"
P. Roberts	1-1/2		85		Homer	"
J. Hollister	1-1/2		85		Homer	"
P. Marrow	1/2		85		Homer	"
F. Craxburger	1-3		85		Soldotna	"
M. Weber	1/2		85		None	"

Beckmannia syzigachne
'Egan' American Sloughgrass

H. Tucker	4		85		Willow	Evaluate in 86
F. Talerico	5		85		Healy	"
H. Grey	2		85		Kenai	"
BLM	10-20		85		Glennallen	"
ADF&G, SCS	10-20		85		Foks-Delta	"
B. Britt	1-2		85		Anchorage	"
Corps of Eng	5		85		Fairbanks	"
CRW Engineers	1		85		Anchorage	"

WOODY FIELD PLANTINGS

Various accessions of willow and poplar that have performed well at the Palmer PMC have also been placed in field trials through USDA Soil Conservation Service cooperators. These field tests differ from PMC advanced evaluation plots or mining and industrial plots as they are managed for farm windbreaks as opposed to reclamation plantings.

Beginning in 1980 the PMC has supplied willow and poplar for windbreak evaluation. Through our propagation trials it has been determined that 1-0 stock, (cuttings that have been rooted, for example, in April 1982, held by the PMC until a June or July, 1983 distribution planting time, are considered 1-0 or 1-year-old) produced the best results for establishment.

The options other than 1-0 stock are dormant or first year rooted cuttings. Neither of these latter two options produced consistently good results.

WOODY FIELD PLANTINGS

Table 25. Field Planting Sites.

<u>Species/T No.</u>	<u>Trial site</u>	<u>Plant date</u>	<u>Percent survival</u>	<u>Height ft.</u>
Petrousky Poplar T-12062	Delta	6/83	52	1.5
	Fbks	6/83	65	5
	Palmer	6/80	56	5-8
	Kenny Lk	7/83	100	2.5
Balsam Poplar	Kenny Lk	6/80	25	1
T7495	Kenny Lk	7/83	50	2
Feltleaf Willow	Delta	6/83	52	1
T7512	Fbks	6/83	55	5
	Kenny Lk	7/83	100	1-3
Barclay Willow T-7557	Delta	6/83	62	1.5
	Kenny Lk	7/83	92	1.5
Pacific Willow T-7554	Delta	6/83	58	2
	Fbks	6/83	65	4
	Palmer	6/80	76	6-7
	Kenny Lk	7/83	96	2
Bebb Willow T-7536	Delta	6/83	67	1.5
Barrenground Willow T-7542	Delta	6/83	44	.75
	Fbks	6/83	40	8
	Kenny Lk	7/83	80	1.5

OTHER PLOTS

This class of plot covers small scale plantings for general landscaping, revegetation, or nonspecific woody plantings. These plantings while fairly numerous are not as critical to the PMC evaluation process as the other evaluation plots. These plots are generally used to satisfy governmental requests for plant material assistance. The PMC provides plant materials free of charge and occasionally assists in planting.

These plots were used more extensively during the early stages of this project and are being phased out as systematic advanced and field evaluations plots come on line.

The following Other Plots have been established:

Plot Name	Estab date	Cooperator	Plant material tested
Sagwon woody	6/27/80	Alyeska Pipeline Co.	Barclay willow T07557 Petrovsky poplar T12062 Barrenground willow T07542 Feltleaf willow T07512 Balsam poplar T07495 Pacific willow T07554
Portage woody	5/18/81	U.S. Forest Serv.	Pacific willow T07554 Barclay willow T07557 Feltleaf willow T07512 Barrenground willow T07542 Barclay willow Tall Blueberry willow Scouler willow
Hope woody	5/18/81	U.S. Forest Serv.	Feltleaf willow T07512 Barclay willow T07557 Barrenground willow T07542 Pacific willow T07554 Gebb willow T07538 Willow sp. L-238
Eagle River Camp	5/83		Willow techniques
Kenai River Bank		Private landowner	Willow techniques
Eagle River Visitors Center	5/30/84	Div. of Parks	Native seed mix Siberian wildrye Red fescue Bering hairgrass Bluegrass Bearded wheatgrass Tellesy sage Bluejoint

Plot Name	Estab date	Cooperator	Plant Material tested
Harding Lake	6/82	Div. of Parks	Willow techniques
Lower Chatanika Campground	6/82	Div. of Parks	Willow
Quartz Lake Campground	6/82	Div. of Parks	Willow
Clearwater Campgr.	6/82	Div of Parks	Willow
Bethel Boat Harbor	6/84	Corps of Engineers	Riverbank plantings
Creamers Field	6/85	AK Dept. F.&G.	Wildlife/willow