

**Advanced Evaluation Plantings in Southcentral Alaska
Cold Regions Plot Evaluation Network**

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Introduction:

Advanced evaluation plantings are established to evaluate the performance of accessions that have previously performed well in initial evaluation plantings. These plantings aid in the development of new varieties for many end uses. The plantings also allow comparisons of new plant material with varieties that have been traditionally used. Plant material with potential for forage, turf and conservation uses were selected for planting in several Southcentral Alaska locations. Plots were planted in Willow, Talkeetna, Trapper Creek, Cascade Camp, and Palmer in 2003 and evaluated through 2007. A plot at Lake Creek along the Yentna River was planted in 2005 and evaluated through 2007.

Project History:

The Alaska Plant Materials Center (PMC) has established advanced evaluation plantings throughout its history as part of the mission of developing plant material for different uses within Alaska. This particular effort was conducted as part of the larger Cold Regions Project funded by a grant from the United States Department of Agriculture, Natural Resource Conservation Service.

Plot Layout:

The initial effort on this project was to develop the plot layout which consisted of accessions with varied end uses. Native species suitable for conservation was one of the primary focuses though input from small scale agricultural producers from around the region encouraged the inclusion of forage crops for evaluation. Turf varieties were also included along with some native wild flowers. Table 1 presents the typical plot layout. Each accession was planted in 4 foot by ten foot block at a rate of 40 pounds per acre. Seed was raked in by hand to incorporate at an approximate depth of ¼ inch. Varieties with similar end uses were planted adjacent to one another to allow for better comparison. Each plot was fertilized with one application of 20-20-10 following planting. Two blocks of 'Boreal' red fescue were planted to result in an even number of blocks.

Table 1. Typical Plot Layout

'Park' Kentucky Bluegrass	'Alene' Kentucky Bluegrass
'Nugget' Kentucky Bluegrass	'Tundra' Glaucous Bluegrass
'Service' Big Bluegrass	'Norcoast' Bering Hairgrass
'Durar' Hard Fescue	'Nortran' Tufted Hairgrass
'Arctared' Red Fescue	'Boreal' Red Fescue
'Pennlawn' Red Fescue	'Boreal' Red Fescue
'Gruening' Alpine Bluegrass	'Andrew Bay' Large-glume Bluegrass
'Ninilchik' Puccinellia nutkaensis	'Egan' American Sloughgrass
'Alyeska' Polargrass	Meadow Foxtail (Common)
'Sourdough' Bluejoint	'Caiggluk' Tilesius Sage
'Hannas High Tech' Alfalfa	'Beaver' Alfalfa
'James' Dahurian Wild Rye	PI 345600 Siberian Wild Rye
Altai Wild Rye (Common)	Russian Wild Rye (Common)
'Kirk' Crested Wheatgrass	Slender Wheatgrass (Common)
'Wainwright' Slender Wheatgrass	'Chief' Intermediate Wheatgrass
'Manchar' Smooth Brome	'Carlton' Smooth Brome
'Climax' Timothy	'Engmo' Timothy
'Farol' Timothy	'Alma' Timothy

Some additional accessions were included at the Lake Creek location because it was planted at a later time when more plant material had been added to the plot layout. These additional accessions included:

'Kenai' Polargrass	'Port Clarence' large flower speargrass
'Polar' Brome	'Solomon' Thick Spike Wheatgrass
'Max Q' Tall Fescue	'Lodorm' Needlegrass
'Paxson' Hedysarum alpinum	'Casco Cove' Beach Lovage
'King Salmon' Golden Rod	'Clam Lagoon' Beach Fleabane
Nootka Lupine (Common)	'Tok' Jakutsk Snow Parsley
'Shemya' Dusty Miller	'Kotzebue' Arctic Chamomile

The PMC's Native Plant Nursery had a need for advance evaluation of many species. The following species were also included at the Lake Creek location: *Senecio congestus*, *Chamerion latifolium*, *Polemonium pulcherrimum*, *Geranium erianthum*, *Boykinia Richardsonii*, *Plantago canescens*, *Solidago decumbens*, *Aster sibiricus*, *Oxytropis campestris*, *Oxytropis deflexa*, and *Galium boreale*. The seed needed for the advance evaluation plantings were acquired from existing PMC seed stocks, Alaska Mill and Feed, and Hannas Seeds.

Plot Locations and Preparation:

The plots were replicated at sites around the region including Willow, Talkeetna, Trapper Creek, Lake Creek, and Palmer. Cooperators including Bentalit Lodge, the Department of Transportation (DOT), and PMC staff aided in the project by providing land for the plots as well as ground preparation. The soil at each plot location was prepared by removing existing vegetation if present by cultivation or blading with a dozer or loader.

The Lake Creek plot was established at Bentalit Lodge along the edge of their runway. The site was prepared by back blading with a dozer to level the site and remove existing vegetation.

The plots in Cascade Camp, Willow, Trapper Creek and Talkeetna were installed with the cooperation of the Department of Transportation. The Willow and Talkeetna plots were established at the airport in each respective community. The Cascade Camp plot was planted along the entrance road to the DOT maintenance station. The plot locations in Willow, and Talkeetna were prepared by blading with a dozer. The Trapper Creek and Cascade Camp plots were installed on locations already void of vegetation.

Planting and Evaluation:

Planting occurred in Willow on June 23, 2003. Talkeetna, Trapper Creek Cascade Camp and PMC plots were planted July 7-10, 2003. Lake Creek was planted on July 2, 2005. At least one evaluation per year including the planting year was anticipated for each of the three years following planting.

Evaluation of the plots included an assessment of the vigor and percent stand of each accession. Vigor is a qualitative assessment and was rated on a scale of 0 to 10. A lower rating number represents a better vigor assessment with the exception of 0 which indicates no plants present. The percentage of stand formed by each accession planted was the quantitative assessment though no statistical measurements were taken.

Tables 2 through 7 present the evaluation data collected for each of the planted plots.

Table 2. Willow Airport Plot Evaluation

	9/22/2003	9/22/2003	8/30/2004	8/30/2004	8/15/2005	8/15/2005	8/7/2006	8/7/2006	7/16/2007	7/16/2007
	Vigor	% Stand	Vigor	% Stand	Vigor	% Stand	Vigor	% Stand	Vigor	% Stand
Alene Kentucky Bluegrass	2	90	6	40	5	100	5	50	6	20
Park Kentucky Bluegrass	2	90	2	80	4	100	4	90	4	100
Tundra Bluegrass	2	80	8	20	4	30	8	30	0	0
Nugget Kentucky Bluegrass	4	70	4	60	3	70	3	70	6	80
Norcoast Hairgrass	2	80	1	100	3	100	4	60	3	50
Service Big Bluegrass	4	60	2	90	5	80	3	80	6	80
Nortran Hairgrass	6	50	1	100	2	100	2	90	1	90
Durar Hard Red Fescue	4	60	6	90	5	100	4	90	4	90
Boreal Red Fescue	1	100	1	100	2	100	2	100	2	100
Arctared Fescue	3	60	2	90	3	100	2	100	3	90
Boreal Red Fescue	1	100	1	100	1	100	2	100	2	100
Pennlawn Red Fescue	1	100	1	100	2	100	3	100	3	100
Andrew Bay Bluegrass	3	50	3	100	1	100	2	90	2	70
Gruening Alpine Bluegrass	2	80	2	90	3	90	3	70	4	90
Egan American Sloughgrass	3	50	3	70	7	10	0	0	0	0
Ninilchik Alkali Grass	5	50	7	20	9	10	8	10	0	0
Meadow Foxtail	1	100	4	80	3	100	3	80	3	60
Alyeska Polargrass	5	40	3	90	4	80	4	60	6	20
Ciaggluk Tilessi Sage	1	100	2	100	1	40	3	50	2	60
Sourdough Bluejoint	2	90	2	100	3	100	4	100	3	100
Beaver Alfalfa	7	25	9	0	9	0	0	0	0	0
Hannas High Tech Alfalfa	8	20	9	0	0	0	0	0	0	0
Siberian Wildrye	2	60	1	80	1	90	2	80	1	50
James Duhorian Wild Rye	4	50	8	40	0	0	0	0	0	0
Russian Wild Rye	6	50	0	0	0	0	0	0	4	20
Altai Wild Rye	8	20	0	0	0	0	0	0	0	0
Slender Wheatgrass	2	80	3	90	2	100	2	90	2	80
Kirk Crested Wheatgrass	4	60	8	60	9	10	0	0	9	10
Chief Intermediate Wheatgrass	2	80	2	90	2	100	2	90	2	80
Wainwright Wheatgrass	6	40	6	60	3	60	3	60	3	60
Carlton Smooth Brome	3	80	2	100	3	100	2	100	2	90
Manchar Smooth Brome	3	80	3	100	4	100	4	90	5	90
Engmo Timothy	3	80	1	100	4	100	5	50	3	80
Climax Timothy	2	90	2	100	6	100	4	80	6	30
Alma Timothy	1	100	1	100	3	100	3	60	3	80
Farol Timothy	4	80	4	90	6	100	4	70	6	60

Table 3. Talkeetna Airport Plot Evaluation

	9/22/2003	9/22/2003	8/30/2004	8/30/2004	8/15/2005	8/15/2005	8/7/2006	8/7/2006	7/16/2007	7/16/2007
	Vigor	% Stand	Vigor	% Stand	Vigor	%stand	Vigor	%stand	Vigor	% Stand
Alene Kentucky Bluegrass	4	90	6	30	7	40	0	0	0	0
Park Kentucky Bluegrass	2	90	4	60	5	100	5	80	0	0
Tundra Bluegrass	4	80	0	0	8	10	0	0	0	0
Nugget Kentucky Bluegrass	3	90	4	40	8	20	5	90	8	20
Norcoast Hairgrass	1	100	3	100	4	100	4	80	7	40
Service Big Bluegrass	4	80	2	80	4	90	3	80	6	60
Nortran Hairgrass	4	80	2	80	3	90	2	90	2	80
Durar Hard Red Fescue	4	70	2	80	4	100	4	80	7	50
Boreal Red Fescue	1	100	2	90	2	100	2	90	5	80
Arctared Fescue	4	60	3	80	3	70	5	70	2	100
Boreal Red Fescue	2	80	2	70	3	80	5	70	6	60
Pennlawn Red Fescue	3	75	2	90	2	100	2	100	2	100
Andrew Bay Bluegrass	4	50	3	60	3	70	5	50	0	0
Gruening Alpine Bluegrass	5	70	5	40	4	40	8	20	0	0
Egan American Sloughgrass	5	50	7	20	0	0	0	0	0	0
Ninitchik Alkali Grass	5	50	9	10	0	0	0	0	0	0
Meadow Foxtail	3	70	7	30	5	50	6	30	0	0
Alyeska Polargrass	4	60	5	50	5	50	0	0	0	0
Ciaggluk Tilessi Sage	2	90	1	100	3	100	3	100	2	100
Sourdough Bluejoint	2	90	4	100	2	90	3	100	2	100
Beaver Alfalfa	7	20	0	0	0	0	0	0	0	0
Hannas High Tech Alfalfa	8	15	0	0	0	0	0	0	0	0
Siberian Wildrye	2	85	2	100	3	100	4	70	4	50
James Duhorian Wild Rye	1	95	5	50	0	0	0	0	0	0
Russian Wild Rye	5	50	0	0	0	0	0	0	0	0
Altai Wild Rye	3	65	8	10	6	30	0	0	5	30
Slender Wheatgrass	3	80	3	80	4	100	7	60	8	30
Kirk Crested Wheatgrass	2	80	8	40	8	10	0	0	0	0
Chief Intermediate Wheatgrass	2	90	3	90	2	90	5	80	7	80
Wainwright Wheatgrass	6	40	4	60	3	50	4	70	2	80
Carlton Smooth Brome	2	70	5	70	4	70	4	60	5	80
Manchar Smooth Brome	2	70	4	80	5	80	8	50	8	60
Engmo Timothy	3	85	5	60	3	90	4	60	8	40
Climax Timothy	1	95	4	90	4	90	4	80	0	0
Alma Timothy	2	90	3	70	3	100	3	90	9	20
Farol Timothy	3	90	4	70	4	100	4	80	9	20

Table 4. Trapper Creek Plot Evaluation

	9/22/2003	9/22/2003	8/30/2004	8/30/2004	8/15/2005	8/15/2005	8/7/2006	8/7/2006	7/16/2007	7/16/2007
	Vigor	% Stand	Vigor	% Stand	Vigor	%Stand	Vigor	% Stand	Vigor	% Stand
Alene Kentucky Bluegrass	2	90	2	70	2	90	2	80	5	80
Park Kentucky Bluegrass	4	70	4	80	4	80	5	50	7	60
Tundra Bluegrass	3	90	8	30	5	30	0	0	0	0
Nugget Kentucky Bluegrass	4	70	3	80	2	80	4	70	4	50
Norcoast Hairgrass	1	100	2	80	4	90	3	70	3	80
Service Big Bluegrass	3	70	5	70	3	60	6	20	0	0
Nortran Hairgrass	4	80	2	80	3	80	2	80	1	90
Durar Hard Red Fescue	5	70	5	50	9	10	0	0	7	50
Boreal Red Fescue	2	90	1	100	2	100	3	80	3	90
Arctared Fescue	5	80	3	80	4	90	2	70	1	70
Boreal Red Fescue	2	90	2	90	2	100	2	90	3	90
Pennlawn Red Fescue	1	95	1	100	3	100	3	90	2	90
Andrew Bay Bluegrass	4	60	4	70	5	80	5	40	3	60
Gruening Alpine Bluegrass	2	90	2	80	3	90	3	80	3	50
Egan American Sloughgrass	5	80	4	60	6	20	0	0	0	0
Ninilchik Alkali Grass	4	80	0	0	0	0	0	0	0	0
Meadow Foxtail	1	100	3	100	3	100	3	80	8	10
Alyeska Polargrass	5	80	5	50	6	30	5	20	5	10
Ciaggluk Tilessi Sage	1	95	3	90	2	90	2	90	1	100
Sourdough Bluejoint	2	80	3	100	3	100	2	100	4	90
Beaver Alfalfa	8	30	0	0	0	0	0	0	0	0
Hannas High Tech Alfalfa	7	50	9	0	0	0	0	0	0	0
Siberian Wildrye	4	65	2	80	3	80	4	70	3	50
James Duhorian Wild Rye	3	70	3	50	3	20	3	10	0	0
Russian Wild Rye	6	50	9	10	0	0	0	0	0	0
Altai Wild Rye	7	50	0	0	0	0	0	0	0	0
Slender Wheatgrass	2	80	2	90	3	100	3	70	3	10
Kirk Crested Wheatgrass	4	60	8	10	7	20	8	10	0	0
Chief Intermediate Wheatgrass	2	70	1	100	2	100	2	90	3	90
Wainwright Wheatgrass	5	80	4	50	4	60	2	90	1	20
Carlton Smooth Brome	1	90	2	100	3	100	3	90	3	80
Manchar Smooth Brome	3	80	4	60	3	100	2	90	2	60
Engmo Timothy	1	100	2	100	2	100	4	50	8	20
Climax Timothy	3	90	6	100	3	100	5	60	0	0
Alma Timothy	2	100	2	100	3	100	3	70	9	10
Farol Timothy	4	90	3	90	4	100	4	60	9	10

Table 5. Lake Creek Plot Evaluation

	9/29/2006		9/6/2007	
	Vigor	% Stand	Vigor	% Stand
Alene Kentucky Bluegrass	5	60	2	90
Park Kentucky Bluegrass	4	70	3	80
Tundra Bluegrass	0	0	2	60
Nugget Kentucky Bluegrass	2	80	2	90
Norcoast Hairgrass	1	100	3	60
Service Big Bluegrass	5	80	2	60
Nortran Hairgrass	3	50	2	50
Durar Hard Red Fescue	3	60	4	30
Boreal Red Fescue	1	100	1	90
Arctared Fescue	1	100	1	90
Boreal Red Fescue	1	100	1	90
Pennlawn Red Fescue	1	100	2	90
Andrew Bay Bluegrass	1	100	1	100
Gruening Alpine Bluegrass	8	20	0	0
Egan American Sloughgrass	8	10	0	0
Ninilchik Alkali Grass	7	20	0	0
Meadow Foxtail	1	100	1	100
Alyeska Polargrass	4	30	2	50
Ciaggluk Tilessi Sage	6	40	3	50
Sourdough Bluejoint	4	50	2	60
Beaver Alfalfa	7	10	0	0
Hannas High Tech Alfalfa	5	40	5	20
Siberian Wildrye	1	100	1	100
James Duhorian Wild Rye	1	80	2	60
Russian Wild Rye	0	0	0	0
Altai Wild Rye	0	0	0	0
Slender Wheatgrass	1	100	2	100
Kirk Crested Wheatgrass	2	90	3	50
Chief Intermediate Wheatgrass	1	100	1	80
Wainwright Wheatgrass	1	100	2	20
Carlton Smooth Brome	1	100	1	100
Manchar Smooth Brome	1	100	1	100
Engmo Timothy	2	100	3	50
Climax Timothy	1	100	3	50
Alma Timothy	2	100	5	50
Farol Timothy	1	100	5	50
Port Clarence large flower speargrass	7	10	0	0
Kenai Polargrass	1	100	1	100
Agropyron macrorum	8	10	0	0
Polar Brome	1	100	1	100
Lodorm Needlegrass	0	0	0	0
Max Q tall Fescue	3	80	0	0
Casco Cove Beach Lovage	0	0	0	0
Paxson Eskimo Potato	0	0	0	0
Clam Lagoon Beach Fleabane	0	0	0	0
King Salmon Golden Rod	0	0	0	0
Tok Jakutsk Snow Parsley	0	0	0	0
Lupinus nootkatensis	5	20	3	30
Kotzebue Arctic Chamomile	9	10	0	0
Shemya Dusty Miller	0	0	0	0
<i>Polemonium acutiflorum</i>	8	10	3	20
Denali alfalfa	8	10	9	10
<i>Aster Sibiricus</i>	0	0	0	0
<i>Geranium erianthum</i>	0	0	5	20
<i>Solidago decumbens</i>	0	0	0	0
<i>Hedysarum alpinum</i>	0	0	0	0
<i>Boykinia richardsonii</i>	0	0	0	0
<i>Plantago canescens</i>	0	0	0	0
<i>Polemonium pulcherrum</i>	6	20	8	10
<i>Oxytropis deflexa</i>	0	0	0	0
<i>Galium boreale</i>	0	0	0	0
<i>Oxytropis campestris</i>	0	0	0	0

Table 6. Palmer Plot Evaluation

	9/16/2004	6/16/2004	8/15/2005	8/15/2005	6/28/2006	6/28/2006	7/30/2007	7/30/2007
	Vigor	% Stand	Vigor	% Stand	Vigor	% Stand	Vigor	% Stand
Alene Kentucky Bluegrass	3	40	5	100	4	60	3	50
Park Kentucky Bluegrass	3	70	4	100	3	90	3	50
Tundra Bluegrass	2	20	4	30	2	80	2	80
Nugget Kentucky Bluegrass	3	80	3	70	4	80	2	100
Norcoast Hairgrass	8	60	3	100	5	10	2	30
Service Big Bluegrass	8	80	5	80	2	80	2	80
Nortran Hairgrass	9	10	2	100	3	10	2	50
Durar Hard Red Fescue	3	90	5	100	4	70	3	50
Boreal Red Fescue	8	100	2	100	5	40	0	0
Arctared Fescue	5	100	3	100	2	90	2	90
Boreal Red Fescue	9	100	1	100	3	50	3	40
Pennlawn Red Fescue	5	100	2	100	8	10	0	0
Andrew Bay Bluegrass	4	40	1	100	4	20	2	40
Gruening Alpine Bluegrass	3	60	3	90	3	80	3	80
Egan American Sloughgrass	0	0	7	10	0	0	0	0
Ninilchik Alkali Grass	0	0	9	10	0	0	2	10
Meadow Foxtail	7	20	3	100	0	0	3	10
Alyeska Polargrass	0	0	4	80	0	0	0	0
Ciaggluk Tilesi Sage	9	10	1	40	8	10	3	20
Sourdough Bluejoint	0	0	3	100	0	0	8	10
Beaver Alfalfa	4	70	9	0	9	10	2	10
Hannas High Tech Alfalfa	3	80	0	0	0	0	5	10
Siberian Wildrye	3	60	1	90	8	10	3	60
James Duhorian Wild Rye	4	50	0	0	0	0	4	10
Russian Wild Rye	2	50	0	0	7	10	0	0
Altai Wild Rye	2	50	0	0	0	0	0	0
Slender Wheatgrass	3	70	2	100	3	70	8	30
Kirk Crested Wheatgrass	2	100	9	10	2	100	5	100
Chief Intermediate Wheatgrass	3	80	2	100	3	10	3	30
Wainwright Wheatgrass	4	50	3	60	2	70	3	80
Carlton Smooth Brome	3	100	3	100	2	100	2	90
Manchar Smooth Brome	5	80	4	100	4	100	5	70
Engmo Timothy	4	90	4	100	4	90	3	90
Climax Timothy	5	90	6	100	0	0	7	30
Alma Timothy	3	90	3	100	2	90	2	90
Farol Timothy	5	90	6	100	0	0	7	30

Table 7. Cascade Camp Plot Evaluation

	9/9/2003		5/24/2004		7/27/2006		8/20/2007	
	Vigor	% Stand	Vigor	% Stand	Vigor	% Stand	Vigor	% Stand
Alene Kentucky Bluegrass	2	60	6	30	4	20	5	20
Park Kentucky Bluegrass	9	20	8	10	3	40	4	50
Tundra Bluegrass	3	60	3	30	0	0	8	10
Nugget Kentucky Bluegrass	4	40	4	30	2	20	6	10
Norcoast Hairgrass	1	70	2	30	2	10	4	10
Service Big Bluegrass	5	20	4	30	1	50	3	20
Nortran Hairgrass	5	20	6	10	3	20	4	10
Durar Hard Red Fescue	2	70	3	20	0	0	3	10
Boreal Red Fescue	3	60	4	50	5	10	8	10
Arctared Fescue	4	50	3	10	0	0	2	10
Boreal Red Fescue	3	60	4	50	6	30	8	30
Pennlawn Red Fescue	2	60	1	20	3	30	8	10
Andrew Bay Bluegrass	0	0	8	10	2	20	6	10
Gruening Alpine Bluegrass	4	50	6	10	8	10	3	10
Egan American Sloughgrass	0	0	0	0	0	0	0	0
Ninilchik Alkali Grass	2	60	4	10	0	0	0	0
Meadow Foxtail	4	40	5	10	7	10	6	10
Alyeska Polargrass	0	0	9	10	0	0	0	0
Ciaggluk Tilesi Sage	0	0	9	10	2	20	2	20
Sourdough Bluejoint	0	0	9	10	0	0	0	0
Beaver Alfalfa	5	40	3	10	1	40	2	60
Hannas High Tech Alfalfa	1	80	2	70	1	80	3	70
Siberian Wildrye	8	10	9	30	4	20	6	10
James Duhorian Wild Rye	5	30	4	40	6	10	2	50
Russian Wild Rye	8	10	8	10	0	0	8	10
Altai Wild Rye	9	10	9	10	0	0	6	10
Slender Wheatgrass	7	20	7	10	6	10	8	10
Kirk Crested Wheatgrass	3	60	3	20	4	30	3	30
Chief Intermediate Wheatgrass	5	30	5	10	3	20	4	20
Wainwright Wheatgrass	9	10	5	10	3	40	3	20
Carlton Smooth Brome	8	20	8	10	5	20	7	20
Manchar Smooth Brome	4	30	2	20	5	20	7	20
Engmo Timothy	2	70	6	10	8	10	6	20
Climax Timothy	2	70	4	30	8	20	0	0
Alma Timothy	2	70	8	10	9	10	0	0
Farol Timothy	2	70	3	40	8	20	0	0

Discussion:

The advanced evaluation plantings in Southcentral Alaska performed generally well. Conditions at all plot locations had similar annual precipitation and well drained soils. The plots in Southcentral Alaska did not have the problems that occurred from vehicle traffic in similar studies in other regions of the state.

The Willow airport plot performed well during the evaluation period. Turf grass accessions that with the most promise for this location include Park Kentucky bluegrass, and fescues Arctared, Boreal and Pennlawn. Conservation plant materials with high ratings include Norcoast, Nortran, Andrew Bay, Gruening, Sourdough, Siberian wildrye, slender wheatgrass, and Wainwright. All of the forage crops did well with the exception of the alfalfa, Kirk, Russian wildrye and Altai wildrye. The entire plot would have benefited for additional fertilizer applications especially the timothy and brome portions.

The Talkeetna airport had similar results to the Willow plot. One distinction between the two was the spreading of the Sourdough and Caiggluk. A mechanical disturbance appeared to have impacted these two accessions causing them to spread across their planting boundaries and well outside the original perimeters of the plot. Caiggluk had such success at spreading that it appeared to have an allelopathic effect on adjacent plant material. The turf portion of the evaluation planting in Talkeetna also had slight variations from the one in Willow with Park Kentucky bluegrass not succeeding. Also, Andrew Bay did not persist in this location.

The Trapper Creek plot again confirmed the accessions with potential in all categories for this region of Alaska. Similar ratings for turfs, conservation plant material and forage crops were recorded at this plot location. One of the surprising performers was the Chief which reached over 5 feet tall during many of the evaluations.

The plot at Lake Creek did not receive as many evaluations as others in Southcentral Alaska due to the later planting date. It also had additional accessions included so the information should be valuable for future advanced evaluation efforts. Again, of the accessions duplicated in other plots in the region, similar results were observed during evaluations. Of the accessions unique to this plot, Kenai polargrass shows good promise for conservation. Also, *Lupinus nootkatensis* and *Polemonium acutiflorum* are wildflowers warranting additional evaluation. Polar brome got high ratings in the forage category. This location was one of only two in the region where the alfalfa varieties survived past the first winter. Anecdotally, this location appears to be a great place to raise hay crops.

The Palmer plot was located at the PMC facility near Butte thus it was able to be more closely observed than other locations. Again, it has similar performance amongst the varieties as other plots in the region. One clear distinction was the prosperity of Tundra bluegrass. This variety died out for the most part in all other locations. The period of

evaluation was exceptionally dry which may have supported this result. Kirk crested wheatgrass also did well in this location which was unique to this plot in the region.

The Cascade Camp plot was on likely the poorest soil quality location among plantings in this region. It was on a steep south facing slope that had been void of vegetation for quite some time according to staff at the maintenance station. This feature was likely the primary factor in the low vigor and light stand development of most accessions. The one surprise was the survival and even thriving nature of both alfalfa varieties. No where else in the region did the two alfalfas perform as well as they did at Cascade.

Conclusions:

Turf varieties evaluated in this study suitable for use in Southcentral Alaska include Arctared, Boreal and Durar red fescues and all the Kentucky bluegrasses evaluated; Alene, Park and Nugget. Conservation plant materials performing well across the region include Norcoast, Nortran, Service, Gruening, Caiggluk, and Wainwright. The common slender wheatgrass was generally comparable to Wainwright with the exception of the presence of ergot. It is likely that if wet locations would have been included in the plots selected, Egan and Alyeska would have done better since they are more highly adapted to wet locations. Forage varieties historically recommended in this region continued to perform well in this evaluation including Engmo and Climax timothy with Engmo appearing to have a slight edge. Farol and Alma timothy also have potential. A study focusing on improved timothy varieties for Southcentral Alaska is warranted. Also, Manchar and Carlton bromes continued to thrive. All forage grasses in the study would have benefited from additional fertilizer applications and mowing similar to what would occur in a hay production setting. Survival of the alfalfa varieties at the two plot locations indicates there may be some hope for alfalfa in the region. Research into improved varieties and cultural practice may result in production success on some level. Chief intermediate wheatgrass excelled beyond what was expected also. Additional trials with varieties of this species may result in a new forage crop for Southcentral Alaska.