Progress report October 31, 2013

Grant Number 7310003

Title: Biomass Reforestation for Boreal Forest

Grantee: Alaska Division of Forestry

Reporting period: July 1, 2013 to October 31, 2013

Deliverables submitted:

1. Progress report

2. Survival results spreadsheet

3. Photos

Budget:

Expenditures

Personnel time for travel to field sites, assessment of survival, summarization of results, and planning for project changes.

Travel was lodging at Kelly's Country Inn Delta Junction, meals per diem, and gas for vehicles.

Matching funding is primarily an RSA from Division of Forestry to University of Alaska Fairbanks for personnel services, use of farm facilities, and UAF vehicles. Additional matching funding is use of Division of Forestry vehicles, computers, and mobile GIS/GPS.

Schedule Status: Work completed on schedule, but with unexpected problems.

Percent Completion:

Milestone		Task	Start Date	End Date	Grant Funds	Match Funds	Total Budget	Deliverables	Percent Completed
	1	Select field sites	Dec-13	Mar-13	$ 4,000	$ 4,000	$ 8,000	Written agreements for site use	100%
	2	Finalize planting design	Jan-13	Mar-13	$ 2,000	$ 2,000	$ 4,000	Planting designs	100%
MS 1: AEA accepts site agreements and final planting designs									
	3	Collect and store cuttings	Mar-13	Mar-13	$ 8,000	$ 8,000	$ 16,000		100%
	4	Plant cuttings	Jun-13	Sep-13	$ 16,000	$ 16,000	$ 32,000		100%
	5	Evaluate plantations Year 1	Nov-13	Sep-14	$ 3,000	$ 3,000	$ 6,000	Year 1 summary report	100%
MS 2: AEA accepts Year 1 summary report									
	6	Evaluate plantations Year 2	Nov-14	Sep-15	$ 3,000	$ 3,000	$ 6,000		
	7	Prepare draft project report and presentation	Oct-15	Nov-15	$ 5,000	$ 5,000	$ 10,000	Draft report	
	8	Prepare final report	Dec-15	Dec-15	$ 4,000	$ 4,000	$ 8,000	Final project report	
MS 3: AEA accepts final report									

Work Progress:

Task 5: All sites were visited for first year survival beginning in Delta in late August. Live cuttings were tallied and height measured for living cuttings. Photos were taken.

Unexpected problems:

The abnormally hot and dry weather in June and July caused heavy mortality. Overall survival was 9%, with some sites in Delta essentially all dead. Continuing with the original plan appears pointless.

In addition to native poplar, 3 varieties of hybrid poplars from Canada were planted at University farm sites. Surprisingly, hybrid poplars showed strikingly better survival from drought than native poplar. Although from Canadian prairies, the hybrid poplar suffered frost damage from an August freeze in Delta.

Supporting documents: Survival results, weather summary, photos.

Future work:

Proposal for new strategy for continued work on biomass reforestation is being developed.

Options for continued work include:

1. Repeat original plan, but at smaller scale. Hope for normal summer weather in 2014.

2. Obtain additional hybrid poplars from Canada, focusing on most northerly variety available. Establish new plantations on University farms to evaluate hybrids.

3. Transplant surviving native poplar cuttings from Delta field sites to University farm at Delta. These cuttings may have superior drought adaptation, having survived rigorous selection screening with 2013 summer heat and drought. This could be stool bed for propagation of drought tolerant native poplar.

Hybrid poplar at Delta Farm

Mat-Su Field Site

Good growth

Good growth

Drought effects

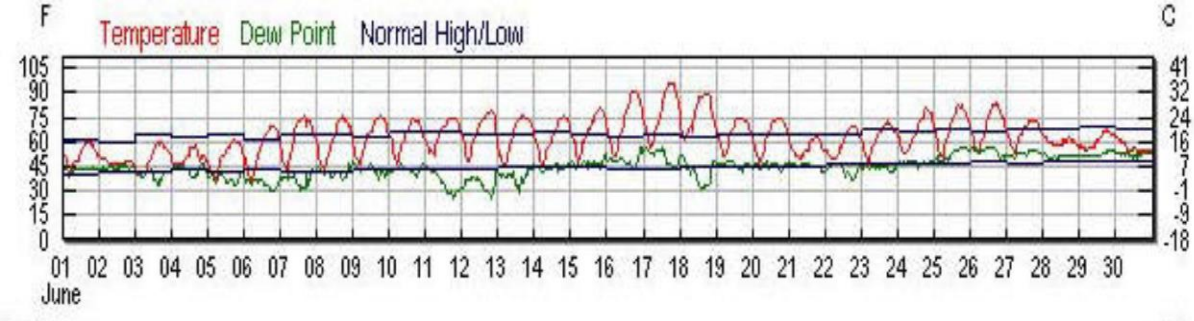
Drought effects

The poplar biomass regeneration project was severely impacted by abnormal weather. Weather in Delta and Talkeetna was recorded at airport weather stations. Precipitation was substantially below normal for both June and July. Temperature was substantially above normal, especially for June. Talkeetna recorded an all time record high of 96 F on June 17, exceeding previous record for Talkeetna of 91 F. The precipitation was less than in 2004, Alaska all-time record wildfire year. The following summarizes airport weather station data for June and July.

Talkeetna	June	July
Historical normal daily high temperature, 1981-2010, (F)	67	69
Number of days in 2013 above normal daily high	24	20
Number days above 80 F, 2013	7	5
Highest temperature, 2013	96	82
Historical normal monthly precipitation, 1981-2010, (in)	1.92	3.96
Precipitation for 2013	0.30	0.78
Percent of normal monthly precipitation, 2013	16%	20%
Probability of precipitation deviation from normal, from NWS	< 0.05	< 0.05
Lowest monthly precipitation, 1971-2000	0.49	1.08

Delta	June	July
Historical normal daily high temperature, 1981-2010, (F)	67	69
Number of days in 2013 above normal daily high	22	18
Number days above 80 F, 2013	10	4
Highest temperature, 2013	90	84
Historical normal monthly precipitation, 1981-2010, (in)	2.31	2.38
Precipitation for 2013	0.90	0.96
Percent of normal monthly precipitation, 2013	39%	36%
Probability of precipitation deviation from normal, from NWS	0.06	0.05
Lowest monthly precipitation, 1971-2000	0.81	0.56

Talkeetna June temperature chart. Mat-Su planted June 5-7



Delta June temperature chart. Delta planted June 10-12