

Assisted Migration Adaptation Trial (AMAT)

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January 2013



Background

Impacts of climate change are already evident.

Planting trees adapted to slightly warmer climates than the current climate of the plantation may significantly reduce health and productivity risks.



Objective

Identify best Class A seedlot for every cutblock in a changing climate



Species	Slttype	SPZ	Orchard_num	Lat	Long	Elev	MAT	MWMT	MCMT	TD	MAP
At	PseudoA	At_SouthInt	At_SouthInt	49.90	120.63	1050	4.3	15	-6.3	21.3	513
Ba	PseudoA	Ba_SouthInt	Ba_SouthInt	49.65	121.10	1175	4.9	14.9	-4.6	19.5	2215
Bg	PseudoA	Bg_Koot	Bg_Koot	49.45	117.48	850	5.7	16.8	-5.6	22.4	966
Bl	PseudoA	Bl_SouthInt	Bl_SouthInt	50.98	119.70	1524	2.3	13.3	-8.3	21.6	733
Owrc	Class A	M Low	140	49.83	124.66	229	8.3	16.1	1.7	14.3	2364
Owri	PseudoA	Owri_Koot	Owri_Koot	50.72	118.61	410	4.8	16.1	-7.1	23.2	834
Ep	Class A	southBC	Skim_Kal	50.61	118.67	670	5.4	16.9	-6.7	23.6	705
Fdc	Class A	SM	181	50.36	123.16	558	5.8	15.5	-3.8	19.3	1867
Fdc	Class A	M Low	166	49.22	123.43	409	8.4	16.4	1.3	15.1	2351
Fdc	Class A	CoosBay OR	CoosBay OR	43.39	124.03	238	11.4	17.2	6.2	11.0	1763
Fdc	Class A	Longview WA	Longview WA	46.21	122.72	335	10.0	17.5	2.7	14.8	1893
Fdc	Class A	Springfield OR	Springfield OR	44.03	122.63	447	11.2	18.9	4.7	14.2	1541
Fdi	Class A	PG	225	53.58	122.78	772	3.2	14.5	-9.7	24.2	648
Fdi	Class A	QL	226	52.35	120.92	925	3.2	14.3	-8.9	23.2	681
Fdi	Class A	CT	231	52.74	122.17	853	3.6	14.7	-8.9	23.7	591
Fdi	Class A	NE	321	50.74	118.63	641	5.5	17.0	-6.6	23.6	824
Fdi	Class A	NE	324	50.13	117.71	1086	4.1	15.7	-7.6	23.3	926
Fdi	Class A	ID	Cherry Lane	47.44	116.40	870	6.9	17.9	-3.5	21.4	895
Hwi	PseudoA	Hw_Monashee	Hw_Monashee	50.77	119.10	800	5.2	16.7	-7.0	23.6	867
Hwc	Class A	M Low	133	50.32	125.53	139	8.5	15.8	2.0	13.7	2308
Hwc	Class A	M	196	49.53	123.53	773	6.6	15.0	-0.8	15.8	2575
Lw	Class A	NE Low	332	49.83	117.83	865	4.9	16.5	-6.9	23.4	828
Lw	Class A	EK	333	49.85	115.70	1096	3.7	15.9	-9.1	25.0	640
Lw	Class A	ID	IETICUSDA	48.36	116.30	1120	5.5	16.9	-5.5	22.4	901
Lw	PseudoA	OR	OchocoNatFor	44.33	120.04	1501	6.9	17.0	-1.1	18.2	754
Pli	Class A	CP	218	54.06	123.40	798	2.7	14.2	-10.3	24.5	645
Pli	Class A	BV	219	53.49	123.51	858	3.0	14.2	-9.4	23.5	662
Pli	Class A	PG Low	222	52.84	121.85	827	3.7	14.9	-8.6	23.5	710
Pli	Class A	TO Low	311	50.53	119.07	952	4.7	16.0	-7.1	23.0	631
Pli	Class A	NE Low	337	50.69	119.16	910	5.1	16.4	-6.7	23.2	670
Pli	PseudoA	Pli_IETIC_MO	Pli_IETIC_MO	47.84	115.64	792	6.1	17.6	-5.4	23.0	960
Pw	Class A	M Low	175	48.15	123.85	660	7.7	15.7	0.7	15.0	1762
Pw	Class A	KQ	335	47.59	116.04	1157	5.9	16.8	-3.9	20.7	1189
Py	Class A	ID	Plains	47.98	115.26	897	7.0	18.6	-4.6	23.3	605
Py	PseudoA	Py_SouthInt	Py_SouthInt	50.28	121.40	560	6.3	17.8	-5.8	23.6	539
Ss	Class A	M All	172	49.45	124.04	65	9.1	16.9	2.1	14.8	1572
Sx	Class A	PG	206	55.01	124.80	942	1.7	13.3	-10.8	24.1	642
Sx	Class A	PG	211	53.88	122.94	834	2.8	14.3	-10.2	24.5	668
Sx	Class A	TO	303	50.23	120.04	965	4.6	15.6	-6.7	22.3	522
Sx	Class A	TO	303	50.21	120.33	1329	3.2	14.0	-7.4	21.4	604
Sx	Class A	EK	304	50.45	115.83	1192	2.6	14.9	-10.5	25.4	766
Sx	Class A	NE Mid	305	50.66	118.42	1160	3.4	14.6	-8.1	22.7	845
Sx	Class A	NE High	306	51.24	119.57	1633	1.3	12.1	-9.5	21.6	1003
Sx	Class A	NE	341	50.51	114.61	524	5.4	17.0	-7.6	24.6	727
Sx	Class A	BV	620	54.33	126.52	792	2.7	13.7	-9.4	23.1	561
Sx	PseudoA	Se_IETIC_MO	Se_IETIC_MO	48.03	115.19	1052	6.1	17.5	-4.9	22.4	718
Ycc	Class A	M All	CLRSledge	49.67	124.26	1000	5.4	14.2	-1.9	16.1	3100
Yci	PseudoA	Yci_Koot	Yci_Koot	49.85	117.70	1700	2.2	13.7	-9.2	22.8	1160

Methods

48 orchard seed sources from 15 native western North American tree species



Abies amabilis - Amabilis fir

Abies grandis - Grand fir

Abies lasiocarpa - Sub-alpine fir

Betula papyrifera - Paper Birch

Callitropsis nootkatensis - Yellow cypress

Larix occidentalis - Western larch

Picea glauca × *P. engelmannii* - Interior spruce

Picea sitchensis - Sitka spruce

Pinus contorta - Lodgepole pine

Pinus monticola - Western white pine

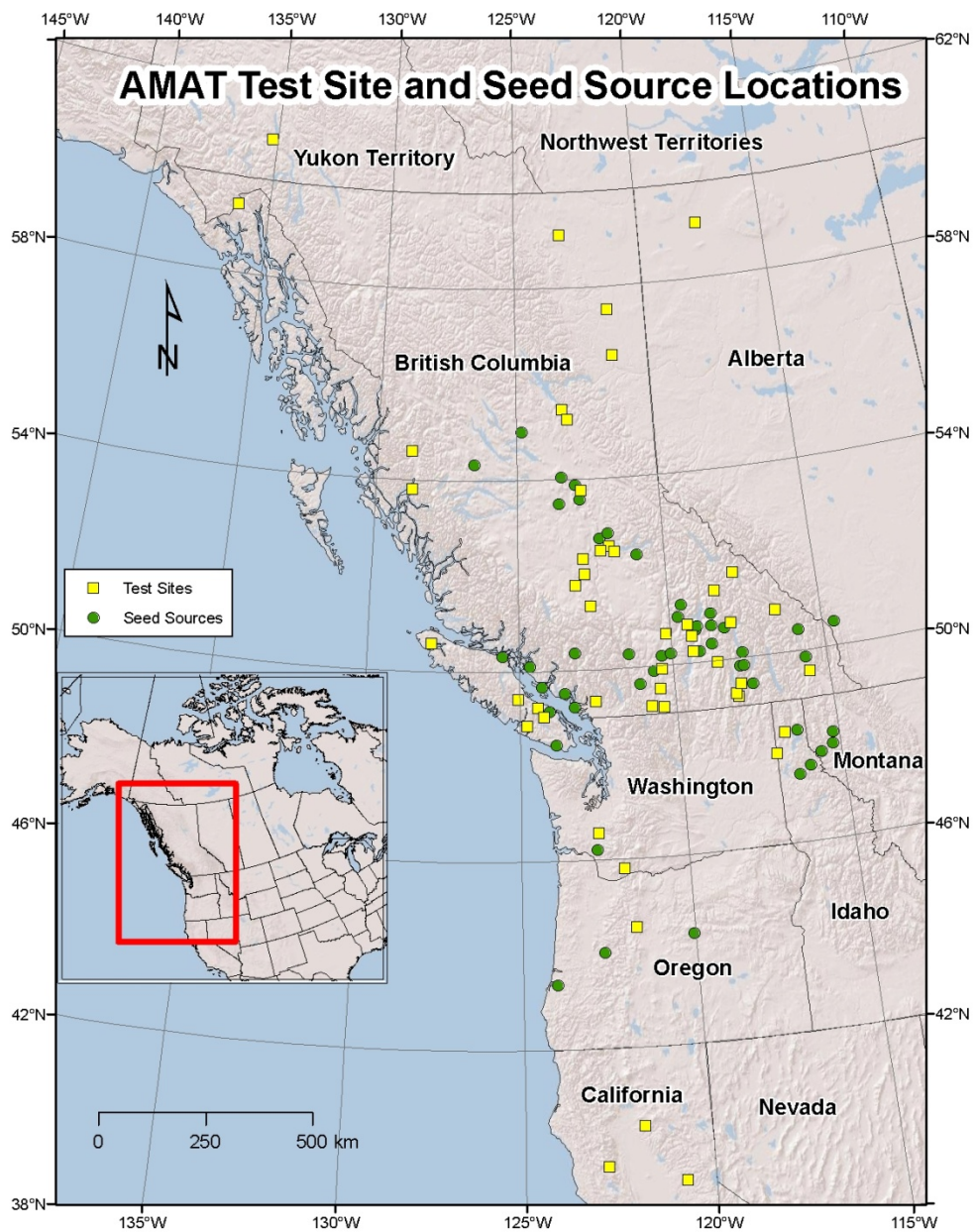
Pinus ponderosa - Ponderosa pine

Populus tremuloides - Trembling aspen

Pseudotsuga menziesii - Douglas-fir

Thuja plicata - Western redcedar

Tsuga heterophylla - Western hemlock

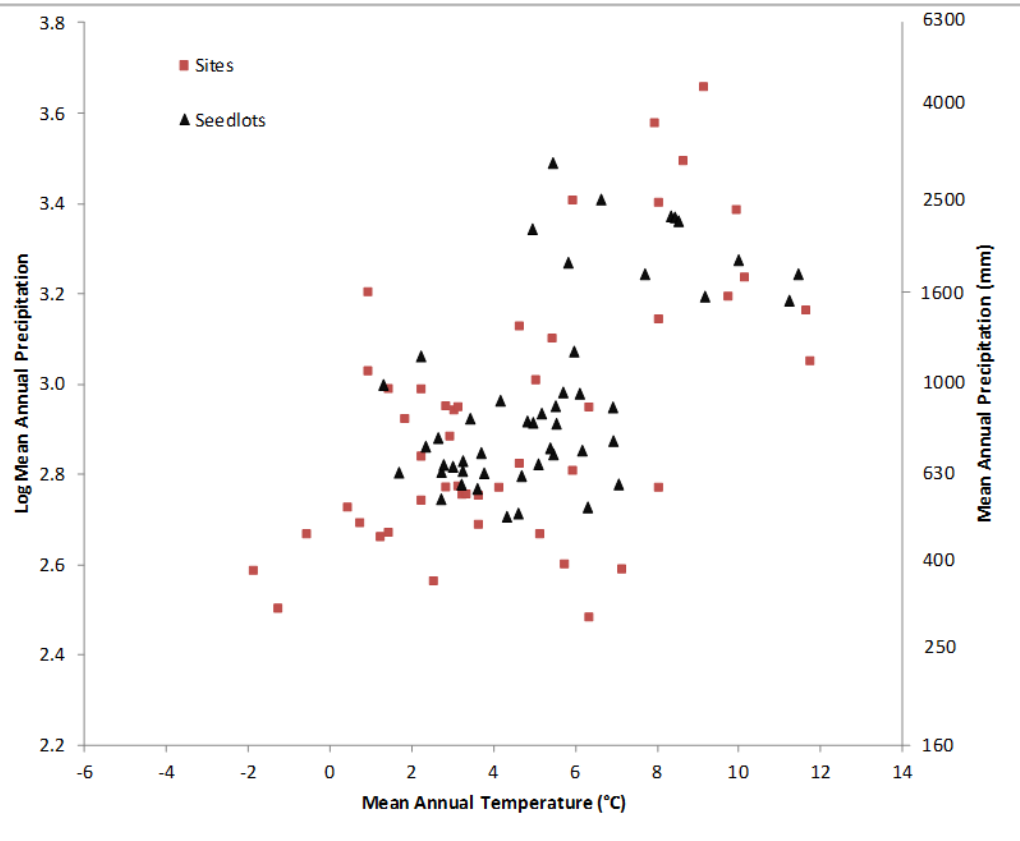


Methods

Establish seedlots at 48 test sites spanning wide climate and latitudinal range

Methods

Each seed source to be established at sites warmer, colder, wetter drier, further north and further south than its origin



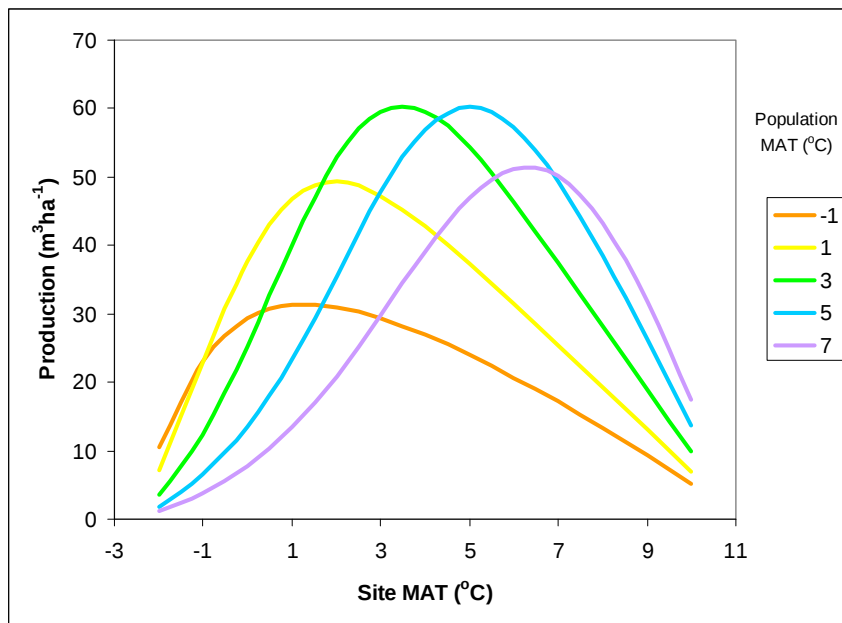


Analysis

Weather to be recorded at each site and used to develop multi-variate response functions for each seed source.

Functions will identify populations expected to be most productive and healthy at each location over the next rotation.

Information will be used to refine Climate Based Seed Transfer system.



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Project design	X														
Proposal review		X													
Seed procurement		X													
Locate sites/grow seedlings - series 1			X												
Locate sites/grow seedlings - series 2				X											
Locate sites/grow seedlings - series 3					X										
Locate sites/grow seedlings - series 4						X									
Plant - series 1				X											
Plant - series 2					X										
Plant - series 3						X									
Plant - series 4							X								
Weather station/site maintenance - series 1					X	X	X	X	X	X	X	X	X	X	
Weather station/site maintenance - series 2						X	X	X	X	X	X	X	X	X	
Weather station/site maintenance - series 3							X	X	X	X	X	X	X	X	
Weather station/site maintenance - series 4								X	X	X	X	X	X	X	
Assess - series 1									X					X	
Assess - series 2										X					X
Assess - series 3											X				
Assess - series 4												X			
Analysis													X		
Extension	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Budget							165	91	85	59					

Timeline

Establishment completed in 2012.

Health and growth assessments every 5 years, beginning at age-5.

Website

<http://www.for.gov.bc.ca/hre/foren/interior/AMAT.htm>

Find articles and media reports on the AMAT

