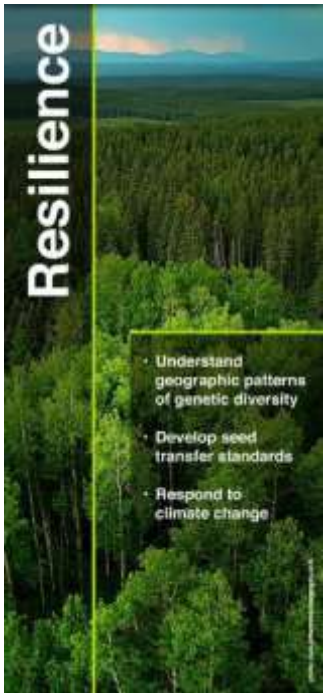
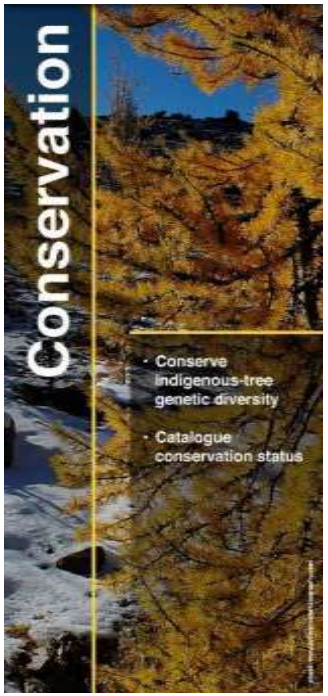
FGC Forest Genetics Council of British Columbia

Coastal Technical Advisory Committee (CTAC) Business Meeting

Jan 23, 2020

Vernon





FGC Updates

1. FGC Members
2. FGC Meetings
3. FGC, Society and Select Seed Governance Model
4. Communication and Extension
5. Forecasting Seedling Needs Project
6. CBST Species Plans
7. New Pli Seed Orchards

2. FGC Membership

- Advisory Committee appointed by Diane Nicholls, Provincial Chief Forester
- 14 members from representative groups
- 3-year term, may be renewed

Recent changes:

- **Keith Thomas** for **Shane Ford**, FLRN Research Rep
- **Kat Spencer** for **Kori Vernier**, ITAC Chair
- **Gord Chipman** for **Gernot Zemanek** – Interior Small Tenure Holder
- **Dan Peterson** – FLNR Operations TBD

2. Current FGG Members

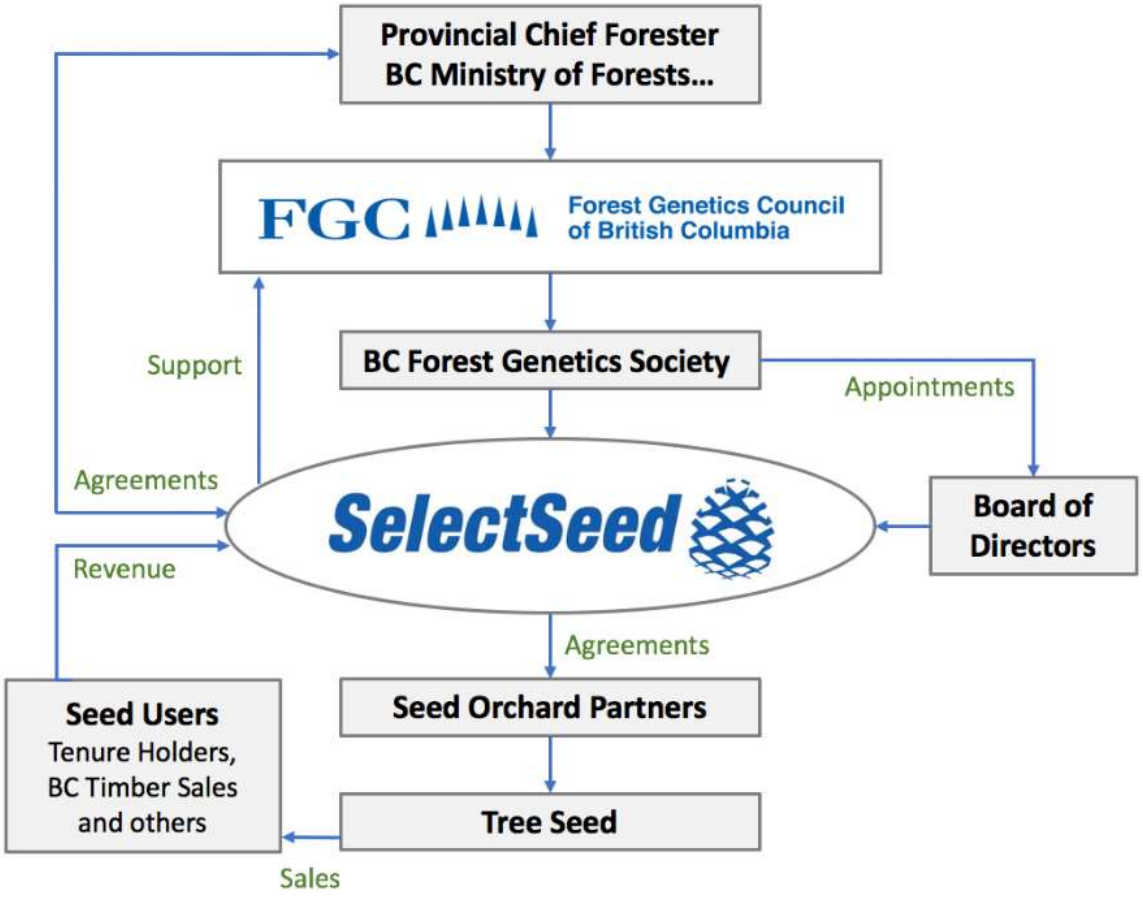
Name	FGC Position
Pat Martin, RPF	FLNROD Co-chair
Domenico Iannidinardo, RPF, PEng, RPBio	Industry Co-chair
Annette van Niejenhuis, RPF	Coastal TAC Chair
Bevin Wigmore, RPBio	Coastal Seed Producer
Bill Laing, RFT	Interior Seed User - Large Tenures
Dr. Jürgen Ehlting	Academia
Gord Chipman, RPF	Interior Seed User - Small Tenures
Jeff Mycock, RPF	Interior Seed Producer
Katherine Spencer, RPF	Interior TAC Chair
Keith Thomas, PAg	FLNROD Research
Mark Hay, RPF	FLNROD BCTS
Robert Johnson, RPF	Coast Seed User
Tony Hopkins	Natural Resources Canada
Vacant	FLNROD Regional Operations

3. FGC Meetings

- Sept 12-13, 2020 Cowichan Lake Field Tour
- Dec 11, 2019 Yellow Point
- April 8, 2020 Video Conference

Agendas and approved minutes on FGC "Members" webpage

4.
FGC, Society and SelectSeed - Governance Model



5. Communications and Extension

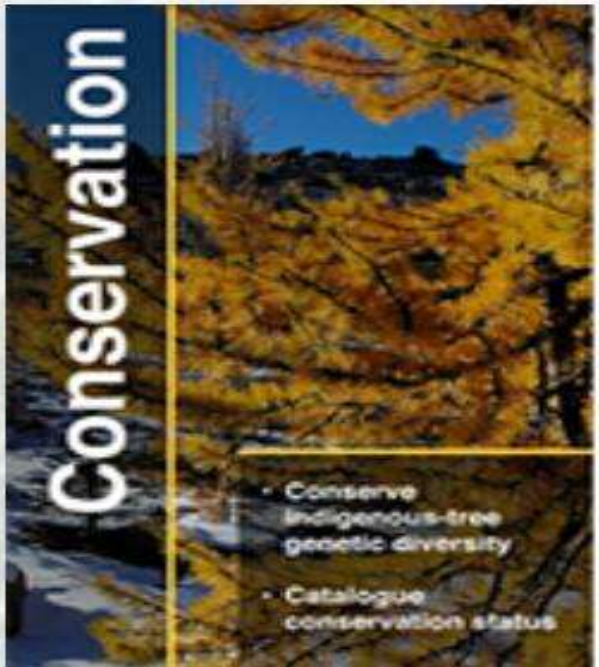
- FGC Committee: Annette, Juergen and Brian
- Key Audiences…
  - BC's Forest Genetics Community of Practice
  - Forest Professionals
  - Forestry and Natural Resource Students, and
  - General Public.
- Identifying priorities, strategies, partnerships, social media, materials and resources
- Caorda Web Solutions revamped FGC Website & preparing new FGC eNewsletter

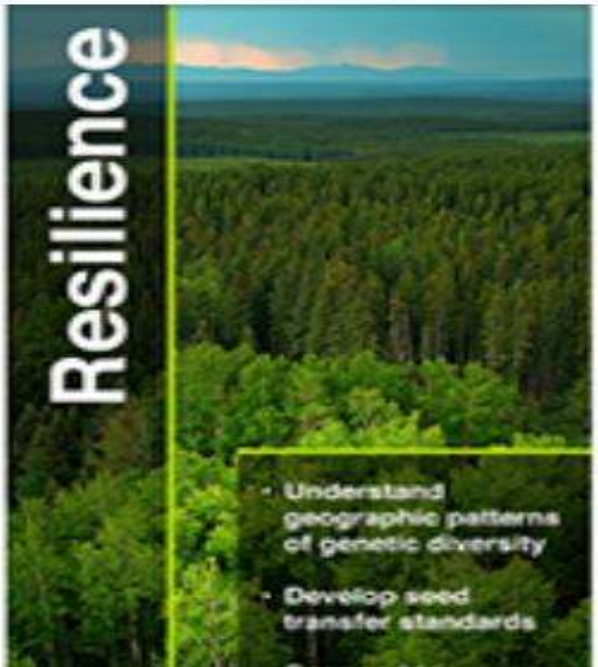
FGC Forest Genetics Council of British Columbia

Home | About FGC | Documents | Member Areas

Welcome to The Forest Genetics Council of

Enhancing the conservation, resilience and value of BC's Fo





FGC Website and eNewsletter

FGC Forest Genetics Council of British Columbia

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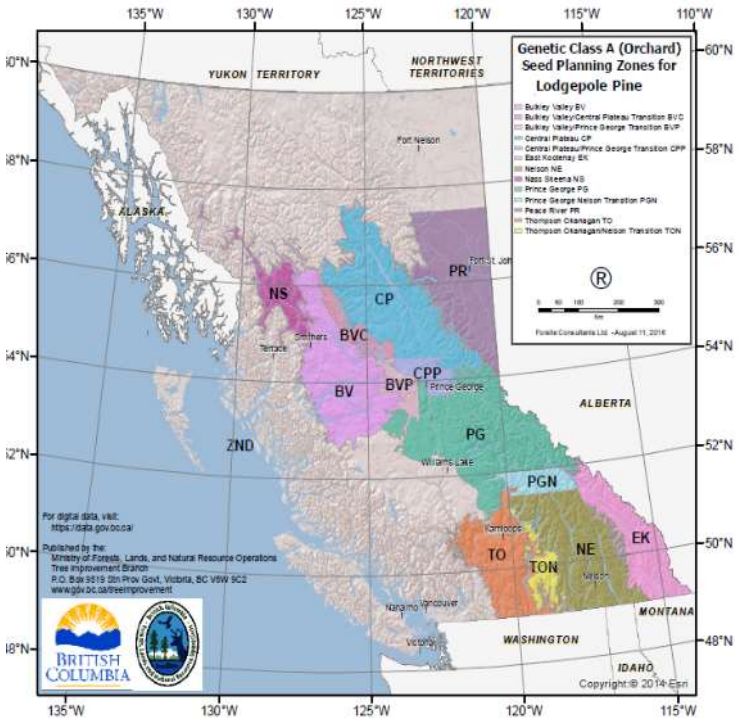
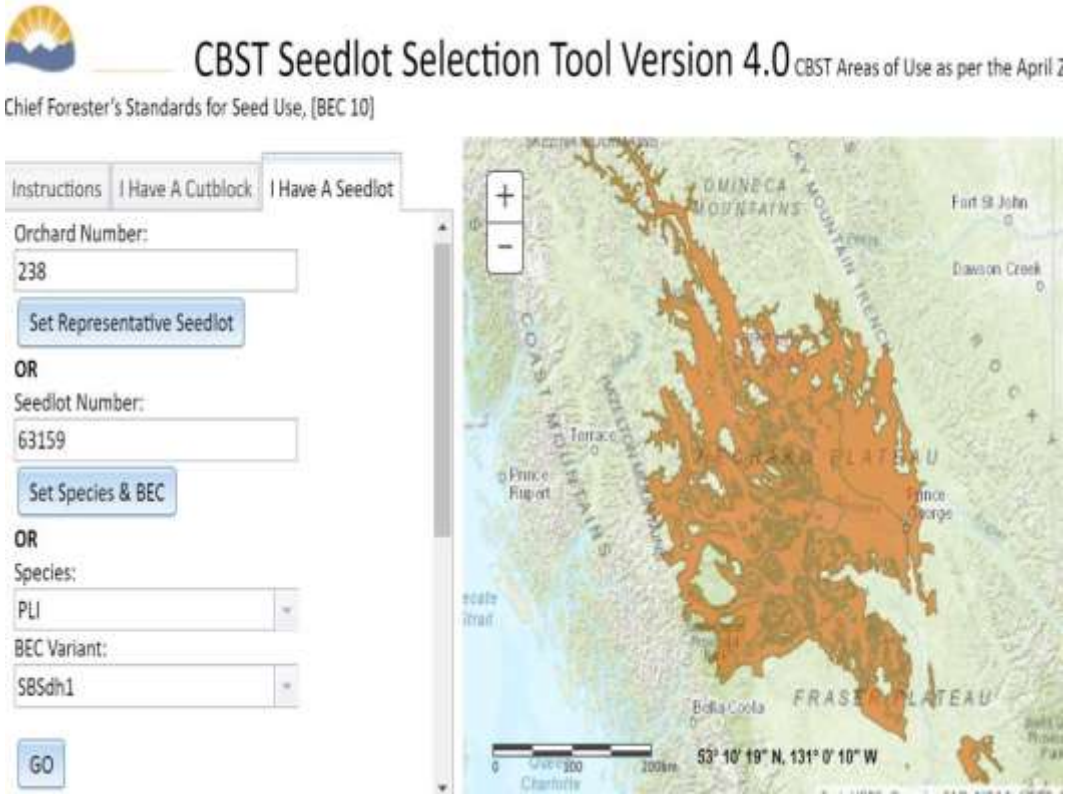
6. Forecasting Seedling Needs

Why New Forecasts Needed?





Why New Forecast Needed?

- Declining AACs
- Species Harvest Shifts
- Changes to stocking stds
- Increased Disturbances – wildfire and pests
- Government Programs (e.g. Feds 2B Trees)
- Past seed use no longer a good predictor of future.
- Orchards take ~10 years to produce seed.

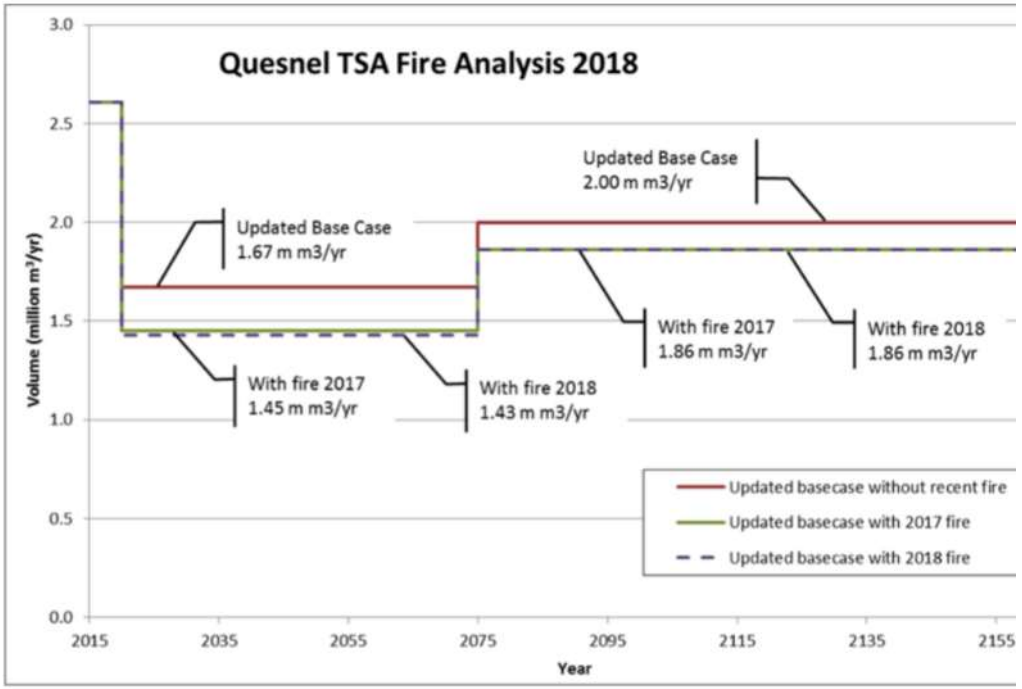


Figure 9. Updated timber supply projection for Quesnel TSA.

A New Forecast Method Needed

Project Objectives

- Estimate seedling needs to 2049 by...
  - Species
  - BEC variant
  - Management Unit
- Guide seed planning and investments
- Updatable - new information & sensitivity analysis

Project Plan and Website at: https://arcg.is/DH0PX

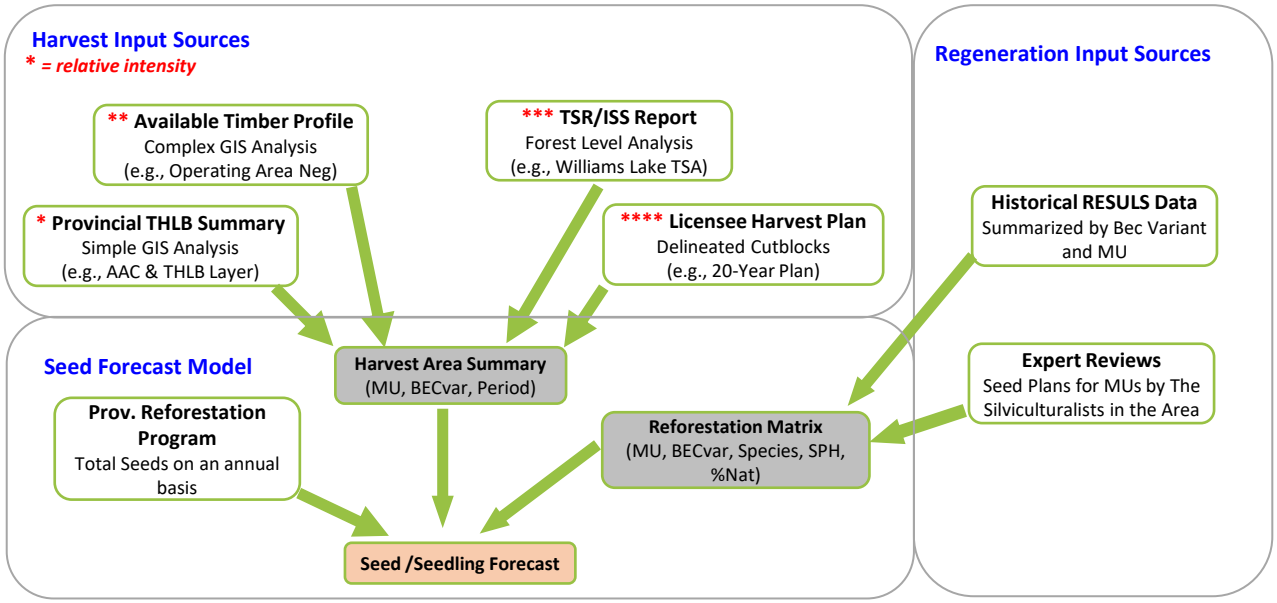
Project Sponsors and Team

Project Sponsors

- Jeff Mycock - Vernon Seed Orchard Co. (VSOC)
- Pat Martin - Forest Improvement and Research Management Branch –
- Mark Hay - BC Timber Sales
- Brian Barber - Select Seed Co. Ltd.

- **Project Team**
- Jeff Mycock, VSOC
- Kevin Astridge & Stephen Joyce, FIRM
- Kona Van Diest, BCTS
- Brian Barber, SelectSeed/FGC
- Pat Bryant & Kat Gunion, Forsite Consulting.

Overview - Approach



Methods

Reforestation Matrix

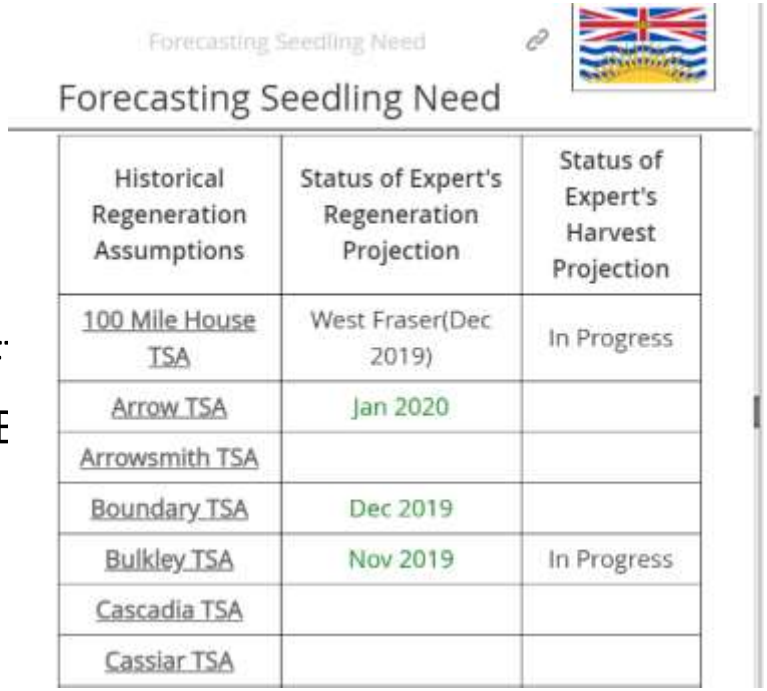
- Started with recent (3,5, & 10 year) performance by MU

Management Unit	MAP_LABEL	NAT	SPH	SPP_01	SPP_PERC_01	SPP_02	SPP_PERC_02	SPP_03	SPP_PERC_03	SPP_04
Kamloops TSA	MSdm2	0%	1,400	PLI	20%	SX	40%	FDI	30%	LW
Kamloops TSA	MSdm3	0%	1,400	PLI	20%	SX	40%	FDI	30%	LW
TFL23	ICHxw	0%	1,200	FDI	45%	PY	25%	LW	20%	PW
TFL35	MSdm3	0%	1,800	SX	40%	PLI	20%	FDI	30%	LW
TFL8	ESSFmh	0%	1,200	SX	50%	PLI	20%	LW	20%	FDI
100 Mile House TSA	ICHmk3	0%	1,400	SX	40%	PLI	10%	FDI	35%	CW
Kamloops TSA	ICHdw3	0%	1,400	FDI	35%	SX	40%	PLI	10%	CW
Prince George TSA	SBSdw3	1%	1,501	PLI	40%	SX	40%	FDI	10%	LW
TFL8	ICHmk1	0%	1,200	FDI	30%	LW	30%	SX	25%	PLI
100 Mile House TSA	ICHdk	0%	1,400	PLI	10%	SX	40%	FDI	35%	CW
100 Mile House TSA	ICHmw3	0%	1,400	PLI	10%	SX	40%	FDI	35%	CW
TFL23	ESSFdc1	0%	1,400	SX	60%	PLI	15%	BL	10%	FDI
TFL8	IDFdm1	5%	1,200	FDI	50%	LW	20%	PY	15%	PLI

Summary of Expert Input

- Expert Input Received from
  - Licensees (FLs and TFLs)
  - BCTS
  - District/TSA Working Groups
  - Government Programs (e.g. FF
  - Forest Analysis and Inventory E

Table of Status of Expert Input



Historical Regeneration Assumptions	Status of Expert's Regeneration Projection	Status of Expert's Harvest Projection
100 Mile House TSA	West Fraser(Dec 2019)	In Progress
Arrow TSA	Jan 2020	
Arrowsmith TSA		
Boundary TSA	Dec 2019	
Bulkley TSA	Nov 2019	In Progress
Cascadia TSA		
Cassiar TSA		

Observations

- Harvest flow is critical
- Overall numbers very sensitive to SPH and % Natural

- Does not include:
  - FES programs
  - Section 108

Preliminary Results – Forecasting Seed Need

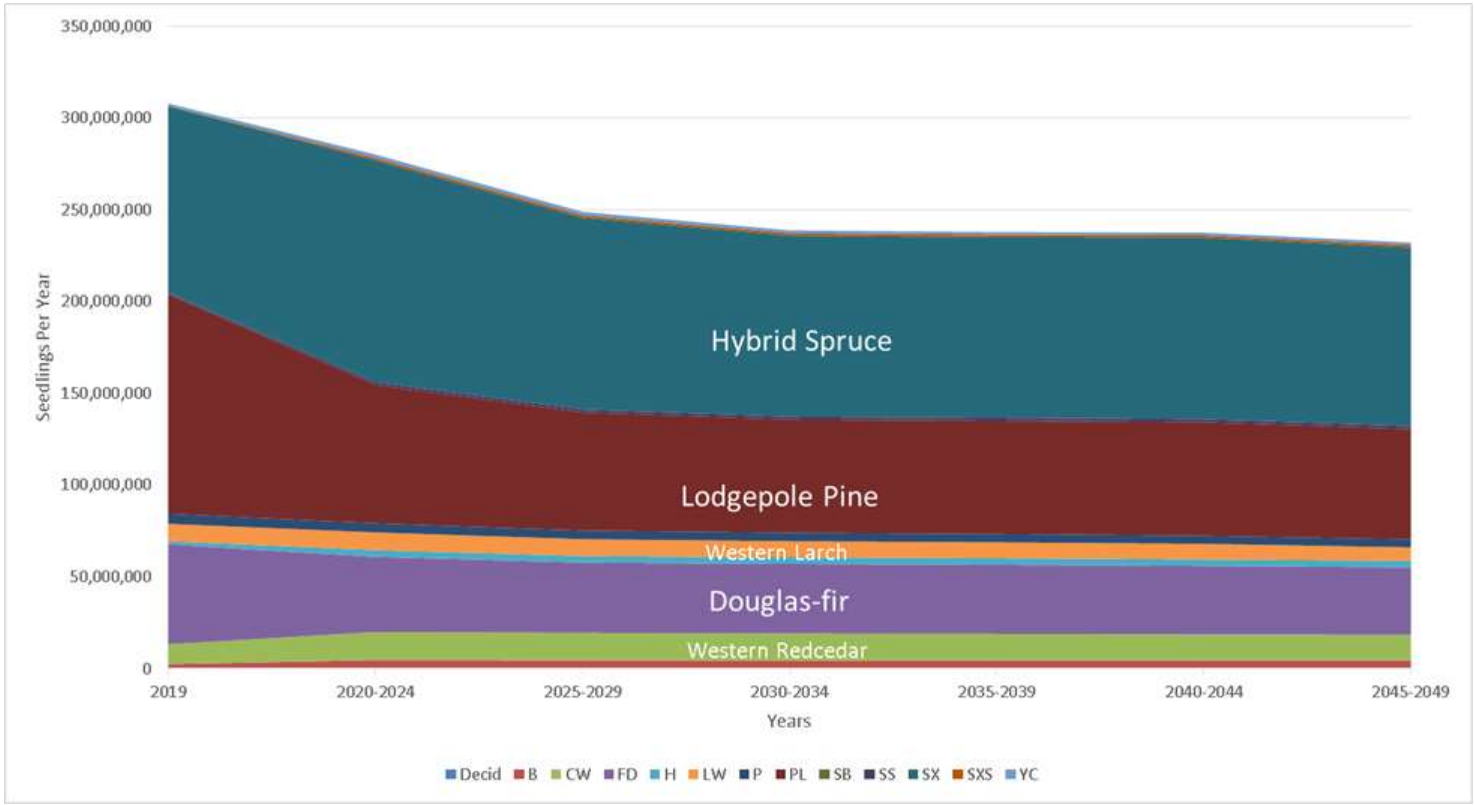
- Estimates by Species
- Filters by Management Unit
- Pli drops from 120M to 62M by 2030
- Estimates for each Pli breeding zone (BEC var)

Download xls file at

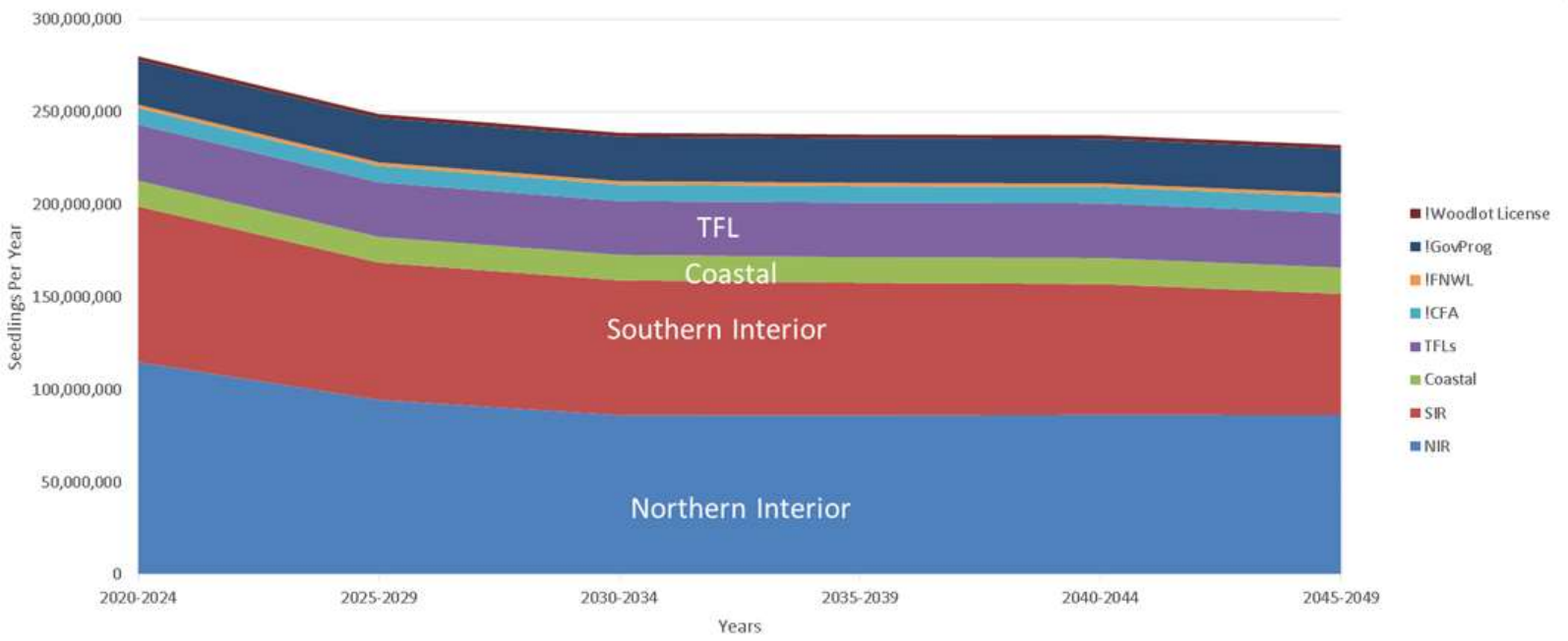
https://arcg.is/DH0PX

2019 Provincial Seedling Request	Annual Seedlings	2020-2024	2025-2029	2030-2024	2035-2039	2040-2044	2045-2049
117,700	AX	21,211	21,211	21,211	21,211	21,211	21,211
1,165,100	BA	2,099,941	2,097,057	1,986,054	1,977,827	1,986,202	1,984,065
39,700	BG	17,216	17,209	14,435	14,413	17,423	17,401
919,900	BL	2,228,424	2,059,577	2,040,528	2,025,387	2,019,005	2,013,115
112,400	BP	47,666	47,617	33,761	33,700	22,183	22,180
10,824,500	CW	15,336,781	15,032,992	14,750,117	14,620,625	14,341,931	14,206,789
78,600	DR	255,605	256,498	281,808	281,805	242,898	242,906
3,500	EP	3,339	3,339	3,339	3,339	3,339	3,339
13,463,400	FDC	10,001,079	9,994,552	10,126,851	10,120,508	10,135,284	10,188,668
41,023,800	FDI	30,919,104	28,235,014	27,865,628	27,494,978	27,166,150	26,550,716
69,300	HM	344,690	344,172	319,071	318,668	320,787	321,160
1,676,700	HW	3,370,998	3,368,618	3,301,762	3,297,604	3,258,662	3,256,169
9,430,600	LW	9,642,136	9,071,736	8,750,011	8,653,554	8,515,479	7,300,446
0	PA	15,915	15,909	15,905	15,905	15,905	15,905
29,300	PLC	52,763	53,414	54,399	54,399	53,873	53,873
119,681,200	PLI	75,328,657	64,412,066	61,567,322	61,615,858	61,875,085	60,087,936
2,082,500	PW	2,508,954	2,357,708	2,321,805	2,291,020	2,160,475	2,153,633
3,386,700	PY	2,409,447	2,335,299	2,291,086	2,257,289	2,245,762	2,139,030
12,000	SB	12,473	9,184	7,397	7,397	7,397	7,397
709,700	SS	1,540,776	1,530,866	1,554,966	1,552,283	1,604,310	1,603,088
101,744,900	SX	120,883,898	104,578,595	98,752,317	98,491,406	98,895,139	97,326,543
176,700	SXS	1,263,459	1,261,161	1,260,178	1,259,954	1,259,153	1,258,953
1,336,200	YC	1,937,568	1,909,660	1,577,508	1,568,796	1,481,417	1,496,660
308,084,400	**Total**	**280,242,100**	**249,013,454**	**238,897,458**	**237,977,925**	**237,649,071**	**232,271,185**

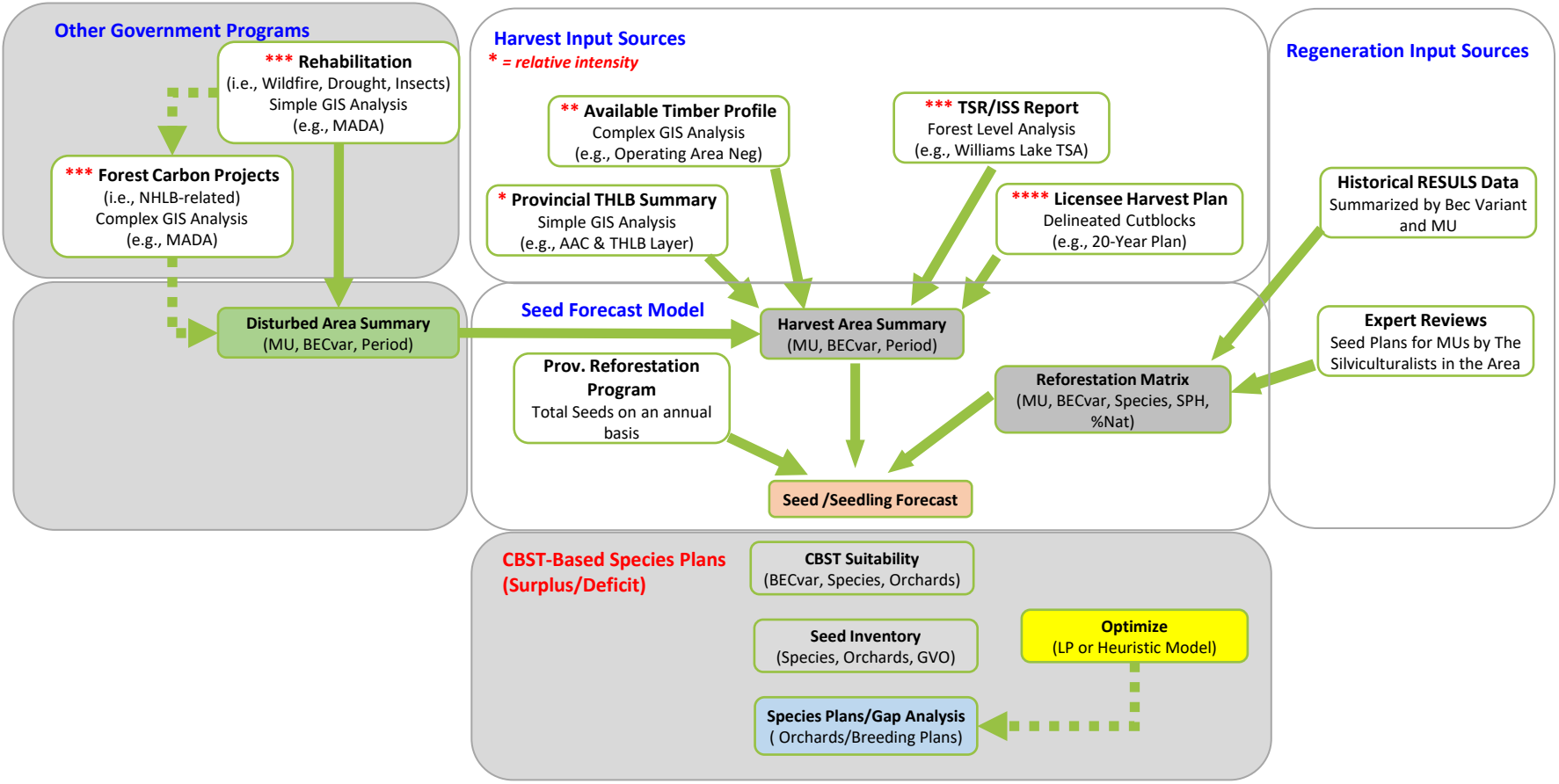
Seedling Forecasts by Species



Seedling Forecasts by Management Units



Future Directions



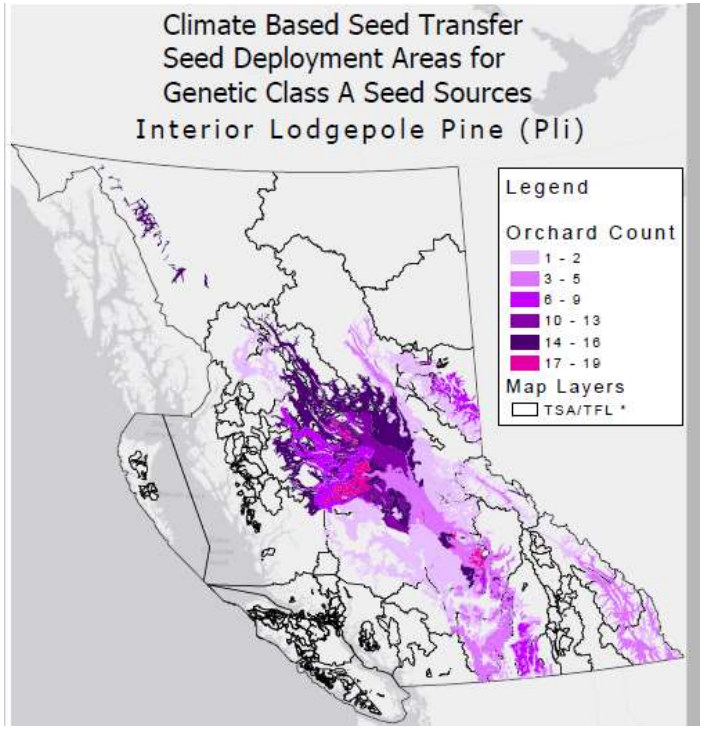
Next Steps & Applications

Apply to:

- # orchard ramets required for CBST zones
- FGC Species Plans
- Tree Improvement Investment Priorities

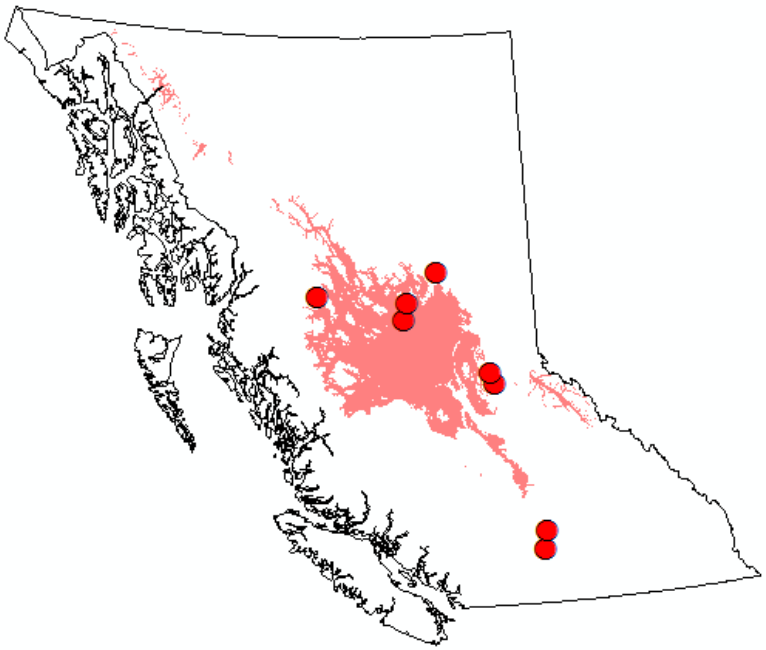
Coastal Reps for CBST species plans committee ?

Lodgepole Pine (Pli) Seed Orchards



- 24 Pli Seed Orchards in BC
- 19 orchards producing for Central under CBST.
- Most located in S. Interior - low seed production
- Only 28% of 120M sowing requests (2019) from Orchard (Class A) seed.
- New seed orchards required located further north.

New CSBT 'Bulkley Valley' Pli Breeding Zone for 2nd generation seed orchards



Target No. Orchard Ramet		15,000
High-gain crosses	24%	
Backward selections	10%	
First gen selections	24%	
Second gen selections	40%	
Avg. Volume Gain (GVO)		21%
Avg. Gall Rust Resistance (DSG)		67%
Effective Population Size (Ne)	34	

Source: 2020, Nick Ukrainetz, Pli Tree Breeder

Other Proposed CBST-based Pli Breeding Zones

Central Plateau High

Big Bar Thompson

Nelson

Source: 2019, Nick Ukrainetz

Pli Seed Orchard Replacement Strategy

1. Ministry to select parents, collection scion and graft 15,000 ramets over 3 years (2019-2021).
2. 5,000-ramets provided to **Ministry** (Prince George), **VSOC** (Quesnel) and **SelectSeed** (Quesnel), respectively.
3. First ramets provided and planted in 2020.
4. Maintain 1st gen orchards until supply increases and/or demand decreases.
5. Monitor and update seed demand forecasts
6. Remove 1st gen orchards as supply increases – lowest genetic gain orchards first
7. Selections for other Pli zones and Comandra blister rust resistance.

VSOC Quesnel

SelectSeed's New Property – South of Quesnel

In the interim…..

- Ministry, Licensees, and others to identify CBST seed supply and gaps.
- Direct orchard seed to best sites.
- Use wild (Class B) seed where seed orchard seed not available.

Cone Collection Workshops
June - July 2020?

Questions?

Website: https://arcg.is/DH0PX

FORSITE
Forest Management Specialists

Kat Gunion MSc, RPF

Forest Analyst
Salmon Arm, BC

tel 250-832-3366 ext 201
kgunion@forsite.ca

SelectSeed

Brian Barber BSF, MA , RPF

CEO,
Select Seed

tel 250-888-7081
brianbarber@selectseed.ca