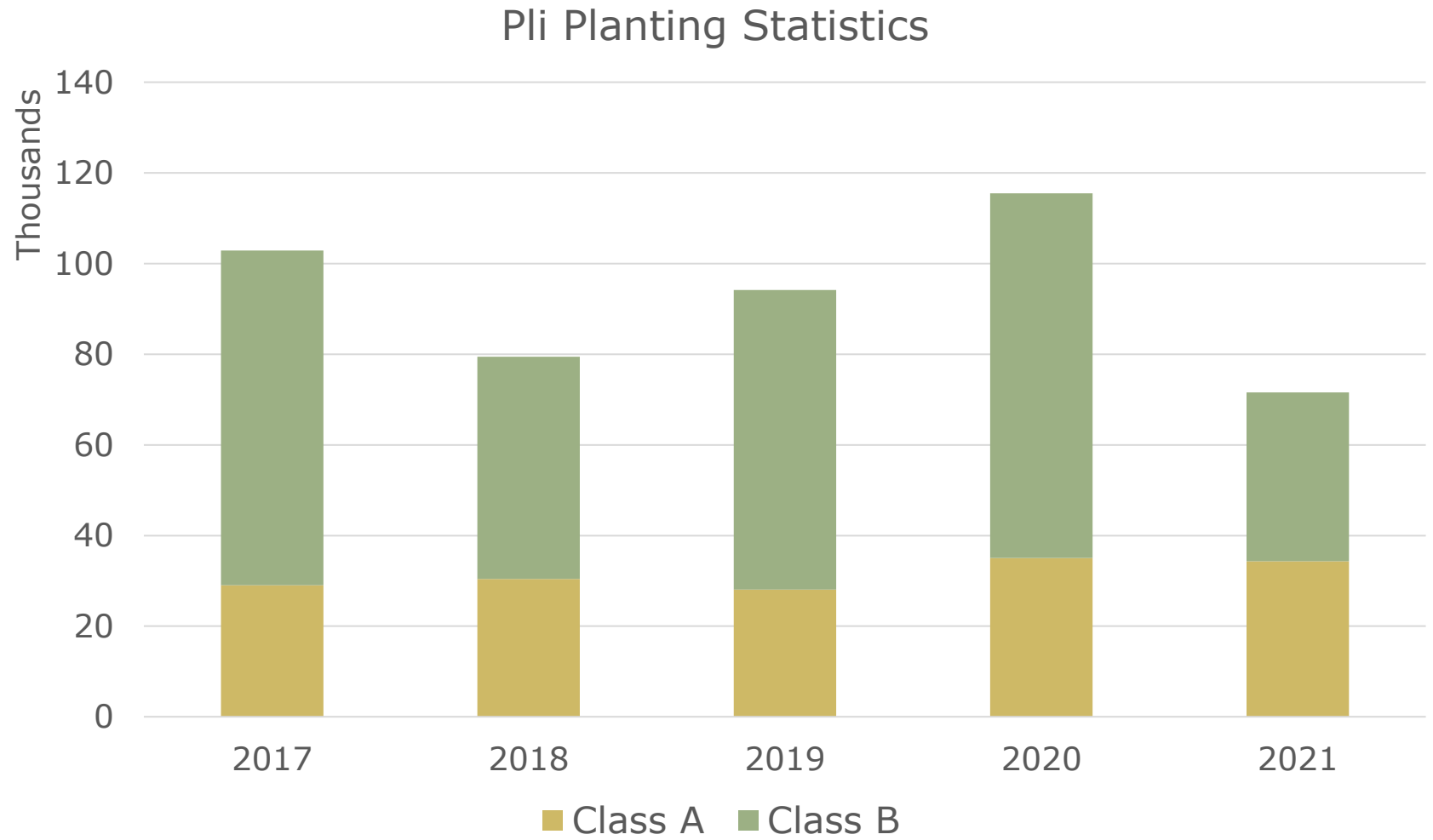


Lodgepole Pine Breeding Program

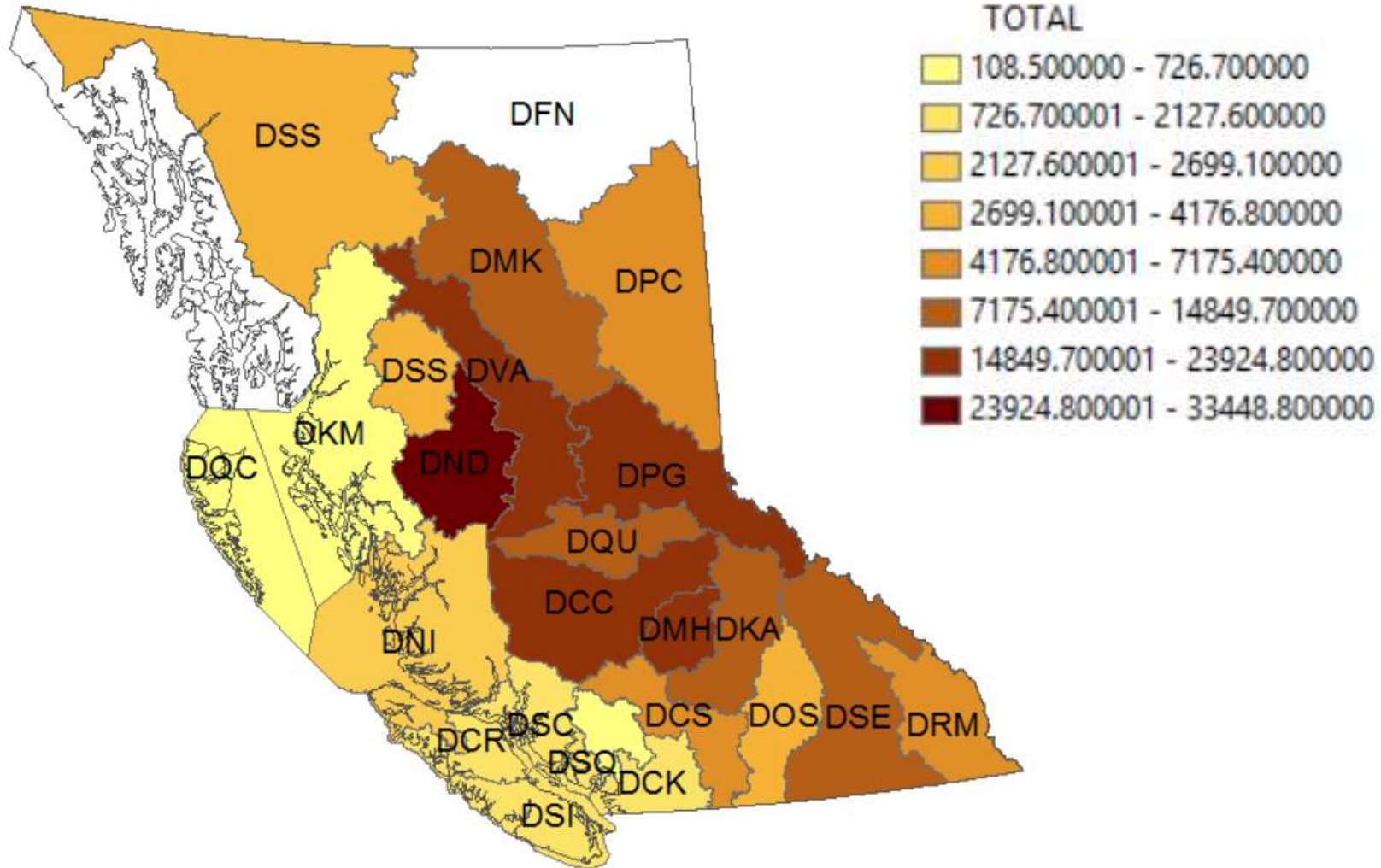


Ministry of
Forests, Lands and
Natural Resource Operations

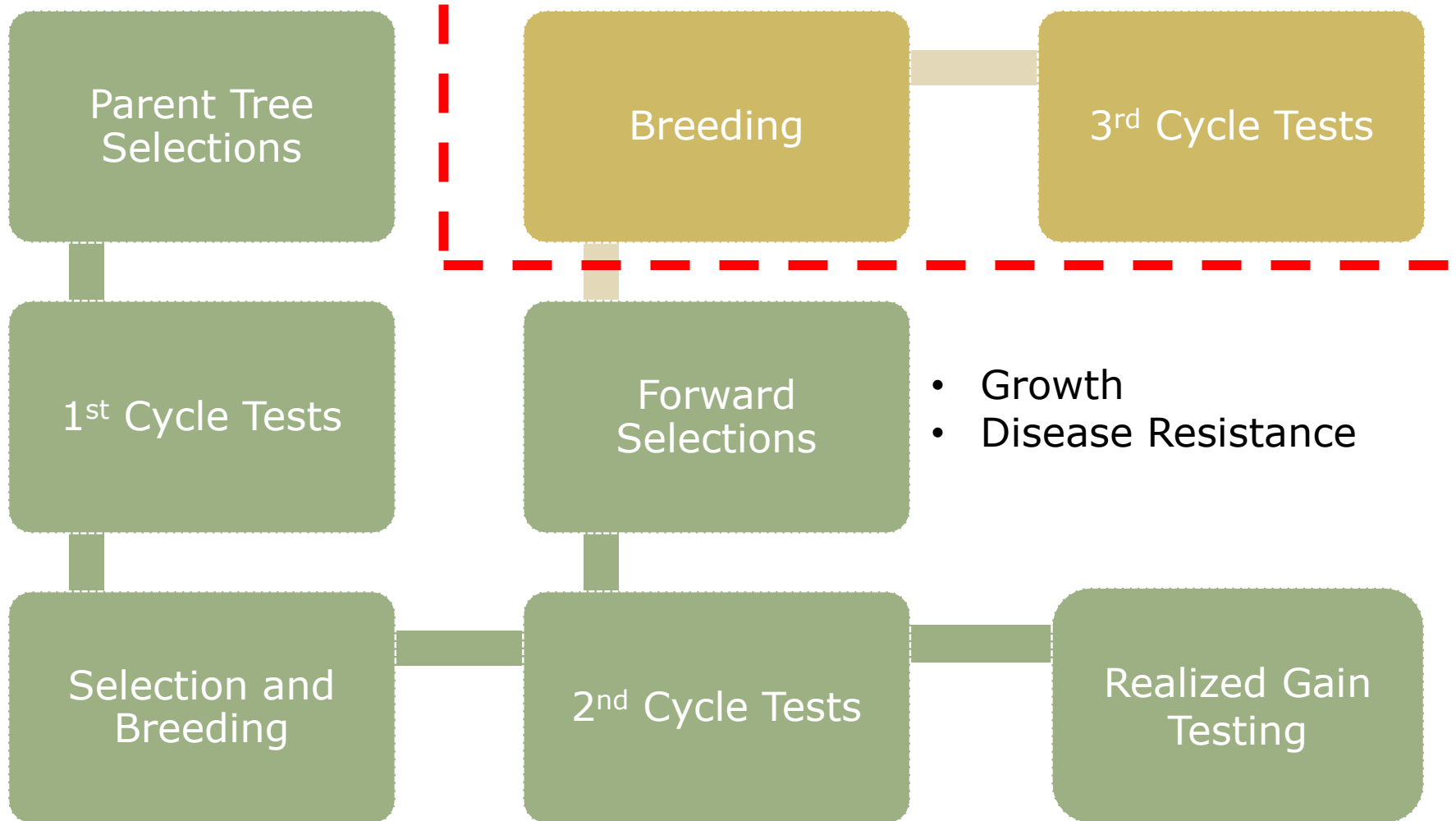
Pli Planting Statistics



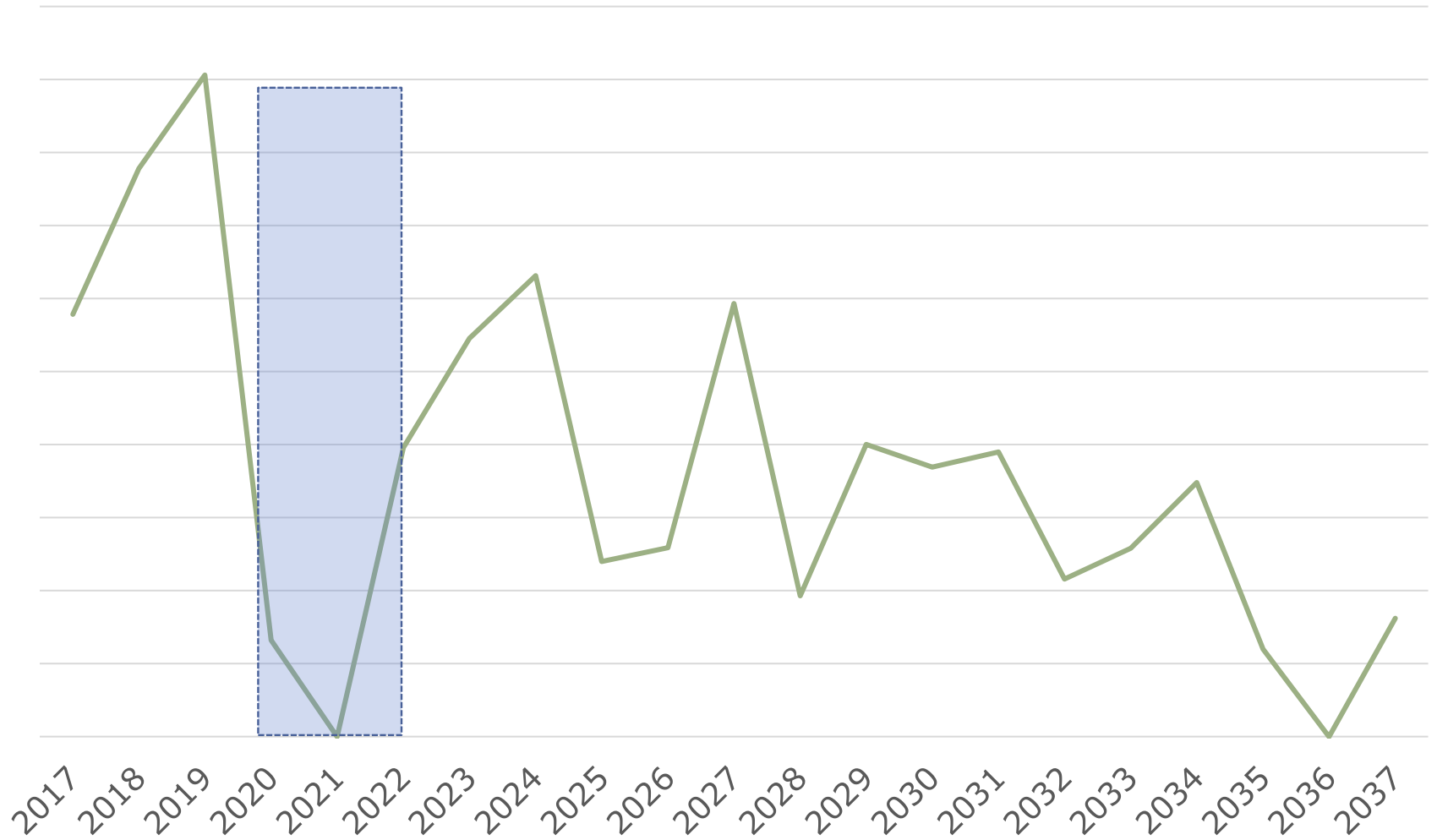
Pli Planting Statistics - 2021



Pli Program Overview



Pli Cost Trends 2017 to 2037



Year in Review

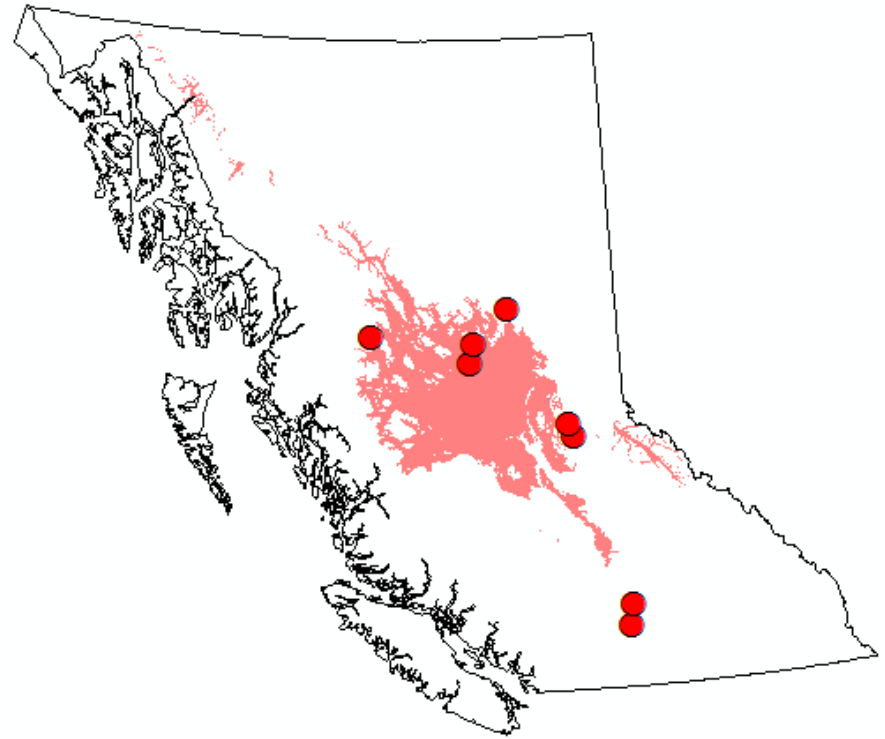
2021-2022:

1. Orchard Expansion Projects
2. Forward Selections
3. Breeding

NBV Orchard Expansion

Targets:

- $N_e = 40$
- GVO = 20%
- DSG = 70



	Proportion of Orchard	Ramets per Orchard
High-gain crosses	20%	1000
Backward selections	10%	500
First gen selections	20%	1000
Second gen selections	50%	2500
Total	100%	5000

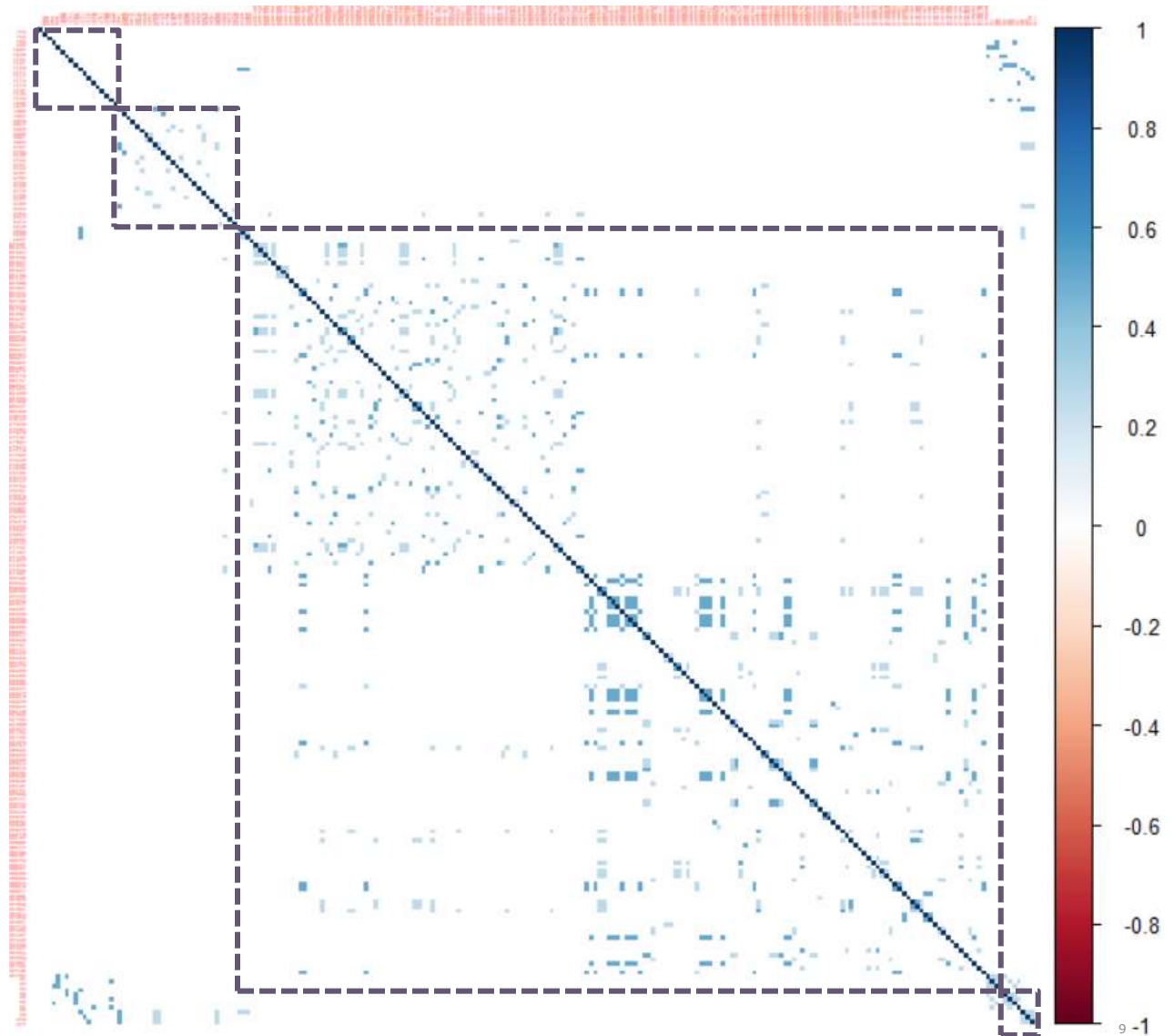
NBV Orchard Expansion

Backward Sels (20)

OP Forward Sels (28)

F1 Forward Sels (167)

Seedling Fams (11)



NBV Orchard Expansion

	Target	Actual	Total
High-gain crosses	20%	24%	11
Backward selections	10%	10%	20
First gen selections	20%	24%	28
Second gen selections	50%	40%	167
Total	100%	100%	
Ne	40	34	
GVO	20	21	
DSG	70		

NBV Orchard Expansion

- **Acknowledgements:**

- Jarrett Columbus – genetics tech
- Tiffany Farwick and Kyle Maddocks – growing support

- Grafting and Support Work:

- Petra Nielson
- Sarina Meggait
- Heidi Holtmann
- Lindsay Bellingham
- Mikayla Stirling
- Faye Klassen
- Nancy Vanderlaan
- Mark Griffin

Forward Selections

Thompson-Okanagan Forward Selections

- Select ~ 70 trees
- $N_e \sim 35$
- Review selections in 2022 and increase N_e
- Collect scions winter 2022
- Thanks to Marie Vance for taking the lead



Forward Selections



Breeding

Breeding:

- Cone collections for comandra screening
- Breeding for disease resistance
 - Gall rust
 - Comandra
 - dothistroma



Plans for 2022-2023

Plans for Next Year (2022-2023)

- Measure Seed Orchard Realized Gain Trials
- Forward Selections
 - Thompson-Okanagan
 - Central Plateau
- 3rd Cycle Breeding
- Comandra Resistance Trials
- Comandra Resistance Orchards

SORGG Trials

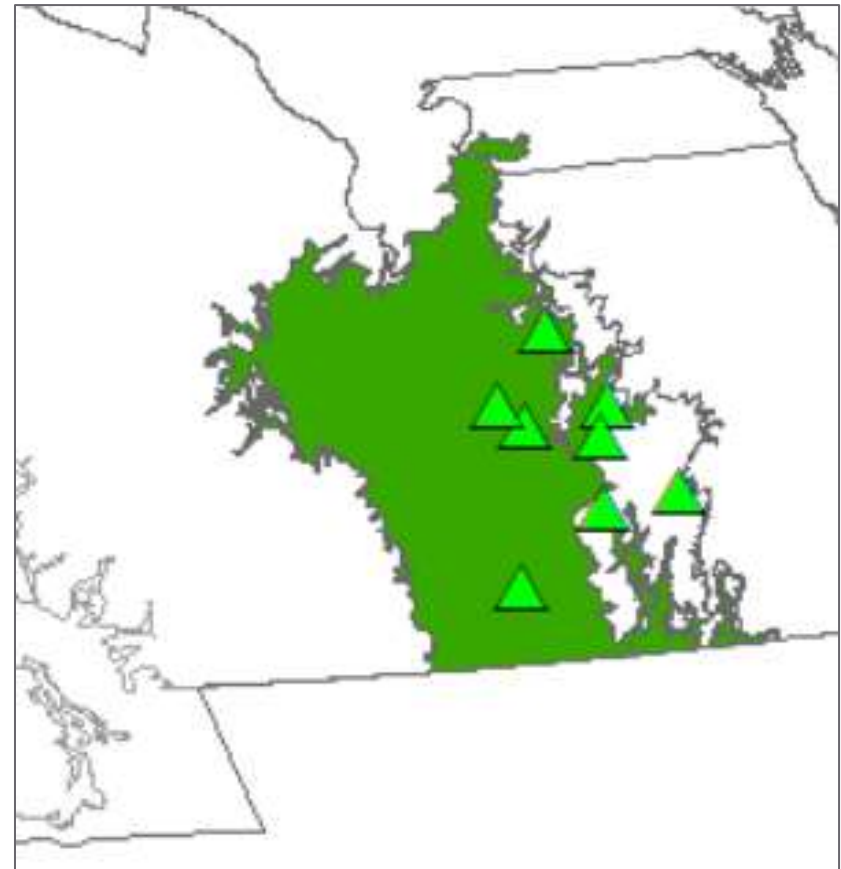
- Seed Orchard Realized Genetic Gain Trials (SORGG)

- Planted in 2003 on 8 sites in the south

- 5 orchard seedlots from 2 seed zones

- 10 superior provenances seedlots

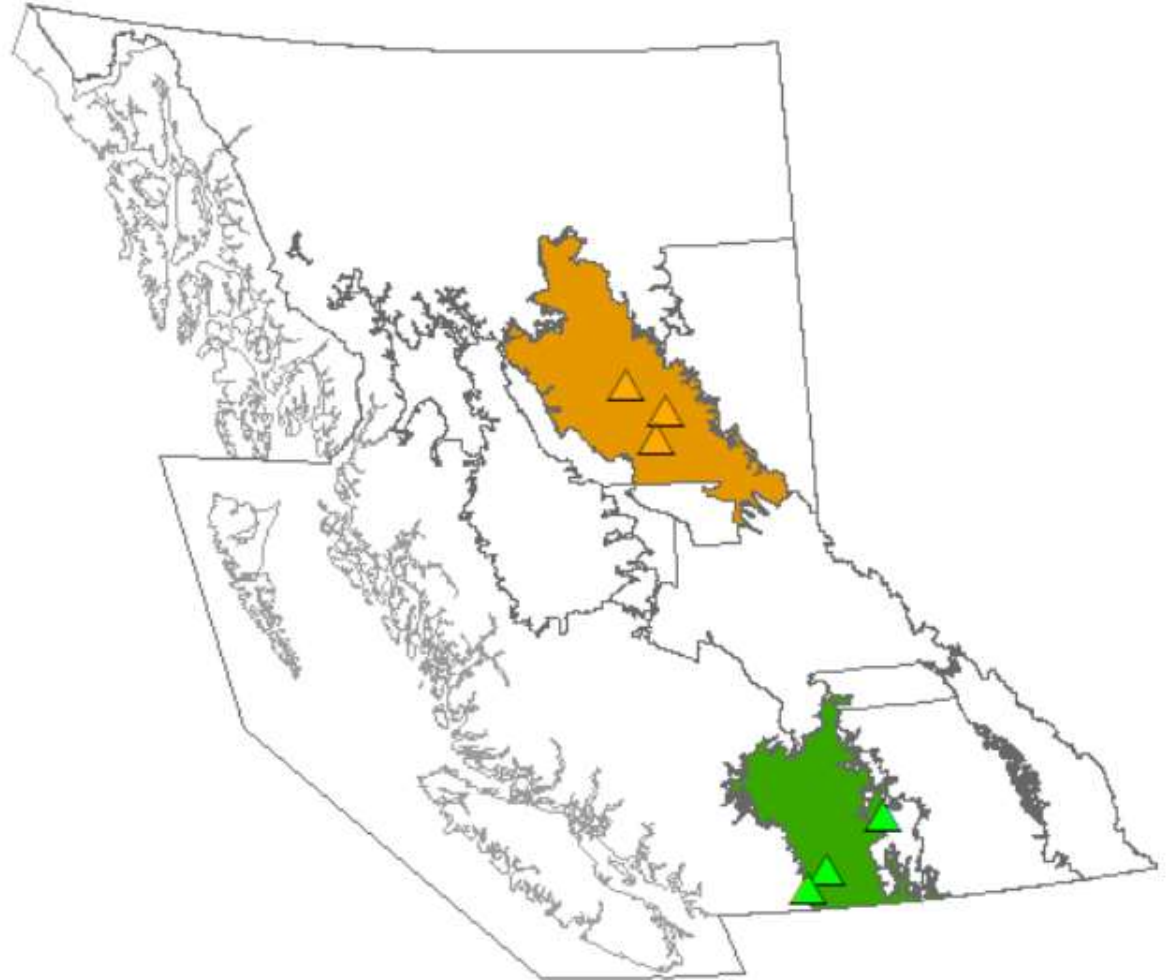
- 7 wild stand controls



Forward Selections

Forward Selections

- Thompson-Okanagan
- Central Plateau

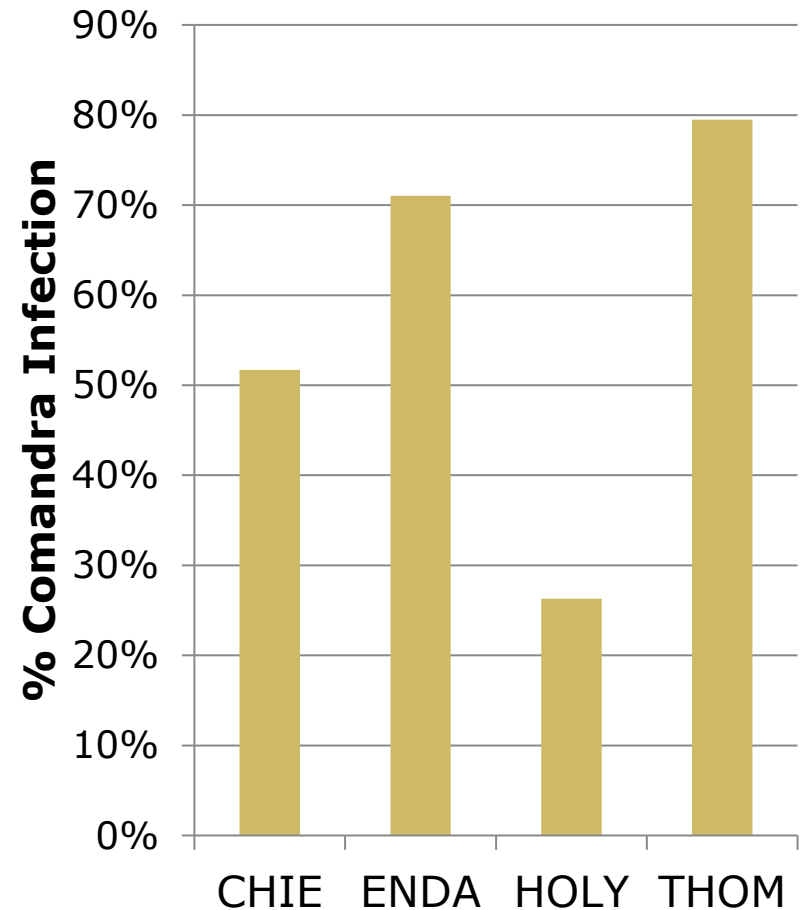


Comandra Resistance Trials

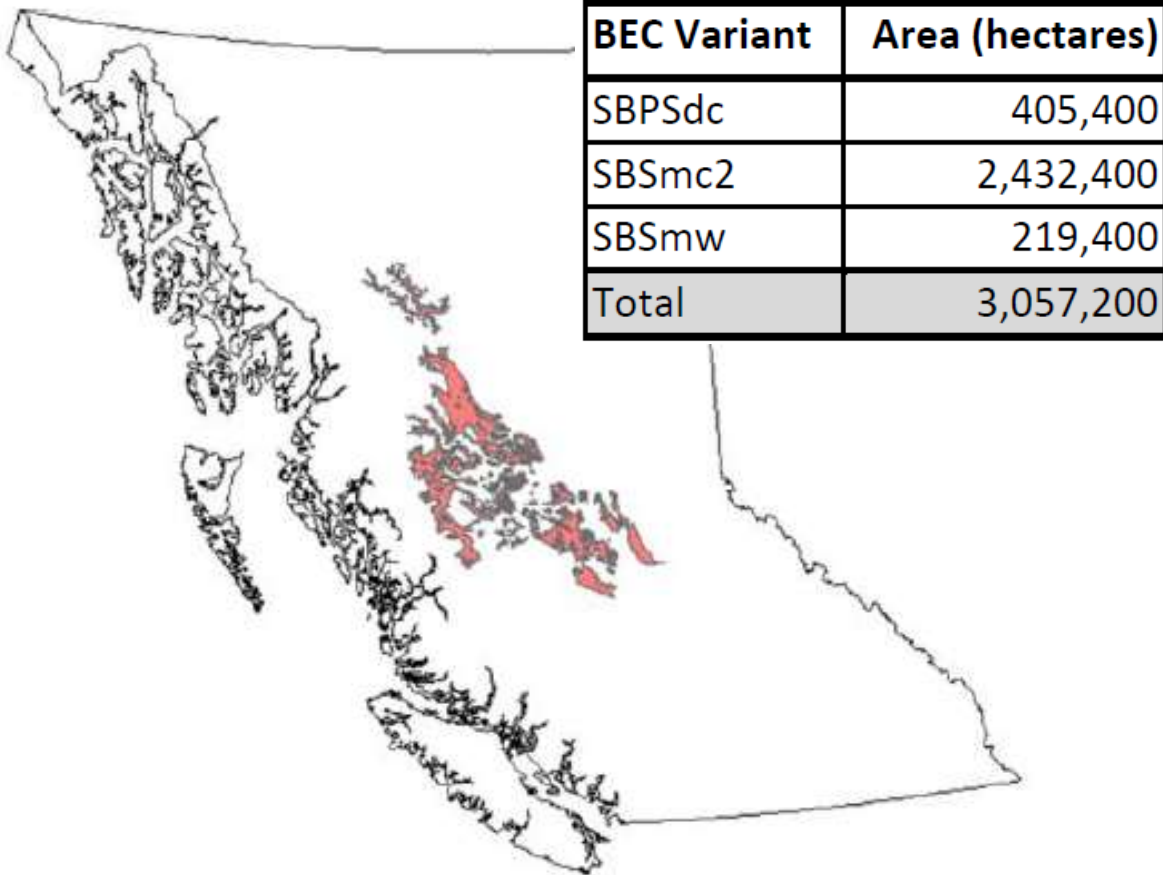
Comandra Resistance Screening

	CHIE	ENDA	HOLY	THOM	S1	S2
CHIE	92	28	29	29	16	19
ENDA	28	67	67	67	15	12
HOLY	29	67	69	69	15	13
THOM	29	67	69	72	15	13
S1	16	15	15	15	149	27
S2	19	12	13	13	27	98

- 349 Next Gen Parents
 - 115 with comandra data
 - 234 with no comandra data



Comandra Resistance Seed Orchards



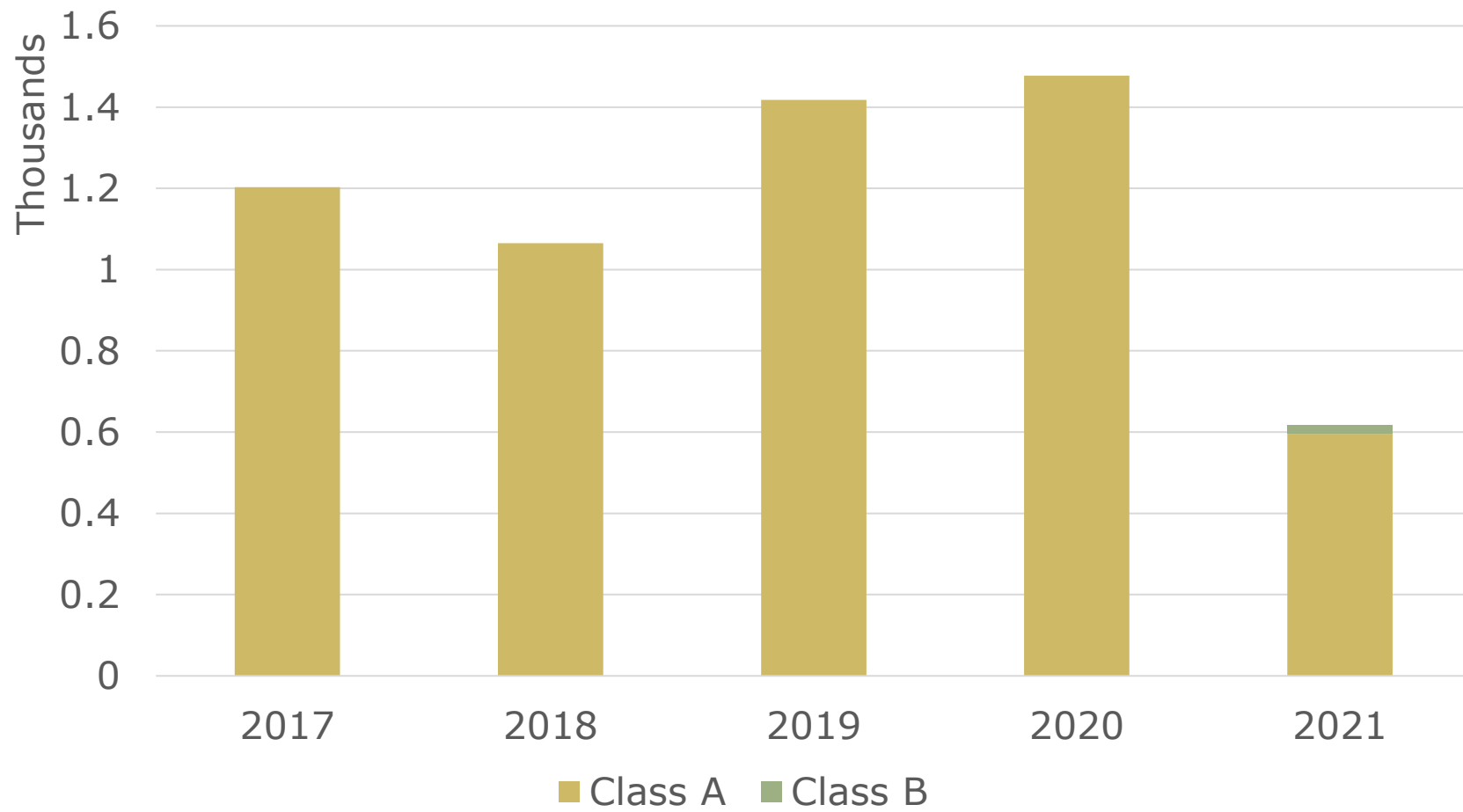
- 3,600 ramets total
- 30 clones
- GVO = 13
- DSC = 71
- Ne = 23

Western White Pine



Planting Stats

Interior White Pine Planting Stats

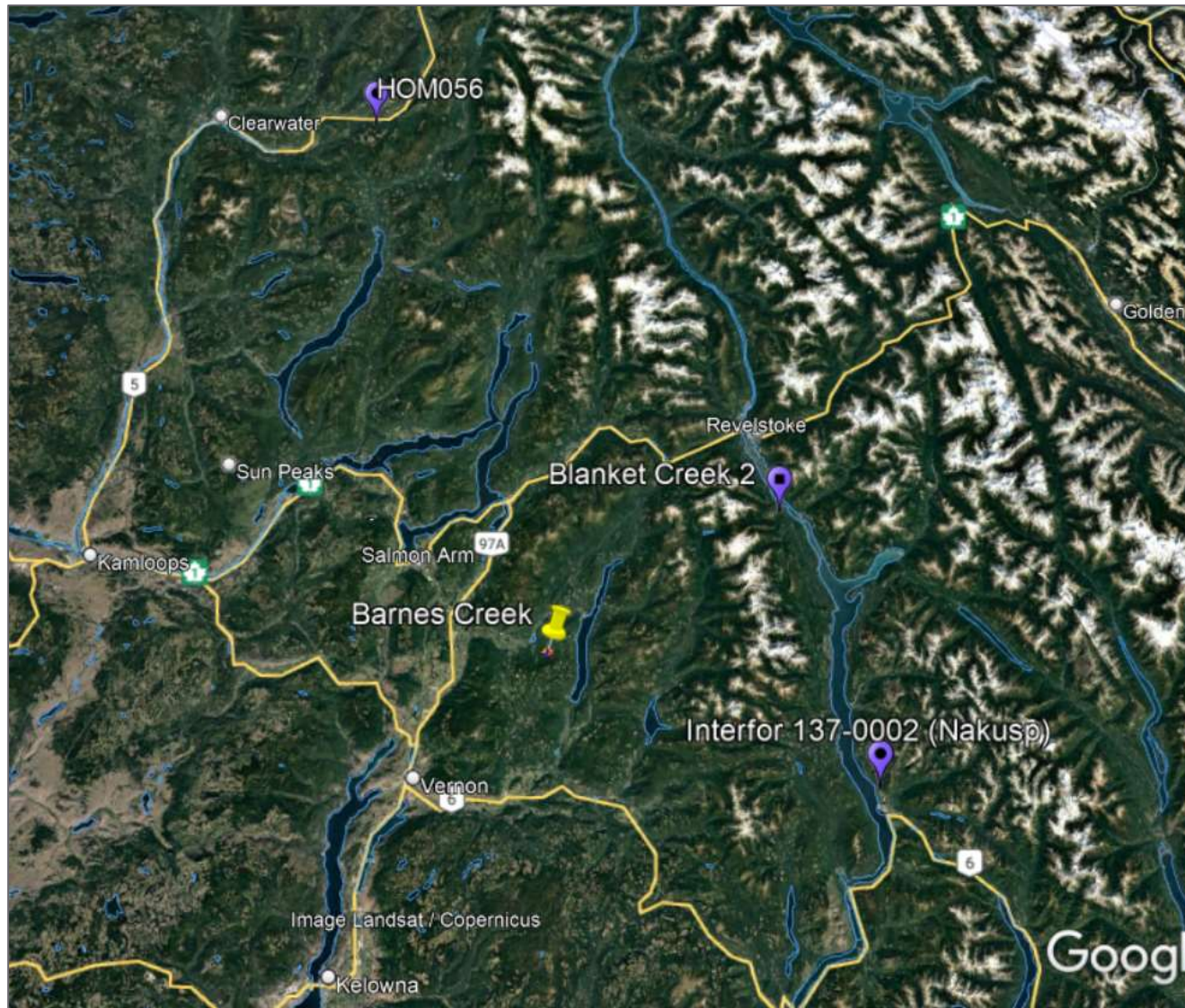


Year in Review 2021-2022

2021-2022 Work

- Routine maintenance and measurements
 - Cleary progeny tests
 - Seed orchard realized gain trials
 - Series 5 coastal-interior progeny tests
- Series 1 interior progeny tests
 - Find cutblocks for field trials
 - Lift seedlings

Series 1 Progeny Tests



Series 1 Progeny Tests



Planned Work for 2022-2023

Planned Work 2022-2023

- Series 1 Progeny Tests
 - Plant 3 sites
- Series 2 Progeny Tests
 - Find 3 sites
 - Seedling lift
- Clone Bank Maintenance
 - Establish new clone bank at Barnes Creek



Progeny Testing Plan

Coast

Interior

	2001	2004	2005	2006	2015	Series 1	Series 2	Series 3	MGR	WS1	WS2
2001	73	16	15	21	12	8	8	1	0	1	0
2004	16	52	36	43	33	15	14	3	2	0	0
2005	15	36	52	44	30	12	12	1	0	0	0
2006	21	43	44	61	34	19	19	3	2	0	0
2015	12	33	30	34	69	30	30	5	4	3	3
Series 1	8	15	12	19	30	88	73	24	15	15	15
Series 2	8	14	12	19	30	73	94	24	23	20	20
Series 3	1	3	1	3	5	24	24	62	5	10	10
MGR	0	2	0	2	4	15	23	5	28	13	13
WS1	1	0	0	0	3	15	20	10	13	150	24
WS2	0	0	0	0	3	15	20	10	13	24	151

2022

2023

2025

Progeny Testing Plan

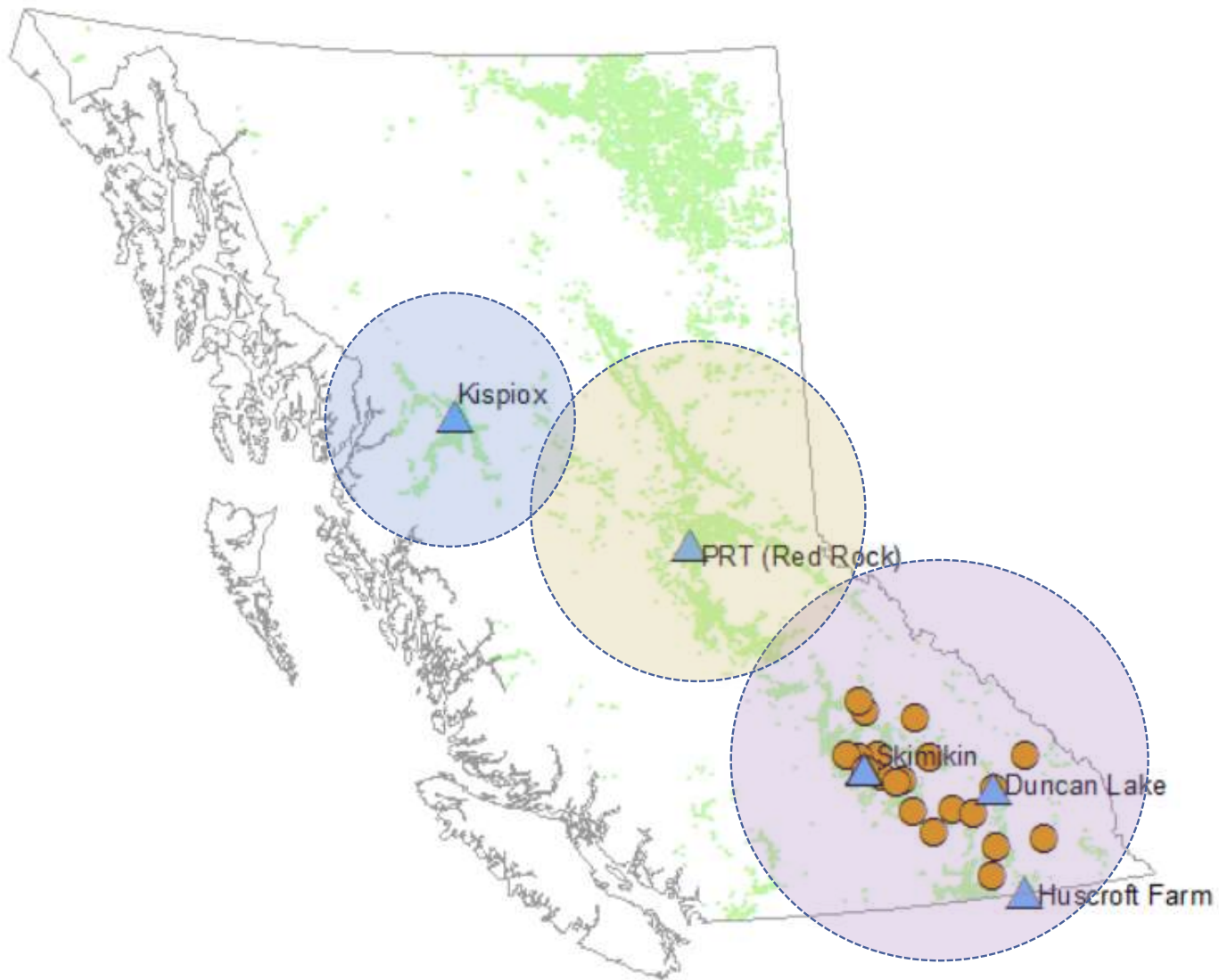
- 511 parents tested across coast and interior
 - 149 on coast
 - 435 in the interior



Paper Birch



Program Overview



Planned Work

Plans for 2022-2023

- Graft selections from Skimikin plantation

