

# Year in Review



# Year in Review

- Parental leave
  - March to October
  - New guy: Michael Ukrainetz
- Special thanks...
  - Penny May for keeping the Pli and Pw programs going
  - Trevor Doerksen for taking Team Lead
  - All other staff and contractors for their hard work!



# Year in Review

## Forest Genetics 2023 Conference

- Hosted by CFGA and WFGA
- Located in Vernon
- Over 100 participants
- Banquet hosted by VSOC
- Kal Genetics staff hosted post conference tour





# Year in Review





# Year in Review



# Lodgepole Pine



Nicholas Ukrainetz  
And  
Penny May

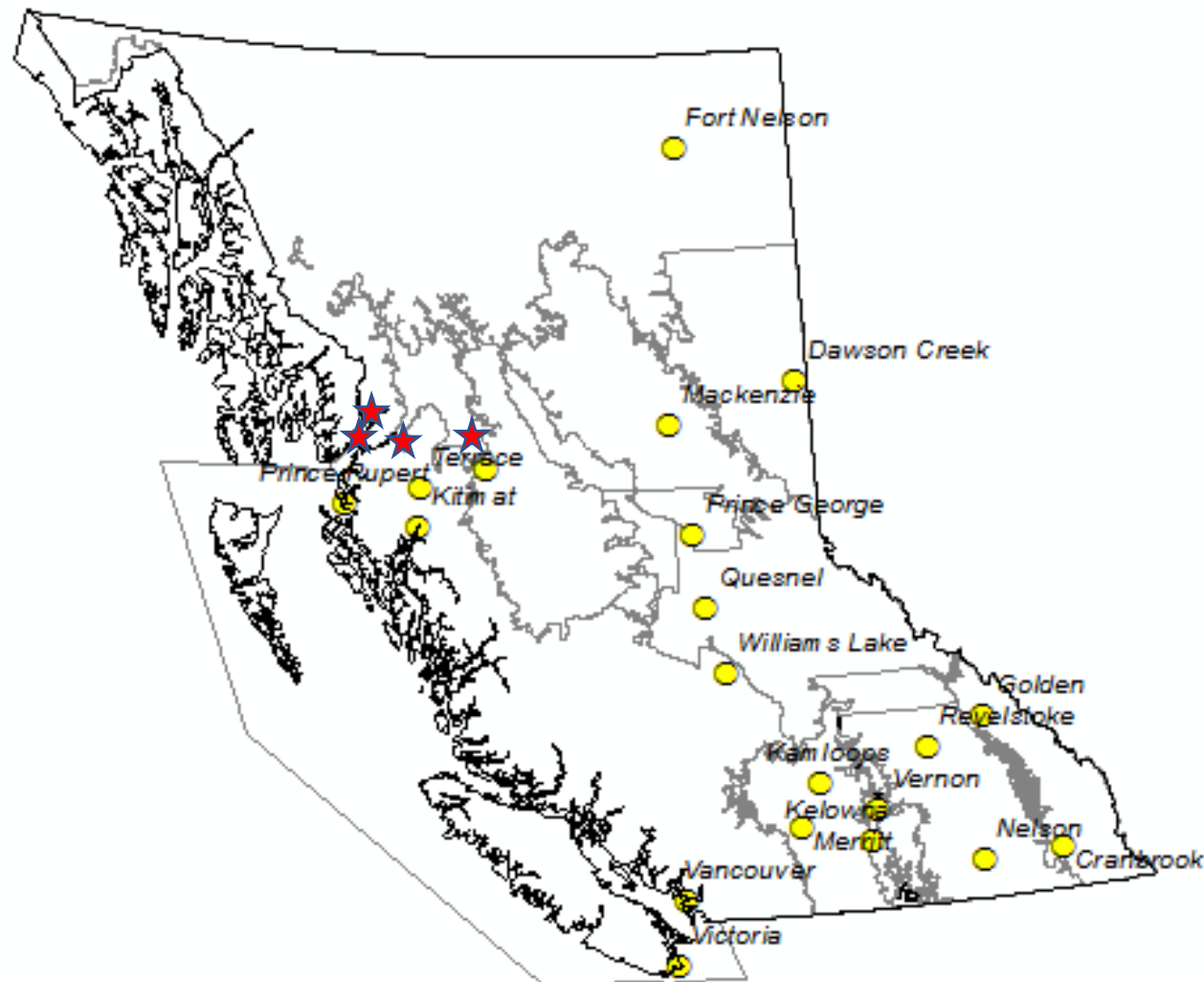


# Comandra Resistance Orchard



# Comandra Resistance Orchard

- Four sites
- 135 parent trees
- 28,000 trees
- Acknowledgment:
  - Data collection by Richard Reich and his students

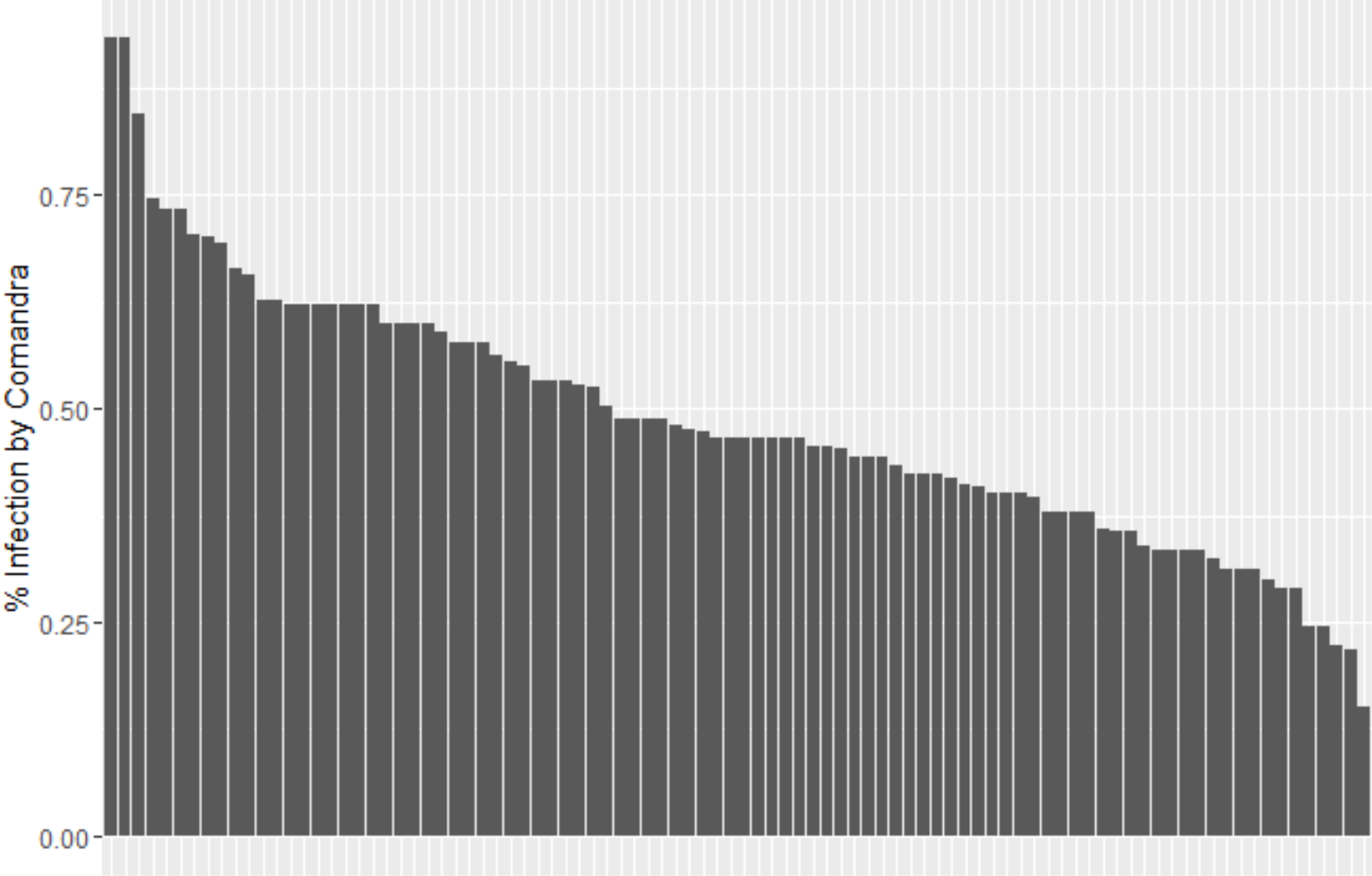




# Comandra Resistance Orchard



Comandra Infection at Chief Lake by Parent



# Comandra Resistance Orchard



- Q1: Is susceptibility or resistance heritable?
  - YES: heritability is 0.26
- Q2: Is susceptibility and resistance consistent across sites?
  - YES: Type B genetic correlation = 0.81
- Q3: What is the relationship with growth?
  - No strong relationship
- Q4: How much resistance?
  - Top 40 families: GWr = 71
  - Top 20 families: GWr = 79

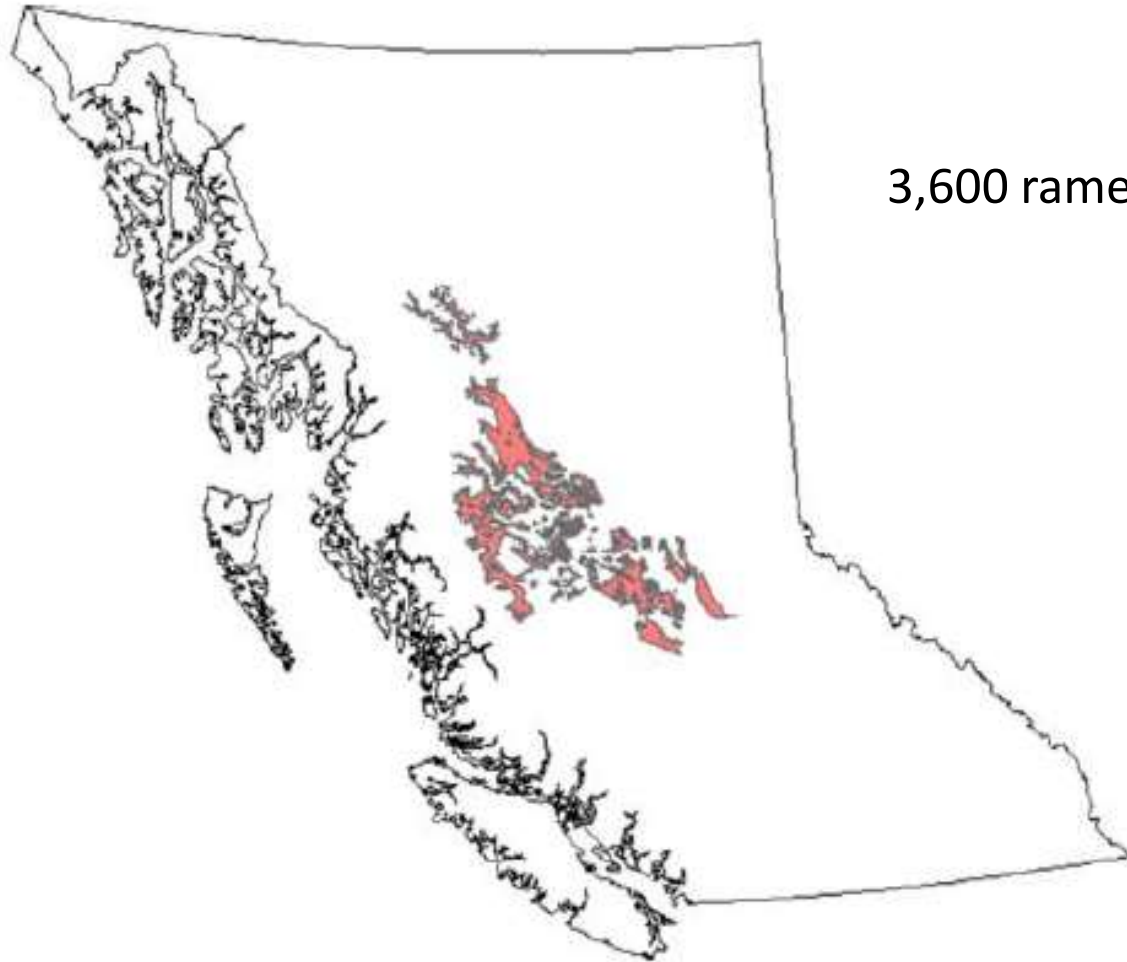




# Comandra Resistance Seed Orchards



BEC Variant	Area (hectares)
SBPSdc	405,400
SBSmc2	2,432,400
SBSmw	219,400
Total	3,057,200

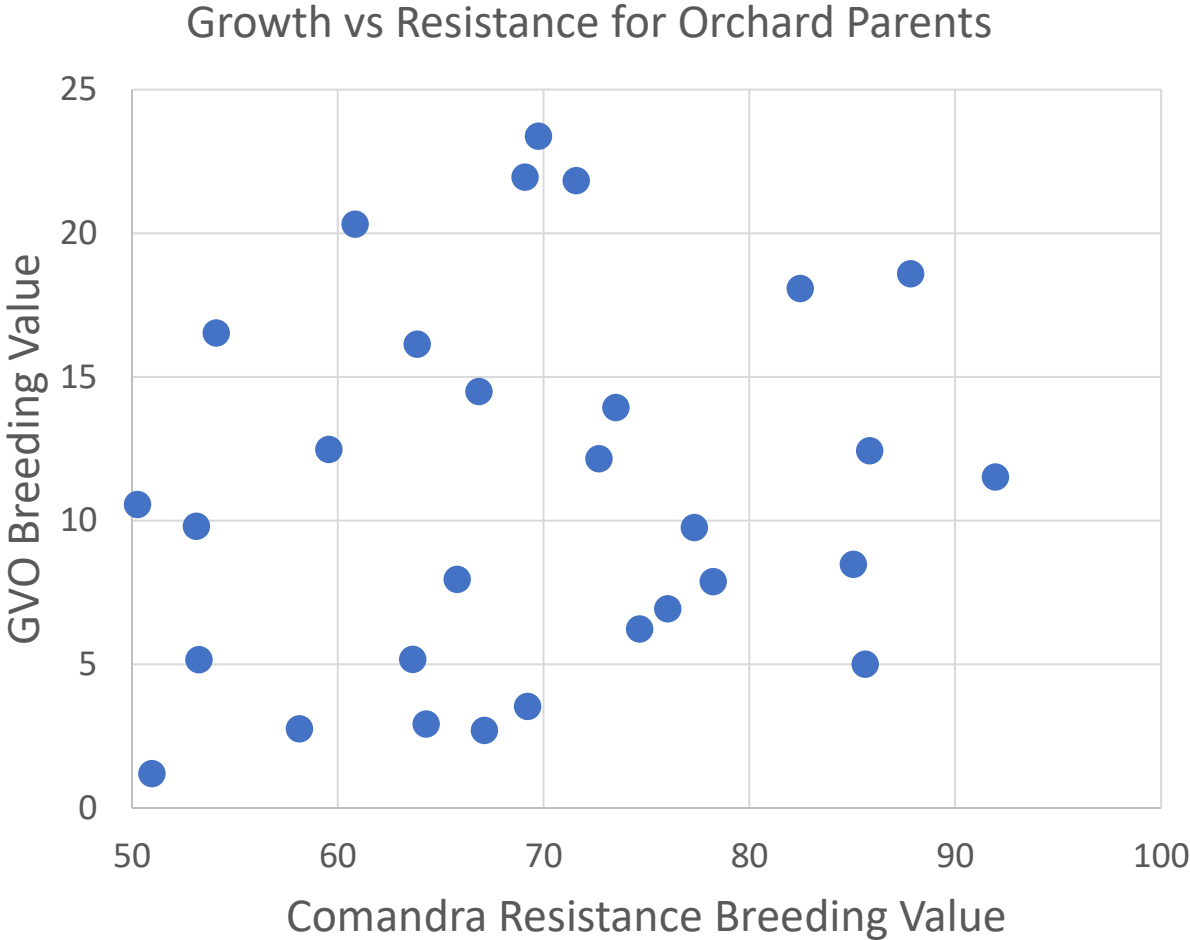


3,600 ramets total

# Comandra Resistance Seed Orchards



	Target	Actual
Clones	30	30
GVO	13	11
DSC	71	69
Ne	23	30
Grafting		
2022	1,800	1,674
2023	1,800	1,659
2024	1,200	





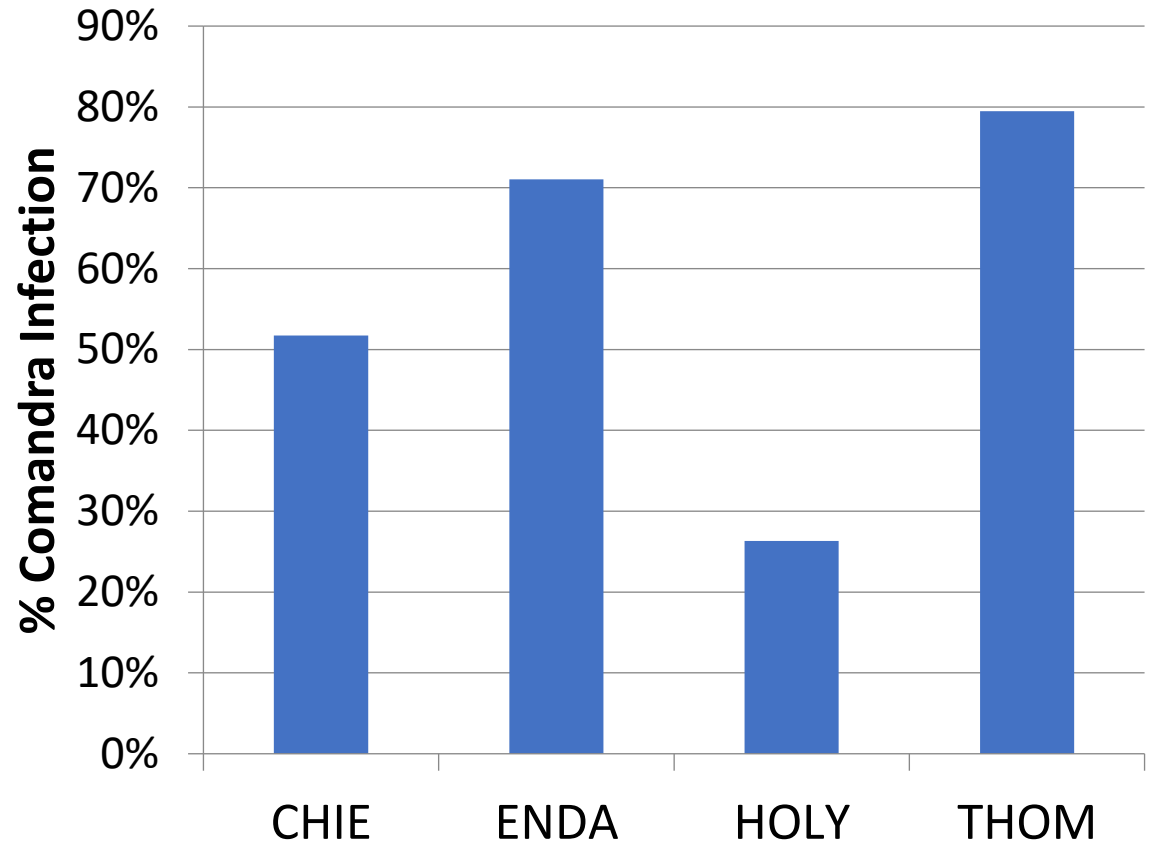
# Comandra Resistance Trials



## 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
  - 135 with comandra data
  - 214 with no comandra data



# Comandra Resistance Trials

- Series 1 Field Trials
  - 95 families
  - 12 orchard seedlots
  - 4 wild-stand controls
- 118 parents included in testing
- 3 sites selected





# Dothistroma Research

## Dothistroma Resistance Research

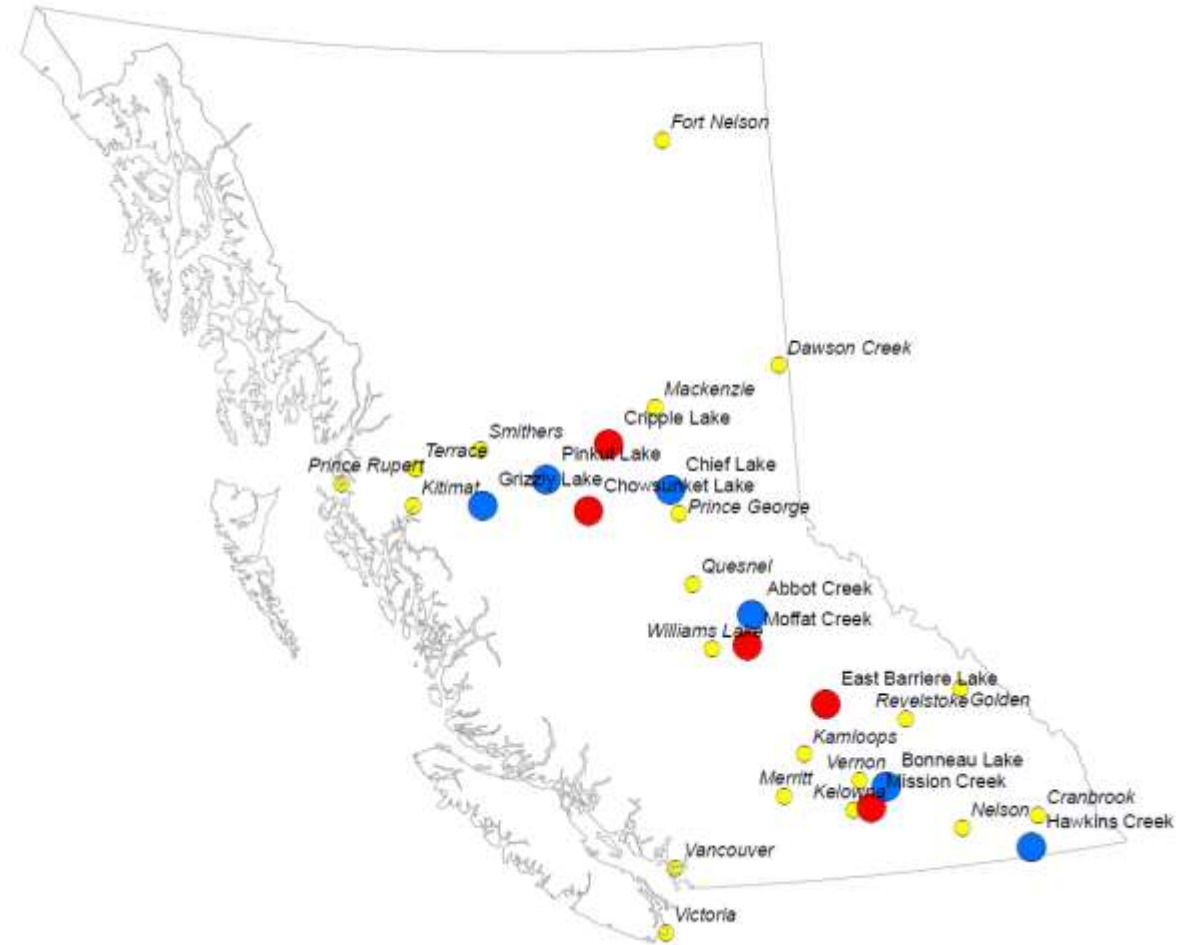
- Jonathan Cale – UNBC Prof
- MSc Student Dana Hopfauf
- Providing 12 families
  - 6 Resistant x Resistant
  - 6 Susceptible x Susceptible
- Sebastian will work on the same families





## Measure AV

- Goal: estimate breeding values for:
  - 349 parent trees
  - All forward selections
- Measure select families
  - 5 first-cycle sites
  - 6 second-cycle sites

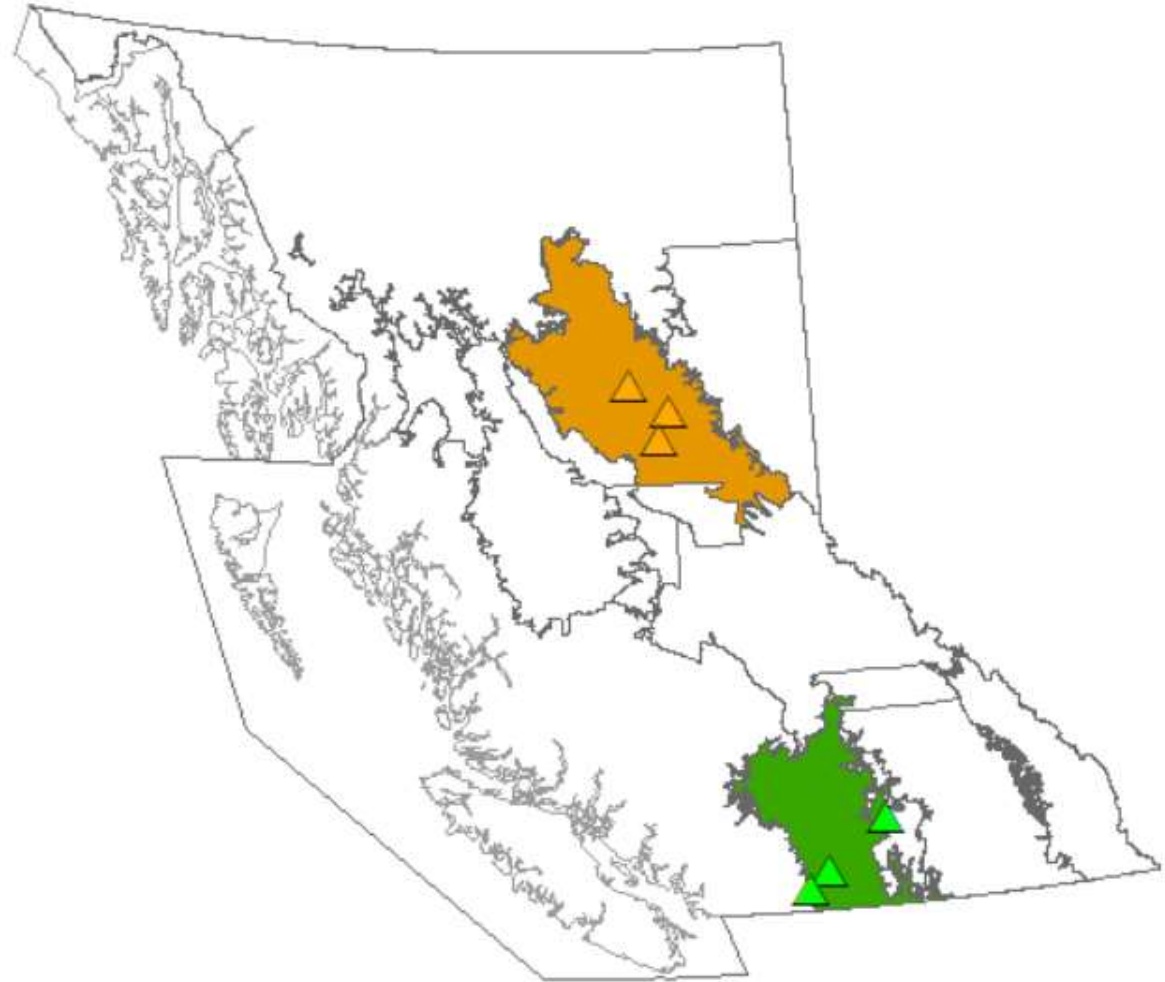


# Forward Selections



## Forward Selections

- Thompson-Okanagan
- Central Plateau

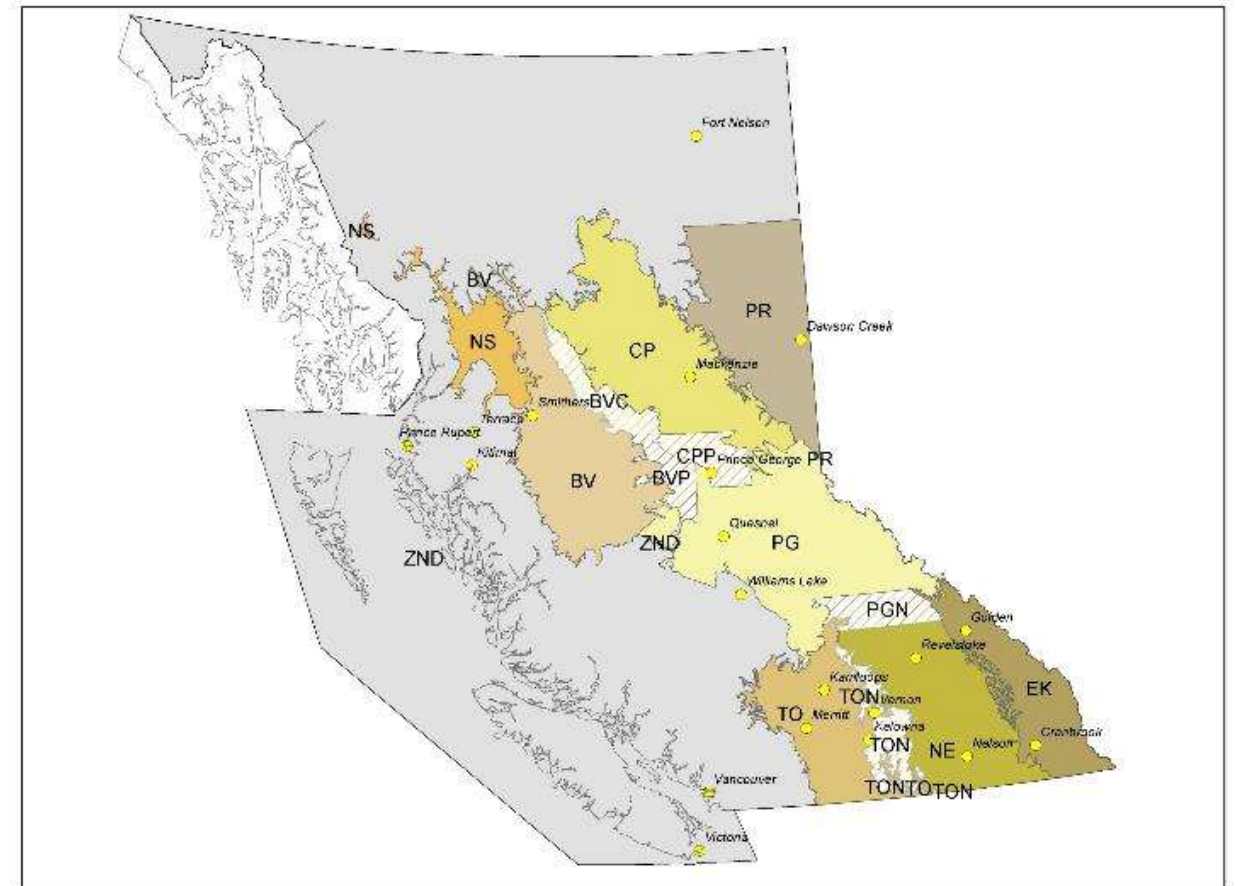




# Breeding

## 3<sup>rd</sup> Cycle Breeding and Testing

- Traits:
  - Growth
  - Wood Quality
  - Disease Resistance
    - Gall Rust, Comandra, Dothistroma, Etc...
- Challenges:
  - How to integrate so many traits.
  - How to structure breeding and testing under CBST.



# Plans for 2024

- Plant series 1 comandra screening trials
- Sow series 2 comandra screening trials
- Forward selections
  - Thompson-Okanagan
  - Central Plateau
- Work on strategy for future breeding and testing
- Species committee meeting





# Western White Pine

Nicholas Ukrainetz

And

Penny May



# Clone Bank

## Clone Bank Project

- Archive all material from:
  - Orchards
  - Clone bank
- New location: Barnes Creek





# Clone Bank



# Progeny Testing Plan

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

2022

2025



# Interior Progeny Tests

- Series 2 grown in 2023
- Plant as a 2+0 crop
- Trial includes:
  - 94 families
  - 4 wild seedlots (susceptible)
  - 15 orchard seedlots
  - 108 parents



# Interior Progeny Tests





# Interior Progeny Tests

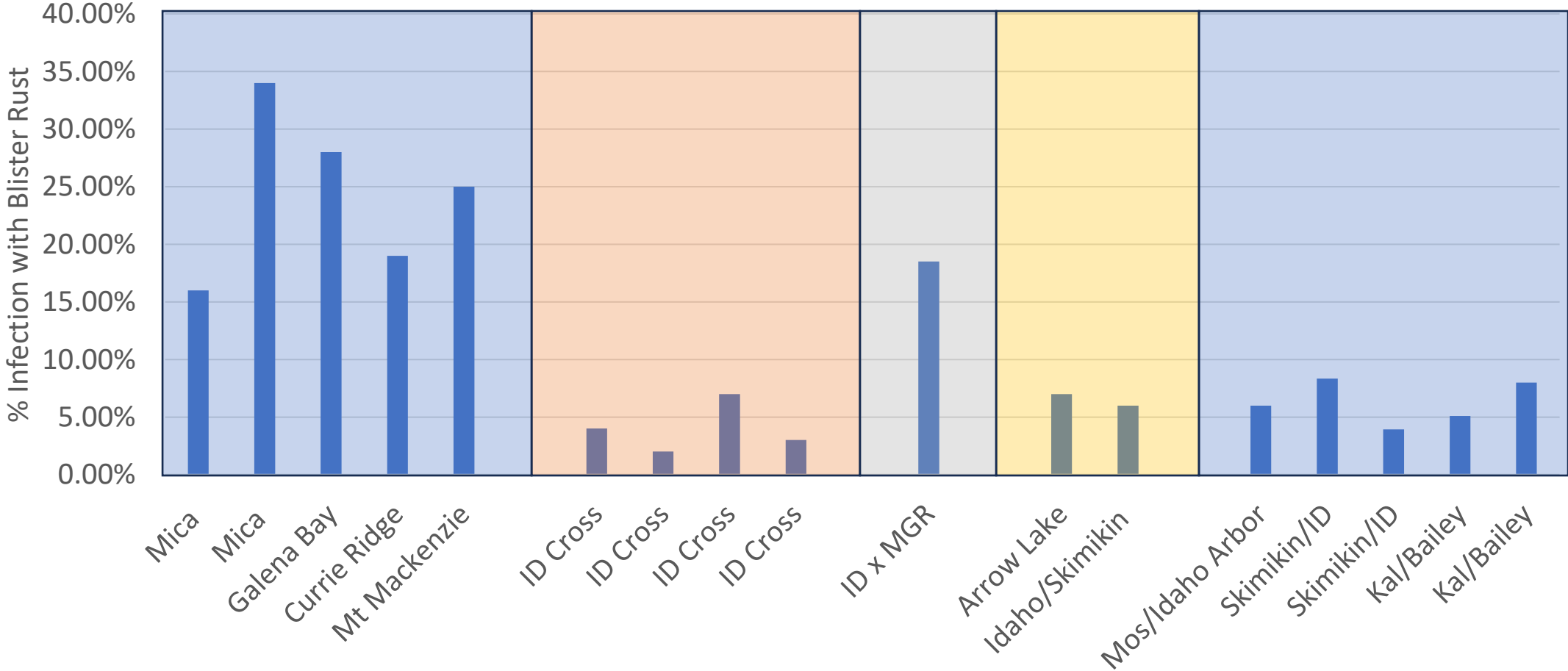




# Realized Gain Results



% Blister Rust Infection by Seedlot at Hidden Lake



# Plans for 2024

## Plans for 2024

- Plant grafts in new clone bank at Barnes Creek
- Design new orchard at Skimikin
- Site selection for series 2 progeny tests
- Sow MGR field testing trial

