

---

## **DRAFT Minutes**

**8:30 am – 3:30 pm, Friday, February 28, 2020**

Location: Clearihue Bldg, UVic, and via video conference

### **Attendees:**

**GCTAC Members:** Dr. Jürgen Ehling (Chair, UVic), Tongli Wang (UBC), Sally Aitken (UBC – via Video), Alvin Yanchuk (FLNR), Charlie Cartwright (FLNR), Dave Kolotelo (FLNR), Michael Murray (FLNR), Cyndi Smith (former Parks Canada).

**Guests:** Brian Barber (FGC), Don Pigott (YellowPoint), Keith Thomas (FLNR), Natalie Staffl (Parks Canada - Video), Pat Martin (FLNR), Iain Reid (UBC – via Video).

**Regrets:** Alan Vyse (Indep - Video), Kendra Bennett (FLNR), Tony Hopkin (CFS),

### **Summary of Motions:**

The minutes of the GCTAC meeting held Feb 28, 2019 are hereby approved.  
Dave/Alvin. Carried.

### **Summary of Actions:**

1. Membership: Brian to follow-up with: Hilary Page, NCC; Tony Hopkin CFS; MoE; and Randy re FN reps. Keith to consider other FIRM staff.
2. Conservation Status Report:
  - a. Tongli to include abstract, species names, and other descriptions on website
  - b. Consider adding regional parks to protected areas where data available.
  - c. Publish report in free access journal
  - d. Following publication, communication via briefings, newsletter etc.
3. Sally, Nick Ukrainetz and Alvin to discuss the proposed landscape-level genetics diversity project.
4. Brian to issue Doodle Poll for conference call to review 2015-20 Strategic Plan and process to update for 2020-25.
5. Pat & Keith to review proposals and allocations in consideration of Ministry funding and other FGC programs.
6. Keith and Juergen to present CGTAC reviewed proposals and proposed budget to FGC on April 8.

## **1. Introductions, Meeting Objectives and Agenda**

The meeting hosted by Dr. Jürgen Ehling, GCTAC Chair, with video conference services provided by UVic. A draft agenda and materials were circulated in advance via email.

There being adequate notice served and a quorum of members present, Jürgen called the meeting to order at 8:35 am, welcomed members and guests, reviewed housekeeping & safety procedures, were reviewed. Cyndi Smith was welcomed as a new member.

During the meeting Alan Yves joined to express his gratitude for serving on GCTAC over the past 6 years. He was thanked for his contributions.

The proposed meeting objectives were reviewed:

- Confirmation of GCTAC’s Mandate and Membership
- Reports on GCTAC-recommended projects for fiscal 2019/20
- Awareness of other Whitebark pine (WBP) programs and initiatives
- Communication plan and next steps for the Final Report of Conservation Status of Native Tree Species in BC
- A plan for updating FGC’s and GCTAC’s Conservation Goals and Strategies for 2020-25
- Conservation project priorities and budget recommendations for fiscal 2020/21.

The following agenda was also review and confirmed. The order of several agenda items was subsequently changed during the meeting to accommodate persons attending via video at their pre-scheduled times.

**Original Agenda (**

Time	Min	#	Item	Presenter
8:30	10	1	Introductions, Mtg Objectives and Agenda	Jürgen
8:40	10	2	✓ Minutes and Action Items from Feb 28, 2019	Brian
8:50	20	2	FGC Updates, GCTAC Mandate and Membership	Brian / Jürgen
			✓ <b>2019/20 Project Updates</b>	
9:10	5	4	Conservation Budget Allocations 2019/20	Keith
9:15	15	5	Ministry - Forest Genetics Section Projects	Charlie
9:30	15	6	Ministry - Regional Projects	Michael
9:45	15	7	Ministry - Tree Seed Centre Projects	Dave
10:00	15		<b>Coffee – served</b>	
10:15	45	8	✓ Conservation Catalogue Project Final Report - Conservation Status of Native Tree Species in BC - Results and Extension, Next Steps	Tongli All
11:00	15	9	Centre for Forest Conservation Genetics (time TBC)	Sally
			<b>Whitebark Pine Updates</b>	
11:15	5	10	Federal and BC Recovery Strategies Update	Brian for Kendra
11:20	15	11	Whitebark Pine Ecosystem Foundation	Cyndi
11:35	15	12	Whitebark and Limber Pine Seed Orchards Project	Natalie
12:50	10	13	FGC Strategic Goal for Conservation 2020-25, and GCTAC Strategic Plan for 2020-25 (intro)	All

Time	Min	#	Item	Presenter
12:00	50		<i>Lunch - served</i>	
12:45	30		FGC Strategic Goal for Conservation 2020-25, and GCTAC Strategic Plan for 2020-25 (continued)	All
		<b>14</b>	<b>2020/21 Budget and Project Proposals</b>	
1:15	5		LBIS Conservation Budget Estimates for 2020/21	Keith
1:20	10		Ministry – Forest Genetics Section Projects	Charlie
1:30	15		UBC Conservation Project - Update	Iain
1:45	15		Ministry – Regional Projects	Michael
2:00	15		Ministry - Tree Seed Centre Projects	Dave
2:15	15		Centre for Forest Conservation Genetics	Tongli/Sally
2:30	20		Other Needs, Priorities and Budget Summary	All
2:50	10	<b>15</b>	New Business	All
3:00			<i>Adjourn</i>	

## 2. Minutes and Action items from Feb. 28, 2019

Draft minutes of the previous year’s meeting was provided separately.

**Motion:** The minutes of the GCTAC meeting held Feb 28, 2019 are hereby approved. Dave/Alvin. Carried.

## 3. FGC Updates, GCTAC Mandate and Membership

Brian provided GCTAC members with update on FGC initiatives, members and upcoming meetings. The TAC’s purpose and membership, as described in [FGC’s Bylaws](#) and GCTAC’s [2015-20 Strategic Plan](#) were also reviewed.

**Actions:** Brian to follow-up with Hillary Page, NCC; Tony Hopkin CFS; MoE; and Randy Moody re FN reps. Keith to consider other FIRM staff on GCTAC.

## 4. Conservation Budget Allocations 2019/20

The Ministry allocated funding from its Land-base Investment Strategy (LBIS) funds for the forest genetics program to the following GCTAC recommended projects for fiscal 2019/20 as per the following table.

Project leaders subsequently provided overviews of work completed and their estimated expenditures to-date and/or projected to year end.

Table 1. GCTAC Project and Budget 2019/20

<b>Center for Forest Conservation Genetics</b>				<b>Allocation</b>
Genetic conservation catalogue update with climate change projections				<b>\$ 78,127</b>
BEC units correspondence to adaptive variation - Mahony				\$ 2,000
Genecology and population genetics of Garry oak - land rent				\$ 1,675
Whitebark pine blister rust phenotypes - Reid				\$ 29,625
New Project - Effective Popln of Operational Seedlots, or Juniperus Abrbutus genecology.				\$ 14,000
Extension, office, lab, travel, website, and overhead				\$ 17,450
<b>CFCG Other Subtotal</b>				<b>\$ 64,750</b>
<b>Ministry Forest Genetics Section</b>				
Field screening of whitebark pine rust resistance				\$ 25,000
Whitebark parent tree marking and stand rust hazard assessment				\$ 5,000
Brush ex situ reserves at Cowichan (Oak and Yew)				\$ -
Extension for IUFRO Meeting Invermere				\$ 5,000
<b>Subtotal</b>				<b>\$ 35,000</b>
<b>Ministry South Area</b>				
Identifying and promoting disease-resistance for Whitebark Pine				\$ 19,300
Develop BMP for Healthy Cone-bearing Whitebark Pine in Harvest Units				\$ 10,500
<b>Subtotal</b>				<b>\$ 29,800</b>
<b>Ministry Provincial Tree Seed Centre</b>				
Seed Collections for ex situ conservation seed bank				
Seed Sample Testing of moisture content and Drying				
<b>Subtotal</b>				<b>\$ 40,000</b>
<b>GCTAC Projects Total</b>				<b>\$ 247,677</b>

## 5. Forest Genetics Section 2019/20 – Charlie Cartwright

Field Screening Whitebark Pine - \$25,000

Contracts were let for maintenance of some of the Whitebark trials. Test sites at Hudson Bay Mountain, Sweeney Lake, Canyon Creek, McBride Peak, Saskatchewan Crossing, Whitetail Lake, Aery Face, Caribou and Mowhokam had brush removed. The weeds were particularly bad at Caribou, Mowhokam and Canyon Creek. Heights were measured at the older tests, (planted in 2015), at Mowhokam, Whitetail, McBride Peak, Skimikin, and Canyon Creek. These also had assessments for blister rust damage which was light except at Skimikin where 60% of the stems have perished, almost all due to rust. Very sadly the trial at Perkins Peak was destroyed in the wildfires of the summer of 2018. Of over 4000 seedlings planted, only 12 survived, though they are looking very good which only makes this tragic event worse.

An excellent assessment of rust infection and height age 5 years at Skimikin Seed Orchard farm field trial was provided by Iain Reid and funded through UBC's allotment of our budget and will be reported by Iain.

Tree Marking (Monumenting) of Whitebark Pine Populations - \$5,000

Don Pigott presented on this project separately. It was recommended that the Ministry create a registry of Whitebark pine parent trees due to interest in material by other parties (e.g. Parks Canada. USA).

Maintenance of Conservation Clonebanks - \$5.,000

Falk Selz and his crew did a very thorough brushing of both the Garry oak and the western yew clonebanks.

Extension for IUFRO Joint Meeting - \$5,000

No funds were expended since the write-ups for the proceedings were not completed in time for this fiscal year’s activities. Instead more funding was spent on the whitebark field trials.

## **6. Ministry - Regional Projects - Michael Murray**

**Rust Screening:** Controlled inoculations continued at the Kalamalka Research Centre (Kal). The following table summarizes inoculation trials to-date.

Inoculation Year	Number of Candidate Trees	
	Intake	Inoculated
2013/2015	11	11
2014	31	31
2016	35	27
2017	44	44
2018/19	48	37
<b>Total</b>	<b>169</b>	<b>150</b>
2020	122	-
<b>TOTAL</b>	<b>291</b>	<b>-</b>

The health and survival of controlled inoculated families (seedlings transferred to raised beds at Kal), and wild inoculated seedlings in field trials were also assessed. Additional rust screenings took place in the USA with seed provided from BC. Families are ranked by rust susceptibility. Resistant families could be selected for seed orchards in the future.

Funding and in-kind support for this research between 2013-19 has been provided by FLRN Research Program, LBIS Genetics Conservation, Parks Canada and other agencies. Large number of collections were made with grants provided by the Forest Enhancement Society.

Approx. half of the seed collected is used for operational reforestation and restoration projects. Seed transfer standards for whitebark pine are needed. It was recommended the Climate-based seed transfer (CBST) transfer functions be relaxed (to provided for greater transfer distances) as the establishment objective for whitebark planting is conservation not timber production.

**Best Retention Practices:** The purpose of this project is to identify the survival, health, growth attributes of whitebark pine trees retained in several cut blocks, identify potential promoting factors, and recommend best practices to promote their health and survival.

Cutblock Name	Location	No. of Analyzed Trees	Harvested
Lavington	Canal Flats	128	2012
Findlay West	Canal Flats	34	2001
Findlay East	Canal Flats	20	2006
West Elk	Elkford	170	2008
West Boundary	Greenwood	75	2003

Partners/sponsors included UVic, Interfor, BCTS and Canfor. A final report and recommendations will be prepared for March 31, 2020.

## **7. Ministry - Tree Seed Centre Projects – Dave Kolotelo**

Dave provided a comprehensive overview of the conservation seed bank program at the Provincial Tree Seed Centre. The goal of the seed bank is to obtain and maintain representative seed samples of BC’s 42 tree species.

The status of commercial and non-commercial tree species seed samples were presented, including the collections made during the past years and gaps intended to be filled over the next several years.

Collections made in 2019 included: *Populus trichocarpa* (black cottonwood); *Rhamnus purshiana* (Cascara); *Cornus nuttallii* (Western flowering Dogwood); *Taxus brevifolia* (western Yew); *Acer circinatum* (Vine Maple); *Acer glabrum* (Douglas maple); and, *Acer macrophyllum* (Bigleaf maple).

These collections were made by Yellow Point Propagation (Don Pigott) under contract. A new seed collection contract will need to be tendered for 2020/21.

## **8. Federal and BC Recovery Strategies Update – Kendra**

## **9. Whitebark and Limber Pine Seed Orchards Project - Natalie**

Natalie outlined the funding applications to support the establishment of a seed orchards for these species.

---

## **10. Conservation Catalogue Project – Tongli**

A final Report - Conservation Status of Native Tree Species in BC was provided as a separate attachment. This has been submitted for publication to a free on-line journal.

Tongli reviewed updates to the Conservation Catalogue, and interactive web tool that summarizes the in situ and ex situ conservation status for each of BC's 43 native tree species by BEC zone. It also displays the distribution and protected areas for species. <http://climatebc.ca/cataloguing/default.aspx>

The rationale and methodology for determining status of low frequency populations was discussed and agreed upon.

The status of *Alnus tenuifolia* as a “tree” was discussed (Conclusion?).

It was recommended that additional ex situ collections focus on the CDF. It noted that Regional Parks in the CDF are not included in the data base, some of which are significant in size. Inclusion may improve the in situ conservation status for several species, including *Arbutus*. However, species presence/absence data may not be available.

It was also recommended the conservation catalogue be promoted through briefings (including to the Chief Forester) and others through newsletters etc. once the report has been officially published.

Actions:

- a. Tongli to include abstract, species names, and other descriptions on website
- b. Tongli to consider adding regional parks to protected areas where data is available.
- c. Publish report in free access journal
- d. Following publication, communication via briefings, newsletter etc.

## **11. Centre for Forest Conservation Genetics – Sally**

Sally summarized a recent paper by Colin M et al. Evaluating genomic data for management of local adaptation in a changing climate: A lodgepole pine case study (article provided separately.)

One of the observations was genomics without provenance date is not useful for climate adaptation. Ian R. MacLachlan Master's thesis on Whitebark pine at Skimikin and Alexander Girard's bachelor's thesis on genetic structure of Garry Oak, based data collected at UBC's provenance test, were summarized.

Sally also proposed initiating a study on landscape-level genetic diversity project to assess the implications of using seed orchard seed vs. natural regeneration. She is

---

applying for funding through Genome BC's GeneSolve program and hopes to recruit a post-doc student to lead this study.

**Action:** Sally, Nick Ukrainetz and Alvin to discuss the proposed landscape-level genetics diversity project.

## **12. Centre for Forest Conservation Genetics – Iain Reid**

### **13. Whitebark Pine Ecosystem Foundation – Cyndi**

Cyndi provided an overview of the WBEFC. Included preview of the next High Five Needle Pine conference to be held in Montana in Sept 2020. Summarized the (US) National Whitebark Pine Restoration Plan and Canadian chapter efforts since it was established in 2009. See [www.whitebarkpine.ca](http://www.whitebarkpine.ca) for newsletters and updates.

### **13. FGC Strategic Goal for Conservation 2020-25, and GCTAC Strategic Plan for 2020-25**

[FGC's 2015-20 Strategic Plan](#) Conservation Objective (p. 4) was reviewed.

FGC's Co-chairs are preparing a new strategic plan for 2020-25. Request for comments and input will be requested in the months ahead. In the interim, GCTAC members were invited to review the conservation goals and performance measures.

**Action:** Brian to issue Doodle Poll for 1-2 hr. conference call to review 2015-20 Strategic Plan and process to update for 2020-25.

## **14. 2020/21 Budget and Project Proposals**

The Ministry is preparing the proposed budgets for fiscal year 2020/21 for all FGC programs, as it is accountable for the allocation and expenditure for Land-based investment strategy (LBIS) funds directed to FGC programs: breeding, resilience, operational tree improvement and conservation. Last year's total allocation was \$2.5M.

Keith outlined the process and proposed Conservation Program Budget for 2020/21. Ministry (LBIS) funds available for all conservation activities are anticipated to less than the previous year's allocation of \$248k due to additional funding pressures.

GCTAC members discussed the project proposals, priorities and funding options. See table below.

It was agreed that funding for Tongli's work could not be reduced to his employment agreement with UBC. Additional funding is also provided by the Ministry for his work on ClimateBC/NA. Combined the amounts cover his salary and UBC's overhead.



No single option was recommended nor motion tabled for the proposed allocations budget. The ministry will consider the information presented when developing its LBIS budget for 2020/21.

**Action:** Pat & Keith to review proposals and allocations in consideration of Ministry funding and other FGC programs.

**Action:** Keith and Juergen to present CGTAC reviewed proposals and proposed budget to FGC on April 8.

Table 1. GCTAC Budget Proposals 2020/21

Proponent	2015-20 Strategic Plan	Estimates 2019/20	Option A	Option B	Option C	Option D	Activities
Tree Seed Centre	\$ 40,000	\$ 40,000	\$ 45,000	\$ 40,000	\$ 38,000	\$ 35,000	Ex-situ collections + seed bank mgmt
Forest Genetics (Cartwright)	\$ 40,000	\$ 35,000	\$ 37,500	\$ 33,000	\$ 30,000	\$ 32,000	Field screening, WBP monumental marking, elite tree collections and arbutus prov. test bank maintenance
Whitebark Pine (Murray)	\$ 30,000	\$ 19,300	\$ 38,500	\$ 28,000	\$ 21,500	\$ 28,000	White bark pine (WBP) resistance testing, seed extraction, nursery, field trial assessments, verbanone treatments.
UBC Centre for Forest Conservation Genetics	\$ 110,000	\$ 64,750	\$ 67,875	\$ 45,375	\$ 20,375	\$ 31,000	Complete WBP phenotyping/assisted migration thesis; New project effective population size (Ne); travel, website and overhead.
Conservation Catalogue (Wang)		\$ 78,127	\$ 83,500	\$ 83,500	\$ 83,500	\$ 83,500	Tonlgi - Publish catalogue in journal (free access); interactive website, CC impacts on spp range & protection status; new flying BEC zones and novel climates.
Limber pine (CFS, USDA)			\$ 15,000	\$ -	\$ -		Genomic DNA ~1,000 seedlings of 80 BC and Alberta seed families
<b>total</b>	<b>\$ 220,000</b>	<b>\$ 237,177</b>	<b>\$ 287,375</b>	<b>\$ 229,875</b>	<b>\$ 193,375</b>	<b>\$ 209,500</b>	

## 15. New Business

No additional topics were identified.

### Adjourn

Juergen thanked members and guests for their time and contributions.

**Motion:** The meeting is hereby adjourned at ~ 3:45 pm. Cyndi/Alvin