ITAC Business Meeting Notes – January 23, 2020

Location: Marriot Hotel, Vernon, BC

Participants:

ITAC Members Present:

Alan Rasmussen (BCTS), Alvin Yanchuk (FIRM), Dan Gaudet (VSOC), David Kolotelo (FIRM), Gary Giampa (FIRM), Greg O'Neill (FIRM), Hillary Graham (SelectSeed), Josephine Russell (PRT), Katelyn Hengel (FIRM), Katherine Spencer (Chair), Lance Loggin (WFM), Marie Vance(FIRM), Nicholas Ukrainetz(FIRM), Pat Martin(FIRM), Scott King (LP), Stephen Joyce (FIRM), Tia Wagner (VSOC), Todd Schmidt (WFM), Trevor Doerksen (FIRM), Walter Tymkow (Canfor)

ITAC Members Regrets:

Keith Thomas (FIRM), Krista Copeland (BCTS), Richard Reich (CNC)

Guests:

Denielle Weatherill (FIRM), Brian Barber (SelectSeed), Jarrett Columbus (FIRM), Kat Gunion (ForSite), Kevin Astridge (FIRM), Marilyn Cherry (FIRM), Pat Bryant (ForSite), Sabina Donnelly (FIRM), Val Ashley (FIRM), Ward Strong (FIRM)

Summary of Motions:

12:45 Motion to accept pervious minutes from February 6, 2019 ITAC Business Meeting. M/S/C
1:36 Motion to support the Sally Aitken budget request of $50,000 for 2020/21 Majority supported
2:08 Motion made to leave naming decisions up to breeders. M/S/C
3:11 Motion to make all four changes to the Seed Production Curve Spreadsheet. M/S/C
3:28 Motion to support planning next 3 years ITAC Extension and Business meetings for 3rd week in January. M/S/C

Summary of Actions:

-Pat Martin – FGC to clarify review and approve process for new Seed Orchards, including ITAC's role.
-Katherine Spencer – Potential budget ask before ITAC Business meeting 2021.
-Brian Barber to strike a CBST Species Plan Committee, members listed on page 18.
-Nicholas Ukrainetz – Nicholas Ukrainetz to select Comandra-resistant Pli parents for a new orchard.

Proceedings:

The ITAC Business meeting was preceded by a 1.5 day ITAC Extension Meeting attended by 75 persons from across BC and Alberta. This year there were no registration fees thanks to the generous sponsorship from PRT Growing Services, Select Seed Co. Ltd, Tolko Industries Ltd. & Vernon Seed Orchard Co.

Katherine Spencer ITAC Chair, called the ITAC business meeting to order at approx. 12:30 pm.

1. Membership

Under FGC Bylaws Article 4, Section 4, the ITAC Chair may appoint ITAC members. Katherine Spencer reviewed nominations and confirmed Katelyn Hengel, Marie Vance, Scott King, and Walter Tymkow as new members of ITAC. Gary Giampa was also removed as member as he is retiring in March 2020.

2. Agenda

A draft agenda circulated in advance was reviewed and approved.

3. February 6, 2019 Meeting Minutes and Actions

MOTION - Draft minutes of the Feb 6, 2019 ITAC business meeting was circulated in advance. 12:45pm Motion to accept pervious minutes from February 6, 2019 ITAC Business Meeting. M/S/C

Action Items from the last meeting and the status reported:

Action	Who	Status
Brian re-send Jack's Analysis that supported FGC's strategic new goal and performance measure for pest resistance seed use (50% of all select seed used by 2035)	Brian Barber	Completed
Keith to combine the 2019/20 Coast and Interior Tree Breeding and resilience program budgets and present to FGC with support from ITAC and CTAC chairs.	Keith Thomas	Agenda item
Ministry to consider alternative names to the CBST "Bulkley Valley" Breeding Zone	Nick Ukrainetz	Ongoing
Brian to circulate SelectSeed's Pli orchard site selection criteria to ITAC members for review and comment.	Brian Barber	Completed
FGC to clarify review and an approval process for new seed orchards, including ITAC's role.	FGC (Pat)	Carried fwd
Brian to summarize ITAC extension meeting feedback and share with planning committee.	Brian	Ongoing
Leads of ITAC Extension Meeting Break-out Sessions to follow-up as appropriate	Various	Completed

4. FGC Updates and Business Planning for 2020/21 – Brian Barber

FGC Updates:

FGC consists of 14 members appointed by Diane Nicholls for 3-year terms, which may be renewed.

Recent changes with FGC members:

-Keith Thomas replaced Shane Ford (FLNRORD Research Rep)
-Katherine Spencer replaced Kori Vernier (ITAC Chair)
-So far there are no replacements for Dan Peterson (FLNRORD Operations Rep) and Gernot Zemanek (Interior Small Tenure Holder Rep).

FGC Meetings:

-Yellow Point, December 11, 2019
-Cowichan Lake Field Tour, September 12-13, 2020, hosted by Mosaic Forest Management and the Ministry . See FGC Meeting Minutes Sept-13-2019
-University of Victoria, April 8, 2020

FGC, Society and SelectSeed – Governance Model

A new document outlining governance of FGC, The BC Forest Genetics Society and Select Seed was prepared in December 2019. The document will be posted on the FGC website.

Communications and Extension

-FGC Committee: Annette, Juergen (Chair) and Brian.
-FGC has identified 4 main audiences:
-BC's Forest Genetics Community of Practice
-Forest Professionals
-Forestry and Natural Resource Students, and
-General Public.

-FGC is currently updating its website. Brian would like feedback/ideas. An eNewsletter has also been developed, includes a "button" on website for individuals to subscribe.

ACTION – Pat will clarify the review and approval process for new seed orchards, including ITAC's role.

FGC Business Planning Process – 2020/21:

October	Letter from FGC to Chief Forester requesting $2.6 M LBIS budget for forest genetic program.
December	FIRM Forest Genetics Manager Drafts Budget
January/February	Draft Budget Presented at TAC Mtgs TAC members review, provide comments
February/March	Budget adjusted with LBIS allocation
April 8	FIRM presents final recommended budget to FGC
April	$ allocated to programs and activities by FIRM

5. Nicholas Ukrainetz - FIRM Tree Breeding and Resilience Program Budgets 2020/21

Interior Species and projects

5.1 Species Budget 2019/20

Activity	Forest Health $	Value $	Resilience $	Request $	Allocation $
Sx	6,000	254,000	-	260,000	245,000
Lx	0	186,000	-	186,000	186,000
Fdi	15,000	110,000	-	125,000	125,000
Pw	1,800	-	-	1,800	1,800
Pli	94,000	293,000	-	387,000	317,323
Cwi		25,000	-	25,000	25,000
Py		43,000	-	43,000	33,000
Total	**116,800**	**911,000**	**-**	**1,027,800**	933,123

Lodgepole pine:

-Maintained and measured key progeny tests
-Surveyed sites for disease and continued to develop methods for screening of Dothistroma for young seedlings
-Supported Bulkley Valley orchard expansion

White Pine:

-Completed breeding and drafted a plan for future progeny testing which we will implement this coming year

Western larch:

-Introduced previously-tested, western larch material from US sources into the BC breeding population(s), via scion collection & grafting, to ensure long-term genetic variation available for growth and adaptation to climate change
-Measured & assessed survival of western larch progeny tests for the Nelson breeding population

Interior spruce:

-Planted 2nd cycle interior spruce progeny tests for the Nelson low breeding population

Douglas-fir:

-Constructed a database of all Douglas-fir progeny test records (with Jong Leong) for large MET analysis, using all records to date

Ponderosa Pine:

-Identified plus trees/stands for seed/scion collection in the eastern portion of the range in BC
-Established raised bed drought study and will be analyzing data next year

Interior Cedar:

-No pollen at the Barnes Creek clone bank this year so we GA'd trees in the Cowichan clone bank and will be breeding this spring
-Completed Provenance data analysis

5.2 Species Budget 2020/21

Activity	Forest Health $	Value $	Resilience $	2020 Request $	2019 Allocation $
Sx	10,000	192,200	-	202,200	245,000
Lx	0	79,800	-	79,800	186,000
Fdi	3,000	179,100	-	182,100	125,000
Pw	25,200	-	-	25,200	1,800
Pli	87,300	164,000	-	251,300	317,323
Cwi		27,100	-	27,100	25,000
Py	4,600	62,200	-	66,800	33,000
Total	**130,100**	**704,400**	**-**	**834,500**	933,123

Lodgepole pine:

-Continue to support the Bulkley Valley orchard expansion
-Acoustic velocity experiments will continue for wood quality analysis
-Use remote sensing tools (eg Lidar and multi spectral analysis) for measuring tree heights which will hopefully improve efficiencies
-Last set of measurements for the Central Plateau 2nd cycle plantations to will update our Breeding values

White Pine:

-Establish a series of progeny tests (minimum of 3)

Western larch:

-Measure & survival assessment of western larch progeny tests for the EK breeding population

Interior spruce:

- Plant 2nd-cycle interior spruce progeny tests for the Nelson mid breeding population
- Plant short-term weevil screening trial for the Bulkley Valley breeding population

Douglas-fir:

-Begin large MET analysis, using all records to date
-Sow 2nd-cycle progeny tests for the NE high and QL breeding populations
-Collaborate with UBC wood science professor on sampling & milling logs from a progeny test, to make link between the value of non-destructive/indirect and destructive/direct measure of wood quality/value

Ponderosa Pine:

-Measuring drought study and analyzing the findings

-Building a seed and scion inventory from US and BC sources to establish the breeding program

Interior Cedar:

-Focusing primarily on breeding to establish progeny tests with a focus on establishing a procedure – which has never been done in the interior before

5.3 Climate Change Adaptation Research Budget 2020/21 - Greg O'Neill

Activity	Forest Health $	Value $	Resilience $	2020 Request $	2019 Allocation $
CCAR	-	-	103,000	-	
Total	-	-	-	**103,000**	148,000

The Ministry has short term funding from LCELF (Low Carbon Economy Leadership Fund). Funding is not always guaranteed so we can't plan long term projects and expect that there will be funding. The Ministry has changed how they plan for funding requests, in the past the requests have been high, but the amount allocated was reduced substantially. Starting the planning earlier has resulted is a more accurate budget request amount.

2019 Accomplishments:

- Completed all field maintenance and data collection objectives for AMAT and Sx genecology
- CBST - working well with minor revisions implemented in April 2019.
- Extreme climate event study - expanded from 7 sites in BC to 42 sites across Canada
- Multiple seedlot study mortality function developed and implemented into TASS
- Completed analysis of Future plantation orphan project

2020 Plans:

- AMAT and Sx genecology – very heavy field season – measure 12 AMAT sites and 17 Sx sites
- CBST – additional revisions.
- Publish results of the Extreme climate event study
- Multiple seedlot study – conduct TASS runs using multiple seedlots
- Future plantation orphan project – publish results

Draft FGC Budget 2020/21 – Keith Thomas

Category	Conservation $	Value/FH $	Resilience $	Request $
Breeding	-	1,677,000	-	1,677,000
CCAR	-	-	103,000	103,000
GCTAC	210,000	-	-	210,000
CBST	-	-	70,000	70,000
CoAdapt	-	-	50,000	50,000
OTIP	-	390,000	-	390,000
Total	**210,000**	**2,067,000**	**223,000**	**2,500,000**

There will most likely be changes to this draft budget, OTIP is higher that last years request of $350,000.00. The call for Proposal was completed on January 15, 2020, the review period for requests will take place in February.

LCELF helps reduce pressure on the Ministry/Provincial budget, total budget for the Province was $2 M for 2019/20. With that said there are strict guide lines in place from the Federal Government on eligibility. FIRM was allocated $565,000.00 for 2019/20.

- Update from Kevin Astridge on CBST, $70,000 is being allocated between:
    -Looking at GAP analysis and updating.
    -CBST and BEC 12. Working with Brian Barber to join get more information on the Seed Needs Forecast Project.
    -Working with Sabina Donnelly on changes and reporting in SPAR.
    -Norm Livingston, Tolko, offered to provide advice on seed planning under CBST.

- Brian updating on behalf of Sally Aitken,
    -Douglas Fir Cold Heartiness and adaption testing.
    -They have applied for an extension year.
    -Budget that was requested for 2020/21 was $50,000 same amount that was allocated for 2019/20.
    -Total budget is 5.8M
    -Studying how cold heartiness correlates with BEC.

Budget 2019/20 and 2020/21

Item	2019-20 funded	2020-21 request
PhD student 1 - Douglas-fir adaptation	$5,000	$5,000
PhD student 2 - Western larch adaptation	$5,000	$5,000
Summer student - supplement to NSERC Summer Research Award	$4,900	$4,900
Greenhouse or Totem Field rental	$1,680	$1,740
Greenhouse and lab phenotying supplies	$2,000	$2,000
Technician (0.2 FTE) for Douglas-fir and larch common garden experiments	$17,420	$8,710
Postdoctoral fellow 0.2 FTE	0	$12,650
DNA lab supplies for genotyping	$4,000	$0
Subtotal	$40,000	$40,000
Overhead 25%	$10,000.00	$10,000
Total	**$50,000**	**$50,000**

MOTION - Motion to support the Sally Aitken budget request of $50,000 for 2020/21 Majority supported

There was discussion around projects coming in under budget and if there are plans to reallocate funds to other projects. It was mentioned that breeding funds can be shifted between species.

FIRM is limited by the amount of staff that they have. More funding towards salary would increase the number of projects that could be done. E.g. Greg O'Neill was able to start 4 new projects since he had an STO 18 assistance for the fist time.

ACTION – Katherine will work on the potential budget ask for meeting costs before ITAC Business meeting 2021.

There was discussion around the practical applications of genomics projects to operational programs. Clarity in project objectives and operational deliverables should be a focus in future funding agreements with external scientific partners. FGC does not direct fund or allocate funds to approved genomics projects, the Ministry and private companies do.

Appreciation was extended to Raphael Ribeiro and Beth Roskilly for attending ITAC. Raphael's presentation was informative and having representatives from UBC to answer ITAC attendees' questions was helpful.

6. 2nd Gen Pli selections, grafts and allocations

Three new Pli orchards will be established by the Ministry, VSOC and SelectSeed. Each will have a unique sub-set of clones with an avg. GVO of 20. GWR will also be assigned as new pest resistance data becomes available. The set of orchard parents for each orchard will be picked randomly; fairest way and the trees will be designed for the orchards given out. Nick to notify when designs are complete and information available to FIRM, SelectSeed, and VSOC.

FIRM update:

The first-year selection of grafts are in holding beds at the Kalamalka Forestry Centre. They will be transferred to the seed orchard managers in the Spring, who wull need to arrange pick-up and shipping.

SelectSeed update:

A purchase offer has been made on a 150 acre property 20 km south of Quesnel. The property has a 50 acre field with enough room for 5000 ramets. Following closure, the property will be fenced and prepped. The current plan is to plant the grafts in the Fall or following Spring along with the second years grafts..

Pli Breeding Zone Names:

The interim name for the new Pli breeding zone is the "Bulkley Valley". However, this is not representative of the large geographic area of the zone which extends east of Prince George. Other CSBT-based breeding zones also required naming. ITAC members offered ideas on a naming system. Suggestions included colors, regional area, climate, sequential naming and or eliminating naming of orchard zone due to new CBST BEC based orchards.

MOTION - leave CBST seed planning zone nomenclature up to the breeders. M/S/C

7. Operation Tree Improvement Program

The request is similar to last year $390,000 (2019/20 was $350,000)

OTIP – $350,000 total

-$206,150 external (11 orchards or research companies)
-$165,850 invoices received and payment in process or complete
-Balance of invoices will come this quarter.

2020/21 – Call for Proposal is complete (Jan 15th, 2020),

-Requests received and review to take place in February.
-To date financial requests seem similar overall to last year.

Pat Martin said government a new OTIP contract template will be used, as required by government lawyers.

OTIP meeting will be held at VSOC later this year. Katherine asked for volunteers for OTIP Committee. Josephine Russell, Katelyn Hengel and Hillary Graham volunteered, it was mentioned that there is a need for an external forester to volunteer as well.

8. Seed Needs Forecast Project – Kat Gunion and Brian Barber

Applications of New Seedling Needs Forecast

-Purpose to identify future seed needs by species, management unit and BEC variant
- Estimate orchard capacity required to meet needs, and -Identify potential gaps and surplus capacity
-Use for Breeding and seed orchard planning
-Return on investment calculations
-Tree breeding priorities
-# Ramets required for new CBST-based orchards
-Phase-out of existing orchards

Additional review and input from operational forester being sought
See project website for details

2020 Forecast Seedling Demand - New BV Breeding Zone

Sum of Trees / Row Labels	2020-2024	2025-2029	2030-2034	2035-2039	2040-2044	2045-2049
ESSFmv1	1,635,181	1,280,516	991,080	991,080	991,080	991,080
ICHmm	241,359	226,796	205,781	191,217	170,202	155,971
SBPSdc	5,555,876	5,135,885	5,132,726	5,132,726	5,132,726	5,132,726
SBPSmc	2,338,402	2,166,674	2,136,929	2,136,929	2,136,929	2,136,929
SBPSmk	6,408,927	5,825,423	5,821,510	5,808,812	5,805,637	5,799,288
SBSdh1	218,342	205,163	186,182	173,004	154,023	141,159
SBSdk	6,459,152	5,891,192	5,524,179	5,524,179	5,524,179	5,524,179
SBSdw2	9,623,319	7,770,273	7,335,479	7,340,543	7,326,629	7,335,980
SBSdw3	11,336,309	8,530,173	6,991,734	6,991,734	6,991,734	6,991,734
SBSmc2	22,580,101	21,080,950	20,505,423	20,505,423	20,505,423	20,505,423
SBSmc3	4,077,246	3,265,655	2,867,668	2,867,668	2,867,668	2,867,668
SBSmk1	35,150,617	25,291,813	21,613,179	21,613,179	21,613,179	21,716,610
SBSmw	5,314,610	4,580,134	4,526,000	4,532,701	4,414,194	4,642,018
SBSwk1	12,227,470	9,221,333	8,843,603	10,595,616	11,146,639	10,739,843
SBSwk3	12,687,829	9,369,471	7,521,885	7,521,885	7,521,885	7,521,885
Grand Total	**135,854,740**	**109,841,450**	**100,203,357**	**101,926,695**	**102,302,126**	**102,202,492**
annual avg.	27,170,948	21,968,290	20,040,671	20,385,339	20,460,425	20,440,498
Contigency +30%	8,151,284	6,590,487	6,012,201	6,115,602	6,138,128	6,132,150
Total	35,322,232	28,558,777	26,052,873	26,500,941	26,598,553	26,572,648
Future BV Orchard Production Target				**26,500,000**	**26,500,000**	**26,500,000**

The above table shows the forecast Lodgepole pine seed needs for new "Bulkley Valley" breeding zone BEC Variants under climate-based seed transfer (based on current estimates)

J. Woods original analysis of Pli seed needs (Aug 2019) was also reviewed by Brian. Jack was not able to attend ITAC but conveyed the following comments:

-ForSite Analysis is more comprehensive that previous attempts to estimate demand based on ACC and cut expectations.
-Previous estimates based on cut have always substantially underestimated actual seed use.
-Actual seed demand is very likely to exceed Forsite estimates because of:
  -Incoming screening of sue
  -Future government programs for planting (i.e. fires)
  -Increasing planting densities and re-planting
-Some excess seed production capacity is easily managed, as is done for other species. We should NOT aim low on orchard capacity.

Conclusions and Assumptions

-Pli Seedling needs for new BV Zone 2030-2049 approx. 26.5M.
-19-30K orchard ramets requires to future BV demand.
-Current orchards, plus 3 new 2nd gen orchards, may be sufficient to meet future demand.
-Phase our existing orchards as new BV orchards come on-line as new data becomes available.
-New pest-tolerance orchards not considered.

Recommended Next Steps

-Confirm reforestation and harvest assumptions for TSAs and TFLs, and Government Reforestation Programs. **(ITAC Members Assistance Welcome)**
-Project team to complete data compilation and finalize report – February 28, 2020.

-ITAC Pli Species Committees to review data and assumptions, including production forecasts or existing orchards, to confirm if additional BV orchard ramets require (or not) – Spring 2020.
-TAC's to apply methodologies to other Pli Zones and Species – 2020/21
-Incorporate future seed needs into new CBST Species Plans and Tree Improvement Investment Priority (TIIP) model – 2020/21
-Update Seedling Forecast Analysis in 3-5 years.

9. Interior Seed Orchard Production Curve Spreadsheets

Excel files with seed actual and forecast seed production data for each orchard species were developed and are periodically updated by Jack Woods and Chris Walsh. These files are important for seed orchard planning.

Background

-Historical
- -For each species
- -Production
- -Ramet numbers and age
- -By SO and SPU
- -Output
  - -Seedlings per ramet
  - -Based on selected seeds per seedling (between SPAR guidelines and thrifty)
  - Spread annual crop over three years to partially smooth line

-Used both for:
- -Estimating size of future orchards AND
- -Orchard seed production forecast for Species Plans

-New this year
- -Updated age / ramet table
- -Some crops missing
- -Viable seed
  - -Number of seed x's current germination (does it go backwards for old crops?)

It was questioned whether the germination is being done twice? If so then it would change the curve. Discussion to take out the viable seed adjustment.

Questions / Improvements / Changes:

-By SPP, SPU, site, orchard, BEC cluster?
-All crops not recorded; if not picked
-Smaller infill trees are not necessarily as productive as original trees at the same age
-Ramet age profile vs average orchard age; do we need this level of detail?
-Viable seed vs total seed

SPU		Table	Actual Orchard Usage	
NE mid	4	12,353	9,155	74%
NE high	5	1,110	5,036	453%
EK	25	4,726	3,333	71%
NE low	44	1,017	604	59%

Pli: 1,800 North
Pw: 800 actual producing ramets,
Curve plateau: (seeds per ramet)
Planning and producing lines are quite off need to plan for 2,500
Sx: 12,000
6,000
Pli: 1,500
Fdi: 2,500
Lw: 5,400
Cw: CONT 1,000
FG 11,000
Py: ?

-Stephens actual numbers are more realistic, useful for adjusting production usage. What would make it more useful for sowing?
-Only Jack Woods and Chris Walsh have the ability to update SP curve spreadsheets through contracted work.

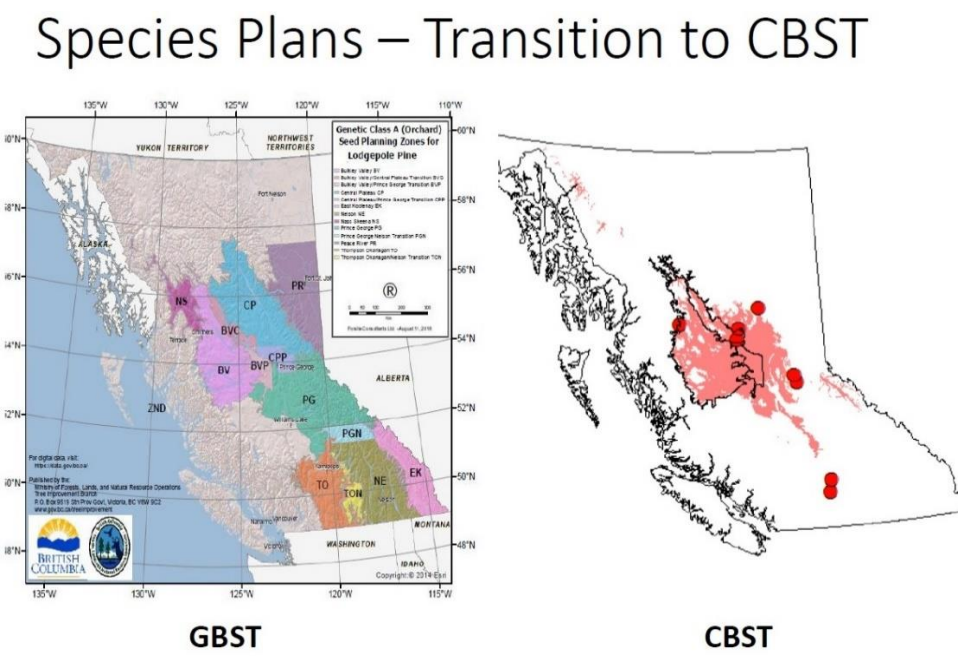
MOTION - make the 4 recommended changes to Seed Production Spreadsheets. M/S/C

Recommendations:

1) Curve by site
2) Change to annual production vs 3-year average for historical crops
   - Two objectives are different: new orchards vs production forecast
   - Keep species / site level for new orchard forecast size;
   - Change for Species Plan
3) Orchard managers production forecast (1-3-5)
4) Change recovery factors (seeds/seedling) to weighted average actual achieved from SPAR
   -Report actual orchard use VS assigning SPAR requests to a zone

Discussion on whether SPAR could be updated so that both request #'s and delivered #'s could be recorded. That would require the receiver to update FIRM's Seed Resource Specialist (Sabina Donnelly) on what was delivered.

10. CBST Species Plans



Background

-1997 – Class A SPZs and SPUs created
-1999 – Tree Improvement Program Priority (TIIP) model. TACs rank SPUs and assign SPU# based on priority
-2000 – First FGC Business Plan and Species Plan – includes activities and budgets by SPU
-2018 – CBST introduced, Species Plans last updated
-2019 – Start Forecast Seedling Needs Project, CBST transition extended beyond 2020

Current Format

-Organized by Species and GBST-based SPUs
-Includes breeding, seed orchard, seed demands inventories conservation and other data
-Excel spreadsheets, each SPU updated and maintained by Jack Woods.

ITAC February 2019 – Comments

Over 70 written comments and ideas, including:

-Updateable, on line
-Arrange by Species and BEC variant sources
-List of all orchards, followed by 1 p for each orchard
-Include overview of breeding program for unit
-Include pest resistance and other trials
-Update production est. for each orchard, including planned.
-Exclude conversation for spp. Not of concern
-Link future seed demands to AAC and CBST (Incorporate Future Seedling Needs into forecast)

Brian will send out the compiled 70 comments to Species Plan committee members.

A Species Plan Committee consisting of ITAC and CTAC members will be struck in Feb/March

The following persons volunteered for the Species Plan Committee: Dave Kolotelo, Alan Rasmussen, Todd Schmidt and Stephen Joyce.

Once the Species Plan Committee has a format, they will circulate to ITAC members to review and submit comments/recommendations.

-Prepare discussion paper with background, explanation of current format and CBST.
-Review comments and solicit information needs from others (e.g. survey)
-Establish objectives and timelines for new CBST Species Plans
-Develop strawdog, solicit feedback
-Refine and finalize – Fall 2020

Project Update and Budget – 2020/21

CoAdaptTree
Objectives

-Provide recommendations for assisted gene flow and assisted species migration for Douglas-fir, lodgepole pine, western larch and jack pine.
-Deliver genomic tools and strategies for breeding Douglas-fir and lodgepole pine that can thrive in future climates an are resistant to pathogens.
-Develop transitional strategies tailored to specific forestry contexts to advance forest management adaption.

CoAdaptTree project has a total budget of 5.8M, primary sponsors are Genome Canada and Genome BC. Other funding is provided by TimberWest, Western Forest Products, Vernon Seed Orchard Co., Genome Alberta, Genome Quebec, Canadian un US Forest Services, and FLNRORD. Every dollar provided by FLNRORD leveraged an additional 1-2 dollars from Genome centres.

11. New Business

1. High mortality rates of Pli due to Comandra blister rust is a significant issue in North-Central BC. Genetic resistant seed is required to reduced mortality and maintain reasonable stocking levels.

ACTION – Nicholas Ukrainetz will work on selecting parents resistant to Comandra blister rust for an orchard

2. CBST might refine orphaned BEC's even more, especially around Chetwynd and the Kootenay regions. Nicholas Ukrainetz and Marie Vance will be working with Greg O'Neill on future orphaned BEC's.

3. Discussion on orchard coverage for future demands, then there is a need to identify if orchards are at capacity or over capacity.

4. Brian recommended ITAC meetings be held during the third week of January as this week does not conflict with other Provincial and regional winter meetings (e.g. ABCFP, SISCO, WFCA,)

MOTION – Next ITAC meeting be held Jan 202-21, 2021. M/S/C

5. Nick and Brian will be looking for volunteers to join the committees for the joint Western Forest Genetics and Canadian Forest Genetics Associations conference in 2021 in Vernon.

12. Adjournment

MOTION – To hereby adjourn meeting at 3:32pm. M/S/C