

Workshop Synopsis

Forests for Tomorrow (FFT) Planning and Delivery Workshop

Sponsored by
Resource Practices Branch
BC Ministry of Forests, Lands and Natural Resource Operations



Workshop Organizers:

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Reminder of Workshop Agenda

Land Based Investment Strategy (LBIS): Forests for Tomorrow (FFT) Planning and Delivery Workshop Location: Executive Airport Plaza Hotel & Conference Centre 7311 Westminster Highway, Richmond, BC V6X 1A3	
	DAY ONE: WEDNESDAY, SEPTEMBER 30TH, 2015 Program delivery
8:30 am	<i>Coffee/tea available – meet and greet</i>
9:00 am	Meeting Logistics – Nigel Fletcher Welcome and Introductions – Jennifer Davis
9:15 am	Introduction to the FFT Fall Workshop – Perspectives – Gerry MacDougall
10:00 am	<i>Coffee break</i>
10:15 am	Session 1: UAVs – their potential and current projects / initiatives within FFT – Janet Mitchell and Craig Evans (FPInnovations) / Dave Weaver
11:00 am	Session 2: GRIM modeling - Jim Goudie
11:30 am	Session 3: 2014 and 2015 fires and Section 108 – Nigel Fletcher
12:00 pm	<i>Lunch – everyone on their own</i>
1:20 pm	Session 4: Enhancing the use of residual fiber / Increasing BCTS effectiveness – the provincial ITSL program – Mike Madill / John Hopper / Matt LeRoy
2:00 pm	Session 5: 2016 / 2017 AOP activity, priority filtering & budget review; numbers compiled to date – Matt LeRoy / Nigel Fletcher
3:00 pm	<i>Coffee break</i>
3:15 pm	Session 6: GAR update, budgets, RESULTS track, etc. – Al Powelson / Matt LeRoy
3:45 pm	Session 7: The process for assessing large operational fires / various times of aerial photography: conventional (plane), satellite and UAVs – Ljiljana Knezevic / Caitlin Harrison / Nigel Fletcher
4:30 pm	Day One wrap-up – Jennifer Davis
4:45 pm	<i>Adjourn</i>

	DAY TWO: THURSDAY, October 1ST, 2015 Strategic objectives
7:30 am	<i>Coffee/tea available – meet and greet</i>
8:00 am	Recap on Safety procedures Housekeeping items from Day One – Nigel Fletcher
8:15 am	Session 8: Forest Health – spruce beetle, Douglas-fir beetle, what’s coming – Tim Ebata
9:00 am	Session 9: Targeting investments in forest growth (silviculture) – potentially treatable areas, provincial overview, flexibilities and FLTCs, ramping up current reforestation - Neil Hughes/ Matt LeRoy
10:00 am	<i>Coffee break</i>
10:15 am	Session 10: Optimizing the timber land base through integrated management for multiple values / implanting a strategy for species at risk and wildlife management initiatives / wildfires and burnt OGMAs – How can Integrated Silviculture Strategies (landscape level planning) help achieve these goals – Paul Rehler / Al Powelson
11:05 am	Session 11: Chief Forester’s direction for FFT – Diane Nicholls
11:50 am	<i>Lunch – everyone on their own</i>
1:10 pm	Session 12: Timber Pricing that represents fair market value / Managing risk regarding future climate uncertainty / Innovative approach for the forest sector – FFT as the flagship for climate change (stocking standards) and innovation (direct seeding, spacing) –Kevin Astridge
1:35 pm	Session 13: FFT A class seed use, seed inventories, orchard production forecast, seed purchase –Susan Zedel
2:00 pm	Session 14: Conversation with Executive – Forest Sector Competitiveness and Key Initiatives – the mid-term timber supply and FFT’s role / Developing bio-economic strategies (post-MPB interior transition response) – Dave Peterson
2:50 pm	Session 15: First Nation perspectives / Enhancing First Nation’s role in forest sector – Keith Atkinson (BC First Nations Forestry Council)
3:30 pm	Workshop wrap-up and evaluation – Matt LeRoy and Nigel Fletcher Recap meeting action items Please complete the Workshop Evaluation Form before leaving
3:40 pm	<i>Adjourn and thanks for you participation!!</i>

Purpose of this Synopsis

At least 64 individuals, including BC Ministry of Forests, Lands and Natural Resource Operations (FLNR) staff from districts, regions, BC Timber Sales (BCTS) and branches, and staff from non-government organizations, that are involved or interested in the Forests for Tomorrow (FFT) program attended a workshop held September 30th - October 1st, 2015 in Richmond, British Columbia (BC). Workshop participants are listed in Appendix 1.

The purpose of this Synopsis is to provide a summary of discussion highlights and action items from the workshop for participants and others that may be interested who were unable to attend.

The Workshop Workbook and this Workshop Synopsis will be posted on the following hyperlinked [LBIS FFT Updates](#) website.

So as not to repeat material already compiled, this Synopsis should be used in conjunction with the Workbook that was prepared to guide the Workshop.

Day One – Program Delivery

Meeting Logistics

Nigel Fletcher led delivery of the workshop agenda, including the introduction of presenters, and described meeting logistics including safety considerations.

Welcome and Introductions

Jennifer Davis, Director, Resource Practices Branch, welcomed participants to the workshop. Jennifer became Director in February 2005. She noted that earlier in her career she worked in Vanderhoof when a previous mountain pine beetle (MPB) epidemic arose from Tweedsmuir provincial park; so seems fitting to be involved now in the provincial FFT program that is addressing the current MPB epidemic. She recalled that in estimates debate, while day 3 on the job as Director, she was struck about how well the minister and deputy minister knew the FFT program and its purpose, and how important the program is to the ministry.

We are at a point ‘where every stick counts’ for fibre and habitat, and need to recover forests in a manner that balances those needs. MPB recovery challenge is reforesting impacted areas to meet multiple objectives – climate change, habitat needs, etc.

The FFT provincial program is ‘your’ program. Resource Practices Branch needs the support of a team involving FLNR operations and BCTS staff to own and deliver the program. Branch needs to increase its communications about FFT, and have conversations with operations staff to help determine priorities in a collaborative manner. Jennifer introduced Neil Hughes, the new Forest Establishment Lead with Branch (who is just at day 8 on the job), who has a wealth of knowledge, and will be working collaboratively with you on identifying priorities. Jennifer asked workshop attendees to introduce themselves (see Appendix 1), and then introduced the first presenter Gerry MacDougall.

Introduction to the FFT Fall Workshop - Perspectives

Gerry MacDougall, Regional Executive Director (RED) – Cariboo, provided an introduction to the FFT Fall Workshop. Gerry will be moving to the RED position in the Thompson Okanagan. Gerry noted we are at the 10th anniversary of FFT. His introduction addressed RED/regional perspectives on FFT; perspectives from municipalities and rural communities; First Nations perspectives; and then addressed a vision of where we're going.

He noted that watershed restoration work in the 1990's where there was a need to salvage harvest an earlier MPB epidemic while protecting drinking water. With the more recent MPB epidemic in the early 2000's then Chief Forester Larry Pederson had to address salvage harvesting in the AAC determinations. Although there is now some MPB 'fatigue' (as issue has been discussed and assessed for so long), the real impacts of the epidemic are to beginning to bite now.

From a RED perspective it is important to utilize the fibre of the dead pine and reforest impacted areas. There is a partition of the AAC in most TSAs aimed to focus harvesting on the dead pine and limit the amount of live trees harvested in order to protect mid-term timber supply. The pressure is to continue to focus the harvest on the dead pine as long as possible. But what's the turning point where licensees can no longer economically salvage harvest the decaying dead pine? All this translates into concerns about jobs and impacts on communities. Timber Supply Review is monitoring how much dead we are utilizing, and staff are fully engaged in FFT delivery. With MPB impacts showing a 'salt and pepper' (mix of dead and live) on the many stands, the question is: do you rehabilitate the stand or not? The shelf life of dead pine is dependent on market demand (e.g. the China market) as well as decay (rot). Gerry acknowledged the good work of Lorne Bedford and Al Powelson on the FFT file.

From a community perspective, the FLNR district manager is often seen as the 'face of government'; although some of community issues raised are not FLNR-related, community representatives know who the district manager is.

In the Cariboo, landscape fire management is a big concern given the impacts of wildfires on communities. FFT is one of the many government programs/initiatives to address economic shocks that compel government to act. There was FRDA, Section 88, FRBC, formation of the Beetle Action Coalitions, and the 2003 Filmon report on wildfires. Funding to reduce community wildfire risk was recently announced at UBCM by the Premier. The tendency of communities when groundwater wells dry up, when there is fewer moose, or potholes on roads, is to say it's 'government's fault'.

Gerry recalled in the 1980's when then deputy minister of forests Phil Halkett addressed the backlog reforestation file. Staff noted that NSR represented a loss of opportunity, and that reforestation of backlog NSR would improve long-run sustainability in 60 to 100 years. This is hard to 'sell' from a political perspective since elections are every 4 years. In the end, the deputy sold the program to cabinet on the basis of the jobs created by planting trees.

Forest dependent communities need to see the linkages to jobs, and FFT is about creating jobs. Of course affected communities often note a new hospital never hurt either, and often lobby for investments in community infrastructure and services.

From a First Nations perspective, moose management is a big concern. Densities of moose are much lower than what they should be given the impacts of the MPB and salvage operations – this impacts First Nations rights to hunt. Hopefully this will be a good news story in the not-too-distant future e.g. need about 10 years for tree heights of reforested areas to provide the cover needed to enable populations to re-bound.

The Tsilhqot'in have an interest in re-starting a sawmill in Alexis Creek; the area is off the grid so diesel fuel would be needed to run the mill. They have a common interest in planting trees and creating jobs, and managing moose. The appropriate harvest levels is a tricky issue with them.

Context for a vision moving forward in BC is recognition that 95% of the province is publicly owned. In contrast in most other jurisdictions like Denmark most of the land is privately owned; Denmark has to coerce private landowners to plant native species. Many countries rely on non-native trees in their forest operations. In contrast, we are pretty good in BC by using native species and helping to maintain biodiversity relative to other countries.

In Montana, a surprising 75% of the land is in public ownership; however they have no sawmills given litigation issues between ENGOs and logging on federal land. When ENGOs win a court case, their costs are often covered in the decision and that allows them to further their court challenges. The contentious nature of logging on federal land even means that harvesting can't occur to reduce fire risk to communities. We have First Nations issues in BC, but they are not as bad as the challenges the US faces on their federal lands.

FFT is a program continuing to do good work. A silviculture investment program could pour a lot of funding in the wrong area, but we are not doing that with FFT – we have a silviculture plan. A key goal is supporting resilient communities. We were able to salvage harvest the MPB killed stands in the early 2000's but now we face the need to adjust harvest levels.

During questions, Gerry noted the challenge of prioritizing where to invest; that Resource Practices Branch (Lorne Bedford/Al Powelson) does that in collaboration with Regional Executive Directors. Gerry mentioned the new funding that the Premier announced to UBCM that includes investments to reduce forest fire hazards to communities; the details of which are being worked on.

There was question on use of broadcast burning as a silviculture tool and for wildfire protection. If done right, in the right weather, it does a good job to mitigate fire risk. The issue is liability to licensees to put out the fire if it gets out of control; they are obligated to pay the entire costs to put the fire out. We have been using broadcast burning in government as a tool for habitat enhancement.

Session 1: UAV – and potential for use for FFT

Dave Weaver introduced the session noting that Resource Practices Branch's position on the use of Unmanned Aerial Vehicles (UAVs) for silviculture is to follow the work undertaken by FPIInnovations (FPI), and to form an ad hoc committee. Branch intends to (i) align formally with FPI's Canada-wide learnings and standards for reporting (recognizing we will need to wait a bit to learn from their work); and (ii) support the FPI FFT project in the Cariboo.

Although there is nothing stopping us to use UAVs now to provide evidence in support of meeting free-growing obligations, we have no standards in place (e.g. image/pixel size). Can't replace the statutory decision-maker now from free-growing declaration, but we may be able to automate that in future with the use of UAVs where standards are in place. At this time there is no appetite in the Branch to purchase UAVs.

Janet Mitchell with FPI described the early scoping work undertaken on the application of UAVs for forestry. Uses of UAVs are best done at the block level – not the landscape level where it may be most cost-effective to use fixed wing aircraft or helicopters. Use of UAVs should also be considered in otherwise dangerous field-related situations.

UAVs can be useful when doing visual inspections such as compliance control, operational road planning, assessing terrain hazards, treatment assessment, and pre-inspections before herbicide applications. UAVs can also assist in area-based mapping such as determining regeneration success, site preparation treatment, soil disturbance, and trail occupancy. UAVs enable a 3-D volumetric assessment such as tree heights and roadside inventory. Using multi/hyperspectral images, UAVs can be used to help assess tree health, and stand/species delineation. FPI hired CGQ in Quebec to undertake a scoping of how UAVs could be used in forestry; their report is available in English from FPIinnovations.

Craig Evans described FPI's experience using with UAVs. FPI initiated research by purchasing a UAV for about \$80K-\$90K; the total financial outlay was about \$150K with the acquisition of software, sensors and training. The range of the UAV is about 3 km from the control unit. Transport Canada restricts use of UAVs to 'line of sight' so unlikely you can go 3 km. Wind was not an issue when using the UAV. FPI bought a second UAV for a much lower cost - \$5K- that had a 2 km range with a 20 minute battery – meaning safe flight time of 12 minutes. For this UAV, the camera can take still photos and videos (but no other images).

Training in the use of UAVs was part of the purchase of the first UAV; this included 2.5 days focused on the rules and regulations regarding UAV use before training on the actual flying of the UAV. All commercial or research use of UAVs is subject to Transport Canada regulations and approval, with the pilot requiring a Special Flight Operations Certificate (SFOC). Membership with the Model Airplane Association of Canada (MAAC) will provide the pilot with a controlled area to gain experience in piloting the UAV. Before December 2014, for every commercial or research flight, you needed to submit an application to Transport Canada – about 6 months before using the UAV given the many applications that are now being submitted (at one time there were about 16 in a year, now the applications are in the 1000's). Since December 2014, a SFOC exemption allows pilots to provide 2-days notice where you will be flying provided you meet 58 conditions including a 90 m height restriction, and are not within 10 km of an airfield.

All of FPI work using UAVs so far are for research (validation trials) – so can't provide information on the costs per ha of doing the work. The trial planning process involves determining the an application, selecting the site, identifying site specific constraints, choosing the appropriate sensor, undertaking a preliminary plan, and applying for a permit. Part of the flight mission is to undertake a reconnaissance of the site to identify potential hazards and to locate a GPS reference point on the ground. The 2014/15 research projects included comparing harvest block boundaries using UAVs with ground-based mapping, and doing mill inventory of chip piles – which was high risk given people at the site.

2015/16 validation trials included assessing regeneration below MPB-killed pine stands in the Cariboo; wildfire assessment (e.g. using infra-red sensing to assess fire hot spots); establishment survey (stocking assessments) in Alberta; auditing fallers regarding safety; assessing log truck tracking on steep switchbacks; and cutblock boundary and retention area mapping.

To assess the level of regeneration, the photo taken by the UAV requires photo-interpretation. Eventually there will be the ability to automate the photo-interpretation, but we are a few years away from being able to do this accurately for all attributes.

We recently tried to assess regeneration under a MPB-killed overstory in the Cariboo. The challenge was – can we do this with the lower cost UAV? One of the issues is ensuring control of the UAV. The “master” controller is the pilot, whereas the “slave” controller manages the camera. The regeneration was viewed from several heights and a series of images were shown with flight heights ranging from 40 to 90 m in 5-m increments. A comparison of two images taken at 35 m was presented with the raw image and one zoomed in to show the detail. A video clip was also shown to provide another perspective. Although the UAV is very stable in windy conditions, some images were blurry.

There was a question about the use of UAVs. There are no regulatory obstacles to using UAVs. UAVs cover the entire stand. We should be able to get stocking numbers in highly dense stands from software just being developed. The ability to detect diseases with UAVs needs more work and calibration by ground-truthing. This is a major restriction to the use of UAVs for surveys and therefore traditional plotting is still required at this stage.

It was noted there are currently lots of limitations using UAVs as we can't go too far from a road. The line of sight requirement by Transport Canada may be removed in future.

Session 2: GRIM modeling

Jim Goudie with Forest Analysis and Inventory Branch discussed the first approximation Gall Rust Impact Model (GRIM). Stand development modeling (SDM) spawned GRIM. An October 2013 field tour near Prince George of the Bednesti trial was held with chief foresters, regional executive directors (REDs) and silviculture staff. One of the action items was to develop GRIM.

Jim wrote an article in the July-August 2015 edition of BC Forest Professional about the Tree and Stand Simulation (TASS) that has been used to predict the growth and future values of BC's future forests for over 50 years. Ken Mitchell (retired FLNR) began developing TASS in 1963 anticipating the increasing demand for managed stand growth and yield information. TASS looks at stand establishment, height growth/vigour, crown growth, stem growth, and mortality to provide stand statistics.

Rust attacks leaders thereby reducing height growth and increasing the probability of tree mortality. The incidence of rust attack can range from 2 to 60%, with attack impacts plateauing at 4 years (5 m height) after establishment. A higher proportion of smaller trees get infected by the rust. When you get into stand ages of about 33 you can't tell which trees were infected, as they the ones that were are no longer part of the stand.

Version 1.0 of GRIM focuses on mortality – not reduced height growth. GRIM randomly attacks trees in version 1.0. If tree at age 1 is infected, all of those infected trees die at age 15. If tree at age 2 is infected, 50% of those trees die in year 15. If tree is infected at age 3 or older, there is 2.5% mortality over time.

The incidence of rust does not equate to volume loss. For example, depending on initial stems per hectare, a 10% incidence can lead to 2-5% volume loss, and a 20% incidence can lead to 3-7% volume loss. When trees die from rust, other trees occupy that space thereby offsetting some of the volume loss. High density planting (e.g. 5000 sph) can benefit from rust impacts as it thins stands to allow fewer stems to reach merchantability.

With Comandra blister rust (CBR), common name bastard toadflax, most trees die very early, so the rust is not detected that much in stand development modeling (SDM) or young stand monitoring (YSM) plots. The probability of CBR attack on stems is relative to distance from bastard toadflax clumps.

GRIM is just now starting to be used to help support Timber Supply Review with use occurring in Prince George. Based on the modeling, if you plant 2000 sph with ingress there is not likely going to be much of an impact from rust on timber supply. Rust caused increased mortality in very young seedlings but this is already accounted for to some extent in TASS.

During questions there was a request for an update on modeling for mixed stands. TASS 3 is testing projections for pine and spruce stands and this should be available shortly. Modeling for hemlock and fir mixed stands should be available end of the fiscal year. Use of the model for mixed stands will require a lot of training.

Session 3: 2014 and 2015 fires and Section 108

The presentation by Nigel Fletcher was shortened, to allow more time for other sessions, with focus on section 108. FFT funding for section 108 is \$1.5 MM/year; surplus funding can be carried over for use in subsequent years. The focus is to fund plantations impacted by fire or slides, not diseases. Woodlot rules however have changed.

The district manager is the delegated decision-maker for section 108 with two basic factors that need to be considered: (i) does the proposal for use of s. 108 meet eligibility criteria; and (ii) are proposed costs reasonable. The 2012 FRPA General Bulletin Number 26 provides guidance on these factors however its focus was on the Interior. With Coastal fires, the reasonable cost guidance in the bulletin may be too low. If costs are too great (using return on investment or ROI considerations), a licensee can be exempted from their reforestation obligations.

Action #1: All FFT delivery staff to review [FRPA General Bulletin Number 26](#) regarding Section 108 to determine if changes are needed, particularly from a coastal fire impact perspective, and provide comments to Nigel Fletcher.

Districts should audit the expenses before using s. 108 to pay for the reforestation costs. There is also a s.108 audit underway where outcomes are being compared with RESULTS. Looking at the block, what did they plan to do? What did they do? And are we on track to a free-

growing stand? Once they get funded, the only s.108 requirement is that they meet free-growing condition, not whether they delivered their plan for the area.

S. 108 is intended to only be used to fund to the state of conditions at the time of fire. If brush comes in after that, licensee's need to pay for brushing if needed to reach free-growing.

It is generally best to pay in a lump sum (vs phases or installments). The problem paying in phases is the s. 108 funding might not be there to cover the completion of the work, and this also entails additional administrative work.

Roads can be part of s. 108 proposed costs. It is important for staff to take a close look at those costs, and have a conversation with the licensee first before committing funds for road costs.

Action #2: Nigel Fletcher to clarify how roads addressed in Section 108 in discussions with Brian Chow, Chief Engineer, and then report that guidance out to FFT delivery staff.

Session 4: Provincial ITSL Program

Mike Madill, John Hopper and Matt LeRoy led this presentation and discussions. In order to increase the effectiveness of the FFT/BCTS MPB salvage harvesting, presentations were made to each of the affected BCTS Timber Sales Offices (TSOs) about the Innovative Timber Sale Licence (ITSL) program. ITSLs are a lump sum timber sale that, for areas that meet FFT requirements, relieve BCTS of the costs of reforestation – those costs are then borne by FFT.

There is a desire to increase harvesting under ITSL as 'every stick counts' in areas adversely impacted by the MPB. About 6 MM m³ has been salvage harvested using ITSLs since 2009. The area harvested under ITSLs has varied from year to year: with 3268 ha harvested in 2009, 6017 harvested in 2010, 9500 ha in 2011, 3875 ha in 2012, 4800 ha in 2013, 4400 ha in 2014, and so far 4100 ha reported for 2015 – the 2015 harvest level could be double that given delays in reporting.

Some TSOs have been heavily involved in ITSLs from the beginning of the program, while others not so. The new MOU between BCTS and FFT should make it easier for TSO to be involved in ITSLs as some of the previous barriers have been removed.

Many MPB killed stands are not naturally regenerating in a timely manner. The seed cones are not viable and grass is coming in leaving many of the >70% dead stands in a not-satisfactorily-restocked (NSR) condition. By targeting stands that would not otherwise be harvested, ITSLs enable the volume of the overstory to be sold and utilized and enables FFT to pay to reforest the sites and convert them to faster-growing managed stands.

Earlier at the start of FFT, there was some under-planting under the dead overstory; however in some cases licensees then came in and salvage harvested the wood which impacted the reforestation work.

If you just knock down the overstory trees and pile them, you get no value from the fibre and there our high costs in doing that work – about \$1300/ha. Salvage harvesting under ITSLs provides jobs and fibre, and reduces overall costs. There has probably been about \$5 MM in

savings in 2015 alone by selling the wood then by just knocking the overstory down i.e. 4000 ha salvaged x \$1300/ha if just knocked down and not used.

BCTS is set up to deliver on the ITSL program. Section 45.2 of the Forest Planning and Practices Regulation relieves the Timber Sales Manager of silviculture obligations if harvesting is administered under the FFT program. Given that this section only applies to BCTS, First Nations and forest licensees are not eligible to deliver ITSLs. Further their stumpage is based on formula, whereas BCTS's wood can be auctioned. If wood auctioned, and bids can't pay for reforestation, then FFT can cover those costs for eligible stands.

Although in Kamloops area, development costs have never been covered using FFT funding, this has been done in some areas. It was noted that even if \$1500/ha in development costs are paid by FFT, overall costs will be less than just knocking the overstory stand down.

The next big push in the ITSL program is to help find blocks outside BCTS' chart area; in Kamloops a big proportion of the program is now outside chart areas.

There was question if small scale salvage (SSS) could harvest some of the overstory for FFT. An issue here is that SSS is required to pay a silviculture levy. Another option is a Forestry Licence to Cut where a reduced stumpage rate for wood can be charged. But only mechanism to be relieved of reforestation obligation is timber sales manager under ITSLs.

Potential barriers to ITSL program delivery that we need to be mindful of include:

- Districts don't get FFT funding overhead to help deliver sales for BCTS
- BCTS's role as good stewards need to be in balance with maximizing revenue to the Crown e.g. BCTS response is often 'as long as we can break even we are ok'
 - It was noted that BCTS makes some money from ITSLs but not a lot
 - That said some timber sales managers don't believe they are making more money by being involved as they can make more off of traditional timber sales
 - Even if BCTS makes some money off ITSL sales, it is hugely beneficial as FLNR operations does not have skill set to deliver the sales and FFT saves costs
- Multiple delivery agents within TSAs is often difficult to coordinate
- Forecasted reductions in the AAC e.g. non-replaceable forest licence (NRFL) wants compensation even if they can't use it where they no longer have opportunity to harvest BCTS chart volume
- Identifying MPB killed stands that are FFT eligible takes staff/resourcing; there is no guarantee that you will find areas.

Although it did not win, the ITSL program was a finalist for the Premier's Innovation and Excellence Award.

One advantage of ITSLs is that it entails a lump sum timber sale that is auctioned. There is then incentive for increased levels of utilization relative to scale-based harvesting where there is incentive to leave poorer quality volume in the woods.

Harvesting of MPB impacted stands was initially relatively easy in 2003. It is more challenging to find suitable sites since 2008 via ITSLs. Without FFT, we can't harvest and reforest some impacted stands, thereby impacting mid-term timber supply.

With more flexible arrangements now in place, BCTS staff are more aggressive in putting blocks in dead pine stands. Staff are not worrying if we can make money on these stands

knowing that FFT can help if bids are not high enough to cover reforestation costs. Most low value FFT eligible ITSLs get sold.

Looking ahead, we are expecting to harvest 4.5 to 5 MM m³ under ITSLs between 2016 to 2020. BCTS is looking at ‘purchase agreements’ with licensees to move ITSLs outside BCTS chart areas where completed survey information is provided to licensees and volume cut is made available to local mills.

The benefits of ITSLs to BCTS include:

- Improved future timber supply
- Ability to utilize lower upset rates which then reduces the number of no bids
- Strategy to provide less expensive fibre to industry.

Challenges include:

- Predicting markets; a stand last year would sell and cover reforestation costs, with a similar stand this year not even getting a bid
- Licensees that are not receptive to have BCTS operate in their chart area.

The [April 2015 MOU between BCTS and FFT](#) regarding ITSLs is posted on the FFT website. Although FFT can cover some development costs, there should be conversations between BCTS and FFT staff before agreeing to this. The focus of the MOU has been on MPB impacted areas and it was noted additional guidance would be beneficial for wildfire impacted areas.

Action #3: Resource Practices Branch to prepare FFT guidance on ITSL opportunities for wildfire-impacted areas in Coast and Interior.

Session 5: 2016/17 Annual Operating Plan

Matt LeRoy and Nigel Fletcher led this presentation and discussions. Matt provided contextual overview before discussing the AOP. FFT’s current reforestation (CR) and timber supply mitigation (TSM) are two of 18 investment categories in the [Land Based Investment Strategy \(LBIS\)](#). FFT’s focus is on mitigating the impacts of catastrophic disturbances with the [FFT Strategic Plan](#) providing vision, mission and goals. The MPB infestation helped create the other LBIS investment categories given its far-reaching impacts. TSM program targets 30% of its funding to the Coast mainly towards fertilization.

The Premier announced on September 25th the creation of a Forest Enhancement Program (FEP) where BCTS will play a significant role in delivery. The three categories within FEP: (i) salvaging dead timber; (ii) fuel management; and (iii) enhanced reforestation with focus on Coast including Skeena on problem forest types such as hemlock-balsam stands. Details are to be worked out including funding levels with goal that the program is operational in 2016 through discussions with communities, First Nations and licensees. Although FEP is a brand new program separate from FFT, the administration and delivery may mirror FFT. FEP’s focus is salvaging dead timber in the Interior; no funding is going towards the harvesting of interior problem forest types such as decadent cedar – hemlock stands.

FFT commitments include planting at least 20 MM seedlings per year with a target of 28 MM seedlings/year by 2019/20. Although budgets for CR are up, we are currently not projected to meet that 28 MM seedling target. Part of issue is capacity to deliver within FLNR and BCTS;

we need PwC delivery support to help achieve targets. The AOP identifies delivery agent e.g. BCTS vs PwC. Regarding the AOP, for CR we have enough funding to cover the needs identified by districts.

To support TSM, and FFT team was formed that have identified priority management units whose timber supplies are most constrained. This will help guide the distribution of TSM funds where the needs identified in the AOP exceed available funding.

The draft AOP shows surveys going down in MPB and wildfire impacted areas, but we need to do that work to support the identification of stands needing treatment. There appears to be a disconnect between the sowing/planting in AOP with the sowing requests in SPAR.

Action #4: Nigel Fletcher to pull sowing numbers from SPAR for use in AOP.

Regarding overstory removal, exhaust ITSL opportunities first before considering other more costly options. We should remove the backlog NSR line from the AOP as it is recognized that the number is so small there is no need to chase the few remaining areas down.

Action #5: Matt LeRoy will follow-up with FFT delivery staff regarding need for ROI training.

For TSM, we are targeting the fertilization of 20 000 ha including 6000 ha on the Coast, with investment efforts tied to available silviculture strategies. If we can secure \$1 MM in surplus from this FY, we are likely able to achieve that target. The ‘surplus’ may be from unspent LBIS, FLNR, or government-wide funding. Monty Locke has monthly fertilization meetings/calls with operational and delivery agents that are active with the program that year.

About \$1 MM/year of FFT is targeted for community forests (CF) and woodlot license (WL) areas. Regions/districts may receive proposals for use of those funds from the associations representing CF and WL late in the process. This can put reviewers in awkward position of being the ‘bad guys’ when projects are challenged.

Action #6: Resource Practices Branch will review the FFT allocation process for community forests and woodlot licenses with respective associations to ensure there is more collaboration/interaction with FFT district delivery staff before projects are identified.

Dan Turner has been hired by Resource Practices Branch to fill Matt LeRoy’s old position; Dan now oversees the FSP tracker and supports FFT RESULTS submissions. District delivered activities that are submitted in RESULTS have been poorer than those submitted by licensees. Before the Forest Practices Board audit on RESULTS, licensees had 16% data quality errors. We targeted errors post-audit to be 2% for licensees; currently they are only 1%. District FFT submission errors are about 10%; although this is an improvement from past performance it is still short of where we need to be.

Action #7: Resource Practices Branch will explore with FFT delivery staff ways to improve the quality of FFT RESULTS data submissions e.g. perhaps have one coordinated provincial contract.

Session 6: GAR update, budgets, RESULTS tracking

Al Powelson and Matt LeRoy led this presentation and discussions. Government has approved mitigation for impacts caused by the establishment of no harvest caribou wildlife habitat areas (WHAs) under FRPA's Government Actions Regulation (GAR). Mitigation strategies include relieving licensees of their reforestation obligations for some areas.

The agreed to GAR cutblocks where government assumes reforestation obligations need to be in RESULTS to plan and manage future costs. There are 2800 openings province-wide including 8 in Chilliwack and about 700 in the Columbia area – with most being in the Interior.

GAR openings with planned activities in RESULTS are not always there. Even if just a free-growing declaration is needed, a survey activity needs to be done to enable this. All GAR openings should have planned activities in RESULTS and this should be reflected in the AOP.

Action #8: Dan Turner to provide list of GAR openings without planned activities in RESULTS to FFT delivery staff.

For Canfor, we need to finish negotiations to identify cutblocks to be included in the package. To assess if reforestation costs for cutblocks are reasonable, we can consider: (i) appraisal information; (ii) discussions with BCTS; (iii) FFT benchmark costs; and (iv) RESULTS activity reports.

One option is to negotiate with licensees to deliver the reforestation work.

Action #9: Resource Practices Branch to send maps showing GAR openings by district with planned activities by year to FFT delivery staff.

Session 7: Assessing large operational areas (fires and MPB areas)

Ljiljana Knezevic, Caitlin Harrison and Nigel Fletcher led this presentation and discussions. Aerial photos acquired by the Ministry for wildfires can be used for a variety of uses. FFT is paying for aerial photos in some cases but this is helping other programs too. Key forestry applications of ortho photos, digital camera sampling, and satellite imagery include forest inventory, forest planning, vegetation management, forest cover updates, de/re-forestation, forest health (insect and disease detection), and wildfire detection.

Taking a collaborative approach to acquiring and sharing aerial photos helps the ministry overall in planning (e.g. by encouraging and supporting coordinated planning), sharing information/data base (e.g. RESULTS/GENUS), and reducing costs of photo acquisition (e.g. could be led by another ministry program or branch and funded through FFT). Graham Hawkins at FAIB stores photos that have been acquired.

Government had acquired orthophotos in 1985 and 1997 for the Prince George area. Given recent large fires we couldn't use those photos for FFT work in 2005. There was a need for aerial photos to support day-to-day FFT operations including assessing (i) MPB impacted plantations up to 50 years of age; (ii) recent fires on Crown forest land; and (iii) areas for fertilization.

We acquired low-level, high-resolution photos, and enhanced the photos with ER mapper, and provided GIS layers. By using this information, we could direct surveyors to areas that most likely have NSR, and this increased the likelihood that ground surveys would identify FFT eligible stands. As a consequence, survey costs went way down.

Action #10: FFT or government should consider purchasing/acquiring aerial photo enhancer software; Nigel Fletcher to ask Forest Analysis and Inventory Branch if they have this software.

Ortho¹ imagery for burnt area shows burn severity and current access; this information is provided to those bidding on treatment as they can better estimate their costs. As a consequence bid prices are lower than we might have expected. Need good quality recent imagery to ensure survey work is focused on what got burned.

The acquisition of satellite imagery is coordinated by GeoBC (contact: Harald Steiner). The pricing for satellite imagery is for a minimum area of 100 km² which works for the larger fires.

Action #11: FFT delivery staff should explore with Nigel Fletcher the acquisition of aerial photos for smaller fires (i.e. where FFT is not acquiring satellite imagery).

Day Two – Strategic Objectives

Session 8: Forest Health² – spruce beetle, Douglas-fir beetle, what's coming

Tim Ebata provided an update on FFT pest concerns based on last year's provincial forest health aerial survey. Regarding drought impacts, the survey did not pick up anything this year as the survey was undertaken in July. In the Chilcotin 9,671 ha of drought damage was reported in August 2015. In 1998 plantation damage was caused by drought, and this is expected in 2016 given drought conditions in 2015.

MPB impacts are showing a steady decline overall, but impacts are still active in southeast BC – with the Boundary area being the busiest - and in parts of northern and northeastern BC. For some of these areas, there is 'active' beetle management though more detailed detection work, ground surveys, and sanitation harvesting. Due to poor weather conditions we have gaps in aerial survey coverage.

The Douglas-fir beetle is exploding in the Cariboo likely because of drought and fires which causes stress on the fir. This is a huge concern to local communities, as the beetle is killing 'what's left' of the conifers. Lots of old fir in mule deer winter range and in old growth management areas that are impacted by the beetle – local biologist not sure if it is best to cut the impacted stands or leave it alone. Similar increased impacts are noted in the Kamloops area. We have never experienced in BC a massive attack of the Douglas-fir beetle but this has occurred in the US where some valleys have seen huge impacts.

¹ Ortho corrects for errors in images at edges

² [Forest Health Information Management Index](#)

The spruce beetle outbreak in MacKenzie and Prince George increased from 18,693 ha in 2013 to 286,375 ha in 2014; we do not yet have the 2015 results from the aerial survey tallied but expect those numbers will climb. Individual blowdown trees in shaded canopy is ideal condition for spruce beetle.

The western spruce budworm continues to be on the decline. There were 128,038 ha impacted in 2013 which dropped to 44,652 ha in 2014, and is expected to drop further once the 2015 estimates have been compiled. There will probably be no spray program for this pest next year. The Btk aerial spray of 10,285 ha in the Cariboo region effectively controls the budworm.

The [Field Guide to Forest Damage in BC](#) is available for \$40 from Crown publications or can be downloaded as a pdf for free (click link).

Tim responded to the questions posed for this session based on the pre-workshop survey.

Q: Can we get LBIS funding for forest health treatments on area-based tenures (e.g. woodlots, community forests)?

A: We have not budgeted for this work but we are providing them with forest health data from the aerial survey. Most treatments involve forest harvesting and they are in charge of their own land base. Probing costs could be covered in appraisals, and training is available on how to probe. That said we have paid districts to do suppression work in woodlots or community forests where there is a threat to the surrounding TSA.

Q: Will spruce beetle affected areas be FFT eligible?

A: BCTS staff noted that they have done some spruce beetle ITSLs where FFT criteria met e.g. >70% dead and the sale of the wood does not cover reforestation costs. That said the more we are able to get licensees to deal with the spruce beetle, the better.

Q: Can we receive guidance documents and support from our entomologists that help us place traps in the best locations and how to best manage these beetles and where to concentrate our efforts?

A. There are a variety of guidance documents in existence that you can reference including:

- [Bark Beetle Management Actions on the 1998 Silver Creek Fire](#)
- [A Guide to Managing Douglas-fir Beetles on Private Property](#)
- Douglas-fir Beetle: A Threat to Local Forests and Homeowner Trees
- [Use of Trap Trees for Spruce Beetle Management in BC, 1979-1984](#)
- Spruce Beetle Trap Tree Guidance in the [Bark Beetle Management Guidebook](#)

Q: Will FFT funding be made available to assist in sanitation?

A: Licensees are responsible for harvesting or fall and burn.

Q: Elytroderma: At what point do you write off a young stand and rehabilitate it?

A: This disease is mainly an issue in the Chilcotin. Don't know the answer as the impact of the disease is not well known. Cariboo regional staff noted that a resistance trial is being set up by the regional pathologist.

Q: Are there intentions to review and update funding eligibility for forest health related work?

A: The primary focus of forest health funding is support for the LBIS; if operational treatments can be justified, will consider using LBIS funding to support this.

Q: How do nurseries sample for Kethia (cedar leaf blight)?

A: Although it is possible to determine if seedling is infected in the nursery, it is a very expensive testing that is not being done. It is easier to detect once the seedling is planted and

established. During discussions it was noted that Kethia is wiping out some plantations. John Russell, Cowichan Lake Research Centre, Tree Improvement Branch is a good contact on this forest pest.

Q: What effect does Armillaria have on Cw/Yc growth?

A: Mortality is low but it can affect growth. During discussions it was noted that Michael Murray, FLNR pathologist in the Kootenays is looking at effectiveness of stumping via research trials in southern BC. We are expecting a summary of his findings shortly. It seems drought years can increase the mortality impacts. SISCO had recent field tour on stumping. If small machines are used and large stumps are left, stumping is not as effective.

It was noted that frost impacts can lead to the tips being killed. Drought generally has a multi-species impact. Lorraine Maclauchlan did a [Report on the 1998 Drought event in the southern interior of BC](#) which may be of interest given this year's drought conditions.

Given the extent of the new fires, we can re-distribute the advice that Jennifer Burleigh provided on the black army cutworm a couple of years ago. This is mainly a central interior SBS issue. Training is also available.

Regarding spruce beetle attack, there have been requests to salvage harvest very severely impacted stands, but generally not finding them. There can be economic incentives to harvest the spruce stands even if they are not attacked yet they are needed to support mid-term timber supply in MPB impacted areas. We need to see the probe data. The issue is also a professional reliance one involving ABCFP.

Session 9: Targeting investments in forest growth

Neil Hughes and Matt LeRoy led this presentation and discussions. Neil introduced himself as he had just joined Resource Practices Branch. Neil provided a summary of treatable area assessment for MPB impacted stands where the total estimated area of overall impacts is 18.7 MM ha. However, when looking at just the area in the THLB, and then areas within THLB with >50% mature pine, and then just those >50% mature pine stands with Severe and Very Severe (>30% dead) impacts, the numbers steadily decrease. Further, about 600 000 ha of >50 mature pine and >30% dead have been harvested with a legal reforestation obligation.

Some of the potentially treatable area will be salvage harvested in the future, and some of the impacted stands will recover naturally (due to having adequate natural regeneration and/or secondary structure). These factors need to be accounted for when estimating the potential level of ITSL opportunities.

In addition to impacts on mature pine leading stands, there are also MPB impacts on immature pine leading stands, and wildfires, that can be addressed by FFT.

Given that 'every stick counts, in the interior management units impacted by the MPB the focus is to harvest the dead wood still standing before it decays and is unusable – we have a small window of time to do this. The harvesting of green (live) wood should be delayed as this wood supports mid-term timber supply.

Action #12: Matt LeRoy will ensure latest 'treatable area' maps are put on FTP site that can be accessed by FFT delivery staff.

During discussions, it was noted that the clock is ticking as some of the killed stands are 10 years old and starting to fall over. Another comment mentioned that we have no tools to have FFT ITSL harvests outside BCTS chart areas – which limits the extent to which we can treat areas. Another concern is that there may not be markets to use the dead wood; PwC have been hired to review emerging markets to use the wood. In Fort St James, there may be emerging demands with a new bio-energy plant.

There was also a concern raised about not over-harvesting landscapes dominated by pine-leading stands due to environmental impacts.

Among the current activities underway, there are ITSL sales posted on-line for Vanderhoof, Prince George and Mackenzie. Work is underway to revise the existing Forestry Licence to Cut (FLTC) document to broaden its application in support of FFT. Questions were asked operations staff to consider:

- Can we leverage PwC more?
- Can we make use of less restricted FLTC?
- What are the obstacles operations staff are running into with rehabilitation?

In support of the Forest Enhancement Program (FEP), opportunity mapping for Coast hemlock-balsam stands can be prepared. In the Coast, over harvest in second growth stands is affecting mid-term timber supply, so trying to direct some of the harvest in low value decadent hemlock-balsam stands can help alleviate some of those effects.

It was noted that on the Coast we need to work towards harvesting the profile that was assumed in TSR. A problem forest type pilot that provided a stumpage break didn't work; there was a comment that development costs may be the issue. If the return on investment is high for high productivity Coastal sites that currently have low value decadent stands, FEP may be able to cover some of the development costs in addition to reforestation costs.

In the Workbook, questions were provided from the pre-workshop survey:

Q: I wonder if some sort of zoning process is required to manage more intensive silviculture activities. If you're targeting areas for investment, how will you decide on the target?

A: Zoning can identify priority areas to treat considering factors such as a high return on investment.

Q: Are the client's section 108 costs reasonable?

A: Although we have hired a consultant to conduct a s.108 audit, that project is not looking at costs. The audit is focused on what was done – are we on track to meeting free-growing? Districts need to keep track of proposed costs considering comparable costs for non-s.108 reforestation projects.

Q (comment): I'd like to see OGMAs and WTPs eligible for reforestation funding.

A: There was reply that you can designate new OGMAs, and then reforest old OGMAs and put them back in the THLB. There was also comment that other LBI programs can deal with what to do in impacted OGMAs and WTPs. And it was noted that FFT is about reforesting areas to be harvested in future, not about rehabilitating areas that can't be harvested.

Given discussions about the importance of considering return on investment (ROI), it was noted that ROI training session(s) may be needed (see Action #5). There is also need to consider stand value vs volume. On Coast, there is more value in cedar vs fir.

Q: What are opportunities to include areas damaged by wind or catastrophes other than fire?

A: Licensees should explore opportunities first. Some of this has been done under FFT. Need to consider what is an endemic vs catastrophic windthrow event.

Q: Sitka blacktailed deer have had a devastating effect on the regeneration of cedar on Haida Gwaii. Can FFT funding be used to mitigate the {significant} cost of seedling protection?

A: Initial response was don't think so. Comment back was: why not change criteria? Another comment noted – then what about elk around Campbell River?

Session 10: Integrated Silviculture Strategies

Al Powelson provided an overview of silviculture strategies (SS) as summarized in a handout provided in the Workshop Workbook entitled [Integrated Silviculture Strategies – An Evolution](#).

- Type 1 SS focussed on fibre production – what can we do to fill mid-term timber supply short falls and to create conditions for higher value products?
- Type 2 SS linked to modelling – what are the impacts on future timber volumes under various scenarios?
- Type 3 SS also addressed habitat needs when assessing scenarios; these were limited by data and analytical tools and few were done.
- Type 4 SS addressed second growth and the MPB and accounted for what is being harvested, existing retention strategies, and the impact of climate change.
- Integrated SS (ISS) are intended to enhance strategies by taking into account all local values. The process is collaborative and iterative.

Former Minister Pat Bell was keen on silviculture and in 2009 the ministry prepared a [Silviculture Discussion Paper](#). There was considerable feedback that we need a forest estate (landscape-level) plan. Due to the impacts of the MPB and wildfire, Type 4 SS were prepared.

ISS are intended to more fully deliver on the feedback that forest estate planning is needed by integrating objectives on the landscape and undertaking scenario planning. One of the objectives ISS will link to are provincial timber objectives. The [Auditor General](#) recommended that the ministry have clear timber objectives, consequently a [Provincial Timber Management Goals and Objectives](#) document was prepared in 2014. One of the 5 goals addresses timber volume flow over time where a provincial target is to produce a mid-term timber supply of at least 57 MM m³/year, and a long-term timber supply of at least 65 MM m³/year. We are now drilling down and preparing 17 draft timber management goals and objectives documents at the management unit (MU) level. These MU documents have not as yet been widely distributed as they are still working draft documents under review.

For ISS, local level discussion is key – this determines the local priorities that need to be addressed. An initial ISS is underway in the Arrowsmith TSA where we are ‘learning as we go’ and addressing Chief Forester direction regarding the co-location of reserves. Some initial meetings have occurred in support of the Mackenzie TSA ISS. A contract was awarded for an ISS in the former Fort St. James district which is part of the Prince George TSA. A Type 4 SS has been prepared for the Prince George TSA. There are other resource interests and First Nations interests that need to be addressed in the ISS. A contract has been awarded to work in the ISS for the Merritt TSA that will build on the [Innovative Forest Practices Agreement](#) for that area.

Four other management units have been approached about undertaking an ISS: Cranbrook, Bulkley, Fraser and Strathcona.

Type 4 SS and ISS are forward looking – what can we achieve, while TSRs look back at what was done. The benefits of Type 4 SS include defining enhanced basic silviculture, identifying stocking standards to reflect climate change and desire products, exploring ways to incent those activities, and their collaborative development with stakeholders, First Nations and licensees.

In the Workbook, questions were provided from the pre-workshop survey:

Q: Is this estate planning? Maybe it should be?

A: ISS are a step towards estate planning. We are not creating new objectives; rather, we are building on the existing direction in documents such as land use plans. Using cumulative effects assessments on the landscape, and FREP findings on what is being achieved on the ground, ISS attempt to avoid being ‘red’ to those gauges of sustainability.

Q: Any information would be welcome on what opportunities exist.

A: We have a 2-year plan for ISSs where we expect to have capacity to undertake 4 ISSs per year. We expect to facilitate a conversation about doing ISS ‘light’ so more can be undertaken with existing capacity. Reminder that FFT does provide \$5K per district per year to support planning.

Q: Maintain and reforest or seek new OGMAs?

Q: Very interested in burnt and dead OGMAs and getting the most out of them as we can.

A: This will go into the scenario process. We also have other processes to address this e.g. need to co-locate reserves in the Arrowsmith TSA. These type of questions can be asked when initiating an ISS.

Q: I’d like to know if there is an appetite for government to re-open land use plans or are we interested in approving amendments to legislation that encourage these strategies?

A: Through ISS we are not doing land use planning, but we are reflecting on how we can achieve the objectives in land use plans. In Session 12, Kevin Astridge will be addressing policy changes under consideration such as in the appraisal manual to help encourage implementation of the strategies.

Q: We are working on a similar strategic plan for each of our large fires. It’s still just a concept about where to rehabilitate, where to accept lower densities or different species to get habitat or visual green up sooner.

A: ISSs can look at the impacts of lower or different stocking densities. If we develop wildfire stocking standards, ISS can address what that impact is on timber and other values. We are working on a forum to accept new standards where there is agreement.

Q: Seems bizarre that different LBIS pots {investment categories} (SAR and FFT) have conflicting priorities for incremental silviculture. Is there a higher level discussion happening to address this? Are areas that have been previously altered eligible for restoration to increase habitat value?

A: ISS is trying to avoid having conflicting objectives. FFT’s focus is on timber. Chris Ritchie is category lead for species at risk that is addressing habitat values. The LBIS ecosystem restoration program is focusing its efforts in fire-maintained ecosystems.

There were questions from the floor including: any efforts to increase funding ask? A: We need ISSs to build the business case for additional funding.

Q: What are the linkages of ISS to other LBI funding programs?

A: Hopefully beneficial. The MUs with ISSs have non-timber issues. What are the potential solutions to address those issues including use of LBIS funding pots.

Q: What is link to wildfire protection plans and where to employ wildfire stocking standards?

A: We are trying to include this in ISSs. Wildfire risks/values maps link to ISSs. There was comment that landscape-level fire management plans have defined fuel break locations. ISS are using the best available information to inform the process including fire management plans where available.

Q: What is best timing doing ISSs relative to TSR?

A: Ideally like in Arrowsmith TSA at the same time. There was a comment from the floor that it might be better to do an ISS right after TSR.

Session 11: Chief Forester's direction for FFT

Diane Nicholls is A/Chief Forester and Executive Director in Resource Stewardship Division. She noted that the salvage harvest of MPB killed stands drives us to re-invigorate and re-build the impacted forests.. Some of the learnings from TSR include:

Coastal issues:

- There is transitioning on the Coast from old growth to second growth that if not managed correctly will cause future timber supply issues
- There are discussions underway evaluating the timber supply review process and how to ensure the AACs can become realized. Some early work is being done to evaluate assumptions in the TSRs with actual harvest performance by species and age class and harvest type.
- Coastal Forest health issues seems to be on the rise with root rots, leaf blights in cedar, needle die back in Dfir to name a few
- There are questions arising about Timber quality and growth due to drought conditions that have occurred.

Interior issues:

- AAC's are not going down everywhere. Some units are requiring MPB uplifts as the MPB came in the latter years and there is red and green attack that can still be salvaged, while other units are finished their salvage opportunities and need to have AACs decreased to reflect this.
- Forest health is an increasingly important issue and the work of forest health specialists is sought after for advice on management practices.
- Wildfires seasons are getting longer and larger in areas affected. These have impact on growing stock and eventually timber supply
- The interior is going through a transition from MPB salvage to post MPB salvage and therefor FFT is vitally important to clean up those stands that were uneconomic to harvest and get them rehabilitated to productive growing forests.

Other observations:

- There is community push and recognition that we need the fibre out there to support milling capacities as much as possible

- Carbon and climate changes are increasingly important concerns that are being addressed in AAC rationales
- Cumulative effects (CE) framework – TSR is a first ‘type’ of CE assessment by addressing all the FRPA values within the analysis. That said, CE framework provides us with additional information for consideration in TSR such as impacts on grizzly bear habitat
- First Nations interest are an important aspect of TSR; If there is a First Nations land use plan presented it can be considered in TSR. First Nations are increasingly bringing more information to TSR and sometimes are preparing their own sensitivity analysis.
- Young stand performance – we are assuming free-growing following reforestation but in some cases this is not so. Young stand monitoring and FREP’s stand development modelling need to provide information for TSR. If young stand performance is poorer than modeled, then the mid-term drop in timber supply could be longer than projected in TSR.

Initiatives underway:

- Integrated Silviculture Strategies (ISS) are really exciting; very supportive of this work. ISS provides a forum to identify key issues, to review past performance, and to address what we want to see in the future. Reforestation may need to vary to address different values e.g. may want to plant only 400 sph for grizzly bear and allow for ingress
- Provincial Forestry Forum is looking at stewardship/thlb stabilization. There is need to review areas set aside such as OGMAs, UWR, WHAs, etc to determine if they are doing what was intended. AS an example, for some OGMAs, blowdown has occurred and they may not be working as intended. Shifting locations of these set asides may allow for better conditions for the values being protected.
- Competitiveness strategy – led by Dave Peterson – looking at problem forest types on the Coast and interior– and new markets/products, new methodologies, community stability.
- Species at risk – caribou, goshawk, and marbled murrelet are among some of the species of concern. We are processing where and how to have enough area set aside to address all of the habitat needs. As an example, for some coastal species at risk, we have lots of habitat on the mid-coast, but there is declining opportunities in the south coast given urban areas and other development activities. The province is working with the federal government on strategies for species at risk.
- New technologies – we need to be open to new potential technologies that may seem far-fetched to us today like using drones or robots to plant trees. Direct seeding seems to be on up-swing using B class seed. There is a lot of opportunity to use lidar to enhance forest management.
- FFT regenerates areas in the THLB to improve fibre for mills and communities. This is absolutely important. Core of FFT is in investing in solid fibre producing areas.

During discussions the following questions were asked or concerns raised:

Q: Is there an opportunity for new tenure holders?

A: We need to be careful about new allocations; there are few areas with unallocated timber. In some areas we have an issue of over-allocating timber. When AACs decline, there is a proportional reduction on existing tenure holders.

Q: The salvage of low value MPB killed stands using ITSLs is focused on BCTS operating areas – which are only about 10% of the TSA. We have an issue getting agreement with licensees to have ITSLs in their operating areas as they are looking for compensation. We need direction.

A: Dave Peterson is looking into this file. Licensees want to be partner in the approach. ITSLs put their wood out for auction.

Q: Lack of capacity for contractors e.g. survey program may only get one or two bids. We have lost contractors during the downturns especially in rural communities

A: I made a presentation recently at a coastal silviculture committee and I asked everyone over 50 years old to sit down – and about 50% of attendees did. So I see the concern. That said, we are seeing some re-growth with younger people entering the profession, and we can train biologists who have graduated from universities who are looking for work to do silviculture surveys. To build capacity we need to work with the silviculture associations.

Q: There is need to catalogue the research that has been conducted as it is hard to find studies that may be applicable to our work. Should FFT develop a library of information?

A: There is a natural resource sector library that is managed by the Ministry of Environment.

Action #13: Resource Practices Branch will distribute to FFT delivery staff ways in which you can access research information regarding FFT treatments e.g. [J. T. Fyles Natural Resources Library](#) managed by Ministry of Environment.

Session 12: Timber pricing and climate change considerations

Kevin Astridge made the presentation and led discussions. Former Chief Forester, Jim Snetsinger's 2009 [Guidance on Tree Species Composition at the Stand and Landscape Level](#) provides the best information on this topic. [Technical Report 055 on Ecological Resilience and Complexity](#) provides information to help assess the vulnerability of forests to climate change and guide the development of adaptation strategies.

The [Establishment to Free Growing guidebooks](#) under the Forest Practices Code continue to provide useful information. There are suggested changes to the [Reference Guide for FDP Stocking Standards](#) for species considered at high risk to climate change or represent opportunities for adaptation due to climate change e.g. IDFdk changes with lens of climate change. Further climate change updates to the Reference Guide are expected. Amendments to guidance on seed use are also expected given climate change.

The [Tree Species Selection Project](#) continues to provide guidance. As part of the project, work has been done on the development of landscape-level species strategy. [Technical Report 82](#) provides a road map for development of landscape level ecological tree species benchmarks.

Another source of information are RESULTS 'canned' [species monitoring reports](#). The reports help address the question if we are shifting species composition in the management unit or within a subzone.

In 2010, the Chief Forester amended the Standards for Seed Use to [expand the use of western larch](#) as a climate change adaptation strategy.

The biogeoclimatic ecosystem classification (BEC) is in flux in the south coast and southern interior, so some of the tools we use are in limbo as they are linked to BEC units.

What can we do now? Consider landscape context, and species regeneration and retention. Sometimes what is old is new – such as use of the free-growing guidebooks.

From the new [provincial government website](#), under ‘how may we help you?’, click ‘Farming, Natural Resources & Industry’, then click ‘Service Industries’, then “Forestry”, then click “Managing Our Forest Resources”, then click ‘[Silviculture](#)’ to access information you may need.

The second part of Kevin’s presentation was on recommendations stemming from a project on building economic pathways to stand level investments. One of findings is that appraisals are not an incentive, and can be barriers to investment. Increasing planting densities can increase future timber volumes and reduce impacts from forest health losses particularly if additional seedlings planted are adapted to climate change – but increasing planting densities costs more.

Responses to ABCFP regarding ‘what’s preventing you from undertaking good stocking’ included (i) stocking standards {though Kevin feels this should not be a barrier}, and (ii) costs.

The challenge therefore is to identify realistic and effective solutions to the barriers to advancing innovative strategies – with Diane Nicholls being project sponsor. The project involves Resource Practices Branch, Timber Pricing Branch, and Competitiveness and Innovation Branch (given expertise in climate change). The current situation is that licensees incur a financial penalty to do more than minimum to achieve basic silviculture; whereas we want to encourage them to do more to improve timber supply.

In Williams Lake TSA, the current practice is 1200 sph target with 700 sph minimums. The Type 4 SS provides a 2000 sph target with 1200 sph minimums, but this is not going to happen if those extra costs are not being covered.

Options include: (1) change pricing; (2) change regulatory requirements; or (3) change Chief Forester guidance. A recommendation is meshing options 1 and 2 where the regulatory test is not TSR but is the Type 4 SS or ISS where one exists. Costs could then be more specifically reflected in the appraisal system.

Some implications to delivering this include: (i) may need ISS light for management unit so forward looking stocking standards are in place; (ii) collect cost data for enhanced basic silviculture where higher densities are planted; and (iii) change appraisal manual to reflect those additional costs.

It should be noted that enhanced basic silviculture with higher planting densities is not intended across the management unit, but is intended for the better growing sites. Also that regulatory changes to implement this is a tough sell, so trying to push the funding approach.

Session 13: FFT A Class seed use and related topics

Susan Zedel led the presentation on FFT seed use, seed planning for FFT, and seed production of pest resistance (e.g. rust).

In 2015, 53% of FFT seed use was from Class A seed (up from 44% in 2014), 18% from Class B+ seed, and 29% from Class B seed. The overall average gain from FFT use of select seed was +21 for hybrid spruce, +7 for lodgepole pine (lower given B+ seed use), +23 for Douglas-fir, and +24 for larch.

It seems much of the seed planning for FFT is based mainly on previous use; perhaps hard to forecast future use as we don't know the nature and extent of future wildfires. Through ITSLs, some forecasting of future seed use maybe possible.

The [Forest Genetic Council's Strategic Plan 2015-2020](#) includes 5 objectives:

- Objective 1: Genetic conservation
- Objective 2: Resilience and climate-based seed transfer
- Objective 3: Use of select seed for reforestation
- Objective 4: Increase genetic gain for growth
- Objective 5: Use of pest resistance seed for reforestation (although a new objective, we invest more in this objective than objective 4). For example:
 - Western white pine (Pw) – blister rust – we have a 40-year program
 - Sitka spruce (Ss) – weevil – we have a good supply of pest resistant seed
 - Hybrid spruce (Sx) – weevil – interior program
 - Lodgepole pine (Pli) – gall resistant seed available
 - Western red cedar – we also have deer browse resistant seed.

The [Climate-Based Seed Transfer](#) project should begin implementation in 2017. In November 2016 we expect to have completed a science report for all species. Then policy development with stakeholders. In the interim, we have increased elevation limits where species can be planted, and have enhanced opportunities to use western larch.

Forest Genetics Council Species Committees develop [species plans](#) for those Seed Planning Units (SPUs) with the highest expected return. Species plans contain (i) breeding and seed production projections, (ii) plans for propagation and management activities, and (iii) analysis of current and proposed seed orchards. Species plans also show the timeline for genetic improvement, including projected supply and demand for planting stock, and projected genetic gain.

For lodgepole pine, we have less than one-year seed supply in storage. For western red cedar, 100% of coastal seed is Class A whereas none of it is in the interior. We now have a species plan for red alder. We don't have the resources to get the breeding done for new species due to lack of capacity.

Action #14: Matt LeRoy will reconvene the FFT Seed Group to discuss FFT seed use/needs.

In the Workbook, questions were provided from the pre-workshop survey:

Q: What about B+ seed for high rust potential areas?

A: At this point there are no official recommendations about resistance for B+ seedlots. There may be an opportunity to review some of the data in the future and make recommendations for superior provenances.

Q: Do we need to be producing genetically resistant pine or should we be changing the stocking standards and planting pine to a much higher density so the rusts cannot spread through it so easily?

A: At this point, in the absence of seedlots with adequate resistance to pathogens like gall rust and commandra, it would be a good idea to plant at higher densities. The literature regarding infection rates and mortality due to pathogens in pine suggests that higher planting densities can minimize the impact. It would be best to check with the regional pathologists about recommendations for adjusting silvicultural practises to manage for pathogens in pine.

Q: When ready for implementation {B+ seed??}. Will it be mandatory to use?

A: We haven't outlined a deployment strategy for resistant seedlots at this point.

Q: What geographical location do we have Pli seed resistant to commandra and gall rusts. Do we have any results?

A: There are no seedlots with resistance to comandra. There is one gall rust resistant orchard that is starting to produce seed. Seed from this orchard is designated for the PG low seed planning unit. We are investigating the option to increase the area of use for this seed orchard to the BV and CP low as well.

Session 14: Conversation with Executive

Peter Jacobson, Executive Director, Forest Sector Strategies with the Tenures, Competitiveness and Innovation Division led the presentation. The Forest Sector Competitiveness Strategy is being led by ADM Dave Peterson. The strategy is a far-reaching process – not just how to price timber. The strategy is not intended to replicate the work of the forest sector round table. It will include timber supply considerations, and address conditions conducive to supporting a competitive industry such as securing access to the land base, addressing external markets, and driving innovation.

The need for the Strategy rose out of the [Premier's mandate letter](#) to the minister where one of the mandates is to: Work with the forest industry on a new Forest Sector Competitiveness Strategy to maintain and enhance the industry, protect jobs and forest dependent communities and extract maximum value from our forest resource.

Developing that Strategy involves work with other ministries e.g. Energy and Mines regarding energy costs for pulpmills, and Jobs, Tourism and Skills Training to help ensure we have the needed skill sets given shifting jobs in the interior.

The themes emerging from strategy development work include: market access, driving innovation, and sustainable timber. The goal of the project is to have actionable policy changes and operational activities that can implement the Strategy. The Strategy is expansive (vs restrictive) in terms of focus.

We face challenges; we likely have too many mills relative to wood supply. We have some supermills in BC that have been hit by the MPB. The increased mill capacity to salvage MPB killed wood will not likely be sustained as the wood supply declines. We will never know which mill goes down where. For example, sudden demand for oil drilling mats kept a mill open longer than may have been forecast.

Residual fibre is typically too expensive to use although there is some bioenergy interest to access lower value forest fibre. We need a new approach to access residual fibre (waste).

FFT's efforts to work with BCTS to sell lower value stands and more fully utilize the resource is important.

To realize the AAC on the Coast, we are facing high elevation, and high access cost stands sometimes with multiple values. Before, always another watershed to get into, but not so now. A coastal transition review as part of the Strategy is being led by Diane Nicholls.

We have done a baseline economic analysis – what were the key drivers affecting performance. From that work it is recognized costs too high – for roads, stumpage and reforestation.

In the 1980's, a US firm tried to acquire MacMillan Bloedel and then Premier Bennett said no. Over the years, mergers have meant BC has some big forest companies that have become very competitive in the world scene including the US. Intefor, for example, has more milling capacity in US than in Canada.

How do we innovate e.g. in product development? There is role for government to work with FPInnovations.

During discussions, question was asked about any smaller scale look at innovation such as through community forests? Peter noted that legislation to enable community forest volume is intended. The challenge is to find additional volume for community forests. We are also working with our colleague agencies to look at other alternatives to help communities.

Post-MPB response is to better arm communities at risk; provide them with ideas of what's going on and how they might diversify. We need to drain our knowledge to the communities so they have 'heads up'. For example, FLNR may see challenges in a particular area, but the local community may not know that.

A pulp and paper study illustrates a sad evolution of technology having a negative ripple effect in BC. BC product niche is the strength of its product, but most of the demand is for soft tissues. There are 5 paper mills in BC and likely some will close. Can they convert to bio-energy? Or market cellulosic fibre? No one knows how to use it currently, therefore there is contract with FPInnovations to show possible products.

FFT helps support reliable timber supply, and the new Forest Enhancement Program builds on FFT. Forest Fibre working group recommendations include: (i) access to inaccessible areas (e.g. by covering costs of reforestation); and (ii) fire proofing communities. Based on the work FFT staff have done, the working group views FFT as an effective program.

Session 15: First Nation perspectives

Keith Atkinson is CEO with the [First Nations Forestry Council](#) (FNFC) and led this presentation. The FNFC has been in existence for 10 years since 2005. In 2005, FNFC developed [BC First Nations MPB Action Plan](#). Federal funding to First Nations have been clawed back since then.

In 2008, FNFC developed the [BC First Nations Forestry and Land Stewardship Action Plan](#) with support from 203 First Nations communities. The vision is for a healthy forest ecosystem that continues to sustain and enhance the cultural, spiritual, environmental, economic and social lives of the original owners and caretakers and is managed through respectful government-to-government and community relationships based on recognition and respect. The mission of FNFC includes implementation of processes to restore the land and ecosystems.

In terms of FNFC governance, the [First Nations Leadership Council](#) – which consists of political executives of the BC Assembly of First Nations (BCAFN), the First Nations Summit (FNS), and the Union of BC Indian Chiefs (UBCIC) – appoints Board members to FNFC. The FNS consists of First Nations that are part of the BC treaty process. The UBCIC consists of First Nations that are more prone to defining treaty rights through the court process.

At the First Nations community level, there is the Hereditary Chief (traditional governance of First Nations), the Elected Chief (as required under the federal Indian Act), and the Head of Family (or leaders).

The goals of the FNFC include policy development, research, relationship building, economic development, healthy ecosystems, and recognition and new relationships. Economic development is a huge aspect, but healthy ecosystems is priority number one.

There are about 203 First Nations in BC, and about 600 in Canada – with 32 languages and 61 dialects. About one-half of the population is less than 24 years old.

In terms of the recognition of First Nations rights and interests, key milestones include:

- 1982 – Constitution Act
- 1997 – Delgamuuckw decision by Supreme Court of Canada that recognized that title exists
- 2000 - Nisga'a treaty leading to 200 000 ha of land and Nisga'a Forest Act
- 2003 – Forest Revitalization Act that took back 20% volume from industry for BCTS, First Nations and smaller tenures. This was first time First Nations could work in forestry
- 2004 – Haida court case won – recognized the legal requirement to consult with First Nations, and to accommodate First Nations
- 2005 – New Relationship
- 2009 – [Working Roundtable on Forestry](#) where Priority 6: First Nations Becoming Full Partners in Forestry, and five recommendations in the report related to First Nations in forestry covering topics such as long-term area based tenures, revenue sharing, and capacity building
- 2014 – Tsilhqot'in court decision where the First Nation was granted aboriginal title to more than 1700 km² of land in BC, and where consent is required from First Nations before anyone else can use the land. There was no funds granted the Tsilhqot'in

associated with the decision so they are land rich but financially poor; they need partners to use the land.

First Nation involvement in the commercial forest sector in BC includes 160 agreements and over 200 tenures – primarily non-replacement tenures - where 5.8 MM m³ was harvested in 2008. The agreements represent a trade-off for First Nations as they often require that First Nations not interfere with forest activities in other locations.

Regarding attainment of healthy ecosystems, considerations include cumulative effects (e.g. hunters and gatherers change in the landscape), cultural impacts, stewardship and planning to achieve a healthy landscape. First Nations want to see more investment in restoration activities and foster a restoration economy.

First Nations would like to participate in the bio-economy, and carbon-based economy; recognize the value in non-timber resources; and want to have an active and central role in silviculture.

FNFC has a [BC First Nations Forestry Sector Work Force Initiative](#) whose aim is to build First Nations community capacity that matches growing needs for skilled labour within the forest industry. About 5% of forest sector work force consists of aboriginal employment. First Nations youth can help fill the gap with expected new workers needed over next 5 years in the forest sector. BCTS helps as it provides summer employment. The First Nations Forestry Training Program has helped build capacity.

First Nations priorities include governance (stewardship, title and rights), and economic development (investment and operations management, work force).

The Tsilhqot'in decision has confirmed that title exists with about 50% of their traditional territories awarded as title land based on strength of claim. If First Nation Chiefs got rid of overlapping asserted lands, and went to court in a coordinated manner, they likely would have a strong case.

We say we have a public process in BC in forestry but this is masked by a regulatory framework.

There was question about getting First Nations contractors Safe Certified so they are qualified to bid on BCTS contracts. This is not being done right now and is one of the barriers; First Nations need resources to enable them to be Safe Certified. The minister of FLNR should fund FNFC to provide these kind of operational services.

Workshop Wrap-Up and Evaluation

The action items from Day 1 and 2 were reviewed. The action items in the Synopsis are also listed in Appendix 3. Matt thanked workshop attendees and presenters for their participation at the workshop.

Nigel asked attendees to complete the Workshop Evaluation Form. The results from the completed evaluations are provided in Appendix 2.

Thanks again for your participation!

Appendix 1: List of Workshop Participants

An attendance list was distributed but some participants may not have received it and may have been inadvertently overlooked in the list below.

Name	Organization
Tanja Armstrong-Whitworth	BCTS Cariboo-Chilcotin
Kevin Astridge	Resource Practices Branch
Keith Atkinson	BC First Nations Forestry Council
Paul Barolet	North Island – Central Coast District
Peter Barss	Sea to Sky District
Kerri Brownie	BC Timber Sales Branch
Glen Buhr	Skeena Stikine District
Scott Byron	BCTS Stuart-Nechako
Colin Campbell	PwC
Julie Castonguay	Selkirk District
Dave Cornwell	Resource Practices Branch
Nola Daintith	Cariboo Region
Kevin Derow	Coast Mountains District
Jennifer Davis	Resource Practices Branch
Joanne DeGagne	Sea to Sky District
John DeGagne	Stuart Nechako District
Tim Ebata	Resource Practices Branch
Craig Evans	FP Innovations
Nigel Fletcher	Resource Practices Branch
Jim Goudie	Forest Analysis and Inventory Branch
Caitlin Harrison	BCTS Stuart-Nechako
Thomas Hartz	Campbell River District
Kristin Hendry	Mackenzie District
Ryan Holmo	Skeena Stikine District
John Hopper	BCTS Kamloops
Kerri Howse	Central Cariboo/Chilcotin
Neil Hughes	Resource Practices Branch
John Illes	Nadina District
Raymond Jacob	BCTS – Prince George (Mackenzie)
Ljiljana Knezevic	Prince George District
Lyn Konowalyk	Rocky Mountain District
Katherine Ladyman	Sea to Sky District
Matthew LeRoy	Resource Practices Branch
Gerry MacDougall	Regional Executive Director – Cariboo Region
Heather MacLennan	Thomson Rivers District
Mike Madill	Thompson/Okanagan Region
David McArthur	100 Mile House District
Leith McKenzie	Thompson/Okanagan Region
Ted McRae	Okanagan Shuswap District

Janet Mitchell	FPIInnovations
Sean Muise	Haida Gwaii District
Diane Nicholls	Resource Stewardship Division
Mark Palmer	South Island District
Ann Peter	Chilliwack District
Rachael Pollard	Thompson Rivers District
Allan Powelson	Resource Practices Branch
Lee-Ann Puhallo	Quesnel District
Shawn Rice	Prince George District
Katherine Rogers	BCTS Babine
Tara Salmon	Kalum District
Kimberly Scott	Quesnel District
Andrew Snetsinger	Cascades District
Carolyn Stevens	Nadina District
Jack Sweeten	Chilliwack District
Kevin Telfer	Coast Region
Dan Turner	Resource Practices Branch
Goran Vajistanac	PwC
Mary Vizslai-Beale	Fort Nelson District
Terje Vold	LBIS project consulting support
Dave Weaver	Resource Practices Branch
Andrew Wheatley	Stuart Nechako District
Craig Wickland	Coast Region
Ian Wiles	Selkirk District
Susan Zedel	Tree Improvement Branch

Appendix 2: Workshop Evaluation

How useful do you feel the sessions of the Workshop were for you? Were you satisfied with Workshop logistics? Please put an **X** in the column that best reflects your views.

Workshop Sessions	Not useful	Partially useful	Useful	Very useful
Introduction to the FFT Fall Workshop – perspectives	3	3	12	4
1. UAVs – and potential for use by FFT	0	12.5	19.5	7
2. GRIM modeling	4	14	17	4
3. 2014 and 2015 fires and section 108	1	8	23	6
4. Provincial ITSL program	2	11	18	8
5. 2016/17 AOP	2	4	20	13
6. GAR update, budgets, RESULTS track	2	11	18	8
7. Assessing large operational fires	1	10	20	8
8. Forest health: spruce & Doug-fir beetles, what’s coming	0	2	34.5	12.5
9. Targeting investments in forest growth	0	8	23	8
10. Integrated Silviculture Strategies	1	9	21	6
11. Chief Forester’s direction for FFT	0	5	16	18
12. Timber pricing and climate change considerations	0	9	21	9
13. FFT A Class seed use and related topics	1	9	25	4
14. Conversation with Executive	11	17	5	0
15. First Nations perspectives	1	8	11	9
Any Comments on Particular Sessions? (please identify with Session #1, 2, etc) Use the back of this page if you need more room				
<p>General:</p> <ul style="list-style-type: none"> - Good participation from everyone - Workshop was very interior focused – need to use more coastal examples - Update on forest enhancement fund was interesting - Workshop was more Interior focused – a lot of dead pin comments - Second day was more interesting to me - Good format with questions upfront - Good back and forth discussions after each speaker - Great job! - Good job! Enjoyed the sessions. Good way to trade ideas with people. - Would love a Spring meeting - Would be interested in the Coastal aspect of every topic as everything was heave interior related for obvious reasons - Appreciated the speakers who responded to the questions submitted by staff attending meeting - It would be good to have one page summary from each presentation, especially to keep track of links. Lots of information touched on in a very short timeframe - Would be good to have theme or objective for the session - Speakers stood in front of the open door which was a very bright backlight so you could not see their face - Really enjoyed all Day 2 presentations and hearing what’s going on at a strategic level - Thank you! - Focus more on FFT specific issues - Thank you! Interesting and useful topics 				

<ul style="list-style-type: none"> - Workshop sessions marked Partially Useful received the lower rating only because they are not directly relevant to the district I work in - Great talks all. Lots to think on - Appreciate the opportunity to attend, but had the impression that the agenda might have broader application to the LBIS program as a whole or more of the 18 investment categories; need a similar venue for technical input in other investment categories - Lack of Coast field trip summary to FFT group? - Very useful sessions
<p>Introduction:</p> <ul style="list-style-type: none"> - Loved Gerry's perspectives and collaborative tone set by Jennifer Davis - Great to have Gerry open! - Found the introduction by Gerry an exceptional piece, linking politics/strategic/community/operational aspects of FFT in a clear and thoughtful manner
<p>Session #1:</p> <ul style="list-style-type: none"> - UAV's provided good information on the pros and cons of using UAVs at the present time - Too long
<p>Session #2:</p> <ul style="list-style-type: none"> - GRIM modeling was too long and a lot of detail could have been removed - Too technical; the graphics were not necessary - Interesting but too long - Too many graphs
<p>Session #3:</p> <ul style="list-style-type: none"> - We need a discussion or provincial strategy to get interest and utilization of a wood salvage program from s. 108 burned areas (seems like the mills don't want the black carbon wood)
<p>Session #4:</p> <ul style="list-style-type: none"> - Why is there not more uptake in the ITSL model? Am excited to see there is work on how to expand this model so other licensees could take advantage - The MPB salvaging presentation was good but would like to have had more discussion on how to implement BCTS/FFT salvage sales - The ITSL presentation needs to be geared with non-Kamloops examples. Our major licensees are actively harvesting volumes of 125 m³/ha net merch, so really is not an ITSL opportunity in other areas of the province - Needed more time
<p>Session #5:</p> <ul style="list-style-type: none"> - The AOP session was inappropriately <u>too</u> short. Allow more time in future meetings - Was hoping for more detailed presentation on the 2015/16 AOP numbers that were submitted.
<p>Session #7:</p> <ul style="list-style-type: none"> - Very relevant and helpful with respect to current work priorities
<p>Section #8:</p> <ul style="list-style-type: none"> - Please ask Tim Ebata to send the information (e.g. brochures previously done)/links on Douglas-fir bark beetle
<p>Section #11:</p> <ul style="list-style-type: none"> - Chief Forester direction on FFT was very informative - Loved hearing from Diane - Excellent
<p>Section #13:</p> <ul style="list-style-type: none"> - Tag along with ROI workshop, do a SPAR 101 and species selection for reforestation workshop (e.g. CF's recommendation for species selection, climate change considerations; how to find and request seed in SPAR; what are the species plans? etc. - The seed topic was not required. Simple message regarding whether we have seed and how

much we use
 - {Although partially useful for me} I see this would be very useful to others

Section #14:
 - Conference call doesn't work or talk needs to be 5 minutes and rest be Q's & A's
 - Phone is not very engaging communication tool
 - Lots of repeats to earlier conversations – better if it were in person
 - Great to hear from Peter Jakobsen but very hard over the phone – would have been better for Diane to have done this part maybe?
 - Phone in not a great idea
 - Call with Peter didn't really work that well. Maybe try having some focused questions that are germane and of interest to the FFT group
 - If the executive member couldn't have been here, then having a powerpoint run here and them join on phone is necessary to keep us engaged – or just cancel that part of the agenda
 - Conversation with executive was difficult with just the voice

Section #15:
 - Great!
 - Need a fresh perspective on First Nations issues. It would be good to have someone from the interior. FNFC does not represent all areas of the province.

Workshop Logistics	Satisfied	Not Satisfied	Comment
Workshop organization	37	0	<ul style="list-style-type: none"> - Well done - Nigel may use some help - Needs a registration process judging from the number of name tags left unclaimed - Suggestion to get a volunteer to do registration to lock down # of staff coming - Get an accurate head count and book an appropriately sized room - Good mix of topics - Few glitches with speaker deletions/ additions - Good topics; good organization - It would have been good for <u>all</u> speakers to address workshop questions - Need a better system to confirm attendance - At beginning you need to mention to put cell phones on vibrate. {Person's} phone dinging every 2 minutes was distracting - Well organized
Workshop venue (meeting room, refreshments/lunch)	28.5	10.5	<ul style="list-style-type: none"> - Include lunch so we can continue to network in the same room - Room a bit small but difficult to predict without knowing accurate # of those attending - Room was a little small for number of people - Think about a snack for morning start-up (muffins/fruit) - A little on the small side - Need to include lunch to have time to network - Need bigger room - Let's get catered lunches; working lunches

			<ul style="list-style-type: none"> - A bit crowded - Would have been more convenient and better for networking if lunch had been provided - Need a bigger room - Too small - With the number of participants, lunch should have been provided to allow more networking - Small room; need to provide snacks and lunch important for networking - Having a room with windows was great. The room was just a little tight. - Good coffee. No cookies and muffins is fine for me but others complained - Perhaps asking folks to RSVP early would give you better sense of how many people are coming - Maybe a cookie next time ☺ - Room could have been larger - Not a lot of close restaurant choices in/ around hotel – walking distances required - Could have used coffee in afternoon Day 2 (no coffee left after morning sessions) - Larger room would have been great - Great to have windows and direct access to outside areas - Need a bigger room; River Rock was better - Room too small for the number of participants - Would have been good to have snacks with coffee - Would be nice to have lunch arrangements so we can spend more time with colleagues - Would be nice to have more room in general and room where people get coffee. Nice to have the balcony. Richmond is a good location - I forgot to bring my own snacks, but coffee was tasty - Nice to have a window/balcony - Room a bit small, no snacks - A little tight - Great location/hotel; refreshments fine - A bit tight but it worked; some health snacks with coffee would have been good - Room too small; better to have lunch included (and snacks!) - Snacks and fruit would have been helpful - Coffee provided this year....good! No muffins or fruit? - Consider snacks next time in am only - Room size inadequate but OK - However, lunch provided would work much better in a group like this especially given that it is being paid anyway
Workshop agenda	34.5	2.5	<ul style="list-style-type: none"> - Good content that facilitated management approval to attend the workshop - Great topics lined up - Would suggest we look at LEAN mapping to identify gaps and improvements

			<ul style="list-style-type: none"> - Next year FFT staff at all levels need to have input into what the agenda topics are not just get the topics and only be asked to provide questions to topics that were not collectively decided on - Good topics; good speakers for the most part - Good diversity of topics. Wonder about adding a few sessions that are more workshop in nature – audience working on something together, more discussion time? - Good, relevant topics - Too many topics crammed into 2 days; speakers rushed - Seek input for agenda items – not just questions after agenda sent - Good range of topics and speakers - Could have stuck to agenda timeframe better - The obvious one – needed more room - Very full agenda, some topics are repeated each meeting - Great ☺ - Good variety; some sessions too long - Was looking for a more global review of the LBIS program
Other (please specify)	6	2	<ul style="list-style-type: none"> - Would be good to have more strategic conversations and touch on provincial targets - Have both the coastal and interior strategic conversations – possibly another session - Provide some strong direction along with the information and coaching - The group dinner was well attended - Follow-up questions were very valuable - The workbook is a definite plus - Great to bring the whole team together - These things take an enormous amount of time and effort to organize – <u>thank you</u> for bringing us together. I'm glad I came and will be encouraging my whole team to all participate next year - Involve district and regional folks in organization of meeting - Use panel format for discussion around topics: labour, First Nations, climate change, making operations more efficient, stewardship considerations, direct seeding, stocking standards, working with BCTS - Would be useful to have handouts from all the presentations or a weblink to retrieve the presentations – include them in our booklet - Please leave more room for notes in our booklets - Workbook could use another blank page per each session for notes - Provide SHWAG for presenters – FFT coffee mugs, t-shirts, hats - Put up recent FFT posters – hang around room - Participate t-shirts or nice pen

Appendix 3: Workshop Action Items

Action #1: All FFT delivery staff to review [FRPA General Bulletin Number 26](#) regarding Section 108 to determine if changes are needed, particularly from a coastal fire impact perspective, and provide comments to Nigel Fletcher.

Action #2: Nigel Fletcher to clarify how roads addressed in Section 108 in discussions with Brian Chow, Chief Engineer, and then report that guidance out to FFT delivery staff.

Action #3: Resource Practices Branch to prepare FFT guidance on ITSL opportunities for wildfire-impacted areas in Coast and Interior.

Action #4: Nigel Fletcher to pull sowing numbers from SPAR for use in AOP.

Action #5: Matt LeRoy will follow-up with FFT delivery staff regarding need for ROI training.

Action #6: Resource Practices Branch will review the FFT allocation process for community forests and woodlot licenses with respective associations to ensure there is more collaboration/interaction with FFT district delivery staff before projects are identified.

Action #7: Resource Practices Branch will explore with FFT delivery staff ways to improve the quality of FFT RESULTS data submissions e.g. perhaps have one coordinated provincial contract.

Action #8: Dan Turner to provide list of GAR openings without planned activities in RESULTS to FFT delivery staff.

Action #9: Resource Practices Branch to send maps showing GAR openings by district with planned activities by year to FFT delivery staff.

Action #10: FFT or government should consider purchasing/acquiring aerial photo enhancer software; Nigel Fletcher to ask Forest Analysis and Inventory Branch if they have this software.

Action #11: FFT delivery staff should explore with Nigel Fletcher the acquisition of aerial photos for smaller fires (i.e. where FFT is not acquiring satellite imagery).

Action #12: Matt LeRoy will ensure latest 'treatable area' maps are put on FTP site that can be accessed by FFT delivery staff.

Action #13: Resource Practices Branch will distribute to FFT delivery staff ways in which you can access research information regarding FFT treatments e.g. [J. T. Fyles Natural Resources Library](#) managed by Ministry of Environment.

Action #14: Matt LeRoy will reconvene the FFT Seed Group to discuss FFT seed use/needs.