

Workshop Synopsis

Land Based Investment Strategy (LBIS): Forests for Tomorrow (FFT) Planning and Delivery

Sponsored by

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

Ministry of **Forests, Lands and
Natural Resource Operations**



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Reminder of Workshop Agenda

Land Based Investment Strategy (LBIS): Forests for Tomorrow (FFT) Planning and Delivery Workshop

Location: Vancouver Airport Marriott Hotel
7571 Westminster Highway, Richmond, BC V6X 1A3

DAY ONE: WEDNESDAY, SEPTEMBER 18TH, 2013

Strategic objectives, budgeting, sowing requests and mandatory reporting

8:30 am *Coffee/tea available – meet and greet*

9:00 am **The FFT program – What we have accomplished – Tom Ethier, ADM Resource Stewardship Division**

9:20 am **Introductions and 7 Key Business Objectives of this Workshop – Dave Cornwell**

9:30 am **Session 1: FFT Strategic Plan – Al Powelson**

10:00 am *Coffee break*

10:15 am **Session 2: Integrating Type 4 Silviculture Planning into FFT Planning – Paul Rehler**

11:15 am **Session 3: Climate Change – Kevin Astridge**

12:00 pm *Lunch - will be provided*

1:00 pm **Session 4: Sowing requests – sowing levels, stock types, seedling selection – Al Powelson and Kevin Astridge**

2:00 pm **Session 5: Review plan and budget numbers compiled to date – review strategic objectives – Al Powelson with Monty Locke**

2:45 pm *Coffee break*

3:00 pm **Session 6: The Ecosystem Restoration program and introducing controlled burning into the landscape – landscape level wildfire planning – Al Neal and Kelly Osbourne**

3:45 pm **Session 7: Forest health factors in burned areas – Black Army Cutworm, Rhizina – Jennifer Burleigh**

4:45 pm **Day One wrap-up and adjourn**

DAY TWO: THURSDAY, SEPTEMBER 19TH, 2013

Program delivery

7:30 am *Coffee/tea available*

8:00 am **Housekeeping items from Day One**

8:15 am **Session 8: Critical Issues**

- a. Caribou mitigation openings – Matt LeRoy and Monty Locke
- b. Delivery of caribou mitigation related activities – Dave Cornwell
- c. Delivery efficiency – the economics of FFT eligible lump sum timber sales – Kerri Brownie and Dave Cornwell
- d. The forestry team – delivering activities – building collaboration – Dave Cornwell
- e. LEAN – identifying the scope and identifying potential Kaizen participants – Dave Cornwell

9:45 am **Session 9: RESULTS– Caribou mitigation openings, data entry report, training – Caroline MacLeod**

10:30 am *Coffee break*

10:45 am **Session 10: Internet-based mapping – Caribou mitigation openings and other applications – Matt LeRoy**

11:00 am **Session 11: Stand Development Monitoring – Harry Kope**

12:00 pm *Lunch – will be provided*

1:00 pm **Session 12: Free growing standards – David Weaver**

1:45 pm **Session 13: FLNR Safety Q&A session – Tom Jackson, Director, Resource Worker Safety**

2:30 pm **Workshop wrap-up and evaluation**

Recap meeting action items

Please complete the Workshop Evaluation Form before leaving

3:00 pm **Adjourn**

Thanks to All Who Participated!

Purpose of this Synopsis

At least 57 individuals from districts, regions and branches that are involved or interested in the Forests for Tomorrow (FFT) program attended a two-day workshop held September 18-19th, 2012 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.

This Synopsis, the Workshop Workbook and workshop presentations will be posted on the following LBIS FFT website: www.for.gov.bc.ca/hcp/fia/landbase/fft/updates.htm

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

The FFT Program – What We Have Accomplished

Tom Ethier, Assistant Deputy Minister, Resource Stewardship Division welcomed participants to the workshop, provided opening remarks, and reviewed key accomplishments of the Forests for Tomorrow (FFT) program. Tom noted that FFT is a ‘flagship’ enterprise for government since 2005 even with tight budgets. Too often ‘bad news’ gets heard whereas there is staggering ‘good news’ stemming from FFT accomplishments. Since 2005, FFT has:

- Surveyed over 1.3 million ha
- Planted about 130 million seedlings on over 95,000 ha increasing future volume by about 18 million cubic metres
- Reduced backlog NSR by about 136,000 ha and well underway to eliminating the backlog NSR by 2015 thereby meeting 2008 government commitments

Since 2010, FFT also:

- Fertilized over 73,000 ha thereby increasing mid-term timber supply by about 1.3 million cubic metres
- Spaced over 3800 ha thereby making these stands available in the mid-term.

The FFT program has attempted to provide leadership and be a testing ground for translating climate change practices into on-the-ground results by providing guidance on:

- Assisted migration
- Promoting species mixtures
- Use of alternative under-represented species
- Silviculture regimes for fuel management
- Adapting forest management for climate change
- Developing species indicators and targets

The FFT program also:

- Provides ecological benefits that range from mitigating hydrological impacts to improving wildlife habitat
- Works with other programs and Ministries to develop positive working relationships in order to accomplish multiple objectives; for example:
 - The successful arrangement FFT has with BCTS has generated efficiencies that have reduced site clearing costs for FFT thus allowing for more area to be treated while at same time generating revenue for BCTS by marketing over 4 million cubic metres of fibre from very low value stands
 - FFT has built a cooperative relationship with branches such as Forest Analysis and Inventory Branch and Wildfire Management Branch, and programs such as Forest Health, to help ensure investments are effectively directed.

At a higher level:

- We are working with ADMs and REDs to ensure that their priorities are heard and inform strategic direction for LBIS programs such as FFT
- The LEAN project approved for LBIS will assist us in making sure program delivery is undertaken in an effective and efficient manner
- There is strong political support for FFT as evidenced by the:
 - MLA Special Committee on Timber Supply recommendations and government's response in the Mid-Term Timber Supply Action Plan, and the
 - Minister's mandate letter from the Premier that commits another \$10 MM for silviculture investments in reforestation beginning in 2015/16.

As we move into the future, Tom sees FFT continuing that innovative leadership role and continuing to ensure that what we do addresses critical issues in a safe and efficient manner. He acknowledged the work staff have done through FFT as it is critical to BC realizing environmental sustainability and economic prosperity.

Introductions and 7 Key Business Objectives

Dave Cornwell thanked attendees for their participation and for the team work everyone has demonstrated in delivering the LBIS FFT program. Dave asked participants to introduce themselves (see Appendix 1).

7 Meeting Objectives and Agenda

A reminder of the workshop agenda is provided on pages 3 and 4. The 7 key workshop objectives were:

1. Develop budget for 2014/15 budget process under LBIS (see Session 5 in the Agenda)
2. Confirm that sowing requests are based on established priorities, capacity to deliver, and consistent with budget forecast, consider the effects of climate change and site index for non lodgepole pine (Pli) species (Session 4)
3. Identify and implement cost effective delivery methods to achieve reforestation and TSM goals – this topic will also include a discussion of critical issues that include Caribou

- mitigation openings, program delivery efficiency – including the economic impact of the BCTS ITSL program and the forestry team concept (Sessions 8)
4. Discuss the strategies and tools available to us – FFT Strategic Plan, RESULTS, internet based mapping, stand development monitoring (SDM), silviculture planning, fire management planning and LEAN (Sessions 1, 2, 8, 9, 10 and 11)
 5. Provide overview of provincial planning process – linkages to JALT and LBIS Steering Committee (via general discussions at workshop)
 6. Provide an opportunity to ask questions and get answers about safety (Session 13)
 7. Share information (Sessions 3, 6, 7 and 12)

When addressing the key objectives during the workshop, we need to consider if we are addressing the commitments in the Mid-Term Timber Supply Action Plan, and the need to transition from the rehabilitation of young stands impacted by the mountain pine beetle to mature stands.

Session 1: FFT Strategic Plan

Al Powelson provided highlights of the updated FFT Strategic Plan that is posted at: <http://lbis.forestpracticesbranch.com/LBIS/node/103>. The original focus of FFT in 2005 was on catastrophic fires but this quickly evolved to respond to the mountain pine beetle epidemic.

The first and top goal of FFT as reflected in the Strategic Plan is to collect information so that informed investment decisions can be made. Investments need to have a significant impact on improving natural resources. FFT wants to be a ‘flagship’ by being innovative and doing more than what is required by legislation.

Another key goal of FFT is to establish resilient forests. The goal regarding best return from investments also includes consideration of non-timber natural resource benefits; if non-timber values help drive an investment decision, we need to record that.

Two additional FFT goals focus on safety and people; a people-centric approach is both about effective communication about what FFT does, and also about getting meaningful input from others so that they are ‘brought into’ the process and help shape investment decisions.

During general discussions the question was raised what ‘mid-term timber supply’ means? Al said it is the timber 10 to 40 years out. It is important to use as much of the damaged timber as possible by extending the shelf life of impacted stands with a strong salvage program. In the Merritt TSA this will have a significant benefit on mid-term timber supply. There are opportunities to extend the salvage efforts of licensees with BC Timber Sales through FFT.

There was comment about getting major licensees more involved in delivery of the FFT current reforestation program as they have done in the FFT timber supply mitigation program, for example, in the delivery of fertilization. This needs to be explored further. One issue is providing licensees with the legislative tools to rehabilitate mature timber.

In the Type 4 Silviculture Strategies, harvesting dead stands are key to mitigating mid-term timber supply impacts. In Quesnel TSA, big chunks of land need to be rehabilitated – it is a huge challenge, but the present net value (PNW) assessments indicates large returns on the investments made.

Comments were raised from participants that it is important that licensees focus on salvaging impacted stands and not harvest live stands that can contribute to mid-term timber supply. That said there appears to be few tools, other than persuasion, that FLNR can use to direct licensees to impacted stands if they are unwilling to do so. There appear to be no consequences for some licensees who harvest spruce/balsam even with TSR partitions, and with Type 4 silviculture strategies that demonstrate the impacts of harvesting those stands.

Action #1: FLNR needs tools to help ensure impacted stands are harvested to reduce impacts on mid-term timber supply.

There needs to be more information about the severity of the issue and discussion with FLNR executive and Minister about this issue. We need a better understanding of the behavior in order to consider effective ways to modify it.

The Forest Practices Board and Auditor General have noted the need for timber objectives which may help. Also need connection between assumptions in TSR and actual practice. It was noted that Performance Measure 7 in the FLNR Service Plan indicates that FLNR will monitor to ensure practices are consistent with TSR; we need to ‘systemitize’ this. One district indicated that they had done this but a major licensee still continued to harvest live stands. A potential consequence of this might be to lower the AAC where actual practices do not reflect the assumptions in TSR. There was comment that the only tool currently available to influence or respond to harvest practices is the AAC in TSR. This may entail an expedited process for TSR and AAC determinations.

It was noted that it is the natural behavior of industry to log the best stands first. Also, that mills will adapt to available timber supply where lower value stands are salvaged, or they will need to shut down.

There were comments that FLNR should not be delicate about trying to change harvest practice behavior to help ensure impacted stands are harvested; the issue is so consequential on mid-term timber supply that FLNR needs to take a strong stance on this concern.

One issue raised in this regard is that more district resources may need to be focused on stewardship (natural resources) rather than revenue/tenures, for example, by being more efficient in the appraisal, cruising and scaling process. It is hard to get districts to focus on landscape-level harvesting impacts on timber supply given the current imbalance in staff resource allocation.

Session 2: Integrating Type 4 Silviculture Strategies into FFT Planning

Paul Rehsler described how Type 4 Silviculture Strategies (SS) can be integrated into FFT planning, and addressed: (i) what the Type 4 SS are telling us and (ii) where they are taking use. FLNR's Silviculture Strategies website <http://www.for.gov.bc.ca/hfp/silstrat/index.htm> provides an overview description of Type 4 SS, and also how they differ from Type 1, 2 and 3 SSs.

There are seven Type 4 Silviculture Strategies (SS) underway in BC with focus on units impacted by the mountain pine beetle. The Quesnel and Okanagan strategies are furthest along. Type 4 SS is a forest level modeling/analysis with spatial outputs where the impacts we can have on mid-term timber supply with silvicultural investments is assessed. Licensees are involved.

Feedback from the Silviculture Discussion Paper in 2009 indicated we need management unit planning, goals and objectives. The Auditor General's audit on FLNR management of timber noted that the ministry lacked timber objectives. The Forest Practices Board has also recommended the ministry develop timber objectives. The Type 4 SS responds to those findings.

The Type 4 SS also respond to climate change adaptation, and integrate with fire management strategies. In the Okanagan, the Type 4 SS integrates with forage objectives e.g. how best can the SS best support achievement of 88,000 AUM target? In this case with a slight change in targeted stands for harvesting, the SS can help achieve both timber and forage objectives.

The multiple reasons for undertaking Type 4 SS include: (i) addressing mid-term timber supply; (ii) assessing habitat supply; (iii) responding to other issues such as hydrological impacts and fire risk; and (iv) providing spatial tools that aid in the implementation of the SS. The Type 4 SS help rationalize our funding requests to Treasury Board. Type 4 SS is an on-going process (not just a plan) as assumptions need to be revised, and as new information is obtained or forest conditions change.

The four deliverables in Type 4 SS are: (i) situational analysis; (ii) data package (like TSR); (iii) modeling and analysis (base case report); and (iv) preferred Silviculture Strategy.

There are three ways to mitigate mid-term timber supply: (A) harvest impacted stands and convert to managed stands that grow faster, and retain live stands for the mid-term; (B) treat stands (e.g. fertilization) to increase harvest volumes in the mid-term; and (C) shift available volumes to mid-term through treatments that enable stands to be harvested at a younger age (e.g. spacing, fertilization).

The what, where and how we harvest can greatly affect mid-term timber supply. Considerations also include minimum harvest age, shelf life, understory regeneration of impacted stands not harvested and their growth and yield. In that regard, there is a regulation to protect the understory (secondary structure) where it can contribute to mid-term timber supply. The use of Coates and Sach's work on understory of pine stands help address density levels and how operational adjustment factors (OAFs) to the TIPS Y model should be adjusted to address the 'clumpiness' of the understory.

In the Quesnel Type 4 SS, the assumption is that short-term harvests will focus on stands with >70% dead pine with about 50% of the harvest in the western portion of the TSA. It is

important to determine if this in fact is occurring; the SS can assess the impact of practices that don't match those assumptions. In the Quesnel, the transition to harvesting managed stands is expected to occur in about 40 years.

In the Okanagan Type 4 SS, there was a cable harvesting assumption – that it would be stepped up each decade. Again, this needs to be monitored to determine if it is realistic.

The Type 4 SS are telling us that harvest practices are a key driver on mid-term timber supply.

The silviculture treatments assessed in Type 4 SS can include:

- enhanced basic silviculture (e.g. increasing stocking levels; planting more stands vs relying on natural regeneration)
- fertilization
- pre-commercial thinning
- rehabilitation (e.g. of MPB impacted stands)
- partial cutting
- composite mix of above

Licensees supported in some TSAs exploring 'enhanced basic silviculture' as an investment strategy with understanding that either FFT pays for these incremental costs or those additional costs get reflected in the appraisal allowance. Since the main purpose of the SS is to inform FFT with no additional cost implications to industry intended, there has been support from licensees. Licensees may support increased stocking levels via an enhanced basic silviculture treatments but who is going to pay for those additional costs is another issue.

There was question about how the post-free growing performance of planted stands are factored into Type 4 SS, for example, from stand development monitoring (SDM) work. This is addressed in Type 4 SS; SDM findings may suggest that OAF be increased or that initial planted stocking densities should increase to offset projected losses due to forest health factors.

The modeling and analysis work from Type 4 SS indicates that there can be a significant increase in both mid- and long-term timber supply by converting MPB impacted natural stands to managed stands. Commercial thinning and partial cutting in restrained areas (e.g. scenic areas, lakeshore management areas) can also create significant timber supply gains in the mid-term.

The preferred SS is the optimal mix of treatments based on two investment scenarios: preferred budget (e.g. in the \$5 to \$7 MM range in the Quesnel TSA), and the constrained budget that reflects current investment levels (e.g. in the \$2 to \$3 MM range in the Quesnel TSA). In the Quesnel TSA, the optimal mix of treatments with the constrained budget increased mid-term timber supply by 22% and long-term timber supply by 11%.

There was a comment that the FPPR s. 26 stocking standard considerations can help ensure that the standards assumed in the Type 4 SS are in fact implemented.

The base case in the Type 4 SS mimics current practice (what is being done), so that we can measure the impact of treatments that we would like to do to mitigate timber supply impacts. The optimal mix of treatments in the preferred and constrained budgets informs the development of a tactical investment plan.

If the constrained budget levels of \$2 MM are assumed, we can answer the question of what the opportunity cost of not investing an additional \$3 MM (to get to the \$5 MM investment level) are to a particular management unit.

It was noted that a diverse mix of investments (treatments) helps address risk of problems/issues.

One of the spatial outputs from the SS are Treatment Opportunity Maps developed from RESULTS and LRDW information.

There was a question about how SS address wildlife impacts; this can be an important sustenance issue with First Nations. It is important to explain the impacts on wildlife habitat supply.

Paul noted that there is a Type 4 SS website <http://www.for.gov.bc.ca/hfp/silstrat/> and thanked district champions, licensees, BC Timber Sales and consultants.

Action #2: Provide guidance on how we can deliver an enhanced FFT silviculture plan e.g. from Type 4 Silviculture Strategies

Session 3: Climate Change and Species Selection

Kevin Astridge discussed climate change considerations for species selection over the next 5 years. Kevin showed the 'flying BEC zones' by Tongli Wang and others based on consensus projections from several climate change scenarios. The shifts in variants over time is available in raster cells.

Action #3: Kevin Astridge will send subzone variant predictor over time.

Chief Forester 2009 guidance on tree species composition at stand and landscape level includes:

- A diversity of well adapted, healthy, resilient stands across the landscape
- Tree species diversity at multiple scales
- No single 'right' answer
- Use the best science available

The Tree Species Selection Tool brings various information together and provides a landscape level description of subzone variants. The conceptual framework for identifying ecologically suitable species considers:

- Basics on BEC framework and tree species
- Ecological factors that pose risk to species
- Climate change adaptation strategies
- Species information for management objectives/values

The species composition in old stands, young stands, and managed stands are described. The range of ecologically suitable species by subzone variant are provided without judgment regarding economic suitability (e.g. balsam included where ecologically suitable).

The Forest Practices Code Free Growing Guidebooks are archived, but they still provide very useful ideas; although written before climate change became a significant factor, many of the quotes in the Guidebooks still apply and take on new meaning given climate change.

“A Landscape-level Species Strategy for Forest Management in British Columbia” by Mah and others in 2012 has been factored into the Type 4 Silviculture Strategies. Ecological benchmark species targets or ranges have been developed for several FLNR districts.

Suggested changes to the Reference Guide for FDP stocking standards – for species considered at high risk or opportunity due to climate change is being developed. For example, for IDFdk, consider only using PI as a preferred species on sites unsuitable for other species (cold air drainages and frost pockets) and where the previous stand was dominated by PI. Climate change updates to the Reference Guide will be incorporated as an additional line, and should be used in conjunction with the background information/rationale provided by ecologists. It is also important to consider planting western larch within the Western Larch Seed Planning Zones.

Summary of considerations for species selection considering climate change:

- tree species diversity at multiple scales
- tools available regarding diversity of natural forests and managed stands
- landscape-level and stand-level guidance
- ‘flying BEC’ –use most recent version (currently 2013)
- use a diversity of ecologically suitable species (as per Chief Forester 2009 guidance)

Session 4: Sowing Requests

Al Powelson and Kevin Astridge reviewed sowing requests – sowing levels, stock types and seedling requests. In addition they discussed: (i) increasing tree species diversity in our planting programs; and (ii) the site index of Pw versus Pli and potential opportunities.

Al mentioned in the pre-workshop feedback, there was a question ‘Why is coastal deadline for sowing so early?’ The answer is ensuring there is available nursery space; this may change if space is not an issue. The deadlines currently are:

- August 15 – seedling requests for coastal TSO
- Sept 16 – ‘early’ sow species and stock types
- Oct 15 – any other species and stock types

FFT is targeting 20 million seedlings for planting in 2015/16; there is also commitment from Premier to increase the silviculture budget by \$10 million. FFT is striving to be a leader in species and density management. For example, by planting under-representative species such as western white pine and to assist the migration of western larch given climate change. We learn by trying to plant innovatively.

The objectives in ‘FFT species management and density targets’ state that:
<http://lbis.forestpracticesbranch.com/LBIS/node/103>

- species mixtures will be planted where appropriate
- species management decisions will be informed by forest-level analysis
- cumulative impacts, and impacts at the landscape level, will be considered
- density management will optimize productivity, future product value, and resiliency of the forest at the stand and landscape level.

That document provides FFT Species and Density Indicators, and the following Targets:

- 80% of the area within a management unit, where funded by FFT, should have 2 or more species in the silviculture label at the time of establishment
- In ecosystems with more than one preferred species, where practicable, no one species should comprise more than 70% of the composition of the inventory label of an opening area at establishment, regeneration delay, and at free growing
- Establishment and regeneration delay density management target well spaced stocking of, at least, 1200 sph (interior) and 900 sph (coast) for non-lodgepole pine dominated stands and, at least, 2000 sph for lodgepole pine dominated stands (i.e. >50% of the species mix is lodgepole pine) at free growing declaration.

In general, FFT is doing good here with respect to meeting those targets.

There was a question about endemic rust level death. Increasing densities are suggested to account for rust mortality so that you end up with the sph targets.

Other guidance to consider which can be also be found at <http://lbis.forestpracticesbranch.com/LBIS/node/103> include:

- Mixed species options for FFT – encouraging conifer mixes
- FFT Assisted species migration guidance
- FFT use of western white pine guidance (e.g. Tree Improvement Branch have breed rust-resistant species)
- Silviculture regimes for fuel management in the wildland urban interface or adjacent to high landscape values – guidance
- Fibre plantations in BC.

Regarding FFT use of western white pine there has not been uptake so far. The reasons appear to be difficulty finding suitable areas, the early sow date, and perhaps C&E focus on its use given rust (it is perceived to be a higher risk species). That said, BCTS and industry are planting western white pine, so it is important for FFT to consider its use. FFT can pay for any higher costs to sow and grow western white pine so this should not be an issue.

Kevin provided reasons (other than biodiversity) for considering ‘minor’ (aka under-represented) species for FFT planting programs. These include:

- Use of lodgepole pine, a major species, pose risks due to fire, MPB, etc.
- Balsam has about the same site index as other species such as pine in many variants
- Western white pine seed sources are now resistant to rust, while the species is a highly desired wood source with benefits to wildlife due to the large seeds

- Some trials show western white pine to have a much larger site index than either spruce or lodgepole pine
- Even if OAFs increase due to rust, greater growth and yields are still projected.

Session 5: Review Budget Numbers Compiled to Date - Review Strategic Objectives

Al Powelson and Monty Locke reviewed the draft budget numbers proposed by regions as well as the strategic objectives of FFT program. Topics discussed included:

- Strategic focus – current reforestation
 - MPB/Wildfire, caribou mitigation openings, defaulted obligations
 - Stochastic (random) events in areas outside of the interior
- Strategic focus – timber supply mitigation (TSM)

FFT is one of 17 investment categories under LBIS. One of FFT objectives is to maintain the adequate growth of FFT planted sites since 2005 through brushing and other stand maintenance activities. FFT also provides government's insurance to licensees through s.108; we don't know how much these costs are going to be from year to year so they can affect the delivery of other FFT activities if costs are high. Another FFT focus is to eliminate the backlog NSR.

The driver for FFT current reforestation and timber supply mitigation is Performance Measure 7 in the Service Plan where the targeted timber volume gain in 65 years is 8.3 million cubic metres (starting in 2013/14) from silviculture investments. About 50% of the target gain is from FFT and the other 50% is from genetic gain improvements through Tree Improvement that are paid for using LBIS funding. The Service Plan notes government's goal of 57 million cubic metres/year of timber volume in mid-term, and 65 million cubic metres/year in the long-term.

Government commitments for FFT current reforestation include planting at least 20 million seedlings per year, eliminate the backlog NSR, and realize a budget increase of \$10 million beginning in 2015/16. Commitments for FFT timber supply mitigation include continued development of Type 4 silviculture strategies and fertilize at least 21,000 ha per year.

The 2014/15 FFT budget is projected at this time to be around \$32 million for current reforestation and \$11.85 million for timber supply mitigation. Guidance available in finding treatable areas include:

- FFT potential opportunity maps
- Silviculture opportunity maps
- Digital camera and other high resolution imagery available from FAIB and GeoBC.

Guidance for developing the annual operating plan (AOP) and 5-year plan are provided at <http://lbis.forestpracticesbranch.com/LBIS/node/103>. Priority 1 areas for current reforestation are Lakes, Quesnel and Williams Lake. Additional aspects that impact the priority listing of units are caribou mitigation openings, and random events outside priority areas. The mountain caribou GAR order exempted licensees from reforesting about 50,000 ha of past or future harvested area in compensation for impacts on timber supply and on incurred operational costs

such as road building to areas no longer available for harvest. The current stance is that government needs to take on the responsibility through FFT to reforest these areas.

Random events include the recent fires in the Fort Nelson area. Although there is not a forest industry presence there now, our investments can impact the opportunities to develop one in the future. There was discussion around the need to ensure that any decision on pursuing reforestation of areas outside the priority units must consider all aspects of forest management in BC. Community economic resiliency needs to be considered; some communities such as Burns Lake and Quesnel are highly reliant on timber, whereas communities in the NE have a diversity of sectors providing community employment. It was noted that there may be a carbon credit opportunity with the NE fires; this potential opportunity is being pursued.

The potentially treatable areas with a SI>15 for each management unit showed the estimated overall area, and the volume gain if the entire area was treated vs. the volume gain based on the current 5-year plan. There is clearly an opportunity to do much more in most units.

Strategic focus – timber supply mitigation (TSM)

Priority 1 areas for timber supply mitigation are Lakes, Quesnel, Prince George, and Williams Lake. Additional aspects that impact the priority listings include incorporation of woodlot associations and community forests investment interests, and the 70/30 split for interior priority units and rest of BC. For coastal, NW and SE areas of BC, the AAC is used to guide funding levels if required. In the past, a split by AAC was not required, as the level and type of activity have balanced with the available funding in these areas.

Monty noted that the \$11.85 budget currently expected for timber supply mitigation needs to account for the purchase of fertilizer, as we are not likely to be able to pre-purchase fertilizer as we have in the past given the tight budgets this fiscal year. That said, if FLNR has a surplus this fiscal year, some pre-purchase of fertilizers may be possible. About \$5 million is needed to purchase the fertilizers needed to treat the 21,000 ha target area.

It is also important to incorporate the requests from woodlot associations and community forests in the AOP from each district. The expectation is that there would be about \$1 million in funded projects – about \$0.5 million for woodlots, and about \$0.5 million for community forests. The AOP currently shows about \$1.1 million – so we appear to be on target.

The initial roll-up of the 2014/15 AOP was discussed at the provincial level. The current reforestation AOP currently sits at about \$32.4 million (regional costs plus general activities and provincial costs) – which is close to the \$32 million expected budget. The timber supply mitigation AOP draft is about \$16 million, so will need to reduce to meet the expected \$11.85 budget.

Delivery by BCTS in 2014/15 is listed in the draft AOP at approximately \$11 million. The largest amount is for current reforestation (app. \$8 million) and the rest on timber supply mitigation activities. Delivery of fertilization by BCTS still needs to be confirmed with regard to capacity to deliver on the Coast.

It is essential to use RESULTS forward planning. The numbers in the AOP and RESULTS are matching up much better now, so good progress has been made. RPB/BCTS are still working on RESULTS/GENUS interface.

Discussed briefly the report out from 2012/13 showing the difference between RESULTS completed vs FFT funded goals in 2012/13. Overall the variance in survey and planting aligned well, however, we need to monitor the brushing, fertilization, spacing and site prep in future years.

In terms of next steps in the LBIS FFT planning process for 2014/15:

- September 30th – FFT budget based on initial draft AOP plan submitted as part of LBIS
- November 1st – LBIS budget submitted to Deputy
- December 31st – 2014/15 AOP second draft based on projected budget
- March 1st – 2014/15 AOP finalized based on received budget
- April 1st – 2014/15 AOP actioned

Action #4: Monty Locke will circulate first draft of the annual operating plan (AOP) for 2014/15 as well as timelines for submission of Draft 2 of the AOP.

The AOP shows 26 million seedlings to be planted in 2014/15 whereas in SPAR it shows sowing for 23 million.

Action #5: Regions/districts to check sowing requests in AOP with SPAR.

Concern was expressed that the 70/30 split for timber supply mitigation seems to marginalize the NW. The NW is cutting about 30% of its AAC due to decadent stands that need treatment. It was noted that the split reflects the Coast Recovery Plan that was developed some time ago, and has been around for some time; that said we can strategically re-examine it. This raises an important point that we may not slice the pie differently, but how do we make it bigger for everyone. What is the cost to BC in not investing more in the NW?

The September 30th submission of the initial investment plan from the various investment categories will go to all ADMs, REDs, EDs, and Directors responsible for the respective funded LBIS programs for discussion. This feedback will then be provided to the Deputy Minister who decides how much funds each LBIS investment category will in fact get.

There was discussion about how funds can be moved between LBIS investment categories within region. This needs to involve the ADM Resource Stewardship Division to ensure government commitments are being met. For example, Performance Measure 7 in the FLNR Service Plan essentially commits government to investing at projected funding levels for FFT current reforestation and timber supply mitigation.

Session 6: Ecosystem Restoration and Wildfire Planning

Al Neal described the Ecosystem Restoration program and reintroducing controlled burning onto the landscape, and Kelly Osbourne discussed landscape level wildfire planning. FLNR's Ecosystem Restoration website provides an overview of the program and is located at <http://www.for.gov.bc.ca/hra/Restoration/index.htm>. Wildfire Management Branch's Prescribed Fire website is located at <http://bcwildfire.ca/Prevention/PrescribedFire/>

Ecosystem Restoration

The focus this LBIS program has been on fire-maintained ecosystems (NTD4)¹ where:

- Pre-1880's – First Nations use of fire in the ecosystem
- 1880's - Start of First Nations reserves
- 1920s -'30s- High intensity fires given fuel build up
- 1940s-'60s- Fire suppression

There is evidence of fires averaging every 28 years between 1620 and 1930, whereas there are areas in NTD4 that have not had a fire for the last 100 years. Consequently, in some places 100,000 stems/ha have in-grown what was open forest. The impacts include:

- Disappearing grassland through tree encroachment
 - Less than 1% of BC is native grassland
 - Around 30% of the species at risk are grassland dependent
- Loss of First Nations cultural values such as native plants traditionally used by FN

One of Biodiversity BC's 'Taking Nature's Pulse: The Status of Biodiversity in BC' (2008) major findings is that: "At a broad scale, four BEC zones (CDF, IDF, PP, and BG), representing approx. 5% of BC's land base, are of provincial conservation concern."

With climate change in the Interior, we can expect long, dry summers, and very wet winters.

BC's Wildland Fire Management Strategy (2010) notes that many of the severe, intense fires have occurred in areas where fuels have accumulated over decades. Severe fires threaten communities, can degrade soils, and impact drinking water and habitat for sensitive species.

Ecosystem restoration (ER) is defined as assisting recovery of resiliency and adaptive capacity.

The Trench ER Steering Committee involves a diversity of stakeholders including district staff, Parks Canada, several local ENGOS, and many others. In the Trench, with \$0.4 million in LBIS seed funding, the Steering Committee has leverage other funding sources so that \$2.3 million has been secured for ER projects.

The district ER plan provides a vision in maps showing the desired future conditions of the land base as working forest, open forest and open range. This is done consistent with ungulate winter ranges and other values, and supports fuel management for the wildland urban interface.

¹ A ecosystem restoration plan is being prepared in Northeast BC that may broaden the scope of the program

The map encourages feedback so that the desired future conditions can match objectives for other land values.

One of the key ER investment activities is prescribed fire. Normally areas are spaced before a prescribed fire, with slash piles burned. One of the objectives is to get rid of ladder fuels. Another is to account for other values in areas to be treated, for example, the Lewis woodpecker that needs really dead trees. Monitoring our efforts is a key part of the ER program so we learn by doing.

Al Neal is co-chair of the BC Prescribed Fire Council – a broad based group that, among other things, provides training course on the use of prescribed fire.

A photo from Montana was shown where fire stopped at the thinned stand showing the value in reducing fuel loads.

Professional input is currently being sought on what the direction of ecosystem restoration should be in the Omineca Region.

Ecosystem restoration treatments were included in Cranbrook and Invermere TSRs and were found to have a positive impact on timber supply.

Fire management planning

There are three levels to consider:

- FireSmart for homes
- Wildland urban interface (WUI) for community wildfire protection planning
 - Need to collaborate with others, such as Type 4 SS, to merry programs
 - Consider FFT investments near WUI to find win-win (e.g. reduce fire risk, remove dead pine that poses an increased fire risk)
- Landscape fire planning and management (e.g. 2 km from a community)
 - Focus on landscape wildfire risk and threat
 - WMB will likely treat protection of communities as a priority, not silvicultural investments.

The window to use prescribed fire in some areas can be very narrow; sometimes just one day a year in areas like the Okanagan. Another concern with prescribed fire use is on airshed quality – an interior health concern. In the US, air quality is a big constraint on use of fire. However, the issue can be some air quality impacts now with prescribed fire vs enduring impacts on air quality later by wildfire.

The Wildfire Risk maps that are being developed by Wildfire Management Branch should be available to districts in a few weeks.

In making silvicultural investments, think about what you are putting in the ground and the fuel management implications. WMB is working with Resource Practices Branch (Kevin Astridge) on fuel management stocking standards. This may be landscape-level or local and may be

different for various forest succession stages. Fuel management stocking standards should be considered when identified in a fuel management plan within a fire management plan.

Session 7: Forest Health Factors in Burned Areas

Jennifer Burleigh provided an update on forest health considerations in burned areas such as the black army cutworm and rhizina root rot.

Black army cutworm (BAC) was a major pest in the 1980's with FRDA 1988 report noting a 'consistent association of BAC with recent broadcast burning.' Since then less prescribed fire as a site preparation tool decreased impact of this pest. With increasing use of fire on the landscape, consideration of BAC impacts on seedlings needs to be considered.

With a spring fire, the seedlings are at highest risk the following year. If a summer fire, the seedlings are at highest risk the second spring following the fire. BAC moths lay their eggs in the soil in July to September (unlike most other moths that lay eggs in vegetation), so freshly burned sites with no vegetation are preferred. It is at the caterpillar that actively feeds at night in May and June that causes damage to planted seedlings.

The best strategy to avoid pest damage is to wait to plant one or two years after the spring in which the site is at high risk or delay planting until July when the caterpillars have stopped feeding. Drier sites generally at higher risk than wetter sites and sites with no vegetation are also higher risk.

Action #6: Jennifer Burleigh will send a one- or two-pager on the black army cutworm with weblink that provides advice.

If other vegetation is on the site, BAC will preferentially feed on succulent plants over seedlings. That said, western larch seedlings are preferred over some succulent vegetation. Although lodgepole pine is one of the least preferred conifer species, the impact of feeding is much more pronounced and pine seedlings do not recover as well as other conifer species.

Another strategy to reduce damage is well-planted and well adapted seedlings. Seedlings that are drought stressed or poorly planted incur higher levels of mortality. If the terminal bud has not been eaten, the seedling will usually survive. Most seedlings can sustain up to 60% defoliation with limited impact on growth or survival.

Summary of considerations for BAC:

- South or west facing slopes seem to be preferred for egg-laying and are normally first areas to see seedling defoliation
- Severe burns with less vegetation in following year means higher risk of BAC damage
- Early planting (before other vegetation is out) increases impact.

Tools include:

- Pheromone monitoring – provides early warning the fall before planting
 - Place trails July 1st to Sept 15th (detailed protocols available online)
- Delay planting for 1-2 years

- Survey for larvae and damage on herbs in spring
- Schedule summer plant to avoid larval feeding
- Plan for a summer plant, after caterpillars are done feeding for the year

Rhizina root disease is called the ‘fire fungus’ because spores are activated by heat. The disease is found throughout BC especially on burned areas of the ICH and CWH. The risk usually only lasts about two years following fire. If no conifers were on site before fire, there are no spores and therefore no risk. Disease occurrence is slight where sites receive a light burn such as is common in early spring, or a severe burn where all litter and humus is removed. The fungus occurs most often in acidic soils, less so in neutral soils and not at all in alkaline soils.

Symptoms and signs include:

- Seedlings appear stressed – chlorotic needles
- Seedlings appear girdled at or below soil line
- Fruiting structures are very distinctive (chestnut to dark brown with lobes and fissures), up to 6 cm in diameter, and grow within 50 cm of infected seedlings
- Most common in late summer and fall in wet years

Management options: If fire was 10-16 months earlier, conduct survey for fruiting bodies around stumps and large woody debris

- Delay planting 1.5-2 years post fire
- Avoid planting sites adjacent to food bases such as stumps and large pieces of wood
- Plant seedlings at least one metre away from food sources

Day Two

Housekeeping Items from Day One

Dave Cornwell asked if there are any questions stemming from Day One.

Q: Is government obligated to reforest areas exempted in the GAR order due to mountain caribou mitigation?

A: There is no obligation to government under the FPPR; government is voluntarily taken this on using FFT investment funds.

Q: Does Al Powelson need more information from districts to meet the September 30th deadline for the initial budget for 2014/15?

A: The initial draft annual operating plan (AOP) submitted by districts is sufficient at this time. We will have to sharpen our pencils later to meet the second draft of the AOP by December 31st. Should be able to send the current AOP out to staff next week.

Session 8: Critical Issues

The following critical issues were addressed:

- a. Mountain caribou mitigation openings – Matt LeRoy and Monty Locke
- b. Delivery of caribou mitigation related activities – Dave Cornwell
- c. Delivery efficiency – the economics of FFT eligible lump sum timber sales – Kerri Brownie and Dave Cornwell
- d. The forestry team – delivering activities – building collaboration – Dave Cornwell
- e. LEAN – identifying the scope and identifying potential Kaizen participants – Dave Cornwell

a. Mountain caribou mitigation openings: FFT tracking, planning and delivery

Tracking of mitigation openings:

- If not in RESULTS, it is not being tracked (instructions on RESULTS sent to licensees and district staff)
- Need opening comment field filled out “Caribou GAR 2012 FPPR s. 91 exemption” and only if in Deputy’s letters
- Input actual planned costs, not necessarily the appraisal costs contained in the mitigation calculations
- There are both openings within GAR areas and external to GAR areas contained in the Deputy’s letters
- ARCGis online displaying openings from the RESULTS certify query
- Formed FFT Mountain Caribou Mitigation working group

There was a question about the mitigation openings outside GAR areas. Licensees incurred non-amortized costs of road building when they could not harvest blocks in mountain caribou habitat; these costs were mitigated by exempting them from silvicultural obligations in other areas.

Some of the s. 91 exemption Caribou GAR area will not be harvested at all and therefore no reforestation will be needed.

Planning of mitigation openings:

- 2013/14 – brushing and sowing costs
- 2014/15 – include the caribou mitigation openings that need reforestation in AOP and 5-year planned activities similar to other FFT activities
- FFT focus is on openings outside of no harvest zones which are listed in Deputy's letters.

For 2014/15 there are currently \$1.8 million in expected costs for caribou mitigation openings in the AOP and \$1.1 million in RESULTS. Some work is in preparation for blocks not yet harvested, but as we move forward we should see a closer alignment between what is planned in RESULTS and projects in the AOP. Currently RESULTS planned activities to 2032 for Mountain Caribou mitigation openings is showing approximately \$4.2 million in costs.

The intent is to 'count' this reforestation work towards meeting Performance Measure 7 since the openings are no longer an industry obligation. We don't expect to receive any additional funding, other than the \$10 million additional FFT reforestation funding starting in 2015/16, to address these openings.

There was a question about how these openings fit in the Type 4 SS. Once the openings get tracked in RESULTS, they can be addressed in the SS.

Delivery of caribou mitigation related activities

There are three choices in the delivery of activities on mitigation openings:

- Third party delivery (licensees, societies, contractors) via PwC
- BCTS
- District/Region

Currently about 89% of the delivery of FFT current reforestation is either BCTS or District/Region, with about 11% through through third parties.

If licensees are positioned to roll this into their existing programs in a timely manner, then third party delivery is a viable option. We received advice from a Softwood Lumber Agreement perspective, that it is ok to use licensees to reforest openings. If staff in BCTS or FLNR operations are available, then this would be the best option. Overhead sufficient to cover the costs of delivering activities will be provided to districts through the allocation process. BCTS operates under a service agreement with RPB. 10% overhead is provided which goes towards BCTS cost recovery. All things considered, the costs are similar with all three options. It is good to have this diversity of delivery options as every situation is different.

There was a question whether we can shift the delivery approach mid-stream. Yes, just change the AOP to reflect that. Another question asked if delivery agent can do both the survey and the reforestation work. Yes they can, this is covered in the Service Agreement.

Kerri and Nola pointed out that government has a Service Agreement with the BC Conservation Foundation, so that this is an option as well. Originally the Agreement was with MOE, but it now also includes FLNR. The Habitat Conservation Trust Foundation uses the BC Conservation Foundation.

Action #7: Nola Daintith and/or Kerri Howse will send Dave Cornwell a copy of the Service Agreement with the BC Conservation Foundation so that this can be made available to others.

b. Delivery efficiency – the economics of FFT eligible lump sum timber sales

With delivery experience, we have been planting 30% more trees with the same amount of money. We are moving away from immature MPB killed stands to mature MPB killed stands.

The FFT/BCTS collaboration with FFT eligible Innovative Timber Sale Licenses (ITSLs) and/or lump sum Timber Sales are the mechanism being used to remove MPB killed overstories to allow for FFT funded planting to take place. This also allows for the recovery of fibre that BCTS can market.

In general BCTS executive views this as a good fit; if BCTS staff can handle it, go for it. BCTS is expected to add volume to market for mills; the FFT program helps BCTS do that.

There is reluctance, however, in some areas for BCTS to leave their chart areas, and it is getting hard for BCTS to find suitable wood only within their chart area in some areas. If licensees are not using the wood in the chart area, then BCTS can.

There are large areas of potentially treatable mature MPB killed stands that need to be converted to managed stands in priority areas such as Lakes, Williams Lake and Quesnel. This represents a big program where we need to ramp up.

Action #8: Look into certifying larger areas as FFT eligible for BCTS ITSLs, and outside BCTS chart areas.

Dave Cornwell asked Clay Allison to address the economic side of the use of ITSLs. Clay said use of ITSLs is working in all three areas: economic, social, and environmental. There is no market to harvest the low volume wood by forest licensees given reforestation costs. The ITSLs allow the Crown to capture residual value wood in these stands by incurring the reforestation costs through FFT.

From a social perspective, this allows additional wood to be put on the market that mills desperately need to keep operating and to employ workers. FFT/ITSLs can be a bridge for communities as they transition to the mid-term. And there are important environmental benefits.

Through discussion it was pointed out that mills may not prefer the smaller piece size associated with these low volume residual stands, but they will adapt to it to make a profit.

Informal discussions with senior BCTS staff indicate they see the important role BCTS plays in helping deliver FFT as positive e.g. it helps reduce the provincial NSR.

BCTS has a major role in helping to deliver FFT programs through overstorey removal and reforestation, to fertilization; and also some other LBIS programs such as Fish Passage. It was noted that it is important for the FFT program to get this message out to BCTS at a high level. A meeting has been arranged with BCTS in a few weeks to discuss just that.

Next steps include:

- Taking the information that we have to the Timber Sales Leadership Team e.g. we need to move outside BCTS chart areas
- Draft a decision note to target fibre recovery and reforestation supported by FFT
- Adjust Service Agreement between BCTS and Resource Practices Branch if required.

c. The forestry team – delivering activities – building collaboration

Dave noted that have touched on this already through many of the discussions earlier today and yesterday. With the ‘recipient agreements’ ending, there will be workload shift in some districts. There is concern about the increasing workload on dedicated staff so that it is not excessive.

During discussions, a district noted that FFT has been asked to pay \$146 000 to keep a road open (e.g. fix bridges, do structural work) that is needed to reforest eligible areas. This adds another cost burden to the program, and additional responsibilities by being the primary road user.

d. LEAN – identifying the scope and identifying potential Kaizen participants

Last Spring, we were told that a LEAN review of the LBIS program would occur. Dave/Al/Lorne Bedford put a description of what LEAN could do. The exact scope of the review still needs to be determined.

An oversight group has been formed including Jim Sutherland, (Executive Sponsor), Lorne, Dave, Keith Thomas and Ryan Forman; Ryan has had active LEAN training. There is a draft Charter. One view is that the scope should be ‘end to end’ from LBIS priority setting to delivery.

A Regional Executive Directors (RED) subcommittee was formed to address how to better communicate what their role is in LBIS priority setting. The process for best getting regional feedback is being addressed.

The LEAN project objective is to improve transparency and efficiency (eliminate the ‘middle man’). There is a quick turnaround in getting LEAN projects completed with full

implementation of LBIS LEAN findings expected in April 2014. Dave will resume monthly calls with operations staff so they are updated as the project unfolds.

The kick-off is expected shortly; although the subject matter experts expected to participate on the oversight committee have been determined, the Kaizen participants have not yet been identified.

A question was raised ‘what’s broken’? The LEAN consultant will build a present state so that the Kaizen event can get rid of what we don’t need to do.

There was comment that probably communication is the biggest challenge that consumes a lot of staff time. How can we do this in a more streamline fashion?

It was noted that one issue is that what operations staff that help deliver the FFT program somehow does not make its way up to the REDs; this is true also for other LBIS programs. Staff are encouraged to raise what you do to the district manager and further upward in region.

Action #9: Build what you do in your Regional and District Work Plans, and link this with the FLNR Service Plan (e.g. Performance Measure 7) as the work plans are reviewed by Regional Management Teams (RMTs). This should help improve communication about the FFT program.

REDs and Directors of Resource Management have a huge workload; it can be a challenge for them to understand all of the programs and activities within their mandate. Need to improve awareness of why we do what we do. For example, there are government commitments associated with the FFT program where we are expected to deliver on those commitments.

Session 9: RESULTS

Caroline MacLeod and Matt LeRoy covered RESULTS-related topics such as Backlog NSR, data trends and training needs.

Backlog NSR

Matt said there were about 175 000 ha of backlog NSR in 2009/10 and this has dropped considerably to about 20 000 ha in 2013/14 (with about 17 000 ha in TSAs and 3000 ha in TFLs). We may not get to zero by 2015, but it should be just a negligible area at that time. There was no specific FFT funds earmarked for this activity this FY, but there will be funds next fiscal year for this.

A slide showed the amount of backlog NSR by TSA. District staff should review this and see if the area remaining makes sense for the TSAs in their district, and then develop a plan to eliminate the remaining area. Some of the TSAs with a relatively large area (like Prince George, Williams Lake and Quesnel) have planned activities for the backlog.

There was a question about the confidence in the NSR data in TFLs. The data should be OK since licensees had an obligation to electronically report in RESULTS, but some of the older data may be suspect. It was noted that there were relatively low amounts of backlog NSR in TFL before, and much of what remained got cleaned up in 2000/01, so the data is probably good.

Since the easier backlog NSR openings likely got cleaned up earlier, we are probably left with the most challenging ones. Remember the options regarding survey standards to most effectively address remaining backlog NSR openings. Chartwell is on deck to help with data entry, surveys, forest cover submissions, etc. There is a September 20th backlog NSR meeting scheduled.

Data trends

Caroline mentioned that guidance will be provided on RESULTS updates with wildfires and carbon projects. There will be a meeting to discuss this shortly.

A RESULTS reporting review of FFT or FIA funded activities has in general shown recent improvements in data quality. Some of the issues are problems associated with the older FIA funded activities such as no forest planning, or no forest cover update (yet survey done), or activity without spatial. For example, a caribou GAR opening with no planned activities shown.

There was a question about how to clean up FIA data issues. Go to PwC who will contact the licensee; licensees have been good at addressing these issues.

CTQ was hired to help address RESULTS data quality issues. There has been significant uptake by major licensees but not so much from FFT.

Action #10: Contact CTQ regarding RESULTS data quality issues in your district.

Some district staff wanted to get access to all the data quality issues in their area, not just the high priority ones, as they may want to do a comprehensive clean-up.

How do we make data quality a priority?

- District funding
- Clear responsibility
- Continuous improvement through training and communication
- Report cards on status of data per district

Results Training

New GoToTraining software has been acquired as it is needed to help train the external audience (licensees, contractors) who can't use Live Meeting. The existing training material will go on the new software, but not the recorded sessions – at least for now as there has not been much use of the recordings. Let Caroline know if you feel there is value in putting the recordings on the new software. The training material on Live Meeting has been archived as we

don't have the software license to use this for training. Customized sessions will still be made available on the new software; for example one is being prepared for carbon projects.

Session 10: Internet Based Mapping

Matt LeRoy discussed internet-based mapping and how it can be used to address Caribou mitigation openings and other applications such as FFT planning.

There is considerable opportunity to utilize ARCGIS Online for FFT project applications. ARCGIS online can assist organizations and be used by people who are not GIS specialists. With ARCGIS online, there are options including preparing pdf maps, printing maps and e-mailing maps. A map can be built that can interactively used in Windows software and on an existing web page, and can be accessed on smart phones and tablets.

Matt will provide the link to the RPB Gallery where maps can be shared. The ARCGIS browser can also be used on-line that overcomes some of the limitations with the browser the Ministry uses. With ARCGIS online, you can bring up Google Earth/Map imagery to change the base map. Use of ARCGIS online was illustrated by using the mountain caribou GAR openings.

With ARCGIS online, you can:

- Configure your own popups such as photos
- Change the opacity of a given layer
- Change outline colours and fill colours
- Add bookmark locations
- Print maps, measure distances
- Add your own shapefiles
- Easily embed a map in a website
- Symbolize as unique symbols (you can add labels but you can symbolize openings)
- Carry out specific queries
 - Queries can be save as layers for future reference
- Add a map service (direct from BCGW)
- Add dashboard stats to track things like total area or total costs in a unit
- Embed maps in presentations
- Create our own apps for smart phones and tables

There was question whether we have access to this now. Yes, you already do, Matt will provide link.

Can maps be posted? There are five people with that authority currently so need to work through them.

Can maps be manipulated? Yes they can, and you can add an excel.

FFT related information for the most part could be publicly available, but for some information like costs, it should probably be password protected.

There was observation that this could be a great way to load up all the FFT planned activities on a map that can then used for First Nations review. Another potential application is for Type 4 SS where information can be readily shared and used interactively.

There was question if iMap will still be kept. iMap was recently re-tooled, so yes.

Session 11: Stand Development Monitoring

Harry Kope provided an update on Stand Development Monitoring (SDM). SDM is a:

- point in time survey or assessment - the link to past or future is less clear
- mid-rotation survey with stands between 20 and 40 years old

SDM collects, for example, total live and dead trees by species, forest health factors by live and dead tree species, etc. Currently 21 TSAs have 504 SDM openings representing 5040 individual plots that were collected since 2009. There was question why the Okanagan was not shown to have SDM data since plots were completed. This was not shown since it represents a different data set based on an older SDM standard. The SDM data is stored on the FREP website; if any problems accessing it, contact Harry.

SDM Data Summaries are being prepared for TSAs using a standardized format. The Mackenzie, Golden and Fraser TSA Data Summary reports are the first three available so far and were handouts at the Workshop. The pre-SDM data is from free-growing declaration. The Summaries provide data for staff consideration; no conclusions are drawn from it in the reports. A general finding however is that site index is often higher based on SDM data than originally thought.

The top 5 forest health issues in 8 TSAs where data was rolled up were: suppression (vegetation competition), western gall rust, fork, moose, and snow press. The roll-up by species shows that for spruce, animal damage (moose) creates the main forest health threat, whereas for lodgepole pine it is rust. Digging further with the SDM data, rust was a relatively small issue in 52 openings with less than 15% of the trees damage, whereas it was a bigger issue on 11 openings with more than 15% tree damage.

There was a question about not reporting on layer 4 that Harry will take back to the SDM team. There was observation that layers 1 and 2 are normally considered your crop trees (e.g. in TIPSYS), whereas layer 4 trees don't contribute to timber supply in the model.

There was question if the stands monitored were following TIPSYS expectations. SDM is only a point in time assessment to understand forest health issues, so it would be problematic to compare this data with TIPSYS. There was observation that permanent sample plots are more suitable to tie in with TIPSYS as they are long-term plots. There was comment that SDM should put a comparison with TIPSYS in its protocol. People are drawing conclusions but may not be well informed as the starting density of the free growing stands monitored may be different.

There was view that SDM usefulness should be in informing TSR such as regarding G&Y. The SDM team, however, feels here's the data for your interpretation, and are trying to get away

from actually doing the interpretations themselves. The data collected by SDM, for example, is supplied to RESULTS.

There is value in the coordination of the interactions between FFT and SDM; for example if an FFT survey is being done in an area where SDM plots are intended. Also FFT should consider funding SDM. There was comment that if SDM knows what sites it will undertake plot work in, this can be scheduled in RESULTS to help with coordination.

There was comment that SDM is probably FREP's most expensive program, so it is important to demonstrate the utility and benefit. Concern was expressed that some districts at this time just don't have the resources to do SDM.

The SDM team includes Dave Weaver, Stefan Zeglen, Kevin Astridge, Frank Barber and Harry. The SDM team needs to show how SDM can be best used with your help, so your ideas and feedback appreciated.

Session 12: Free Growing Standards

Dave Weaver described intended next steps towards updating the "Free from brush – free growing criteria" currently in Appendix 9 of the Silviculture Survey Procedures Manual. A major issue is how much broadleaf is too much? When does it represent adverse brush competition?

A catalyst for changing the Appendix is Teresa Newsome's long-term research work in the Cariboo within the SBPS, IDF and SBS. She proposes to increase the allowable aspen on free growing pine stands. Amendments were requested to Appendix 9 in 2013, but it was decided that it is time to take a good look at the entire Appendix 9 (for all regions).

The project plan timelines are:

- September 2013 Finish field work – Newsome and Harper
- November 2013 Survey licensees for feedback
- March 2014 Produce 1st Cariboo Pilot
- Summer 2014 Test Pilot – volunteer licensees
Open input on new Appendix design
- Fall 2014 Final Cariboo Pilot
- Spring 2015 Final Appendix

George Harper is doing a retrospective study of northern SBS. The work includes looking at blocks that were declared free-growing to assess how they are now doing. This work will hopefully enable us to update the Appendix for these northern SBS subzones.

In terms of the design of the Appendix, one option is to following the existing template (which is complex and confusing for most surveyors), while another option is to design a clearer, simplified template. The revised Appendix could include regional tables by BEC.

The Cariboo Chilcotin district have already provided standard operating procedures where aspen is considered non-deleterious in the SBPSxc.

The ‘neighborhood’ concept for competition rather than ‘potentially free-growing’ concept will likely be the focus of the new Appendix.

There was a question about studies in other subzones and how that will be used to update the Appendix – opportunity for the use of these studies to update the new Appendix will be offered in 2014. There was comment that perhaps SDM plots could be used in that regard as well.

Session 13: FLNR Safety Q & A Session

The purpose of this session was to provide an opportunity for staff involved in FFT delivery to ask questions to Tom Jackson, Director, Resource Worker Safety, concerning safety issues or concerns that they have. Tom also addressed:

1. The Safety Management system
2. Working safely in burned areas and MPB killed stands
3. Using safe certified contractors

Some Safety material is posted on the LBIS FFT websites (including link to FLNR safety website) at <http://lbis.forestpracticesbranch.com/LBIS/node/103>
<http://www.for.gov.bc.ca/hcp/fia/landbase/fft/safety.htm>

Q: Should districts give priority to safe certified contractors?

A: Any Branch/organization or program can choose to give priority to safe certified contractors e.g. BCTS is safe certified and seeks contractors who are also safe certified. Safe certified is in essence an audit standard (like ISO) that is administered by the BC Forestry Safety Council. FLNR is a member of the BC Forestry Safety Council at the invite of industry as industry funds the Council. Tom Jensen, ADM sits on the Council’s Board.

A major refit is underway in how company’s approach being safe certified. The approach has been towards continuous improvement but deaths/serious incidents within forest sector initially declined and have now plateaued. The goal is still to eliminate serious incidents. Part of the plateau in the forest sector is that industry and government engage a number of contractors who influence those statistics; also there are many small forest operators, independent contractors, woodlot operators, and First Nations plays a significant on the land base in forestry. So unlike oil and gas where a few major companies dominate the sector, the forest sector is far more diverse making safety and safe certification more challenging.

It is expected that the safety standard will be simplified following the “Plan-Do-Check-Act” approach to control and improve safety management. The existing safety standard focuses on WorkSafe regulations, whereas the expected new approach will ask: How are you doing it? The new approach is not out yet, but there if a final draft that industry appears to support. The new approach might meet ISO 18001 standards for occupational health and safety.

Under WCB, employers have a responsibility to provide workers with a safe workplace and to put competent people out there in the workplace. Although an owner can assign a prime contractor if there is a multi-worker workplace, the owner needs to ensure the prime contractor is competent to perform those duties.

“Who has knowledge and control” is the questions WCB will ask. A tenure holder is like an ‘owner’ as they have control. There is more control of contractors paid by the hour (contract workers) than more arms-length contracts where contractor paid to complete a task.

The 14-page ‘Client Interaction Guide’ simplifies expectations under WCB by describing them in layman’s terms. The Guide is on the external FLNR safety website. The Guide includes topics that ministry staff should be discussing with their contractors.

Action #11: Contact Tom Jackson if any questions about the Client Interaction Guide.

Tom recommends that the decision to give priority to a safe certified company be a FFT program decision; not one done by individuals delivering FFT programs. If you decide to go that route as a program, have a transition time (e.g. 3-5 months notice) to let contractors know that the expectation is that they be safe certified. Also look at the language that BCTS uses; they don’t say that 100% of the contractors will be safe certified, but that use of safe certified contractors will be the norm, but they reserve the right to not use a safe certified company if the circumstances warrant it. And if FFT decides to go this route, evaluate feedback on how it went.

There was question about requiring safe certification in a particular district where it had been a requirement before under FIA through PwC. Would it be ok to continue with that requirement? The only issue is if someone complains that they were not able to put in a bid. Don’t recommend you do on-offs, but that you make a program decision to be consistent. But remember to use BCTS ‘out’ language in case no one is safe certified.

When looking at the safety management of an organization (industry, ministry, contractors), some common sense aspects should be assessed. Do they have a safety plan in place? Is it adequate? Do workers have appropriate safety training and qualifications? (e.g. FLNR requires use of certified hand fallers). If industry has a safety requirement, there is often pressure that government does the same.

How to set up for safe contracts:

- Safety hazard assessments
- Clear qualifications
- Organized workflow
- What is access like to site?

We often think about this but need to put a ‘safety stamp’ on it to show that we have put our mind to it.

Regarding heli-evacuation question, we can include this in a safety plan where it is acceptable. We can't say, we have a problem, we need a heli-evacuation; but we can have pre-planned heli-evacuation contact that we call in case of an emergency.

The leading cause of incidents (except pathogens) is high-energy events. The hierarchy of control is:

- Avoid risk (replace with less risky approach)
- Engineering control (e.g. windshield also provides vehicle roll-over safety protection which is why a crack in the windshield is a concern)
- Administrative control (e.g. training, procedures)
- Use of personal protective equipment (PPE)

With FFT field work, there is often a 'sea of snags' given dead MPB trees. Do you manage the hazard, or managed the human aspect – what is the practicality in approaches?

Safety management should be part of everyday business. Safety is not an organizational priority, but how you get your priority work done; safety is a value. For example, Wildfire Management Branch has integrated safety in their training.

When should we wear a hard hat? If in the field, you should wear it unless you assess that there is no hazard. Remember that a hard hat is meant to protect you from fallen small branches (not from a big tree).

FLNR recently conducted a safety audit that involved staff. If you undertake a hazard assessment, write it down. We tend to be weak at documenting our safety considerations. Few staff undertake proactive safety risk assessments; we generally react to safety issues that arise. We need to assess: what are the higher risks? What controls can we put in place to address high risk situations? Important that you know how to find policies and procedures related to safety.

The work is too diverse in the ministry to prepare one detailed safety manual. The approach therefore is to provide a safety framework that then allows particular programs to develop safety guidance for the specific activities that they are involved.

Dave noted that we can bring Tom in on our monthly calls if there are safety issues or questions that need to be addressed.

Workshop Wrap-Up and Evaluation

Dave thanked the presenters and attendees for their participants for their participation at the workshop. He asked attendees to complete the Workshop Evaluation Form. The results from the completed evaluations are provided in Appendix 2.

Dave went over the Action items that were captured on the flip charts. The Action items in the Synopsis are also in Appendix 3.

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
Clay Allison	SR Management
Delee Anderson	Vanderhoof District
Kevin Astridge	Resource Practices Branch
Paul Barolet	North Island – Central Coast District
Kerri Brownie	BC Timber Sales Branch
Glen Buhr	Skeena Stikine District
Jennifer Burleigh	Resource Practices Branch
Scott Byron	BC Timber Sales – Stuart Nechako
Julie Castonguay	Selkirk District
Dave Cornwell	Resource Practices Branch
Sam Davis	Mackenzie District
Nola Daintith	Cariboo Region
Mike D’Aloia	Fort Nelson District
Kevin Derow	Coast Mountains District
Tom Ethier	ADM, Resource Stewardship Division
Nigel Fletcher	Resource Practices Branch
Ana Maria Gonzalez	Chilliwack District
Jeremy Greenfield	BC Timber Sales – Prince George
Larry Hanlon	Kootenay Boundary Region
John Hopper	BC Timber Sales - Kamloops
Kerri Howse	Cariboo-Chilcotin District
Stephen Jablanczy	Rocky Mountain District
Tom Jackson	Resource Worker Safety
Ljiljana Knezevic	Omineca Region
Harry Kope	Resource Practices Branch
Matt LeRoy	Resource Practices Branch
Monty Locke	Resource Practices Branch
Heather MacLennan	Thompson Rivers District
Caroline MacLeod	Resource Practices Branch
Mike Madill	Thompson Okanagan Region
Frank McAllister	BC Timber Sales – Peace-Liard
Peter McAuliffe	Tree Improvement Branch
Leith McKenzie	Thompson Okanagan Region
Ted McRae	Okanagan Shuswap District
Anna Monetta	Omineca Region
Allen Neal	Provincial Ecosystem Restoration Strategic Team Leader
Bill Olsen	100 Mile House District
Kelly Osbourne	Wildfire Management Branch
Allan Powelson	Resource Practices Branch
Paul Rehsler	Resource Practices Branch
Katherine Rogers	BC Timber Sales - Babine
Keith Sandve	BC Timber Sales - Quesnel
Carolyn Stevens	Nadina District

Rodger Stewart	Cariboo Region
Nicole Strand	Quesnel District
Peter Stroes	Cascades District
Jack Sweeten	Chilliwack District
Andrew Tait	Fort St James District
Kevin Telfer	Coast Region
Geoff Tindale	BC Timber Sales - HQ
Miodrag Tkalec	Mackenzie District
Mary Vizslai-Beale	Fort Nelson District
Terje Vold	Contractor for Resource Practices Branch
Barb Wadey	Selkirk District
David Weaver	Resource Practices Branch
Craig Wickland	Coast Region
Ralph Winter	Resource Practices Branch

Appendix 2: Workshop Evaluation

How well do you feel the objectives of the Workshop were addressed? Were you satisfied with Workshop logistics? Please put an **X** in the column that best reflects your views. (Note: some people marked between columns to signal they felt both partially applied which is reflected in 0.5 scores)

Workshop Objectives	Not met	Partially Met	Met	Exceeded
1. Develop budget for 2014/15 budget process under LBIS (Session 5)	0	12.5	17.5	0
2. Confirm sowing requests are based on established priorities, capacity to delivery, and consistent with budget forecast (Session 4)	1	6	22	1
3. Identify and implement cost effective delivery methods in consideration of critical issues (Session 8)	0	6	24	0
4. Discuss the strategies and tools available to us (Sessions 1, 2, 8, 9, 10 and 11)	0	5	22.5	2.5
5. Provide overview of provincial planning process (via general discussions at workshop)	0	11	19	0
6. Provide an opportunity to ask questions and get answers about safety (Session 13)	0	3	24	1
7. Share information (Sessions 3, 6, 7 and 12)	0	4	21	3
Any Comments on Particular Sessions? (please identify with Session #1, 2, etc)				
All sessions were good but opportunity for smaller group interaction/brainstorming would be good				
Covered all of my questions				
The workshop was well organized – appreciated the opportunity to ask questions – never felt like we were rushing through the agenda				
Really good choices for presentations. All were applicable to our needs. Would have liked to spend more time on the budget planning. Safety <u>is</u> important, but...(another perspective would be useful).				
More detailed discussion on 14/15 AOP and impact of potential \$10 M increase in 2015. Does this increase translate into increased sowing this fall?				
Perhaps sometime to discuss the problems or what's not working with the relationships with BCTS and contractors.				
More coastal content/examples of investments				
Generally good cross-section of speakers – well-informed and thoroughly answered questions				
Safety discussion should be 'tool box' questions from the floor as well as presentation driver. (Presentation needs to) be more concise and to emphasize <u>key points</u> . Develop Safety Q&A tab on LBIS page.				
Would have appreciated having a copy of the 2014/15 AOP/provincial roll-up. Have more discussion wrt how TSM funding will be allocated. We left meeting not knowing if we (our region/TSA) is going to receive any TSM funding next fiscal.				
Objective 5 did not involve any discussion. We were informed of the budget, informed of the sowing, etc but it was not discussed; but maybe they were not appropriate to discuss at this venue.				
Objective 4 – strategies/tools available to us should have had more time for discussion				
Not much time spent on details and milestones re: AOP/5-year plan; priorities; capacity/delivery; eligible activities.				
Where are decision 'points' in the AOP process and who makes decisions.				
Need to clarify communication lines and roles and responsibilities				

Good presentations by Paul Rehsler, Jennifer Burleigh, Matt, and Al & Monty, and Caroline & Kevin
 Lots of action items that I will take back to District

Workshop Logistics If not satisfied, your comments to improve most appreciated	Satisfied	Not Satisfied	Comment
Workshop organization	28.5	0.5	-Excellent
Workshop venue (meeting room, refreshments/lunch)	26	3	-Water ran out Day 1; temperature fluctuations -Lack of water Wed pm -Add fruit to snacks rather than cookies -Unhealthy, limited food choices -Hold it downtown Vancouver next year; easy skytrain access to downtown -Very good venue and food -Excellent -Good location and food, etc
Workshop agenda	27	2	-Could have been covered in 1.5 or 1 day -Very good!
Other (please specify)	2	0	-Name tags (name, org, location would be helpful) -Good presenters -Good chairing of meeting by Dave Cornwell; good meeting workbook by Terje Vold
Breakout sessions would have been good for effective/efficient delivery and options re: contractors and BCTS			
Good job organizing. Tough to meet all expectations considering different perspectives. Thanks!			
In general this meeting was <u>too Victoria-centric</u> . Make room for District case studies or great ideas to be included in the Agenda.			
Excellent set of presentations; useful information to bring back to District level and to feed into Regional Work Plans			

Appendix 3: Action Items

Action #1: FLNR needs tools to help ensure impacted stands are harvested to reduce impacts on mid-term timber supply.

Action #2: Provide guidance on how we can deliver an enhanced FFT silviculture plan e.g. from Type 4 Silviculture Strategies

Action #3: Kevin Astridge will send subzone variant predictor over time.

Action #4: Monty Locke will circulate first draft of the annual operating plan (AOP) for 2014/15 as well as timelines for submission of Draft 2 of the AOP.

Action #5: Regions/districts to check sowing requests in AOP with SPAR.

Action #6: Jennifer Burleigh will send a one- or two-pager on the black army cutworm with weblink that provides advice.

Action #7: Nola Daintith and/or Kerri Howse will send Dave Cornwell a copy of the Service Agreement with the BC Conservation Foundation so that this can be made available to others.

Action #8: Look into certifying larger areas as FFT eligible for BCTS ITSL, and outside BCTS chart areas.

Action #9: Build what you do in your Regional and District Work Plans, and link this with the FLNR Service Plan (e.g. Performance Measure 7) as the work plans are reviewed by Regional Management Teams (RMTs). This should help improve communication about the FFT program.

Action #10: Contact CTQ regarding RESULTS data quality issues in your district.

Action #11: Contact Tom Jackson if any questions about the Client Interaction Guide.