Multi-Value Pilot Audit
Kazchek Operating Area
Fort St. James Forest District

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Table of Contents

Executive Summary

The Forest Practices Board is currently piloting audit methods to assess forestry practices under results-based legislation. Several pilot projects have been completed and publicly reported (http://www.fpb.gov.bc.ca/audit_reports.htm). These audits assessed forest practices using criteria and indicators (C&I) developed prior to the audit. As these C&I sets developed, the Board decided to look at the integration of these tools to allow a more comprehensive assessment of the management of an area of land, and the impact of forest practices on a range of forest values. Therefore, this pilot multi-value audit was initiated.

The Fort St James forest district was chosen as the site for this audit through a random selection of the forest districts in the province that were eligible to be chosen for audit.
Within the forest district, the auditors selected the Kazchek operating area because:

- There is a level of forest activity sufficient to allow reasonable sampling.
- The primary industrial activity in the area is forestry – there are relatively few complicating and overlapping industries, such as oil and gas that could make it difficult to attribute impacts to forestry.
- The primary operator in the area has an approved Forest Stewardship Plan, and also is certified to the Canadian Standards Association Z809-02 standard.

The Kazchek is located on the north-east side of Trembleur Lake, north of Fort St James (see map on page 3).

The audit examined Apollo Forest Products Ltd. (Apollo) operational planning timber harvesting, road construction, maintenance and deactivation, and silviculture activities completed under forest licence (FL) A18156 for the period September 1, 2004 to September 24, 2006. The audit also examined 3 cutblocks harvested by Brave Holdings Ltd in the Kazchek area during the audit period under salvage non-replaceable forest licence (NRFL) A75670.

Although Brave Holdings did conduct operations in the audit area, Apollo is primarily responsible for the planning and operations completed in the area. Therefore, the vast majority of this report relates to Apollo.

For the purposes of the audit, existing C&I sets for biodiversity, stream riparian management and soil conservation were used for the assessments (see Appendix B). Biodiversity indicators developed by the Board are more suited to landscape level assessment than those for assessing riparian condition and soils. Through the course of this pilot, we adapted the biodiversity framework into a more "universal" framework for concluding on the practices examined. This framework is:

- Responsibility for the achievement of objectives has been established for the forest operations in the area.

- The forest values that are to be protected, managed and conserved have been identified.
- There are adequate inventories of the presence and distribution of the resource values.
- For each forest activity, the aspects of the activity that have the potential to impact values, or present risks to the values, have been identified.
- The consequences of practices and factors on resource values have been considered.
- Objectives for resource values have been developed.
- Objectives and targets are presented in spatially explicit plans;
    - Operational plans are in use for each forest activity;
    - Plans address risk in a practical way; and
    - Plans are adequate for addressing potential risks and impacts
- Operations are planned and conducted in light of known resource values, and doing so with well developed planning and operating systems and processes.
- Practices are completed in adherence to plans and achieve targets.
- For the current practices, the on-site resource values and features appear to be adequately managed, protected, and conserved.

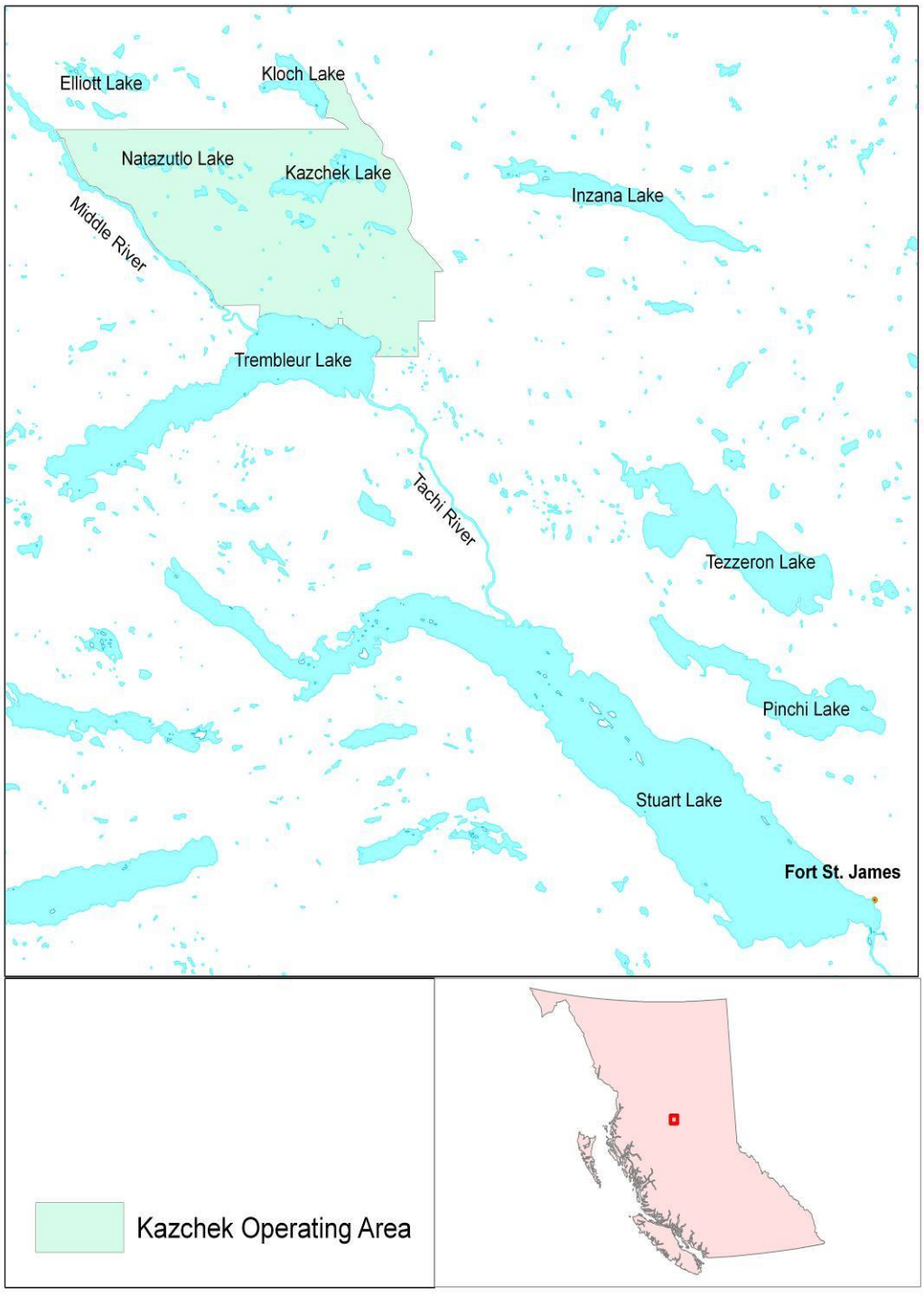
Conclusions

Apollo's planning and practices were consistent with the criteria described above. The Fort Saint James Sustainable Forest Management Plan (SFMP) and "Apollo Forest Products Ltd. Environmental Aspect Risk Assessment Register" describe responsibilities, forest values, potential impacts and consequences of activities on values. The SFMP sets objectives and targets for resource values that are congruent with current regional/district strategies. Practices are completed in adherence to plans and, for the current practices undertaken between September 1, 2004, and September 24, 2006, the on-site values and features appear to be adequately managed, protected and conserved.

The least developed part of the SFMP and activities on the ground is effectiveness monitoring. The Board believes that it is appropriate for Apollo to contribute to larger efforts throughout the defined forest area (DFA) rather than have stand-alone monitoring projects. As the certification plans advance, we would expect more emphasis on effectiveness monitoring, including setting targets for areas of unmanaged ecosystems; examining species' responses to landscape pattern; examining species' responses to stand structure; and comparing stand retention to structures in unharvested stands to see if retention is representative.

Because this is a pilot audit, the Board solicited input from Apollo concerning the audit methodology and findings. Appendix A contains Apollo's comments regarding the draft report, as well Apollo's comments on harvesting pressures and forest tenure issues.

Multi-Value Audit
Kazchek Operating Area



Background

Over the past several years, the Forest Practices Board has been conducting pilot audits with the intent of developing audit approaches that are suited to the results-based framework introduced by the *Forest and Range Practices Act* (FRPA). The audit approaches selected still need to examine compliance with legislated requirements, as well as achievement in managing, protecting and conserving forest values.

The pilot audits leading up to this project assessed the impacts of forest practices on individual values – stream riparian areas, soil, water quality, visual resources and biodiversity[1]. These audits used an approach where forest practices were assessed using criteria and indicators (C&I) developed prior to the audit. As these C&I sets developed, the Board decided to look at the integration of these tools, and the impact of forest practices on a range of forest values. Therefore, this pilot multi-value audit was initiated.

Audit approach and reporting framework

The Fort St James Forest District was randomly chosen from the group of forest districts that had not been subject to Forest Practices Board audit in the past 5 years. Within the forest district, the auditors selected the Kazchek operating area because:

- There is a level of forest activity sufficient to allow reasonable sampling.
- The primary industrial activity in the area is forestry – there are relatively few complicating and overlapping industries, such as oil and gas that could make it difficult to attribute impacts to forestry.
- The primary operator in the area has an approved Forest Stewardship Plan, and also is certified to the Canadian Standards Association Z809-02 standard.

Photo: general overview of the Kazchek area

[1] Audit of Forest Soil Conservation, MacKenzie Forest District, November 2004; Audit of Stream Riparian Management, Chilliwack Forest District, November 2004; Audit of Visual Resource Management, Campbell River Forest District, May 2005; Audit of Stream Riparian Management, Wynndel Box and Lumber Company Ltd. FL A20214, July 2005; Audit of Water Quality Effectiveness in the Arrow Boundary Forest District; Conservation of Biological Diversity: An Assessment of the Application of Criteria and Indicators.

After reviewing the operational plans relevant to the audit area, we decided to evaluate practices in relation to soils, riparian, biodiversity and wildlife.

For the period of the audit, there were two operators active on the landbase – Apollo Forest Products Ltd. and Brave Holdings Ltd. Apollo is the primary operator and is responsible for most of the forest planning that is currently undertaken. Except where noted, this report relates to Apollo's plans and activities.

We took the approach of first understanding the **operating environment,** the legal and ecological environment in which Apollo operates. We :

- Reviewed the Sustainable Forest Management Plan (SFMP) Forest Stewardship Plan (FSP), and other documents;
- Interviewed company personnel and government agency contacts; and
- Conducted an overview of the operating area by helicopter.

We evaluated the Company's **goals, strategies and targets** in relation to the current conditions and pressures. Then we assessed whether **current practices** at the landscape and stand levels complied with legal requirements and conformed to the goals and strategies set out in legal and non-legal directives.

Assessments were also completed using existing C&I. Even though work was completed that would allow conclusions to be drawn for current practices and reported for each criterion for each of the values, we concluded there is greater value in reporting using a different framework. This report does not conclude on individual criteria for values; we used a more "universal" framework for concluding on the practices examined. This framework is:

- Responsibility for the achievement of objectives has been established for the forest operations in the area.
- The forest values that are to be protected, managed and conserved have been identified.
- There are adequate inventories of the presence and distribution of the resource values.
- For each forest activity, the aspects of the activity that have the potential to impact values, or present risks to the values, have been identified.
- The consequences of practices and factors on resource values have been considered.
- Objectives for resource values have been developed.
- Objectives and targets are presented in spatially explicit plans
    - Operational plans are in use for each forest activity
    - Plans address risk in a practical way
    - Plans are adequate for addressing potential risks and impacts
- Operations are planned and conducted in light of known resource values, and doing so with well developed planning and operating systems and processes.
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- For the current practices, the on-site resource values and features appear to be adequately managed, protected, and conserved.

Finally, we looked at **monitoring** and **responses** (changes to policy and practices).

Operating Environment

Fort St James District defines operating areas rather than landscape units. The Kazchek operating area is defined by heights of land and other breaks such as roads and creeks. The area is 41,722 hectares, flat and operable, without clear geophysical separation from other adjacent operating areas. 32,758 hectares in the Kazchek is productive forest. There are 22,488 ha of old forest in the Kazchek.[2]

The Kazchek is within the Subboreal Spruce Biogeoclimatic Zone (Table 1); pine and spruce are the leading species in most areas (Table 2).

Table 1. Total areas in the Kazchek by BEC variant

	SubBorealSpruce (SBS) wk3	SBS dk	SBS mc2	SBS dw3
Area (ha)	25,194	4,159	3,396	8,951

Table 2. Area by leading species

	Cottonwood	Aspen	Balsam	Birch	Douglas fir	Lodgepole pine	Black spruce	Spruce
Area (ha)	140	3,979	735	66	545	18,869	1,087	10,949

To date, about 20 percent of the area of the Kazchek has been harvested. Harvesting began in about 1982, so the oldest plantations are about 25 years old.

The area is home to locally important ungulate species and furbearers. Specific species of interest include: mule deer, moose and marten. Mule deer have designated winter ranges in the operating area. Aside from needing some winter ranges, most of these ungulates are not very sensitive to forestry practices. Marten, however, are a species potentially sensitive to amount and pattern of older forest. Marten and moose management strategies are planned but not completed.

Less than one percent of the DFA is covered by roads. (Note: the DFA is considerably larger than the Kazchek area alone, encompassing approximately 1.6 million hectares in the Fort St. James forest district). We assume road densities will continue to increase.

[2] Based on an analysis in March 2006, there is a large surplus of old interior in all merged BEC units, so forest interior hasn't been modeled for specific operating areas (i.e., we know the amount of forest interior over the whole DFA but not specifically in the Kazchek).

There have been no major burns in the Kazchek during the past decade, but natural small fires occur.

There is no oil and gas activity in the Kazchek. Six traplines overlay the area, but are not very active.

The spread of invasive species is not yet tracked well in this area of British Columbia. Invasive species are notoriously hard to manage once they are established in an area. The Northwest Invasive Plant Council tracks the spread of invasives and Apollo contacts them to keep up to date with new occurrences.

Of the approximately 3.7 million cubic metres (m^3) of pine in the Kazchek, 2.2 million m^3 is currently attacked by mountain pine beetle and by 2013 it is estimated that 80 percent of all mature pine will be attacked.

The amount of forest that is currently outside the timber harvesting landbase is very small – 7 percent of the Kazchek. The SFMP and FSP indicate much higher amounts of non-harvestable forest in the Fort St James District considered as a whole. Most inoperable land is to the north, and most biodiversity concerns (notably caribou) are also to the north. The wetter forests types that should have more old forest retained to approximate natural variation are also elsewhere (to the east). The Kazchek includes winter ranges for goat and for mule deer, but there are only a couple of these areas and they contribute only a small amount to the area of unmanaged forest.

All forest tenures in the Kazchek operating area are volume-based. Apollo is the main licensee, but Brave Holdings also harvested during the audit period. Other licenses have been and will be active in the area.

Goals, Strategies and Targets

The Kazchek is an area of timber harvesting emphasis, in part because of current attack by mountain pine beetle and in part because it has relatively few biodiversity issues compared to surrounding units. Harvest is targeted at stands that are more than 70 percent lodgepole pine. Spruce is generally harvested where it is a component of a pine leading mixed wood stand. Where operationally possible, Apollo avoids harvest of contiguous non-pine leading stands, leaving them as a potential future harvest opportunity.

The Kazchek contains about 8 percent Douglas-fir by volume; those fir are targeted for retention. Apollo does not harvest aspen (and targets it for retention), and any deciduous licensees' operation would likely not venture as far as the Kazchek due to hauling costs. It appears impacts to aspen will be light, especially in the near term. Alders and cottonwoods are largely unharvested.

Goals, strategies and targets for biodiversity and wildlife are set out in a number of documents. These include:

- The *Order Establishing Landscape Biodiversity Objectives for the Prince George Timber Supply Area (*The Landscape Biodiversity Order)
- Notices under section 7 of the *Forest Planning and Practices Regulation* (Section 7 Notices);
- A Sustainable Forest Management Plan (SFMP) and a Forest Stewardship Plan (FSP)
- An environmental management system
- Chief Forester guidance and other information.

The Landscape Biodiversity Order

The Order establishes targets for old forest, forest interior, and young patch size for Biogeoclimatic (BEC) / Natural Disturbance Unit (NDU) combinations. The Order does not deal with other aspects of landscape management for biodiversity (such as riparian protection), nor does it encompass stand level guidance.

A committee of forest licensees has taken the goals and targets in the Order and attempted to make the impact of those recommendations equitable among licensees. Apollo, as well as every other major licensee in the Prince George TSA, uses the analysis completed by the Licensee Landscape Objectives Working Group (LLOWG) to satisfy the legal requirements for this order.[3] Operations of other companies are accounted for in Apollo's projections of old forest, forest interior, and other aspects of landscape pattern.

Section 7 Notices

The Identified Wildife Management Strategy identifies mountain goat and northern caribou in notices under section 7 of the *Forest Planning and Practices Regulation*. These species do not occur in the Kazchek. Although there is a designated mountain goat winter range, mountain goats are not likely present in the Kazchek.

The SFMP and FSP

Apollo participates in two main certification systems, both of which are voluntary: Canadian Standards Association's (CSA) certification system, and International Standards Organization

[3] We noted that the Biodiversity Landscape Order did not follow the scenario of 'mean' or even 'minimal' natural variation for biodiversity. The planning group assessed the timber impacts of maintaining even minimal amounts of old forest, defined by levels of natural variation, in the wetter types. They concluded that there would be too much of an impact on timber supply. They adopted targets based on meeting minimal amounts in most types, but meeting less than minimal amounts in the wetter types and arrived at about a 3percent timber supply impact. We talked with the ecologist that recommended the more natural patterns; his opinion is that the current compromise is a large improvement over the Order Establishing Provincial Non-Spatial Old Growth Objectives, and a reasonable compromise to accommodate multiple values. The wetter types that deviate most from natural patterns are not found in the Kazchek operating area, so in some sense the move from 'mean' to 'minimal' for these areas is not relevant to this audit.

(ISO) certification. To meet CSA requirements, a Sustainable Forest Management Plan (SFMP) was developed which outlines how an area is to be managed to meet a variety of sustainable forestry criteria, including goals for ecosystem representation, landscape pattern, stand structure and management of specific species. The SFMP includes several licensees, Canadian Forest Products (Canfor) being the largest.

Apollo also has an approved FSP.

Both the FSP and SFMP cover different areas, each much larger than the Kazchek Operating Area. Therefore, the Kazchek is but one part of a much larger management unit. None of the goals and strategies regarding biodiversity is specific to the Kazchek.

The SFMP sets out guidance for how to meet the goals of maintaining biodiversity and forest productivity. Several strategies are defined, including keeping unmanaged forest, keeping landscape attributes, maintaining stand structures, protecting riparian habitat and protecting soils. Each of these areas is detailed in the SFMP.

The SFMP requires an analysis of the amounts and types of ecosystems for the entire DFA. Although this analysis has been completed, there have not yet been any targets set for how much of each ecosystem should remain in an unmanaged state. The SFMP annual report states that ecosystem representation targets are to be developed within one year of predictive ecosystem mapping completion.

The SFMP sets targets for amount of old forest at the average of natural levels. The FSP follows aspatial targets which are set at the minimum or adjusted minimum. Apollo is managing to SFMP standard, but could drop to the legal minimum natural levels noted in their FSP. The increase in harvest to salvage beetle-attacked trees will likely result in this occurring. The targets are set for all of Apollo's operating areas combined and are not split out by each operating area. Rather, the amount each operating area contributes is documented and they must, in total, reach targets.

The SFMP and FSP both indicate that stand level retention in the Kazchek area will follow FRPA defaults with some exceptions. Wildlife Tree Patches must amount to 7 percent overall for all the blocks harvested in a year. Any block larger than 15 ha must have at least 3.5 percent retention.

Larger blocks also have requirements above FRPA defaults. Those include requirements for shape, retention levels and corridors expressed in the Landscape Biodiversity Order.

The environmental management system

Apollo is also certified to the ISO 14001 standard, which requires an Environmental Management System (EMS). As part of their EMS, Apollo has developed an "Environmental Aspect Risk Assessment Register". In this register, all phases of planning and forest practices

are described. Each phase has one or more environmental aspects described. For each environmental aspect, the potential impacts on the environment, as well as the hazard and risk associated with these impacts, are laid out. Most of the significant aspects then have objectives and targets linked to them, and detailed procedures to minimize the level of risk.

Chief Forester Guidance and other information

There are many other documents that, while not legally binding, provide guidance on forest practices. Examples include guidance from the Chief Forester on the management of resources in British Columbia. In December 2005, he released *Guidance on Landscape- and Stand-level Structural Retention in Large-Scale Mountain Pine Beetle Salvage Operations*.[4]

Among other recommendations, this document suggests appropriate levels of stand-level retention based on opening size. The Chief Forester has recommended that larger blocks, greater than 100 ha, should have increased retention. Apollo is meeting the overall intent of the Chief Forester's guidance through large block design criteria outlined in the SFMP.

When individual blocks, or amalgamations of adjacent blocks get to be very large (100 to 1000 ha patches of less than free-growing), then corridors are established. Corridors are placed either around streams or simply placed to link adjacent blocks. The biological role of these corridors has not been investigated.

On August 25, 2006, the Chief Forester released an interim research report on the *Abundance of Secondary Structure in Lodgepole Pine Stands Affected by the Mountain Pine Beetle*[5]**.** This report is not chief forester guidance; however, it serves to "share information with other forest professionals on how we might mitigate mid-term timber supplies by prioritizing harvest activities based on the abundance and acceptability of secondary structure".

Current Practices

We examined the harvesting, roads and silviculture activities of Apollo Forest Products and Brave Holdings Ltd. The period subject to audit was September 1, 2004, to September 24, 2006.

Brave Holdings Ltd. completed harvest activities under Salvage Non-Replaceable Forest License A75670. This activity consisted of harvesting three areas, totaling 29.7 ha, all of which we audited. There was no road construction or maintenance involved in the harvest of the areas. Brave's harvest activities complied with the requirements of the FRPA.

The remainder of this section applies to Apollo's activities completed under Forest License A18156. The results are reported below under the headings of harvesting, roads, silviculture and biodiversity conservation.

[4] http://www.for.gov.bc.ca/hfp/mountain_pine_beetle/stewardship/cf_retention_guidance_dec2005.pdf

[5] http://www.for.gov.bc.ca/hfp/mountain_pine_beetle/stewardship/report.pdf

Apollo's Forest License A18156 allows an annual harvest of 216,746 m^3. Harvest from the Kazchek contributes to that AAC. Harvest from the Kazchek has been between 100,000 and 150,000m^3 per year. For 2007, the volume will likely be closer to 200,000m^3.

Harvesting

In the audit period, Apollo harvested 17 cutblocks. We audited all of them. The results are reported in the categories of site-level biodiversity, soil conservation, and riparian.

Site-level Biodiversity

The average cutblock size for the audit population is 53 ha. The smallest block is 6.9 ha and the largest is 153.7 ha. There are three harvest areas where the cutblock size exceeds the Forest Planning and Practices Regulation (FPPR) default 60 ha limit. This is in compliance with the regulation. The harvest is designed to be consistent with the structural characteristics and temporal and spatial distribution that would result from a natural disturbance, and the structural characteristics of the block after timber harvesting resemble an opening that would result from a natural disturbance.

Average Wildlife Tree Patches (WTPs) are 14.3 percent and incidental retention increases that further. Considerable retention is not designated as WTPs – individual stems are not considered (they are numerous but don't amount to a great block area), advanced regeneration is not considered, neither are stubs, nor incidental fringes along wetlands or brush along small riparian. This retention contributes significantly to stand structure and habitat.

Photo: wildlife tree patch primarily composed of species other than pine.

Photo: retention of aspen

Aspen clones are often left as WTPs, and even if there is dead pine in them, the pine is not salvaged. Douglas-fir is another species favored for retention.

Targets for retention of down wood come from studies on natural levels done by Canfor. Apollo seeks to leave down wood within those very wide ranges of natural levels. Shrubs are increased by harvesting, but are controlled as necessary through manual treatments.

Apollo does not keep snags in harvested areas except in some larger patches. Snags are a safety hazard for planters and are removed from within a tree length and a half of openings. The company leaves stubs in many harvested blocks.

Apollo requires that 80 percent of all blocks meet the large opening requirements (corridors, shape and retention levels). Twenty percent of blocks can vary from those guidelines for various reasons, such as the need to create connectivity when merging new blocks with older clearcuts.

Apollo identifies and protects several types of sites of biological significance including:

- Wetlands and wetland complexes.
- Unique landforms
- Bear dens, osprey and eagle nests

Soil Conservation

The majority of instances of soil disturbance noted in the net area to be reforested (NAR) were due to the use of temporary access structures (TAS). In all instances where TAS were used, the trails were rehabilitated and planted with appropriate commercial tree species.[6]

There are two harvest areas where TAS was used, and other random soil disturbance was created during skidding. In both instances, soil disturbance was rehabilitated and the area was planted.

Most of the harvest blocks incorporate "turnaround spurs" – areas designed to allow room for logging trucks to turn around. In all instances, except for still active and recently active blocks, the turnaround spurs have been rehabilitated and planted, even though they are accounted for as Permanent Access Structures (PAS).

There are also three instances where TAS was planned and not built, resulting in less soil disturbance in the NAR. This indicates that soil conservation is actively considered, and soil degradation minimized, during harvest.

The area that is occupied by permanent access structures does not exceed the FPPR practice requirements of 7 percent in 16 of the 17 cutblocks audited. The average amount of PAS is 4.1 percent - well under the 7 percent limit. The one block that exceeded 7 percent (at 7.7 percent) is in compliance – a silviculture prescription amendment was completed on December 14, 2004, under section 30(3) (c) of the Timber Harvesting and Silviculture Practices Regulation to allow the 7.7 percent.

[6] Within the DFA, 30 percent of roads receive some sort of deactivation; the other 70 percent are mainlines and spur roads.

Photo: rehabilitated “turnaround spur”

Photo: winter built PAS showing re-vegetation

The impact of PAS is further minimized in situations where the PAS is winter-built road The winter-built roads examined during the field audit are typically narrower than 5m running surface, and are generally re-seeded and fully re-vegetated across the running surface within 2 years of construction. These roads, even though accounted for as PAS, are generally not drivable within 2 years of harvest. If these areas are either planted through, or planted to the edge of the running surface, there should be minimal impact on growing space.

No landslides or areas of gully erosion were found through the audit. Three of the harvest blocks had terrain stability field assessments completed, and risk was managed through block layout and harvest methods.

Riparian

Harvest was planned in all instances to avoid impact on riparian reserve zones. Streams were appropriately identified and classified by field crews during layout. All streams in this area are defaulted to fish streams, because of experience gained by Apollo through previous fish inventory efforts. Previous inventories include minnow trapping and electro-shocking.

Harvest boundaries are located in a manner that minimizes impact on riparian areas - they are typically placed well away from streams. Often, WTPs or other reserves overlap with Riparian Reserve Zones.

Goals and strategies for riparian areas go beyond FRPA defaults in most instances. Apollo focuses stand level retention on leaving structure within 10 to 15 metres of S4 streams along their entire length through the block. These are designated as WTPs. Brush is retained within 5 metres of S4-S6 streams. Dead trees in riparian buffers are not salvaged.

Photo: riparian reserve zone around S3 stream, measured at 35 meters on both sides of the stream – FPPR general practice requirement is 20 meters.

Roads (Construction and Maintenance)

The audit assessed 32 kilometers (km) of new road construction, including the installation of two new major crossing structures, and the maintenance of 123 km of road, including the maintenance of 8 bridges and other major crossing structures.

Of primary interest during roads auditing are stream crossings and sediment management. Stream crossings must consider the classification of the stream (fish versus non-fish bearing), and ensure that the integrity of fish passage and stream bank and bed stability are maintained. In the audit area, as noted above, all streams are classified as fish streams.

To facilitate fish passage, open-bottom structures are used to cross streams. Roads are generally located outside riparian areas except for crossings. Drainage structures at fish stream crossings built after 1995 were found to be passable by fish. However, on the Forest Service Roads (FSRs), not all structures installed on fish streams are considered fish passable. Most of these structures are corrugated metal pipe culverts, which are pre-Code structures. Apollo has applied for Forest Investment Account[7] (FIA) funding to assess crossings and replace up to 30 structures on a priority basis. Beaver are common in the Kazchek area, and beaver activity affects the function of stream channels and drainage structures. Apollo has installed wire beaver guards on a number of CMP culverts.

Road construction and maintenance, including drainage control on in-block roads, was done effectively – no evidence of significant erosion was observed. Structural integrity on newly constructed roads is good; cut slopes and fill slopes were observed to be stable.

In general, natural drainage patterns are maintained, drainage structures are functional and water is not being directed onto unstable slopes. Culvert placement and frequency is adequate.

[7] Forest Investment Account is a government program to provide funding to the forest sector to support sustainable forest management practices, improve the public forest land base and promote greater returns from the utilization of public timber.

The majority of ditches, ditch blocks and cross-drain culverts are functional, and seeded vegetation is well established where applied.

All disturbed areas were adequately revegetated within 2 years, regardless of sedimentation potential to streams. For erosion control, sometimes grass was seeded along roadside.

There is one area of recommended improvement: Specific to arch structure "O" at KA500 road: minimize sediment transport and stabilize nearby soil. A photo of that crossing is below.

Photo: Crossing structure for which recommendations for further minimizing sediment potential are discussed.

Photo: Typical mainline road in the Kazchek.

Silviculture

All three areas that were mechanically site prepared during the audit period were audited. The amount of soil disturbance was well within allowable limits, and the site preparation met the objective of creating plantable spots. There were no impacts to other forest resources noted during the audit attributable to mechanical site preparation.

Photo: Harvest area that has been site prepared (mounded) and planted.

Apollo has been diligent in achieving free growing over the Kazchek area, it is anticipated that silviculture obligations will continue to be met in a timely fashion.

Biodiversity Conservation

Much of the audit work revolved around assessing the planning and practices related to biodiversity conservation. This is a broader topic than the field practices of harvest, roads and silviculture; therefore, it is discussed under this separate heading.

Operations in the Kazchek operating area meet or exceed FRPA requirements for biodiversity.

The SFMP includes more comprehensive guidelines. It assigns goals and strategies regarding biodiversity to the whole DFA; none are specific to the Kazchek, which is appropriate. We found their targets and levels of landscape pattern to follow the Landscape Biodiversity order. These are an improvement over many areas of the province (the natural disturbance units used in the Order are closer to describing actual ecological disturbance units than were the old natural disturbance types (NDT)). The directions in the order are closer to natural disturbances than the old guidance in the Landscape Unit Planning (LUP) Guide. (Not many areas of the province have refined the NDTs and LUP in this manner.)

Both the Order and the SFMP involve many licensees; inter-company and agency planning teams have met to ensure equitable responsibility for stewardship activities.

The timber emphasis in the Kazchek area is incorporated into the calculations for 'amount of unmanaged' for the District as a whole. The SFMP for Fort St James indicates appropriate amounts of unmanaged for the larger unit, so we are comfortable that the low amount of unharvestable area in the Kazchek is offset by higher amounts elsewhere where biodiversity concerns are greater.

At the landscape level, requirements of corridors and shape for larger blocks appear to make sense and are being followed. Landscape requirements for old, interior and patch size are being monitored to see if targets are being met and practices adjusted to meet targets. Riparian buffers are left unsalvaged.

Stand level practices (which are not addressed by the Landscape Order) are above FRPA minimums. WTP and incidental retention percentages seem suitable in amount and targeted species (not pine). The amounts are also likely biologically appropriate, but without comparisons to natural benchmarks or pre-harvest stands it cannot be said for certain. The stand-level actions retain important structures and connections and riparian zones.

Focusing in-stand retention on streams seems an appropriate choice. The stands are so uniform in species and physiography that seeking representative patches for stand retention is less important than selecting ecologically sound anchors or protecting special ecosystems; small streams not otherwise given retention are good choices.

More could be done to reduce roadside burning of large piles and instead keep smaller pile unburned. Impacts of deciduous licenses are not likely to significantly reduce the amount of old aspen in the DFA. Since Apollo targets aspen for retention we are not concerned about the remaining level of aspen.

Apollo does not insist all blocks meet the large opening requirements, just 80 percent, which seems reasonable. As noted above, there can be various reasons for variance (the remaining 20 percent).

In conclusion, the approach to biodiversity conservation taken by Apollo in the Kazchek area is appropriate given the existing state of the landbase and the biodiversity strategies being applied to the timber supply area.

Monitoring

Generally, three types of monitoring are recognized: compliance (checking if practices meet legal requirements), implementation (checking if plans and practices are implemented as intended), and effectiveness (checking if plans and practices achieve desired objectives). The SFMP commits licensees to a level of compliance and implementation monitoring, and sets out areas where effectiveness monitoring could be developed.

For compliance monitoring, Apollo has an EMS in place that describes how and when inspections are to occur, how to document those inspections, and what types of actions are required in the event issues are found. Regarding management for specific species, compliance monitoring involves simply checking if boundaries of ungulate winter ranges and wildlife habitat areas are respected.

For implementation monitoring, achievement of landscape targets is tracked. Every year, tables are updated to report, by natural disturbance type and BEC unit, the amount of old forest, interior forest, and young patch size.[8]

At the stand level, WTP percentages are tracked. Total retention is also tracked (but retention outside of WTPs is often not reported). Half the blocks harvested have coarse woody debris (CWD) surveys.

[8] Calculations of patch size face the problem of categorical data. A patch suddenly changes as stands age from, say, 20 to 21 years old. Although only two years different from an adjacent 19 year old stands, now that area is no longer considered a large patch of young. Patch sizes therefore undergo sudden and sometimes dramatic changes with no real biological consequence. The Biodiversity Landscape Order recognizes the problems of patch size calculations and noted that better approaches to calculating patch size should be developed.

The company is aware of red and blue species in their area. They update a list of "species of importance" from the red, blue *Species at Risk Act* (SARA) listed species and species selected by the public advisory group[9] (PAG). This includes vertebrates, plants and plant communities. Red listed and blue listed ecosystems have been identified, and can be mapped either for the entire district of for particular units (like the Kazchek). As these ecosystems are encountered in the field, the plan is to update the inventory. As well, predictive ecosystem mapping is undergoing some fine-tuning based on 2006 field work. The licensees anticipate the mapping will be released in 2007.

Tree species mixes on the landbase are tracked and updated in the Vegetation Resources Inventory. Sites of biological significance are noted when they are discovered: raptor nests are mapped although bear dens are not. Areas of major natural disturbances are tracked (area or volume beetle-killed is known, as is area burned).

Apollo tracks area of permanent conversion to road and amount of deactivation.

Effectiveness monitoring asks the question if the strategies and targets are meeting their intended goals. Are unmanaged areas creating habitat for species? Are WTPs leaving habitat as expected? Do landscape patterns benefit biodiversity?

Unmanaged ecosystems are calculated district wide. This contributes also to effectiveness monitoring in that it enables the company to check if rare ecosystems are being retained. A further step to see if other sensitive species might find habitat in those unmanaged areas has not yet been investigated.

There has been no monitoring or research by Apollo linking landscape pattern to species use or comparing benefits or costs of different patterns.

Although WTP percents are tracked, stand structures not measured relative to benchmarks nor compared to species' needs. There is an ongoing FIA study, by CANFOR, of natural CWD levels to narrow the currently broad range used as a target. As already mentioned, Apollo surveys half the blocks harvested for CWD, those post harvest surveys give indication of what's left on the ground; the FIA study should help to refine what should be left (targets).

We are not aware of the specifics of any monitoring or research on species in relation to forest practices (population trends, relations of species to stand structures, stubbing, etc). This may be in part because Apollo and other companies signatory to the SFMP are still in the stage of identifying strategies (they are in the 6-month grace period set in SFMP) and selecting species to monitor (candidates identified to date include marten, moose and plant diversity index). There

[9] The Public Advisory Group is comprised of volunteer individuals representing interests important in the planning area.

are some FIA projects that may include aspects of effectiveness monitoring; we did not assess to determine if this is the case.

Other than the CWD work, we (and Apollo) do not know if there has been monitoring in other parts of the DFA that could be relevant to the Kazchek.

Responses

For monitoring to be meaningful, and to continuously improve forest practices, there must be a response to monitoring results. Several potential responses are possible. For this report we have considered two general categories of response – changes in policy and changes in practices. We looked at responses by the company or more broadly over the District and noted if responses to monitoring were appropriate given environmental conditions and pressures.

The clearest change in policy has been the establishment of the *Order Establishing Landscape Biodiversity Objectives for PGTSA*. That was a response to the Provincial Landscape Unit Objectives not working well for the natural disturbance types of the area. As well as setting landscape objectives for old growth, interior, and block shapes, this order also established natural disturbance units instead of natural disturbance types.

With respect to changes in practices, so far, target amounts for retention in an unmanaged state have not been developed.

The updates of seral stage and forest interior are used in 5 year advance planning. If targets for old forest or forest interior are not met in a unit, approved old growth recruitment strategies are required in order to continue harvesting. That state has not been reached in the Kazchek. The only ecosystem that is close to the minimum desired amounts are in the Engelmann Spruce Subalpine Fir zone and since that is not being attacked by beetle it is not an area that is targeted for harvest at this time.

WTP retention is well above FRPA minimums and so has not needed adjusting. Since WTP retention is not compared to preharvest stands or other benchmarks, it is not known if the retention captures the features representative of natural stands.

CWD retention practices have not needed to change to meet SFMP targets. The targets have been acknowledged as very broad and they will need refining (which is planned) before any useful feedback to practices. FRPA minimums are very low (about 4 tops per ha) so the company would not have to adjust CWD retention practices to meet them.

Strategies for the management of wildlife species are being developed. As yet, there has been little or no monitoring of these species. Mule deer and moose are not likely negatively impacted, so we don't expect changes to management are needed to accommodate those species. The designated UWR for mule deer may not be the area most used in winter. Marten could well be a

concern (as could other species not identified by the PAG) since they prefer areas with considerable forest cover, but the management or monitoring strategy has not yet been developed.

Invasive species have not triggered responses yet. It is not known which invasive species or levels of invasion would cause a management response. Plant species diversity index is an indicator but we have not seen how the information will be used. The monitoring program is in its infancy and Apollo mainly contributes funds and in kind support to efforts usually directed by Canfor, the largest licensee in the DFA.

Changes to site-specific practices tend to be very responsive. The EMS covers site-specific issues quite well, including the detection of issues and response stream to follow if and when issues are found.

Conclusions

For the practices examined, Apollo Forest Products Ltd. and Brave Holdings Ltd. are in compliance with the requirements of the FRPA.

With respect to Apollo, there are a few recommendations regarding potential practice improvements on roads:

- Grading practices–minimize grader berms that prevent water drainage from road surfaces, and instruct operators not to spill sediment onto culvert inlets & outlets and to minimize carrying material onto bridge decks.
- More frequently removing gravel material from bridge decking. Consider installing batter boards to prevent gravel spill into the channel.
- Specific to arch structure "O" at KA500 road: minimize sediment transport and stabilize nearby soil.

With respect to the forest management framework, we conclude that, for the Kazchek operating area:

- Responsibility for the achievement of objectives has been established for the forest operations in the Kazchek area. Responsibilities and objectives are primarily stated through the SFMP, the FSP and the EMS.
- The forest values that are to be protected, managed and conserved have been identified.
- For harvesting and road operations, there are adequate inventories of the presence and distribution of the resource values. Adequate assessments were completed at the planning stage (riparian, soil, terrain, visual, archaeological)
- For each forest activity, the aspects of the activity that have the potential to impact values, or present risks to the values, have been identified. These are well described in the "Apollo Forest Products Ltd. Environmental Aspect Risk Assessment Register".
- The consequences of practices and factors on resource values have been considered.
- Objectives for resource values have been developed.

- Objectives and targets are presented in spatially explicit plans;
    - Operational plans are in use for each forest activity;
    - Plans address risk in a practical way; and
    - Plans are adequate for addressing potential risks and impacts
- Operations are planned and conducted in light of known resource values, and doing so with well developed planning and operating systems and processes.
- Practices are completed in adherence to plans and achieve targets.
- For the current practices, the on-site resource values and features are adequately managed, protected, and conserved.

The least developed part of the SFMP and activities on the ground is effectiveness monitoring. We believe it is appropriate that Apollo contribute to larger efforts throughout the DFA, rather than have stand-alone monitoring projects. More could be done to become aware of invasive species and red and blue-listed species. As the certification plans advance we would expect more emphasis on effectiveness monitoring including setting targets for areas of unmanaged ecosystems; examining species' responses to landscape pattern; examining species' responses to stand structure; and comparing stand retention to structures in unharvested stands to see if retention is representative.

Appendix A: Licensee Commentary on the Forest Practices Board Audit of Apollo Forest Products – 2006-2007

Apollo appreciated the opportunity to openly discuss the audit, audit process, and forest management issues in general at the March 21st audit workshop meeting held in Prince George. We found the round table approach open and constructive.

Further to our written comments sent to you on February 27th regarding the initial draft discussion paper, the commentary below is provided as clarification on some of the topics/issues discussed at the workshop.

Effectiveness monitoring

With respect to the board's comments around the lack of SFM effectiveness monitoring, we view our multi-licensee SFMP as in the early stages of development. We have seen many improvements in the SFMP since the first version was released in November of 2005. It is anticipated that effectiveness monitoring will play a larger role as the SFMP matures.

There is considerable TSA wide FIA work in progress that looks at effectiveness and SFM indicator monitoring. Unfortunately the time frame for many of these projects spans more than 1 year and results are not available at this time.

To some degree our auditors have been looking at the effectiveness of indicators in the SFMP as well as the effectiveness of our EMS in relation to implementation of forest practices. There is strength in having a multi licensee SFMP that sets the DFA based off of licensee specific operating areas. Collectively, there are a lot of different auditors looking at the plan. The benefit to each licensee participating in the SFMP is that the plan is under continuous scrutiny by a variety of third party auditors, each providing unique perspectives and opinions, which will be incorporated into, or taken under consideration for, future versions of the plan.

Furthermore, MoF and MoE stewardship staff has been completing monitoring projects in Fort St. James. MoF has been looking at how effective results and strategies contained within the FSPs are meeting the intent of objectives set by government. MoE has recently completed stream crossing effectiveness work, including some Apollo crossings. I have been told that MoE would like to start looking at WTP/reserve effectiveness monitoring– quality and quantity issues. It is important to note that these government effectiveness-monitoring programs are underway in the Forest District.

Hazard Abatement

Within the discussion document, there is a comment to the effect that Apollo could be doing more around retaining small debris accumulations in cutblocks rather than burning piles as part

of hazard abatement. Although this statement is correct, there are some barriers to Licensees being able to fully implement this type of program.

Current forest policy around waste and residue, take or pay and fire hazard abatement can often conflict with leaving these small piles behind after logging. The pending Coarse Woody Debris Regulation may help address some of these forest policy inconsistencies. Furthermore, this new regulation may provide some quantifiable management direction allowing more flexibility in the retention of dispersed cutblock level CWD and small accumulation piles.

Harvesting pressures and forest tenure issues

Through the audit process and at the workshop, there was concerned raised regarding the impact to Apollo's timber supply as a result of increased harvesting pressure on the landscape, particularly harvesting by other licensees. To help set the stage for Apollo's opinions on overlapping forest tenures and timber supply, here is some background information about Apollo and the Prince George TSA:

- Apollo's has a volume based Forest License within the Prince George TSA.
- Apollo currently operates in forests that contain pine dominated stands as well as stands with a healthy mix of pine, spruce, fir, and balsam.
- Since approximately 1982, Apollo has largely been the sole licensee in the Kazchek and Kloch operating areas. Apollo has built up reliable road transportation systems throughout these operating areas.
- Apollo's milling facility has been built up and fine-tuned over the years to accommodate the log profile and species mix that exist within Kazchek and Kloch operating areas.
- Licensees within the TSA currently have a gentleman's agreement respecting individual volume based licensee operating areas.
- As the useable dead pine is consumed over the next 5 to 10 years, these operating areas will likely be less respected, and the demand for "balanced" log profile will increase.
- Due largely to the impact of the Mountain Pine Beetle, volume uplifts have been put in place within the TSA to help offset the expected non-recoverable losses. As a result, there are more licensees operating in the TSA.
- There are currently 2 smaller licenses (each 25,000 m3 for 3 years), and 1 larger license (250,000 m3 for 8 years) that overlap the Kazchek operating area.
- There are 3 newly proposed licenses that collectively will entirely overlap the Kloch operating area.
- First Nation opportunity agreement licenses and the placement of these on the landscape also add to the existing harvesting pressures.
- There is more volume available to mills than ever before. There is a glut in the market of these small non-replaceable licensees, First Nation opportunity agreement licenses, and
- larger volume uplift licenses within the Prince George TSA. The success or failure of these licenses is in part dependant on developing partnering agreements with existing milling facilities in the TSA, or shipping raw logs to other processing facilities

throughout the province. There doesn't appear to be huge appetite for the creation of new mills in Fort St. James or the Prince George TSA.

In the wake of the mountain pine beetle, coupled with the increased harvesting pressure on the land base, there is a large amount of uncertainty with regards to the future timber supply available for volume-based licensees. In light of these pressures, Apollo has examined the possibility of transferring a percentage of our volume based forest license to area based forest tenure encompassing our Kazchek and Kloch operating areas.

Although an avenue still exists in the Forest Act to complete such a transfer, the provincial government has not given any indication that it supports a move from volume based to area-based forest tenure. This issue has proven highly political since the first call for TFL proposals in the late 1980's.

On the other hand, Apollo has had informal discussions with the Mayor of Fort St. James regarding the idea of transferring to a TFL or other form of area-based forest tenure. The mayor strongly supports the move to area-based tenure, and views it as a positive step towards strengthening community stability.

There would be many benefits to transferring from volume based to area-based tenures. Below are some of direct benefits for Apollo and the community of Fort St. James:

- Secure longer term timber supply for Apollo's mill.
- Long-term forest tenure.
- An area-based tenure may provide incentives for more intensive forest management, as well as an increase in forestland investments. This could have some benefit to employment and contract opportunities in the community.
- Provide for a more secure timber supply, which in-turn will support to long-term investment into sawmilling technologies.
- Exclusive timber management responsibilities for a designated area.
- Potential for an increase in research opportunities under an area-based tenure system.
- Increase certainty for planned harvesting and road construction as detailed in Apollo's 20-year harvest/road plan for the Kazchek and Kloch.
- Strengthen landscape level planning and monitoring programs. This will largely be accomplished through the elimination of multiple Licensees, targeting similar harvesting profiles, operating in the same geographic area
- Apollo has always been a strong supporter of the community, and will continue to play an active role in providing employment and opportunities for the people of Fort St. James.
- An area-based tenure will help Apollo achieve longer-term stability in the industry.

Apollo supports a move from volume based to area based tenure for the Kazchek and Kloch operating areas. These 2 historic areas are strategically located, have considerable long term planning invested, and have a solid road infrastructure in place.

Government communications with Apollo Forest Products

There were some comments in the original discussion paper with respect to the lack of communication between local government staff (primarily MoE) and Apollo. Somewhere in the transition from the FPC to FRPA, the requirement for MoE review and comment on operational plans (FSP) was legally no longer required. Despite this fact, Apollo has continued to engage both local and regional MoE staff in discussions around environmental legislation and forest practices.

Over the past 2 years, Apollo recalls several discussions with the MoE staff relating to best management practices for habitat features, the pending section 7 notice for habitat features, existing section 7 notices for caribou and mountain goat, species at risk within Fort St. James Forest District, mule deer ungulate winter ranges, the use of bottomless structures on fish stream crossings, and the MoE report on fish stream crossings relative to Apollo's operating areas.

As the SFMP is a Licensee driven process relying on third party audits against the CSA standard – government approval is not required. A local MoE employee is a member of our public advisory group. She provides both the Licensees and the other PAG members' valuable insight into wildlife management, relevant environmental research, and forest practices.

Since there is no legal requirement to refer plans to MoE, the interactions with their staff has been decreased as compared under the Forest Practices Code. Apollo will continue to utilize MoE staff as a valuable information source. Furthermore, Apollo will carry on contracting the services of experts in the fields of environmental biology, engineering, ecology, and wildlife management in terms of soliciting input into operational planning.

Sincerely,

The Woodlands staff at Apollo Forest Products

Appendix B: Criteria and indicators used for the FRPA values audited

Value	Criteria
Biodiversity	Ecologically distinct ecosystem types are sufficiently represented in unmanaged state across the landscape.
	Sufficient habitat exists across the landscape for species at risk and locally important species.
	Forest planning adequately supports the conservation of biological diversity and fosters continuous improvement in biodiversity conservation. • Pre-industrial condition and natural disturbance regimes across the landscape have been identified. • Responsibility for biodiversity conservation across the landscape has been established in relation to the scale and scope of forestry practices. • Objectives for biodiversity conservation have been developed that take into consideration natural disturbance regimes, ecosystem diversity, and maintenance of habitat and licensee responsibility. • Strategies have been developed at appropriate scale in relation to objectives, and include measurable and verifiable targets for ecosystem representation and wildlife habitat retention. • Landscape and site plans are developed that describe the operational implementation of strategies. • Inventory data is sufficient to support objectives, strategies and plans, and includes forest cover, ecosystems, wildlife habitat and riparian areas. • The achievement of objectives is evaluated using appropriate spatial and temporal scales, including ecosystem function and species populations. • Strategies and plans are adapted in relation to effectiveness monitoring results, including recruitment and/or restoration of ecosystems, structures and habitat.
	The results of forest practices reflect intended results established in strategies and plans.
	Stand-level forest practices conserve important elements of biological diversity. • Sensitive plant communities, ecosystems, sites and structures of biological significance are conserved. • Wildlife habitat is conserved. • Native tree species diversity is maintained. • Aquatic species' habitat is conserved. • Botanical species are conserved.
Stream riparian management	The properly functioning condition of streams has not been impacted by forest practices. • Channel beds are undisturbed. • Channel banks are undisturbed. • Channel large woody debris processes are undisturbed. • Channel morphology is undisturbed. • All aspects of the aquatic habitat are sufficiently connected to allow for normal,

	unimpeded movement of fish, organic debris and sediments. • Streams support a good diversity of fish cover attributes. • The amount of moss present indicates a stable and productive ecosystem. • The introduction of fine sediment has been minimized. • Streams support a good diversity of aquatic invertebrates. • The vegetation in the riparian management area has been sufficiently protected from windthrow. • The amount of bare ground or soil disturbance in the riparian area has been minimized. • Sufficient vegetation has been retained to maintain an adequate root network or large woody debris supply. • Sufficient vegetation has been retained to provide shade and reduce bank microclimate change. • The number of disturbance indicator plants or noxious weeds present has been limited to a satisfactory level.
	Sedimentation has been minimized at road crossings • Stream crossings avoid areas where streams are highly active (meandering, braided or alluvial fans) • Where there is a potential for sediment delivery to streams, sediment control measures have been employed to reduce the risk of sediment delivery. • Approaches are graded and cross ditched to reduce the risk of sediment delivery.
Soils	Productivity and hydrologic function losses to forest soils from road, trail, and landing construction activities are minimized. • The area occupied by unproductive soil as a result of permanent access construction is minimized given the site conditions; harvest constraints and equipment utilized. • Temporary access is utilized where appropriate, and adequately rehabilitated and regenerated. • There is a minimal level of altered natural drainage and no significant erosion, or risk of significant erosion, caused by roads, trails and landings. • There is an absence of unproductive soil in the net area to be reforested as a result of landslides or gully erosion caused by road construction, maintenance or deactivation.
	Productivity and hydrologic function losses to forest soils from harvesting activities are minimized. • There is an absence of unproductive soil in the net area to be reforested as a result of landslides or gully erosion caused by harvesting. • There is a minimal disruption of natural drainage patterns in the net area to be reforested. • The level of dispersed and concentrated soil disturbance in the net area to be reforested is minimized given the site conditions, harvest constraints and equipment utilized. • Areas of excess soil disturbance have been appropriately rehabilitated and regenerated.

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NEWS release

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Multi-Value Audit finds Good Performance in Fort St James Forest District

VICTORIA – A multi-value pilot audit by the Forest Practices Board found good performance by forest companies in the Kazchek operating area of the Fort St. James Forest District.

The audit focused mainly on the practices of Apollo Forest Products within the operating area. The board assessed the licensee on biodiversity, stream riparian management and soil conservation values and used a broad framework based on biodiversity indicators to assess Apollo's environmental management system and stewardship practices.

"This licensee not only meets the requirements of provincial legislation, but has also obtained third-party certification," said board chair Bruce Fraser. "Legislated standards are only part of the overall framework for protecting forest values, and Apollo has taken significant additional measures to track performance and ensure accountability to the public."

The pilot audit examined practices by Apollo and Brave Holdings Ltd between September 1, 2004, and September 24, 2006. The audit found full compliance by licensees with the requirements of the Forest and Range Practices Act.

The multi-value audit is the latest in a series of board pilot audits that focus on the results for specific forest values, such as soils, streams, visual quality and biodiversity, which go beyond a strict focus on legislative compliance. Today's board report is the first to review multiple values in a single audit.

"While the licensee has effective systems in place, the next step is to develop the framework needed to ensure monitoring of the status of key forest values," said Fraser. "We encourage Apollo to work with other licensees in the area on a coordinated monitoring framework to track indicators such as wildlife reaction to harvesting approaches and effectiveness of tree retention, for example."

The Forest Practices Board is BC's independent watchdog for sound forest and range practices, reporting its findings and recommendations directly to the public and government. The board:

- audits forest and range practices on public lands;.
- audits appropriateness of government enforcement;
- investigates public complaints;
- undertakes special investigations of current forestry issues;
- participates in administrative appeals; and
- makes recommendations for improvement to practices and legislation.

-30-

This news release and more information about the board are available on the Forest Practices Board Web site at www.fpb.gov.bc.ca or by contacting:

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