



WESTERN FOREST PRODUCTS INC.

# **Sustainable Forest Management Plan (SFM Plan)**

Port Alberni Forest Operation

2010 - 2014

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## Introduction

Sustainable Forest Management (SFM) strives to maintain and enhance the long term health of forest ecosystems, while providing ecological, economic, social and cultural opportunities for the benefit of present and future generations.<sup>1</sup>

The Sustainable Forest Management (SFM) Plan has been prepared to support Western Forest Products Inc.'s (WFP) commitment to sustainable forest management, consistent with the Canadian Standards Association (CSA) Z809-2008 standard. The SFM Plan is designed to compliment the following existing management systems and procedures:

- Environmental Management System (and related ISO 14001 certification) including the Timberlands Sustainable Forest Management Statement and SFM Management Procedure;
- Safety Program (and related SAFE Company certification);
- Existing management plans (e.g., TFL 44 Management Plan); and
- Legal requirements (refer to Figure 2 and the EMS Manual, Legal and Other Requirements).

British Columbia has rigorous legislation and policies for protection, conservation, and sustainable management of forests. This legislative framework is being continuously improved, as is forest management and policy. In addition to applying regulatory tools, WFP benefits from using voluntary tools, such as CSA Certification, to aid in the achievement of sustainable forest management (SFM).

## Sustainable Forest Management

### Canadian Standards Association (CSA)

The Canadian Standards Association (CSA) is a non-profit, membership-based association which has developed over 2000 standards for various industries. CSA develops both nationally and internationally accepted standards for values such as health and safety, quality of life and the environment<sup>2</sup>.

### CSA Z809 Standard

The CSA Z809 forest management standard is based on the Canadian Council of Forest Ministers (CCFM) SFM criteria and elements. The CCFM SFM criteria and elements are fully consistent with those of the UNCED Montréal and Helsinki processes, which are both recognized by governments around the world.

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<sup>1</sup> Source: Canadian Standards Association Sustainable Forest Management Z809-08 Standard.

<sup>2</sup> Source: <http://www.csa.ca>

The CSA SFM Z809 2008 Standard requires:

- A systematic approach to management, based on continual improvement; and compliance with legislation, regulations and government policies, taking into account environmental, social and economic factors;
- Public participation in order to give local communities input into how forests are managed;
- Demonstration of sustainable forest management performance; and
- Third party audits to confirm adherence to the standard.

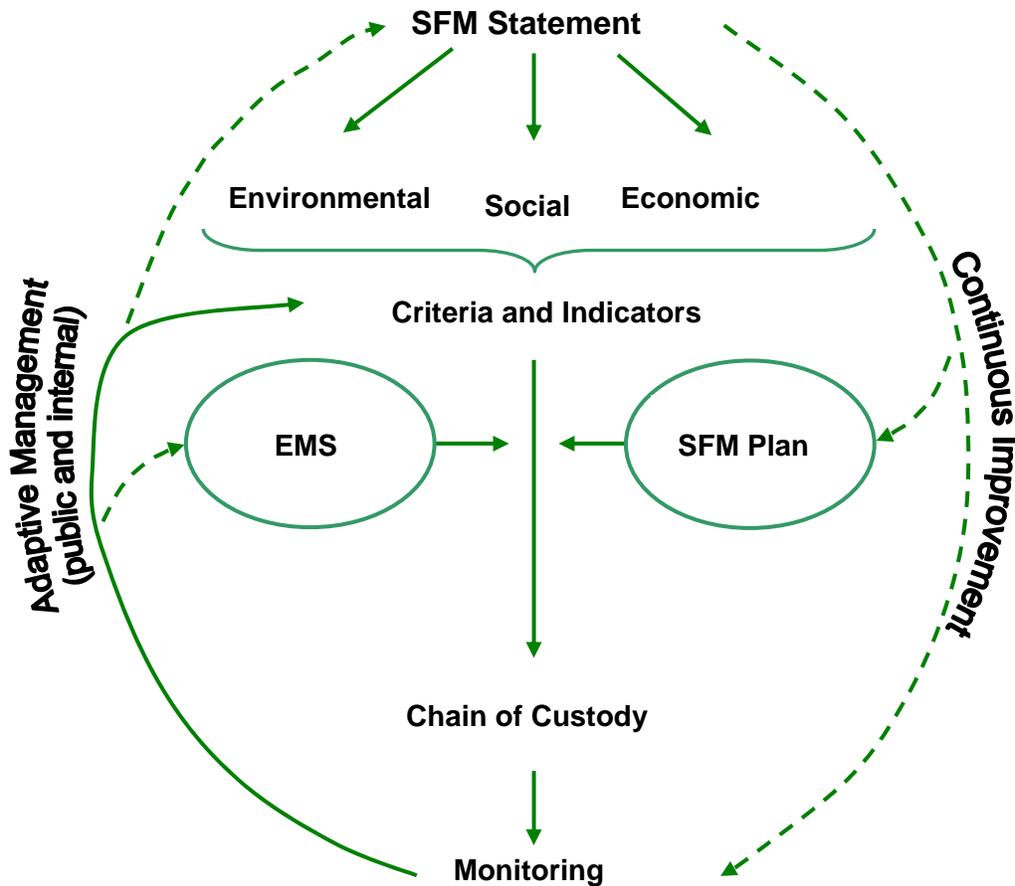
WFP is required to work closely with the public to identify local values, objectives, indicators, and targets that reflect the national criteria and to incorporate them into forest management planning and practices. Decisions are made together with the public during this process. CSA Z809 is more than a system standard; it is also a performance standard, and it sets specific requirements for the public participation process. This approach to performance not only respects government-recognized criteria for SFM but also allows the public to participate in the interpretation for the local forest.

The CSA Z809 Standard was recently reviewed and updated. The 2008 edition is the third edition of CSA Z809 (CSA Z809-08), sustainable forest management standard and supersedes all previous versions. The updates to the standard reflect the objective to foster consistency between SFMP plans across Canada by establishing pre-set “Core Indicators”. The standard is available at: <http://www.csagroup.org/%5Crepository%5Cgroup%5CZ809-08.pdf>. A summary of the changes in the 2008 standard can be viewed at: <http://www.scc.ca/en/programs-services/ms/csa-z809-transition>.

## **SFM System**

WFP maintains an SFM System under the Environmental Management System. The SFM System includes an SFM Statement documenting the corporate commitments to sustainable forest management, an SFM Management Procedure describing the general procedures/ outline for achieving SFM certification and the SFM Plan that contains the specific CSA Z809 Standard requirements.

Figure 1: Overview of the SFM System



**Environmental Management System (EMS)**

The EMS is an adaptive management system allows for a systematic approach to continual improvement. It is based on the dynamic, cyclical process of: planning; implementation & operation; checking; and management review.

The core elements of the EMS are described within the EMS Manual and the corresponding supporting documents which include, but are not limited to: Policies, Standard Operating Procedures (SOP), Standards and Emergency Preparedness & Response Plans (EPRP). These documents provide standards to guide daily activities out in the woods (I.e., “on the ground”) in order to ensure environmental protection and compliance with legal requirements.

## **SFM Plan**

The SFM Plan documents current and long-term SFM performance objectives and management strategies in the Port Alberni Forest Operation operating area, referred to as the Defined Forest Area (DFA).

The SFM Plan is an adaptation of existing planning processes including strategic and operational plans, analyses, standards, monitoring and public review. Management of forest land in the area has continued to evolve over time in response to changes in society's values. Revised Management Plans, submitted at approximately five-year intervals, include objectives, management strategies and analyses of management impacts. Standards and operating plans have been updated as changes occur. Monitoring has included corporate annual reports and both internal and external audits and inspection to evaluate conformance with management system requirements as well as compliance with legal requirements.

The values, objectives, indicators, targets, and management practices described in this document (developed by WFP and WIWAG) are currently understood and followed by Port Alberni Forest Operations (PAFO) for working towards sustainable forest management on the DFA. This is an evolving document that is reviewed and revised on an ongoing basis with the community advisory group to reflect changes in the forest and local community.

Ongoing review and input is provided by the advisory group, TFL management, and others through performance assessments, operational plan reviews, and processes related to specific land use issues such as landscape unit planning and community water supply.

## **West Island Woodlands Advisory Group (WIWAG)**

The West Island Woodlands Advisory Group (WIWAG) has helped to develop the SFM performance framework for the DFA. A web site has been developed to facilitate communication with WIWAG members as well as the general public: <http://www.westernforest.com/wiwag/>

A broad range of interested parties from various sectors of society participate in each of the public advisory group meetings, e.g., local communities, tourism, wildlife, labour, business, recreation, fisheries, government, and First nations.

WIWAG operate under a Terms of Reference that outlines: goals, roles and responsibilities; membership; measures to deal with conflicts of interest; meeting content; timelines; communication, decision making and dispute resolution protocols; as well as methods to modify the Terms of Reference. The Terms of Reference may be found in Appendix 3.

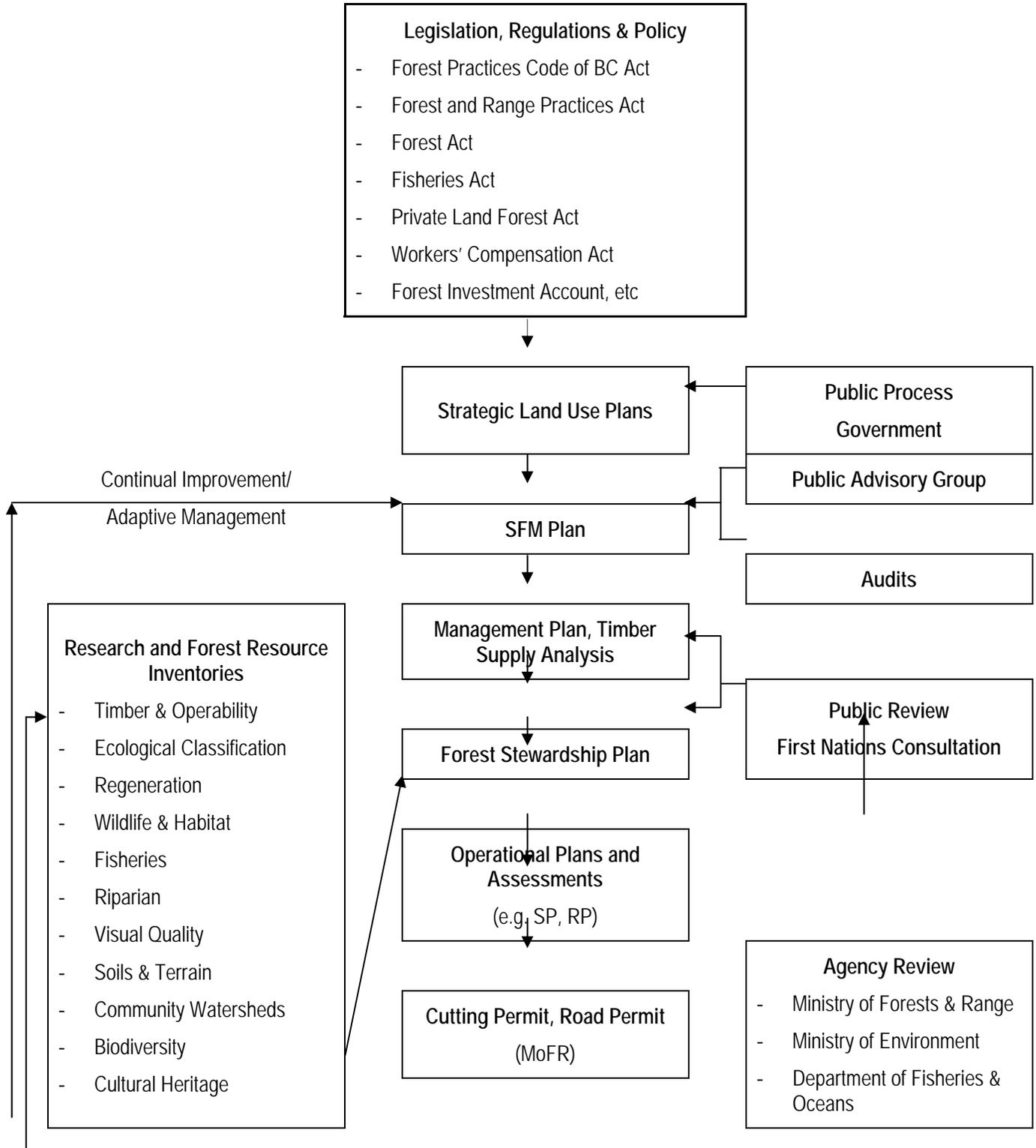
## **Links to management plans and operational plans**

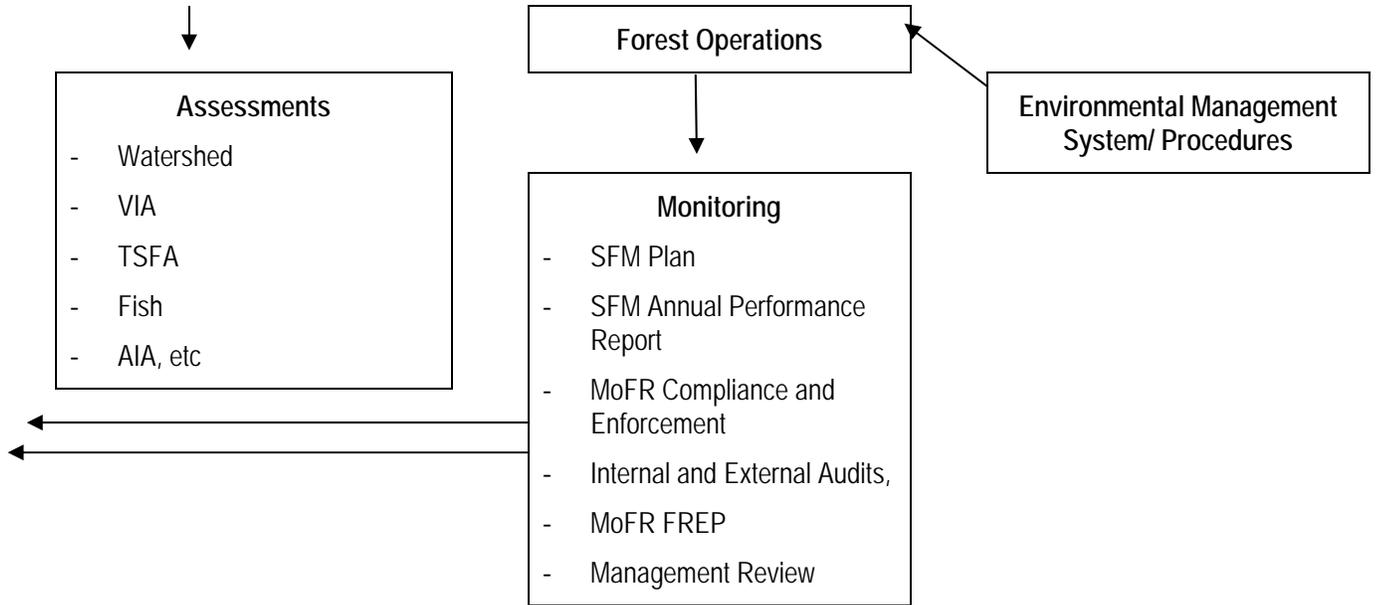
Figure 2 shows the links between operational planning and TFL Management Plans with the B.C. Forest and Range Practices Act (FRPA).

The SFM Plan is an umbrella plan that links higher level plans, such as the Management Plan, with operational plans. The performance commitments included in the SFM Plan equal or surpass commitments previously approved under TFL 44 Management Plans. The SFM Plan reflects the objectives, management strategies, and reporting structure of management plans. The SFM Plan is influenced by other higher level plans, such as the Vancouver Island Land Use Plan, and by legislation including the FRPA and associated Forest Stewardship Plan. The SFMP annual performance is reviewed and discussed during Management Review (on an annual basis). Conclusions drawn during Management Review are documented in the Management Review meeting minutes (where applicable).

Figure 2 shows the flow of input and direction to Forest Stewardship Plans and site plans. It does not show the feedback loops of monitoring and adaptive management that occur from operations to the management plans and other higher level plans.

**Figure 2: Links between Plans (TFL – with FRPA)**





### Third-Party Independent Audits

To become certified to this Standard, WFP must undergo a third-party, independent annual audit to the SFM requirements in this Standard. A registrar (certifier), accredited by the Standards Council of Canada, conducts the audit. The individual auditors employed or contracted by the registrar have the requisite forestry expertise and are certified as environmental auditors. Audits to this Standard are done by accredited certifiers and certified auditors who are independent of the standards-writing body (CSA).

Audits include both a document review and field visits of the forest operation to ensure progress is being made towards the achievement of targets and that the SFM requirements are being upheld.

### Defined Forest Area (DFA)

The DFA includes WFP's TFL 44, Port Alberni Forest Operation (refer to Figure 3 for a map of the DFA). Volume based, short term licenses that are issued to the BC Timber Sales program or First Nations by the Ministry of Forests and Range and are within TFL 44 are excluded from the DFA for the duration that they are under the management responsibility of an entity other than WFP. Typically these areas revert back into the TFL once they are harvested and reforested and will form part of the DFA once they revert back to the management responsibility of WFP. Parks and protected areas are also excluded from the DFA.

WFP respects the legal rights and responsibilities of the other parties within or adjacent to the DFA (e.g., First Nations, trappers, water license holders, mining claims, etc.). WFP respects the treaty title and rights flowing from the Maa-nulth Final Agreement effective April 1, 2011. Refer to the TFL Management Plan and Forest Stewardship Plan information sharing/ referral information regarding specific legal rights and responsibilities of other tenure holders, as they apply to the DFA.

The Port Alberni Forest Operations is located on western Vancouver Island and represents one of twelve WFP Timberlands operations. There are five communities within or adjacent to the licence area. These are Port Alberni, Bamfield, Anacla (Huu-ay-aht First Nation), Nitinat (Ditidaht First Nation), and Kildonan.

The location, tenures and facilities are divided into three district geographic areas; Franklin, Henderson Lake, and Great Central Lake.

The Operations consist of harvesting, hauling, maintenance shops, dryland sorts, landfills and administrative offices. The organization chart indicates the staff positions (see corporate intranet).

Refer to the current TFL 44 Management Plan for a detailed description of the DFA, visit:

<http://www.westernforest.com/company/stewardship/planning.php>

### The Forest Land and AAC

The following table describes the current forest land and Allowable Annual Cut (AAC) for the DFA TFL 44 Management Plan #5 was recently prepared and gone through public review. A new AAC determination is expected in Winter/ Spring 2011.

The area of the DFA (per MP #5) is 139, 446 hectares. Current AAC is 942, 268 m<sup>3</sup>. MP #5 proposes a reduction in AAC to 800,000m<sup>3</sup> but a determination has not yet been made by the Chief Forester.

**Map of the DFA**



**Figure 3: Map of the Defined Forest Area**

## Management Responsibilities in the DFA

TFL 44 is a renewable tenures on Provincial Crown land and administered by the Ministry of Forests (MoFR) under the Forest Act. These tenures are managed by WFP in conjunction with the MoFR, Ministry of Environment, Ministry of Agriculture and other agencies. The primary roles and responsibilities are defined under a variety of legislation including, but not limited to, the Ministry of Forests Act, Forest Act, and Forest and Range Practices Act.

Other independent third party entities that currently carry out work on the DFA include First Nation operators with an allocation of 17,518 cubic meters and BCTS with a competitive bidding allocation of up to 5% of the AAC. The BCTS allocation was recently converted to a First Nation area-based licence that is now excluded from the DFA. Any residual BCTS timber sales will be minor volumes and should be completed by 2016. These parties are not considered necessary for the achievement of SFM on the DFA.

## First Nations

First Nation participation in WIWAG will not prejudice aboriginal or treaty rights. WIWAG meetings do not, in any way, intend to define, interpret, or prejudice ongoing or future discussions and negotiations regarding these legal rights and do not stipulate how to deal with treaty rights.

The Defined Forest Area falls within the traditional territories of the following First Nations:

- Chemainus
- Cowichan
- Ditidaht
- Hupacasath
- Huu-ay-aht
- Lake Cowichan
- Lyackson
- Pacheedaht
- Penelakut
- Tseshaht
- Uchucklesaht
- Ucluelet

A map of the traditional territories can be reviewed at:

[http://www.for.gov.bc.ca/dsi/First\\_Nations.htm](http://www.for.gov.bc.ca/dsi/First_Nations.htm)

## Products and Markets

Logs are distributed by the Fiber Supply department for sale and transport to local Western Forest Products sawmills, outside purchasers and export. Majority of logs go to local Western Forest Products sawmills, Catalyst papers (a local paper producer) and Western Product sawmills on southern Vancouver Island.

**Table 1: DFA Products and Markets**

By Species (%)		By Grade (%)	
Ba	17	Pulp	2
Cy	1	Utility	13
Hw	34	Merchantable	30
Cw	38	Shingle / Special Forest Products	10
Fd	10	Peeler / Lumber	14
		Gang	31

## Management Strategies

### Biodiversity Conservation

Substantial areas, largely old growth, have been reserved throughout the DFA on inoperable or sensitive soil sites as riparian, wildlife or recreation reserves and, increasingly, as permanent Variable Retention reserves according to the guidelines set forth under the Western Forest Strategy. Biodiversity conservation requirements are in place at the stand level. They are defined at the larger, landscape levels through provincially assigned Biodiversity Emphasis Options and through the Western Forest Strategy.

Developing a biodiversity conservation strategy that is based on management of individual species is not feasible or effective because practices that benefit some species are often detrimental to others. The development of an ecosystem management approach that provides suitable habitat conditions for all native species will provide habitat diversity that in turn provides species biodiversity.

The strategy for biodiversity conservation is:

- Institute landscape-level ecological planning.
- Plan forest management activities based on Western Forest Strategy.
- Work with the government specialists to further develop objectives and strategies for landscape units.
- Implement ecologically based stand-level requirements as required under the Western Forest Strategy and Forest Stewardship Plan.
- Choose species mixtures for reforestation based on ecological site adaptation.
- Consistent with FSP Results and Strategies' and Western Forest Strategy, retain leave tree reserves or wildlife tree patches to enhance structural diversity of harvested areas.
- Improve knowledge through inventory and research.
- Cooperate with other agencies in research and inventory projects on species of concern.

### Variable Retention

The term **variable retention** (VR) is used to describe an overall approach to harvesting and silvicultural systems that retains trees and associated habitat for purposes other than timber management and traditional silviculture goals. Variable retention can be implemented with a wide range of harvesting systems, and can utilize traditional silvicultural systems, such as shelterwood or selection, to meet forest regeneration objectives. As the name implies, various levels of retention can be used with different types, amounts and spatial patterns of structure. Retention can be dispersed throughout a cutblock (as individual trees or small clumps) or aggregated in larger groups and patches, depending upon the objectives. There is such a wide range of possibilities within the VR concept that it is not a "one size fits all" approach.

The term **retention system** refers to a specific silvicultural system designed to meet the goals of variable retention. It was originally defined in the BC Operational Planning Regulations (March 1999) and has 3 requirements: 1) retention of trees distributed across the cutblock; 2) trees are left for the long term (at least one rotation); 3) distribution of leave trees achieves >50% “forest influence”. The specific definition of the retention system is: “a silvicultural system that is designed to:

1. retain individual trees or groups of trees to maintain structural diversity over the area of the cutblock for at least one rotation, and
2. leave more than half the total area of the cutblock within one tree height from the base of a tree or group of trees, whether or not the tree or group of trees is inside the cutblock.”

The distribution of long-term retention over the area of the cutblock is open to interpretation, but the spatial requirement in “2” for “forest influence” provides the minimum standard for distribution. The retention system is no longer officially defined in BC legislation; however the BC Forest Planning and Practices Regulation (Div.5, 64(4)) exempts harvesting that maintains >50% forest influence and meets other spatial requirements from maximum cutblock size restrictions. The retention system is considered a “partial cutting” approach and is categorized as an “even-aged” system despite the resulting uneven-aged forest because the cut areas are regenerated and managed much like other even-aged systems.

The retention system normally uses a one-pass harvesting approach, but may also be prescribed with several harvesting entries. The three main variants of the retention system are: group, dispersed, and mixed. For safety, economic and ecological reasons, group retention is often preferred; however, all three variants have advantages for specific objectives.

## Wildlife

Wildlife issues are twofold in scope: (1) habitat protection for large mammals and threatened or endangered species; and (2) biodiversity concerns related to conservation of animals and plants and the maintenance of ecosystem processes. Current knowledge is often limited and limiting and new knowledge requires a process of adaptive management. The main current issues are:

- identification and protection of specialized habitats for large mammals, primarily deer and elk
- identification and preservation of the best marbled murrelet nesting areas and release of previously protected areas that appears not to be used
- actions needed to maintain habitat for rare and endangered plants, animals, and ecosystem processes

The wildlife protection strategy is to:

- comply with the Forest and Range Practices Act and the FSP
- comply with government stated measures to manage WHAs, UWRs
- provide operations and agency personnel feedback on guidelines as part of an ongoing process of improving conservation
- liaise with government wildlife and habitat protection staff on wildlife issues, especially to identify and protect critical habitat
- continue assessments of ranges, habitat diversity, wildlife trees, etc., and protect significant values

- continue surveys to identify and preserve key marbled murrelet nesting sites and obtain release of protected sites that are apparently of little or no value
- manage riparian zones as directed by the stream indicators and objectives; as feasible, enhance protection on smaller streams particularly through the use of VR design.
- support other monitoring and research activities to increase knowledge of habitat resource requirements and the impacts of management activities on those

## **Fish Protection**

The fishery resource value is generally high and protection of fish habitat and water quality ranks as a significant priority. Biological issues dominate in the sense of conserving fish stocks and habitat. At the same time, managers are also concerned with meeting the letter of the law. The issues are:

- To update classification of waters within the DFA. This includes: detailed site specific information for operational planning and a broader, but accurate portrayal of the impacts of riparian management for strategic analysis.
- Mitigation, enhancement, and habitat restoration.
- Cooperation with First Nations and other stakeholder groups.
- To determine measures for protecting endangered populations.
- Management of riparian areas.

The strategy for responding to these issues is to:

- Continue to undertake detailed stream inventories for operational plans.
- Continue to identify and implement enhancement, mitigation, and rehabilitation opportunities with FIA funding.
- Achieve full compliance in meeting the requirements of the FRPA and the FSP.
- Work with agencies to design and deliver training to woods workers.

## **Harvesting Adjacent to Parks**

The general strategy for harvesting adjacent to all Parks is:

- Roads close to federal and provincial park boundaries will be deactivated after harvest.
- Cutblock boundaries along park boundaries will have a windthrow assessment.
- Either review the common boundary on site, with a provincial or federal park representative or obtain approval when adjoining

The additional strategy for the falling of danger trees along Park boundaries is as follows:

- If danger trees standing outside the park boundary are felled into the park, only the portion lying outside the park boundary may be yarded (the portion in the park must be left as CWD); and
- Damage to surrounding trees and vegetation will be minimized.
- No trees within the park will be felled.
- The annual review of next year's harvest plan to forecast the impact to Indicator 5.1.A and to make adjustments if necessary

The additional strategy for harvesting adjacent to Pacific Rim National Park Reserve is:

- The portion of the common boundary between Pacific Rim National Park Reserve and TFL 44, from Tsusiat Lake to Black Lake that is adjacent or close to proposed cutblocks has been legally surveyed. The park boundary extending to the northeast from Tsusiat Lake is described as the height-of-land. This section of the boundary has been surveyed using a Global Positioning System (GPS). The boundary has been field reviewed by Parks Canada staff to 750m west of cutblock 7694. Parks Canada has agreed with the boundary location.

## **Fire Control**

Since 1955 when the DFA's original TFL licenses were awarded, fire problems have not been significant. Port Alberni Forest Operation's primary objective is to prevent fires through good housekeeping, diligent equipment maintenance, and strict control of operations as fire danger rises. The goal is to contain all fires within 24 hours of detection. Fire prevention and control are governed by operating plans and procedures:

- Pre-suppression plans are prepared annually;
- Emergency plans exist for fires not controlled within 24 hours, and
- Ground and aerial patrols are made as required by regulation.

Port Alberni Forest Operation and its Contractors maintain and use their own fire suppression equipment. If needed, further equipment can be obtained from other operating units or government resources.

Port Alberni Forest Operation is connected to the government Fire Weather Information Network. Port Alberni Forest Operation also employs strategically located fire weather stations to monitor weather in the various operating areas. Data from these stations are used to modify or cease operations according to hazard rating, risk and fire danger rating.

## **Forest Insect Control**

Similar to the fires, forest health problems have also not been significant. A black headed budworm outbreak in 1970 was closely watched for two years before the population collapsed and preparation for control abandoned.

Forest Defoliators – The last significant insect epidemic was in 1945-6 when hemlock looper killed mature timber on a significant part of the Nitinat, Pachena, Sarita, and Klanawa River watersheds. A significant percentage of the dead timber was salvaged. The black headed budworm reached epidemic levels in 1972 but then collapsed.

Insect populations tend to build up over a number of years. The company's past experience has been that defoliation is normally reported by staff flying over the inaccessible old forest where such attacks normally start. Evidence of other problems, e.g., Rhizina and laminated root rots, have been identified and reported in the course of fieldwork. Follow up fieldwork has then determined the severity of the problem and decisions on any further action.

When defoliation is reported it is inspected more carefully, boundaries roughly mapped and recorded. If the attacked area increases and/or the extent of defoliation increase significantly, assistance is sought from MoFR or Canadian Forest Service (CFS) specialists and plans made for salvage. If warranted, an aerial attack plan is prepared in conjunction with the pertinent federal and provincial agencies.

Balsam Woolly Adelgid –Mortality is generally found on drier sites of advanced and old growth stands of amabilis fir and sub-alpine fir in the CWHmm2 and MHmm1 subzones. Future yield losses will be minimized by favouring alternative species for plantations on affected sites.

Ambrosia Beetles – The DFA has had an active damage prevention program for over 30 years to minimize the significant financial loss these beetles can inflict. After early trials and operational spraying with a number of insecticides, damage is now controlled by careful management of inventories of susceptible logs and the use of pheromones and trap logs around log sort and storage areas.

Other Insects – Breeding trials have now produced Sitka spruce seedlots that are 85 to 95 percent resistant to Sitka spruce weevil. Weevil resistant seedlots will continue to be planted on ecologically appropriate sites.

### **Forest Disease Control**

Wood volumes lost to disease in the old growth forest have been estimated as highly significant by the CFS. However, measurements from Western Forest Products permanent sample plots for nearly 30 years suggest that growth is balancing mortality.

In the new forests, a number of parasitic fungi can kill trees or degrade log quality and value. The most significant of these are hemlock mistletoe, laminated root rot; Annosus root rot, and Armillaria root disease. The design of new variable retention silviculture approaches must take into account the widespread incidence of mistletoe in old growth hemlock and in many of the 40 year plus second growth stands as this can pose a significant risk to the health of regenerating forest areas. Though Annosus is known to be widespread and though various measures were used when spacing or thinning in the 60s and 70s (high stumps and borax), no action is presently undertaken. Though Armillaria is endemic, assessments in Douglas-fir stands made by research staff in the 1950s found evidence of only scattered mortality, which appeared to decline or cease after canopy was formed. It was concluded this pathogen is not presently a cause for concern.

Active preventive measures are now limited to mistletoe and laminated root rot.

Strategies for addressing mistletoe include:

- Selecting retention or reserve areas, preferring stands with a zero or low level of infection.
- Prescribing the: removal or girdling of infected trees; and/or regeneration of non-susceptible species.
- Implementing strategies before susceptible regeneration is 3m in height.

Strategies for addressing infections of *Phellinus weirii*, including:

- Visually assessing second growth stands proposed for harvest for the presence of laminated root rot during engineering and SP field work.
  - If the presence is negligible, no further survey is required.
  - If the presence is identified as low, a walk through survey is required.
  - If the presence is high, a grid survey by a forest health specialist may be completed. A grid survey is not required if the location of centers is obvious (e.g. between two roads), if infection is so severe that the entire cutblock will be treated, or if the cutblock will be managed for a non-susceptible species for the next rotation.
- Laminated root rot in retention patches will be allowed if expected windthrow in the remaining stand is considered acceptable, and the first 10m from the boundary of the patch is planted with a non-susceptible species, or the stumps are removed from the ground.

Group retention areas may also have infected trees if they are in the central portion of the group, at least 10 meters from the perimeter.

- Considering establishment of a deciduous stand for the next rotation where site characteristics are appropriate.
- Single trees selected for retention will have no visible infections and will be at least 10 meters from any visually infected tree.
- Maps outlining the incidence of root rot are kept on file when a detailed survey has been completed.
- Potential root-rot treatments by incidence level are:
  - Strata with very low to low (0% - 5%) incidence rates usually do not warrant treatment.
  - Strata with moderate levels of root-rot (6% - 15%), individual centers may be treated by stumping, or planting of alternate coniferous/deciduous species.
  - Strata with high or very high incidence rates (High = 16%-30%, VH = >30%), the entire stratum is usually treated as a single root rot center. Areas of concentrated root rot are generally felled. Root rot areas with gentle topography may be stumped post-harvest. Steeper areas and smaller dispersed centers are usually planted with alternate species that are more resistant to root rot than Fd.

## Windthrow Control

Today's small cutblock sizes and variable retention reserves within cutblocks expose more timber edge to potential damage from strong wind events. The strategy to minimize losses due to windthrow includes:

- Assessment of susceptibility to windthrow and application of the PAFO Windthrow Management Strategy.
- Determining the natural windthrow factors associated with a particular cutblock design (e.g., cutblock size, stand characteristics, soil properties, location and orientation to expected winds) at the site plan stages based on knowledge of historic wind patterns and assessments. Wind firmness is also a key factor guiding selection of groups and individual trees for in-stand retention.
- Determining the potential extend of windthrow associated with a particular cutblock if no mitigation is taken.
- Determining which forest management objectives may be impacted if windthrow occurs adjacent to a particular cutblock.
- Management practices are applied according to the assessed risk of windthrow. These practices may include feathering of edges, pruning of trees, leaving larger buffers around the forest resources identified to be managed, topping of trees, locating WTR in low windthrow risk areas, partial cutting, reconfiguring edges to a naturally wind firm edge, realigning boundaries to reduce the windthrow risk, partial salvage .
- Monitoring of windthrow and recovery of windthrow where practical and ecologically appropriate.
- Use of wind hazard maps.
- Training of field personnel to recognize the potential for windthrow.

## Terrain Management

Terrain stability hazard mapping has been completed for the majority of the watersheds in the DFA. Areas that have not been mapped include the Walbran and Rosander areas. These areas have reconnaissance type terrain stability information such as ESA or steep slopes.

Strategies to minimize the incidence of landslides associated with harvesting include:

- Road construction methods such as full bench/end haul when building roads on unstable or potentially unstable terrain.
- Where roads are no longer required for access, deactivate and/or rehabilitate roads to reduce the risk of road failure and/or reduce site degradation.
- Identify any areas with erosion, slope stability, or sensitive soil concerns during engineering. Refer potential problem areas to a terrain specialist for a Terrain Stability Field Assessment (TSFA).
- Stabilize with grass seed and reforest slides characterized by non-consolidated (i.e. productive) material.
- Follow TSFA recommendations.
- Implementation of a Terrain Risk Management Strategy.
- Follow watershed terrain management strategies

## Reforestation

Consistent with the silviculture management objectives, Port Alberni Forest Operation will regenerate the forest at densities that ensure full site coverage and high yields of quality timber. Port Alberni Forest Operation will bear the silviculture costs for basic silviculture in compliance with the Forest Act. Other treatments on crown land will be undertaken if FIA funding is available. The company expects to receive a share of the FIA fund proportionate to its contribution.

Species selection – Port Alberni Forest Operation bases species selection first of all on the silvicultural characteristics of the individual species and their adaptability to the particular site, including forest health considerations. The second criterion for selection is species value ranking. This is based on the company view of the wood qualities and desirability at harvest. Currently, cypress, cedar, and Douglas-fir rank highest. Species selection will be consistent with the stocking standards approved within the FSP.

Forest tree seed – Port Alberni Forest Operation attempts to maintain a five-year supply of seed for the range of species and seed zones. The priority will be for seed from the orchards of Coastal Tree Improvement Cooperative members. Where seed orchard seed may be unavailable in sufficient quantity, wild seed will be collected under supervision to ensure best quality.

Site Preparation – Anticipated site preparation necessary to renew the forest is prescribed post harvest. Site preparation methods that may be prescribed include mechanical piling or dispersal of slash, or accumulation burns and stumping. Each method is considered in terms of economics, environment, and government regulation before the optimal solution is prescribed.

Regeneration methods – Most sites are planted in order to attain early green-up, thereby freeing adjacent areas for harvest. Immediate planting is normally prescribed on highly productive sites because of the likelihood of weed invasion. Where it is anticipated that natural regeneration will not reach at least the minimal acceptable level two years before the end of the regeneration delay period, planting will be prescribed. Planting will also become increasingly prevalent in advanced growth amabilis stands within areas of balsam woolly adelgid.

Free growing assessment – The normal assessment regime for each site prior to claiming free growing status is:

- A post-harvest survey confirms whether or not the prescribed treatments regarding slash loading and disposal, site preparation, regeneration method, and timing still apply.
- Where natural regeneration has been prescribed, a stocking survey is made at least two years prior to the end of the regeneration delay period. If it appears the target will not be met, planting will be undertaken.
- A survival survey generally occurs about one year after planting. If necessary, a fill plant or a replant is scheduled.
- A regeneration performance survey is made to confirm stocking status after the survival survey and before the free growing survey. If needed, fill planting, weed control, and/or another assessment is scheduled.
- A final free growing survey is carried out near the end of the late free growing period.

## Road Building and Maintenance

Road building Standard Operating Procedures document plans/strategies for road construction and maintenance and for road deactivation. General strategies for the maintenance of roads include recapping, grading, adding or replacing culverts, roadside brushing, ditching short sections of road, applying dust control, bridge replacement, minor resurfacing and development of pits and quarries.

All permitted roads and bridges meet legislative requirements. New bridges and major stream crossings are reviewed with fisheries officials??.

Where existing non-permitted roads are required for harvesting they are permitted and brought up to standard.

### **Site Restoration**

Roads and landings are maintained or deactivated according to the conditions of the Road Permit unless needed for other purposes. Backspar trails, abandoned roads and, as necessary and appropriate, exhausted or unused gravel pits, and log landings are restored by such techniques as ripping, return of spoil, spreading of debris, construction of anti-erosion barriers, and sowing of grass seed.

Non-permitted roads that predate the FPC are rated for urgency of restoration based on an evaluation of environmental risk and work is undertaken as FIA funding is granted.

### **Soil Conservation**

The DFA experiences some of the highest rainfall events in North America. Where these high rainfall events occur on steep terrain, there is potential for landslides and surface soil erosion. Inventories of areas of potential terrain instability have been completed for most of the DFA. Terrain stability mapping and evaluations of surface erosion potential have also been completed for most of the watersheds in the DFA. The issues are:

- Potentially unstable terrain — Landslides are a natural and inevitable phenomenon that contributes to the evolution of the landscape. Although landslides occur in both logged and unlogged terrain, logging and road building can increase their frequency. Impacts of landslides include acceleration of sediment delivery to streams, possible damage to fish and invertebrate habitat and productivity, loss of productive forest site, unsightly scars, and damage to roads, culverts, and bridges.
- Surface soil erosion — Surface soil erosion is the wearing away of the earth's surface by water, wind, and gravity and includes rill and gully erosion. "Accelerated" erosion, in excess of "geologic" erosion, results from human activities. Accelerated erosion causes on-site impacts (soil loss, nutrient loss, lower productivity) and off-site impacts (water quality, sedimentation, and habitat).
- Soil disturbance — certain soil types are sensitive to disturbance from road building and yarding activities. If these sensitive sites are not identified in advance of forest development, then soil compaction, poor drainage, puddling, and soil displacement can result in loss of productive forest sites.

Port Alberni Forest Operation's strategy for soil conservation is:

- Complete harvest plans in accordance with the Terrain Risk Management Strategy.
- Assess all Class IV and V (Es1 and Es 2) terrain prior to road construction or harvesting to evaluate terrain stability and provide recommendations on:
  - whether or not development should proceed,
  - best road and cutting boundary locations or changes to proposed layout or road alignment,
  - riparian management areas,
  - possible mitigative actions and criteria,
  - road construction or harvesting constraints, and
  - Special road construction or harvesting techniques.
- Inspect drainage ditches and culverts regularly and take preventative measures to minimize the potential for debris flow initiation and soil erosion.
- Deactivate roads that are no longer needed for management access, forest protection, or other purposes.
- Identify potentially unstable (sensitive) sites.
- Where ground based harvesting is proposed, carry out site sensitivity assessments for soil compaction, soil displacement, surface soil erosion, and forest floor displacement.
- Where it is practical and economic, reduce the amount of permanent site degradation below 7%.
- De-activate roads that are not important for the road network.
- Carry out internal and external audits to evaluate road building practices and stream management.

## **Water Conservation**

It is important to understand the type and extent of current, water-related problems in a watershed and to recognize the possible hydrologic impacts of proposed forestry-related development. Potential hydrologic impacts are of critical importance in community watersheds and in watersheds with high fisheries values. The fishery resource value is generally high and protection of fish habitat and water quality ranks as a significant priority. The issues are:

- Quality — the quality of water is determined by drinking water standards in a community watershed and by aquatic standards in watersheds with high fisheries values. In both types of watersheds, sediment input and delivery and herbicide and fertilizer applications are the primary concerns.
- Quantity — the hydrologic impact on water quantity from forest development is primarily focused on the timing of flow and potential changes to peak flows.

Port Alberni Forest Operation's strategy for water conservation is:

- Develop operating guidelines in consultation with appropriate local, provincial or federal authorities, or follow the provisions of approved watershed development plans where a watershed supplies water for community use or where fish values are paramount.
- Locate, design, construct, and maintain roads, bridges, and culverts to preserve natural drainage patterns and to minimize impacts on water quality and quantity.
- Develop and implement road deactivation plans to minimize impacts on streams. Where necessary, grass seed, and/or plant seedlings to reduce erosion and sedimentation hazards.

## Riparian Management

Riparian areas are used by many species of wildlife. These areas are reserved by way of no-harvest areas along streams. Generally, larger streams have greater levels of retention. Retention of trees may also be required where a stream is dependent on large woody debris for channel stability and/or stream bank stability.

The Riparian Management Area (RMA) consists of a Riparian Management Zone (RMZ), and where required, a Riparian Reserve Zone (RRZ). The widths of the RMAs are determined by the attributes of the adjacent riparian feature. Attributes such as gradient, fish presence, width of stream, and size of wetland may impact the size of the RMA and the requirement for a RRZ.

Riparian management strategies include:

- Wherever possible, locate road to avoid RMAs.
- Propose road locations through RMAs where no other option exists, or locating the road outside the RMA would create a higher risk of sediment delivery to streams.
- Vary retention specifications for RMZs according to site conditions.
- Undertake professional assessments as necessary.
- Incorporate recommendations of assessments into Harvest Instructions.

Strategies to protect fish habitat and non-fish streams may include:

- Basal area retention in RMZs based on riparian class and site-specific conditions.
- Partial cutting silviculture systems or no harvest buffers.
- Selecting trees to retain to reduce the risk of windthrow and to protect wildlife values.
- Where there are significant concerns about windthrow in the RMZ: extend the boundaries of the RMZ to a windfirm boundary; eliminate sharp corners or indentation from the outer boundary of the RMZ; and/or use edge stabilization treatments including feathering, pruning, or topping.
- Additional practices such as: retention of all non-merchantable conifer trees, understory deciduous trees, shrubs, and herbaceous vegetation within 5m of the channel to the fullest extent possible; retention of wildlife trees; falling and yarding away; removal of introduced tops and small woody debris; felling of shallow rooted, windthrow-prone leaners across the stream so that the butt clears the channel or the stem spans both streambanks. Stems will be removed from the stream if it can be done without damage to the channel or bank and in compliance with the Federal Fisheries Act.

## Contributions to Global Ecological Cycles

Port Alberni Forest Operation's economic objective is to realize the highest net value of timber from the forest on a safe and sustainable basis, while meeting the requirements for protection and/or conservation of other forest-based resources.

Variations in site conditions will ensure a diversity of stand conditions and hence a wide range of species, ages, and size of logs. Factors that contribute to this variability across the forest landscape include variations in site productivity and ecological type. They also include specific management requirements for different forest values.

## Forest Growth and Yield Plan

Growth and Yield work continues, subject to Forest Investment Account FIA funding. Partially funded FIA studies include:

- The establishment and measurement of one large scale (80 ha) and several edge studies examining the effects of different amounts and patterns of variable retention on growth of the next crop. A small pilot project will be undertaken to monitor (through random samples) the effects of variable retention on growth.
- A core of treated and natural permanent sample plots will be measured on a 10-yr cycle.
- A light model has been developed to examine the impact of variable retention on yield and a moisture sub-model is being developed.

## Benefits to Society

Port Alberni Forest Operations will meet overall societal goals related to sustaining key social and ecological values, while harvesting the approved Annual Allowable Cut as required under the Forest Act.

Port Alberni Forest Operation demonstrates its commitment to these goals through Management and Forest Development and through the conduct of logging and other activities in accordance with approved plans and prescriptions. Through implementation of the Western Forest Strategy the company is committed to performance results of a higher standard than those required by law. The Forest Strategy includes, among other aspects, a transition to ecologically-based silviculture systems, increased old growth conservation, and expanded public consultation such as that conducted in writing this SFM Plan.

## Forest Recreation

One objective is to periodically revise recreational value ratings or conduct new inventories to incorporate changes in value perceptions or management guidelines.

Consistent with MoF Recreation Management Guidelines and Standards, the Port Alberni Forest Operation's strategy is to:

- Identify new, significant recreational attractions in the course of inventory or development work and protect them.
- Cooperate with government and authorized caving organizations to protect cave entrances and underground cave features and assist in the management of public access.

- A recreation analysis was completed in July 2002. Port Alberni Forest Operation has, in consultation with appropriate government staff in region and district offices, completed an update of all recreation resource inventories, including available information on cave/karst features to the end of 1996.
- Account for recreation in operational harvest plans and timber supply analyses.
- The recreation resource inventory was updated in 2001.
- The Recreation Sector (WIWAG) produced a "Recreation Access Inventory". It is posted on the Advisory Group's website.

## Visual Landscape Management

Major visual landscape management issues in the DFA are associated with public travel corridors, settlements, parks and recreation use areas, and with addressing anomalies in the existing visual landscape database.

Forest harvesting and other operations will be managed to achieve established visual objectives. Port Alberni Forest Operation will work with government specialists to manage visual landscapes more efficiently – that is, to minimize impacts on timber supply while retaining visual values. This will include:

- Incorporating principles of landscape design in the planning process in areas of high visual sensitivity.
- Recognizing demand as well as supply when assessing appropriate standards for managing visual landscapes.
- Applying silviculture strategies to reduce the time to achieve visually effective green-up.

## Road Access

Recreation users are very concerned about road access to preferred recreation areas. The recreation use of these areas is considered during development of deactivation plans. The goal is to balance environmental risk and recreation access. The objective is to maintain vehicle access to areas of high recreation use, while minimizing environmental risks.

Roads may be gated if there is equipment in the area to protect from vandalism, for safety concerns if timber is partially felled, or to control access to Provincial and National parks.

Strategies to address road access for recreation include:

- Identifying potential and known recreational use areas in the TFL.
- Maintaining established recreation areas with participation from the MoFR.
- Working with recognized caving organizations to protect cave entrances and underground features. Protect cave entrances and underground features by:
  - Restricting falling and yarding.
  - Altering blasting or road building techniques.
  - Excluding sensitive areas from harvesting.
  - Using water management techniques.
  - Using slash management practices.
- Developing site-specific measures to address recreation concerns.

- Seeking advice from the government where public comments indicate there are recreation concerns.
- Where the recreation resource is temporally sensitive, operate within timing windows where practicable. For example, harvesting may be restricted to off-peak periods of use where noise could detract from a wilderness experience such as hiking on the West Coast Trail. Site-specific factors as well as economic impacts are considered when determining if harvest can be delayed to periods of low recreational use.
- It may be necessary to adjust or relocate established trails to accommodate harvesting. Contact, seek input, and incorporate feedback from local recreation groups, individuals who have expressed an interest during the public review process, and the MoFR.
- Rehabilitating significant trails post-harvest.

## First Nations

First Nations groups, living in communities adjacent to Port Alberni Forest Operations or having traditional territories that encompass Port Alberni Forest Operations, are provided opportunities for forest management involvement and economic benefits through:

- Information sharing in planning and in communication of forestry practices and planned activities.
- Employment opportunities in forest management activities subject to constraints of existing labour agreements. Section 6.2.2 of the Maa-nulth Final Agreement provides for each Maa-nulth First Nation to enter into arrangements for economic opportunities with third parties provided the arrangements are consistent with the Agreement.

## Public Information and Involvement

In keeping with the expressed interest of the public in all aspects of forest resource inventory, management, and use, Port Alberni Forest Operations:

- Identifies and advises local and other involved public interest groups, local governments, First Nations, and interested individuals of opportunities for input to the various planning processes and solicits their feedback.
- Advertises and holds public information meetings to enable any member of the public to view and respond to Management Plan proposals and current performance.
- Financially supports and participates fully in activities of the West Island Woodlands Advisory Group. WIWAG is a facilitated, independent, broad-based community group formed with the express objectives of providing advice to Port Alberni Forest Operation on appropriate goals for sustainable forest management and of assessing and commenting on Port Alberni Forest Operation's performance with respect to those goals.

## Forest Monitoring & Research

The overall company objective in forest research is to obtain the knowledge to improve forest management and the conservation and protection of other forest resources and values. The strategy is to:

- Identify and recommend basic and applied research needs to the organizations that have the specific mandate to undertake the work.
- Prepare and submit research proposals for FIA, FSP or other funding programs for projects of particular or strategic concern to the TFL 44 license area.
- Cooperate with research organizations in conducting basic and applied research.
- Test and develop practicable applications and uses of published research that are relevant to Western Forest Products management goals and responsibilities.

Significant areas of research include:

- Forest Ecology – The objectives of the forest ecology research program are to determine the effects of management activities on forest ecosystems, to improve our ability to predict ecosystem response, and to develop biologically sound silviculture prescriptions.
- Silviculture – The silviculture research program focuses on examining silvicultural practices for regeneration through a combination of planting and natural regeneration. Various trials—some with over 20 years of monitoring—examine species, stock types, prescribed burning, mechanical site preparation, vegetation control and fertilization.
- Forest Growth and Yield – The aim of this program is to quantify forest growth and yield across the range of site conditions on the company's tenure. A recent focus of plot establishment has been to examine the impact of variable retention harvesting and edge effects on early establishment and growth.

Major projects in which Western Forest Products is active include:

- The cooperative Salal-Cedar-Hemlock Integrated Research Program (SCHIRP). The objective of this multi-agency project is to determine the processes causing poorly performing plantations on salal-dominated cedar-hemlock sites and to develop silviculture treatments.
- MASS — Montane Alternative Silvicultural Systems. This research cooperative was established in 1992 to examine alternative approaches for managing high elevation forests. Research projects are examining a full range of impacts, including regeneration, windthrow, nutrition, genetics, pathology, vegetation and biological diversity. For project descriptions, a listing of reports and publications, and brief summaries of findings from some of over 20 studies that are examining the economic and biological impacts see the MASS website, maintained by the Canadian Forest Service, Pacific Forestry Centre at: [www.pfc.cfs.nrcan.gc.ca/silviculture/mass/index\\_e.html](http://www.pfc.cfs.nrcan.gc.ca/silviculture/mass/index_e.html).

The following research and monitoring projects were active in 2010:

- Variable Retention Adaptive Management Experimental Sites
- Forest Structure Monitoring
- VRAM Bird Monitoring (wrap up report)
- Northern Goshawk Nest Territory Monitoring
- Old Growth Specklebelly Lichen Survey

- Effects of Retention on Carabid Beetles
- Species Accounting System
- SCHIRP – data analysis
- Yellow Cypress Clonal Trials
- Pollination Dynamics in Douglas-fir
- Growth & Yield Permanent Sample Plots & Edge Regeneration Studies

## Glossary

### Acronyms

AAC	Annual Allowable Cut	LU	Landscape Unit
ADSS	Alberni District Secondary School	MoE	BC Ministry of Environment
AIA	Archaeological Impact Assessment	PAFO	Port Alberni Forest Operations
AOA	Archaeological Overview Assessments	RIR	Recordable Incident Rate
BEC	Biogeoclimatic Ecosystem Classification	MoF	BC Ministry of Forests and Range
BEO	Biodiversity Emphasis Option	MP	Management Plan
CHR	Cultural Heritage Resources	NSR	Not Sufficiently Restocked
CFS	Canadian Forest Service	NTPP	Non-Timber Forest Product
CMT	Culturally Modified Tree	OGMA	Old Growth Management Area
CRP	Cultural Referral Process	PMP	Pest Management Plan
CSA	Canadian Standards Association	RG	Regen
CWAP	Coastal Watershed Assessment Procedure	RMA	Riparian Management Area
CWD	Course Woody Debris	RMZ	Riparian Management Zone
CWS	Community Watersheds	RRZ	Riparian Reserve Zone
EBITA	Earnings before Interest, Taxes, Depreciation & Amortization	SEI	Sensitive Ecosystem Inventory
EMS	Environmental Management System	SFM	Sustainable Forest Management
ESA	Environmentally Sensitive Areas	SFMP	Sustainable Forest Management Plan
EVC	Existing Visual Condition	SMZ	Special Management Zone
DFA	Defined Forest Area	SOP	Standard Operating Procedure
DWR	Deer Winter Range	SP	Silviculture Prescription (pre Dec 17-02) Site Plan (post Dec 17-02)
FC	Falling Corner	SU	Standards Units
FEN	Forest Ecosystem Network	SUP	Special Use Permits
FG	Free Growing	TEK	Traditional Ecological Knowledge
FIA	Forest Investment Account	TFL	Tree Farm License
FPC	Forest Practices Code	TSFA	Terrain Stability Field Assessment
FPPR	Forest Practice Planning Regulation	TUS	Traditional Use Study or Traditional Use Site
FRPA	Forest and Range Practices Act	UWR	Ungulate Winter Range
FSP	Forest Stewardship Plan	VQO	Visual Quality Objective
GIS	Geographic Information System	VR	Variable Retention
GPS	Global Positioning System	WHA	Wildlife Habitat Area
HCV	High Conservation Value	WIT	West Island Timberlands
ILMB	Integrated Land Management Bureau	WIWAG	West Island Woodlands Advisory Group
ISO	International Organization for Standardization	WLAP	BC Ministry of Water, Land and Air Protection (now the Ministry of Environment)
LRSY	Long Run Sustained Yield	WTP	Wildlife Tree Patch
LTHL	Long Term Harvest Level		

## Definition of terms

**Aboriginal:** “aboriginal peoples of Canada’ [which] includes Indian, Inuit and Métis peoples of Canada” (Constitution Act 1982 s35(2)).

**Aboriginal Right:** “in order to be an Aboriginal right an activity must be an element of a practice, custom, or tradition (or an element thereof) integral to the distinctive culture of an Aboriginal group claiming that right”. [*R. v. Van der Peet*, 1996].

**Aboriginal Title:** “is a right to the land itself, is a collective right to the land held by all members of an aboriginal organization. ...encompasses the right to use the land pursuant to that title for a variety of purposes, which need not be aspects of those aboriginal practices, cultures and traditions which are integral to the distinctive aboriginal cultures”. [*Delgamuukw v. British Columbia*, 1997].

**Aboriginal treaty rights:** “are those contained in official agreements between the Crown and the native peoples”. [*R. v. Badger* 1996].

**Adaptive Management:** a learning approach to management that recognizes substantial uncertainties in managing forests and incorporates into decisions experience gained from the results of previous actions.

**Allowable Annual Cut (AAC):** The allowable rate of timber harvest from a specified area of land. The Chief Forester of British Columbia sets AACs for timber supply areas (TSAs) and tree farm licenses (TFLs) in accordance with Section 8 of the Forest Act.

**At-risk species:** See Species at-risk.

**Biodiversity Emphasis Option (BEO):** The provincial government assigns low, intermediate, or high BEOs to Landscape Units depending on a range of management priorities (i.e. timber production, wildlife habitat and biodiversity conservation). The main result is a designation of the area of old growth forest that should be maintained in the Landscape Unit.

**Biogeoclimatic Ecosystem Classification (BEC):** Developed in BC in 1965, the BEC System classifies areas of similar regional climate, expected climax plant communities and site factors such as soil moisture and soil nutrients. The subzone is the basic unit of this classification system. Within subzones, variants further identify more local climatic factors. A handbook can be obtained from <http://www.for.gov.bc.ca/hfd/pubs/docs/lmh/lmh28.htm/>

**Biogeoclimatic zone:** a geographic area having similar patterns of energy flow, vegetation and soils as a result of a broadly homogenous macroclimate.

**Biogeoclimatic variant:** A unit of ecosystem classification reflecting differences in regional climate resulting in differences in vegetation, soil and ecosystem productivity. (See Biogeoclimatic Ecosystem Classification).

**Biological diversity:** The diversity of plants, animals, and other living organisms in all their forms and levels of organization, including genes, species, ecosystems, and the evolutionary and functional processes that link them.

**Biomass:** the total amount (mass) of living matter in a given ecosystem, population, or sample. Note: *In the context of sustainable forest management, biomass usually refers to plant matter.*

**Blue-listed:** Refers to plants, animals, and plant communities assessed by the BC Conservation Data Centre or COSEWIC to be vulnerable.

**Carbon budget:** Account of carbon concentrations in cycles and sinks.

**CENGEA:** Provides resource planning and management software solutions for: Forestry; Agriculture; Bioenergy; Environment & Land Conservation <http://www.cengea.com/>

**Chief Forester:** the assistant deputy minister of the deputy minister of the Ministry of Forests who is responsible for determining allowable annual cuts (AACs).

**Coarse Woody Debris:** all large deadwood in various stages of decomposition. Note: Coarse woody debris includes standing dead trees, fallen wood, stumps, and roots.

**Coastal Watershed Assessment Procedure (CWAP):** Assesses the impacts of forest practices on the hydrologic regime of a watershed. In particular, the potential for changes to peak stream flows, accelerated landslide activity, accelerated surface erosion, channel bank erosion and changes to channel morphology as a result of logging the riparian vegetation, and changes to the stream channel interaction from all these processes are assessed.

**Compliance:** the conduct or results of activities in accordance with legal requirements.

**Conformance:** meeting non-legal requirements such as policies, work instructions or standards (including the CSA standard).

**Connectivity:** A qualitative term describing the degree to which late successional ecosystems are linked to one another to form an interconnected network.

**Criterion:** Under the CSA standard for sustainable forest management, one of six distinguishable SFM characteristics (as defined by the Canadian Council of Forest Ministers: Defining Sustainable Forest Management: A Canadian Approach to Criteria and Indicators, Ottawa, 1995); also, a value that must be considered in setting objectives and in assessing performance.

**Critical Element:** Under the CSA standard for sustainable forest management, a subsidiary component of a criterion. (See criterion.).

**Cultural heritage resource (CHR):** An object, a site or the location of a traditional societal practice that is of historical, cultural or archaeological significance to the province, a community or an aboriginal people. Cultural heritage resources include archaeological sites, structural features, heritage landscape features and traditional use sites.

**Culturally Modified Tree (CMT):** Tree that has been altered by native people as part of their traditional use of the forest.

**Cutblock:** Defined in the Forest Practices Code of British Columbia Act as a specific area of land identified on a forest development plan, or in a license to cut, road permit, or Christmas tree permit, within which timber is to be or has been harvested. (Also see opening.)

**Defined Forest Area (DFA):** a specific area of forest, including land and water (regardless of ownership or tenure) to which the requirements of the CSA standard apply. The DFA may or may not consist of one or more contiguous blocks or parcels.

**DFA-related Worker:** any individual employed by the organization to work for wages or a salary who does not have a significant or substantial share of the ownership in the employer's organization and does not function as a manager of the organization.

**EBITDA:** stands for "Earnings Before Interest, Taxes, Depreciation, and Amortization". The equation for calculating EBITDA is:  $EBITDA = \text{Sales} - \text{Cost of Goods Sold (excluding depreciation)} - \text{Overhead Costs}$ . Another way to think of EBITDA is that it is a rough measure of the cash flow being generated by an operating unit.

**Ecosystem:** A functional unit consisting of all the living organisms (plants, animals and microbes) in a given area, and all the non-living physical and chemical factors of their environment, linked together through nutrient cycling and energy flow. An ecosystem can be of any size – a log, pond, field, forest, or the earth's biosphere – but it always functions as a whole unit.

**Element:** the subcategory used to define the scope of each SFM criterion. Note: Each SFM criterion contains several elements. The SFM elements were derived from the national-scale elements developed by the CCFM for more specific local applications.

**Environmentally Sensitive Area (ESA):** Area requiring special management attention to protect important scenic values, fish and wildlife resources, historical and cultural values, or other natural systems or processes. ESAs include unstable soils that may deteriorate unacceptably after harvesting, and areas of high value to non-timber resources such as fisheries, wildlife, water and recreation.

**Environmental Management System (EMS):** A structured system for identifying and ranking the environmental risk associated with management activities; creating and implementing control methods to manage that risk; monitoring and assessing performance; and taking corrective action to address deficiencies under a continual improvement program.

**Focal species:** species that warrant special conservation attention and are thus used to guide the management of ecosystems to conserve biodiversity. Note: Criteria for the selection of focal species can include ecological, socio-cultural, scientific, and economic considerations.

**Forecast:** An explicit statement of the expected future condition of an indicator.

**Forest influence area:** The area within an opening that is within one tree height of a timber edge.

**Forest Investment Account (FIA):** Successor program to Forest Renewal BC.

**Forest and Range Practices Act (FRPA):** The Forest and Range Practices Act and its regulations govern the activities of forest and range licensees in B.C. The statute sets the requirements for planning, road building, logging, reforestation, and grazing. FRPA and its regulations took effect on Jan. 31, 2004.

**Forest Stewardships Plan (FSP):** Under the Forest and Range Practices Act and its regulations, all major tenure holders – companies, groups or individuals with logging rights on Crown land – must prepare a forest stewardship plan. The FSP is the cornerstone of the results-based approach governing forest practices under the Act. In their plans, tenure holders must state explicitly how they will address government objectives for key forest values, such as soils and wildlife. These proposals are the “results” of the results-based framework. A FSP must address objectives set by government to preserve the integrity of the environment and to enable sustainable commercial forest and rangeland practices. Tenure holders address these objectives by crafting results or strategies, which are required to be measurable and enforceable, contributing to effective compliance and enforcement by government.

**Fragmentation:** The process of transforming large continuous forest patches into one or more smaller patches surrounded by disturbed areas. This occurs naturally through such agents as fire, landslides, windthrow and insect attack. In managed forests timber harvesting and related activities have contributed to fragmentation. (Also see Connectivity).

**Free Growing:** A stand of healthy trees of commercially valuable species, the growth of which is not impeded by competition from plants, shrubs or other trees. Silviculture regulations further define the exact parameters that a stand of trees must meet (such as species, density and size) to be considered free growing.

**Genetically modified organism (GMO):** an organism that, through human intervention in a laboratory, has had its genome or genetic code deliberately altered through the mechanical insertion of a specific identified sequence of genetic coding material (generally DNA) that has been either manufactured or physically excised from the genome of another organism. Note: Genetic modification can be used to alter a wide range of traits, including insect and disease resistance, herbicide tolerance, tissue composition, and growth rate (adapted from Alberta Forest Genetic Resources Council statement).

**Goal:** A broad, general statement that describes a desired state or condition related to one or more forest values.

**Green-up:** A reforested cutblock with a stand of trees that has attained the height specified in a higher level plan for the area or that, in the absence of a higher level plan, has attained a height of at least 3 meters is said to have achieved green-up.

**Guidebook:** Guidebooks consist of guidelines and recommendations on how to best achieve the requirements of the Forest Practices Code. They are not legally enforceable. However, specifications and procedures recommended by the guidebooks may be incorporated into plans, prescriptions and contracts in which case those specifications and procedures may become legally enforceable.

**High Conservation Value (HCV) area:** An area in which the conservation of any of numerous social or ecological values is deemed to have an especially high priority. Harvesting in HCV areas is typically very restricted and depending on the nature of the identified value(s) may be precluded entirely. Identification of HCV areas may result from information supplied by First Nations, government agencies, company personnel or other stakeholders. (See Environmentally Sensitive Area).

**Hoe-Chucking:** A hoe-chucking operation is where a machine picks up the logs and moves them over the ground so there is little or no ground disturbance.

**Indicator:** A measurable variable used to report progress toward the achievement of a goal.

**Inoperable lands:** Lands that are unsuited for timber production by virtue of their: elevation; topography; inaccessible location; low value of timber; small size of timber stands; steep or unstable soils that cannot be harvested without serious and irreversible damage to soil or water resources; or designation as parks, wilderness areas, or other uses incompatible with timber production.

**Invasive alien species:** plants, animals, or micro-organisms that have been introduced by human action outside their natural past or present distribution, and whose introduction or spread threatens the environment, the economy, or society, including human health. [CFIA, 2006]

**ISO standard:** Refers to ISO 14001, a generic international standard approved by the International Organization for Standardization to provide any organization with the elements of an effective Environmental Management System to support environmental protection and prevention of pollution.

**Landing:** An area modified as a place to accumulate logs before they are transported.

**Landscape level:** A watershed, or series of interacting watersheds or other natural ecological units. This term is used for conservation planning and is not associated with visual landscape management.

**Landscape unit:** For the purpose of the forest practices code, landscape units are planning areas delineated on the basis of topographic or geographic features. Typically they cover a watershed or series of watersheds, and range in size from 5000 to 100 000 ha.

**Localized populations:** Typically exhibit a gene pool that is distinct from less isolated populations.

**Long Run Sustained Yield (LRSY):** Maximum harvest level that can be sustained in perpetuity, based on harvesting at the age of culmination of mean annual increment and considering management assumptions.

**Maa-Nulth Treaty:** The treaty will bring certainty with respect to each Maa-nulth First Nation's rights to use, own and manage lands and resources throughout its claimed traditional territory. It will provide the Maa-nulth First Nations with modern governance tools to build strong and workable relationships with other governments, including federal, provincial and local governments.  
<http://www.maanulth.ca/>

**Mature forest:** Stands of timber where the age of the leading species is greater than the specified cutting age. Cutting ages are established to meet forest management objectives.

**MIR (Medical Incidence Rate):** A recordable measure for which an employee receives first aid, medical aid, or medical treatment for a workplace incident that results in the employee unable to return to their regular duties or is required to performed restricted duties on the advice of a physician. Incidents resulting from a pre-existing injury or for unspecified pain management are not included in the MIR.

**Migratory bird:** the sperm, eggs, embryos, tissue cultures, and other parts of a migratory bird as defined in the Migratory Birds Convention Act, 1994.

**Native species:** a species that occurs naturally in an area; a species that is not introduced.

**Non-timber forest products (NTFPs):** All forest products except timber, including other materials obtained from trees such as resins and leaves, as well as any other plant and animal products.

**Not Satisfactorily Restocked (NSR):** Productive forest land that has been denuded and has failed, partially or completely to regenerate either naturally or by planting or seeding to the specified or desired free growing standards for the site.

**Old growth forest:** a forest that contains live and dead trees of various sizes, species, composition and age class structure. Old-growth forests, as part of a slowly changing but dynamic ecosystem, include climax forests but not sub-climax or mid-seral forests. The age and structure of old growth varies significantly by forest type and from one biogeoclimatic zone to another. As a rough measure, forests on the BC Coast that are aged 250 years or older and exhibit few or no signs of human intervention are generally termed old growth.

**Opening:** Usually used synonymously with cutblock (see above) to include all of an area that has been harvested or is designated for harvesting, including the trees retained singly or in groups within the area. Less often, used to describe the actual cleared area(s) within a cutblock.

**Permanent access structure:** A structure, including a road, bridge, landing, gravel pit or other similar structure, that provides access for timber harvesting. It is shown expressly or by necessary implication on a forest development plan, access management plan, logging plan, and road permit or silviculture prescription as remaining operational after timber harvesting activities on the area are complete.

**Productive forest:** Forest land that is capable of producing a merchantable stand of timber within a defined period of time.

**Protected area:** an area of land and/or sea specifically dedicated to the protection and maintenance of biological diversity and of natural and associated cultural resources, and managed through legal or other effective means. [IUCN, 1994]

**Provenance:** The geographical area and environment to which the parent trees and other vegetation are native, and within which their genetic constitution has been developed through natural selection.

**Reforestation:** Establishment of a new stand of trees after harvesting or natural disturbance by either planting or natural regeneration. Before receiving approval to harvest on crown lands, a forester must submit a Silviculture Prescription describing, among other things, the manner and time frame within which reforestation will be conducted.

**Red-listed:** Refers to plants, animals and plant communities assessed by the BC Conservation Data Centre to be extirpated, endangered or threatened.

**Reserve zones:** Zones where harvesting is not permitted.

**Riparian:** An area of land adjacent to a stream, river, lake or wetland that contains vegetation that, due to the presence of water, is distinctly different from the vegetation of adjacent upland areas.

**S1-6 stream:** Stream classification system for riparian management. S1 to S4 streams are fish streams or streams in a community watershed. S5 and S6 streams are not fish streams and are not in a community watershed. Each class also denotes a range of stream width: S1 is >20m, S2 is >5-20m, S3 is = 1.5-5m and S4 is <1.5m; for streams that are non-fish bearing or not within a community watershed, S5 is >3m and S6 is <3m.

**Second growth:** Typically younger (i.e., less than 120 years on the BC Coast) forests that have been established by planting and/or natural regeneration after removal of a previous stand by fire, harvesting, insect attack or other cause. (See mature and old growth.)

**Sensitive soils:** Forest land areas that have a moderate to very high hazard for soil compaction, erosion, displacement, landslides or forest floor displacement.

**Seral stage:** an identifiable stage of vegetative recovery following a disturbance. Note: Disturbances include fire, blowdown, and timber harvest. Early seral is <40 years old; Mid seral is 40-80 years old in CWH zone and 40-120 years old in MH zone; Mature seral is 81-250 years old in CWH zone and 121-250 years old in MH zone; Old seral is >250 years old.

**Silvics:** Study of the life history and general characteristics of forest trees and stands with particular reference to site factors and population genetics. It is also the study of how trees establish, grow and behave in relation to sites, each other and other organisms.

**Silviculture:** The art and science of controlling the establishment, growth, composition, health and quality of forests and woodlands. Silviculture entails the manipulation of forest and woodland vegetation in stands and on landscapes to meet the diverse needs and values of landowners and society on a sustainable basis.

**Silviculture Plan (SP):** A site-specific integrated operational plan to carry out one or a series of silviculture treatments.

**Silviculture system:** A planned program of treatments throughout the life of the stand to achieve defined objectives. A silviculture system includes harvesting, regeneration and stand-tending. It covers all activities for the entire length of a rotation or cutting cycle. In BC this includes seven major categories: clearcut, patch-cut, coppice, seed tree, shelterwood, retention and selection.

**Site series:** A unit of ecosystem site classification that represents climatically uniform groups of ecosystems regardless of the actual vegetation residing.

**Snag:** A large standing dead tree.

**Species at-risk:** species defined as at risk by national and provincial legislation applicable to a given DFA.

**Soil cover:** Layer(s) of organic matter under various degrees of decomposition, which covers the mineral soil.

**Species of special interest:** Species deemed not at-risk whose habitat needs nevertheless require particular attention. Identification of these species is normally facilitated by regulatory agencies in consultation with stakeholders.

**Stand level:** Level of forest management at which a relatively homogenous land unit can be managed under a single prescription, or a set of treatments, to meet well-defined objectives.

**Structural diversity:** Variety of canopy layers (vertical structure) and spatial patchiness (horizontal structure).

**Sustainable Forest Management (SFM):** Management to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social, and cultural opportunities for the benefit of present and future generations.

**Sustainable harvest level:** the harvest level of forest products that, with consideration for ecological, economic, social, and cultural factors, leads to no significant reduction of the forest ecosystem's capacity to support the same harvest level in perpetuity.

**Target:** A clear, specific statement of expected quantifiable results to be achieved within a defined period of time related to one or more objective. A target is commonly stated as a desired level of an indicator.

**Timber Supply Analysis:** An assessment of future timber supplies over long planning horizons (more than 200 years) by using timber supply models for different scenarios identified in the planning process.

**Traditional ecological knowledge (TEK):** Knowledge that aboriginal people have accumulated over countless generations of intimate contact with all aspects of local ecosystems, including plants, animals and other natural phenomena.

**Value:** A principle, standard, or quality considered worthwhile, desirable or otherwise important for consideration in management planning.

**Variable Retention (VR):** A relatively new approach to harvesting and silviculture systems that follows nature's model by always retaining part of the forest after harvesting. Standing trees are left in dispersed and/or grouped patterns to meet objectives such as retaining old growth structure, habitat protection and visual quality. Variable retention retains structural features (snags, large woody debris, live trees of varying sizes and canopy levels) as habitat for a host of forest organisms and maintains forest and residual tree influences. There are two main types of variable retention: dispersed retention, which retains individual trees scattered throughout a cutblock, and aggregate (or group) retention, which retains trees in patches of intact forest.

**Visual Quality Objective (VQO):** An approved resource management objective that reflects a desired level of visual quality based on the physical and sociological characteristics of the area; refers to the degree of acceptable human alteration to the characteristic landscape.

**Watershed:** the total land area from which water drains into a particular stream or river. [Hubbard et al., 1998].

**Wildlife tree:** A standing live or dead tree with special characteristics that provide valuable habitat for the conservation or enhancement of wildlife.

**Windthrow:** Trees uprooted as a result of wind events.

**Yarding:** In logging, the hauling of felled timber to the landing or temporary storage site from where trucks (usually) transport it to the mill site. Yarding methods include cable yarding, ground skidding, and aerial methods such as helicopter yarding.

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WESTERN FOREST PRODUCTS INC.

# **SFM Plan**

## **Appendix 1: VOIT Table**

Port Alberni Forest Operation

Revised: April 7, 2011



## CCFM Criterion 1: Biological Diversity

Conserve ecosystem diversity at the stand and landscape levels by maintaining the variety of communities and ecosystems that naturally occur in the DFA.

1.1 Ecosystem Diversity								
Conserve ecosystem diversity at the stand and landscape level by maintaining the variety of communities and ecosystems that naturally occur in the DFA.								
Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
Older seral stages by ecosystem type on the DFA	Older seral stages by ecosystem type are maintained	1.1.1	Ecosystem area by type	All ecosystem types by biogeoclimatic variant have greater than 50% of the productive forest area in mid to older seral stages over time	+/- 5%	The biogeoclimatic variants in the DFA represent a wide range of climatic conditions resulting in differences in vegetation, soil, and ecosystem productivity. Historically, timber harvesting has focused in productive variants that yield quality forest products. The long history of timber harvesting in the DFA has generated a majority state of older age classes across the variants and the related attributes for flora and fauna. The 50% level for ecosystem area by type and seral stage provides reasonable assurance that there is adequate representation of each existing ecosystems types in their older age stages being maintained and replaced at all times on the DFA. The variance is to account for natural disturbances associated with insects, disease, windthrow, wildfire, and land use decisions.	Operations Engineer	GIS Analysis (after year end harvesting updated in Cengea)
The representation of commercial species on the DFA	Species conversion on the DFA is limited	1.1.2	Forest area by type or species composition	The three year movement in the representation of each commercial tree species (as expressed by the forest area by species composition) in the inventory is stable over time using 2009 as the baseline level	+/- 0.5% by species – sliding over 3 years	The target is based on the linkage between the natural occurrence of commercial species in the DFA and the FRPA requirement to regenerate ecologically acceptable species. The variance is to account for the artificial regeneration (tree planting) that will occur to favour the more desirable commercial species and the potential changes in climatic conditions.	Operations Forester	GIS Analysis
The older age classes on the DFA	Older age classes on the DFA are gradually reduced	1.1.3	Forest area by seral stage or age class	81-251+ age classes are reduced by less than 2% of the productive forest area over a five year average	+0.25%	Timber harvesting in the DFA has historically focused on old growth stands because of its availability and the customer demand. There is an emerging market for forest products from younger seral stages (second growth) also available from the DFA. The target and variance are based on the available harvestable ages classes, customer demand, and the desire to maintain the stand attributes of older age classes. The target of less than 2% reflects a gradual reduction in older age classes but also accounts for 5 year periods when most harvesting may come from the older age classes.	Operations Engineer	GIS Analysis
The variety of structure at the stand level	Habitat for selected focal species, including species at risk. A portion of the existing stand structure is retained	1.1.4	Degree of within-stand structural retention	The average within-stand retention level of all cutblocks harvested in the year is no less than 15% of the total area under prescription	-1%	The target is based on a combination of a FRPA requirement for stand retention and the WFP Variable Retention (VR) Strategy which is guided by principles associated with the Vancouver Island Land Use Plan (VILUP). The variance is to account for situations where the harvest may be directed towards zones (e.g. Enhanced Forestry Zone) where retention requirements are less.	Operations Engineer	Variable Retention Tracking Spreadsheet

Element: 1.2 Species Diversity									
Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained through time, including habitats for known occurrences of species at risk.									
Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement	
Habitat for focal species, including species at risk existing in the DFA	Maintain or increase habitat for selected focal species, including species at risk	1.2.1	Degree of habitat protection for selected focal species, including species at risk	The amounts (in ha) of habitat protected for selected focal species remains the same or increase year after year	Decrease by 1%	<p>The target is based on legal requirements under FRPA and the government initiatives underway through Land Use Planning processes and strategies such as the Identified Wildlife Management Strategy. The variance is meant to help account for fluctuation due to spatial issues (e.g. map base or scale) and natural disturbance factors.</p> <p>"Habitat, in terms of both quantity and quality, is a key component of the health of species and animal populations"(CSA Sustainable Forest Management, 2008). Forest management can have both positive and negative effects for wildlife and their habitat. It is important to ensure forest habitat necessary to the survival of species is available for use in the short-term and long-term. Habitat reserved for focal species also contributes to the habitat needs of many other wildlife species.</p> <p>Ungulate winter ranges are areas identified as critical to the survival of local populations of ungulates during severe winters. On Vancouver Island, black-tailed deer and Roosevelt elk need areas with suitable forest and topographical features that are able to provide shelter, forage and snow interception. Roosevelt elk are on the BC provincial blue-list and have a BC Conservation Framework Priority 2 (BC Species and Ecosystems Explorer, 2010) as well as having local and cultural importance. Black-tailed deer are not considered a species of concern but have local importance for food, economic opportunity and recreation.</p> <p>Marbled murrelets are small seabirds that nest inland with a majority of nests being found on large boughs high in old conifers up to 30 km inland. Much work has been done along the coast to identify and rank suitable nesting habitat for marbled murrelets. Marbled murrelets are listed as Threatened on Schedule 1 of the Federal Species at Risk Act (SARA), provincially blue-listed, listed on the Forest and Range Practices Act (FRPA) Category of Species at Risk and considered Identified Wildlife, and have a BC Conservation Framework Priority of 1 (BC Species and Ecosystems Explorer, 2010). Identified Wildlife are considered to be sensitive to habitat alteration associated with forest and range practices and are considered to be at risk (endangered, threatened, vulnerable or regionally important).</p> <p>Northern Goshawks are a relatively large forest dwelling hawk. They need a closed canopy forest with an open understory for nesting and foraging. The coastal subspecies is listed as Threatened on SARA Schedule 1, provincially red-listed, listed on the Forest and Range Practices Act (FRPA) Category of Species at Risk and are considered Identified Wildlife, and have a Conservation Priority of 1.</p> <p>The Northern Red-legged Frog is a moderate-sized frog occurring from southwestern BC to northwestern California. It generally inhabits moist, lower elevation forests and requires both aquatic breeding habitat and terrestrial foraging habitat. The Red-legged Frog is listed as Special Concern on SARA Schedule 1, provincially blue-listed, listed on the Forest and Range Practices Act (FRPA) Category of Species at Risk and is considered Identified Wildlife, and has a Conservation Priority of 1.</p> <p>Scouler's corydalis is a 60 – 120 cm tall plant with rosy-pink, spurred flowers. It is limited in distribution to the Pacific Northwest and in BC is only found on southwestern Vancouver Island. Scouler's corydalis is not listed by SARA, has been provincially down-listed to yellow and has a Conservation Priority of 3. It is listed on the Forest and Range Practices Act (FRPA) Category of Species at Risk and is considered Identified Wildlife</p>	Operations Engineer	GIS Analysis	

**Element: 1.2 Species Diversity**  
*Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained through time, including habitats for known occurrences of species at risk.*

Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
Availability of suitable habitat for selected focal species, including species at risk existing in the DFA	To ensure the long-term availability of habitat for selected focal species including species at risk	1.2.2	Degree of suitable habitat in the long term for selected focal species, including species at risk	The amount (in ha) of potentially suitable habitat available within WHA, UWR, OGMA and NCLB remains the same or increases over time(measured every 5 yrs)	UWR – decrease by 1% MAMU – decrease by 2%	<p>The target and variance are based on legal requirements under FRPA regarding established protection/ management areas for species at risk, ungulates, and old growth management. The variance is meant to help account for fluctuation due to spatial issues (e.g. map base or scale) and natural disturbance factors. For marbled murrelet the variance is also to account for the inaccuracies of the modelling and the inability to predict the quality of the habitat.</p> <p>Some species need habitat that includes mature to old trees for their survival. Habitat currently unsuitable for species may develop the attributes necessary for the survival of the species as it ages. It is important to ensure critical habitat will be available in the long-term. Long-term is defined as twice the average life expectancy of the predominate trees in a DFA, up to a maximum of 300 years. Tree species within the DFA are long lived and the long-term is defined as the maximum of 300 years.</p> <p>Ungulate winter ranges are areas identified as critical to the survival of local populations of ungulates during severe winters. On Vancouver Island, black-tailed deer and Roosevelt elk need areas with suitable forest and topographical features that are able to provide shelter, forage and snow interception. Roosevelt elk are on the BC provincial blue-list and have a BC Conservation Framework Priority 2 (BC Species and Ecosystems Explorer, 2010) as well as having local and cultural importance. Black-tailed deer are not considered a species of concern but have local importance for food, economic opportunity and recreation.</p> <p>Marbled murrelets are small seabirds that nest inland with a majority of nests being found on large boughs high in old conifers up to 30 km inland. Much work has been done along the coast to identify and rank suitable nesting habitat for marbled murrelets. Marbled murrelets are listed as Threatened on Schedule 1 of the Federal Species at Risk Act (SARA), provincially blue-listed, listed on the Forest and Range Practices Act (FRPA) Category of Species at Risk and considered Identified Wildlife, and have a BC Conservation Framework Priority of 1 (BC Species and Ecosystems Explorer, 2010). Identified Wildlife are considered to be sensitive to habitat alteration associated with forest and range practices and are considered to be at risk (endangered, threatened, vulnerable or regionally important).</p>	Operations Engineer	GIS Analysis
Native tree species replacement on the DFA	Native tree species harvested on the DFA are replaced by native tree species	1.2.3	Proportion of regeneration comprised of native species	97% of the trees planted annually will be native species	-5.0%	<p>The target is based on legal requirements under FRPA and the associated Chief Forester's Standards for Seed Use.</p> <p>The variance is based on possible future regeneration that includes a small proportion of Noble Fir (a non-native species).</p> <p>Noble fir is a desirable species to reforest on TFL 44 at elevations greater than 700 meters due to its tolerance to heavy snow packs and its wood quality. At higher elevations where the planting of Douglas Fir is limited by snowpack, Noble fir becomes a good option. Young Noble Fir seedlings are very stiff and sturdy, possessing a large caliper at a young age and browse resistant. This allows these trees to be successful on areas with a high snowpack, on slopes with heavy snowfall, and areas of high ungulate use. Unlike other true firs, such as Amabilis Fir, Noble Fir produces a stronger more durable wood, with a very high strength-to-weight ratio.</p> <p>Research completed by the Ministry of Forests in 1992 found Noble Fir grows well on sites in the warmer variants of the Dry and Moist Maritime Coastal Western Hemlock subzones, and the wetter variant of the moist Mountain Hemlocks subzone. This is consistent to the future planting strategy of Noble Fir on TFL 44.</p>	Operations Forester	SPAR Database, Cengea Database

**Element: 1.3 Genetic Diversity**  
*Conserve genetic diversity by maintaining the variation of genes within species and ensuring that reforestation programs are free of genetically modified organisms.*

Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
Genetically modified organisms on the DFA	Genetically modified organisms are not introduced in the DFA	1.3.1	The percent of the trees planted annually that is genetically modified organisms	The percent of the trees planted annually that is genetically modified organisms is 0%	None	The target aligns with the current legal status: no genetically modified organisms are currently allowed.	Operations Forester	SPAR Database, Cengea Database

**Element: 1.4 Protected Areas & Sites of Special Biological or Cultural Significance**  
*Respect protected areas identified through government processes. Co-operate in broader landscape management related to protected areas and sites of special biological and cultural significance. Identify sites of special geological, biological, or cultural significance within the DFA and implement management strategies appropriate to their long-term maintenance.*

Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
Sites of special geological, biological, or cultural significance in the DFA	Management of sites of special geological, biological, or cultural significance in the DFA	1.4.1	Proportion of identified sites with implemented management strategies	100% of identified sites have implemented management strategies	-1 site per year	Some sites (e.g. karst sites, eagle nests) are managed consistent with legal requirements. Sites without legal requirements will be managed where practical with input from willing interest groups. The variance addresses unanticipated categories of special sites without legal requirements and currently known management strategies.	Operations Engineer	GIS Analysis, Site Plans, Harvest Instructions, Road Instructions, EMS Inspections
Identified sacred and culturally important sites on the DFA	Provide protection for identified sacred and culturally important sites on the DFA	1.4.2	Protection of identified sacred and culturally important sites	100% of identified sacred and culturally important sites, (i.e., archaeological sites) are managed according to measures jointly developed by WFP and First Nations	-10%	Legal requirements under Heritage Conservation Act, FRPA and results/ strategies from the Forest Stewardship Plan for management of Cultural Heritage Resources. The target and the variance reflect the requirement to mitigate or control potential effects on identified culturally important sites.	Operations Engineer	Cengea ForestOps, Site Plans, Harvest Instructions, Road Instructions, EMS Inspections
Sensitive ecosystems in the DFA	Sensitive ecosystems are identified and their important qualities protected	1.4.A	% of Planners trained in the Sensitive Ecosystem Inventory in the previous 24 months	75%	-10%	To identify and protect sensitive ecosystems the training of field planners in recognition and management options is important. Multiple planners visit an area during road and cutblock development; therefore, if at least 75% of the planners receive training the area will be adequately assessed. Training on a 24 month cycle is reasonable given that the status of sensitive ecosystems is relatively static. The variance accounts for planners who are new to the DFA or who may work on a casual basis.	Operations Forester	WFP Training Database

## CCFM Criterion 2: Forest Ecosystem Condition and Productivity

*Conserve forest ecosystem condition and productivity by maintaining the health, vitality, and rates of biological production.*

### Element: 2.1 Forest Ecosystem Resilience

*Conserve ecosystem resilience by maintaining both ecosystem processes and ecosystem conditions.*

Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
The timely establishment of regeneration on the DFA	Harvested areas on the DFA are regenerated promptly	2.1.1a	Reforestation success	Hectares of forest land missing its milestone obligation annually is zero	None	The target and variance are tied to legal requirements under FRPA.	Operations Forester	MOFR Results Database
The uptake and storage of carbon on the DFA	The uptake and storage of carbon is enhanced	2.1.1b	Reforestation success	Equivalent years of Not Sufficiently Reforested (NSR) expressed as a five year rolling average is less than two years	+0.75 years	The target is based on legal requirements under FRPA for regeneration delay. The variance allows for minor discrepancies related to the challenges surrounding forecasting seed and seedling requirements one to two years ahead based on estimated harvest levels/ plans.	Operations Forester	Cengea Database

### Element: 2.2 Forest Ecosystem Productivity

*Conserve forest ecosystem productivity and productive capacity by maintaining ecosystem conditions that are capable of supporting naturally occurring species. Reforest promptly and use tree species ecologically suited to the site.*

Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
The productivity of the DFA	The productivity of the DFA is maintained over time	2.2.1a	Additions and deletions to the forest area	The net percent of forest area harvested each year in the DFA that is converted to permanent access structure (PAS) does not exceed 7%	+1%	The target and variance is based on legal requirements under FRPA. PAS is permitted to exceed 7% in specific situations for variables such as safety considerations, terrain constraints, etc. provided appropriate rationale is documented.	Operations Forester	Cengea Database, EMS Post-Harvest Inspections
The conversion of forest land to other uses	Avoid excessive conversion of forest lands into other uses	2.2.1b	Additions and deletions to the forest area	The net percent of the DFA forest land that is annually converted to other uses (Special Use Permits (SUP), etc.) is less than 0.001%	+0.0005%	Given the long history of timber harvesting in the DFA and the existing infrastructure only very small amounts of forest land are targeted for conversion to other uses. Some losses are required for capacity expansion such as Dryland Sorts, landfills, etc. Similarly, the reclaiming of previously converted lands is very site specific and usually associated small areas in the DFA. Areas most commonly reclaimed are decommissioned roads.	Operations Forester	Info from Corporate Properties Staff

### Element: 2.2 Forest Ecosystem Productivity

*Conserve forest ecosystem productivity and productive capacity by maintaining ecosystem conditions that are capable of supporting naturally occurring species. Reforest promptly and use tree species ecologically suited to the site.*

Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
The production of timber on the DFA	To maintain the production of timber at the level defined by the Long Term Harvest Level (LTHL)	2.2.2	Proportion of the calculated long-term sustainable harvest level that is actually harvested	The 5-year average annual harvest level is 100% of the Long Term Harvest Level (LTHL)	+10% -5%	Customer demand and government legislation are the basis for pursuing 100% of the Long Term Harvest Level (LTHL) over a 5-year period. The variance is permitted without penalty under government legislation and addresses the potential for fluctuations in customer demand.	Operations Forester	MoFR Harvest Billing System

### CCFM Criterion 3: Soil and Water

Conserve soil and water resources by maintaining their quantity and quality in forest ecosystems.

Element: 3.1 Soil Quality and Quantity								
Conserve soil resources by maintaining soil quality and quantity.								
Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
The quality of forest soils in the DFA	Harvesting operations do not excessively disturb forest soils	3.1.1	Level of soil disturbance	The number of cutblocks harvested annually in which soil disturbance exceeds 5% of the net area to reforest is zero	None	The target and variance is based on legal requirements established in FRPA for sensitive soils. Non-sensitive soils have a limit of 10% soil disturbance and roadside areas have a limit of 25%.	Operations Forester	Harvesting, Road and Post-Harvest EMS Inspections
The natural chemistry of forest soils in the DFA	The natural chemistry of forest soils is maintained	3.1.A	The percent of the DFA area where herbicides are applied	< 0.2% (annually)	+0.1%	The variance is based on seasonal (weather) and public consultation constraints that may delay treatments in a given year.	Operations Forester	Cengea Database
Wood debris available for soil processes on the DFA	Maintain sufficient amounts of wood debris for soil processes	3.1.2	Level of downed woody debris	> 15 m <sup>3</sup> per hectare (annually)	-5.0 m <sup>3</sup> per hectare	The target and variance is guided by a FRPA requirement to retain about 10 m <sup>3</sup> per hectare.	Operations Forester	Waste & Residue Surveys

**Element: 3.2 Water Quality and Quantity**  
*Conserve water resources by maintaining water quality and quantity.*

Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
Water quality and quantity	Management operations do not endanger water quality and quantity	3.2.1	Proportion of watershed or water management areas with recent stand-replacing disturbance	The annual number of watersheds greater than 3000 hectares in size that have more than 30% of their area in the 0-20 years age class is two or less	+1 Watershed	In general terms, watershed health is related to the amount of forest area that exists in a non-hydrological recovered state (younger stands). The value of 30% by area and age class reflects a science-based approach to hydrological recovery. The variance reflects the potential for increased harvest in watersheds for product demands or damaged timber salvage and adjustments for recent changes in the DFA.	Operations Engineer	GIS Analysis
The hydrological condition of damaged forested watersheds in the DFA	The hydrological condition of damaged watersheds is improved	3.2.A	The number of "red and orange" basins in the G. Horel matrix	The number of "red and orange" basins is 10 or less (measured every 3 years)	+1 Watershed	Target is based on Watershed Assessment completed by Glynnis Horel, P. Eng. (Geological Engineer specializing in terrain evaluation, slope stability assessments, watershed assessments, road deactivation, railway grade and road construction, and road maintenance and reconstruction). The target of 10 "red and orange" watersheds reflects the current status of watersheds and the long term nature of watershed recovery. The variance accounts for the potential for catastrophic events or the impacts of other watershed users.	Operations Engineer	G. Horel Matrix
Water quality in community watersheds in the DFA	Water quality in community watersheds is maintained	3.2.B	The number of water-related non-compliances or non-conformances in community watersheds	Zero	None	The target and variance are based on legal requirements under FRPA and the WFP EMS.	Operations Engineer	Central File – Audits, Inspections & Investigations, Cengea Database-ITS
Non-ephemeral S4 fish streams in the DFA	Maintain or increase the level of protection for non-ephemeral S4 fish streams	3.2.C	The percent of stream length of S4 fish, non-ephemeral streams that are buffered	The percent of stream length of S4 fish, non-ephemeral streams that are buffered >15 meters in areas harvested annually is 80% or greater	-5%	The target is based on maintaining habitat to support WIWAG input on riparian habitat and fish and an objective under FRPA. Historically, a WIWAG subcommittee established the targets after discussion and field measurements of actual achievements.	Operations Engineer	Logged Hectares Registrar and streams manually measured
Non-ephemeral S5 streams in the DFA	Maintain or increase the level of protection for non-ephemeral S5 streams	3.2.D	The percent of stream length of S5 non-ephemeral streams that are buffered	The percent of stream length of S5 non-ephemeral streams that are buffered >15 meters in areas harvested annually is 60% or greater	-5%	The target is based on maintaining habitat to support WIWAG input on riparian habitat and fish and an objective under FRPA.	Operations Engineer	Logged Hectares Registrar and streams manually measured

## CCFM Criterion 4: Role in Global Ecological Cycles

*Maintain forest conditions and management activities that contribute to the health of global ecological cycles.*

Element: 4.1 Carbon Uptake and Storage									
<i>Maintain the processes that take carbon from the atmosphere and store it in forest ecosystems.</i>									
Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement	
The uptake of carbon	The net rate of carbon uptake by the forest is positive over time	4.1.1	Net carbon uptake	The net annual carbon uptake on the DFA is positive	1 year negative	The basic premise of a sustainable forest management organization is that it should be at least carbon neutral from the onset. In this context carbon neutrality is a demonstration that harvest levels are sustainable. In itself, forest management should be shown to be a positive contributing activity for global ecological cycles over time.  The variance is meant to help account for fluctuation in yearly cut levels due to market conditions and license obligations under provincial legislation.	Operations Engineer	GIS and Cengea database	
The uptake and storage of carbon on the DFA	The uptake and storage of carbon is enhanced	2.1.1b	Reforestation success	Equivalent years of Not Sufficiently Reforested (NSR) expressed as a five year rolling average is less than two years	+0.75 years	The target is based on legal requirements under FRPA for regeneration delay. The variance allows for minor discrepancies related to the challenges surrounding forecasting seed and seedling requirements one to two years ahead based on estimated harvest levels/plans.	Operations Forester	Cengea Database	
Element: 4.2 Forest Land Conversion									
<i>Protect forest lands from deforestation or conversion to non-forests, where ecologically appropriate.</i>									
Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement	
The conversion of forest land to other uses	Avoid excessive conversion of forest lands into other uses	2.2.1b	Additions and deletions to the forest area	The net percent of the DFA forest land that is annually converted to other uses (Special Use Permits (SUP), etc.) is less than 0.001%	+0.0005%	Given the long history of timber harvesting in the DFA and the existing infrastructure only very small amounts of forest land are targeted for conversion to other uses. Some losses are required for capacity expansion such as Dryland Sorts, landfills, etc. Similarly, the reclaiming of previously converted lands is very site specific and usually associated small areas in the DFA. Areas most commonly reclaimed are decommissioned roads.	Operations Forester	Corporate Properties/ Permit Staff	

## CCFM Criterion 5: Economic and Social Benefits

*Sustain flows of forest benefits for current and future generations by providing multiple goods and services.*

### Element: 5.1 Timber and Non-Timber Benefits

*Manage the forest sustainably to produce an acceptable and feasible mix of timber and non-timber benefits. Evaluate timber and non-timber forest products and forest-based services.*

Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
Timber and non-timber benefits	Timber and non-timber benefits are evaluated	5.1.1	Quantity and quality of timber and non-timber benefits, products, and services produced in the DFA	Report on the corporate EBITDA	None	The Port Alberni Forest Operation is a significant contributor to the corporate EBITDA. The corporate EBITDA is a benchmark of the net effect of all activities relating to the quantity and quality of timber and non-timber benefits, products, and services produced. WFP produces quality products to customers while supporting directly and indirectly many other interests in the DFA.	Operations Forester (Corporate Finance Dept.)	Corporate quarterly or annual reports
Park and ecological reserve perimeters in the DFA	Operations in the DFA are planned to minimize risk to park and ecological reserve perimeters	5.1.A	The percent of park and ecological reserve perimeters where harvesting has occurred	The percent of the area within 100 meters of park and ecological reserve perimeters harvested over the previous five year period is 4.0 percent or less	+1%	The target is based on the current Timber Supply Analysis and AAC, which do not exclude harvest volumes from the productive forest area, LTHL and AAC calculations (i.e., the forested areas along park perimeters are included in the productive forest area and are used to calculate the future harvest levels). The buffered area of 1079.7 ha represents about 0.8% of the DFA. Therefore, it is estimated that 4% of the buffer could be harvested in a five year period. The variance is to account for the need to respect logical timber harvesting boundaries in the planning process.	Operations Engineer	GIS Analysis
Access to recreation areas in the DFA	To maintain public access to the identified recreation areas	5.1.B	The level of public access to the recreation areas outlined in the recreation access inventory	The number of roads identified in the recreation access inventory that are accessible is 6 or more (inventory includes class of road by 2-wheel, 4-wheel and foot access)	+1%	The target of six accessible sites is based on the evaluation of the existing recreational opportunities in the DFA considering features accessed and the amount of use. Public use is estimated as low for most of the identified sites.	Operations Engineer	Recreation Inventory, Deactivation Plans
Mushroom habitat that is accessible in the DFA	Accessibility to mushroom habitat is maintained	5.1.C	The proportion of the DFA with accessible mushroom habitat	The proportion of the DFA within 200 meters of a maintained road and 20 years in age or greater is no less than 40% (measured every two years)	-10%	The target and the variance are based upon the possibility of the movement of portable bridges making significant areas unavailable. This indicator has been developed based on the rationale that much of the non-timber forest product collection takes place within 200m of maintained road.	Operations Engineer	GIS Analysis

<b>Element: 5.2 Communities and Sustainability</b> <i>Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and by supporting local community economies.</i>								
Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
Community sustainability	Support community sustainability	5.2.1	Level of investment in initiatives that contribute to community sustainability	The annual level of donations (dollar and in-kind) to the community will exceed \$1000	-\$500	The target reflects an improvement in economic activity for Port Alberni Forest Operation. The variance is maintained to account for periods of economic difficulty and market downturns.	Operations Accountant	Accounting Records
Employee skills	Develop employee skills	5.2.2	Level of investment in training and skills development	Annual level of investment in training and skills development for office staff / contractors averages 5 person-days per year	-0.5 person-days	The target addresses the need for key staff and contractors to be competent in the results-based era of the Forest and Range Practices Act and the Association of BC Forest Professionals continuing competency/ education requirements. Moreover, the financial needs of the business requires technological training of key workers to remain competitive. The variance is to account for training being reduced during times of market downturns.	Operations Forester	WFP Training Database
Employment	Provide employment	5.2.3	Level of direct and indirect employment	The annual level of direct and indirect employment is 2200 person-years or greater over a five year average	-25 (1%)	Historical data and Employment Statistics for the BC Forest Industry 1999 (PricewaterhouseCoopers). The LTHL harvest level of 997,592 cubic meters could generate employment of 2850 direct and indirect jobs (based on the Report). However, it is anticipated that the LTHL will be reduced to approximately 800,000m3 per year, pending the Chief Forester determination on Management Plan #5 and setting of the new AAC. The new LTHL is expected to generate employment closer to 2200 direct and indirect jobs.	Operations Forester	Cengea and PWC Report
Aboriginal forest economy	Maintain the aboriginal forest economy	5.2.4	Level of Aboriginal participation in the forest economy	Eight contractual arrangements with aboriginal communities annually	-4 contracts	WFP has a history of contractual arrangements with willing aboriginal communities in primary logging, log salvage, and assessment work. The DFA has been reduced significantly in recent years to accommodate First Nation interests including treaty. Future contractual arrangements will evolve as treaties are finalized. The variance addresses any gaps that could develop between the services required and the capacity available for the parties.	Operations Forester	Corporate Database

## CCFM Criterion 6: Society's Responsibility

*Society's responsibility for sustainable forest management requires that fair, equitable, and effective forest management decisions are made.*

Element: 6.1 Aboriginal and Treaty Rights								
Recognize and respect Aboriginal title and rights, and treaty rights. Understand and comply with current legal requirements related to Aboriginal title and rights and treaty rights.								
Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
Aboriginal title and rights	Aboriginal title and rights are understood	6.1.1	Evidence of a good understanding of the nature of Aboriginal title and rights	Target evidence will be an update to annual employee training on Aboriginal title and rights	None	Forest professionals working with aboriginal peoples have a responsibility to understand how forest practices influence aboriginal title and rights. Aboriginal case law relating to title and rights is increasing. With the enactment of the Maa-nulth Final Agreement training of employees is necessary to understand the treaty title and rights flowing from the Agreement. Recognizing title and rights is also a component of WFP's corporate <i>Sustainable Forest Management Statement</i> for Timberlands.	Operations Forester	WFP Training Database
Aboriginal understanding of plans	Aboriginal understanding of plans is increased over time	6.1.2	Evidence of best efforts to obtain acceptance of management plans based on Aboriginal communities having a clear understanding of the plans	Target evidence will be annual sample of correspondence with Aboriginal communities to gain acceptance of management plans	None	The target and variance is tied to legal requirements under the Forest Act and FRPA related to First Nation consultation. Although there are legal obligations to consult with First Nations, there are also obligations for First Nations to participate in the consultation process relating to understanding the plans.	Operations Forester	Central File ("Green" Letters, comments, assessments, meetings, etc.)
Areas where culturally important practices and activities occur	Areas where culturally important practices and activities occur are managed for or protected	6.1.3	Level of management and/or protection of areas where culturally important practices and activities (hunting, fishing, gathering) occur	Identified areas where culturally important practices and activities occur are managed and/or protected 100% of the time unless the First Nation or governments decide otherwise	None	The target and variance are based on legal requirements under FRPA and the Heritage Conservation Act.	Operations Engineer	WFP Site Plans, Harvest & Road Instructions, EMS Inspections

**Element: 6.2 Respect for Aboriginal Forest Values, Knowledge & Uses**  
*Respect traditional Aboriginal forest values, knowledge and uses as identified through the Aboriginal input process.*

Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
Aboriginal knowledge	Aboriginal knowledge provided is used and respected	6.2.1	Evidence of understanding and use of Aboriginal knowledge through the engagement of willing Aboriginal communities, using a process that identifies and manages culturally important resources and values	Target evidence will be an example of information shared, or comments received by, or management of a culturally important resource or value for one Aboriginal community annually.	None	The target and variance are based on legal requirements under FRPA.	Operations Forester	Central File ("Green" Letters, comments, assessments, meetings, etc.)

Element: 6.3 Forest Community Well-being and Resilience								
<i>Encourage, co-operate with, or help to provide opportunities for economic diversity within the community.</i>								
Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
Other forest users	Support other forest users	6.3.1	Evidence that the organization has co-operated with other forest-dependent businesses, forest users, and the local community to strengthen and diversify the local economy	Annual target evidences will come from two or more of (but not be limited to): (1) volume production of shake and shingle, (2) hectares released for hogging, (3) hectares released for commercial firewood cutting (4) amount spent on road grading, (5) trail construction/rehabilitation	None	WFP encourages and co-operates both directly and indirectly with other forest-dependent businesses in the community through agreements, contracts, and other spin-off opportunities (e.g. access available from road construction and maintenance). Evidences are drawn from existing or potential opportunities for economic diversity within the community that are reportable from in-house information systems. The shake and single business is important to First Nation operators and their milling customers; hogging supports local power generation; road grading provides easier access for casual forest users.	Operations Forester	LIMS, Cengea
Worker safety	There is an active worker safety program	6.3.2	Evidence of co-operation with DFA-related workers and their unions to improve and enhance safety standards, procedures, and outcomes in all DFA-related workplaces and affected communities	Annual target evidences will come from two or more of (but not be limited to): (1) the Medical Incident Rate report, (2) hazard alert report (3) general contractor training sessions (4) safety focus topics	None	Safety Programs are required under WorkSafe BC legislation, Occupational Health and Safety Regulation. The Medical Incident Rate (MIR) is a broad measure that captures the effectiveness of safety programs. The Hazard Alert reports document safety incidences and the learnings and suggestions to avoid future occurrences. General contractor training sessions provide opportunities to review and improve safety performance. Safety focus topics provide a program to heighten awareness around specific categories of injuries (e.g. hand injuries). Target evidences are readily available and require participation from workers to formulate safety reports, achieve safety results or to provide safety training.	Operations Forester	Safety Files, Corporate Tracking System/ Stats
Worker safety	Worker safety improves over time	6.3.3	Evidence that a worker safety program has been implemented and is periodically reviewed and improved	Maintain SAFE Company Certification	None	WFP corporate directive.	Operations Forester	Safety Files, Corporate Tracking System/ Stats

**Element: 6.4 Fair and Effective Decision Making**  
*Demonstrate that the SFM public participation process is designed and functioning to the satisfaction of the participants and that there is general public awareness of the process and its progress.*

Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
SFM Public participation process	SFM Public participation process works well	6.4.1	Level of participant satisfaction with the public participation process	The level of participant satisfaction as reported by the satisfaction survey is 3 or greater (reported every 2 years)	A maximum of one consecutive survey with a satisfaction level of greater than 3.	A satisfaction survey of WIWAG gives direct feedback to the participation process. A score of three or greater provides evidence of a positive process. The variance is to account for controversial issues considered by participants or unforeseen circumstances (e.g. a shortage of financial resources to accommodate normal participation process during economic downturns).	WIWAG Facilitator	WIWAG Satisfaction Survey
Public participation capacity	Develop/improve public participation capacity over time	6.4.2	Evidence of efforts to promote capacity development and meaningful participation in general	Target evidence will be the listing of educational opportunities provided to the participants annually	None	WIWAG has historically responded positively to educational opportunities provided by technical experts. These opportunities have enabled WIWAG members to provide valuable advice through the participation process.	Operations Forester	Central File, WIWAG Minutes, WIWAG Website
Aboriginal participation capacity	Develop/improve aboriginal participation capacity over time	6.4.3	Evidence of efforts to promote capacity development and meaningful participation for Aboriginal communities	Annual target evidence will be a listing of efforts to engage willing Aboriginal communities in the SFM process	None	WFP's Environment Policy to engage aboriginal peoples in environmental programs.	Operations Forester	Correspondence Files

<b>Element: 6.5 Information for Decision Making</b>								
<i>Provide relevant information and educational opportunities to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interaction with forest ecosystems.</i>								
Value	Objective	#	Indicator	Target	Acceptable Variance	Basis for Target	Reporting Responsibility	Monitoring & Measurement
Public education and knowledge	Increase/develop public education and knowledge over time	6.5.1	Number of people reached through educational outreach	The annual number of people reached through educational outreach is estimated to be greater than fifty	None	Periodically WFP is asked to engage the public to enhance education (e.g. forest tours). Annually these requests plus established outreach activities (e.g. Fall Fair) form the basis for the target. WFP developed an educational display that is available for use at the Fall Fair, National Forestry Week, and other public venues. It is estimated that at least fifty people will have meaningful interactions with hosts during these venues.	Operations Forester	Central File (Tours, Fall Fair, Open Houses, WIWAG minutes)
Relevant information	Relevant information is provided	6.5.2	Availability of summary information on issues of concern to the public	Summary information on issues of concern to the public are posted annually on the WIWAG website	None	The WIWAG website has been established and recognized as a transparent means of communicating issues to the public and their resolution.	Operations Forester	WIWAG Website



WESTERN FOREST PRODUCTS INC.

# **SFM Plan**

## **Appendix 2: Detailed Indicator & Results**

Port Alberni Forest Operation

Revised: April 17, 2013



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## SFM Criteria, Values, Objectives, Indicators & Targets

This section of the SFM Plan describes Port Alberni Forest Operation's SFM Values, Objectives, Indicators and Targets. As appropriate, an Acceptable Variance is provided for the near term performance level of each Target and a forecasted future condition is provided for each Indicator. The section is organized according to the Criteria for Sustainable Forest Management, which was developed by the Canadian Council of Forest Ministers and adapted for the Canadian Standards Association's Sustainable Forest Management standard (CAN/CSA-Z809-08).

As further explanation of the organization of this section:

- The **Criteria** (e.g., below: 1.0 Conservation of Biological Diversity) and **Critical Elements** (e.g., 1.1 Ecosystem diversity) and their accompanying statements are derived from *Defining Sustainable Forest Management: A Canadian Approach to Criteria and Indicators* (Canadian Council of Forest Ministers, Ottawa, 1995).
- The subsidiary **Values, Objectives, Indicators, Targets, Acceptable Variances** and **Forecasts** were developed for this plan during discussions among WIWAG members, Port Alberni Forest Operation staff and other Western Forest staff.

WFP works closely with the WIWAG to identify the local values, objectives, indicators, targets and acceptable variances that reflect the national criteria. These have been incorporated into this SFM planning and practice.

As used in this plan:

- **Values** are DFA characteristics, components, or qualities considered by the advisory group to be important in relation to a CSA SFM element or other locally identified element.
- **Objectives** are broad statements describing a desired future state or condition of a value.
- **Indicators** are variables that measure or describe the state or condition of a value.
- **Targets** are specific statements describing a desired future state of condition of an indicator. Where possible, targets are clearly defined, time-limited and quantified.
- **Acceptable Variances** specify the range of performance results (+ and/or – relative to the Target) that is deemed to be an acceptable outcome. A result outside this range does not always indicate unacceptable performance. (For example, it could reflect: the impact of an uncontrollable event, such as a natural disaster; the fact that the Target was based on poor quality or inadequate data; or the effects of a responsible choice between two competing Objectives.) A result outside the Acceptable Variance range does, however, require review, assessment and, possibly, a revision of either the objective, target or management practices.
- **Forecasts** are explicit statements of the expected future condition of an indicator.
- **Legal References** are provided where they exist.

## Performance Reporting

On an annual basis, the SFMP will be updated to include performance reporting information in order to facilitate review of the actual outcomes of each indicator (this will be reported within Appendix 2). Most indicators, (but not all) are reported on an annual basis from January 1 – December 31. The monitoring report (Data Set) is completed by Port Alberni Forest Operations Management, and presented for review to WIWAG in the spring of each year (typically April). Western Forest Products maintains a matrix which assigns the responsibilities of each indicator to key staff.

Internal audits will also evaluate the quality, validity, and meaningfulness of the locally determined indicators and all of the targets.

## Summary of Results

- Port Alberni Forest Operation, 2012 Annual Report
- Port Alberni Forest Operation, 2011 Annual Report
- Port Alberni Forest Operation, 2010 Annual Report
- Port Alberni Forest Operation, 2009 Annual Report

Refer to: [http://www.westernforest.com/wiwag/sfm\\_plan.htm](http://www.westernforest.com/wiwag/sfm_plan.htm)

## Summary of Changes

The 2010 SFM Plan is a new plan designed to meet the requirements of the new CSA Z809-08 Standard and replaces all previous versions.

## Indicator 1.1.1: Ecosystem Area by Type

### Element: 1.1 Ecosystem Diversity

Conserve ecosystem diversity at the stand and landscape levels by maintaining the variety of communities and ecosystems that naturally occur in the DFA.

Value	Objective	Indicator	Target	Variance
Older seral stages by ecosystem type on the DFA	Older seral stages by ecosystem type are maintained	Ecosystem area by type	All ecosystem types by biogeoclimatic variant have greater than 50% of the productive forest area in mid to older seral stages over time	+/- 5%

### History

New Core Indicator under CSA Z809-08 (related to old indicator 1).

### Basis for the Target

The biogeoclimatic variants in the DFA represent a wide range of climatic conditions resulting in differences in vegetation, soil, and ecosystem productivity. Historically, timber harvesting has focused in productive variants that yield quality forest products. The long history of timber harvesting in the DFA has generated a majority state of older age classes across the variants and the related attributes for flora and fauna. The 50% level for ecosystem area by type and seral stage provides reasonable assurance that there is adequate representation of each existing ecosystems types in their older age stages being maintained and replaced at all times on the DFA.

The variance is to account for natural disturbances associated with insects, disease, windthrow, wildfire, and land use decisions.

### Current Status & Results

Year	BEC Zone	Early (ha)	Mid (ha)	Mature (ha)	Old (ha)	Total Area Mid-Old (ha)	Total Productive Area of BEC Zone (ha)	% Rep. of Productive	Target Met (Y/N)	Variance Met (Y/N)
2012	CWHmm1	1497	212	119	1954	2285	3782	60	Y	n/a
	CWHmm2	1423	422	385	3738	4545	5968	76		
	CWHvh1	3955	768	473	3011	4252	8207	52		
	CWHvm1	26552	18216	1782	20520	40517	67069	60		
	CWHvm2	5786	816	705	8937	10457	16243	64		
	CWHxm2	4029	7604	591	1920	10115	14144	72		
	MHmm1	52	4	32	2070	2106	2158	98		
2011	CWHMM1	1,502	208	119	1,954	2,281	3,782	60.3%	Y	n/a
	CWHMM2	1,424	401	385	3,759	4,545	5,969	76.1%		
	CWHVH1	3,775	817	477	3,146	4,440	8,215	54.0%		
	CWHVM1	26,114	18,040	1,853	21,105	40,998	67,112	61.1%		
	CWHVM2	5,658	803	722	9,071	10,596	16,253	65.2%		
	CWHXM2	3,805	7,793	624	1,936	10,353	14,159	73.1%		
	MHMM1	48	4	34	2,073	2,111	2,158	97.8%		

The total productive area of the DFA used for reporting of this indicator is 118,162. Mid to older seral stages describe stands greater than or equal to 40 years old.

## Strategies & Implementation

Several initiatives and legal requirements have been set relating to protected areas that helps to contribute to ecosystem representation, including Parks and protected areas, Old Growth Management Areas, Wildlife Habitat Areas, Ungulate Winter Ranges, Wildlife Tree Patches and other stand level retention initiative such as the WFP Variable Retention Strategy, etc.

In addition, a fairly significant portion of the DFA exists in the non-contributing land-base (e.g., inoperable) and will not be harvested.

## Forecasts

The current status shows representation above 50% for each BEC zone and the current status represents a long history of harvesting. The Timber Supply Analysis also supports forecasting that the target will be met in the long term.

## Monitoring

The Operations Engineer requests GIS Analysis (GIS Department) after year end harvesting has been updated in the Cengea database.

## Indicator 1.1.2: Forest Area Species

### Element: 1.1 Ecosystem Diversity

*Conserve ecosystem diversity at the stand and landscape levels by maintaining the variety of communities and ecosystems that naturally occur in the DFA.*

Value	Objective	Indicator	Target	Variance
The representation of commercial species on the DFA	Species conversion on the DFA is limited	Forest area by type or species composition	The three year movement in the representation of each commercial tree species (as expressed by the forest area by species composition) in the inventory is stable over time using 2009 as the baseline level	+/- 0.5% by species – sliding over 3 years

### History

New Core Indicator under CSA Z809-08 (related to old indicator 3).

### Basis for the Target

The target is based on the linkage between the natural occurrence of commercial species in the DFA and the FRPA requirement to regenerate ecologically acceptable species. The variance is to account for the artificial regeneration (tree planting) that will occur to favour the more desirable commercial species and the potential changes in climatic conditions.

### Current Status & Results

The tree species representation is set to be re-assessed in 2015 (three years from 2012 baseline level). Given the DFA changed significantly with area removals in 2010 the new baseline will be 2012.

Species	Representation 2006 (%)	Representation 2009 Baseline (%)	Representation 2012	Target Met	Variance
Douglas Fir	19.81	20.25	20.6	Y=1 N=7	Y=4 N=4
Western White Pine	0.05	0.04	0.4		
Western Red Cedar	18.01	19.16	19.3		
Yellow Cedar	2.08	2.15	3.0		
Sitka Spruce	0.29	0.30	0.4		
Hemlock (western & mountain)	48.81	48.76	42.0		
Amabilis Fir	7.78	7.41	12.5		
Deciduous	1.22	1.24	1.9		

### Strategies & Implementation

WFP conducts reforestation activities consistent with legally required and approved stocking standards in the FSP that include the applicable tree species permitted for each ecosystem type and site series. Regeneration and Free growing surveys and milestone obligations ensure cutblocks are regenerated in accordance with approved stocking standards.

## Forecasts

It is anticipated that the target will be achieved as regeneration and species composition is driven by legal requirements under FRPA and the approved stocking standards within the FSP. The Timber Supply Analysis supports the forecast of no major changes in tree species over the long term.

The species representation is expected to change slightly over time due to climate change and adaptive management plans that include regeneration to more heat tolerant or commercially valuable species such as Douglas-fir and western red cedar. Some Noble Fir (non-native species) may also be planted at higher elevations due to research data that supports higher health and vigour than some native species such as Amabilis fir.

## Monitoring

The Operations Forester is responsible for coordinating GIS analysis (GIS Department), planting, and assessment programs.

## Indicator 1.1.3: Forest Area Age Class

### Element: 1.1 Ecosystem Diversity

*Conserve ecosystem diversity at the stand and landscape levels by maintaining the variety of communities and ecosystems that naturally occur in the DFA.*

Value	Objective	Indicator	Target	Variance
The older age classes on the DFA	Older age classes on the DFA are gradually reduced	Forest area by seral stage or age class	81-251+ age classes are reduced annually by less than 2% of the productive forest area measured on a five year average	+0.25%

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

Timber harvesting in the DFA has historically focused on old growth stands because of its availability and the customer demand. There is an emerging market for forest products from younger seral stages (second growth) also available from the DFA. The target and variance are based on the available harvestable age classes, customer demand, and the desire to maintain the stand attributes of older age classes. The target of less than 2% reflects a gradual reduction in older age classes but also accounts for 5 year periods when most harvesting may come from the older age classes.

### Current Status & Results

Year	Total Productive Forest Area (ha)	Age Class	Productive Area (ha)	% Rep.	Reduced %	Target Met (Y/N)	Variance Met (Y/N)
2012	117571	81+	46,241	39.0	-1.0%	Y	n/a
2011	117,648	81+	47,037	40.0	-0.72%	Y	n/a
2010	117,751	81-250+	47,944	40.72	-0.51%	Y	n/a
2009	118,162	81-250+	48,702	41.23	Baseline	-	-

The 2010 to 2012 annual average reduction is 0.74%

The total productive area of the DFA used for reporting of this indicator is taken from the new Management Plan (reflective of the long term portion of the DFA, removing deleted areas and those that are planned for removal in 2011, such as the Maa-nulth treaty lands).

### Strategies & Implementation

Several initiatives and legal requirements have been set relating to protected areas that helps to contribute to ecosystem representation, including Parks and protected areas, Old Growth Management Areas, Wildlife Habitat Areas, Ungulate Winter Ranges, Wildlife Tree Patches, etc. In addition, a fairly significant portion of the DFA exists in the non-contributing land-base (e.g., inoperable, protected areas such as OGMA, WHA, UWR) and will not be harvested.

## Forecasts

Although harvesting activities are normally concentrated within the older age classes, the data indicates that there is a healthy mid age (40 – 80) supply of growing stands to recruit from and maintain the targeted level of older age classes on the DFA. Currently, the approximate proportion of old growth harvested in the DFA on an annual basis is 80%. This proportion will decline over the long term.

WFP is somewhat constrained in meeting this target due to legal requirements to achieve the AAC that has been set by the Chief Forester. Penalties are issued to licences that do not achieve the AAC within the specified time frames, and penalties can include volume “take-back” that gets issued to another party. Analysis of forecasted harvest percent is 1.7% (calculations are on file under Indicator Reporting 2009).

## Monitoring

The Operations Engineer requests GIS Analysis (GIS Department) after year end harvesting has been updated in the Cengea database.

## Indicator 1.1.4: Stand Level Retention

### Element: 1.1 Ecosystem Diversity

*Conserve ecosystem diversity at the stand and landscape levels by maintaining the variety of communities and ecosystems that naturally occur in the DFA.*

Value	Objective	Indicator	Target	Variance
The variety of structure at the stand level	Habitat for selected focal species, including species at risk. A portion of the existing stand structure is retained	Degree of within stand structural retention	The average within-stand retention level of all cutblocks harvested in the year is no less than 15% of the total area under prescription	-1%

### History

New Core Indicator under CSA Z809-08 (relates to old indicator 10).

### Basis for the Target

The target is based on a combination of a FRPA requirement for stand retention and the WFP Variable Retention (VR) Strategy which is guided by principles associated with the Vancouver Island Land Use Plan (VILUP). The variance is to account for situations where the harvest may be directed towards zones (e.g. Enhanced Forestry Zone) where retention requirements are less.

### Current Status & Results

Year	Average Cutblock Retention (% of TAUP)	Target Met (Y/N)	Variance Met (Y/N)
2012	16.7	Y	n/a
2011	31.3	Y	n/a
2010	26.8	Y	n/a
2009	30.3	Y	n/a

### Strategies & Implementation

Retention for each block is planned based on the required protection of different resources (e.g. riparian, wildlife, cultural). If the minimum level of retention is not yet met, additional area is retained to ensure the VR targets are met. Refer to the SFM Plan Management Strategies for details. Salvage harvesting opportunities may not adhere to the VR strategy and retention levels, but this is anticipated to represent a small portion of the harvested volume.

### Forecasts

The average block retention was high in 2009-2011 because of management for adjacency (green-up). The retention dropped in 2012 and expected to remain near or slightly below this level over the next few years. . The variations in retention levels will likely be cyclical in nature.

### Monitoring

The Operations Engineer reports on this indicator using the Variable Retention Tracking Spreadsheet.

## Indicator 1.2.1: Habitat Protection

### Element: 1.2 Species Diversity

*Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained through time, including habitats for known occurrences of species at risk.*

Value	Objective	Indicator	Target	Variance
Habitat for focal species, including species at risk existing in the DFA	Maintain or increase habitat for selected focal species, including species at risk	Degree of habitat protection for selected focal species, including species at risk	The amounts (in ha) of habitat protected for selected focal species remains the same or increases year after year	Decrease by 1%

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

The target is based on legal requirements under FRPA and the government initiatives underway through Land Use Planning processes and strategies such as the Identified Wildlife Management Strategy. The variance is meant to help account for fluctuation due to spatial issues (e.g. map base or scale) and natural disturbance factors.

“Habitat, in terms of both quantity and quality, is a key component of the health of species and animal populations”(CSA Sustainable Forest Management, 2008). Forest management can have both positive and negative effects for wildlife and their habitat. It is important to ensure forest habitat necessary to the survival of species is available for use in the short-term and long-term. Habitat reserved for focal species also contributes to the habitat needs of many other wildlife species.

Ungulate winter ranges are areas identified as critical to the survival of local populations of ungulates during severe winters. On Vancouver Island, black-tailed deer and Roosevelt elk need areas with suitable forest and topographical features that are able to provide shelter, forage and snow interception. Roosevelt elk are on the BC provincial blue-list and have a BC Conservation Framework Priority 2 (BC Species and Ecosystems Explorer, 2010) as well as having local and cultural importance. Black-tailed deer are not considered a species of concern but have local importance for food, economic opportunity and recreation.

Marbled murrelets are small seabirds that nest inland with a majority of nests being found on large boughs high in old conifers up to 30 km inland. Much work has been done along the coast to identify and rank suitable nesting habitat for marbled murrelets. Marbled murrelets are listed as Threatened on Schedule 1 of the Federal Species at Risk Act (SARA), provincially blue-listed, listed on the Forest and Range Practices Act (FRPA) Category of Species at Risk and considered Identified Wildlife, and have a BC Conservation Framework Priority of 1 (BC Species and Ecosystems Explorer, 2010). Identified Wildlife are considered to be sensitive to habitat alteration associated with forest and range practices and are considered to be at risk (endangered, threatened, vulnerable or regionally important).

Northern Goshawks are a relatively large forest dwelling hawk. They need a closed canopy forest with an open understory for nesting and foraging. The coastal subspecies is listed as Threatened on SARA Schedule 1, provincially red-listed, listed on the Forest and Range Practices Act (FRPA) Category of Species at Risk and are considered Identified Wildlife, and have a Conservation Priority of 1.

The Northern Red-legged Frog is a moderate-sized frog occurring from southwestern BC to northwestern California. It generally inhabits moist, lower elevation forests and requires both aquatic breeding habitat and terrestrial foraging habitat. The Red-legged Frog is listed as Special Concern on SARA Schedule 1, provincially blue-listed, listed on the Forest and Range Practices Act (FRPA) Category of Species at Risk and is considered Identified Wildlife, and has a Conservation Priority of 1.

Scouler's corydalis is a 60 – 120 cm tall plant with rosy-pink, spurred flowers. It is limited in distribution to the Pacific Northwest and in BC is only found on southwestern Vancouver Island. Scouler's corydalis is not listed by SARA, has been provincially down-listed to yellow and has a Conservation Priority of 3. It is listed on the Forest and Range Practices Act (FRPA) Category of Species at Risk and is considered Identified Wildlife.

### Current Status & Results

Year	Type of Habitat Protected/ Species	Area (ha)			Measure	Target Met (Y/N)	Variance Met (Y/N)
		Legal	Proposed	Voluntary			
2012	UWR	2130.00	0	0	Spatially delineated ungulate winter range	Y	n/a
	MAMU	2111	2442	3	Moderate to very High ranked habitat from the low level aerial inventory in WHA, UWR, OGMA		
	Goshawk	0	0	158	Area reserved around known nests (WHA, other)		
	Red-legged Frog	51.3	0	0	Area reserved around known breeding ponds		
	Scouler's Corydalis	73.5	0	0	Area reserved around known locations of Scouler's Corydalis		
2011	UWR	2,130.0	0.0	0.0	Spatially delineated ungulate winter range	Y	n/a
	MAMU	2076.6	2379.6	3.0	Moderate to Very High ranked habitat from the low-level aerial inventory in WHA, UWR, OGMA		
	Goshawk	0.0	0.0	158.0	Area reserved around known nests (WHA, other)		
	Red-legged Frog	51.3	0.0	0.0	Area reserved around known breeding ponds		
	Scouler's Corydalis	73.5	0.0	0.0	Area reserved around known locations of Scouler's Corydalis.		

2010	UWR	2,130.0	0.0	0.0	Spatially delineated ungulate winter range	n/a-Baseline	n/a-
	MAMU	2,074.8	2,078.3	0.0	Moderate to Very High ranked habitat from the low-level aerial inventory in WHA, UWR, OGMA		
	Goshawk	0.0	0.0	41.9	Area reserved around known nests (WHA, other)		
	Red Legged Frog	51.3	0.0	0.0	Area reserved around known breeding ponds		
	Scouler's Corydalis	73.5	0.0	0.0	Area reserved around known locations of Scouler's Corydalis.		

Note: Some 2010 data was used to generate the 2009 baseline values, therefore there is no change for 2010.

There are additional areas of identified habitat proposed for candidate reserves such as WHA or OGMA that will serve to ensure the target continues to be met if and when they are given legal status. The total area reported for 2009 includes proposed WHAs put forward by MoE in 2010.

Ungulate Winter Ranges have been legally established for all tenures within the DFA. Ungulate Winter Range may also be available through other reserve areas (WHA, OGMA) but has not been spatially delineated as such. A total of 4275 ha for TFL 44 (U-1-013) were spatially established in October 2004. Of this 2130 ha are within the DFA. The indicator is measured as the total area spatially delineated and conserved for ungulate winter range. This area must meet or exceed the target of 2130 ha.

Marbled Murrelet nesting habitat has been delineated within the DFA. Potentially suitable habitat was modelled and further assessed and ranked by low-level aerial surveys in 2008 and 2009. The surveys followed provincial standards ranking the habitat nil to very high quality. Habitat ranked moderate to very high is generally considered "suitable" habitat. In the short-term suitable habitat is protected in a variety of reserves. Some reserves, wildlife habitat areas, have been specifically delineated for marbled murrelets. Other species' Wildlife Habitat Areas and Ungulate Winter Ranges may incidentally encompass suitable nesting habitat. Old Growth Management Areas (OGMA) are currently being delineated as part of the Landscape Unit Planning process. As of December 2009, three landscape units within the DFA, the Caycuse, Nitinat and Walbran landscape unit, have legally established OGMAs. Other landscape units have spatially defined proposed OGMAs (Corrigan, Henderson and Klanawa) which are included in the proposed reserve calculations. Other landscape units are still aspatial (Effingham, Great Central and Sarita) and have not been included in the calculations. Direction has been given by government to consider marbled murrelet nesting habitat when delineating OGMAs. This indicator is a measure of the amount of inventoried suitable nesting habitat reserved within the DFA. The amount should be consistent or increase from the current state and not be less than 2075 ha.

Goshawk nesting habitat mapping is not available at this time. For the current process the amount of goshawk habitat is based solely on areas that will not be harvested due to the presence of goshawk nests. There are currently three known nest territories within the DFA. None have been formally established as WHA but have been voluntarily conserved by WFP. This indicator is a measure of the amount of habitat reserved around known nests. The amount should be consistent or increase from the current state and not be less than 42 ha.

Red-legged Frog breeding or foraging habitat has not been adequately mapped or modelled. For the current process the amount of frog habitat is based solely on areas that will not be harvested due to confirmed red-legged frog breeding habitat. This indicator is a measure of the amount of area reserved around known breeding habitat. The amount should be consistent or increase from the current state and not be less than 51 ha.

Scouler's corydalis has been mapped as locations are found. This indicator is a measure of the amount of area reserved around locations of Scouler's corydalis. The amount should be consistent or increase from the current state and not be less than 73 ha.

## Strategies & Implementation

In general the management strategy for this indicator includes:

- To spatially designate and legally establish Wildlife Habitat Areas and Old Growth Habitat Areas. WFP has a mix of legally established and proposed areas. The intent is to move proposed areas through the process to become legally established.
- When it is necessary to build roads through or harvest adjacent to one of these reserves, WFP attempts to minimize the impact and provides replacement habitat of similar quality, if necessary.
- Species at Risk training is delivered to the operations to aid staff in identifying and working around Species at Risk.
- Northern Goshawk Management Protocol has been developed to guide operations managing forest activities around nests.
- When other habitat is encountered that is actively used by a focal species including a species at risk, the site undergoes evaluation for potential candidacy as a permanent reserve.

## Forecasts

As more reserves such as WHAs, UWRs and OGMAs become legally established the habitat conserved for focal species is expected to increase over the short-term. In the long-term, it is anticipated that as land use planning and government initiatives are completed, the hectares of reserved areas for wildlife species should stabilize to a large degree.

## Monitoring

The Wildlife Biologist & GIS Technician provides updated information in relation to this indicator to support the indicator basis for the target, current results, strategies and implementation and monitoring methods, as required.

The Operations Engineer is responsible for coordinating GIS Analysis (shape files are obtained from the government as protected areas are approved).

- Reserves are mapped spatially in a layer of the GIS. Changes in boundaries are tracked by Corporate Forestry biologists.
- All habitat supply will be monitored spatially relative to the target every year.
- Nests are documented when they are located and appropriate management strategies are developed within site-level plans.
- Known nests will be monitored for activity when forest management activities are planned nearby.

## Indicator 1.2.2: Suitable Habitat

### Element: 1.2 Species Diversity

*Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained through time, including habitats for known occurrences of species at risk.*

Value	Objective	Indicator	Target	Variance
Availability of suitable habitat for selected focal species, including species at risk existing in the DFA	To ensure the long-term availability of habitat for selected focal species including species at risk	Degree of suitable habitat in the long term for selected focal species, including species at risk	The amount (in ha) of potentially suitable habitat available within WHA, UWR, OGMA and NCLB remains the same or increases over time (measured every five years)	UWR – decrease by 1% MAMU – decrease by 2%

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

The target and variance are based on legal requirements under FRPA regarding established protection/ management areas for species at risk, ungulates, and old growth management. The variance is meant to help account for fluctuation due to spatial issues (e.g. map base or scale) and natural disturbance factors. For marbled murrelet the variance is also to account for the inaccuracies of the modelling and the inability to predict the quality of the habitat.

Some species need habitat that includes mature to old trees for their survival. Habitat currently unsuitable for species may develop the attributes necessary for the survival of the species as it ages. It is important to ensure critical habitat will be available in the long-term. Long-term is defined as twice the average life expectancy of the predominate trees in a DFA, up to a maximum of 300 years. Tree species within the DFA are long lived and the long-term is defined as the maximum of 300 years.

Ungulate winter ranges are areas identified as critical to the survival of local populations of ungulates during severe winters. On Vancouver Island, black-tailed deer and Roosevelt elk need areas with suitable forest and topographical features that are able to provide shelter, forage and snow interception. Roosevelt elk are on the BC provincial blue-list and have a BC Conservation Framework Priority 2 (BC Species and Ecosystems Explorer, 2010) as well as having local and cultural importance. Black-tailed deer are not considered a species of concern but have local importance for food, economic opportunity and recreation.

Marbled murrelets are small seabirds that nest inland with a majority of nests being found on large boughs high in old conifers up to 30 km inland. Much work has been done along the coast to identify and rank suitable nesting habitat for marbled murrelets. Marbled murrelets are listed as Threatened on Schedule 1 of the Federal Species at Risk Act (SARA), provincially blue-listed, listed on the Forest and Range Practices Act (FRPA) Category of Species at Risk and considered Identified Wildlife, and have a BC Conservation Framework Priority of 1 (BC Species and Ecosystems Explorer, 2010). Identified Wildlife are considered to be sensitive to habitat alteration associated with forest and range practices and are considered to be at risk (endangered, threatened, vulnerable or regionally important).

## Current Status & Results

Year	Type of Habitat Protected/ Species	Measure	Legal Reserves (ha)	NCLB <sup>1</sup> (ha)	Target Met (Y/N)	Variance Met (Y/N)
2009	UWR	Spatially delineated ungulate winter range	2,130.0	0.0	n/a	n/a
	MAMU Nesting Habitat	Potentially Suitable Habitat in WHA, UWR, OGMA and NCLB	3,743.0	6,204.0	Baseline: re-measure in 2014	

<sup>1</sup>Non-contributing landbase as defined by TFL 44 Management Plan 4.

Ungulate Winter Ranges have been legally established for all tenures within the DFA. A total of 2130 ha has been legally designated through one Order (for more details see above indicator). Ungulate Winter Range may also be available through other reserve areas (WHA, OGMA) but has not been spatially delineated as such. Established UWR should remain as such in the long-term because of the old-growth characteristics of the UWR and long intervals between natural disturbances in the ecosystems. The indicator is measure as the total area spatially delineated and conserved for ungulate winter range over the long-term and must meet or exceed the target of 2130 ha.

Marbled Murrelet nesting habitat has been delineated within the DFA. Potentially suitable habitat was modelled. Of the potentially suitable habitat within the DFA the areas within wildlife habitat areas, ungulate winter range and old growth management areas and found within the non-contributing landbase (generally unharvestable) will be retained in the long-term. The potentially suitable habitat available in reserves was calculated using the current legal and proposed WHA, UWR and OGMA's. The non-contributing landbase was calculated using data from the TFL 44 Management Plan 5 (2010) dataset created for the timber supply analysis.

This indicator is a measure of the amount of potentially suitable nesting habitat retained within the DFA over the long-term. The amount should be consistent or increase from the current state and not be less than 9947 ha.

## Strategies & Implementation

The FSP contains results and strategies for management activities within or adjacent to established WHA, UWR, and OGMA's, including provisions for amendments where permitted within the specific Order establishing the habitat area. The general management strategy is as follows:

- To spatially designate and legally establish Wildlife Habitat Areas, Ungulate Winter Range and Old Growth Habitat Areas. WFP has a mix of legally established and proposed areas. The intent is to move proposed areas through the process to become legally established. Proposed OGMA's and WHA's will be managed as if established.
- When it is necessary to build roads through or harvest adjacent to one of these reserves, WFP attempts to minimize the impact and provides replacement habitat of similar quality, if necessary.
- As committed in Operational Plans, WFP ensures areas of equivalent marbled murrelet habitat are available in the Timber Harvesting Land Base (THLB) if suitable habitat is harvested in the NCLB.
- Western's Forest Strategy around variable retention will leave a legacy of mature and old forest attributes.
- As reliable habitat modelling tools and parameters become available for different species, WFP will apply them to its land base to guide the evolution of management prescriptions.

## Forecasts

Ungulate winter range is expected to not change over time as winter range is based on topographical and forested characteristics that are not expected to change significantly from the natural disturbance processes.

The quantity of potentially suitable habitat is forecast for marbled murrelet. This includes the current amount of potentially suitable habitat and future potentially suitable habitat (i.e., trees that are currently too young). This does not take into account habitat quality as the characteristics, such as moss development, are not easily modelled. It is expected that within the amount forecast not all will be suitable.

To forecast suitable habitat into the future only modelling can be used as the inventory gives the current state. Potentially suitable habitat was modelled using parameters from the marbled murrelet recovery team and in two steps.

- 1) For forests greater than 250 years old there was an assumption that the old growth characteristics would not change significantly in the long term and the following parameters were used: Forested area > 250 years old and  $\geq 28.5$  m tall. These parameters are from the “Most Likely” category defined in Table 3 in the Marbled Murrelet Conservation Assessment 2003, Part B.
- 2) For forests younger than 250 years old there is a potential to develop the necessary attributes. It was assumed that trees with a moderate or better site index had the potential to develop the characteristics and the following parameters were used: Forested area  $\leq 250$  years old and  $\geq 28.5$  m tall or site index  $\geq 18$ .

The table below shows the result of this modelling exercise. In essence, as currently young stands grow, substantially more potentially suitable habitat is available in the long-term for the marbled murrelet.

Habitat Type	Legal Reserves (ha)	NCLB <sup>1</sup> (ha)
Ungulate winter range.	2,130.0	0.0
Potential MAMU Nesting Habitat	4,878.0	23, 046.0

Goshawk nesting habitat mapping is not available at this time. The Northern Goshawk Recovery Team is in the process of creating and testing a habitat model for Vancouver Island. Once this model is released it may be used to calculate the amount of habitat conserved within reserves.

## Monitoring

The Wildlife Biologist & GIS Technician provides updated information in relation to this indicator to support the indicator basis for the target, current results, strategies and implementation and monitoring methods, as required. The general monitoring measures are as follows:

- Reserves are mapped spatially in a layer of the GIS. Changes in boundaries are tracked by Corporate Forestry biologists.
- Potential habitat supply will be monitored spatially relative to the target every 5 years.
- Non-contributing landbase will be recalculated with new timber supply analysis

The Operations Engineer coordinates GIS Analysis (shape files are maintained by government and are made available to licensees once areas are approved/ established).

## Indicator 1.2.3: Native Species Regeneration

### Element: 1.2 Species Diversity

*Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained through time, including habitats for known occurrences of species at risk.*

Value	Objective	Indicator	Target	Variance
Native tree species replacement on the DFA	Native tree species harvested on the DFA are replaced by native tree species	Proportion of regeneration comprised of native species	99% of the trees planted annually will be native species	-2.0%

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

The target is based on legal requirements under FRPA and the associated Chief Forester's Standards for Seed Use.

The variance is based on possible future regeneration that includes a small proportion of Noble Fir or other non-native species as climate change and browse resistance are more closely examined. Noble fir is a desirable species to reforest on TFL 44 at elevations greater than 700 meters due to its tolerance to heavy snow packs and its wood quality. At higher elevations where the planting of Douglas Fir is limited by snowpack, Noble fir becomes a good option. Young Noble Fir seedlings are very stiff and sturdy, possessing a large caliper at a young age and browse resistant. This allows these trees to be successful on areas with a high snowpack, on slopes with heavy snowfall, and areas of high ungulate use. Unlike other true firs, such as Amabilis Fir, Noble Fir produces a stronger more durable wood, with a very high strength-to-weight ratio.

Research completed by the Ministry of Forests in 1992 found Noble Fir grows well on sites in the warmer variants of the Dry and Moist Maritime Coastal Western Hemlock subzones, and the wetter variant of the moist Mountain Hemlocks subzone. This is consistent to the future planting strategy of Noble Fir on TFL 44.

### Current Status & Results

Year	Planted	% Native Species	Target Met (Y/N)	Variance Met (Y/N)
2012	1,805,646	100	Y	n/a
2011	1,078,829	100	Y	n/a
2010	791,006	99	Y	n/a
2009	430,440	100	-	-

### Strategies & Implementation

The FSP contains the approved stocking standards for regeneration, which includes specific species, densities and minimum heights for each ecosystem type found in the DFA.

### Forecasts

It is anticipated that the target will be achieved as it is a legal requirement. The regeneration of non-native species is expected to be rare.

### Monitoring

The Operations Forester is responsible to coordinate annual reports of planted species and associated quantities through the Plant Wizard and/ or Cengea database and/ or the SPAR database.

## Indicator 1.3.1: Genetic Diversity

### Element: 1.3 Genetic Diversity

*Conserve genetic diversity by maintaining the variation of genes within species and ensuring that reforestation programs are free of genetically modified organisms.*

Value	Objective	Indicator	Target	Variance
Genetically modified organisms on the DFA	Genetically modified organisms are not introduced in the DFA	The percent of the trees planted annually that is genetically modified organisms	The percent of the trees planted annually that is genetically modified organisms is 0%	None

### History

New Core Element under CSA Z809-08.

### Basis for the Target

The target aligns with the current legal status: no genetically modified organisms are currently allowed.

### Current Status & Results

Year	% Genetically Modified Trees Planted	Target Met (Y/N)	Variance Met (Y/N)
2012	0	Y	n/a
2011	0	Y	n/a
2010	0	Y	n/a
2009	0	-	-

Only seedlings from registered seedlots are planted on the DFA. No genetically modified organisms are planted. Refer to indicator 1.2.3 for a detailed breakdown and registered seedlots that were used in the DFA.

### Strategies & Implementation

The only strategy in place related to this indicator is to only use seedlings from seedlots duly registered for use in BC in reforestation programs. Alternatively, natural regeneration is also used to enhance restocking of cutblocks.

The seedlot number of all stock planted in the DFA is entered in silviculture records.

### Forecasts

Currently, there is no expectation that genetically modified organisms would be allowed as restocking material.

### Monitoring

The primary means to maintain the silviculture records is through the entry of activity information in Cengea by the Timberlands Operations. Planting specific data is also recorded within the Plant Wizard database and the provincial SPAR database for seeds and seedlings.

## Indicator 1.4.1: Sites with Management Strategies

### Element: 1.4 Protected Areas & Sites of Special Biological or Cultural Significance

*Respect protected areas identified through government processes. Co-operate in broader landscape management related to protected areas and sites of special biological and cultural significance. Identify sites of special geological, biological, or cultural significance within the DFA and implement management strategies appropriate to their long-term maintenance.*

Value	Objective	Indicator	Target	Variance
Sites of special geological, biological, or cultural significance in the DFA	Management of sites of special geological, biological, or cultural significance in the DFA	Proportion of identified sites with implemented management strategies	100% of identified sites have implemented management strategies	-1 site per year

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

Some sites (e.g. karst sites, eagle nests) are managed consistent with legal requirements. Sites without legal requirements will be managed where practical with input from willing interest groups. The variance addresses unanticipated categories of special sites without legal requirements and currently known management strategies.

### Current Status & Results

Year	# of Sites Identified	# of Sites Implemented Management Strategies	% Managed	Target Met (Y/N)	Variance Met (Y/N)
2012	33	33	100	Y	n/a
2011	17	17	100	Y	n/a
2010	6	6	100	Y	n/a

Identified sites are reported as they occur within or adjacent to harvest and road activities for the preceding reporting year (reported from the Harvest and Road Instructions). For 2011 there were 6 karst sites and 11 Bear Dens identified. For 2012 there were 27 bear dens identified, 3 eagle nests, 2 Karst Features, and 1 Goshawk Nest.

### Strategies & Implementation

WIWAG has identified a desire to ensure protection/ conservation of special sites in the DFA such as historical sites (e.g., World War II plane crash sites, old railway grade, etc.), special habitat features (e.g. eagle and northern goshawk nests), geological sites (e.g. karst), and other special sites of interest. Where applicable, sites will be added to the GIS layers for future tracking.

Where these sites are identified during planning activities, WFP will develop management strategies, on a case by case basis. The WFP EMS ensures activities are carried out in accordance with protection measures (through Site Plans, Harvest and Road Instructions, EMS Pre-works and Inspections to assess implementation of plans and prescriptions.

### Forecasts

Where special sites have been identified, management strategies will be developed and implemented consistent with WFP's EMS and Operational Planning procedures.

## Monitoring

The Operations Engineer reviews the Harvest and Road Instructions for activities completed in the reporting year and reports on the number of sites identified and managed for (a review may also periodically be completed of the harvest and road inspections to confirm the plans were implemented). The WIWAG Facilitator reports on any additional sites identified by WIWAG to be added to this indicator for future tracking and reporting.

## Indicator 1.4.2: Cultural Sites

**Element: 1.4 Protected Areas & Sites of Special Biological or Cultural Significance**  
Respect protected areas identified through government processes. Co-operate in broader landscape management related to protected areas and sites of special biological and cultural significance. Identify sites of special geological, biological, or cultural significance within the DFA and implement management strategies appropriate to their long-term maintenance.

Value	Objective	Indicator	Target	Variance
Identified sacred and culturally important sites on the DFA	Provide protection for identified sacred and culturally important sites on the DFA	Protection of identified sacred and culturally important sites	100% of identified sacred and culturally important sites, (i.e., archaeological sites) are managed according to measures jointly developed by WFP and First Nations	-10%

### History

New Core Indicator under CSA Z809-08 (related to old Indicator 39).

### Basis for the Target

Legal requirements under Heritage Conservation Act, FRPA and results/ strategies from the Forest Stewardship Plan for management of Cultural Heritage Resources.

The target and the variance reflect the requirement to mitigate or control potential effects on identified culturally important sites.

### Current Status & Results

Year	# First Nations Special Sites Identified	Sites Managed (percent)	Target Met (Y/N)	Variance Met (Y/N)
2012	6	100%	Y	n/a
2011	5	100%	Y	n/a
2010	9	100%	Y	n/a
2009	3	100%	Y	Y
2008	7	100%	Y	Y
2007	4	100%	Y	Y
2006	0	N/A	Y	Y

For areas deemed harvest complete in 2012, 27 cutblocks had AIA's completed based on archaeological potential. Cutblocks 761418, 761424, 764316, 963106, 964213 and 964407 had CMTs found and were managed jointly.

### Strategies & Implementation

Based on Archaeological Overview Assessments (AOA), the DFA has been categorized into areas based upon archaeological site potential and the need for an archaeological impact assessment (AIA). Also, oral history, photographs, and traditional use information may be available for identifying important sites. Important sacred and cultural important site (i.e. archaeological site) are usually identified by the First Nation through information sharing and cultural referral processes. It is recognized that First Nations may not be prepared to identify the nature of all sacred and culturally important sites and any options for management strategies.

As required, AIAs are completed to identify and evaluate archaeological resources within the proposed development areas. AIAs identify and assess all impacts on archaeological resources that might result from the development, and recommend alternatives for managing unavoidable adverse impacts.

One of the primary archaeological resources identified in the AIA process are Culturally Modified Trees (CMTs). A CMT is a tree that has been altered by native people as part of their traditional use of the forest.

In most cases, AIAs are conducted jointly with representatives from the applicable First Nation. In addition, copies of the AIA report are referred to the First Nation for review and comment. Port Alberni Forest Operation also maintains open communication with First Nations in regards to harvesting and road construction activities (i.e., referral process, email communications, etc.). Through this process, First Nations are provided with communication tools to respond/ approve to the management options that are proposed within the AIA Report for management of identified features..

## **Forecasts**

At this time, joint development of management options is completed through the participation in the AIA field work, referral of the AIA report to review and consider the proposed management options, and the open communication through the referral process and general email communications. Through these processes, it is anticipated that the target will be achieved.

In the event that a particular First Nation expresses any concerns with the existing process, alternatives may need to be developed (e.g. Protocol Agreements).

## **Monitoring**

The Operations Engineer reports on the number of cultural/ archaeological sites identified within cutblocks harvested during the year (Cengea, Forest Ops.). Effectiveness of management strategies (e.g. CMT buffering) is monitored during post harvest assessments.

## Indicator 1.4.A: Sensitive Ecosystem Training

### Element: 1.4 Protected Areas & Sites of Special Biological or Cultural Significance

*Respect protected areas identified through government processes. Co-operate in broader landscape management related to protected areas and sites of special biological and cultural significance. Identify sites of special geological, biological, or cultural significance within the DFA and implement management strategies appropriate to their long-term maintenance.*

Sensitive ecosystems in the DFA	Sensitive ecosystems are identified and their important qualities protected	% of Planners trained in the Sensitive Ecosystem Inventory in the previous 24 months	75%	-10%
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### History

This indicator is carried forward from the 2009-2011 SFM Plan (indicator 7).

### Basis for the Target

To identify and protect sensitive ecosystems the training of field planners in recognition and management options is important. Multiple planners visit an area during road and cutblock development; therefore, if at least 75% of the planners receive training the area will be adequately assessed. Training on a 24 month cycle is reasonable given that the status of sensitive ecosystems is relatively static. The variance accounts for planners who are new to the DFA or who may work on a casual basis.

### Current Status & Results

Year	# of Planners Trained	% Trained	Target Met (Y/N)	Variance Met (Y/N)
2012	7/9	80	Y	n/a
2011	15	100	Y	n/a
2010	0/8	0	N	N
2009	13/14	92.8	Y	Y

### Strategies & Implementation

Sensitive Ecosystems are defined as those Biogeoclimatic Ecosystem Classification variants and site associations that have been identified through government processes as “sensitive” and typically include rare and endangered plant communities.

Sensitive ecosystems are tracked in the GIS Layers and are reviewed during Planning activities (the sites are identified based on high level overview ecosystem mapping). During Planning activities, the areas are reviewed in the field to confirm presence and/ or adjust mapping boundaries to match the actual field information. General management strategies include focusing stand level retention on areas identified as sensitive ecosystems.

Training in the identification of sensitive ecosystems (in addition to species at risk, invasive plants, etc) is required to ensure that field confirmation/ identification of these sites is completed accurately. All staff planners and principles of planning contractors/consultants (estimated at 10-20 people) will be captured in this training.

**Forecasts**

WFP has an internal program to ensure planners receive training in sensitive ecosystems on a 24 month cycle.

**Monitoring**

Operations Forester (with assistance from Administrative staff) generates training reports to summarize the number of Planners requiring training, and the number completed within the previous 24 months.

## Indicator 2.1.1a: Reforestation Success

<b>Element: 2.1 Forest Ecosystem Resilience</b>				
<i>Conserve ecosystem resilience by maintaining both ecosystem processes and ecosystem conditions.</i>				
Value	Objective	Indicator	Target	Variance
The timely establishment of regeneration on the DFA	Harvested areas on the DFA are regenerated promptly	Reforestation Success	Hectares of forest land missing its milestone obligation annually is zero	None

### History

New Core Indicator under CSA Z809-08 (relates to old indicator 11).

### Basis for the Target

The target and variance are tied to legal requirements under FRPA.

### Current Status & Results

Year	Regen (RG) or Free Growing (FG)	Hectares with RG or Late FG Date	Hectares meeting RG or FG Date (early or late)	Hectares missing RG or Late FG Date	Target Met (Y/N)	Variance Met (Y/N)
2012	Regen	569.67	569.67	0	Y	n/a
	Free Growing	497.72	497.72	0	Y	n/a
2011	Regen	1093.07	1093.07	0	Y	n/a
	Free Growing	905.01	905.01	0	Y	n/a
2010	Regen	1892.1	1889.2	2.9	N	N
	Free Growing	1285	1285	0	Y	n/a
2009	Regen	1,072.1	1,072.1	0	Y	n/a
	Free Growing	745.0	745.0	0	Y	n/a

### Strategies & Implementation

Milestone obligations are regeneration delay and free growing dates that are established within the Forest Stewardship Plan (approved stocking standards) based on ecosystem types. Timelines are set in motion upon harvest start dates.

Planting with appropriate species and brush control are the primary management tools that ensure reforestation and free growing commitments are met on time.

Government and WFP data bases are compared to ensure consistency SUs approaching their time limit for regeneration are given planting priority. Forestry department conducts surveys to ensure the success of reforestation.

### Forecasts

It is anticipated that the target will be met, as it is a legal requirement.

### Monitoring

Plantations are regularly assessed in the field to ensure milestone obligations are met and reported to government.

The Operations Forester generates a report from government's *RESULTS* database to summarize compliance with milestone obligations.

## Indicator 2.1.1b: Reforestation Success

### Element 4.1 Carbon Uptake and Storage

*Maintain the processes that take carbon from the atmosphere and store it in forest ecosystems.*

Value	Objective	Indicator	Target	Variance
The uptake and storage of carbon on the DFA	The uptake and storage of carbon is enhanced	Reforestation success	Equivalent years of Not Sufficiently Reforested (NSR) expressed as a five year rolling average is less than two years	+0.75 years

### History

New Core Indicator under CSA Z809-08 (and previous Indicator PA25).

### Basis for the Target

The target is based on legal requirements under FRPA for regeneration delay. The variance allows for minor discrepancies related to the challenges surrounding forecasting seed and seedling requirements one to two years ahead based on estimated harvest levels/ plans.

### Current Status & Results

Year	NSR Area (productive ha)	Area Harvested (ha)	Area Harvested, 5 Year Average (ha)	NSR Equivalency (years)	Target Met (Y/N)	Variance Met (Y/N)
2012	1509.8	1761.6	996.34	1.52	Y	n/a
2011	1038.9	1213.28	819.62	1.26	Y	n/a
2010	576.0	1005.8	721.2	0.80	Y	n/a
2009	572.0	422.0	678.1	0.84	Y	n/a
2008	707.0	579.0	942.0	0.75	Y	n/a
2007	877.0	878.0	1,063.0	0.82	Y	n/a
2006	1,609.2	833.4	2,027.0	0.79	Y	n/a
2005	1,235.0	1,478.0	2,166.0	0.60	Y	n/a

### Strategies & Implementation

Planting with appropriate species and brush control are the primary management tools that ensure reforestation and free growing commitments are met on time.

Natural regeneration is unpredictable on the DFA. Artificial regeneration through timely tree planting is the favored method for successful tree occupancy of harvested areas.

Plantations are regularly assessed in the field to ensure milestone obligations are met and reported to government. New plantations are established in the spring and the fall of each year and assessed for survival the year following tree planting.

### Forecasts

0.60 - 0.90 equivalent years based on historical information. Years 2011 and 2012 had higher harvest levels that will stabilize in 2013. Values for this indicator are expected to drop in 2013 and 2014.

### Monitoring

The Operations Forester generates a report from the Cengea Database detailing the total NSR hectares and the area harvested for cutblocks completed at the end of a calendar year.

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## Indicator 2.2.1a: Additions/ Deletions to Forest Area

### Element: 2.2 Forest Ecosystem Productivity

*Conserve forest ecosystem productivity and productive capacity by maintaining ecosystem conditions that are capable of supporting naturally occurring species. Reforest promptly and use tree species ecologically suited to the site.*

Value	Objective	Indicator	Target	Variance
The productivity of the DFA	The productivity of the DFA is maintained over time	Additions and deletions to the forest area	The net percent of forest area harvested each year in the DFA that is converted to permanent access structure (PAS) does not exceed 7%	+ 1%

### History

New Core Indicator under CSA Z809-08 (old indicator 17).

### Basis for the Target

The target and variance is based on legal requirements under FRPA. PAS is permitted to exceed 7% in specific situations for variables such as safety considerations, terrain constraints, etc. provided appropriate rationale is documented.

### Current Status & Results

Year	TAUP (ha)	Permanent Access (ha)	Access as % of TAUP	Target Met (Y/N)	Variance Met (Y/N)
2012	2267.54	118.8	5.2	Y	n/a
2011	1693.01	85.6	5.1	Y	n/a
2010	1005.8	46.8	4.7	Y	n/a
2009	173	11.6	6.7	Y	n/a
2008	1765	80	4.6	Y	n/a
2007	-	-	5.2	Y	n/a
2006	1534.5	83.1	5.4	Y	n/a

### Strategies & Implementation

To minimize permanent access structures, appropriate yarding systems are applied to minimize road, and roads are rebuilt where necessary or appropriate. The 7% target is applied during planning to each block. Strategies that related to this indicator can also be found in the SFM Plan Management Strategies (Site Restoration).

### Forecasts

Based on historical data, it is anticipated that the average PAS will range between 5-7% (allowing for slight variations between cutblocks as permitted under FRPA).

### Monitoring

The Operations Forester reports on the annual Total Area Under Prescription (TAUP), PAS hectares and PAS % for the cutblocks harvested each year using the Cengea database Stocking Status (NP UNN), TAUP – Genus Silviculture Prescription Table. Actual PAS is confirmed to have met the planned limits through EMS Post Harvest Inspections.

## Indicator 2.2.1b: Additions/ Deletions to Forest Area

### Element 4.2 Forest Land Conversion

*Protect forest lands from deforestation or conversion to non-forests, where ecologically appropriate.*

Value	Objective	Indicator	Target	Variance
The conversion of forest land to other uses	Avoid excessive conversion of forest lands into other uses	Additions and deletions to the forest area	The net percent of the DFA forest land that is annually converted to other uses (Special Use Permits (SUP), etc.) is less than 0.001%	+0.0005%

### History

New Core Indicator under CSA Z809-08 (related to old indicator 26).

### Basis for the Target

Given the long history of timber harvesting in the DFA and the existing infrastructure only very small amounts of forest land are targeted for conversion to other uses. Some losses are required for capacity expansion such as Dryland Sorts, landfills, etc. Similarly, the reclaiming of previously converted lands is very site specific and usually associated small areas in the DFA. Areas most commonly reclaimed are decommissioned roads.

### Current Status & Results

Year	Forest Area Including Road Area (ha)	Net Conversion (%)	Target Met (Y/N)	Variance Met (Y/N)
2012	127,620	0.0	Y	n/a
2011	127,620	0.0	Y	n/a
2010	127,620	0.0	Y	n/a
2009	145,518	0.0	Y	n/a
2008	145,518	0.0	Y	n/a
2007	145,518	0.0	Y	n/a
2006	145,518*	0.00	Y	n/a
2005	146,313	baseline	-	-

The area removed from the DFA in 2006 was removed and allocated to BCTS, it was not converted to non-forest use.

### Strategies & Implementation

All Crown land in a tree farm license is designated a "Provincial Forest" land. This designation limits the ability of the company to convert the land to other uses. The *Land Act* establishes that land can be converted for easements or rights of way, or for other purposes if the Chief Forester deems those uses to be compatible with uses described in the *Forest and Range Practices Act (Provincial Forest Use Regulation)*. There are also circumstances where areas (e.g. roads having surfacing removed) are reclaimed through rehabilitation and reforestation.

### Forecasts

It is anticipated that the net area converted to other uses will be very low given the existing infrastructure that is in place.

### Monitoring

The Operations Forester coordinates receipt of information from Corporate staff in the Properties and Permit department for losses of forest land and compare to areas that are reclaimed.

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## Indicator 2.2.2: Sustainable Harvest

### Element: 2.2 Forest Ecosystem Productivity

Conserve forest ecosystem productivity and productive capacity by maintaining ecosystem conditions that are capable of supporting naturally occurring species. Reforest promptly and use tree species ecologically suited to the site.

Value	Objective	Indicator	Target	Variance
The production of timber on the DFA	To maintain the production of timber at the level defined by the Long Term Harvest Level (LTHL)	Proportion of the calculated long-term sustainable harvest level that is actually harvested	The 5-year average annual harvest level is 100% of the Long Term Harvest Level (LTHL)	+10% -5%

### History

New Core Indicator under CSA Z809-08 (relates to old indicator 28).

### Basis for the Target

Customer demand and government legislation are the basis for pursuing 100% of the Long Term Harvest Level (LTHL) over a 5-year period. The variance is permitted without penalty under government legislation and addresses the potential for fluctuations in customer demand. This indicator will be slightly modified in 2013 to better align with legislated cut control period.

### Current Status & Results

Year	Annual Harvest Level (m <sup>3</sup> )	LTHL (m <sup>3</sup> )	Annual Harvest as % of LTHL	Target Met (Y/N)	Variance Met (Y/N)
3 year average 2010-2012	1,163,335	806,600	144	n/a	n/a
5 year average: 2005-2009	822,864	1,039,694	79	N	N
5 year average: 2000-2004	1,718,520	1,602,000	107	Y	n/a

3 year average based upon;

2010 Harvest: 784,605 m<sup>3</sup> 2011 Harvest: 1,210,053 m<sup>3</sup> 2012 Harvest: 1,495,346m<sup>3</sup>

The Forest Industry and WFP have been experiencing poor market conditions over the past few years, resulting in lower harvest rates. It is anticipated that the LTHL will decrease to 806,600 (base case) if the Chief Forester makes a determination consistent with the recently completed Management Plan.

### Strategies & Implementation

WFP's broad strategy is to meet customer demands by supplying and developing good quality products that will allow the annual harvest to be 100% of the LTHL. The LTHL is calculated by Corporate Forestry by evaluating the rate of growth (Timber Supply Analysis prepared in support of Chief Forester AAC Determination). The Chief Forester takes this number into consideration when the AAC is set.

LTHL is dependent on area, the productivity of the forestland, level of silviculture (e.g. numbers of trees established per ha, control of competing vegetation, fertilization etc.) and harvest constraints (e.g. restrictions on the rate of harvest). All of these factors are defined in the strategic analysis.

## Forecasts

WFP's ability to control this indicator is limited. With customer demand improving in 2011 it is expected that WFP will harvest its AAC over the next few years. There is potential for government to award undercut volumes of greater than 5% of the AAC to third parties. Overcuts are permitted to some degree under legislation, but penalties are implemented for levels in excess of permitted ranges.

## Monitoring

The Operations Forester is responsible for coordinating harvest volume data using the Harvest Billing System scale reports (with assistance from the Cutting Permit submission coordinator). The annual harvest level will be based on the billed volume (including waste) for a calendar year.

## Indicator 3.1.1: Soil Disturbance

Element: 3.1 Soil Quality and Quantity				
<i>Conserve soil resources by maintaining soil quality and quantity.</i>				
Value	Objective	Indicator	Target	Variance
The quality of forest soils in the DFA	Harvesting operations do not excessively disturb forest soils	Level of soil disturbance	The number of cutblocks harvested annually in which soil disturbance exceeds 5% of the net area to reforest is zero	None

### History

New Core Indicator under CSA Z809-08 (relates to old indicator 16).

### Basis for the Target

The target and variance is based on legal requirements established in FRPA for sensitive soils. Non-sensitive soils have a limit of 10% soil disturbance and roadside areas have a limit of 25%.

### Current Status & Results

Year	# Cutblocks Exceeding 5% Soil Disturbance	Target Met (Y/N)	Variance Met (Y/N)
2012	0	Y	n/a
2011	0	Y	n/a
2010	0	Y	n/a
2009	0	Y	n/a
2008	2	N	n/a
2007	0	Y	n/a
2006	0	Y	n/a
2005	0	Y	n/a

### Strategies & Implementation

The strategy to not exceed 5% of the Net Area to be Reforested is to (per SOPs):

- Identify sensitive soils in the planning stages through field work (limits are recorded in Site Plans).
- Assign the appropriate harvest method (ground based, cable, aerial) for the soil conditions
- Assign the appropriate equipment to the soil conditions (hoe-chuck vs. skidder)
- Use woody debris to insulate soil disturbance
- Curtail operations during wet weather

Soil disturbance is assessed during cutblock inspections and post harvest inspections. Standard Operating Procedures are updated with new information for minimizing soil disturbance, as required. Cutblocks may exceed 5% for non-sensitive soils and roadside work areas as permitted under FRPA.

### Forecasts

The historical performance indicates that the current Standard Operating Procedures and feedback strategies will ensure that cutblock soil disturbance is maintained at or below 5%.

### Monitoring

The Operations Forester reviews inspection reports for cutblocks harvested within the year and reports the number of cutblocks that are recorded as exceeding the 5% soil disturbance limit.

## Indicator 3.1.A: Limit Herbicides

### Element: 3.1 Soil Quality and Quantity

*Conserve soil resources by maintaining soil quality and quantity.*

Value	Objective	Indicator	Target	Variance
The natural chemistry of forest soils in the DFA	The natural chemistry of forest soils is maintained	The percent of the DFA area where herbicides are applied	< 0.1% (annually)	+0.05%

### History

This indicator is carried forward from the 2009-2011 SFMP (indicator 18).

### Basis for the Target

The variance is based on seasonal (weather) and public consultation constraints that may delay treatments in a given year.

### Current Status & Results

Year	Total DFA (ha)	Area Treated (ha)	Percent Treated (%)	Target Met (Y/N)	Variance Met (Y/N)
2012	139,446	0.0	0.0	Y	n/a
2011	139,446	0.0	0.0	Y	n/a
2010	139,446	0.0	0.0	Y	n/a
2009	157,489	115.0	0.07	Y	n/a
2008	157,489	0.0	0.0	Y	n/a

### Strategies & Implementation

The primary strategy is to minimize the use of toxic herbicides for brush treatments. To minimize the use of herbicides harvested areas are reforested promptly so that planted seedlings may thrive amidst competing vegetation. Where effective manual treatments are available for competing vegetation (e.g. red alder) herbicides are avoided. Only herbicides deemed slightly toxic (e.g. glyphosate and Triclopyr) are used.

Pre-harvest planning includes a review of vegetation levels and potential challenges (Site Plan field work). Post-Harvest silviculture surveys also review vegetation levels. Treatments are prescribed within the Cengea database as forward planning activities, where required to meet regeneration milestones (regeneration and free growing).

### Forecasts

It is anticipated that the percent treated will typically be less than 0.1%, based on historical average.

### Monitoring

The Operations Forester generates reports of areas treated from the Cengea database.

## Indicator 3.1.2: Downed Woody Debris

### Element: 3.1 Soil Quality and Quantity

*Conserve soil resources by maintaining soil quality and quantity.*

Value	Objective	Indicator	Target	Variance
Wood debris available for soil processes on the DFA	Maintain sufficient amounts of wood debris for soil processes	Level of downed woody debris	> 15 m <sup>3</sup> per hectare (annually)	-5.0 m <sup>3</sup> per hectare

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

The target and variance is guided by a FRPA requirement to retain about 10 m<sup>3</sup> per hectare.

### Current Status & Results

Year	Downed Woody Debris (m <sup>3</sup> ) per hectare	Target Met (Y/N)	Variance Met (Y/N)
2012	139.04	Y	n/a
2011	123.0	Y	n/a
2010	108.9	Y	n/a
2009	67.6	Y	n/a

### Strategies & Implementation

Coastal stands often have significant levels of downed and dead standing woody debris at various levels of decomposition. Harvesting operations may remove some dead woody debris but more often add to these levels by leaving non-merchantable wood on site. Yarding activities attempt to leave non-merchantable wood dispersed on site rather than create unnecessary road-side accumulations. Broadcast burning of woody debris has been virtually eliminated as a site preparation tool.

### Forecasts

The level of downed woody debris is affected by the degree of old growth vs. second growth harvesting, the amount of conventional vs. helicopter yarding, and the timber values. For 2013 to 2015 downed woody debris levels are expected to remain constant or drop as markets improve.

### Monitoring

The level of downed woody debris will be measured through the government residue monitoring process. The Operations Forester reviews the results of billed waste from HBS in a calendar and divides the total billed by the merchantable area of the associated cutblocks.

## Indicator 3.2.1: Watershed Disturbance

Element: 3.2 Water Quality and Quantity				
<i>Conserve water resources by maintaining water quality and quantity.</i>				
Value	Objective	Indicator	Target	Variance
Water quality and quantity	Management operations do not endanger water quality and quantity	Proportion of watershed or water management areas with recent stand-replacing disturbance	The annual number of watersheds greater than 3000 hectares in size that have more than 30% of their area in the 0-20 years age class is two or less	+1 Watershed

### History

New Core Indicator under CSA Z809-08 (relates to old indicator 2 and 13 which measured harvesting as a percentage of landscape units).

### Basis for the Target

In general terms, watershed health is related to the amount of forest area that exists in a non-hydrological recovered state (younger stands). The value of 30% by area and age class reflects a science-based approach to hydrological recovery. The variance reflects the potential for increased harvest in watersheds for product demands or damaged timber salvage and adjustments for recent changes in the DFA.

### Current Status & Results

Year	Watersheds with area > 3,000 hectares	Total Productive Area (ha)	Total area harvested in last 20 years (ha)	Percent of Total Productive Forest in Watershed	Target Met (Y/N)	Variance Met (Y/N)
2012	Caycuse River	5,294	887	16.8%	Y	n/a
	Coleman Creek	8,068	1,449	18.0%		
	Franklin River	5,375	1,114	20.7%		
	Great Central Lake	17,401	2,087	12.0%		
	Henderson Lake	7,671	1,339	17.4%		
	Klanawa River	22,633	6,793	30.0%		
	Nitinat River	18,071	3,054	16.9%		
	Sarita River	5,079	671	13.2%		
	Walbran Creek	4,600	1,316	28.6%		
2011	Caycuse River	5,299	810	15.3%	Y	n/a
	Coleman Creek	8,079	1,252	15.5%		
	Franklin River	5,380	1,005	18.7%		
	Great Central Lake	17,405	2,099	12.1%		
	Henderson Lake	7,673	1,345	17.5%		
	Klanawa River	22,645	6,616	29.2%		
	Nitinat River	18,083	2,865	15.8%		
	Sarita River	5,081	604	11.9%		
	Walbran Creek	4,606	1,369	29.7%		

2010	Caycuse River	5,436	814	15.0%	Y (1>30%)	n/a
	Coleman Creek	8,081	1,083	13.4%		
	Franklin River	5,382	993	18.5%		
	Great Central Lake	17,428	2,044	11.7%		
	Henderson Lake	7,721	1,404	18.2%		
	Klanawa River	22,262	6,319	28.4%		
	Nitinat River	18,113	2,956	16.3%		
	Sarita River	5,130	818	15.9%		
	Walbran Creek	4,641	1,471	31.7%		
2009	Caycuse River	5,436	927	17.06	Y (1>30%)	n/a
	Coleman Creek	8,080	1,030	12.75		
	Franklin River	5,382	995	18.49		
	Great Central Lake	17,428	2,288	13.13		
	Henderson Lake	7,721	1,654	21.43		
	Klanawa River	22,256	6,216	27.93		
	Nitinat River	18,102	2,900	16.02		
	Sarita River	5,129	847	16.51		
	Walbran Creek	4,641	1,523	32.82		

## Strategies & Implementation

The harvest level strategies are documented within the Timber Supply Analysis and the TFL 44 Management Plan (#5). The broad strategy is to distribute the harvest across the DFA considering the objectives of landscape level zonation (Special, General, and Enhanced), and the rates of cut associated with Fisheries Sensitive Watersheds and steep terrain.

## Forecasts

It is anticipated that the target will be met based on historical data. This is further supported in part by the Timber Supply Analysis and the projected harvest levels.

## Monitoring

The Operations Engineer coordinates GIS Analysis and updates with the harvested areas in the previous year (the data is exported to an excel spreadsheet).

## Indicator 3.2.A: Watershed Condition

### Element: 3.2 Water Quality and Quantity

*Conserve water resources by maintaining water quality and quantity.*

Value	Objective	Indicator	Target	Variance
The hydrological condition of sensitive forested watersheds in the DFA	The hydrological condition of sensitive watersheds is improved	The average number of landslides originating from harvested areas in the high landslide frequency zone of Alberni Inlet East	The average number of landslides per year is 2.3 or less per 100 hectares harvested from areas in the high landslide frequency zone (based on a ten year rolling average measured every 3 years)	+1.0 Landslide

### History

This indicator replaces an earlier designation of “red and orange” listed watershed basins described in a watershed assessment performed every 10 years. The infrequency of this assessment created a need to describe a more frequently reported indicator.

### Basis for the Target

The target is based on historic landslide data dating back to 1995 and a reduction in landslide frequency since 2007. The landslide inventory of the DFA is updated every three years by Glynnis Horel, P. Eng. (Geological Engineer specializing in terrain evaluation, slope stability assessments, watershed assessments, road deactivation, railway grade and road construction, and road maintenance and reconstruction). The variance accounts for the potential for catastrophic events or the uncertain impacts of climate change.

### Current Status & Results

Year Harvested	10 Year Landslide Frequency	Target Met (Y/N)	Variance Met (Y/N)
2011	2.5	n/a	n/a
2010	3.2	n/a	n/a
2009	3.8	n/a	n/a
2008	4.1	n/a	n/a

The next scheduled update to the landslide inventory is 2014.

### Strategies & Implementation

Western Forest Products maintains a *Terrain Risk Management Strategy (TRMS)* to guide its forest professionals in choosing appropriate risk management strategies when planning forest roads and cutblocks. The *TRMS* was developed and is supported with research findings and input from respected terrain and forest professionals. When planning forest roads and cutblocks, forest professionals use the *TRMS* to consider the potential for landslide occurrence, sediment delivery to streams, and values at risk. They will also consult terrain specialists to guide their management decisions. To assist with the reduction in landslide frequency Western Forest Products ensures that roads are properly inspected, maintained, or deactivated. Additional strategies related to this indicator can be found in the SFM Plan *Management Strategies*.

**Forecasts**

The landslide frequency has fallen or remained stable for several consecutive periods. While trends are encouraging the most recently harvested areas have not been fully tested. Nevertheless, recent adjustments to harvest practices on steep slopes based on evolving research show promise for further reductions in frequency. Future updates of the landslide inventory will need to account for changes in the area of the DFA.

**Monitoring**

The Operations Engineer ensures the landslide inventory is updated every three years. The Operations Engineer consults the most current version of the landslide inventory and determines the number of landslides by harvest year and relates the information to the total harvest by year in the high landslide frequency zone.

## Indicator 3.2.B: Community Watersheds

<b>Element: 3.2 Water Quality and Quantity</b>				
<i>Conserve water resources by maintaining water quality and quantity.</i>				
<b>Value</b>	<b>Objective</b>	<b>Indicator</b>	<b>Target</b>	<b>Variance</b>
Water quality in community watersheds in the DFA	Water quality in community watersheds is maintained	The number of water-related non-compliances or non-conformances in community watersheds	Zero	None

### History

This indicator is carried forward from the 2009-2011 SFMP (indicator 19).

### Basis for the Target

The target and variance are based on legal requirements under FRPA and the WFP EMS.

### Current Status & Results

<b>Year</b>	<b># of non-Conformance</b>	<b># of non-Compliance</b>	<b>Target Met (Y/N)</b>	<b>Variance Met (Y/N)</b>
2012	0	0	Y	n/a
2011	0	0	Y	n/a
2010	0	0	Y	n/a
2009	0	0	Y	n/a
2008	0	0	Y	n/a

### Strategies & Implementation

Standard Operating procedures (SOPs) govern and limit any negative impacts to water quality. Moreover, the current FSP has strategies for sediment control in community watersheds specific to ditch cleaning, culvert replacement, road surfacing and road maintenance.

### Forecasts

It is anticipated that the target and variance will be met, as the target is related to a legal requirement.

### Monitoring

The Operations Engineer reviews the central file for external and internal audits, inspections and/or investigations and the Cengea database Incident Tracking System for reports of non-conformance or non-compliance. Conformance and compliance to the SOP's is monitored through cutblock, road, and post harvest inspections.

## Indicator 3.2.C: S4 Streams

### Element: 3.2 Water Quality and Quantity

*Conserve water resources by maintaining water quality and quantity.*

Value	Objective	Indicator	Target	Variance
Non-ephemeral S4 fish streams in the DFA	Maintain or increase the level of protection for non-ephemeral S4 fish streams	The percent of stream length of S4 fish, non-ephemeral streams that are buffered	The percent of stream length of S4 fish, non-ephemeral streams that are buffered > 15 meters in areas harvested annually is 80% or greater	-5%

### History

This indicator is carried forward from the 2009-2011 SFMP (indicator 20).

### Basis for the Target

The target is based on maintaining habitat to support WIWAG input on riparian habitat and fish and an objective under FRPA. Historically, a WIWAG subcommittee established the targets after discussion and field measurements of actual achievements.

### Current Status & Results

Year	Operation	Cutblocks (number)	Total (km)	Buffered (km)	Buffered (%)	Target Met (Y/N)	Variance Met (Y/N)
2012	Total	11	3.485	2.960	84.9	Y	n/a
2011	Total	6	5.66	5.34	94	Y	n/a
2010	Total	47	.825	.725	88	Y	n/a
2009	Total	4	0.345	0.315	91.3	Y	n/a
2008	Total	8	2.1	1.9	93.0	Y	n/a
2007	Total	12	7.6	6.4	85.0	Y	n/a
	Alberni East	8	5.0	4.7	94.0	Y	n/a
	Alberni West	1	0.075	0.075	100.0	Y	n/a
	BCTS/MoFR	3	2.5	1.7	67.0	N	N
2006	Total		3.629	2.997	83.0	Y	n/a
	Alberni East (Hayes)	5	2.199	1.712	78.0	N	Y
	Alberni West	not reported	-	-	-	-	-
	BCTS & MoFR		1.430	1.285	90.0	Y	n/a
2005	Total	9	2.907	2.383	82.0	Y	n/a

### Strategies & Implementation

Planners utilize riparian areas when considering the best location for the placement of retention. Retention along streams is determined at cutblock design. Riparian values are often used to determine the location of VR patches. Yarding systems and windthrow hazard are other factors that require consideration. Strategies related to this indicator can also be found in the SFM Plan Management Strategies (Riparian Management).

### Forecasts

84%. This forecast reflects that historical data shows that the target has been met in the past and should continue to be fully met.

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## Monitoring

The Operations Engineer coordinates review of the Logged hectares register and reports the required data/ results. Streams are manually measured. The post harvest assessment process monitors the effectiveness of the stream buffers.

## Indicator 3.2.D: S5 Streams

Element: 3.2 Water Quality and Quantity <i>Conserve water resources by maintaining water quality and quantity.</i>				
Value	Objective	Indicator	Target	Variance
Non-ephemeral S5 streams in the DFA	Maintain or increase the level of protection for non-ephemeral S5 streams	The percent of stream length of S5 non-ephemeral streams that are buffered	The percent of stream length of S5 non-ephemeral streams that are buffered > 15 meters in areas harvested annually is 60% or greater	-5%

### History

This indicator is carried forward from the 2009-2011 SFMP (indicator 21).

### Basis for the Target

The target is based on maintaining habitat to support WIWAG input on riparian habitat and fish and an objective under FRPA.

### Current Status & Results

Year	Operation	S5 stream (cutblock)	Total (km)	Buffered (km)	Buffered (%)	Target Met (Y/N)	Variance Met (Y/N)
2012	Total	54	25.085	20.970	83.6	Y	n/a
2011	Total	39	26.27	23.27	89.0	Y	n/a
2010	Total	47	15.525	13.350	86.0	Y	n/a
2009	Total	23	16.325	14.640	89.7	Y	n/a
2008	Total	41	24.8	21.7	88.0	Y	n/a
2007	Total	29	26.6	25.3	95.0	Y	n/a
	Alberni East	17	16.7	15.9	95.0	Y	n/a
	Alberni West	7	4.2	3.8	90.0	Y	n/a
	BCTS/MoFR	5	5.7	5.6	100.0	Y	n/a
2006	Total		6.754	6.406	94.5	Y	n/a
	Alberni East (Hayes)	10	6.474	6.126	94.6	Y	n/a
	Alberni West	not reported	-	-	-	-	-
	BCTS & MoFR		.280	.280	100.0	Y	n/a
2005	Total	-	16.18	13.36	83.0	Y	n/a

### Strategies & Implementation

Planners utilize riparian areas when considering the best location for the placement of retention. Retention along streams is determined at cutblock design. Riparian values are often used to determine the location of VR patches. Yarding systems and windthrow hazard are other factors that require consideration. Strategies related to this indicator can also be found in the SFM Plan Management Strategies (Riparian Management).

**Forecasts**

75%. This forecast reflects that historical data shows that the target has been exceeded in the past and should continue to be fully met.

**Monitoring**

The Operations Engineer coordinates review of the Logged hectares register and reports the required data/ results. Streams are manually measured. The post harvest assessment process monitors the effectiveness of the stream buffers.

## Indicator 4.1.1: Carbon Uptake & Storage

Element: 4.1 Carbon Uptake and Storage				
<i>Maintain the processes that take carbon from the atmosphere and store it in forest ecosystems.</i>				
Value	Objective	Indicator	Target	Variance
The uptake of carbon	The net rate of carbon uptake by the forest is positive over time	Net carbon uptake	The net annual carbon uptake on the DFA is positive	1 year negative

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

The basic premise of a sustainable forest management organization is that it should be at least carbon neutral from the onset. In this context carbon neutrality is a demonstration that harvest levels are sustainable. In itself, forest management should be shown to be a positive contributing activity for global ecological cycles over time.

The variance is meant to help account for fluctuation in yearly cut levels due to market conditions and license obligations under provincial legislation.

### Current Status & Results

The net carbon uptake on the DFA is simply defined as the difference between the total carbon uptake on the DFA by its growing stock, minus the net carbon removed from the DFA through harvest operations and the total carbon emitted through fuel consumption during forest management operations.

Year	Description	CO2e (tonnes)	Target Met (Y/N)	Variance Met (Y/N)
2012	Carbon uptake (from growing stock TFL 44)	628,395	N	Y
	Carbon removed (to short-lived products <sup>1</sup> )	-533,207		
	Fuel Consumed (harvest & transport)	-20617		
	Debris burned (debris disposal/operational fires)	-114,364		
	NET Carbon Uptake	-39,793		
2011	Carbon uptake (from growing stock TFL 44)	627,058	Y	n/a
	Carbon removed (to short-lived products <sup>1</sup> )	-441,382		
	Fuel Consumed (harvest & transport)	-19,114		
	Debris burned (debris disposal/operational fires)	-28,713		
	NET Carbon Uptake	137,849		
2010	Carbon uptake (from growing stock TFL 44)	647,205	Y	n/a
	Carbon removed (to short-lived products <sup>1</sup> )	264,285		
	Fuel Consumed (harvest & transport)	8,046		
	Debris burned (debris disposal/operational fires)	11,062		
	NET Carbon Uptake	363,812		

2009	Carbon uptake (from growing stock TFL 44)	624,385	-	-
	Carbon removed (to short-lived products <sup>1</sup> )	-78,262		
	Fuel Consumed (harvest & transport)	-2,436		
	Debris burned (debris disposal/operational fires)	-16,598		
	<b>NET Carbon Uptake</b>	<b>527,089</b>		

<sup>1</sup> Short lived products refers to paper, cardboard, and firewood.

The baseline results calculated for the Port Alberni DFA for 2009 indicate that there is ample growing stock on the DFA to fix sufficient amounts of carbon to replace the volume harvested that year. Given that only a portion of the Allowable Annual Cut (AAC) was harvested that year, the Net Carbon Uptake is higher than it would be in a year of normal level of activity.

To calculate performance of this indicator, the following applies:

- The net carbon uptake on the DFA is simply defined as the difference between the total carbon uptake on the DFA by its growing stock, minus the net carbon removed from the DFA through harvest operations and the total carbon emitted through fuel consumption during forest management operations.
- The net volume of carbon removed is a factor of the total volume harvested that accounts for the portion of the harvest that remains sequestered in long-life products such as building lumber and furniture.
- Net carbon uptake can be expressed in a simple equation as follows:
  - Carbon uptake (from growing stock)
  - Carbon removed (to short-lived products)
  - Fuel consumed (harvest & transport)
  - Debris burned (debris disposal/operational fires)
  - Net carbon uptake
- Carbon uptake is estimated from forest growth and the carbon density of wood. Forest growth on the DFA is calculated through the harvest projection model by applying yield curves or growth estimates from the latest applicable timber supply analysis to the productive forest. For simplicity, no growth is assumed for "old-growth" age classes greater than 139 years of age. Growth is distributed by species according to volumes by species recorded for "second-growth" (less than 140 years of age) in inventory reporting. This estimated annual growth (in m<sup>3</sup>) is multiplied by the average carbon density estimates (kg/m<sup>3</sup>) by species to obtain the carbon uptake in tonnes of carbon
- The carbon removed is calculated based on the log volume production for each species. The annual log production (in m<sup>3</sup>) is multiplied by the average carbon density estimates (kg/m<sup>3</sup>) by species to obtain the gross carbon removed. This is then multiplied by a factor of 60% to estimate the tonnes of carbon removed to short-lived products. For simplicity, only stem-wood volume is considered in the calculation which is consistent with the results of yield curves.
- Port Alberni Operation being a contract operation, it is not possible to obtain detailed fuel consumption data at this time. As a substitute, an average weight of carbon emitted from fuel consumption per cubic meter of log production (Kg fuel C / m<sup>3</sup>) was calculated using the information available from all the Western Timberlands Operations. This average rate was then multiplied by the volume production (m<sup>3</sup>) for Port Alberni to calculate the total weight (in tonnes) of carbon emitted from fuel consumption.

- Finally, the carbon emitted through forest practices such as debris burning or through other operationally caused fires is estimated by multiplying the approximate volume of wood consumed (in m<sup>3</sup>) by the average carbon density estimates (kg/m<sup>3</sup>) of all of the entire harvested volume to obtain the carbon uptake in tonnes of carbon.

## Strategies & Implementation

The primary strategy for ensuring a consistent net rate of carbon uptake on the DFA overtime is prompt and effective reforestation or regeneration of harvested areas that aims to establish free growing stands of healthy trees of mixed species in sufficient numbers and within set time frames. This is primarily achieved through a combination of natural regeneration and the planting of seedlings shortly after harvest is completed.

In certain circumstances, additional treatments/ strategies may be required in support of this core strategy to achieve its goal including:

- Site preparation such as spot or broadcast burns or mechanical debris scattering or removal to ensure a good distribution of the regeneration throughout the harvested area.
- Fertilization at the time of planting to help initial seedling growth and establishment ahead of competing brush.
- Physical protection of seedlings against browsing pressures from deer and/or elk.
- The use of improved seed for planted seedlings that have improved growth performance and/or insect or disease resistance.
- Brushing treatments to relieve young trees from some of that competition.
- Broadcast fertilization of stands to stimulate growth (e.g., SCHIRP) when funding is available.
- Forest fire preparedness & response that aim at the prevention of fires and the prompt control and extinguishment of those that occur.
- Modernizing or upgrading of equipment that result in improved fuel efficiencies.

## Forecasts

Testing of different harvest levels in the spreadsheet model indicates that the annual net carbon uptake would remain positive for the DFA at the normal AAC level of harvest but could turn negative in a year where substantially more than the AAC is harvested to compensate for a year of undercut.

## Monitoring

The Operations Engineer coordinates calculation of the Net Carbon Uptake using Cengea and GIS database (assistance may be provided by corporate personnel).

To monitor and calculate performance on this indicator, a number of parameters must be monitored or maintained for the DFA:

- Growing stock inventory over time (adjusted for age and for annual harvested area)
- The volume harvested annually
- The species profile of the harvested volume
- The age (i.e., old growth vs. 2<sup>nd</sup> growth) profile of the harvested volume
- Total annual fuel consumption (gasoline, diesel fuel, aircraft fuel)
- Annual area burnt in operationally caused forest fires
- Annual area burnt in broadcast silviculture fires
- Total number of debris piles burned annually for silviculture or fire abatement reasons and their average size.

The parameters listed above are entered in a spreadsheet built to calculate the carbon values emitted. It includes conversion factors extracted from recognized and credible international research literature. These factors include carbon density (CO<sub>2</sub>e) of wood by species in tonnes/m<sup>3</sup>, carbon density of various fuel types in tonnes/L and proportion (%) of wood harvested that is stored in short-lived products.

Until a protocol is devised to obtain reliable fuel consumption data from contractors, a company average factor will continue to be used to account for the annual fuel consumption (gasoline, diesel fuel, aircraft fuel).

## Indicator 5.1.1: WFP EBITDA

**Element: 5.1 Timber and Non-Timber Benefits**  
*Manage the forest sustainably to produce and acceptable and feasible mix of timber and non-timber benefits. Evaluate timber and non-timber forest products and forest-based services.*

Value	Objective	Indicator	Target	Variance
Timber and non-timber benefits	Timber and non-timber benefits are evaluated	Quantity and quality of timber and non-timber benefits, products, and services produced in the DFA	Report on the corporate EBITDA	None

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

The Port Alberni Forest Operation is a significant contributor to the corporate EBITDA. The corporate EBITDA is a benchmark of the net effect of all activities relating to the quantity and quality of timber and non-timber benefits, products, and services produced. WFP produces quality products to customers while supporting directly and indirectly many other interests in the DFA.

### Current Status & Results

Year	EBITDA	Target Met (Y/N)	Variance Met (Y/N)
2012	\$50.6 million	Y	n/a
2011	\$62 million	Y	n/a
2010	\$47.7 million	Y	n/a
2009	-\$34.8 million	-	-

### Strategies & Implementation

The forest provides a wide range of benefits, products and services to the local community and the province. The general types of timber and non-timber benefits from the forest include: outdoor activities and recreation opportunities (e.g., hiking, boating, camping), sustainable harvest of timber and non-timber resources (e.g., mushroom harvesting, salal harvesting); hunting, fishing, and trapping activities; opportunities for ecotourism (e.g., bird-watching, wildlife viewing); cultural and heritage resources; and ecological goods and services (e.g., drinking water provision)

“EBITDA stands for “Earnings Before Interest, Taxes, Depreciation, and Amortization”, a definition is provided in the SFMP Glossary. Since EBITDA provides a basic measure of the operating cash being generated from a business unit, it is an important indicator of financial performance. Positive operating cash flow allows an operating unit to pay off interest, debt, taxes, fund working capital, and reinvest in the business” (source: Western Matters Newsletter Fall 2010).

Several other indicators provide supporting evidence to the quality and quantity of timber and non-timber benefits, including but not limited to 1.4.A, 3.2.1 and 3.2.A-D, and 5.1.A-C.

### Forecasts

It is anticipated that the EBITDA will improve over time and reach a positive number as the forest industry bounces back from a depressed economy and WFP completes the corporate restructuring initiatives. However, based on historical results, the EBITDA will likely fluctuate over time.

### Monitoring

Operations Forester coordinates reporting of the current EBITDA (obtained from corporate office quarterly or annual reports).

## Indicator 5.1.A: Park Perimeter

### Element: 5.1 Timber and Non-Timber Benefits

*Manage the forest sustainably to produce and acceptable and feasible mix of timber and non-timber benefits. Evaluate timber and non-timber forest products and forest-based services.*

Value	Objective	Indicator	Target	Variance
Park and ecological reserve perimeters in the DFA	Operations in the DFA are planned to minimize risk to park and ecological reserve perimeters	The percent of park and ecological reserve perimeters where harvesting has occurred	The percent of the area within 100 meters of park and ecological reserve perimeters harvested over the previous five year period is 4.0 percent or less	+ 1%

### History

This indicator is a slight adaptation from the 2009-2011 SFMP (indicator 9).

### Basis for the Target

The target is based on the current Timber Supply Analysis and AAC, which do not exclude harvest volumes from the productive forest area, LTHL and AAC calculations (i.e., the forested areas along park perimeters are included in the productive forest area and are used to calculate the future harvest levels). The buffered area of 1079.7 ha represents about 0.8% of the DFA. Therefore, it is estimated that 4% of the buffer could be harvested in a five year period. The variance is to account for the need to respect logical timber harvesting boundaries in the planning process.

### Current Status & Results

Year	Park/Reserve Perimeter (km)	Area within 100 meters of Perimeter (ha)	Harvesting in Previous 5 years (ha)	% of Area Harvested in Previous 5 yrs.	Target Met (Y/N)	Variance Met (Y/N)
2012	134.6	1344.1	16.3	1.21	Y	n/a
2011	112.5	1,232.8	14.9	1.21	Y	n/a
2010	108.5	1,079.7	14.7	1.36	Y	n/a
2009	108.5	1,079.7	28.0	2.59	Y	n/a

### Strategies & Implementation

Historical results show that application of existing management strategies for items like wildlife, riparian, cultural, windthrow, etc. constrain the harvest areas sufficiently in order to achieve this indicator. The general strategy when harvesting adjacent to these areas is to deactivate roads to discourage vehicle traffic, conduct operations to minimize windthrow, verify boundaries to avoid trespass, and to retain coarse woody debris that may be introduced to boundary areas as a result of felling danger trees.

### Forecasts

It is anticipated that the percentage of park/ecological reserve perimeter harvested on an annual basis will be less than 10%, based on historical results and reflecting the suppressed harvest levels in the last 2 years and the trend that the cut is becoming more dispersed across the land-base.

### Monitoring

The Operations Engineer coordinates GIS analysis of harvested area within 100 meters of parks and ecological reserves on an annual basis. The post harvest assessment process will monitor the integrity of park and ecological reserve perimeters.

## Indicator 5.1.B: Recreation Access

### Element: 5.1 Timber and Non-Timber Benefits

*Manage the forest sustainably to produce and acceptable and feasible mix of timber and non-timber benefits. Evaluate timber and non-timber forest products and forest-based services.*

Value	Objective	Indicator	Target	Variance
Access to recreation areas in the DFA	To maintain public access to the identified recreation areas	The level of public access to the recreation areas outlined in the recreation access inventory	The number of roads identified in the recreation access inventory that are accessible is 6 or more (inventory includes class of road by 2-wheel, 4-wheel and foot access)	None

### History

This indicator is carried forward from the 2009-2011 SFM Plan (indicator 29).

### Basis for the Target

The target of six accessible sites is based on the evaluation of the existing recreational opportunities in the DFA considering features accessed and the amount of use. Public use is estimated as low for most of the identified sites.

### Current Status & Results

Year	# Identified Roads	# Identified Roads with Access	Identified Roads with Access (%)	Target Met (Y/N)	Variance Met (Y/N)
2012	13	13	100	Y	n/a
2011	13	13	100	Y	n/a
2010	13	13	100	Y	n/a
2009	12	12	100	Y	n/a
2008	12	12	100	Y	n/a
2007	7	7	100	Y	n/a
2006	13	13	100	Y	n/a
2005	13	13	100	Y	n/a

### Strategies & Implementation

The majority of the identified roads are main roads that most likely will not be deactivated. When deactivation plans are being developed, the Recreation Access Inventory is reviewed to ensure the target is met.

### Forecasts

It is anticipated that the identified roads with access will remain at 100% based on historical results. Recreation values and use will increase with time and more roads will be identified as important to recreation. One site (Runner's Trail) was added to the inventory in 2010. To date, the trail has received little use where it intersects the DFA but could increase with the proposed construction of the connecting Spine Trail.

### Monitoring

The Operations Engineer reviews the Recreation Inventory on an annual basis and compares with Deactivation Plans.

## Indicator 5.1.C: Mushroom Habitat Access

### Element: 5.1 Timber and Non-Timber Benefits

Manage the forest sustainably to produce and acceptable and feasible mix of timber and non-timber benefits. Evaluate timber and non-timber forest products and forest-based services.

Value	Objective	Indicator	Target	Variance
Mushroom habitat that is accessible in the DFA	Accessibility to mushroom habitat is maintained	The proportion of the DFA with accessible mushroom habitat	The proportion of the DFA within 200 meters of a maintained road and 20 years in age or greater is no less than 40% (measured every two years)	-10%

### History

This indicator is carried forward from the 2009-2011 SFM Plan (Indicator 27).

### Basis for the Target

The target and the variance are based upon the possibility of the movement of portable bridges making significant areas unavailable. This indicator has been developed based on the rationale that much of the non-timber forest product collection takes place within 200m of maintained road.

### Current Status & Results

Year	Total DFA Productive Forest (1)	Forest area within 200m of maintained roads and in 20+ year age class	Percent of DFA (%)	Target Met (Y/N)	Variance Met (Y/N)
2012	117,749	50,737	43.1	Y	n/a
2010	117,751	49,662	42.2	Y	n/a
2009	146,924	70,060	48.0	Y	n/a
2006	145,518	68,331	47.0	Y	n/a

### Strategies & Implementation

No special management strategy is required for this indicator at this time. Historical results show that existing management strategies related to road maintenance and access to the DFA combined with harvest methods that require road access within the harvest areas and the high costs associated with helicopter logging should result in no impediments to this target.

### Forecasts

It is possible that the proportion could fall below 40% if the harvest of second growth timber adjacent to maintained roads is accelerated in the short term. If the target is not met for two measurement periods then a more detailed analysis of mushroom harvesting in the DFA will be required to determine if it is being significantly impacted.

### Monitoring

The Operations Engineer is responsible to coordinate GIS Analysis. GIS is used to evaluate where the roads intersect with the relevant age classes, excluding de-built and planned permanent deactivation.

## Indicator 5.2.1: Communities & Sustainability

### Element: 5.2 Communities and Sustainability

*Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and by supporting local community economies.*

Value	Objective	Indicator	Target	Variance
Community sustainability	Support community sustainability	Level of investment in initiatives that contribute to community sustainability	The annual level of donations (dollar and in-kind) to the community will exceed \$1000	-\$500

### History

New Core Indicator under CSA Z809-08. This indicator is revised from the 2009-2011 SFM Plan (Indicator 35).

### Basis for the Target

The target reflects an improvement in economic activity for Port Alberni Forest Operation. The variance is maintained to account for periods of economic difficulty and market downturns.

### Current Status & Results

Year	Donation Type/ Amount (\$)	Total (\$)	Target Met (Y/N)	Variance Met (Y/N)
2012	Alberni District Fall Fair Alberni Athletic Association 70.9 m3 donated to McLean Mill 209.5 m3 to Uchucklesaht FN 63 m3 to Tseshah FN	\$26,634.37	Y	n/a
2011	Midget Grads Jerseys, New Journey Productions (Maa-Nuulth), National Forestry Week Alberni District Fall Fair Donation of 4 Logs to First Nations	\$11,522.00	Y	n/a
2010	Fallen Firefighters Assn, National Forestry Week, Royal Canadian Legion, Gently down the Creek Alberni District Fall Fair	\$4,086.50	Y	n/a
2009	Fall Fair Seedlings *	\$230.00	-	-

### Strategies & Implementation

Historically, investments in initiatives that contribute to community sustainability have mainly centered on the maintenance of recreation sites and salmon enhancement projects. Other projects would be considered for support in the context of the economic circumstances at the time they are identified.

## Forecasts

It is anticipated that the target will be met based on historical averages reflecting WFP's commitment to local communities, including participation in initiatives such as public education and salmon enhancement, but will likely vary annually depending on the overall health of the forest industry and WFP.

## Monitoring

The Operations Accountant reports the level of donations.

## Indicator 5.2.2: Training & Skills Development

**Element: 5.2 Communities and Sustainability**

*Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and by supporting local community economies.*

Value	Objective	Indicator	Target	Variance
Employee skills	Develop employee skills	Level of investment in training and skills development	Annual level of investment in training and skills development for forest planning staff and associated contractor principles averages 5 person-days per year	-0.5 person-days

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

The target addresses the need for forest planning staff and associated contractor principles to be competent in the results-based era of the Forest and Range Practices Act and the Association of BC Forest Professionals continuing competency/ education requirements. Moreover, the financial need of the business requires technological training of key workers to remain competitive. The variance is to account for training being reduced during times of market downturns.

### Current Status & Results

Year	Average Person Days of Professional Training	Target Met (Y/N)	Variance Met (Y/N)
2012	5.4	Y	n/a
2011	5.0	Y	n/a
2010	5.3	Y	n/a
2009	5.5	-	-

### Strategies & Implementation

WFP provides numerous training and skill development opportunities for employees and contractors under the existing Environmental Management System, Safety System and the Sustainable Forest Management Plan. In addition there are some training courses that are legally required such as Transportation of Dangerous Goods, Blasting, Crew Boat Operator, First Aid, etc.

This target is intended to measure the average number of person days of completed training per year in the category of skill/professional development. Skill/professional development training includes, but is not limited to workshops such as the Coastal Silviculture Committee, Association of BC Forest Professionals (ABC FP), soil conservation, stream management, variable retention, etc.).

Employee training records are maintained in the WFP Training Database.

### Forecasts

. It is anticipated that the target will generally be exceeded as competitive nature the forest sector accelerates.

### Monitoring

The Operations Forester coordinates a report from the Training Database for total training hours by Skill/professional development category, and obtains the person days per year statistic from the Accounting department.

## Indicator 5.2.3: Employment

### Element: 5.2 Communities and Sustainability

*Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and by supporting local community economies.*

Value	Objective	Indicator	Target	Variance
Employment	Provide employment	Level of direct and indirect employment	The annual level of direct and indirect employment is 2200 person-years or greater over a five year average	-25 (1%)

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

Historical data and Employment Statistics for the BC Forest Industry 1999 (PricewaterhouseCoopers). The LTHL harvest level of 997,592 cubic meters could generate employment of 2850 direct and indirect jobs (based on the Report). However, it is anticipated that the LTHL will be reduced to approximately 800,000m<sup>3</sup> per year, pending the Chief Forester determination on Management Plan #5 and setting of the new AAC. The new LTHL is expected to generate employment closer to 2200 direct and indirect jobs.

### Current Status & Results

Year	Employment Person Years	Target Met (Y/N)	Variance Met (Y/N)
4 yr average 2009-2012	2719	n/a	n/a

4 Year Average based upon; 2009 – 901, 2010 – 2243, 2011 – 3459, 2012 – 4274

The current employment person years is calculated from the 2011 level of harvest (1,210,053m<sup>3</sup>) and the PricewaterhouseCoopers 1999 coastal average of 0.0014292 direct jobs and 0.0014292 indirect jobs for every m<sup>3</sup> harvested. ([http://www.coastforest.org/pdf/stats\\_employ\\_econ.pdf](http://www.coastforest.org/pdf/stats_employ_econ.pdf)).

### Strategies & Implementation

It is currently Western's strategy to set a harvest level that aligns as much as possible with market demand within the AAC limits set by legal agreements and regulation. Also, employment is guided by contractual agreement with the union and contractor rights under legislation (Bill 13). More recently, Western's approach has been to make operating decisions based on the financial margins generated by Operations.

### Forecasts

It is expected that the actual employment levels will fluctuate due to the cyclical nature of the forest industry. Other external forces that can have a detrimental effect include labor strikes, extended weather extremes, productivity gains due to technological advancements and unforeseen land-base reductions. Given the current AAC it is anticipated that the target is achievable going forward.

## Monitoring

The Operations Forester is responsible to collect this information using the Cengea database and publically available reports regarding average number of (Full Time Equivalent) FTE jobs per m<sup>3</sup> harvested (e.g., PricewaterhouseCoopers 1999 report or equivalent).

## Indicator 5.2.4: Aboriginal Lands & Tenure

### Element: 5.2 Communities and Sustainability

*Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and by supporting local community economies.*

Value	Objective	Indicator	Target	Variance
Aboriginal forest economy	Maintain the aboriginal forest economy	Level of Aboriginal participation in the forest economy	Eight contractual arrangements with aboriginal communities annually	-4 contracts

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

WFP has a history of contractual arrangements with willing aboriginal communities in primary logging, log salvage, and assessment work. The DFA has been reduced significantly in recent years to accommodate First Nation interests including treaty. Future contractual arrangements will evolve as treaties are finalized. The variance addresses any gaps that could develop between the services required and the capacity available for the parties.

### Current Status & Results

Year	Contractual Arrangements	Target Met (Y/N)	Variance Met (Y/N)
2012	11	Y	n/a
2011	12	Y	n/a
2010	10	Y	n/a
2009	10	Y	n/a

### Strategies & Implementation

The target is intended to measure contractual arrangements with willing participants that have the potential for mutual benefits for WFP and the aboriginal community.

WFP will continue to explore mutually beneficial and economically viable business opportunities with willing participants

### Forecasts

The importance and scale of business arrangements should be maintained as aboriginal communities and WFP explore opportunities post treaty.

### Monitoring

The Operations Forester reports on the number contractual arrangements on an annual basis.

## Indicator 6.1.1: Understanding Title & Rights

### Element: 6.1 Aboriginal and Treaty Rights

*Recognize and respect Aboriginal title and rights, and treaty rights. Understand and comply with current legal requirements related to Aboriginal title and rights and treaty rights.*

Value	Objective	Indicator	Target	Variance
Aboriginal title and rights	Aboriginal title and rights are understood	Evidence of a good understanding of the nature of Aboriginal title and rights	Target evidence will be an update to annual employee training on Aboriginal title and rights	None

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

Forest professionals working with aboriginal peoples have a responsibility to understand how forest practices influence aboriginal title and rights. Aboriginal case law relating to title and rights is increasing. With the enactment of the Maa-nulth Final Agreement training of employees is necessary to understand the treaty title and rights flowing from the Agreement. Recognizing title and rights is also a component of WFP's corporate *Sustainable Forest Management Statement* for Timberlands.

### Current Status & Results

Year	Summary of Annual Training/ Employees Trained	Target Met (Y/N)	Variance Met (Y/N)
2012	Maa-nulth Treaty Implementation at FLMT mtg & Working Effectively with Aboriginal Peoples / Operations Forester	Y	n/a
2011	Understanding Title & Rights / Area Forester & Manager/ Operations Forester	Y	n/a
2010	Understanding Title & Rights / Area Engineer	Y	n/a
2009	Workshop/ Presentation-Maa-nulth Treaty Process/ Operations Forester Workshop/ Presentation-Law Firm/ Operations Forester	-	-

Corporate also circulates legal updates/ information from legal counsel.

### Strategies & Implementation

Several staff members are specifically focused on working with aboriginal peoples in the DFA. These staff members liaise with aboriginal peoples and government agencies to understand the nature of aboriginal rights and title. They also participate in formal training and communicate key learnings to other staff members to assist in preparing information for sharing.

WFP will report on training that has been completed in relation to Aboriginal rights and title ((in the form of workshops, presentations, on-line courses/ webinars, etc).

Training records are tracked in the WFP Training Database.

### Forecasts

Three First Nations in the DFA will be in treaty effective April 1, 2011. Moreover, business relationships with First Nations are continuing to evolve. Therefore, it is anticipated that some level of training in relation to Aboriginal rights and title will occur on an annual basis.

### Monitoring

The Operations Forester generates a report from the WFP Training Database and reports on the number of planning personnel that received training related to Aboriginal title and treaty rights.

## Indicator 6.1.2: Acceptance of Management Plans

### Element: 6.1 Aboriginal and Treaty Rights

*Recognize and respect Aboriginal title and rights, and treaty rights. Understand and comply with current legal requirements related to Aboriginal title and rights and treaty rights.*

Value	Objective	Indicator	Target	Variance
Aboriginal understanding of plans	Aboriginal understanding of plans is increased over time	Evidence of best efforts to obtain acceptance of management plans based on Aboriginal communities having a clear understanding of the plans	Target evidence will be annual sample of correspondence with Aboriginal communities to gain acceptance of management plans	None

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

The target and variance is tied to legal requirements under the Forest Act and FRPA related to First Nation consultation. Although there are legal obligations to consult with First Nations, there are also obligations for First Nations to participate in the consultation process relating to understanding the plans.

### Current Status & Results

Year	First Nation Information Sharing Summary	Target Met (Y/N)	Variance Met (Y/N)
2012	<p>In 2012 no new strategic plans were required by WFP; however, information was shared with First Nations for planned fertilization treatments.</p> <p>Sample First Nation: On July 26, 2012 WFP sends a letter to the First Nation indicating its desire to fertilize Douglas-fir stands in TFL 44 within the Maa-nulth Wildlife Harvest Area, the Migratory Birds Harvest Area, and the Domestic Fishing Area and provides various details associated with the treatment. The First Nation is invited to meet and discuss the proposed activities. On October 9, 2012 the First Nation responds confirming their treaty rights and indicating that they have no concerns with the proposed activities.</p>	Y	n/a

2011	<p>Sample First Nation: On July 15, 2011, WFP sends a letter to the First Nation indicating its intention to extend the currently approved Forest Stewardship Plan (FSP) for TFL 44. WFP explains that minor revisions will occur to update the content of the FSP and specifies the nature of the revisions. The First Nation is invited to review the original and revised text at specified websites and to attend an information meeting. On August 10, 2011 the First Nation acknowledged their review of the FSP document and stated that there were no concerns stemming from their review.</p>	Y	n/a
2010	<p>Sample First Nation: First Nation letter to District Manager on Draft Management Plan #5 with questions on OGMA's, "Offsite" Douglas-fir stands, stand level retention, and future stands. WFP responds to First Nation on January 19, 2010 with letter to answer questions. Sample First Nation confirms and accepts WFP response on May 25, 2010.</p>	Y	n/a
2009	<p>Sample First Nation: Meeting in February 2009 to review and discuss harvesting plans for 2009 (cutblock and roads) and upcoming silviculture activities; FSP Amendments, Elk management strategies; draft Archaeological Overview Assessment report; and Watershed Indicators Report (Glynnis Horel).</p>	-	-

In addition to the sample First Nation information sharing records above, the following additional information sharing processes occurred in 2009:

- TFL 44 Management Plan #5 – information sharing occurred with several First Nations regarding the working plan/ MP overview. A Review and Comment Summary is on file (related Letters and correspondence are also on file). The R&C Summary also provides a list of the First Nations contacted. Meetings were held with various First Nations to review and discuss the MP.
- FSP – FSP information sharing occurs at two levels: the FSP itself and an annual referral of approximate locations of cutblocks and roads planned for the year (where no activity is planned within a specific traditional territory, no information sharing is required). Correspondence and related changes to the FSP or cutblock/ road specific plans as a result of information sharing are recorded on file and maintained by the Operations Forester.
- Pest Management Plan (PMP) – the PMP and 'Notifications of Intent to Treat' are referred to affected First Nations and a record of communications are maintained on file (a referral binder) by the Operations Forester.
- Archaeological Impact Assessments (AIA) – First Nations are regularly invited to participate in cultural assessments and AIAs within their traditional territories. Reports are shared with the First Nation (reports include management strategies for any identified features).

## Strategies & Implementation

Management Plan referrals include TFL Management Plan, Forest Stewardship Plans, Pest Management Plans, and the Sustainable Forest Management Plan.

For the MP, FSP and PMP, referrals occur as required under legislation.

The Sustainable Forest Management Plan is referred to all First Nations in the DFA when the plan is revised and updated. The annual report is also available on the WIWAG web site (annually).

## Forecasts

Plan referrals for TFL MPs, FSPs, and PMPs are legally required. In addition, the legislation requires documentation and records of comments received, as well as records of changes to the plans to address the concerns/ comments.

Referral of the SFMP is not legally required, but is required under the CSA Standard (Core Indicator 6.2.2). In the past, WFP referred the SFMP only to the First Nations with traditional territories that overlapped with active harvesting and road activity planned for the year. In future, the plan will be referred to all First Nations in the DFA.

In general, First Nations are somewhat reluctant to document “acceptance” of management plans as it can impact their treaty negotiations. In addition, some First Nations lack the capacity to review and comment on plans. WFP will continue to work with willing First Nations in the DFA to communicate plans and share information, and incorporate/ address concerns and comments that are raised.

## Monitoring

The Operations Forester reviews central files to review records related to consultation/ referrals and records applicable evidence for one First Nation each year (ensuring that over the years, different First Nations are represented in the annual reporting).

## Indicator 6.1.3: Cultural Activities & Practices

### Element: 6.1 Aboriginal and Treaty Rights

*Recognize and respect Aboriginal title and rights, and treaty rights. Understand and comply with current legal requirements related to Aboriginal title and rights and treaty rights.*

Value	Objective	Indicator	Target	Variance
Areas where culturally important practices and activities occur	Areas where culturally important practices and activities occur are managed for or protected	Level of management and/or protection of areas where culturally important practices and activities (hunting, fishing, gathering) occur	Identified areas where culturally important practices and activities occur are managed and/or protected 100% of the time unless the First Nation or Provincial governments decide otherwise	None

### History

New Core Indicator under CSA Z809-08 (related to old indicator 39).

### Basis for the Target

The target and variance are based on legal requirements under FRPA and the Heritage Conservation Act.

### Current Status & Results

Year	Identified Areas	Sites Managed (percent)	Target Met (Y/N)	Variance Met (Y/N)
2012	1	100%	Y	n/a
2011	1	100%	Y	n/a
2010	3	100%	Y	n/a
2009	3	100%	Y	n/a

In 2012 WFP reconfirmed its commitment to support the protection of a significant cultural area within the DFA.

In 2011, an Old Growth Management Area (OGMA) was identified as a potential source of monumental cedar for a First Nation.

### Strategies & Implementation

Important areas are usually identified by the First Nation through information sharing and cultural referral processes. Once areas are identified (e.g. fishing sites) there will be discussions with First Nations about how to manage the sites. Discussions will include tailoring measures to manage or protect on a site by site basis, as previous history shows that a blanket protection prescription is not always the most effective way to manage a site. Information sharing meetings occur on a regular basis where management strategies can be discussed.

### Forecasts

It is anticipated that all identified sites will be managed and/or protected, unless agreements are worked out directly with the First Nation or the government decides otherwise (through the approval of Cutting Permits and Road Permits).

### Monitoring

The Operations Engineer reviews Site Plans, Harvest and Road Instructions and EMS Inspection results and reports on the number of special sites that are identified and managed/ protected.

## Indicator 6.2.1: Respect for Aboriginal Knowledge

**Element: 6.2 Respect for Aboriginal Forest Values, Knowledge & Uses**

*Respect traditional Aboriginal forest values, knowledge and uses as identified through the Aboriginal input process.*

Value	Objective	Indicator	Target	Variance
Aboriginal knowledge	Aboriginal knowledge provided is used and respected	Evidence of understanding and use of Aboriginal knowledge through the engagement of willing Aboriginal communities, using a process that identifies and manages culturally important resources and values	Target evidence will be an example of information shared, or comments received by, or management of a culturally important resource or value for one Aboriginal community annually	None

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

The target and variance are based on legal requirements under FRPA.

### Current Status & Results

Year	Information Sharing	Target Met (Y/N)	Variance Met (Y/N)
2012	<p>Sample First Nation:</p> <p>On April 11, 2012 WFP shared with the First Nation a series of map sheets and a matrix of site information identifying the approximate location of planned cutblocks and roads for timber harvesting activities proposed in 2013. The maps and other information (e.g. cedar content, old growth vs. second growth, leading species, archaeological potential) was shared to assist the First Nation identify to WFP culturally important resources or values. On July 27, 2012 WFP received a letter from the First Nation containing comments and recommendations. On August 20, 2012 WFP and the First Nation met to further discuss the comments and recommendations.</p>	Y	n/a
2011	<p>Sample First Nation:</p> <p>In a meeting on March 8, 2011 WFP shared with the First Nation locations for potential cutblocks and roads not previously shared and planned for harvesting activities in 2011 and 2012. Maps and other information (e.g. cedar content, old growth vs. second growth, leading species, archaeological potential) was shared to assist the First Nation identify to WFP culturally important resources or values. Comments were requested from the First Nation by May 2, 2011.</p>	Y	n/a

2010	<p>Sample First Nation: The First Nation has a land use plan that specifies strategies and targets for timber harvesting activities in the traditional territory. WFP has devised and shared a checklist for cutblock 344110 with the First Nation that demonstrates how the land use plan was considered in harvesting plans.</p>	Y	n/a
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Refer to Indicator 6.1.2 for further information on the information sharing processes completed each year (samples are reported in the plan, full documentation including comments received from each First Nation is maintained on file and/ or in the Cengea database).

### Strategies & Implementation

WFP conducts several types of information sharing with First Nations in the DFA, including but not limited to TFL Management Plan consultation, FSP Information Sharing consultation, SFM plan consultation and meeting processes. In addition, the MoFR engages in information sharing and consultation through the Timber Supply Review process and the Cutting/ Road Permit process.

Refer to Indicator 6.1.2 for further information on the management strategies for information sharing processes.

### Forecasts

As the target and variance is tied to a legal requirement, it is anticipated that the target will be achieved. In addition, licensees are legally required to consider, respond and address concerns raised during information sharing process under the Management Plan, FSPs, and PMPs as well as to ensure management of identified cultural heritage resources under FRPA.

### Monitoring

The Operations Forester reviews the central file catalogue/records of consultation completed and summarizes results for one sample First Nation within the SFMP report.

## Indicator 6.3.1: Local Economy

Element: 6.3 Forest Community Well-being and Resilience				
<i>Encourage, co-operate with, or help to provide opportunities for economic diversity within the community.</i>				
Value	Objective	Indicator	Target	Variance
Other forest users	Support other forest users	Evidence that the organization has co-operated with other forest-dependent businesses, forest users, and the local community to strengthen and diversify the local economy	Annual target evidences will come from two or more of (but not be limited to): (1) volume production of shake and shingle, (2) hectares released for hogging, (3) hectares released for commercial firewood cutting (4) amount spent on road grading, (5) trail construction/rehabilitation	None

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

WFP encourages and co-operates both directly and indirectly with other forest-dependent businesses in the community through agreements, contracts, and other spin-off opportunities (e.g. access available from road construction and maintenance). Evidences are drawn from existing or potential opportunities for economic diversity within the community that are reportable from in-house information systems. The shake and single business is important to First Nation operators and their milling customers; hogging supports local power generation; road grading provides easier access for casual forest users.

### Current Status & Results

Year	Type of Support	Target Met (Y/N)	Variance Met (Y/N)
2012	Shake & Shingle 1,648m <sup>3</sup> Road Grading/ Maintenance \$4,262,213	Y	n/a
2011	Shake & Shingle 1,518m <sup>3</sup> Hogging 25.3ha Road Grading/ Maintenance \$4,046,523 Firewood 20.2ha	Y	n/a
2010	Shake & Shingle 646m <sup>3</sup> Hogging 86.2ha Road Grading/ Maintenance \$1,780,931	Y	n/a

Road grading and maintenance work accounts for Bamfield Road maintenance (net of government refunds) and other road maintenance activities in the DFA.

## **Strategies & Implementation**

WFP engages in many activities that support/ strengthen the local economy and foster a cooperative relationship with the community and local business owners, including minor forest products (firewood, shake and shingle, salvage), hogging, salal picking, mushroom picking, trail rehabilitation, visual quality management, road access for recreation activities and protection/ management of historical sites.

## **Forecasts**

WFP maintains a long history of cooperation with local business owners and the community, including relationship building, capacity development, support of minor forest products and non-timber forest products.

It is anticipated that WFP will be able to provide multiple examples of support for the local economy due to historical support. However, during periods of economic downturns in the industry, support may be limited or non-existent for short durations.

## **Monitoring**

The Operations Forester reviews LIMS, the Cengea database and central file (may include accounting records or AAC records) and reports on the efforts to engage and support the local economy and relationship building through the level of support for each category.

## Indicator 6.3.2: Improve Safety Standards

<b>Element: 6.3 Forest Community Well-being and Resilience</b>				
<i>Encourage, co-operate with, or help to provide opportunities for economic diversity within the community.</i>				
Value	Objective	Indicator	Target	Variance
Worker safety	There is an active worker safety program	Evidence of co-operation with DFA-related workers and their unions to improve and enhance safety standards, procedures, and outcomes in all DFA-related workplaces and affected communities	Annual target evidences will come from two or more of (but not be limited to): (1) the Medical Incident Rate report, (2) hazard alert report (3) general contractor training sessions (4) safety focus topics	None

### History

New Core Indicator under CSA Z809-08 (relates to old indicator 33).

### Basis for the Target

Safety Programs are required under WorkSafe BC legislation, Occupational Health and Safety Regulation. The Medical Incident Rate (MIR) is a broad measure that captures the effectiveness of safety programs. The Hazard Alert reports document safety incidences and the learnings and suggestions to avoid future occurrences. General contractor training sessions provide opportunities to review and improve safety performance. Safety focus topics provide a program to heighten awareness around specific categories of injuries (e.g. hand injuries). Target evidences are readily available and require participation from workers to formulate safety reports, achieve safety results or to provide safety training.

### Current Status & Results

Year	MIR Report	Hazard Alert Report	# of General Safety Training Sessions	Key Safety Focus Topics	Target Met (Y/N)	Variance Met (Y/N)
2012	6.28	6	9	12	Y	n/a
2011	4.16	2	1	4	Y	n/a
2010	6.8	3	1	3	Y	n/a

Hazard alerts, are distributed to contractors and employees as incidents/ hazards occur and are posted on the WFP intranet. In the event that incident investigations are required under the Safety or EMS, they are completed in collaboration with contractors/ union reps, where applicable.

## Strategies & Implementation

Safety performance is a key measurable for PAFO. Improvements in Safety are supported by the EH&S Team, corporate polices, standards, hazard reports, work procedures etc. Locally PAFO manages safety utilizing an OHS Program, emergency response procedures and by maintaining a “Safe” company status with the BC Forestry Safety Council. Continual Improvement is a key component of the WFP Safety System, WorkSafe BC requirements and the Forest Safety Council SAFE Company certification requirements. WFP also conducts periodic meetings with Contractors to review and discuss safety topics and implement annual safety improvement plans. .

MIR (Medical Incidence Rate) is defined in the SFM Plan Glossary and will be reported for all contractors and employees in PAFO. The rate is calculated using the following formula:

$$\frac{(Medical\ Treatment + Restricted\ Work + Lost\ Time\ cases) \times 200,000}{Exposure\ Hours\ (Total\ hours\ worked\ by\ all\ hourly\ and\ salary\ employees\ by\ operation)}$$

## Forecasts

It is anticipated that the target will be met as it is a legal requirement to maintain a safety program. In addition, WFP also maintains voluntary SAFE certification under the BC Forest Safety Council.

## Monitoring

The Operations Forester reviews safety files and the corporate safety tracking system/ stats to document supporting evidence.

## Indicator 6.3.3: Safety Program

### Element: 6.3 Forest Community Well-being and Resilience

*Encourage, co-operate with, or help to provide opportunities for economic diversity within the community.*

Value	Objective	Indicator	Target	Variance
Worker safety	Worker safety improves over time	Evidence that a worker safety program has been implemented and is periodically reviewed and improved	SAFE Company Certification is maintained annually by WFP and its large contractors.	2 contractors registered only

### History

New Core Indicator under CSA Z809-08 for 2010. This indicator was updated in 2011 to reflect maintaining a SAFE Company Certification for WFP and its large contractors. A large contractor is defined as having greater than 10,000 exposure hours.

### Basis for the Target

WFP corporate directive. The variance indicates contractors may be registered with the BC Forest Safety Council and in the process of becoming SAFE certified.

### Current Status & Results

Year	SAFE Company Certification Maintained	Target Met (Y/N)	Variance Met (Y/N)
2012	15/15	Y	Y
2011	WFP + 13/14	N	Y
2010	97.46	Y	n/a

### Strategies & Implementation

SAFE company audits are mandated annually by the BC Forest Safety Council. Successful audits maintain a company's SAFE Certification and provide evidence that a worker safety program has been implemented and is periodically reviewed and improved. The Safe Certification status of companies is located at: [http://www.bcforestsafe.org/safe\\_companies/whos\\_safe.html](http://www.bcforestsafe.org/safe_companies/whos_safe.html).

PAFO is responsible for implementing its safety program and continuing to meet the requirements of SAFE Company certification. All staff are responsible to assist the Operation in maintaining, implementing, and improving the safety program.

WFP's contractors implement and maintain their own safety programs to meet the requirements of the SAFE Company certification. Prior to commencing work for WFP, a review is completed to ensure contractors are currently SAFE Company certified or registered.

### Forecasts

WFP has made a business decision to maintain SAFE certification. Provided the program is maintained, WFP and its contractors will continue to maintain SAFE certification.

### Monitoring

The Operations Forester reviews the status of SAFE certification and reports on the results from the BC Forest Safety Council website.

## Indicator 6.4.1: WIWAG Satisfaction

### Element: 6.4 Fair and Effective Decision Making

*Demonstrate that the SFM public participation process is designed and functioning to the satisfaction of the participants and that there is general public awareness of the process and its progress.*

Value	Objective	Indicator	Target	Variance
SFM Public participation process	SFM Public participation process works well	Level of participant satisfaction with the public participation process	The level of participant satisfaction as reported by the biennial satisfaction survey is 3 or less	A maximum of one consecutive survey with a satisfaction level of greater than 3.

### History

New Core Indicator under CSA Z809-08 (relates to old indicator 42) for 2010.

### Basis for the Target

A satisfaction survey of WIWAG gives direct feedback to the participation process. A score of three or less provides evidence of a positive process. The variance is to account for controversial issues considered by participants or unforeseen circumstances (e.g. a shortage of financial resources to accommodate normal participation process during economic downturns).

### Current Status & Results

Year	Satisfaction Survey Completed (Y/N)	Satisfaction Level	Target Met (Y/N)	Variance Met (Y/N)
2012	Yes	≤ 2	Y	n/a
2011	Yes	1.6	Y	n/a
2010	Yes	≤ 3	Y	n/a
2009	No (not required)	N/A	Y	n/a
2008	Yes	N/A	Y	n/a
2007	No (not required)	N/A	Y	n/a
2006	Yes	N/A	Y	n/a

### Strategies & Implementation

A Satisfaction Survey is typically completed with the WIWAG every two years. The survey format was revised in 2010 to include samples of surveys from other CSA Advisory Groups. The survey responses are coded as: 1 (excellent), 2 (good), 3 (satisfactory), 4 (poor), 5 (unsatisfactory). Action items will be assigned to address all items that received a score of greater than three.

Feedback relating to specific presentations will be gathered following each presentation to help with the accuracy of survey results.

### Forecasts

It is anticipated that the target will be met based on historical results that show a general level of satisfaction with the progress and communication between WFP and WIWAG. WFP will strive for continual improvement in survey results and to maintain or improve the score of satisfaction over time.

### Monitoring

The WIWAG Facilitator reports on the results of the biennial Satisfaction Survey.

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## Indicator 6.4.2: WIWAG Capacity Building

### Element: 6.4 Fair and Effective Decision Making

*Demonstrate that the SFM public participation process is designed and functioning to the satisfaction of the participants and that there is general public awareness of the process and its progress.*

Value	Objective	Indicator	Target	Variance
Public participation capacity	Develop/improve public participation capacity over time	Evidence of efforts to promote capacity development and meaningful participation in general	Target evidence will be the listing of educational opportunities provided to the participants annually	None

### History

New Core Indicator under CSA Z809-08 (related to old indicator 43 and 45).

### Basis for the Target

WIWAG has historically responded positively to educational opportunities provided by technical experts. These opportunities have enabled WIWAG members to provide valuable advice through the participation process.

### Current Status & Results

Year	# Educational Sessions	Description of Session	Target Met (Y/N)	Variance Met (Y/N)
2012	4	<p>1. Annette van Niejenhuis RPF, WFP Forest Investment Account (FIA) Coordinator linking to Indicator 1.1.2 The discussion on the gene pool of native seed stock, and genetically modified organisms (GMOs) and the associated regulatory/policy requirements (Jan)</p> <p>2. Doug Singbeil from FP Innovations linking to a range of indicators in Criterion 2 — Ecosystem condition and productivity. Discussion on converting forest biomass into bio-energy, bio-chemicals and bio-materials. The presentation focus was on the economics and technology of converting wood and wood residues into bio-products. Relates to Criterion 2 — Ecosystem condition and productivity(Jan)</p> <p>3. Makenzie Leine- Log exports: explaining the balance of objectives of the forest industry as a whole. Goal to increase domestic manufacturing with a measured amount of log export linking to Indicator 5.2.3 (June)</p> <p>4. Tour – AG Members to Stillwater 4 WIWAG members attended a half day of presentation and a full day comprehensive tour of WFP Stillwater. WIWAG presented their trip and future recommendations for presentations (Tour/Meetings Sept –WIWAG present November)</p>	Y	Y

2011	2	Presentation under Biological diversity linking to: - Indicator 1.2.1 Habitat Protection, - Indicator 1.2.2 Suitable Habitat and Invasive Species Management and Education (Jan) Tour – Economic and social benefits, Flows of forest benefits for current and future generations by providing multiple goods and services. Conduct tour of WFP Alberni Pacific Division and Somass Sawmill (Oct)	Y	n/a
2010	3	WFP – TFL 44 MP & Timber Supply Review (Jan) WFP – CSA New Standard (Jan) WFP-Field trip to view Terrain and Watershed Management (Oct)	Y	n/a
2009	1	MoFR/ MoAR Presentation- Maa-nulth Treaty	Y	n/a

## Strategies & Implementation

Annual planned education opportunities are defined by WIWAG and included in the SFM Plan Communications Plan. Guest Speakers and presentations are scheduled as opportunity and discussions arise during meetings.

## Forecasts

It is anticipated that educational opportunities will be provided on an annual basis, provided sufficient capacity and funding exists.

## Monitoring

The Operations Forester reviews the central files, WIWAG minutes and WIWAG website and reports on educational opportunities provided to the WIWAG.

## Indicator 6.4.3: Aboriginal Participation in SFM

### Element: 6.4 Fair and Effective Decision Making

*Demonstrate that the SFM public participation process is designed and functioning to the satisfaction of the participants and that there is general public awareness of the process and its progress.*

Value	Objective	Indicator	Target	Variance
Aboriginal participation capacity	Develop/improve aboriginal participation capacity over time	Evidence of efforts to promote capacity development and meaningful participation for Aboriginal communities	Annual target evidence will be a listing of efforts to engage willing Aboriginal communities in the SFM process	None

### History

New Core Indicator under CSA Z809-08 (relates to old indicator 41).

### Basis for the Target

WFP's Environment Policy to engage aboriginal peoples in environmental programs.

### Current Status & Results

Year	# of First Nations	Evidence of Efforts to Engage	# of First Nations Participate in SFMP Orientation	Target Met (Y/N)	Variance Met (Y/N)
2012	14	Communication of complete 2011 Detailed Indicator results	2	Y	n/a
2011	14	Communication; SFM Draft and new CSA standard sent to 14 FNs plus Nuu-chah-nulth, invitation to participate sent to 14 FNs plus Nuu-chah-nulth, Final SFM sent to all above as well	5	Y	n/a
2010	12	Meetings & Communication; 13 invitations to participate sent; 12 FNs plus Nuu-chah-nulth sent information on SFM Plan	0	Y	n/a
2009	3	Meetings & Communication; 8 invitations to participate sent; 6 FNs sent information on SFM Plan	1 (Huu-ay-aht)	-	-

### Strategies & Implementation

The SFMP is shared with all First Nations in the DFA. First Nations are invited to attend WIWAG meetings and provide comments on the development of targets and indicators. First Nations are invited to participate in SFMP orientation sessions available during scheduled business and/ or information sharing meetings. WFP will continue to work with First Nations to understand the needs for capacity development to participate meaningfully in the process.

The WIWAG Facilitator engages First Nations through letters, emails, and telephone calls. A communication log is maintained to record the efforts to engage.

## Forecasts

It is anticipated that all First Nations with significant traditional territory in the DFA will be communicated with on a regular basis to attempt to engage participation in the WIWAG and the SFMP. The target measures WFP and WIWAG efforts to engage rather than actual participation by the First Nations, as we only have direct control over our efforts to engage.

## Monitoring

The Operations Forester/ WIWAG Facilitator reviews correspondence files/ communication log to report on the efforts to engage First Nations in participation in WIWAG and review of the SFM Plan.

## Indicator 6.5.1: Educational Outreach

### Element: 6.5 Information for Decision Making

*Provide relevant information and educational opportunities to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interaction with forest ecosystems.*

Value	Objective	Indicator	Target	Variance
Public education and knowledge	Increase/develop public education and knowledge over time	Number of people reached through educational outreach	The annual number of people reached through educational outreach is estimated to be greater than fifty	None

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

Periodically WFP is asked to engage the public to enhance education (e.g. forest tours). Annually these requests plus established outreach activities (e.g. Fall Fair) form the basis for the target. WFP developed an educational display that is available for use at the Fall Fair, National Forestry Week, and other public venues. It is estimated that at least fifty people will have meaningful interactions with hosts during these venues.

### Current Status & Results

Year	Educational Outreach Activity/	Estimated # of People Reached	Target Met (Y/N)	Variance Met (Y/N)
2012	WIWAG Website WIWAG Meetings Fall Fair Booth National Forestry Week	1000+	Y	n/a
2011	WIWAG Website WIWAG Meetings Fall Fair Booth National Forestry Week Opening the Door in Port Alberni Presentation	1000+	Y	n/a
2010	WIWAG Website WIWAG Meetings Fall Fair Booth National Forestry Week	100+	Y	n/a

### Strategies & Implementation

WFP engages in several activities that involve educational outreach to the community, including the WIWAG Public Advisory Group and the web site maintained by WFP (WIWAG includes open invitations to the local community for various events such as presentations), Fall Fair event/ show, forest tours, open houses for various plan consultations (e.g., TFL Management Plan, FSP, SFM Plan, etc).

**Forecasts**

It is anticipated that the target will be exceeded based on historical participation. However, during economic downturns, participation may be lower.

**Monitoring**

The Operations Forester (with assistance from the WIWAG Facilitator) reports on the number of events/ estimated people reached in regards to educational outreach activities (records maintained in central file, WIWAG minutes, etc).

## Indicator 6.5.2: Public Concerns

### Element: 6.5 Information for Decision Making

*Provide relevant information and educational opportunities to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interaction with forest ecosystems.*

Value	Objective	Indicator	Target	Variance
Relevant information	Relevant information is provided	Availability of summary information on issues of concern to the public	Summary information on issues of concern to the public are posted annually on the WIWAG website	None

### History

New Core Indicator under CSA Z809-08.

### Basis for the Target

The WIWAG website has been established and recognized as a transparent means of communicating issues to the public and their resolution.

### Current Status & Results

Year	# Meeting Minutes Posted	# Presentations Posted	# Press Released Posted	# Articles Posted	Target Met (Y/N)	Variance Met (Y/N)
2012	4	3	0	1	Y	n/a
2011	3	2	0	2	Y	n/a
2010	4	3	0	0	Y	n/a
2009	5	1	1	0	-	-

### Strategies & Implementation

In general, concerns raised by WIWAG are addressed through indicator development, WIWAG meeting discussions, workshops, etc., and meeting presentations (open to the public). WIWAG update was presented at the Alberni Clayoquot Regional District Board Meeting in January 2011; a tour was conducted in October 2011 of WFP Mills looking at the processing side and importance of integration of forest, invitation extended broadly throughout the community. Discussion topics relating to Habitat Protection; Suitable Habitat; and Invasive Species Management and Education. Finally the AG was invited to attend a WFP "Town Hall" extended to employees, contractors and stakeholders. The Communication Plan is periodically reviewed and updated and outlines the upcoming communication plans for WIWAG and WFP, including participation in school events, tours, fairs, etc.

The WIWAG website is the main vehicle for communication with the public. In addition, WIWAG may periodically issue press releases and newspaper articles.

### Forecasts

It is anticipated that the target will be achieved based on a mature WIWAG web site and Communication Plan process.

### Monitoring

The Operations Forester reviews the WIWAG website and summarizes communication information posted to the website (supporting info may be recorded in the WIWAG minutes).



WESTERN FOREST PRODUCTS INC.

# **SFM Plan Appendix 3: WIWAG Terms of Reference**

Port Alberni Forest Operation

Revised: April 7, 2011

## 1.0 Mission Statement

The West Island Woodlands Advisory Group (WIWAG) is composed of a cross section of community representatives who have an interest in, or are affected by, sustainable forest management in the Defined Forest Area (DFA).

WIWAG will maintain an open and transparent process that facilitates and acknowledges the widest community input possible while working with Western Forest Products Inc. to maintain certification to the CSA Z809 certification standard.

Our goal is to advise on the development, monitoring, and ongoing improvement of sustainable forest management practices in the area.

## 2.0 Purpose & Role

Provide ongoing public input into the development, implementation, monitoring, and continual improvement of sustainable forest management (SFM) performance and the SFM system.

## 3.0 Rights and Responsibilities of Participants

### 3.1 Rights of Members

- members have the right to a safe and respectful environment for speaking out;
- members have the right to get the relevant information they need to make informed decisions (with the exception of proprietary information);
- members participation in WIWAG will not be viewed as consultation between WFP and the respective sector;
- Aboriginal & Treaty rights will be respected and participation in the public process will not prejudice treaty rights or any other agreements.

### 3.2 Responsibility of Members

- stay informed and up to date on the issues being discussed;
- make efforts to represent the views of their constituents, the public, and their own views and identifying clearly which perspective they are speaking from;
- adhere to the group guidelines for conduct (see guidelines at the end of the ToR);
- inform their alternate and their organizations on the progress of the group and issues related to SFM as well as communicate responses back to the WIWAG;
- follow through on any commitments you undertake;
- participate fully in each meeting;
- articulate concerns or issues at the table, rather than outside of the meeting;
- RSVP and otherwise respond to communications sent to members.

### **3.3 Responsibility of the Facilitator or Chair**

- keep the group focused and on topic;
- ensure time is not wasted; make sure the group accomplishes its tasks;
- track the gaps and priorities (Action Log);
- make sure everyone has a chance to speak;
- facilitate agreement around difficult decisions;
- ensure the agenda and minutes are circulated a week before each meeting (through the group recorder);
- ensure that the facility is booked, food is ordered, supplies and resources are available as required for each meeting;
- liaise with members as requested between meetings to review missed meetings or other issues or tasks;
- act as the spokesperson for the group and responding to inquiries;
- other tasks as negotiated with the members from time to time that will expedite and/or move the group forward around issues and tasks;
- educate oneself about the issues related to SFM and the work of the group;
- complete ongoing analysis of tasks, timeframe and design of process that will meet members needs and accomplish the tasks at hand.

### **3.4 Responsibility of WFP**

- provide technical information and professional support as requested
- finance of pre-approved group operating costs
- coordinate field trips
- respond to members requests in a timely fashion
- make decisions regarding sustainable forest management, the Sustainable Forest Management Plan and certification

## **4.0 Conflict of Interest**

Members must declare any potential perceived conflict of interest around any issue and should state which individual or collective “hat” they are wearing during any given discussion.

## **5.0 Confidentiality**

Information should flow freely between all members of WIWAG. All information will be deemed to be public information unless it is marked confidential, in which case any dissemination or use of the information by other than WIWAG will be prohibited without the consent of the group or individual bringing it forward. Discussions must be declared “In Camera” in order to remain confidential. Any member may request that a portion of discussion be “In Camera”.

Information will be provided in the most useable form that is possible.

## 6.0 Decision Making and Conflict Resolution

Members have agreed that 100% agreement on issues is not required. Decisions are based on consensus and require a quorum. A quorum will be 50% plus one of the active members (filled seats), but effort will be made to ensure that decisions are made by a cross section of the group and that significant input is not omitted due to a reasonable absence. When, and if, members vote on an issue, it will be passed by 51%, or more.

All perspectives will be documented with final recommendations when the “opposition to them is limited”. Effort will be made to listen, understand, and incorporate all views in the final recommendations.

Members agree to an open, frank, and respectful dialogue and to operate from an interest-based perspective (as opposed to position based). Issues will be addressed in terms of how they relate to Sustainable Forest Management. Conflict between members is expected to be handled by those involved, with the best interest of the group and its mission in mind.

When a conflict does occur the following dispute resolution steps will be followed:

1. The parties involved should attempt to resolve the dispute;
2. If they are unable to do so, they can request that the Facilitator mediate the dispute;
3. If this is unsuccessful, both parties need to identify the concerns and the points of conflict, as well as the steps that have been taken to resolve the conflict, in writing. At this time both parties will identify what needs to change, on their part and the part of the other party, in order to resolve the dispute;
4. The Facilitator may call on outside expertise to support a second mediation, or meet with the parties to develop an agreement “to disagree” that will not threaten ongoing and future collaboration around the table;
5. Parties, who believe that a decision, or disagreement from others, is NOT in the best interests of the group at large, or of the variety of interests in the community, must decide for themselves if they can live with the decision, or if it is grounds for their resignation;
6. The process from steps 2 through 5 should not take more than 4 weeks.

WIWAG is not a decision making body and WFP is not required to accept WIWAG’s recommendations. Where necessary, WFP will respond in writing to every WIWAG recommendation with documented reasons for acceptance, modification, or rejection.

## 7.0 Membership

Although the preference is for ongoing participation through membership and attendance at meetings, WIWAG members acknowledge that they need to make efforts to include the input from sectors or interests that may choose not to join as formal members. In other words, there are a variety of methods to ensure the process is inclusive and open, and while it is a preferred method, membership is only one of those methods.

## 7.1 Group Members

See <http://www.westernforest.com/wiwag/> for the up to date members list.

## 7.2 Alternates

Members are encouraged to identify an alternate to attend in their absence. Alternates will be included on the master distribution list and will receive all minutes, agendas, etc.

## 7.3 Resource and Support Staff

- Western Forest Products representatives and additional resources as determined to be required;
- Group Facilitator;
- Group Recorder.

## 7.4 Membership Renewal/ Replacement

WFP will review membership on an annual basis in order to ensure that full representation exists. From time to time new issues or interests emerge and the group will be as responsive as possible to securing representation and/or input from those interests.

When a member resigns, s/he should have a replacement come forward from their sector or organization. If no replacement is identified from the sector or organization, the Facilitator will investigate other potential advisory group replacements with WFP. The Facilitator will determine potential new member interest and bring the names forward for discussion at the subsequent meetings.

Criteria for members are as follows:

- an interest in, knowledge of and networks within a sector that has specific interests in forest land management in the area;
- a willingness to share information and gather input from within their organization or sector; and
- a willingness to put the required time into meetings and related discussions.

There is no limit to the length of term for members.

## 7.5 Members Attendance

A member, who misses three consecutive meetings without cause and without arranging for an alternative, is considered to have resigned.

## 7.6 Resource People

The Facilitator or the members can invite stakeholders or resource people to attend meetings as presenters or participants based on their information, expertise etc. All guest requests must go through the Facilitator.

## 7.7 Observers

Observers (such as participation of experts, other interests and government) may attend meetings at the request of WFP or the Facilitator, other members or by the request of the individual. Where observers have been invited to attend to speak on a specific topic or provide a presentation, the agenda will include the allotted time required to address the group. Where observers are participating at their own request, the Facilitator will involve them in discussion or take their

questions as time permits, allowing at least one opportunity for comment at the close of the meeting.

All Observers are bound by the group guidelines for conduct. Their input will be included in the Minutes of the meeting.

## 8.0 Agenda

The agenda will be set by the Facilitator based on the previous meeting, the work-plan priorities, and suggestions from members. Members are requested to call the Facilitator prior to the meeting with any agenda items. Agendas will be sent to members' prior to the meeting (typically one week prior). The agenda will be reviewed and approved at the start of each meeting and will be negotiated as required during the meeting.

## 9.0 Minutes

The Recorder will take minutes of each meeting. These will be distributed to all members at least one week prior to the next meeting. The minutes will include an Action Log that summarizes the outstanding and new action items that are generated at each meeting.

Minutes will be approved at each meeting (the following meeting) and will not be externally communicated until they are approved. Minutes will be posted on the WIWAG website once they are approved. Minutes may also be provided to the general public, upon request.

Each member will be responsible for sharing approved minutes with their alternate and their organization or sectors, as appropriate. Each member will be responsible for ensuring that the recorder has their appropriate email or fax for these communications.

## 10.0 WIWAG Satisfaction Survey

Per the Communication Plan (SFM Plan, Appendix 4), WFP and WIWAG will ensure that a Satisfaction Survey is completed on a bi-annual basis, results are summarized and reported to WIWAG.

Continual Improvement measures will be implemented as required to address unsatisfactory results, and will generally be documented in the meeting minutes and Action Log.

## 11.0 Procedures & Action Log

WIWAG will maintain an Action Log that includes a timeframe for addressing priority tasks. The timeline will be reviewed regularly. The group will review the effectiveness of their process and work together on a regular basis and make changes as required to strengthen the group.

Any member can provide written material as handouts at a meeting.

### 11.1 Ad-Hoc or Standing Committees

As work is identified, WIWAG may choose to assign tasks to committees. Committees:

- can be composed of any number of members, resource people and non-members with related interest or knowledge and will be open to any member of WIWAG;
- will have a specific mandate and timeframe for their work approved by WIWAG;
- will have a Facilitator or Chair identified;

- will record notes or minutes of their discussions and distribute the notes/ minutes to WIWAG;
- will present all recommendations back to WIWAG.

## 12.0 Media & Public Relations

In general, the Facilitator is the spokesperson. In some cases, the Facilitator or WIWAG may identify an alternate spokesperson(s) depending on the nature of the topic and the expertise or background knowledge required to speak to a specific issue.

The web site will include the following: agendas, minutes, Terms of Reference, press releases, the SFM Plan(including annual report information, meeting schedule, links and contact information. Unless otherwise designated, the Facilitator will be the primary contact.

## 13.0 Updates & Changes to TOR

These Terms of Reference will be reviewed and revised as required on an annual basis through the meeting process.

General acceptance of the ToR and any updates/ changes resulting from the annual review will be documented in the meeting minutes following review of the ToR.

## 14.0 Group Guidelines

1. The success of your group is based on the strength of the full participation of each member. Members will get involved and participate to the fullest extent possible.
2. Although full participation is important, you will not be required to do anything that you don't want to do.
3. Group members are responsible for the outcomes or the content of their work. The Facilitator is responsible for ensuring safe, full participation and keeping discussions on track.
4. An essential component of success is effective communication. This requires that you are open to others' points of view, that you suspend your judgments and reactions, and that you approach the dialogue from a perspective of curiosity and learning about others thoughts and interests.
5. Solid dialogue is built on honesty, integrity, goodwill and respect. This requires you to tell the truth and assume that others will too. It also implies that the language you use, your tone of voice and your body language will demonstrate your integrity and respect for others.
6. Creativity and innovation are important aspects of planning. They do not thrive in environments where people are made to feel wrong or stupid. To this end, you are encouraged to resist the temptation to criticize others ideas.
7. Groups often have members with divergent opinions and ideas of what the solutions are. The strongest solutions or outcomes are found when you build on the best that each perspective offers. In order to do this, group members will work to express their interests around an issue as opposed to their positions.
8. At some points it may be necessary to form a group position in issues. Each member will be aware of such positions and communicate them to the public, in addition to their own sector's views – if the views happen to differ.



WESTERN FOREST PRODUCTS INC.

# **SFM Plan**

## **Appendix 4: Communication Plan**

Port Alberni Forest Operation

Revised: April 2011

## Communication Plan

### To Public & Stakeholders

Directed at the Public and Other Stakeholders to help increase the local knowledge and understanding of forest management and processing activities

Communication Activities	WFP	WIWAG
<input type="checkbox"/> Members share information between the Advisory Group & their interest groups	■	■
<input type="checkbox"/> Website (wiwag.org) to include minutes, agendas, ToR, SFM Plan, brochure, etc. (facilitator provides information to WFP staff who manage the site)	■	■
<input type="checkbox"/> Annual WIWAG Brochure – updated as required to provide website promotion, SFM Plan, Certification information & current contact information	■	■
<input type="checkbox"/> Certification Shorts provide brief information on certification within the DFA (Spring and Fall)		■
<input type="checkbox"/> Communicate public access to recreation areas identified in the DFA and updated through the recreation access inventory on-line.		■
<input type="checkbox"/> Ensure TFL 44 Logging Rd. & Recreation Guide is available in a PDF on WIWAG Website	■	■
<input type="checkbox"/> Road closure notices on WIWAG website	■	
<input type="checkbox"/> Distribution of WIWAG minutes (agendas etc.) to members, and others, available on the website	■	■
<input type="checkbox"/> Press releases and articles (AV Times, corporate newsletters) promotion of WIWAG events and certification accomplishments/milestones	■	■
<input type="checkbox"/> Participate in community forestry related events <ul style="list-style-type: none"> <li>- Forest Festival</li> <li>- Fall Fair</li> <li>- National Forestry Week</li> </ul>	■	■
<input type="checkbox"/> Respond to inquiries related to the SFMP	■	■
<input type="checkbox"/> WFP Customer Tours as requested	■	
<input type="checkbox"/> Provide opportunities for educational sessions related to forest processes and management, goal to have 2 sessions by 2011	■	■

**To WIWAG Members**

Communications Activities	WFP	WIWAG
<input type="checkbox"/> Distribution of corporate newsletters to WIWAG members	■	
<input type="checkbox"/> Annually track and report locally harvested logs converted in local mills and provide to WIWAG. This was previously an indicator (42)	■	
<input type="checkbox"/> Report on WFP earnings annually	■	
<input type="checkbox"/> Report annually public comments received by Western Forest Products relating to recreation.	■	
<input type="checkbox"/> Provide presentations to WIWAG to increase the local knowledge and understanding of forest management	■	
<input type="checkbox"/> WIWAG members monitor as needed the Advisory process. Conduct a bi-annual survey to gather input.		■

**To Employees & Contractors**

Communications Activities	WFP	WIWAG
<input type="checkbox"/> EMS training	■	
<input type="checkbox"/> Planners oriented to red/blue species	■	
<input type="checkbox"/> WIWAG Minutes distributed	■	
<input type="checkbox"/> "Certification Shorts" newsletter developed & distributed	■	■
<input type="checkbox"/> Annual WIWAG Brochure – update provide website promotion, SFM Plan, Certification information and contact	■	