Western Forest Products Inc.
DEFINING A HIGHER STANDARD™

Sustainable Forest Management Plan (SFM Plan)
2018

Port Alberni Forest Operation

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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.

The Sustainable Forest Management (SFM) Plan has been prepared to support Western Forest Products Inc.'s (WFP's) commitment to sustainable forest management, consistent with the Canadian Standards Association (CSA) Z809-16 standard. The SFM Plan is designed to complement the following existing management systems and procedures:

- Environmental Management System 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 Forest Stewardship Plan); and
- Legal requirements.

British Columbia has rigorous legislation and policies for protection, conservation, and sustainable management of forests. This legislative framework is being continuously adapted, 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.

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.

The CSA SFM Z809-16 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, including First Nations, the opportunity to provide 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-

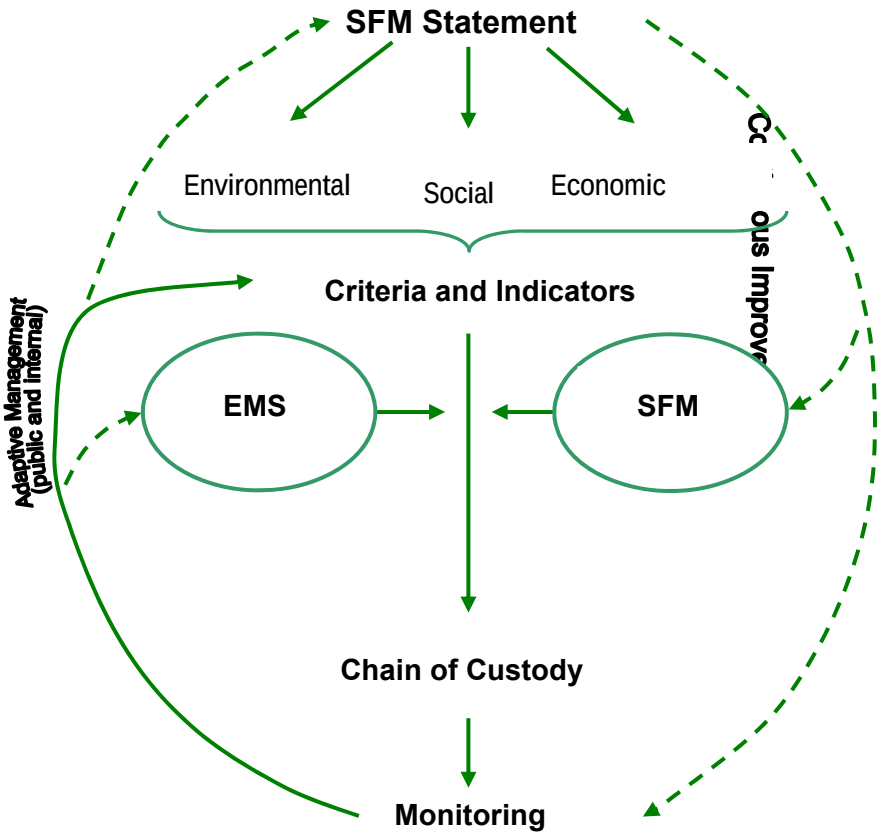
recognized criteria for SFM but also allows the public to participate in the interpretation for the local forest.

The CSA Z809 Standard was recently reviewed and updated. The 2016 edition is the fourth edition of CSA Z809 (CSA Z809-16), sustainable forest management standard and supersedes all previous versions. The updates to the standard are part of CSA's regular standard review and revision process based on continual improvement. The standard is available at: http://shop.csa.ca/en/canada/sustainable-forest-management/z809-16/invt/27017442016. A summary of the changes in the 2016 standard can be viewed at: http://www.csasfmforests.ca/docs/csa_z809-sustainableforestmanagement-press-may2016.pdf.

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, a 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 that 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 Plan – Do – Check – Improve cycle.

The core elements of the EMS are described within the WFP EMS protocols and the corresponding supporting documents which include, but are not limited to: policies, standard operating procedures, standards, and emergency 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 as described by Figure 2: The Map of 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 10-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 reports and both internal and external audits and inspections to evaluate conformance with management system requirements.

The values, objectives, indicators, targets, and management practices described in this document have been developed by WFP's Port Alberni Forest Operation and the West Island Woodlands Advisory Group and are consistent with relevant government legislation, regulations, and policies. This is an evolving document that is reviewed and revised on an ongoing basis with the advisory group to reflect changes in the forest and local community.

Ongoing review and input is provided by the advisory group, DFA managers, 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, business, recreation, fisheries, and government.

WIWAG operates 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. The Terms of Reference may be found in Appendix 2.

Links to management plans and operational plans

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 Forest and Range Practices Act and the associated Forest Stewardship Plan for the DFA. The SFMP annual performance is reviewed and discussed at least annually during Management Review. Conclusions and action items drawn during Management Review are documented in the Management Review meeting minutes. The Management Review occurs at both the Port Alberni operational level, and at the WFP corporate level with WFP senior management.

Third-Party Independent Audits

To become certified to the CSA Z809 Standard, WFP must undergo a third-party, independent annual audit to the SFM requirements in the 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 the Standard are done by accredited certifiers and certified auditors who are independent of the standards-writing body (CSA).

Audits include interviews with staff, workers and WIWAG members, 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.

WFP has one CSA certificate issued by the registrar that covers all of the WFP tenures that are managed under the CSA Z809 standard. External audits are conducted annually on a rotating basis on a schedule developed by the registrar. Public summary audit reports are posted on the WIWAG web site.

Defined Forest Area (DFA)

The DFA includes WFP's TFL 44, Port Alberni Forest Operation (refer to Figure 2 for a map of the DFA). Short term volume based licenses that are issued to First Nations by the Ministry of Forests, Lands and Natural Resource Operations & Rural Development (FLNRO) that 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. Parks and protected areas are also excluded from the DFA.

WFP respects the legal rights and responsibilities of interested parties within or adjacent to the DFA (e.g., First Nations, trappers, water license holders, etc.). WFP respects the treaty title and rights flowing from the Maa-nulth Final Agreement effective April 1, 2011. WFP maintains a record of interested parties when referring TFL Management Plans, Forest Stewardship Plans, and Pest Management Plans associated with the DFA.

The Port Alberni Forest Operation is located on southwestern Vancouver Island. There are five communities within or adjacent to the licence area: Port Alberni, Bamfield, Anacla (Huu-ay-aht First Nation), Nitinat (Ditidaht First Nation), and Kildonan.

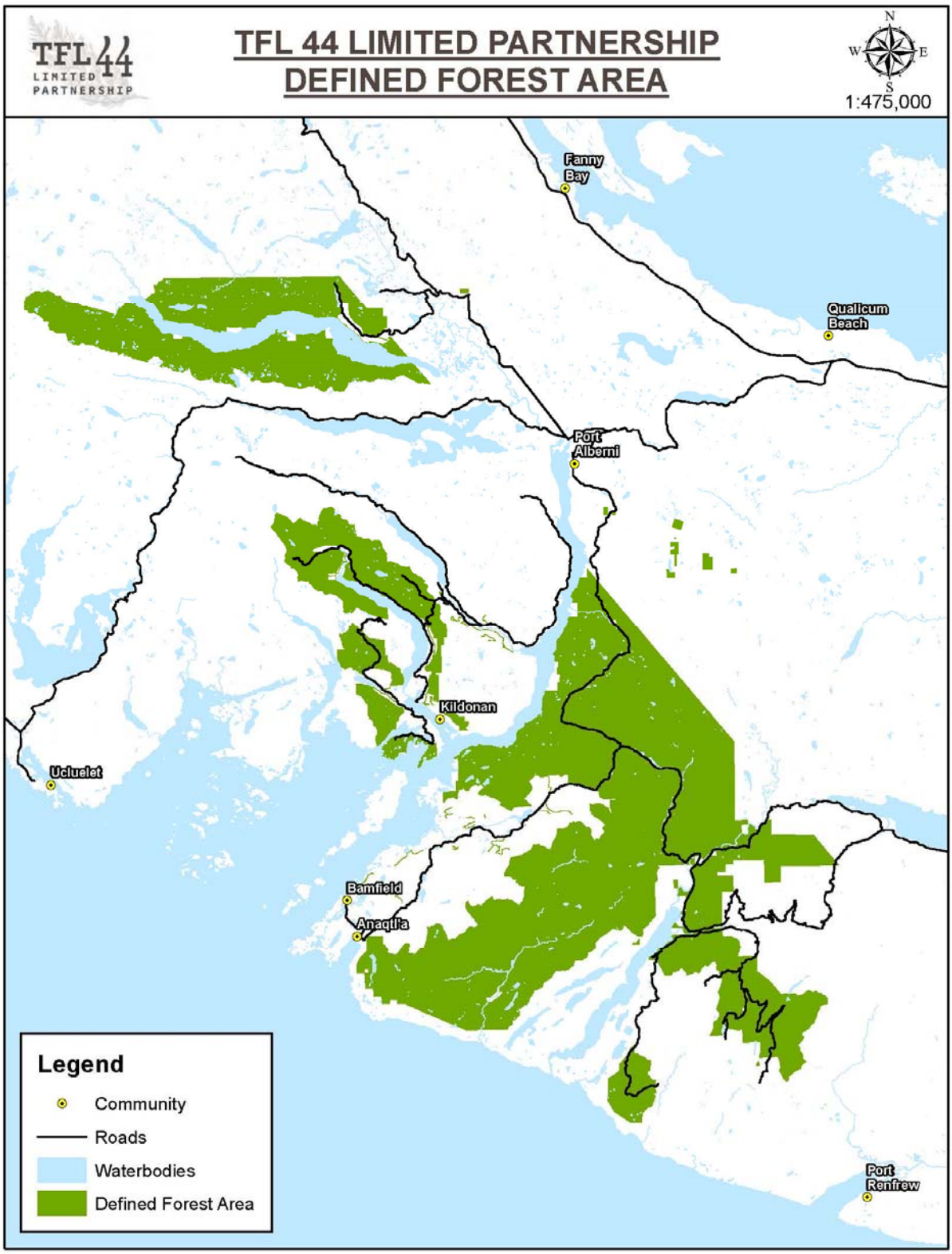
The DFA is divided into three broad geographic areas known as: Franklin, Henderson Lake, and Great Central Lake.

The Operations consist of timber harvesting, reforestation activities, maintenance shops, dryland sorts, various permits such as landfills, and an administrative office. Refer to the current TFL 44 Management Plan for a detailed description of the DFA, available at: http://www.westernforest.com/sustainability/environmental-stewardship/planning-and-practices/our-forests/tree-farm-licence-44-management-plan-5/

The Forest Land and Allowable Annual Cut (AAC)

The area of the DFA (as per Management Plan #5) is 138, 491 hectares. The current AAC for TFL 44 is 793,600 m^3 updated effective December 17, 2015. WFP's portion of the AAC is 782,482 m^3, the remainder is allocated to First Nations.

Figure 2 - Map of the Defined Forest Area



Management Responsibilities in the DFA

TFL 44 is a renewable tenure on Provincial Crown land and administered by the Ministry of Forests, Lands, & Natural Resource Operations & Rural Development (FLNRO) under the Forest Act. These tenures are managed by WFP in conjunction with FLNRO and other government 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 the Forest and Range Practices Act.

Other independent third party entities that currently carry out work on the DFA 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:

- Stz'uminus
- Cowichan
- Ditidaht
- Hupacasath
- Lake Cowichan
- Lyackson
- Pacheedaht
- Penelakut
- Tseshaht
- Halalt

The Defined Forest Areas also falls within the Maa-nulth First Nation Areas of the:

- Huu-ay-aht
- Uchucklesaht
- Yuułuʔiłʔatḥ

Moreover, the Toquaht and Ka:'yu:'k't'h'/Che:k'tles7et'h' First Nations have Maa-nulth treaty rights in the Migratory Birds Harvest, the Wildlife Harvest, and the Domestic Fishing Areas which are in part associated with the DFA.

A map of the traditional territories can be reviewed at: http://maps.gov.bc.ca/ess/hm/cadb/

Products and Markets

Logs are distributed by the Fiber Supply department for sale and transport to Western Forest Products sawmills, outside purchasers and export.

Table 1 - DFA Products and Markets

Estimate By Species (%)		Estimate By Grade (%)	
Ba	13	Pulp / Chip	16
Cy	3	Utility	10
Hw	44	Merchantable / Sawlog	38
Cw	19	Shingle / Special Forest / Boomsticks	4
Fd	21	Peeler / Gang	23
		Shop & Better	9

General Management Strategies

The following general management strategies provide overarching guidance to Indicator specific strategies described in Appendix 1: Detailed Indicator Descriptions/ Results.

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 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 BC's Landscape Unit Planning Guide 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 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 stand-level requirements as required under the Western Forest Strategy and Forest Stewardship Plan.
- Choose species mixtures for reforestation based on ecological and climatic 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 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 conservation of specialized habitats for large mammals, primarily deer and elk,
- identification and conservation of marbled murrelet nesting habitat and releasing unsuitable habitat from marbled murrelet WHAs,
- identification and conservation of active Coastal Northern Goshawk nests,
- the actions needed to maintain habitat for rare and endangered plants, animals, and ecosystem processes.

The wildlife conservation strategy is to:

- comply with the Forest and Range Practices Act and the Forest Stewardship Plan,
- comply with government stated measures to manage Wildlife Habitat Areas (WHAs) and Ungulate Winter Ranges (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 conserve important habitat,
- continue assessments of ranges, habitat diversity, wildlife trees, etc., and conserve significant values,
- continue surveys to identify and preserve key marbled murrelet nesting habitat and obtain release of protected sites that do not have suitable habitat,
- train field crews to identify species at risk; WFP will monitor selected goshawk territories for activity,

- 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 habitats.

Fish Conservation

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. The opportunities include:

- Updating the classification of waters within the DFA.
- Mitigation, enhancement, and habitat restoration.
- Cooperation with First Nations and stakeholder groups.
- Determining measures for conserving endangered populations.
- The management of riparian areas.

The strategy for responding to these opportunities is to:

- Continue to undertake detailed stream inventories for operational plans.
- Continue to identify and implement enhancement, mitigation, and rehabilitation opportunities with available funding.
- Achieve full compliance in meeting the requirements of the Forest and Range Practices Act and the Forest Stewardship Plan.

Harvesting Adjacent to Parks

The general strategy for harvesting adjacent to all Parks is as follows:

- Roads close to federal and provincial park boundaries will be deactivated after harvest unless required for future forest management activities.
- Cutblock boundaries along park boundaries will have a windthrow assessment.
- To either review the common boundary on site, with a provincial or federal park representative or obtain approval when adjoining.
- If danger trees standing outside the park boundary are felled into the park, only the portion lying outside the park boundary may be harvested. The portion remaining in the park will be left as Coarse Woody Debris for ecological purposes.
- Minimize damage to surrounding trees and vegetation.
- Ensure that no trees within the park will be felled.

For additional background:

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 Prevention and Suppression

Historically, wildfire in the DFA is a rare occurrence. Port Alberni Forest Operation's primary objective is to prevent fires through good housekeeping, diligent equipment maintenance, and the strict control of operations as fire danger rises. The goal is to contain fires within 24 hours of detection. Fire prevention and control are governed by provincial legislation and WFP's fire preparedness.

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 the fire danger rating.

Forest Insect Control

Similar to the fires, forest health problems have also not been significant. The last significant insect epidemic of forest defoliators 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. 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 FLNRO or Canadian Forest Service (CFS) specialists and plans made for salvage. If warranted, an aerial attack plan may be 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.

For 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 with strategically placed traps.

With Conifer Seedling Weevil plantation damage has been primarily confined to cool damp forest types along the west coast of Vancouver Island. Seedlings ≤2 years of all species are attacked with Sitka Spruce being the most resistant. Damaged is caused by adult weevils feeding on the seedling's stem, which can girdle the seedling creating mortality in the plantation. Currently, replanting damaged areas is the main action taken when mortality is discovered. Breeding trials have now produced Sitka Spruce seedlots that are 85 to 95 percent resistant to Sitka-spruce weevil. This weevil kills or injures the terminal shoots of 8 to 30 year old Sitka Spruce. Sitka – spruce 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 Canadian Forest Service (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 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 closure. 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* root rot, include:

- Visually assessing second growth stands proposed for harvest for the presence of laminated root rot during 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). Accepting laminated root rot in retention patches 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 (e.g. deciduous or pine), or the stumps are removed from the ground. Group retention areas may also have infected trees if they are at least 10 meters from the outer perimeter.
- Considering establishment of non-susceptible species for the next rotation where site characteristics are appropriate.
- Ensuring that single trees selected for retention will have no visible infections and will be at least 10 meters from any visually infected tree.
- Maintaining records outlining the incidence of root rot 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 Avoidance

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

- 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 planning 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 which forest management objectives may be impacted if windthrow occurs adjacent to a particular cutblock.
- Deploying management practices 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 retention 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.
- Training of field personnel to recognize the potential for windthrow.

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 (e.g. fertilization) will be undertaken if government funding is available.

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 and climatic 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, western red cedar and Douglas-fir rank highest. Species selection will be consistent with the stocking standards approved within the Forest Stewardship Plan.

Forest tree seed – Port Alberni Forest Operation attempts to maintain a five-year supply of seed for the range of species and seed zones that is consistent with the Provincial Chief Forester's Standards for Seed Use. Improved seed collected from company seed orchards is used, and supplemented where necessary from other producers of high genetic gain seed. For species where improved seed orchard seed is unavailable, registered wild seed may be purchased or collected.

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, burning woody debris accumulations and stumping. Each method is considered in terms of efficacy, economics, environment, and government regulation before the optimal solution is prescribed.

Regeneration methods – Most sites are planted with improved seedlings in order to ensure full stocking, accelerate stand development, reduce brushing needs, increase stand resilience and attain early green-up, thereby improving growth and yield, reducing time to harvest and freeing adjacent areas for harvest. Immediate planting is normally prescribed on highly productive sites because of the likelihood of weed invasion. Natural regeneration may be prescribed if stocking will reach at least the minimal acceptable level two years before the end of the regeneration delay period. Planting will also become increasingly prevalent in advanced growth amabilis stands within areas of balsam woolly adelgid.

Silviculture assessments – The normal assessment regime for each site prior to declaring free growing status is:

- A post-harvest assessment confirms whether or not the prescribed treatments regarding slash loading and disposal, site preparation, regeneration method, and timing still apply.
- A stocking survey is completed at least two years prior to the end of the regeneration delay period where natural regeneration has been prescribed. If it appears that regeneration targets will not be met, fill 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 completed 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 free growing survey is carried out near the end of the late free growing period prescribed in the Forest Stewardship Plan.

Road Building and Maintenance

Road building Standard Operating Procedures document plans/strategies for road construction, maintenance, and 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 by qualified professionals.

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 when not in use according to the conditions of the Road Permit. Backspar trails, abandoned roads, unused gravel pits, and log landings may be restored as conditions permit by such techniques as ripping, return of spoil, spreading of debris, construction of anti-erosion barriers, re-vegetation and reforestation.

Soil Conservation

The DFA regularly 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 may temporarily increase their frequency. Potential impacts of landslides include acceleration of sediment delivery to streams, 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, streambed sedimentation).
- 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 soil productivity.

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

- Complete harvest plans in accordance with WFP's corporate terrain strategy.
- Assess all sensitive 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 techniques or constraints.
- Inspect road surfaces, 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.
- Re-vegetate soil where there is a potential for erosion to occur and cause sediment transport to fisheries sensitive areas.
- Carry out site sensitivity assessments for soil compaction, soil displacement, surface soil erosion, and forest floor displacement where ground based harvesting is proposed.
- Maintain the average amount of permanent site degradation below 7% where it is practical and economic.
- Carry out internal and external audits to evaluate road building and stream management practices.

Water Conservation

The Defined Forest Area encompasses four Community Watersheds and two Fisheries Sensitive Watersheds. Government objectives exist for primary forest activities in community and fisheries sensitive watersheds. These objectives center on water quality and quantity, timing of flow, and conserving the integrity of stream channels. 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.

The quantity of water from forest development is primarily focused on the potential changes to peak flows.

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

- Deploy primary forest activity strategies detailed in Sections 4.3.2, 4.3.3, and Appendices C.3 and C.4 of the Forest Stewardship Plan
  Link Address: *http://www.westernforest.com/sustainability/environmental-stewardship/planning-and-practices/our-forests/fsp-port-alberni-and-stillwater-operations/*
- for community watersheds and fisheries sensitive areas. These strategies include:
  - Conducting a hydrologic evaluation by a qualified professional for new roads and cutblocks.
  - Designing bridges and culverts to a peak flow period of 100 years.
  - Applying road construction strategies and silviculture systems to reduce landslide and sediment delivery potentials to streams.
  - Carrying out erosion control measure utilizing grass seeding, sediment basins, and erosion blankets.
  - Deactivating priority roads to reduce the effects of landslides and soil erosion on fish habitat.

Riparian Management

Riparian areas are used by many species of wildlife. These areas are reserved by way of modified harvest practices in the vicinity of 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. The widths of Riparian Management Areas are embedded in the Forest Planning and Practices Regulation (FPPR) and carried into Section 4.3 of the Forest Stewardship Plan associated with the Defined Forest Area.
  (FSP Link Address: *http://www.westernforest.com/sustainability/environmental-stewardship/planning-and-practices/our-forests/fsp-port-alberni-and-stillwater-operations/)*

Riparian management strategies include:

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

Strategies to conserve 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 conserve 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, herbaceous vegetation, and high stumps within 5m of the channel to the fullest extent possible; retention of wildlife trees; falling and yarding trees away from the stream; 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 Fisheries Act.

Forest Growth and Yield Plan

Growth and Yield work continues, subject to government funding. Partially funded 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.

Forest Recreation

Port Alberni Forest Operation recognizes and supports the responsible use of forests for recreation activities. The Recreation Sector (WIWAG) produced a "Recreation Access Inventory". This Inventory is posted on the WIWAG website. Also on the website is a Public Access Map and the Port Alberni Operational Activity Map to assist recreationists. Public access is available throughout the DFA. Some restrictions are applied, especially in active logging areas for safety reasons and protection of equipment. Access may also be limited during periods of high fire hazard.

The Port Alberni Forest Operation's strategy for recreation is to:

- Identify new, significant recreational attractions in the course of inventory or development work and protect them.
- Assist responsible recreationists, authorized organizations, and commercial tour operators in travelling to sites to recreate.
- Restrict access with gates and other measures for safety and protection measures.
- Operate within timing windows where practicable if the recreation resource is temporarily sensitive.
- Rehabilitate trails post harvest and/or assist to relocate government recognized trails to accommodate timber harvesting activities.
- Continue to provide access maps and recreation inventories for the public.
- Work with government and local caving groups to manage and protect sensitive caves and karst resources.

Visual Quality

Visual quality will be managed to achieve established visual quality objectives from significant public viewpoints usually associated with travel corridors, communities, parks, and recreation use areas. Port Alberni Forest Operation will work to minimize impacts on timber supply while retaining visual values. This will include:

- Ensuring timber harvesting activities have characteristics consistent with the specified category of alteration ranging from Preservation to Maximum Modification.
- Applying silviculture strategies to reduce the time to achieve visually effective green-up.

First Nations

Port Alberni Forest Operation recognizes that First Nations have unique rights and interests in land and resources and desires to have a fuller understanding of those rights and interests and seeks reasonable ways to integrate them into its forest resource management and planning processes. WFP also desires to develop mutually beneficial business relationships with willing First Nations associated with the DFA. Strategies include:

- Sharing our forest management plans and proposed activities with First Nation communities in a mutually agreeable format or established protocol.
- Requesting comments on our plans and proposed activities and seeking acceptance preferably in face to face dialogue.
- Entering into arrangements to protect confidential information.
- Conserving archaeological and other important cultural heritage sites.
- Inviting First Nation communities to explore mutually beneficial business arrangements.

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, and interested individuals of opportunities for input to the various planning processes and solicits their feedback.
- Advertises and participates in public information meetings to enable any member of the public to view and respond to forest management planning.
- Responds to invitations to educate local school and community groups on sustainable forest management which at times involves woods and mill tours.
- 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.

Forest Monitoring & Research

Western Forest Products supports and engages in forest research and monitoring that leads to improved forest management practices. Objectives include sustaining timber supply and economic values, sustaining ecological values and processes, and sustaining social values. The strategy is to:

- Identify knowledge gaps and recommend basic and applied research needs;

- Engage with government, academic, and private agencies that have capacity and mandate to undertake applicable research;
- Support (with letters, in-kind resources, and leverage funding) research funding proposals for projects of particular or strategic interest to the DFA and WFP as a whole;
- Cooperate with research organizations in conducting basic and applied research; and
- 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 ecosystem functions and components, and to improve our ability to predict ecosystem response. The outcome is development and implementation of ecologically sound silviculture prescriptions.
- Silviculture – The silviculture research program focuses on examining silvicultural practices for regeneration and growth. Objectives of this research are to maintain and enhance timber supply where economically viable to do so. Various trials—some with over 20 years of monitoring—examine species selection, genetic gain for volume and pest tolerance, stock types, mechanical site preparation, vegetation control, and fertilization.
- Forest Growth and Yield & Light Detection and Ranging (LiDAR) – The aim of this program is to quantify forest inventory and growth rates across the range of site conditions on the company's tenure. A recent focus has been to examine the impact of variable retention harvesting and edge effects on early establishment and growth. The company has invested in LiDAR to improve inventory estimates and aid in planning. This investment has been further employed to examine forest ecology knowledge gaps.

Research supported or implemented by the Company occurs across its tenures. In many cases, the findings apply broadly to sites in multiple tenures. The following is a listing of active and ongoing forest management research and monitoring projects in which the company is a lead or major partner; it covers all company tenures and divisions. Those projects which were monitored, measured, or reported on in 2017 are underlined. Funding sources include Natural Science and Engineering Research Council of Canada (NSERC), Land Based Investment Strategy (LBIS), Operational Tree Improvement Program (OTIP), Ministry of Forests, Lands, Natural Resource Operations, and Rural Development (MFLNRO), Canadian Wood Fibre Centre (CWFC) and GenomeBC (and GenomeCanada).

Forest Ecology: Variable Retention Adaptive Management (VRAM)

- Lewis Lake (R885), Moakwa (R1164), Port McNeill (R817), Tsitika (R917), Horseshoe Lake (R949), Goat Island (R1009), Memekay (R1163), Klanawa (R1217) Forest Structure Experimental Sites
- Avian communities, carabid beetles, terrestrial gastropods, small streams
- Monitoring and reporting of operational VRAM applications (2017 – Symmetree - $WFP)

Forest Ecology: Species at Risk

- Northern goshawk site monitoring (2017 – Manning and others – $WFP)
- Northern goshawk population genetics (2017 – Irwin - $CFPA, $GenomeBC)
- Low-level aerial surveys for marbled murrelet habitat in Nimpkish, Artlish and Tahsish landscape units; Henderson and Nitinat landscape units; Barclay Sound landscape units (2017 – $WFP, $FLNRO)
- Owl population monitoring (2017 – Matkoski – $WFP)
- Breeding birds: Population trends and habitat association (2017 – Madrone - $WFP and others)

Silviculture – Resiliency

- Climate change strategies and mitigation
- Climate-based seed transfer – CoAdapTree (2017 – Aitken et al - $WFP, $GenomeBC)
- Western redcedar genomic selection – pest tolerance (2017 – Russell & Bohlmann – $WFP, $GenomeBC)
- Genomic traits in Douglas-fir breeding – pest tolerance (2017 – Stoehr & ElKassaby – $WFP, $GenomeBC)
- Western redcedar browse resistance (2017 – Russell – $WFP

Silviculture: Regeneration and growth

- SCHIRP installation, Transition trials, Kennedy Lake trials, Demonstration trials, *Vaccinium* trials
- Western redcedar – western hemlock fertilization trials (2017 – FLNRO – $MFLNRO; $LBIS)
- Suquash drainage trial
- Planting trials – stock types, fertilization-at-plant, species selection

Silviculture: Seed & Seedling Production

- Douglas-fir pollen dynamics (2017 - $OTIP)
- Western redcedar pollen dynamics (2017 - $OTIP)
- Cone & Seed insect studies (2017 - $WFP)
- Yellow cypress clonal rootability (2017 – $OTIP)
- Douglas-fir nursery trials (2017 – Noshad - $OTIP)

Growth and Yield & Light Detection and Ranging (LiDAR)

- LiDAR Enhanced Forest Inventory Project
- VRAM Regeneration performance
- Nesting habitat for the marbled murrelet Using LiDAR (2017 – UVic Clyde - $WFP, $NSERC)
- LiDAR evaluation of marbled murrelet habitat in Stillwater operations (2017 - $WFP)
- Characterizing streams and riparian areas with airborne laser scanning data (2017 – Tompalski - $CWFC)
- Forest road status assessment using airborne laser scanning (2017 – Waga - $CWFC/UBC)

Glossary

Acronyms

AAC	Annual Allowable Cut	MIR	Medical Incident Rate
AIA	Archaeological Impact Assessment	MP	Management Plan
AOA	Archaeological Overview Assessments	NSR	Not Sufficiently Restocked
BEC	Biogeoclimatic Ecosystem Classification	OGMA	Old Growth Management Area
CHR	Cultural Heritage Resources	PAFO	Port Alberni Forest Operations
CFS	Canadian Forest Service	PAS	Permanent Access Structure
CMT	Culturally Modified Tree	PMP	Pest Management Plan
CSA	Canadian Standards Association	RG	Forest Regeneration
CWD	Coarse Woody Debris	RMA	Riparian Management Area
CWS	Community Watersheds	RMZ	Riparian Management Zone
EBITDA	Earnings before Interest, Taxes, Depreciation & Amortization	RRZ	Riparian Reserve Zone
EMS	Environmental Management System	SEI	Sensitive Ecosystem Inventory
DFA	Defined Forest Area	SFM	Sustainable Forest Management
FG	Free Growing	SFMP	Sustainable Forest Management Plan
FPPR	Forest Practice Planning Regulation	SOP	Standard Operating Procedure
FRPA	Forest and Range Practices Act	SPAR	Seed Planning & Registry (database)
FSP	Forest Stewardship Plan	SUP	Special Use Permits
FSW	Fisheries Sensitive Watershed	TFL	Tree Farm License
FTE	Full Time Equivalent	UWR	Ungulate Winter Range
GIS	Geographic Information System	VR	Variable Retention
GPS	Global Positioning System	WHA	Wildlife Habitat Area
LTHL	Long Term Harvest Level	WIWAG	West Island Woodlands Advisory Group
MFLNRO	Ministry of Forests, Lands, and Natural Resource Operations & Rural Development	WTP	Wildlife Tree Patch

Definition of terms

The following definitions are supplemental to those found in the Canadian Standards Association (CSA) Z809-16 *Section 3 Definitions and Abbreviations*.

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.

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/lmh28-01.pdf

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)

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

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 dead wood in various stages of decomposition. Note: Coarse woody debris includes standing dead trees, fallen wood, stumps, and roots.

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.)

EBITDA: stands for “Earnings Before Interest, Taxes, Depreciation, and Amortization”. The equation for calculating EBITDA is: EBITDA = Sales - Cost of Goods Sold (excluding depreciation) - 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.

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.

Fisheries Sensitive Watershed: An area of land (watershed) identified under the Government Actions Regulation comprising both significant fisheries values and sensitivity to forest or range practices (FPPR 2005).

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

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.

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.

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.

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.

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.

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.

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.

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.

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, used less often 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.

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

Reserves: Areas 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.

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 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.

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).

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.

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.

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.
DEFINING A HIGHER STANDARD™

SFM Plan
Appendix 1: Detailed Indicator & Results

Port Alberni Forest Operation

Revised for changes to new Standard

April 10, 2019

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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-Z809-16).

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. Indicators with titles comprised of both numbers and letters (e.g. Indicator 1.4.2a) are formulated by WIWAG members but are not core to the standard.

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 an interested party 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

In 2018 WIWAG met four times to discuss a range of topics including Goshawk and Marbled Murrelet ecology and management, oldgrowth/big trees, and the Western Forest Strategy. Some WIWAG members also interacted with members of the public at the Fall Fair Booth. At the end of 2018, WIWAG welcomed a new facilitator, Danielle Burrows, replacing the well-respected Jennifer Dyson who served for 10 years.

With safety, the Medical Incident Rate (MIR) decreased slightly from 4.08 to 4.00 in 2018 as compared to 2017 but remained at an unacceptable elevated rate. Timber harvest levels on the DFA more than doubled as compared to 2017 but concluded at 82% of the allowable annual cut due to residual effects of the contractual issues from 2016 and adverse weather conditions. The increased harvest translated into more historical results for specific indicators. For example, the sum of wages and benefits paid to contractors and employees tripled and stumpage payments to the Crown increased by more than four fold in 2018 and as compared to 2017 (Indicator 5.1.1).

Of the 45 indicators associated with the Plan, forty-three required a report in 2018. All reported indicators met their targets with the exception of:

Indicator 1.1.1: Ecosystem Area by Type (target not met but within variance)

Indicator 1.1.4: Within-stand Structural Retention (target not met but within variance)

Indicator 3.2.2c: S4 Streams (target not met but within variance)

Indicator 5.2.3: Level of Direct and Indirect Employment (neither the target nor variance met)

Summary of Changes

Changes to the SFMP in 2018 include:

- Reporting out on the new suite of Indicators developed to embrace CSA Z809-16.
- Expanding the scope of *Identified Sites* in Indicator 1.4.2 to include the occurrence of Big Trees as defined in the WFP Policy
- Eliminating the *Annual Summary Report* as a separate document and including relevant content in *Appendix 1* (this document) under the heading of *Summary of Results*.

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. Establish forest plantations only in afforestation projects.*				
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, mature, and old seral stages annually	- 5% by type for up to 10 years

History

Core Indicator under CSA Z809-08 no change for CSA Z809-16.

Basis for the Target

The biogeoclimatic variants in the DFA represent a wide geographic range, a diversity of climatic conditions, and significant 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 diversity of stand age classes across the variants. However, historic harvesting has generally progressed from productive variants close to communities to less productive variants in more remote areas of the DFA. The 50% level for ecosystem area by type and seral stage provides reasonable assurance that there is adequate representation of each existing ecosystem type 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, land use decisions, and historic harvesting patterns that may have influenced variants disproportionately.

Current Status & Results

Year	BEC Zone/ Variant	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)
2018	CWHmm1	1459	427	382	1837	2646	4105	64%	N	Y
	CWHmm2	1669	607	537	3851	4995	6665	75%		
	CWHvh1	4308	810	387	2914	4111	8419	49%		
	CWHvm1	27172	19663	1782	18454	39899	67071	59%		
	CWHvm2	5971	1426	438	8694	10558	16530	64%		
	CWHxm2	4626	5282	1475	1784	8541	13167	65%		
	MHmm1	120	173	137	2357	2667	2787	96%		

2017	CWHmm1	1,430	416	443	1,911	2,770	4,200	66	N	Y
	CWHmm2	1,688	682	646	3,937	5,265	6,953	76		
	CWHvh1	4,255	765	423	2,971	4,159	8,414	49		
	CWHvm1	27,456	19,216	1,799	18,604	39,619	67,074	59		
	CWHvm2	6,045	1,278	456	8,735	10,469	16,513	63		
	CWHxm2	4,785	5,382	1,176	1,838	8,396	13,180	64		
	MHmm1	119	293	228	2,549	3,070	3,189	96		
2016	CWHmm1	1,453	373	448	1,934	2,755	4,208	65	N	Y
	CWHmm2	1,658	699	654	3,964	5,317	6,975	76		
	CWHvh1	4,264	762	422	2,969	4,153	8,417	49		
	CWHvm1	27,307	19,333	1,608	18,823	39,764	67,071	59		
	CWHvm2	6,102	1,157	473	8,791	10,421	16,523	63		
	CWHxm2	4,724	5,838	739	1,879	8,456	13,180	64		
	MHmm1	119	293	556	2,549	3,398	3,517	97		
2015	CWHmm1	1,720	324	120	1,731	2,175	3,895	56	N	Y
	CWHmm2	1,549	469	270	3,444	4,183	5,732	73		
	CWHvh1	4,258	758	423	3,000	4,181	8,439	50		
	CWHvm1	28,287	18,710	1,601	18,621	38,932	67,219	58		
	CWHvm2	6,110	1,110	520	8,773	10,403	16,513	63		
	CWHxm2	4,920	6,354	728	1,785	8,867	13,787	64		
	MHmm1	107	6	47	2,103	2,156	2,263	95		
2014	CWHmm1	1499	264	111	2029	2404	3903	62	N	Y
	CWHmm2	1557	529	355	3666	4550	6107	75		
	CWHvh1	4172	754	420	2992	4166	8338	50		
	CWHvm1	28360	17662	1635	18987	38284	66644	57		
	CWHvm2	6068	890	613	8861	10364	16432	63		
	CWHxm2	4617	6669	548	1784	9001	13618	66		
	MHmm1	105	6	52	2204	2262	2367	96		

Mid, mature, and old seral stages describe stands greater than or equal to 40 years old.

Performance and Interpretation

2018: Similar to 2017, the target was met for 2018 except for the CWHvh1 as referenced in the forecast. The CWH vh1 remained at 49% and should remain close to this value through 2023. As previously described harvest history in the DFA generally progressed away from established communities towards the outer west coast of the DFA and into this variant. This more recent timber harvesting has placed more area in the ***early*** seral stage.

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 in older seral stages exists in the non-contributing land-base (e.g., inoperable) and will not be harvested.

Forecasts

The current status shows representation 50% and above for each BEC zone and represents a long history of harvesting. The Timber Supply Analysis also supports forecasting that the target will be met in the long term. The one exception is expected to be the CWHvh1 where the 2013 to 2023 year forecast is likely to be between 45% and 50% because of historic harvesting patterns in the DFA.

Monitoring

The Operations Forester requests inventory information from corporate staff after year end harvesting has been updated in the Cengea database.

Indicator 1.1.2: Forest Area by Type or Species Composition

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. Establish forest plantations only in afforestation projects.*				
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 remains within 2% of the 2012 baseline level	+/- 1% by species. i.e. Douglas-fir at 20.6% could be as high as 23.6% or as low as 17.6% in 2018.

History

Core Indicator under CSA Z809-08. Title updated for CSA Z809-16.

Basis for the Target

The target is based on the natural occurrence of commercial species and their ability to adapt to the biogeoclimatic conditions in the DFA. Maintaining the current tree species diversity is a fundamental strategy for climate change and forest health. 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

Given the DFA changed significantly with area removals in 2010 the new baseline will be 2012. The tree species representation is set to be re-assessed for the 2018 report.

Species	Base-line % 2012	2015 %	change	2018	% change 2012-2018	Target Met	Variance Met
Douglas-fir	20.6	20.3	- 0.3	19.9	-0.7	Y	n/a
Pine	0.4	0.4	0.0	0.4	0		
Western Red Cedar	19.3	19.5	+ 0.2	20.0	0.7		
Yellow Cedar	3.0	3.4	+ 0.4	3.5	0.5		
Sitka Spruce	0.4	0.5	+ 0.1	0.5	0.1		
Hemlock (western & mountain)	42.0	41.4	- 0.6	41.2	-0.8		
Amabilis Fir	12.5	12.6	+ 0.1	12.7	0.2		
Deciduous (Alder and Maple)	1.9	1.8	- 0.1	1.8	-0.1		

Performance and Interpretation

2018: Species compositions have remained relatively constant since 2012. Western Red Cedar and Yellow Cedar continue to be planted in proportionately greater numbers to enhance stand value and support cultural interests. Sitka Spruce and Amabilis Fir have been planted in greater numbers to reforest the harvested areas of "off-site" Douglas-fir second growth and to minimize browse damage. Next report is 2021.

Strategies & Implementation

WFP conducts reforestation activities consistent with legally required and approved stocking standards in the Forest Stewardship Plan (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 in 2021 will be achieved as regeneration and species composition is driven by requirements detailed in 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. As the factors associated with climate change become better understood the target may need to be adjusted.

Monitoring

The Operations Forester is responsible for coordinating GIS analysis (GIS Department), planting, and assessment programs. The report will be based on all species (area weighted) excluding NSR classified lands and miscellaneous species.

Indicator 1.1.3: Forest Area By Seral Stage or 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. Establish forest plantations only in afforestation projects.*				
Value	**Objective**	**Indicator**	**Target**	**Variance**
The older age stands on the DFA	Older age stands on the DFA are maintained	Forest area by seral stage or age class	81+ age stands are maintained to at least 35% of the productive forest area measured on a five year *rolling average*	Down to 30% for up to 10 years

History

Core Indicator under CSA Z809-08. Title updated for CSA Z809-16.

Basis for the Target

The target balances the current allowable annual cut (AAC), the desire for species diversity, and the current age class distribution of the productive forest. For many species, if habitat requirements are present, populations will remain stable. Older age classes are often the most difficult to manage primarily because of the time required for their development. Forest stands at 81+ foster unique communities across the forest landscape. Maintaining at least 35% of the older age stand will ensure that these unique communities are preserved.

The variance is to account for natural disturbances associated with insects, disease, windthrow, wildfire, land use decisions, and historic harvesting patterns that exist or may develop.

Current Status & Results

Year	Total Productive Forest Area (ha)	Age (yrs)	Productive Area 81+ (ha)	% Productive Area Maintained at Age 81+	Target Met (Y/N)	Variance Met (Y/N)
5 yr (2014-2018)				38	Y	n/a
2018	118,777	81+	45,130	38		
2017	119,550	81+	45,843	38		
2016	119,907	81+	45,910	38		
2015	119,117	81+	44,029	37		
2014	117,420	81+	44,266	38		

Performance and Interpretation

2018: The target was met for this indicator in 2018. Note, the Total Productive Forest Area was reduced slightly in 2018 because of a change in the definition. For stands <140 year a minimum site index requirement was added; for stands >140 years a minimum volume per hectare requirement was added.

Strategies & Implementation

Several initiatives and legal requirements have been set relating to protected areas that helps to contribute to older age classes, including Parks and protected areas, Old Growth Management Areas, Wildlife Habitat Areas, Ungulate Winter Ranges, Wildlife Tree Patches, etc. In addition, a significant portion of the DFA referred to as the non-contributing land-base (NCLB) is not operable for physical and economic reason and will therefore contribute to the protection of older age classes.

Over time, young stands in the NCLB will age and add to the current supply of older stands. Finally, the corporate strategy to use retention silviculture systems on the DFA provides additional stands of older age classes.

Forecasts

Although harvesting activities are normally concentrated within the older age stands, the data from Management Plan 5 indicates that the older age classes are still approximated near 35% of the productive forest in the year 2058.

Monitoring

The Operations Forester requests a GIS and inventory analysis after year end harvesting has been updated in the Cengea database.

Indicator 1.1.4: Within-stand Structural 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. Establish forest plantations only in afforestation projects.*				
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

Core Indicator under CSA Z809-08. Title updated for CSA Z809-16.

Basis for the Target

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

Current Status & Results

Year	Average Cutblock Retention (% of TAUP)	Target Met (Y/N)	Variance Met (Y/N)
2018	14.0	N	Y
2017	22.0	Y	n/a
2016	17.7	Y	n/a
2015	22.0	Y	n/a
2014	17.8	Y	n/a

Performance and Interpretation

2018: For 2018 the average cutblock retention of 14% did not met the target but was within the variance. Retention is more difficult in areas with cable yarding. Cable yarding represented 48% of the harvest in 2018 as compared to 43% in 2017. Constant improvements in planning is required to maintain an average of 15% annually. This indicator requires an assessment of the target in 2019.

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 retention targets are met. Refer to the SFM Plan Management Strategies for details. Salvage harvesting opportunities may not adhere to the retention strategy and retention levels, but this is anticipated to represent a small portion of the harvested volume.

Forecasts

The average block retention is expected to remain above the target moving forward as the corporate retention strategy continues to be deployed across the DFA. For 2019 retention levels are expected to be relatively constant at 15%.

Monitoring

The Operations Forester reports on this indicator using the Variable Retention Tracking Report from the Cengea database. This report uses cutblocks defined as *harvest started* in the reporting year.

Indicator 1.2.1: Habitat Protection for Selected Focal Species

Element: 1.2 Species Diversity *Conserve species diversity by ensuring that habitats and forest conditions 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

Core Indicator under CSA Z809-08. Title updated for CSA Z809-16.

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			
2018	UWR	2130	0	0	Spatially delineated ungulate winter range	Y	n/a
	MAMU	3169	1700	29	Moderate to very High ranked habitat from the low level aerial inventory in WHA, UWR, OGMA		
	Goshawk	0	241	441	Area reserved around known nests (WHA, other)		
	Red-legged Frog	51	0	0	Area reserved around known breeding ponds		
	Scouler's Corydalis	74	0	0	Area reserved around known locations of Scouler's Corydalis		
2017	UWR	2130	0	0	Spatially delineated ungulate winter range	Y	n/a
	MAMU	3133	1531	32	Moderate to very High ranked habitat from the low level aerial inventory in WHA, UWR, OGMA		
	Goshawk	0	241	637	Area reserved around known nests (WHA, other)		
	Red-legged Frog	51	0	0	Area reserved around known breeding ponds		
	Scouler's Corydalis	74	0	0	Area reserved around known locations of Scouler's Corydalis		

Year	Type of Habitat Protected/ Species	Area (ha)			Measure	Target Met (Y/N)	Variance Met (Y/N)
		Legal	Proposed	Voluntary			
2016	UWR	2130	0	0	Spatially delineated ungulate winter range	Y	n/a
	MAMU	3149	1521	32	Moderate to very High ranked habitat from the low level aerial inventory in WHA, UWR, OGMA		
	Goshawk	0	0	739	Area reserved around known nests (WHA, other)		
	Red-legged Frog	51	0	0	Area reserved around known breeding ponds		
	Scouler's Corydalis	74	0	0	Area reserved around known locations of Scouler's Corydalis		
2015	UWR	2130			Spatially delineated ungulate winter range	Y	n/a
	MAMU	3149	1527	31	Moderate to very High ranked habitat from the low level aerial inventory in WHA, UWR, OGMA		
	Goshawk	0	0	417	Area reserved around known nests (WHA, other)		
	Red-legged Frog	51	0	0	Area reserved around known breeding ponds		
	Scouler's Corydalis	73	0	0	Area reserved around known locations of Scouler's Corydalis		
2014	UWR	2130	0	0	Spatially delineated ungulate winter range	Y	n/a
	MAMU	2186.6	2416.7	19	Moderate to very High ranked habitat from the low level aerial inventory in WHA, UWR, OGMA		
	Goshawk	0	0	389	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		

Performance and Interpretation

2018: There were some adjustments in the allocation of area between legal, proposed, and voluntary for Marbled Murrelet and Northern Goshawk in 2018. For murrelet, the increase in habitat associated with ***legal*** reserves is due to amendments in the reserve-type which incorporated more suitable habitat. In addition, the increase in ***proposed*** is due to the re-alignment of draft OGMAs to incorporate more suitable habitat. The decrease of both murrelet and goshawk in ***voluntary*** is due to moving goshawk leave areas to proposed WHA/Areas of Interest (AOI)s.

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 eventually 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 to medium term. In the long-term, it is anticipated that as BC government Implementation Plans come into effect for Northern Goshawk and Marbled Murrelet, the hectares attributed to WHAs will increase.

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 Forester 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 in the Long Term for Selected Focal Species

Element: 1.2 Species Diversity
Conserve species diversity by ensuring that habitats and forest conditions 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

Core Indicator under CSA Z809-08. Title updated for CSA Z809-16.

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[1] (ha)	Baseline (ha)	% change	Target Met (Y/N)	Variance Met (Y/N)
2018	UWR	Spatially delineated ungulate winter range	2,130	0	2,130	0	Y	n/a
	Potential MAMU Nesting Habitat	Potentially Suitable Habitat in WHA, UWR, OGMA and NCLB	6,997	15,406	22,403	+ 4%	Y	n/a
2013	UWR	Spatially delineated ungulate winter range	2,130	0	2,130			
	Potential MAMU Nesting Habitat	Potentially Suitable Habitat in WHA, UWR, OGMA and NCLB	5116	16,389	21,505			

[1]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 measured 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 land base (generally unharvestable) will be retained in the long-term. The potentially suitable habitat available in reserves was calculated using the current legal WHA, UWR and OGMAs. The non-contributing land base 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 21,505 *(16,389 + 5,116)* ha.

Performance and Interpretation

2018: Over the last 5 years the increase in reserves is attributed to more area taking on a ***legal*** designation in WHAs and OGMAs. Moreover, amendments to legal OGMAs approved during the same period also incorporated more murrelet habitat. The non-contributing landbase (NCLB) decreased as some area was moved to legal reserves and other areas were eliminated because some stands were re-determined to have heights that are now below the threshold. The total area in reserves and the NCLB is still up overall from 2013.

Strategies & Implementation

The FSP contains results and strategies for management activities within or adjacent to established WHA, UWR, and OGMAs, 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 OGMAs and WHAs 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. However, winter ranges are currently being evaluated in the Great Central Lake Area which may increase the total reserve area.

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 ≥ 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 ≤ 250 years old and ≥ 28.5 m tall or site index ≥18.

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

Year	Habitat Type	Legal Reserves (ha)	NCLB[1] (ha)	Total (ha)	% Change	Target	Variance
2018	Ungulate Winter Range	2,130	0	2,130	0	Y	n/a
	Potential MAMU Nesting Habitat	7,712	31,073	38,785	+.04%	Y	n/a
2013	Ungulate Winter Range	2,130	0	2,130	0	Y	n/a
	Potential MAMU Nesting Habitat	5,595	33,030	38,625	+ 38%	Y	n/a
2009	Ungulate Winter Range	2130	0	2,130			
	Potential MAMU Nesting Habitat	4878	23,046	27,924			

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 provide 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 land base will be recalculated with new timber supply analysis

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

Indicator 1.2.3 and 2.1.2: Regeneration Comprised of Native Species

Element: 1.2 Species Diversity *Conserve species diversity by ensuring that habitats and forest conditions 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	At a minimum 99% of the trees planted be native species based on a five year rolling average	-2.0%

History

Core Indicator under CSA Z809-08 No change for CSA Z809-16.

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 Planted	% Native Species (yr)	% Native Species *(5 yr rolling avg)*	Target Met (Y/N)	Variance Met (Y/N)
2018	527,572	527,572	100.0	99.2	Y	n/a
2017	553,270	551,380	99.7	99.2	Y	n/a
2016	1,320,431	1,304,641	98.8	99.3	Y	n/a
2015	1,259,498	1,247,438	99.0	99.5	Y	n/a
2014	1,491,456	1,481,058	99.3	99.6	Y	n/a

Performance and Interpretation

2018: The target was met and no non-native species were planted in 2018. For 2019 is it estimated that 3600 Noble Fir will be planted.

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; however, their performance will be monitored to determine if site conditions or seedling growth justify a target adjustment.

Monitoring

The Area Planner 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

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)
2018	0	Y	n/a
2017	0	Y	n/a
2016	0	Y	n/a
2015	0	Y	n/a
2014	0	Y	n/a

Performance and Interpretation

2018: Only seedlings from registered seedlots are planted on the DFA. No genetically modified organisms were planted. The background information associated with Indicator 1.2.3 contains a detailed breakdown of registered seedlots that are 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 Area Planner. Planting specific data is also recorded within the Plant Wizard database and the provincial SPAR database for seeds and seedlings.

Indicator 1.4.1: Protection of Sites of Special Significance

Element: 1.4 Protected Areas & Sites of special biological, geological, heritage 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 biological, geological, heritage 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 sites of special significance	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

Core Indicator under CSA Z809-08 (previously Indicator 1.4.2). Indicator number and title updated for CSA Z809-16.

Basis for the Target

This indicator has historically focused on aboriginal archaeological sites because of their reoccurring presence on the DFA as discovered with the assistance of First Nation communities. A broader view of other significant sites continues to be captured in Indicator 1.4.2. There are legal requirements under Heritage Conservation Act, FRPA, and the 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)
2018	3	100%	Y	n/a
2017	1	100%	Y	n/a
2016	1	100%	Y	n/a
2015	3	100%	Y	n/a
2014	1	100%	Y	n/a

Performance and Interpretation

2018: In 2018 there were 18 cutblocks that had archaeological assessments (usually Archaeological Impact Assessments) completed based on archaeological potential from the Archaeological Overview Assessment (AOA) and from observations made by field crews. Three cutblocks were associated with Culturally Modified Trees (CMTs). For two cutblocks all CMTs were avoided by removing them from the harvest area or placing them in stand retention. The third cutblock was in the vicinity of about 40 CMTs. Four CMTs were felled through a Site Alteration Permit while the others were retained. Prior to issuing a Site Alteration Permit First Nations are provided an opportunity to comment on the harvesting plans.

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 culturally important sites (i.e. archaeological sites) 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 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. Where archaeological resources may be affected by proposed timber harvesting activities, WFP will apply to the Provincial Government for a Site Alteration Permit (SAP). Before issuing a SAP the government refers the application to First Nations.

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 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, and the referral of the Site Alteration Permit to review and consider the proposed management options. 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.

Monitoring

The Operations Forester 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 1.4.2: Identified Sites with Implemented Management Strategies

Element: 1.4 Protected areas & sites of special biological, geological, heritage 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 biological, geological, heritage 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

Core Indicator under CSA Z809-08 (previously Indicator 1.4.1). Indicator number and title updated for CSA Z809-16.

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)
2018	48	70	100	Y	n/a
2017	13	13	100	Y	n/a
2016	15	15	100	Y	n/a
2015	25	25	100	Y	n/a
2014	38	38	100	Y	n/a

Performance and Interpretation

2018: For this Indicator, 7 nest trees and 41 bear dens were listed. For 2018 Big Trees have also been included for the first time: 9 Western Red Cedar, 4 Douglas-fir, and 9 Sitka Spruce. These sites have management strategies identified to protect the features. Also in 2018 WFP began the process of updating its standard for the management of bear dens and eagle nests.

Strategies & Implementation

WIWAG has identified a desire to ensure protection/conservation of special sites in the DFA such as historical/memorial sites (e.g., World War II plane crash sites, old railway grade, etc.), special habitat features (e.g. eagle nests, bear dens, big trees), 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. Identified sites are reported as they occur within or adjacent to harvest and road activities for the year of harvest completion.

Forecasts

Sites of specific significance typically involve bear dens, rare nests, karst, big trees, and historic sites. The presence of specific sites can be influenced by timber type (e.g. old growth and second growth). As harvest activities transition to second growth it is expected that the discovery of bear den sites will decrease, historic/memorial sites will increase, and that nest and karst sites will remain relatively constant if the total AAC is harvested annually.

Monitoring

The GIS Analyst reviews the wildlife, big tree, and karst data layers to identify special sites encountered in a given year. The WIWAG Facilitator reports on any additional sites identified by WIWAG to be added to this indicator for future tracking and reporting.

Indicator 1.4.2a: Sensitive Ecosystem Training

Element: 1.4 Protected areas & sites of special biological geological, heritage 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 biological, geological, heritage or cultural significance within the DFA and implement management strategies appropriate to their long-term maintenance.

Value	Objective	Indicator	Target	Variance
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%

History

This indicator is carried forward from the 2016 SFM Plan (Indicator 1.4.a). Title updated for CSA Z809-16.

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)
2018	36/48	75	Y	n/a
2017	16/19	84	Y	n/a
2016	35/46	76	Y	n/a
2015	35/36	97	Y	n/a
2014	15/23	65	N	Y

Performance and Interpretation

2018: Sensitive Ecosystem and Rare Species training did not take place in 2018. A session is planned for all relevant contractors & employees was completed on March 27, 2019.

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. Staff planners and principles of planning contractors/consultants 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. It is estimated that 20 planners and planning contractors/consultants will receive the training on the 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 2.1.1: Reforestation Success

Element: 2. 1 Forest ecosystem condition and 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 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

Core Indicator under CSA Z809-08 (2.1.1a). Element description updated for CSA Z809-16.

Basis for the Target

The target and variance are tied to future yield assumptions in the Timber Supply Review associated with the DFA. Prompt reforestation with ecologically suitable species is linked to the Long Term Harvest Level (LTHL) of the DFA.

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)
2018	Regen	3453.2	3453.2	0	Y	n/a
	Free Growing	2036.3	2036.3	0	Y	n/a
2017	Regen	2014.8	2014.8	0	Y	n/a
	Free Growing	738.7	738.7	0	Y	n/a
2016	Regen	1233.9	1233.9	0	Y	n/a
	Free Growing	1234.2	1234.2	0	Y	n/a
2015	Regen	127.4	127.4	0	Y	n/a
	Free Growing	677.7	677.7	0	Y	n/a
2014	Regen	1279.4	1279.4	0	Y	n/a
	Free Growing	1877.2	1877.2	0	Y	n/a

Performance and Interpretation

2018: All 5489.5 hectares included in the scope of the target either met the regeneration delay or free growing milestones. No hectares were out of compliance.

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.

Timely planting with appropriate species and brush control are the primary management tools that ensure reforestation and free growing commitments are met.

Government and WFP databases are compared to ensure that SUs approaching their time limit for regeneration are given planting priority. The 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 reports from Cengea and the government's *RESULTS* database to summarize compliance with milestone obligations.

Indicator 2.1.2 and 1.2.3: Regeneration Comprised of Native Species

See Indicator 1.2.3 for indicator & data

Indicator 2.1.3: Additions and Deletions to the Forest Area

Element 2.1 Forest ecosystem condition and 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**
Retention of forest land for growing trees	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 by the licensee (Special Use Permits [SUP] etc.) is less than 0.001%	+0.0005%

History

Core Indicator under CSA Z809-08 (Indicator 2.2.1b). Indicator number, title and element description updated for CSA Z809-16.

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 likely to be converted 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 with 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)
2018	127,620	0.0	Y	n/a
2017	127,620	Very slight increase	Y	n/a
2016	127,620	Very slight increase	Y	n/a
2015	127,620	0.0	Y	n/a
2014	127,620	0.0	Y	n/a
2013	127,620	0.0	Y	n/a

Performance and Interpretation

2018: In 2018 there was no known forest area converted to other uses that would prohibit the growing of trees. Moreover, there was no reforestation to reclaim previously converted sites.

Strategies & Implementation

All Crown land in a tree farm license is designated as “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. There is the potential to plant some reclaimed road in 2019.

Monitoring

The Operations Forester coordinates the receipt of information from corporate staff in the Properties and Permits Department for losses of forest land and compares it to areas that are reclaimed.

Indicator 2.1.4: Sustainable Harvest Level

Element: 2. 1 Forest ecosystem condition and 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 harvest level is 98 to103% of the Long Term Harvest Level (LTHL) by cut control period.	+7% -3%

History

Core Indicator under CSA Z809-08 (Indicator 2.2.2). Indicator number, title and element description updated for CSA Z809-16. On May 5th, 2011 the Chief Forester of B.C. approved Management Plan (MP) #5 and determined the Allowable Annual Cut (AAC) for TFL 44 to be 800,000 m^3/year. The Base Case harvest schedule submitted as part of MP #5 indicated an initial harvest level of approximately 837,000 m^3/year and a LTHL of 806,600 m^3/year. Since the AAC was set below the LTHL of the Base Case, the current AAC of 782,482m^3 is the most suitable estimate of the LTHL.

Basis for the Target

Customer demand and government legislation are the basis for pursuing 100% of the Long Term Harvest Level (LTHL) or Allowable Annual Cut in a given cut control period. Legislation is written to encourage harvesting the LTHL in a cut control period to maintain economic stability. Cut control periods are typically five years but can be re-set to a lesser period by a licensee upon notification to government.

The variance is for fluctuations in customer demand. The upper variance is guided by government legislation which levies financial penalties when the harvest level is greater than 110%.

Current Status & Results

Year	Annual Harvest Level (m^3)	LTHL (m^3)	Annual Harvest as % of LTHL	Target Met (Y/N)	Variance Met (Y/N)
5 Year Period 2016-2020					
2018	640,693	782,482	82%		
2017	304,887	782,482	39%		
2016	386,152	782,482	49%		
3 Year Period 2013-2015	2,444,696	2,347,446	104.14 %	N	Y

Performance and Interpretation

2018: The current cut control period is from 2016 to 2020 inclusive. At the end of this period the harvest from the DFA is planned to be 3,912,410 m^3. For the first three years of the cut control period the harvest is estimated at 1,295,732 m^3 or 55% of the three year allocation. The harvest level in 2018 more than doubled as the contractual dispute concluded; nevertheless, some residual effects lingered. Moreover, significant days were lost to adverse weather (both heat and rain) in 2018. The 2017 harvest level was corrected from last year's report (from 237,921 m^3 to 304,887 m^3).

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 cut control period may be re-set periodically from its five year term to account for market fluctuations. There is potential for government to award unharvested volumes of the AAC to third parties.

The LTHL is calculated by Corporate Forestry by evaluating the rate of growth. The Province's Chief Forester takes this number into consideration when the AAC for the Licence is determined. 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

With good customer demand and a resolution to contractual uncertainties it is expected that WFP will make up the current harvest shortfall in its AAC before the end of the 2016-2020 cut control period.

Monitoring

The Operations Forester is responsible for coordinating harvest volume data using the Cut Control Statements provided by the Ministry of Forests, Lands and Natural Resource Operations. These official statements are received in the second quarter of the year following the reporting year. The Harvest Billing System scale reports and billed/unbilled waste volumes are used to estimate the harvested volume in the reporting year.

Indicator 3.1.1: Level of Soil Disturbance

Element: 3.1 Soil Quality and Quantity *Conserve soil resources by maintaining soil quality and quantity.*				
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

Core Indicator under CSA Z809-08 Title updated for CSA Z809-16.

Basis for the Target

The target and variance is based on the desire to maintain soil productivity to grow successive timber crops that align with timber supply assumptions. Specific numbers are tied to 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)
2018	0	Y	n/a
2017	0	Y	n/a
2016	0	Y	n/a
2015	0	Y	n/a
2014	0	Y	n/a

Performance and Interpretation

2018: Of the 58 cutblocks that were assessed in 2018 none were determined to have soil disturbance exceeding 5%.

Strategies & Implementation

The strategy to not exceed 5% of the Net Area to be Reforested is identified in Standard Operating Procedures (SOPs) as to:

- 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. SOPs 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 the postharvest assessment reports for cutblocks harvested within the year and reports the number of cutblocks that are recorded as exceeding the 5% soil disturbance limit.

Indicator 3.1.2: Level of 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 material	> 40 m^3 per hectare (annually)	-5.0 m^3 per hectare

History

Core Indicator under CSA Z809-08. Title and indicator description updated for CSA Z809-16.

Basis for the Target

The target and variance is guided by company and government research that shows levels of woody debris by biogeoclimatic subzone. Generally, high levels of downed wood debris is preferred. Moreover, there is a FRPA requirement to retain about 10 m^3 per hectare.

Current Status & Results

Year	Downed Woody Debris (m^3) per hectare	Target Met (Y/N)	Variance Met (Y/N)
2018	134	Y	n/a
2017	140	Y	n/a
2016	152	Y	n/a
2015	120	Y	n/a
2014	106	Y	n/a

Performance and Interpretation

2018: Downed woody debris levels decreased again in 2018 primarily because higher log prices encouraged greater recovery in both old growth and second growth harvesting. The relative proportion of old growth, second growth, and helicopter harvesting in 2018 was very similar to 2017.

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 and decaying 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. Finally, the corporate retention strategy leaves standing timber that will serve as sources for downed woody debris in the future.

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. Old growth harvesting particularly helicopter logging has the highest levels of residue downed woody debris. Old growth waste levels are about double the levels in second growth because of more decay and breakage. For 2019-2020 downed woody debris levels are expected to drop as the proportion of old growth harvesting is expected to be less. Moreover, the provincial government has announced policy changes that may increase recovery.

Monitoring

The level of downed woody debris will be measured through information uploaded to the government Waste system. The Operations Forester reviews the results of waste data submitted to government in a calendar year and divides the total submitted waste volume by the harvested area of the associated cutblocks.

Indicator 3.1.2a: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 2016 SFMP (Indicator 3.1.a). Indicator number updated for CSA Z809-16.

Basis for the Target

The DFA has remote locations of competing vegetation most responsive to herbicide treatments. These remote locations are the most cost effective for treatment in areas of greater than 80 hectares. 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)
2018	139,446	0.5	0.0 trace	Y	n/a
2017	139,446	20.7	0.02	Y	n/a
2016	139,446	57.5	0.04	Y	n/a
2015	139,446	0.0	0.0	Y	n/a
2014	139,446	0.0	0.0	Y	n/a

Performance and Interpretation

2018: Two small areas in the DFA had herbicides applied in 2018. Target species was Japanese Knotweed. Herbicides may be applied only after approval of a Pest Management Plan (PMP). The PMP for the DFA was issued in 2014 for a five year period.

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 during 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). Pesticide Free Zones associated with streams are established according to the specifications of the Pest Management Plan for the DFA. These Zones assist to ensure water quality is maintained for treatments areas.

Forecasts

It is anticipated that the percent treated will typically be less than 0.1%, based on the historical average. Treatments will likely occur in 2019 for up to 15 hectares.

Monitoring

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

Indicator 3.2.1: Proportion of Watershed with Stand-Replacing Disturbance

Element: 3.2 Water Quality and Quantity *Conserve water resources by maintaining water quality and quantity.*				
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 2 or less	+1 Watershed

History

Core Indicator under CSA Z809-08. Title updated for CSA Z809-16.

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)
2018	Caycuse River	5308.5	904.7	17.0%	Y	n/a
	Coleman Creek	8105.9	1403.2	17.3%		
	Franklin River	5369.2	1612.8	30.0%		
	Great Central Lake	18116.7	1995.9	11.0%		
	Henderson Lake	7641.7	1027.0	13.4%		
	Klanawa River	22607.5	6365.0	28.2%		
	Nitinat River	18166.4	2204.2	12.1%		
	Sarita River	5124.6	688.4	13.4%		
	Walbran Creek	4723.9	1132.3	24.0%		
2017	Caycuse River	5,303	902	17.0%	Y	n/a
	Coleman Creek	8,113	1,488	18.3%		
	Franklin River	5,382	1,586	29.5%		
	Great Central Lake	18,941	2,014	10.6%		
	Henderson Lake	7,648	1,201	15.7%		
	Klanawa River	22,608	6,350	28.1%		
	Nitinat River	18,168	2,249	12.4%		
	Sarita River	5,129	630	12.3%		
	Walbran Creek	4,687	1,110	23.7%		

2016	Caycuse River	5,309	909	17.1 %	Y	n/a
	Coleman Creek	8,113	1,466	18.1 %		
	Franklin River	5,385	1,544	28.7 %		
	Great Central Lake	19,782	1,922	9.7 %		
	Henderson Lake	7,646	1,186	15.5 %		
	Klanawa River	22,612	6,444	28.5 %		
	Nitinat River	18,172	2,304	12.7 %		
	Sarita River	5,128	602	11.7 %		
	Walbran Creek	4,688	1,150	24.5 %		
2015	Caycuse River	5,302	958	18.1%	Y (1>30%)	n/a
	Coleman Creek	8,112	1,568	19.3%		
	Franklin River	5,383	1,598	29.7%		
	Great Central Lake	17,571	2,321	13.2%		
	Henderson Lake	7,656	1,376	18.0%		
	Klanawa River	22,605	7,036	31.1%		
	Nitinat River	18,163	2,798	15.4%		
	Sarita River	5,128	779	15.2%		
	Walbran Creek	4,697	1,204	25.6%		
2014	Caycuse River	5283	1,009	19.1%	Y (2>30%)	n/a
	Coleman Creek	8043	1,657	20.6%		
	Franklin River	5337	1,532	28.7%		
	Great Central Lake	17,509	2,429	13.9%		
	Henderson Lake	7,628	1,444	18.9%		
	Klanawa River	22,476	7,566	33.7%		
	Nitinat River	18,087	3,377	18.7%		
	Sarita River	5,116	705	13.8%		
	Walbran Creek	4,653	1,549	33.3%		

Performance and Interpretation

2018: For 2018 no watershed exceeded 30% and in general percentages stayed relatively constant given 2018 harvest levels and harvest history.

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 Franklin watershed will exceed 30% in 2019 but the Klanawa and Walbran watersheds should remain below 30%. In general, most percentages are expected to rise with the increased harvest levels planned for 2019.

Monitoring

The Operations Forester coordinates a corporate GIS Analysis that updates the inventory age and the harvested areas for the previous year.

Indicator 3.2.2: Forest Management Activities Consistent with Prescriptions to Protect Identified Water Features

Element: 3.2 Water Quality and Quantity *Conserve water resources by maintaining water quality and quantity.*				
Value	**Objective**	**Indicator**	**Target**	**Variance**
Water quality and quantity	Timber harvesting activities do not endanger water quality and quantity	Proportion of forest management activities, consistent with prescriptions to protect identified water features	100% of cutblocks harvested annually will have stand level retention associated with a riparian area of an identified water feature within the Total Area Under Prescription (TAUP)	No Variance

History

New Core Indicator under CSA Z809-16

Basis for the Target

This target aligns with Section 4.3 of the Forest Stewardship Plan (FSP) for the Defined Forest Area. Specifically, the government objective in the Forest Planning and Practices Regulation (FPPR) is to conserve at the landscape level values within riparian areas. The FSP commits that at the conclusion of harvesting a portion of the stand level retention requirement will be located in a riparian management zone of a stream associated with the cutblock.

Current Status & Results

Year	Total # Cutblocks Harvested	# Cutblocks with Riparian Retention	Percent of Cutblocks with Riparian Retention	Target Met (Y/N)	Variance Met (Y/N)
2018	63	63	100 %	Y	n/a

Performance and Interpretation

2018: All blocks harvested in 2018 had stand level retention associated within the TAUP.

Strategies & Implementation

Strategies to conserve water quality are also planned and implemented at the cutblock level. Strategies include falling and yarding timber away from streams, stream cleaning, and retaining vegetation (understory and overstory). Retaining overstory vegetation in riparian areas ensures that timber harvesting activities are directed away from streams.

Forecasts

It is expected that the target will be met because of the requirement in the Forest Stewardship Plan.

Monitoring

Stand level retention is prescribed and located in the planning phase of proposed cutblocks. Inspections and post harvest assessments ensure that retention levels and locations are met and not damaged. The Operations Forester will query post harvest assessments the SNAP database to ensure that riparian retention was respected and achieved.

Indicator 3.2.2a: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 5.6 or less per 100 net 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 is carried forward from the 2016 SFMP (Indicator 3.2.A). Indicator number updated for CSA Z809-16.

Basis for the Target

Landslides have the potential to accelerate the delivery of sediments and bedload material to sensitive streams in the DFA, possibly affecting the hydrologic condition of forested watersheds. The DFA has two Fisheries Sensitive Watersheds in the high landslide frequency zone. The target is based on historic landslide data dating back to 1995 and a reduction in landslide frequency since 2007. The reduction in landslide frequency is expected to improve the long term hydrologic condition of the sensitive watersheds. The landslide inventory of the DFA is updated every three to five years by a qualified professional 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)
2018	Next scheduled update 2019	n/a	n/a
2017	Next scheduled update 2019	n/a	n/a
2016	1.1	Y	n/a
2015	Next scheduled update 2016	n/a	n/a
2014	Next scheduled update 2016	n/a	n/a
2013	Next scheduled update 2016	n/a	n/a
2012	5.5	Y	n/a

Performance and Interpretation

2018: Next scheduled update is 2019.

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 reductions in frequency. Heavy rain/wind events in 2014-2015 triggered a greater than average number of landslides in the DFA. Should the adjustments to harvest practices on steep slopes not withstand the more intense winter storms associated with climate change, the 10 year rolling average could increase from its current level in the 2019 report.

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 3.2.2b:Community Watersheds

Element: 3.2 Water Quality and Quantity *Conserve water resources by maintaining water quality and quantity.*				
Value	**Objective**	**Indicator**	**Target**	**Variance**
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 2016 SFMP (Indicator 3.2.B). Indicator number updated for CSA Z809-16.

Basis for the Target

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

Current Status & Results

Year	# of non-Conformance	# of non-Compliance	Target Met (Y/N)	Variance Met (Y/N)
2018	0	0	Y	n/a
2017	0	0	Y	n/a
2016	0	0	Y	n/a
2015	0	0	Y	n/a
2014	0	0	Y	n/a

Performance and Interpretation

2018: No harvesting occurred in community watersheds in 2018.

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. Harvesting is expected in community watersheds as early as 2019.

Monitoring

The Operations Forester 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. Compliance and conformance to the SOP's is monitored through cutblock, road and post-harvest inspections.

Indicator 3.2.2c:S4 Streams

Element: 3.2 Water Quality and Quantity *Conserve water resources by maintaining water quality and quantity.*				
Value	**Objective**	**Indicator**	**Target**	**Variance**
S4 fish streams in the DFA	Maintain or increase the level of protection for S4 fish streams	The percent of stream area of S4 fish streams that are buffered with stand level retention	Measured annually, the percent area that is buffered within a 15 meter corridor associated with S4 fish streams is 80% or greater	-5%

History

This indicator is carried forward from the 2016 SFMP (Indicator 3.2.C). Indicator number updated for CSA Z809-16.

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	# Cutblocks	Total Area 15m Stream Buffer (ha)	Logged Area of 15m Stream Buffer (ha)	Amount of 15m Stream Buffer Intact (%)	Target Met (Y/N)	Variance Met (Y/N)
2018	12	7.1	1.6	77	N	Y
2017	2	0.1	0.0	100	Y	n/a
2016	3	1.7	0.1	94	Y	n/a
2015	12	7.0	1.3	82	Y	n/a

Year	Cutblocks (number)	Total (km)	Buffered (km)	Buffered (%)	Target Met (Y/N)	Variance Met (Y/N)
2014	5	1.130	1.058	94	Y	n/a
2013	10	1.315	1.079	82	Y	n/a

Performance and Interpretation

2018: The result was within 3% of the target but within the variance. The eight year average is 80%. Constant planning and focus is needed to meet this indicator annually.

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

The new methodology of calculation established in 2015 will be monitored for conformance to the target. It is expected that the target will be achieved for 2019.

Monitoring

The Operations Forester coordinates review of the cutblocks deemed harvest complete and reports the required data/results. Streams are measured by GIS methodologies. The post harvest assessment process monitors the effectiveness of the stream buffers.

Indicator 3.2.2d:S5 Streams

Element: 3.2 Water Quality and Quantity *Conserve water resources by maintaining water quality and quantity.*				
Value	**Objective**	**Indicator**	**Target**	**Variance**
S5 streams in the DFA	Maintain or increase the level of protection for S5 streams	The percent of stream length of S5 streams that are buffered with stand level retention	Measured annually, the percent area that is buffered within a 15 meter corridor associated with S5 streams is 60% or greater	-5%

History

This indicator is carried forward from the 2016 SFMP (Indicator 3.2.D). Indicator number updated for CSA Z809-16.

Basis for the Target

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

Current Status & Results

Year	# Cutblocks	Total Area of 15m Stream Buffer (ha)	Logged Area of 15m Stream Buffer (ha)	Amount of 15m Stream Buffer Intact (%)	Target Met (Y/N)	Variance Met (Y/N)
2018	33	36.6	7.0	81	Y	Y
2017	20	26.0	3.8	85	Y	n/a
2016	21	26.6	5.9	78	Y	n/a
2015	41	59.3	12.4	79	Y	n/a

Year	S5 stream (cutblock)	Total (km)	Buffered (km)	Buffered (%)	Target Met (Y/N)	Variance Met (Y/N)
2014	43	13.733	12.703	93	Y	n/a
2013	42	18.910	17.947	95	Y	n/a

Performance and Interpretation

2018: The target for this indicator was achieved in 2018.

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

The new methodology of calculation established in 2015 will be monitored for conformance to the target. It is expected that the target will be achieved for 2019.1.1.

Monitoring

The Operations Forester coordinates review of the cutblocks deemed harvest complete and reports the required data/results. Streams are measured by GIS methodologies. The post harvest assessment process monitors the effectiveness of the stream buffers.

Indicator 4.1.1: Net Carbon Uptake

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 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

Core Indicator under CSA Z809-08. Title updated for CSA Z809-16.

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)
2018	Carbon uptake (from growing stock TFL 44)	611,768	Y	n/a
	Carbon removed (to short-lived products1)	-248,791		
	Fuel Consumed (harvest & transport)	-8,928		
	Debris burned (debris disposal/operational fires)	-54,634		
	NET Carbon Uptake	299,415		
2017	Carbon uptake (from growing stock TFL 44)	604,961	Y	n/a
	Carbon removed (to short-lived products1)	-84,531		
	Fuel Consumed (harvest & transport)	-2,891		
	Debris burned (debris disposal/operational fires)	-127,485		
	NET Carbon Uptake	390,053		
2016	Carbon uptake (from growing stock TFL 44)	603,231	Y	n/a
	Carbon removed (to short-lived products1)	-88,172		
	Fuel Consumed (harvest & transport)	-3,294		
	Debris burned (debris disposal/operational fires)	-89,713		
	NET Carbon Uptake	422,052		
2015	Carbon uptake (from growing stock TFL 44)	617,055	Y	n/a
	Carbon removed (to short-lived products1)	-302,267		
	Fuel Consumed (harvest & transport)	-11,283		
	Debris burned (debris disposal/operational fires)	-158,964		
	NET Carbon Uptake	144,541		

2014	Carbon uptake (from growing stock TFL 44)	612,296	Y	n/a
	Carbon removed (to short-lived products1)	-302,267		
	Fuel Consumed (harvest & transport)	-11,380		
	Debris burned (debris disposal/operational fires)	-168,402		
	NET Carbon Uptake	130,247		

[1] Short lived products refers to paper, cardboard, and firewood.

Performance and Interpretation

2018: The Net Carbon Uptake remained positive but was reduced in 2018 to reflect the higher harvest levels. The 2018 uptake better reflects the levels associated with harvesting the AAC.

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. Results for 2019 are expected to be lower than 2018, for net carbon uptake, because of increased operations forecasted.

Monitoring

The Operations Forester coordinates calculation of the Net Carbon Uptake using Cengea and the 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),

- volume harvested annually,
- species profile of the harvested volume,
- age (i.e. old growth vs. 2nd growth) profile of the harvested volume,
- total annual fuel consumption (gasoline, diesel fuel, aircraft fuel), based on a factor applied to the annual harvest in cubic meters (M^3). See description of process below.
- 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_2e) of wood by species in tonnes/m^3, carbon density of various fuel types in tonnes/L and proportion (%) of wood harvested that is stored in short-lived products.

Fuel consumption is calculated based on a factor derived from an average of all 5 WFP CSA DFA's from data gathered for the 2012 – 2016 reporting periods. The factor is applied to the annual M^3 of harvest as reported for the CSA reporting period. This includes diesel, gasoline and avgas consumption. This factor will be reviewed and revised every 5 years to account for changes in harvest types, technology and equipment. The current factor is 16.67 kg of carbon per M^3 of harvest. The rationale for using a factor is that fuel accounts for a relatively low portion of the carbon produced; already uses factors for contractors as they do not report fuel consumption; and has not seen significant fluctuations over the time it has been calculated (2009 – 2016).

Indicator 4.1.2: 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 against the five year rolling average of annual area harvested is less than two years	+0.75 years

History

Core Indicator under CSA Z809-08 (Indicator 2.1.1b). Indicator number updated for CSA Z809-16.

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)
2018	642.2	546.0	738.3	0.87	Y	n/a
2017	275.2	343.6	895.6	0.31	Y	n/a
2016	410.2	540.8	1179.2	0.35	Y	n/a
2015	812.7	1088.6	1313.7	0.62	Y	n/a
2014	1107.2	1172.6	1297.1	0.85	Y	n/a
2013	1148.2	1332.4	1147.0	1.0	Y	n/a

Performance and Interpretation

2018: For 2018 less than 1 year (0.87) of average annual harvest has not been reforested and is within the target. In 2018, 527,572 trees were planted. Harvested area began to increase in 2018 placing it out of phase with available seedlings.

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

NSR Equivalency is expected to increase from 2017-2018 levels as timber harvesting returns to normal and above levels in 2019 and 2020. Nevertheless, targets are forecasted to met.

Monitoring

The Operations Forester generates reports from the Cengea Database detailing the total NSR hectares and the area harvested for cutblocks completed at the end of a calendar year. NSR equivalency (years) equals the NSR area (ha) divided by the 5 year rolling average of annual area harvested.

Indicator 4.2.1: Forest land conversion

Element: 4.2 Forest land conversion *Protect forest lands from deforestation. Encourage afforestation where ecologically appropriate.*				
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

Core Indicator under CSA Z809-08 (Indicator 2.2.1a). Indicator number, title and element description updated for CSA Z809-16.

Basis for the Target

The target and variance are based on legal requirements under FRPA. PAS is permitted to exceed 7% in specific situations for variables such as safety considerations and 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)
2018	777.7	51.5	6.6	Y	n/a
2017	460.8	24.3	5.3	Y	n/a
2016	700.7	31.5	4.0	Y	n/a
2015	1278.6	83.3	7.0	Y	n/a
2014	1371.6	87.9	6.4	Y	n/a
2013	1587.98	104.5	6.6	Y	n/a

Performance and Interpretation

2018: The permanent access (roads) as a function of the Total Area Under Prescription (TAUP) increased to 6.6% but remains below the target. In short, the percent of helicopter harvesting (not usually requiring road) remained about the same as 2017 meaning that more road was required to efficiently harvest the conventional timber.

Strategies & Implementation

To minimize permanent access structures, appropriate yarding systems are applied to minimize roads constructed and roads are debuilt and reforested (net percent) 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 harvested cutblocks) and is expected to remain closer to 7% for 2019-2020.

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.

Indicator 5.1.1: Diversity of Timber and Non-timber Resources Produced in the DFA

Element: 5.1 Timber and non-timber benefits *Manage the forest sustainably to produce a mix of timber and non-timber benefits. Support a diversity of 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	Documentation of the diversity of timber and non-timber resources, including products and services produced in the DFA	Report on the corporate EBITDA, stumpage payments to the Provincial Government, payments to employees and contractors and local purchases.	None

History

Core Indicator under CSA Z809-08. Title and indicator description updated for CSA Z809-16.

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 making payments to the provincial government, employees and contractors for goods and services.

Current Status & Results

Year	Corporate EBITDA	Stumpage	Employees & Contractors	Local Purchases	Target Met (Y/N)	Variance Met (Y/N)
2018	$143.5 million	$9,944,362	$39,225,823	$209,057	Y	n/a
2017	$152.6 million	$2,226,777	$13,841,200	$185,081	Y	n/a
2016	$148.2 million	$1,256,153	$14,071,749	$250,842	Y	n/a
2015	$117.1 million	$3,020,544	$34,312,876	$276,908	Y	n/a
2014	$108.5 million	-	-	-	Y	n/a

Performance and Interpretation

2018: High harvest levels translated into more dollars paid to stumpage, employees & contractors, and local purchases. Stumpage payments increased significantly not only because more volume was harvested in 2018 but also because log price increases translated into higher stumpage rates ($10.57/m^3 in 2018 vs. $7.30/m^3 in 2017.). Local purchases also increased in 2018 associated with higher harvest levels. The corporate EBITDA dipped to $143.5 million.

Adjusted EBITDA of $143.5 million in 2018 included export tax expense of $43.0 million and stumpage expense of $52.7 million. Export tax expense increased by $27.2 million due to the application of softwood lumber duties for the full year of 2018. Higher coastal stumpage resulted in an incremental stumpage expense of $30.6 million.

We achieved record revenue of $1,196.7 million in 2018, an increase of 5% from 2017, despite a weaker specialty product sales mix and the temporary suspension of export log sales. We took advantage of robust commodity markets in the first half of 2018 by directing export logs to our mills to increase commodity lumber production ***(Western Forest Products Inc. 2018 Annual Report)****.*

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 3.2.2a-d, 5.1.2a-c and 5.2.1.

Forecasts

It is anticipated that the EBITDA will be maintained or improve over time as the demand for forest products remains positive and as WFP's capital investment projects are realized. However, based on historical results, the EBITDA will likely fluctuate over time. Similarly, payments to the provincial government, employees, and contractors for goods and services will fluctuate with harvest levels in the DFA. Harvest levels are expected to increase again in 2019 for the DFA.

Monitoring

The Operations Forester coordinates reporting of the current EBITDA from annual corporate reports and stumpage/employee/contractor payments from accounting reports.

Indicator 5.1.2: Respectful Communications with Forest Dependent Businesses, Forest Users and Local Communities to Integrate Non-timber Resources

Element: 5.1 Timber and non-timber benefits *Manage the forest sustainably to produce a mix of timber and non-timber benefits. Support a diversity of timber and non-timber forest products and forest-based services.*				
Value	**Objective**	**Indicator**	**Target**	**Variance**
Support for communities, forest businesses and forest users	To integrate non-timber resources into forest management planning	Evidence of open and respectful communications with forest dependent businesses, forest users and local communities to integrate non-timber resources into forest management planning. When significant disagreement occurs, efforts towards conflict resolution are documented.	Target evidence will be an example of communications with a forest business, forest user, or local community and an example of efforts towards resolution to significant disagreements if they occur.	None

History

New Core Indicator under CSA Z809-16

Basis for the Target

The target and variance is tied to legal requirement under the Forest and Range Practices Act (FRPA) to refer and consider comments on some Plans (e.g. the Forest Stewardship Plan) from groups and individuals influenced by forest practices. Moreover, non-regulated communications occur with forest businesses, forest users, and communities frequently. Records of important communications are maintained by the Company.

Current Status & Results

Year	Example of Communications	Target Met (Y/N)	Variance Met (Y/N?
2018	Discussion with Forest User on Smoke Management	Y	n/a

Performance and Interpretation

2018: In 2018 there were conversations with communities and forest users. Topics typically center on access, proximity of timber harvesting activities, water and fish resources, and smoke management. WFP seeks to have open and respectful communication with forest users.

Strategies & Implementation

Engagement with forest businesses, forest users, and communities will continue in public venues like Fall Fairs, National Forest Week, Career Fairs, Woods tours, and public forums/committees. In addition, engagement will occur when Forest Management Plans, Forest Stewardship Plans, and Pest Management Plans are referred to the public. Communications will be stored in telephone logs, electronic messaging, and meeting notes. Confidential information will not form part of the target evidence. In cases where disagreement occurs, target evidence will be documented but stakeholder names will not be made public.

Forecasts

For 2019, engagement is expected on the renewal of a Pest Management Plan, old growth harvesting, and wood waste levels associated with timber harvesting activities.

Monitoring

The Operations Forester reviews central files to obtain records related to referrals and other correspondence.

Indicator 5.1.2a:Park Perimeter

Element: 5.1 Timber and non-timber benefits *Manage the forest sustainably to produce a mix of timber and non-timber benefits. Support a diversity of 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% or less	+ 1%

History

This indicator is carried forward from the 2016 SFMP (Indicator 5.1.A). Indicator number updated for CSA Z809-16.

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. forested areas along park perimeters are included in the productive forest area and are used to calculate future harvest levels). The buffered area of 1348.4 ha represents about 1% 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)
2018	137.8	1460.4	47.1	3.2	Y	n/a
2017	137.8	1460.4	46.4	3.2	Y	n/a
2016	137.8	1409.5	57.2	4.1	N	Y
2015	134.7	1348.4	39.8	3.0	Y	n/a
2014	134.2	1344.6	28.6	2.1	Y	n/a

Performance and Interpretation

2018: This indicator remained constant for 2018. Carmanah Walbran Park added 6 ha of adjacent harvest; while Pacific Rim National Park subtracted 5 ha of adjacent harvest from the five year period.

Strategies & Implementation

Historical results show that application of existing management strategies for items like wildlife, riparian, culture, 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 will be near 4% for 2019 and will remain within the 1% variance.

Monitoring

The Operations Forester coordinates GIS analysis of harvested area within 100 meters of parks and ecological reserves on an annual basis. The DFA line in relation to the park boundary will form the basis of the analysis. The post harvest assessment process will monitor the integrity of park and ecological reserve perimeters.

Indicator 5.1.2b:Recreation Access

Element: 5.1 Timber and non-timber benefits *Manage the forest sustainably to produce a mix of timber and non-timber benefits. Support a diversity of 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 10 or more (inventory includes class of road by 2-wheel, 4-wheel and foot access)	None

History

This indicator is carried forward from the 2016 SFM Plan (Indicator 5.1.B). Indicator number updated for CSA Z809-16.

Basis for the Target

The target of ten or more 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)
2018	13	13	100	Y	n/a
2017	13	13	100	Y	n/a
2016	13	13	100	Y	n/a
2015	13	13	100	Y	n/a
2014	13	13	100	Y	n/a

Performance and Interpretation

2018: While the number of roads identified has not changed, the access into the Nadira area has been reactivated & its condition is now considered as 4 wheel drive access.

Strategies & Implementation

Many 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. Runner's Trail was added to the inventory in 2010 and now connects to the Spine Trail which was added to the inventory in 2013. Use of these trails is not well known but is expected to increase with time.

Monitoring

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

Indicator 5.1.2c: Mushroom Habitat Access

Element: 5.1 Timber and non-timber benefits *Manage the forest sustainably to produce a mix of timber and non-timber benefits. Support a diversity of 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 2016 SFM Plan (Indicator 5.1.C). Indicator number updated for CSA Z809-16.

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 200 meters 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)
2018	118,787	50,422	42.4	Y	n/a
2016	119,907	49,257	41.1	Y	n/a
2014	117,564	46,318	39.4	N	Y
2012	117,749	50,737	43.1	Y	n/a
2010	117,751	49,662	42.2	Y	n/a

Performance and Interpretation

2018: The value for this indicator increased as a result of modest harvest levels in the DFA and more area flowing into the 20+ age class near a maintained road. Also contributing to the result was a change in how productive forest was defined; specifically, the inclusion of a site index variable for stands less than 140 years old and a volume variable for stands greater than 139 years.

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

The value for this indicator is expected to remain close to or slightly below 40% for the next report period because of projected harvest increases in 2019-2020. 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 Forester 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: Participation and Support that Contribute to Community 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**
Other forest users	Support other forest users	Level of participation and support in initiatives that contribute to community sustainability	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) areas released for firewood cutting (4) amount spent on road grading, (5) trail construction/rehabilitation (6) log sales to local purchasers (7) the annual level of donations (dollar and in-kind) to the community	None

History

Core Indicator under CSA Z809-08 (Indicator 6.3.1). Indicator number, title, description & target updated for CSA Z809-16. Tracking the level of donations was carried forward from Indicator 5.2.1 under CSA Z809-98.

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 shingle business is important to small operators and their milling customers, hogging supports local power generation, road grading provides easier access for casual forest users and trail rehabilitation provides recreation in support of the local economy.

Current Status & Results

Year	Support Items	Totals	Target Met (Y/N)	Variance Met (Y/N)
2018	Road Grading / Maintenance $1,343,616 Shake and Shingle Production: 942 m3 Cash and In-Kind donations: $23,585 Log sales to local purchasers: 85,307 m3	$1,367,201 86,249 m^3	Y	n/a
2017	City of Parksville Alberni District Secondary School West Coast Aquatic National Forest Week Alberni District Fall Fair Association Royal Canadian Legion Triconic Challenge	$ 9,365.22	Y	n/a

2016	United Steelworkers Assn West Coast Aquatic Society First Nations Alberni District Secondary School AV Bulldogs National Forest Week Royal Canadian Legion PA Family Guidance Association City of Port Alberni Arrowsmith Services Alberni District Fall Fair (seedlings)	$ 22,625.86	Y	n/a
2015	First Nations Saanich Hospital McLean Mill West Coast Aquatic Society Alberni District Secondary School AV Dirt Bike Association Alberni District Fall Fair Association National Forest Week BC Fire Training Association AV Bulldogs Red Shirt Foundation	$ 26,110.30 + FN In Kind	Y	n/a
2014	Alberni District Fall Fair McLean Mill Vancouver Island University First Nations National Forest Week West Coast Aquatic Society	$ 20,372.82	Y	n/a
2013	Alberni District Fall Fair Alpar Shrine Club & McLean Mill Port Alberni Labour Council (Day of Mourning) 4.9 m3 donated to McLean Mill 220.6 m3 to First Nation Elders Warmland Organization Alberni Valley Chamber of Commerce	$7,737.68	Y	n/a

Performance and Interpretation

2018: In 2018 this Indicator was broadened in scope to capture data previously reported with Indicator 6.3.1 from CSA standard Z809-08. In addition to items like road upkeep, salvage production, and local log sales, WFP made various material and cash/in-kind donations including: cultural logs, fisheries projects, fall fair seedlings, and material transport.

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), log sales, donations, 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 to enhance community stability. However, during periods of economic downturns in the industry, support may be limited or even 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. The road and grading and maintenance values are net of government contributions.

Indicator 5.2.2: Level of Participation and Support in 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 participation and support 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

Core Indicator under CSA Z809-08. Title, element and indicator descriptions updated for CSA Z809-16.

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)
2018	7.7	Y	n/a
2017	10.6	Y	n/a
2016	9.3	Y	n/a
2015	6.0	Y	n/a
2014	7.4	Y	n/a

Performance and Interpretation

2018: Planning staff and contractor principles participated in a wide range of training including: safety, first aid, wildlife management, aboriginal and treaty rights, professional development activities (e.g. Use of Lidar, stream management), firefighting, and systems training.

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 (ABCFP), 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 met or exceeded as older forest professionals continue to retire from the workforce at an accelerated rate and are replaced with younger professionals requiring training. Moreover, the profession continues to become more complex technically, environmentally, and with safety initiatives all requiring enhanced levels of training.

Monitoring

The Operations Forester coordinates a report from the Training Database for total training hours by skill/professional development category.

Indicator 5.2.3: Level of Direct and Indirect 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 1974 person-years or greater over a five year rolling average	-20 (1%)

History

Core Indicator under CSA Z809-08. Title updated for CSA Z809-16.

Basis for the Target

The target is based on employment statistics for the Coastal BC Forest Industry 2011 PricewaterhouseCoopers Survey. The Long Term Harvest Level (LTHL) of 782,482 cubic meters could generate employment of 1974 direct and indirect jobs. The variance is to account for adjustments in harvest levels from year to year attributed to customer demand.

Current Status & Results

Year	Employment Person Years	Target Met (Y/N)	Variance Met (Y/N)
5 yr. average *(rolling)* 2014-2018	1399	N	N
5 yr. average *(rolling)* 2013-2017	1484	N	N
5 yr. average *(rolling)* 2012-2016	2093	Y	n/a
5 yr. average *(rolling)* 2011-2015	2564	Y	n/a

Performance and Interpretation

2018: The current employment person years is calculated using the estimated 2018 harvest level from Indicator 2.1.4, adjusted harvest levels for 2016 and 2017, and the PricewaterhouseCoopers 2011 coastal average of 0.0025229 direct and indirect jobs for every cubic meter harvested. Employment was significantly less in 2016-2017 and has residual effects on achieving the target.

Note: the 2016 harvest level was updated to 386,152 m^3; 2017 harvest level estimated at 304,887 m^3. The 5 Year Average is based upon; **2014**–2026, **2015**–1608, **2016** – 974, **2017**–769, **2018**-1616 person years of employment.

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 agreements with the union and contractor rights.

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 effect employment include 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. The 2015-2019 forecast is expected to be at or slightly below the target because of the residual effect of reduced employment in 2016-2017. However, harvest levels are projected to increase in 2019-2020.

Monitoring

The Operations Forester is responsible to collect this information using cut control statements and publically available reports regarding average number of (Full Time Equivalent) FTE jobs per m^3 harvested (e.g. PricewaterhouseCoopers reports or equivalent).

Indicator 6.1.1: Participant Satisfaction with Public Process

Element: 6.1 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 annually by the satisfaction survey is 3 or less.	A maximum of one consecutive survey with a satisfaction level of greater than 3.

History

Core Indicator under CSA Z809-08 (Indicator 6.4.1). Indicator number and title updated for CSA Z809-16.

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)
2018	Yes	1.6	Y	n/a
2016	Yes	1.6	Y	n/a
2014	Yes	1.7	Y	n/a
2012	Yes	<2	Y	n/a

Performance and Interpretation

2018: The survey returned a similar result as 2016. Moving forward the satisfaction survey will be administered annually. WIWAG comments requested the survey be administered with more time to complete. In 2019, WIWAG members will be offered the opportunity to complete an evaluation form after each presenter. This opportunity will assist in completing the broader annual satisfaction survey.

Strategies & Implementation

A Satisfaction Survey is typically completed with the WIWAG annually. 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 Satisfaction Survey.

Indicator 6.1.2: Capacity Development and Meaningful Participation

Element: 6.1 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 advisory group annually	None

History

Core Indicator under CSA Z809-08 (Indicator 6.4.2). Indicator number and title updated for CSA Z809-16.

Basis for the Target

The Advisory Group (WIWAG) has historically responded positively to educational opportunities provided by technical experts. These opportunities have enabled 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)
2018	6	Four WIWAG meetings were held in 2018. Meetings included operational updates, presentations, and question/answer periods. February 2018 Will Sloan, WFP Certification Coordinator shared a presentation which compared and contrasted CSA and SFI Certification. Erin Badesso also shared material on the WFP Big Tree Policy and statistics on Oldgrowth in the DFA. April 2018 Annual review of Detailed Indicator Results by Erin Badesso June 2018 Mary Toews, Ecosystems Biologist, South Island Natural Resource District, presents on Marbled Murrelet and Goshawk Implementation Plans. Marissa Hallway, WFP Field Planner provides an update on Rare Ecosystems and WFP's Forest Strategy November 2018 Molly Hudson, TimberWest, Manager of Stewardship and Engagement presents on the Ecology and Management of Goshawks. John Deal, Senior Biologist, WFP presents on Goshawk/Marbled Murrelet Management and Policy	Y	n/a
2017	5	Four WIWAG meetings were held in 2017. Meetings included a WFP operational update for timberlands and local sawmills and a question/answer period. February 2017 Erin Badesso shared a presentation prepared by Mike Davis, WFP Tenures Forester, on *the Vulnerabilities for Community Sustainability Linked to Timber Supply*. In addition,	Y	n/a

		there was discussion on required changes to Indicators to embrace the new Standard of CAN/CSA-Z809-16. April 2017 Annual review of Detailed Indicator Results by Erin Badesso June 2017 Erin Badesso presented on the ***Emissions of Carbon Dioxide and Carbon Uptake and Storage*** in the DFA. In addition preparations for the new Standard continued by discussing changes to Indicators and the Sustainable Forest Management Plan. Rick Avis gave an update on Painted Turtles in the Port Alberni area moving from Endangered to Threatened. November 2017 Tyson Berkenstock presented on ***The Role and Importance of Wetlands*** including the classification of wetlands, specific wildlife/plant species, their ability to store carbon, and their protection while planning timber harvesting activities. Erin Badesso continued discussion on preparing to embrace the new CSA standard. A discussion on the Festival of Forestry hosted for K to 12 teachers in part on the DFA. Future presentation upcoming by Will Sloan who will compare and contrast CSA and SFI certification.		
2016	15	Four WIWAG meetings were held in 2016 At each meeting an update on WFP and a question and answer about operations locally and potential trends, impacts and mill operations. February 2016 Marissa Hallaway, WFP Field Planner presented the evolution of the Biogeoclimatic Ecosystem Classification (BEC) Discussion regarding MAMU and Western Goshawk – February 2016 Stream Changes over the years as presented through a GIS model has been implemented to track harvesting associated with S4 and S5 streams. The new model improves the rigor of reporting on the associated indicators - February 2016 Erin Badesso Update on LEED recognizes CSA Forest Certification in Green Building Standards. As well the US Green Building Council (USGBC) has announced changes to their LEED building rating system that will recognize CSA's forest certification program. April 14 Annual - Detailed Indicator Results – Erin Badesso June 9 John Deal WFP, Strategic Planning Biologist and Sue McDonald - WFP, Wildlife Biologist updated the Species at Risk to the AG with a focus on Goshawk and Marbled Murrelet recovery strategy. Attention on developing practices associated with Migratory Birds including maintenance of populations and communities over time and participation in government programs to protect threatened and endangered species Will Sloan WFP, Certification Coordinator presented an Indicator update and more clarity around LEED Forest Certification and Certification Audits. Explanation of 2017 as our re-registration audit and in the past, this has included Port Alberni and Stillwater. Will Sloan Certification Coordinator explained how Indicator 4.1.1 Carbon Uptake and Storage results are tabulated. In addition Will spoke of the evolving science around this measurement and that the 2014 calculation method was changed slightly. We now have the ability to measure on a micro stand level. Special all PAG meeting September 22-23 in Port McNeill hosted by WFP and the NIWAG	Y	n/a

		Western Painted Turtle habitat enhancement project – Rick Avis update. This is a DNA project, the Western Painted Turtle has not been found on TFL44 yet. Christian Engelstoft leading project. Turtles are distributed widely which indicates wild habitat, not introduced, this project started in 2010. Satisfaction Survey results and discussion for Indicator 6.4.1 September WFP and WIWAG participate at the Annual Alberni Valley Fall Fair information booth November members who all attended the North Island PAG's All-PAG meeting September 22 and 23 presented (Judy and Harold Carlson and Barb Baker) pictures and engaged the AG in an overall discussion about speakers and field tour. November WFP Forest Stewardship Plan was presented by Brian Marcus WFP Area Planner and Standard Operating Procedures November a more formal presentation on the new CAN/CSA-Z809-16 March 2016 Standard with timelines. 35 core indicators under the New Standard. All current indicators substantially "match" the 35 core indicators under the New Standard except 2 - Erin Badesso		
2015	12	Five WIWAG meetings were held in 2015 these meetings in addition to presentations listed also include company updates and on-going dialogue. Kevin Somerville - WFP Log distribution associated with the Port Alberni Area. *WFP Fibre Needs and Distribution of Logs* Competitive Advantages Safety Culture Port Alberni Operations overview Community Interaction Wood distribution from Port Alberni Opportunities, Challenges, and Requests. Relationships – continue to work closely with the advisory group. Annette van Niejenhuis how the DFA might change to adapt to climate change, cumulative impacts beyond WFP operations – making decisions today that will impact the future *"Reforestation: Species Selection and Climate Change"* presentation BEC (Biogeoclimatic ecosystem classification) framework and Climate Change – reviewed maps of current BEC and Predicted BEC 2050 (Climate BC website Climate-related hazards – insects, diseases and abiotic factors – February 2015 Reporting on Contract and Employment Timberlands Active Contractors 2015 February 2015 Appendix 2 Detailed Indicator & Results - Data set – April; 2015 How WFP operates in community watersheds as prescribed in our Forest Stewardship Plan - June 2015 Kindry Mercer – Log Exports and Log Export Fact Sheet – June 2015 Jane Cameron CSA Technical Committee Presentation - Technical Committee on revisions to the Z809 SFM draft standard. Meeting with WIWAG to get feedback (with all advisory groups) September 2015 Update to harvesting adjacent to trails of interest – September 2015 Tsilqhot'in Decision - The Supreme Court of Canada granted declaration of aboriginal title to more than 1,700 square kilometers of land in British Columbia to the Tsilhqot'in First Nation, the first	Y	n/a

		time the court has made such a ruling regarding aboriginal land. (pronounced Sil-KO-tin) Stefan Tack, Manager - First Nations Consultation, First Nations Relations Branch, MFLNRO – November 2015 S4 Streams: buffer calculation, update on the methodology and committee report - November 2015		
2014	13	Four WIWAG meetings were held in 2014 these meetings in addition to presentations listed also include company updates and on-going dialogue. Murray Hall Fibre Supply (complete presentation on website) Murray Hall - 30 years of experience in managing sawmill activities, coordinating pulp and paper operations, and developing cost structures. He also has experience in conducting geographical fibre and sawmills viability studies, analyzing regional fibre competitive forces, logging efficiencies, and developing forestry based strategic plans in Western Canada and US Pacific Northwest, presentation broad range discussion which links to Criterion 2 and 5 and multiple indicators Erin Badesso Pest Management Plan for Forest Vegetation Management (plan on website)linking to Criterion 1 and 6 Indicator(s) 6.5.1 Marbled Murrelet Recovery Strategy John Deal, WFP Strategic Planning Biologist, Campbell River; Marbled Murrelet Recovery Strategy.Linking to Criterion 1 Indicator(s) 1.1.1;1.1.2 1.2.1; 1.2.2 Ian Parnell Senior Species at Risk Biologist, Species at Risk Recovery Unit, Canadian Wildlife Service, Environment Canada Criterion 1 Indicator(s) 1.1.1;1.1.2 1.2.1; 1.2.2 Annual Detailed Indicator & Results - Data set - Erin Badesso – Continual Improvement Presentation from Erin Badesso comprehensive handout that looks closely at selected Indicator and Results within a specific geographic area of the DFA based on a picture of the Klanawa Drainage Effective December 31, 2013Total Area of the DFA: 139,446 Ha Total Productive Area of the DFA: 117,478 Ha Total Productive Area of the Klanawa Watershed: 22,602 Ha Total Area depicted: 2436 Ha (1.7% of the DFA) Total Productive Area Depicted: 2,265 Ha (2% of the DFA; 10% of Watershed) Comprehensive discussion on Indicators and what each indicator means when we see it from the landscape from the June 12, 2014 minutes links to all Criterion 1 – 6 and multiple indicators to gain a broader understanding. Explanation of Indicator 3.2.A: Watershed Condition which replaced an earlier designation of “red and orange” listed watershed basins described in a watershed assessment performed every 10 years. Discussion on Soil and Water WFP has shared examples of environmental incidents WFP has had in the past. WIWAG was presented with examples of minor environmental incidents relating to soil conservation and stream management reported to the Compliance and Enforcement wing of government. Discussion of the incidents, internal investigations, clean-up, and learnings were shared with WIWAG links to Criterion 3 Indicator(s) 3.1; 3.2.	Y	Y

		WFP local government meetings links to Criterion 5 and 6 WFP meetings with FN links to Criterion 5 and 6 Indicator(s) 5.2.1 Annual Fall Fair WFP Booth with WIWAG participation (September) linking to Indicator(s) 5.2.1; 6.5.1; 6.5.2 National Forestry Week – WFP at FLNRO (September) linking to Indicator(s) 5.2.1; 6.5.1; 6.5.2 including maps and slide presentation		

Performance and Interpretation

2018: The Advisory Group and guests from the general public received educational opportunities on timely topics that support various indicators; including, goshawk and marbled murrelet ecology and management, old growth/big trees, and the Western Forest Strategy.

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 (with assistance from the WIWAG Facilitator) reviews the central files, WIWAG minutes and WIWAG website and reports on educational opportunities provided to the WIWAG.

Indicator 6.1.3: Public Concerns

Element: 6.1 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**
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

Core Indicator under CSA Z809-08 (Indicator 6.5.2). Indicator number updated for CSA Z809-16.

Basis for the Target

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

Current Status & Results

Year	# Meeting Minutes Posted	# Presentations Posted	# Press Releases Posted	# Articles Posted	Target Met (Y/N)	Variance Met (Y/N)
2018	4	2	0	0	Y	n/a
2017	4	2	0	0	Y	n/a
2016	4	1	0	0	Y	n/a
2015	4	2	0	0	Y	n/a
2014	4	2	0	0	Y	n/a

Performance and Interpretation

2018: Public concerns are expressed at WIWAG meetings and at the Fall Fair booth. Typically questions and concerns center on log export, retention of big trees and oldgrowth, and levels of debris or waste following timber harvesting activities. These three topics are referenced in specific indicators including 1.2.1, 1.2.2, 1.4.2, 3.1.2 and are the subject of discussions and captured in meeting minutes.

Strategies & Implementation

In general, the concerns raised by the public are addressed through indicator development, WIWAG meeting discussions, workshops, and meeting presentations (open to the public). Public concerns are also heard and answered annually at booths set up at the local Fall Fair, National Forestry Week celebrations, career fairs, school and community events, and through woods tours. 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 an informative WIWAG website.

Monitoring

The Operations Forester (with assistance from the WIWAG facilitator) reviews the WIWAG website and ensures information posted. (supporting info may be recorded in the WIWAG minutes).

Indicator 6.2.1: Improve Safety Standards

Element: 6.2 Safety *Demonstrate that the organization is providing and promoting safe working conditions for its employees and contractors*				
Value	**Objective**	**Indicator**	**Target**	**Variance**
Worker safety	Existence of an active worker safety program	Evidence of co-operation with DFA-related workers 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

Core Indicator under CSA Z809-08 (Indicator 6.3.2). Indicator number and element description updated to CSA Z809-16.

Basis for the Target

Safety Programs are required under the WorkSafe BC legislation and the 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. 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.

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)
2018	4.00	4	10	9	Y	n/a
2017	4.05	1	9	9	Y	n/a
2016	1.97	0	9	6	Y	n/a
2015	2.40	1	14	4	Y	n/a
2014	2.31	1	18	11	Y	n/a

Performance and Interpretation

2018: The Medical Incident Rate (MIR) decreased slightly in 2018 for the Port Alberni Forest Operation but is at an elevated rate and basically unchanged from 2017. Three major contractors went incident free in 2018. Injuries were largely associated one contractor and its fallers. One possible explanation is that this contractor deployed a high number of fallers which is a high risk profession. Many control measures are in place to enhance faller safety. In 2018, focus areas included continued mentoring through field observations of log truck drivers, fallers and other workers, enhanced use of Worksite Safety Plans, reducing phase congestion, and detailed incident investigations.

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:

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

Forecasts

It is anticipated that the target will be met as it is a legal requirement to maintain a safety program and a corporate/operational goal to demonstrate continuous improvements in safety. 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 6.2.2: Worker Safety Program

Element: 6.2 Safety *Demonstrate that the organization is providing and promoting safe working conditions for its employees and contractors*				
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 with BC Forest Safety Council to become SAFE Certified

History

Core Indicator under CSA Z809-08 (Indicator 6.3.3). Indicator number, updated for CSA Z809-16. 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 person hours per year.

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)
2018	10/10	Y	n/a
2017	5/5	Y	n/a
2016	3/3	Y	n/a
2015	9/10	N	Y
2014	10/10	Y	n/a
2013	11/11	Y	n/a

Performance and Interpretation

2018: All ten of the large contractors were Safe Certified indicating their commitment to safety through formal programs. Safe Certification of contractors is a key element to improving safety on the DFA.

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\

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 7.1.1: Understanding the Nature of Aboriginal Title and Rights

Element: 7.1 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 and awareness of Aboriginal title and rights	None

History

Core Indicator under CSA Z809-08 (Indicator 6.1.1). Indicator number and title updated for CSA Z809-16.

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 employee awareness 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)
2018	Planning staff received broad training from the company's Director of Indigenous Relationships on the United Nations Declaration on Rights of Indigenous Peoples (UNDRIP)	Y	n/a
2017	Training reviewed the Tsilquot'in Decision; Updates to the Replacement FSP and how it relates to Cedar Side Agreements in the Maa-nulth Treaty. Training specific to Planning Staff in the Port Alberni Forest Operation	Y	n/a
2016	Training continued on Maa-nulth Treaty Rights associated with the Forest Stewardship Plan and better understanding of Aboriginal Rights and Title in areas of high strength of claim within the DFA. Instruction given to the broader Planning Staff	Y	n/a
2015	Training continued for forest professionals on the Tsilquot'in Supreme Court Decision; The Reasonable Opportunity Agreement (Maa-nulth) came into practice with government training to the Operational Planner and subsequent instruction to the broader Planning Staff	Y	n/a
2014	Training on the Supreme Court Decision: Williams Case (Tsilquot'in); Self-direct training on the Reasonable Opportunity Agreement attached to Maa-nulth Treaty Rights. Training on these two items was also passed onto Operational Planning Staff	Y	n/a

Performance and Interpretation

2018: Company planning staff received broad training from the company's Director of Indigenous Relationships on the United Nations Declaration on Rights of Indigenous Peoples (UNDRIP). Recognition of aboriginal and treaty rights are the foundation of sharing proposed timber harvesting activities with First Nations.

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 associated with the DFA are in treaty effective April 1, 2011, other treaties continue to be negotiated. Business relationships with First Nations continue 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 7.1.2: Respectful Communications with Aboriginal Communities to Foster Meaningful Engagement

Element: 7.1 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 ongoing open and respectful communications with Aboriginal communities to foster meaningful engagement, and consideration of the information gained about their Aboriginal title and rights throughout this process. Where there is communicated disagreement regarding the organization's forest management activities, this evidence would include documentation of efforts towards conflict resolution.	Target evidence will be an annual example of correspondence with Aboriginal communities to foster meaningful engagement and an example of efforts towards resolution to significant disagreements if they occur.	No evidence where no Plan is referred in a given year.

History

Core Indicator under CSA Z809-08 (Indicator 6.1.2). Indicator number, title and description updated for CSA Z809-16.

Basis for the Target

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

Current Status & Results

Year	First Nation Information Sharing Summary	Target Met (Y/N)	Variance Met (Y/N)
2018	The Sustainable Forest Management Plan was referred to First Nations. No other plans were prepared in 2018.	Y	N
2017	All First Nations associated with the DFA: In January 2017 all First Nations who have traditional territory or Maa-nulth First Nation Areas associated with the DFA were provided opportunity to comment on the Replacement Forest Stewardship Plan (FSP). Government also consulted with selected First Nation communities. A record of comments received by WFP was also forwarded to government as part of their FSP approval process.	Y	n/a

2016	All First Nations associated with the DFA: In 2016 all First Nations who have traditional territory or Maa-nulth First Nation Areas associated with the DFA were provided opportunity to comment on a proposed extension of the term of the Forest Stewardship Plan. Government also consulted on the proposed extension. No comments were received by First Nations and government subsequently approved an 8 month extension.	Y	n/a
2015	Example First Nation: In 2015 all First Nations who have traditional territory associated with the DFA were distributed content from the Sustainable Forest Management Plan; specifically, the detailed indicator results and the Annual Report. In May 2015 the Provincial Government invited First Nations to comment on a proposed amendment to WFP's Forest Stewardship Plan (FSP) associated with the DFA. The proposed amendment addresses a stocking standards framework associated with partial harvesting where trees reserved from harvest contribute towards the regenerating forest.	Y	n/a
2014	Example First Nation: On January 2, 2014 contact was initiated with the First Nation in respect of a Pest Management Plan (PMP) for the application of herbicides on the DFA. The First Nation had questions about application of herbicides near streams, frequency of applications, impacts on wildlife, elk management, and human food sources. WFP provided a response to questions asked.	Y	n/a

Performance and Interpretation

2018: The Sustainable Forest Management Plan was referred to First Nations. No other plans were prepared in 2018. The Provincial Government referred the TFL 44 Licence Replacement to First Nations; however, no comments came back to the government that required additional information from WFP. Note: Indicator 7.2.2 provides First Nations opportunity to comment directly on WFP's proposed operational plans.

Strategies & Implementation

Management Plan (MP) referrals include TFL Management Plan, Forest Stewardship Plans (FSP), Pest Management Plans (PMP), and the Sustainable Forest Management Plan.

For the TFL Management Plan, FSP and PMP, referrals occur as required under legislation. These Plans are typically referred at intervals of five years or greater.

The Sustainable Forest Management Plan is referred to all First Nations in the DFA when the plan is periodically revised and updated. The annual report is also available on the WIWAG web site. For privacy purposes, neither confidential information nor First Nation names will form part of the target evidence.

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. A PMP will be referred to First Nations in 2019 and well as a major FSP amendment associated with the TFL 44 Limited Partnership.

Monitoring

The Operations Forester reviews central files to review information sharing/referrals and records as applicable evidence for one First Nation each year (ensuring that where possible, different First Nations are represented in the annual reporting). Given that most Plans are referred at intervals greater than five years, there is the possibility that no target evidence will be available in some years.

Indicator 7.2.1: Promoting Capacity Development and Meaningful Participation for Aboriginal Individuals, Communities and Forest-based Companies

Element: 7.2 Respect for Aboriginal forest values, knowledge, and uses *Respect traditional Aboriginal forest values, knowledge, and uses as identified through an Aboriginal input process.*				
Value	**Objective**	**Indicator**	**Target**	**Variance**
Aboriginal forest economy	Maintain the aboriginal forest economy	Evidence of efforts to promote capacity, development and meaningful participation for Aboriginal individuals, communities and forest-based companies.	Eight contractual arrangements or training opportunities with aboriginal communities annually	-4 contracts

History

Core Indicator under CSA Z809-08 (Indicator 5.2.4). Indicator number, title, description and target updated for CSA Z809-16.

Basis for the Target

WFP and First Nation communities have a history of contractual arrangements in timber harvesting activities, stream restoration, and assessment work The DFA has been reduced significantly in recent years to enhance, in part, First Nation economies through forest tenure and private land interests including treaty. First Nation communities have since contracted with WFP to provide services for their forest tenure and private land opportunities. The target reflects contractual arrangements that flow in both directions. Moreover, WFP has opportunities for First Nation community members to participate in formal on the job training. . The variance addresses any temporary gaps that could develop between parties for services and training from their respective businesses.

Current Status & Results

Year	Contractual and Training Arrangements	Target Met (Y/N)	Variance Met (Y/N)
2018	10	Y	n/a
2017	7	N	Y
2016	7	N	Y
2015	11	Y	n/a
2014	12	Y	n/a

Performance and Interpretation

2018: In 2018 contractual arrangements with First Nations focused on cultural assessments, timber harvesting work, and log purchase. In addition, there was one training opportunity deployed for work experience and the introduction of First Nation workers to cedar banding work through an existing contract.

Strategies & Implementation

The target is intended to measure contractual and training arrangements between both parties that have the potential for mutual benefits for WFP and the aboriginal community. WFP will continue to explore mutually beneficial and economically viable business and training opportunities with willing participants.

Forecasts

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

Monitoring

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

Indicator 7.2.2: Using Aboriginal Knowledge to Manage Culturally Important Resources and Values

Element: 7.2 Respect for Aboriginal forest values, knowledge, and uses *Respect traditional Aboriginal forest values, knowledge, and uses as identified through an 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

Core Indicator under CSA Z809-08 (Indicator 6.2.1). Indicator number and title updated to CSA Z809-16.

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)
2018	Sample First Nation: On January 16, 2018 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 for the future. The maps and other information (e.g. cedar content, old growth vs. second growth, leading species, archaeological potential) was shared to assist the First Nations determine how proposed activities may potentially affect cultural heritage resources. The First Nation met with WFP and requested additional information for one proposed cutblock which was provided.	Y	n/a
2017	Sample First Nation: On January 23, 2017 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 for the future. The maps and other information (e.g. cedar content, old growth vs. second growth, leading species, archaeological potential) was shared to assist the First Nations determine how proposed activities may potentially affect cultural heritage resources.	Y	n/a

2016	Sample First Nation: On March 4, 2016 WFP shared with a group of First Nations 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 for the future. The maps and other information (e.g. cedar content, old growth vs. second growth, leading species, archaeological potential) was shared to assist the First Nations determine how proposed activities may impact their treaty rights to fish, hunt and gather aquatic plants. One of the First Nations requested more information on the location of the proposed timber harvesting and also expressed a desire to be included in a future field trip.	Y	n/a
2015	Sample First Nation: On April 28, 2015 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 for the future. 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 culturally important resources or values to WFP. In August, 2015 WFP began receiving comments on our proposed timber harvesting activities.	Y	n/a
2014	Sample First Nation: On April 14, 2014 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 2017-2018. 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 August 12, 2014 WFP received comments on our proposal from the First Nation.	Y	n/a

Performance and Interpretation

2018: WFP shared with First Nations a series of maps and a matrix of site information identifying the approximate location of planned cutblocks and roads for timber harvesting activities proposed in the near future within their respective territories or Maa-nulth First Nation Areas. First Nations are invited to meet and share items of interest and importance to them. The Sample First Nation made a request for some additional information which was provided.

Strategies & Implementation

WFP shares information annually with First Nations on proposed cutblocks and roads in the DFA. In addition, under special circumstances the Provincial government may engage in formal consultation.

Refer to Indicator 7.1.2 for further information on the management strategies for other information sharing processes.

Forecasts

As the target and variance is tied to a legal requirement, it is anticipated that the target will be achieved annually.

Monitoring

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

Indicator 7.2.3: Management and/or Protection of Culturally Important Practices and Activities

Element: 7.2 Respect for Aboriginal forest values, knowledge, and uses *Respect traditional Aboriginal forest values, knowledge, and uses as identified through an Aboriginal input process.*				
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 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

Core Indicator under CSA Z809-08 (Indicator 6.1.3). Indicator number, title and element description updated for CSA Z809-16.

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)
2018	1	100%	Y	n/a
2017	1	100%	Y	n/a
2016	3	100%	Y	n/a
2015	5	100%	Y	n/a
2014	3	100%	Y	n/a

Performance and Interpretation

2018: WFP re-initiated a discussion with a First Nation for an area with cultural significance. Discussions continue into 2019. The area has numerous CMTs and interesting karst features. The goal is to maintain the primary integrity of the site while exploring opportunities for timber harvesting activities.

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 worked out directly with the First Nation or the government decides otherwise (through the approval of Cutting Permits and Road Permits).

Monitoring

The Operations Forester reviews GIS information, Site Plans, Harvest and Road Instructions and EMS Inspection results, and comments returned from First Nations on proposed activities. The number of special sites that are identified and managed/protected are reported once from either pre-harvest, during harvest, or post-harvest activities.

Appendix 2: TERMS OF REFERENCE

FOR THE WEST ISLAND WOODLANDS ADVISORY GROUP

1.0 Mission Statement

The West Island Woodlands Advisory Group (WIWAG) is composed of a cross section of community representatives who work with Western Forest Products (WFP) staff on behalf of all those who have an interest in, or are affected by, sustainable forest management in the Defined Forest Area (DFA).

Guided by recognized certification criteria, the WIWAG will maintain an open and transparent process that facilitates and acknowledges the widest community input possible.

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 the sustainable forest management performance and system.

Specifically, the WIWAG will have opportunities to work with WFP to:

- identify and select values, objectives, indicators, and targets based on SFM elements and any other issues of relevance to the DFA;
- develop, assess and select one or more possible strategies for achieving targets;
- review the SFM plan;
- evaluate results of monitoring programs, and discuss improvements; and
- discuss any issues relevant to SFM in the DFA.

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 unless it is proprietary to the company;
- members participation in WIWAG will not be viewed by the company as having consulted with that sector in full;
- 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

- staying 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;
- ensure that the values, objectives, indicators, targets and variances are consistent with relevant government legislation, regulations, and policies;

- to adhere to the group guidelines for conduct (see guidelines attached);
- to inform their alternate and their organizations on the progress of the group and issues related to SFM and communicate responses back to the group;
- following through on any commitments they undertake;
- participating 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

- keeping the group focused and on topic;
- ensuring time is not wasted;
- making sure the group accomplishes it's tasks;
- tracking the gaps and priorities;
- making sure everyone has a chance to speak;
- facilitating agreement around difficult decisions;
- ensuring the agenda and minutes are circulated a week before each meeting (through the facilitator);
- ensuring that the facility is booked, food is ordered, supplies and resources are available as required for each meeting;
- liaising with members as requested between meetings to review missed meetings or other issues or tasks;
- acting as the spokesperson for the group and responding to inquiries;
- other tasks as negotiated with the group or members from time to time that will expedite and/or move the group forward around issues and tasks;
- educating oneself about the issues related to SFM and the work of the group;
- 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
- involve experts (i.e. ecologists, biologists, hydrologists, etc.), if required and when appropriate to the topic of discussion
- ensure that the values, objectives, indicators, targets and variances are consistent with relevant government legislation, regulations, and policies.
- finance of pre-approved group operating costs
- coordinate field trips

- respond to members requests in a timely fashion
- evaluate the members' satisfaction with the public input process using the method described in the SFM Plan
- to make decisions regarding sustainable forest management, the Sustainable Forest Management Plan and certification

4.0 Conflict of Interest

Members must declare a possible 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 Advisory Members will be prohibited without the consent of the group or individual bringing it forward. Information will be provided in the most useable form that is possible. Discussions must be declared "In Camera" in order to remain confidential. Any member may request that a portion of discussion be "In Camera". The meeting minutes shall reflect the confidentiality aspects of "In Camera" discussions.

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 going forward 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 operating 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 should be followed:

1. The parties involved should attempt to resolve the dispute between them.
2. If they are unable to do so, they can request that the Facilitator meet with them to 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. Members, 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:	Erin Badesso, Jim Muress. Additional resources will be determined by the group as required.
Group Facilitator:	Danielle Burrows
Group Recorder:	Michele Laminski

7.4 Membership Renewal/Replacement

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
- A willingness to put the required time into meetings and related discussions

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 it 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 WIWAG meeting. WFP retains the final word for acceptance of any new member.

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 should go through the facilitator.

7.7 Observers

Observers may attend meetings with prior notification and after an orientation to the Terms of Reference. Observers may listen to the discussion and participate only when invited by the Facilitator. The Facilitator may take questions from observers at the close of the meeting as time allows. Observers are bound by the group guidelines for conduct. Their input may be included in the Minutes of that meeting. Guest speakers have been invited to actively participate and are not observers. Media may not be observers unless approved by WFP and the Facilitator.

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' one week in advance of each meeting. 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 and may record the meetings to assist in the process when approved by WFP in consultation with members. The minutes will be distributed to all members at least one week prior to the next meeting. The minutes will include an Action Page that summarizes the commitments of members, WFP and facilitator from each meeting. Minutes will be approved at the beginning of the following meeting and will not be distributed more broadly

until they are approved. 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 facilitator has their appropriate email or fax for these communications.

Minutes will be posted on the www once they are approved and distributed more broadly on a request basis.

10.0 Procedures & Work-plan

WIWAG will maintain a work-plan 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.

Although Western Forest Products is not bound to accept every recommendation, they will make every effort to accommodate reasonable requests and will identify in writing their rationale for not accepting recommendations.

10.1 Ad-Hoc or Standing Committees

As work is identified, the WIWAG can chose 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 the WIWAG
- will have a specific mandate and timeframe for their work approved by the WIWAG
- will have a facilitator or chair identified
- will take and distribute to members notes or minutes of their discussions
- will present all recommendations back to the Advisory for information or decisions

11.0 Media & Public Relations

Members will identify an appropriate spokesperson(s) on a request by request basis depending on the nature of the topic. Otherwise, the facilitator is the spokesperson for the group and can appoint other spokespersons as required to respond to requests.

The web site will include the following: Agendas, Minutes, Terms of Reference, and Press Releases, the SFM Plan, Annual Data Sets, Meeting Schedule, Links and contact information. Unless otherwise designated, the Facilitator will be the phone contact.

12.0 Other

These Terms of Reference will be reviewed and revised as required on an annual basis. They are consistent with and supplement the WFP Policies for:

- Health and Safety
- Bullying and Harassment
- Violence in the Workplace

Non-adherence to these Guidelines may result in dismissal from WIWAG.

12.1 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 they are able.
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 discussion 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 quite 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 point 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/their sectors views – if the views happen to differ.

Version Dates:
Mar 2000, Oct 2000, May 2001, Jan 2003, Oct 2005, June 2006, June 2007, June 2009, April 2010, October 2013, April 2014, March 2018, December 2018