



Sustainable Forest Management Plan

Mid Island Forest Operation

Western Forest Products Inc.

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Version 3.1

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INTRODUCTION

About the SFM Plan and Area

The Sustainable Forest Management (SFM) Plan for Mid Island Forest Operation (MIFO) (previously known as North Island Timberlands) is a “road map” to current and long-term SFM performance objectives and management strategies in the Mid Island operating area, referred to here as the [Defined Forest Area](#) or DFA.

The DFA reflects the boundaries of TFL 39, Block 2 managed by Western Forest Products Inc. located within the Campbell River Forest District. This forest landbase is situated on the east coast of Vancouver Island some 38 km northwest of Campbell River along Highway 19. It extends from west of Robert’s Lake to just east of the Eve River and from the Victoria Peak area in the south to Kelsey Bay on Johnstone Strait in the north, surrounding the community of Sayward. The DFA includes the drainages of Kunnum Ck., Montague Ck., Adam River and White River as well as portions of the Salmon River and Amor de Cosmos Ck.

The DFA excludes third party tenancies that have been granted by the Ministry of Forests and Range and other government ministries and agencies. These include the Bill 28 take back areas at Eve River and near Brewster Lake, woodlots, as well as other private land ownership along the Sayward valley.

The Mid Island Forest Operation consists of road construction and maintenance, harvesting, hauling logs, dryland sorting and booming operations, a maintenance shop, administrative offices and forest renewal and tending activities.

Logs harvested within the DFA are hauled to the log sort located at Menzies Bay, some 15 km northwest of Campbell River, where they are boomed and towed to WFP sawmills on southern Vancouver Island. The management offices and shop for MIFO are also located at Menzies Bay.

First Nation groups that claim traditional territories within the DFA include the Campbell River, Cape Mudge, K’omoks and Tlowitsis First Nations.

The gross landbase of the DFA in 2008 was 157,500 hectares of Crown forest land. Eighty five percent of the landbase is considered productive that supports the Allowable Annual Cut. The majority of the DFA lies within the Coastal Western Hemlock bio-geoclimatic zone. The ecological description of the DFA by BEC variant is as follows:

CWHxm2	14.7%
CWHmm1	16.7%
CWHmm2	6.4%
CWHvm1	26.0%
CWHvm2	16.8%
MHmm1	17.3%
Alpine Tundra	2.1%

The MIFO log product mix by species percentage is:

Balsam	28%
Western redcedar	15%
Yellow cypress	6%
Douglas-fir	17%
Western hemlock	34%

The MIFO log production mix by sort is:

Chip & saw	5%
Gang	18%
Higrade/lumber	3%
Peelers	7%
Pulp	22%
Sawlog (merch)	35%
Shingle	4%

Utility	6%
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Logs produced at the forest operation are sorted according to size, grade and species and distributed by WFP Log Supply to company sawmills located on southern Vancouver Island. Logs not suitable for WFP manufacturing facilities are sold on the open Vancouver Log Market. Pulp logs are committed under long-term fibre supply agreements and are either chipped at the Campbell River Fibre facility for use at the local Elk Falls pulp mill or forwarded to other pulp mills.

Other Interested Parties in the DFA

There are other licensees and tenure holders that may conduct harvesting or other activities within the DFA under authority issued by the BC government. Examples of these activities include the harvesting of undercut volumes allocated to third parties and administered by the BC Timber Sales program, 54 mineral tenures, 5 registered traplines and 1 guide/outfitter (Bryan Swift).

Generally, other forest licensees are responsible for their own road access works including road and bridge construction and maintenance as well as cutblock harvesting and road deactivation. Their performance is monitored by the Compliance and Enforcement section of the Ministry of Forests and Range and they are expected to fully comply with all the relevant laws and regulations while operating within the DFA. Silviculture activities on these lands are generally managed by BCTS. Upon declaration of free growing, the area involved normally reverts back to the DFA and management by WFP.

Western Forest Products shares information with BCTS as required. Proposed BCTS harvest areas are referred and reviewed.

Other interested parties include the Village of Sayward with their community watershed in Newcastle Creek and residents in the Sayward valley having domestic water points of diversion. Most of these wells or surface water collection points are located outside of the DFA but source waters generally originate from within the DFA. Water intakes are registered or unregistered and not all locations are known. WFP has conducted interviews with residents regarding water intakes during the planning process.

Sustainable Forest Management Plan Process

The SFM Plan is an adaptation of planning processes that have been in place for more than 35 years on the DFA. These planning processes include strategic and operational plans, analyses, standards, monitoring and public review. Management of forest lands in the Campbell River/Sayward area has continued to evolve over time in response to learning and to changes in the values of society. Revised management plans, submitted at approximately five-year intervals, include objectives, management strategies and analyses of management impacts. Standards and operating plans have been updated as changes occur. As of January, 2007 an approved Forest Stewardship Plan (FSP) is in place in accordance with the Forest and Range Practices Act (FRPA). Monitoring has included forest operation reporting as well as Tree Farm License (TFL) 39 and corporate annual reports and compliance audits.

The results of the public participation processes over the past years have contributed to the development of the objectives, indicators and targets. Since 1998, the North Island Woodlands Advisory Group has helped to further develop the SFM performance framework for the DFA. In 2006, the name of the public advisory group was changed to the Mid Island Forest Lands Advisory Group (MIFLAG) to better reflect the name of the forest operation. A further description of MIFLAG through their Terms of Reference may be found at www.miflag.org. Note that First Nations rights will not be prejudiced by participation in the public process.

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

Mid Island Forest Operation managers and employees understand and follow the values, objectives, targets and management practices for achieving SFM on the DFA, as described in this document. The SFM Plan is an evolving document, which is reviewed with MIFLAG on an ongoing basis and revised to reflect changes in the forest and the local community.

The SFM Plan includes this introductory overview and the following sections:

Section 1 Mid Island Forest Operation's SFM values, objectives, indicators and targets, with variances, forecasts and management strategies. These are organized according to the Canadian Council of Forest Ministers' (CCFM) Criteria and Critical Elements for Sustainable Forest Management as adapted for the CA/CSA-Z809-02 standard.

Section 2 Western Forest Strategy.

Section 3 Glossary of acronyms and terms used in the plan.

The Process for Developing the Set of Criteria and Indicators

The DFA's regulatory and management systems, and the values that they address, have been developed over several decades and are responsive to Canadian Standards Association (CSA) SFM system criteria, including the requirements for public involvement and the elements of a continual improvement process.

This SFM Plan Version 3.1 is the ninth revision to the plan. It reflects the results of a management review of the operation's 2008 performance and work done by the advisory group to address changes from the 1996 to the 2002 version of the standard. It also reflects ongoing discussions with First Nations, MIFLAG and other stakeholders.

The review process ensures that the SFM Plan is a product of continual improvement. This occurs through performance reviews, re-assignment of plan elements to more appropriate sections of the SFM organizational scheme, and new public input. Because of the dynamic nature of this process, the SFM Plan should be viewed as an illustrative snapshot, rather than as a final or static document.

The indicators in the plan are numbered from (1) to (41). The same numbering is retained throughout the document. The indicator numbering changed from the 2005 Report to the 2006 Plan and Report when the CSA Z809 (2002) standard was implemented.

Progress toward some goals could not be measured by quantifiable indicators. In those cases, current performance is evaluated through qualitative assessments of, for example, stakeholder processes, management programs, communications initiatives, etc.

Links to Management Plans and Operational Plans

Figure 1 shows the links between operational planning and TFL Management Plan with the BC Forest and Range Practices Act (FRPA).

The SFM Plan is an umbrella plan that links higher level plans such as the Management Plan with operational plans. The SFM Plan reflects the objectives, management strategies and reporting structure of Management Plans. Likewise it is influenced by other higher level plans such as the Vancouver Island Land Use Plan and by legislation such as FRPA.

Currently a Western Forest Products' Forest Stewardship Plan (FSP) is approved and in place as of January 2007.

Figure 1 shows the flow of input and direction to operational plans, including Forest Stewardship Plans and Site Plans. It does not show the feedback loops of monitoring and adaptive management that occur from operations to the management plans and other higher level plans.

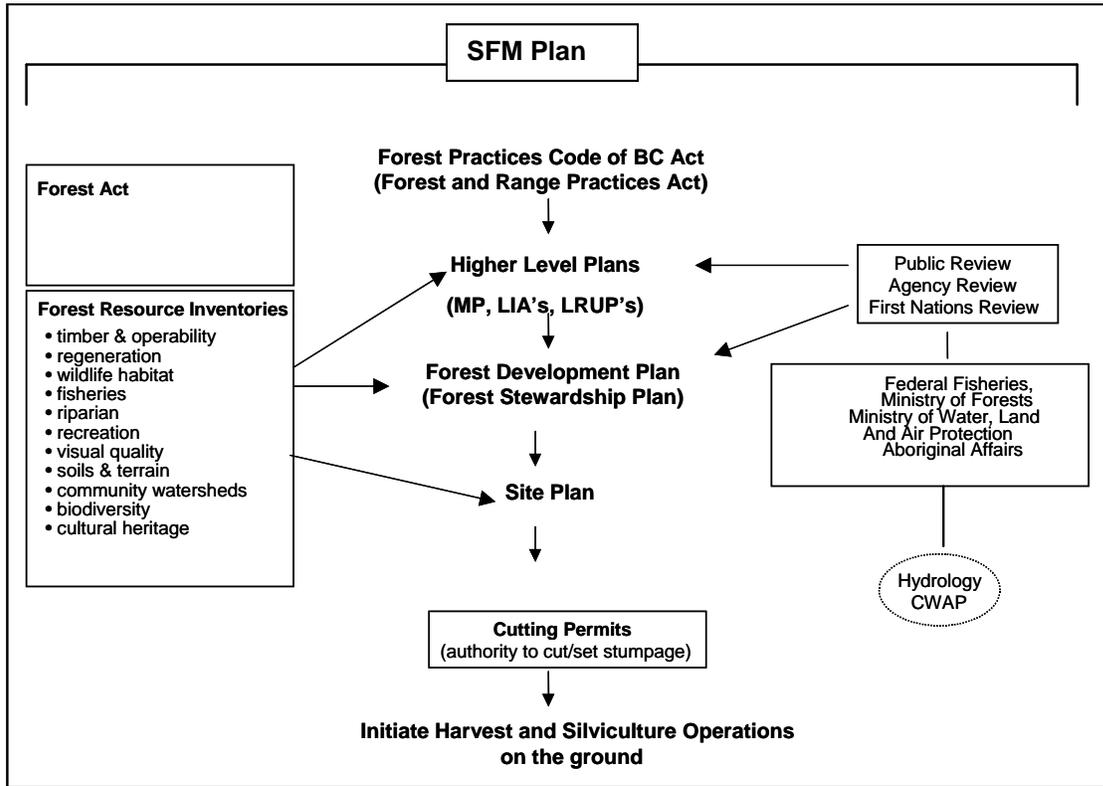


Figure 1: Links between Operational Plans and TFL Management Plan with the Forest and Range Practices Act

SECTION 1

Sustainable Forest Management Criteria and Indicators

This section of the SFM Plan describes Mid Island Forest Operation's SFM Values, Objectives, Indicators and Targets for the years 2006 - 2010, as developed in conjunction with and approved by the Mid Island Forest Lands Advisory Group (MIFLAG). As appropriate, a 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 incorporated into the Canadian Standards Association Sustainable Forest Management standard (CAN/CSA-Z809-2002).

As further explanation of the organization of this section:

- The Criteria (e.g., below: [1.0: Criteria - Conservation of Biological Diversity](#)) and Critical Elements (e.g., [1.1: Critical Element - Ecosystem Diversity](#)) and their accompanying statements are derived from *Z809-02 Sustainable Forest Management: Requirements and Guidance* (Canadian Standards Association, Mississauga, 2002).
- The subsidiary Values (e.g., [1.11: Value – The representation of older forest \(>60 years\) in the DFA forest](#)), Objectives, Indicators, Targets, Variances and Forecasts were developed for this plan during discussions among MIFLAG members, Mid Island Forest Operation staff and other WFP Regional staff.

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 or condition of an indicator. Where possible, targets should be clearly defined, time-limited and quantified.
- **Variances** specify the range of performance results (+ 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 objective was based on poor quality or inadequate data; the effects of a responsible choice between two competing objectives; or the progress toward a future level of performance.) A result outside the Variance range does, however, require review, assessment and, possibly, a revision of either the objective or management practices.
- **Forecasts** are explicit statements of the expected future condition of an indicator

All indicators in this plan are reported on an annual basis for the calendar year. Mid Island Forest Operation's performance against this plan is subjected to on-going monitoring and to annual review and assessment by MIFO management and MIFLAG.

1.0 Criteria – Conservation of Biological Diversity

Conserve biological diversity by maintaining integrity, function and diversity of living organisms and the complexes of which they are part.

1.1 Critical Element – Ecosystem Diversity

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

These indicators measure impacts on ecosystem diversity at the landscape level by examining changes in the forest's age class distribution and species composition, and at the harvest stand level by monitoring the quantity and distribution or retained forest areas.

1.11 **Value:** The representation of older forest (>60 years) in the DFA.

Objective: The representation of older forest (>60 years) in the DFA remains stable over time.

Indicator 1:	The percentage of the DFA productive forest that is at least 60 years old.
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Target: 36%.

Variance: Any value greater than the target is acceptable.

Forecast: Age class distributions are forecast through the Timber Supply Analysis of the TFL 39 Management Plan.

Legal Requirement: None

1.12 **Value:** The representation of Old Growth seral stages at the landscape level.

Objective: At the landscape level, old growth representation of each Biogeoclimatic Ecosystem Classification (BEC) variant is retained.

Indicator 2:	The percentage of each Biogeoclimatic variant of the DFA that is classified as Old Growth (250+ years old).
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Target: Levels are such that they meet those identified in Table 3 of page 17 of the Biodiversity Guidebook (1995).

Variance: Continual improvement to decrease deficit.

Forecast: Draft Old Growth Management Areas are established and pending approval in 2008. Sayward LU OGMA's are established and approved.

Legal Requirements: FPCBCA s.4(2) (Repealed). Non-Spatial Old Growth Order – June 30/04.

1.13 **Value:** Forest retention at the landscape level.

Objective: An amount of existing stand variety is retained in harvested areas.

Indicator 3:	The percentage of Retention Systems utilized over total annual opening area by RMZ and variant climatic class applied over a 5-year period.
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Target: 2008 targets are discretionary but should generally be above 2009 targets of 75% in Enhanced Wet, 80% in Enhanced Dry and General Wet and 85% in General Dry.

Variance: Any value greater than or equal to the target is acceptable.

Forecast: In 2008, the Western Forest Strategy, a program for conserving biodiversity on company tenures, was implemented including the setting of retention system goals. A 3-year phase in period is required in order that new engineering layout may reflect the revised targets.

Legal or Other Requirements: The Western Forest Strategy is a corporate objective.

1.14 **Value:** The age class distribution of the DFA forest inventory.

Objective: Ensure the age class distribution minimizes any future fall down effects of the AAC.

Indicator 4:	Forest Inventory by age class distribution with a LRSY run.
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Target: Minimize fall down effects of the AAC.

Variance: +/- 10%.

Forecast: Age class distributions are forecast as part of the Timber Supply Analysis of the Management Plan. The next TSA is expected in 2009.

Legal Requirements: None

1.2 Critical Element – Species Diversity

Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained through time.

An accurate inventory of all species in the DFA is not possible. The indicator set measures changes in the prevalence of commercial tree species and in the number of identified species at risk. Free growing commitments include reforestation with site appropriate species. The indicator set is supplanted by management programs that are designed to maintain the ecosystem diversity required for species diversity; and by effective monitoring programs.

1.21 **Value:** Tree species representation in the new forest.

Objective: The representation of the existing native tree species in the regenerated forest remains stable over time.

Indicator 5:	The average annual percentage representation of each tree species in the composition of second growth.
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Target: Maintain percentages of second growth species that are comparable to those in the historic 2005 baseline inventory.

Variance: +/- 20% of the 2005 baseline.

Forecast: Climate change may effect representation of regenerated tree species. The establishment of Douglas-fir will likely increase while western hemlock and Amabilis fir may decrease with time.

Legal Requirements: FPPR s. 26.

1.22 **Value:** Tree species representation in the mature forest.

Objective: The species mix found in the mature forest is kept similar to the historic mix.

Indicator 6:	The percentage of the mature inventory of the DFA by species.
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Target: Maintain percentages of mature species that are comparable to those in the 2005 baseline inventory.

Variance: +/- 20% of the 2005 inventory.

Forecast: Given no further landbase withdrawals, mature inventory percentages should remain within allowable variance.

Legal Requirements: None.

1.23 **Value :** Maintenance of variability in stand structure.

Objective: Existing stand structure is retained at the opening level.

Indicator 7:	The annual average % of the total area of non-clearcut openings that is retained by RMZ and variant climatic class.
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Target: Minimum of 10% in enhanced Wet, 15% in enhanced Dry and General Wet and 20% in General Dry and Special Dry and Wet.

Variance: Any value greater than the target is acceptable. A 3-year phase in period is required in order that new engineering layout may reflect the revised targets.

Forecast: The indicator was amended in 2008 as a result of a new zonation associated with the implementation of the Western Forest Strategy, a program for conserving biodiversity on company tenures that provides the basis of guidelines to operations.

Legal or Other Requirements: The Western Forest Strategy is a corporate objective.

1.24 **Value:** To maintain forest influence.

Objective: Forest influence is maintained throughout harvested areas.

Indicator 8:	The average annual % of the harvested area that is within forest influence (one tree length of standing trees).
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Target: 50%.

Variance: Any value greater than or equal to the target is acceptable.

Forecast: >50% in order to meet VR objectives.

Legal or Other Requirements: Corporate objective in Western Forest Strategy.

1.25 **Value:** The risk status or forest-associated species on the DFA.

Objective: Forest Management practices do not pose a threat to the DFA forest-associated species.

Indicator 9:	The annual listing of species at risk found on the DFA and their risk status rating.
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Target: The annual listing of species at risk found on the DFA does not increase and their risk status rating does not rise year over year as a result of management activities on the DFA.

Variance: None.

Forecast: The Minister responsible for the Wildlife Act identifies categories of species at risk. The Conservation Data Center determines the SAR listings.

Legal Requirements: FRPA s.149 and FPPR s.7

Programs:

- ✧ Western Forest Products has reviewed the habitat requirements of vertebrate species on its tenure and has used those as a guide for key ecological attributes in the implementation of variable retention. (See [Section 2](#)).
- ✧ Western Forest Products is involved in monitoring pilot projects aimed at developing a comprehensive adaptive management and monitoring program in support of variable retention.

1.3 Critical Element – Genetic Diversity

Conserve genetic diversity by maintaining the variation of genes within species.

1.31 **Value:** The genetic diversity of free-growing stands.

Objective: Free-growing stands contain a large proportion of naturally regenerated trees.

Indicator 10:	The annual average percent of the total number of trees at free-growing that are from natural seeding.
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Target: 50% of total trees are from natural regeneration.

Variance: Any actual value equal to or above 50%.

Forecast: > 50%. The number of crop and competing trees is modeled based on growth and yield data. This information is a key part of the Timber Supply Analysis.

Legal Requirements: None.

1.4 Critical Element – Protected Areas and Sites of Special Biological Significance

Respect protected areas identified through government processes. Identify sites of special biological significance within the DFA and implement management strategies appropriate to their long-term maintenance.

1.41 **Value:** The Identified High Conservation Value (HCV) areas of the DFA.

Objective: Identified High Conservation Value areas of the DFA are appropriately managed.

Indicator 11:	The percent of identified HCV areas of the DFA that are under special management.
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Target: 100%.

Variance: None.

Forecast: The Sgt. Randally trail will be deactivated in 2009 because of the effect of significant windthrow. A replacement recreational trail will be established to access the Admiral Broeren tree.

Legal Requirements: Special Management Zones are defined as part of VILUP. SMZ 11 – Schoen-Strathcona.

1.5 Critical Element – Management Strategy

1.51 **Value:** Landscape Level Planning

Concern for sustainability of ecosystems has led to increasing demand for landscape level planning to ensure that ecosystem functioning and plant and animal habitats are conserved.

Substantial areas consisting largely of old growth forests have been reserved on inoperable or sensitive soil sites, and as riparian, wildlife and recreation reserves. These areas are described in Timber Supply Analysis reports (e.g., in the TFL 39 Management Plan).

The Forest and Range Practices Act (FRPA) requirements for landscape and stand level biodiversity have been applied within TFL 39. Direction from the MoF and the MoE has emphasized old seral stage representation at the landscape level and on variation in stand structure, primarily through Old Growth Management Areas (OGMAs) and Wildlife Tree Patches (WTPs).

The Vancouver Island Land Use Plan (VILUP) is a higher level plan established under a Higher Level Plan Order for Regional plans and came into effect on December 1, 2000. The Sayward Landscape Unit Plan (SLUP) was effective July 2003. The SLUP falls within Resource Management Zone #31 of the VILUP. Under VILUP, this area is described as a General Management Zone for which there would be no specific Higher Level Plan direction and that general forest planning and practices provisions would apply to this area.

Western Forest Products is continuing to develop a capability for landscape reporting and spatial forecasting. This includes reporting by BEC (Biogeoclimatic Ecosystem Classification) variant on

reserved areas, seral (age) classes, and interior old growth and patch sizes. These reports will be useful for describing the current situation and as a basis for developing strategies to achieve landscape objectives when they are available. The recently developed spatial forecasting tool has been used to project at a strategic level the implementation of variable retention over the DFA for the next 60 years. This is being linked to a spatial habitat supply model to allow the assessment of landscape planning options on the provision of future habitat.

1.52 **Value:** Biodiversity Conservation

In June 1998, predecessor company MacMillan Bloedel announced a new forest management strategy, formerly called the Forest Project, which has evolved into the Western Forest Strategy, and includes conservation of biodiversity as a primary objective. A key component includes the application of variable retention over a majority of the land base. Section 2 includes a fuller description of the Western Forest Strategy.

Strategies include:

- Landscape zonation based upon VILUP Resource Management Zones (RMZs) and Ecosection zonation as a framework to apply guidelines for the type and amount of stand level retention across the landscape.
- Variable retention will ensure that a diversity of forest structure – including snags, wood debris and live trees of various sizes and in various patterns – is well distributed across the forest landscape.
- Variable retention and OGMAs will provide additional means and flexibility for achieving and often exceeding government landscape objectives for old seral representation and Wildlife Tree Patches.
- Ecosystem mapping for most of TFL 39 is complete. This mapping has been funded by FIA (formerly known as FRBC) and is to the site series level at a scale of 1:20,000. The site series information will provide assistance in landscape unit planning and operational planning.

1.53 **Value:** Habitat Conservation

Objectives are to minimize the impact of activities on wildlife habitat and to not knowingly jeopardize rare, endangered or threatened species.

Identified wildlife are listed by Forest District in the Identified Wildlife Management Strategy (v.2004). The BC Conservation Data Centre (MoE) maintains lists of rare vertebrates, vascular plants and plant communities by Forest District.

It is recognized that the OGMAs and reserves for other reasons (e.g. inoperable areas, riparian and wildlife areas and sensitive soils) may not address all wildlife needs. These approaches might be described as coarse filter approaches.

A fine filter approach is necessary for species where the coarse filter is inadequate. Such additional measures will be applied as they are identified. Examples include the “Identified Wildlife” discussed below.

Strategies include:

Develop and incorporate landscape level objectives for biodiversity including wildlife habitat. This will be achieved as part of the landscape unit planning process. MoE will designate Wildlife Habitat Areas (WHA) that are approximately 200 hectares (total hectares not to exceed 2,400 – maximum 1% impact on the Timber Harvesting Land Base (THLB)).

May 2004, Buck Tanner (MoE) and Erica McClaren proposed four WHAs for Goshawks within TFL 39, Block 2 (Tlatlos/Russel Creek WHA [1-092], Tsitika WHA [1-093], Gerald Creek WHA [1-087], and Consort Creek WHA [1-085]). (Note that only Gerald and Consort Creek WHAs remain within the current DFA). These WHAs may also function as Ungulate Winter Ranges (UWRs) and Old Growth Management Areas (OGMAs).

May 3, 2004, the Minister of Environment established a category of species at risk – <http://www.env.gov.bc.ca/wld/serisk.htm> (species that may be affected by forest or range management on Crown Land).

During the appropriate season, wildlife features in cutblocks assessed for the presence of identified species have the appropriate conservation measures (i.e. nest tree/den reserves) prescribed.

Species which potentially occur within TFL 39, Blocks 2, and which require future consideration when planning timber-harvesting activities, include the following: Red-legged Frog, Vancouver Island Common Water Shrew, Marbled Murrelet, Queen Charlotte Goshawk and the Keen's Long-eared Myotis.

Red-legged Frog – Generally, habitat is associated with the slow moving water of shallow lakes and wetlands and their associated riparian areas. Where frogs are identified then additional buffer zones will be considered for establishment around these areas. Following recommendations made in the Accounts and Measures for Managing Identified Wildlife - Accounts V.2004 should adequately manage and conserve this species. Area (hectares) of habitat not to be harvested is set out by Forest District in the FSP.

Vancouver Island Common Water Shrew – While information on this species is not well established, riparian management recommendations in the Accounts and Measures for Managing Identified Wildlife - Accounts V.2004 may partially address the requirements of this species. Potential habitat includes most riparian habitat from slow to fast moving water.

Keen's Long-eared Myotis – Applying recommendations made in the Accounts and Measures for Managing Identified Wildlife - Accounts V.2004 will adequately manage and conserve this species.

Queen Charlotte Goshawk – A qualified registered professional (R.P.Bio) will investigate all observations of goshawks or possible nests early in the nesting season (March – June). Active goshawk nests identified by these surveys will be protected through the establishment of interim measures as outlined in Managing Identified Wildlife: Procedures and Measures – Volume 1 (Ministry of Forests, 1999), or with Wildlife Habitat Areas (WHAs). Observations will be reported to the Ministry of Environment (MoE). Interim measures will be considered on an ongoing basis for the establishment of WHAs.

Marbled Murrelets – Within the Adam Landscape Unit, Marbled Murrelets will be accommodated where possible by the delineation of Old Growth Management Areas (OGMAs) which target murrelet-nesting habitat. Area (hectares) of habitat not to be harvested is set out by Forest District in the FSP.

Apply stand treatments in specific situations to enhance and improve habitat. These treatments will be based on an assessment of benefits (habitat and timber) and cost. They include restoration of riparian habitat and recruitment of old seral forest conditions. A recent example includes trials in restoration of riparian habitat in Block 2.

December 17, 2003, [7,109.2 ha] of Ungulate Winter Range (UWR) U1-004 (TFL 39, Block 2) for Black-tailed Deer and Roosevelt Elk were established.

Critical Spring Forage (CSF) assessments are prepared as per the Standard Operating Procedure (SOP) "For the Management of the CSF adjacent to Black-tailed Deer Winter Ranges (UWRs) in TFL 39, Block 2, to determine potential Forage Production Areas (FPA).

Scheduling the harvest of the FPA can provide early seral conditions conducive with physiological requirements for Black-tailed Deer over time.

Draft Old Growth Management Area (OGMAs) have been designed to maintain an ecological representation of old growth forests by biogeoclimatic variant across the landscape.

Constrained areas, (terrain, riparian, UWRs, etc.) were incorporated to lessen the impact on harvesting areas.

Where old growth is under represented, second growth stands, containing desirable ecological attributes are incorporated in a recruitment strategy.

2.0 Criteria – Maintenance and Enhancement of Forest Ecosystem Condition and Productivity

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

Goals:

- Minimize stress associated with harvesting activities.
- Track and minimize losses to fire, insects and disease.
- Recognize that natural levels of disturbance and stress may be beneficial.

Indicators:

The indicator set tracks the rates of naturally occurring disturbance and stress (biologic, geologic and climatic) to establish a background rate; in comparison, it tracks the rates of operationally related disturbance and stress; it tracks reforestation success as a measure of the forest ecosystem's response to harvest related disturbance.

2.1 Critical Element – Forest Ecosystem Resilience

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

2.11 **Value:** The timeliness of regeneration on the DFA.

Objective: Harvested areas are reforested.

Indicator 12:	Regeneration performance on harvested areas is better than the legal requirement.
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Target: Current year average regeneration delay target performance is 90% of the legal regen delay period.

Variance: None unless biological or environmental rationales provided on a site-specific basis.

Forecast: Anticipate greater utilization of natural regeneration where appropriate in future.

Legal or Other Requirements: WFP FSP, FRPA s.29 and FPPR s. 16, 26 and 44.

2.12 **Value:** The successful establishment of regeneration.

Objective: Harvest areas are successfully regenerated.

Indicator 13:	The annual percent of current regeneration established that fails.
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Target: Current regeneration failure is less than 5% of the current area established.

Variance:	+5%.
Forecast:	Assumed to be zero in the planting forecast prepared by the forest operation and the Management Plan forecast. Can vary widely based upon biological and environmental events.
Legal Requirements:	Value and Objective are supported by legislation (FRPA s.29 and FPPR ss.16, 24, 44). Target is not supported.

2.2 Critical Element – Forest Ecosystem Productivity

Conserve forest ecosystem productivity and productive capacity by maintaining ecosystem conditions that are capable of supporting naturally occurring species.

2.21 **Value:** Area impacted by forest fires.

Objective: Area impacted by forest fires is minimized.

Indicator 14:	Annual number of fires and area burned.
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Target: Track number and size of accidental operational fires and natural wildfires. The annual area impacted by operationally caused fire is 0.

Variance: One hectare.

Forecast: The indicator cannot be forecast.

Legal or Other Requirements: 2008 MIFO Fire Pre-organization Plan.

2.22 **Value:** The incidence of reportable spills.

Objective: To minimize the impacts to land and water from reportable spills.

Indicator 15:	The annual number of reportable spills.
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Target: The annual number of reportable spills is less than or equal to the 5-year rolling average. The indicator target was revised downwards in 2008.

Variance: +1 over the target after target fractions are rounded up to the next whole number.

Forecast: This indicator can not be forecast.

Legal or Other Requirements: WFP Spill Contingency Plan supports the Objective. Spill Reporting Regulation 263/90.

2.23 **Value:** The extent of insect attack or disease in the DFA.

Objective: To minimize timber loss to insect and diseases.

Indicator 16:	The number of areas greater than 5 ha (contiguous) in size that are at a high risk of mortality due to insects or disease.
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Target: Zero.

Variance: None.

Forecast: This indicator can not be forecast. The 5 ha size limit may be too small an area to effectively detect in the field. Review indicator target in 2009.

Legal or Other Requirements: Value and Objective are supported by MP #8 s.6.3.2.

2.24 **Value:** The extent of landslides in the DFA.

Objective: To minimize the impact of harvest operations on the stability of terrain.

Indicator 17:	Track the area of natural slides and minimize the area of harvest-related slides from post – 1995 activities.
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Target: The annual hectares of slides from post – 1995 harvest areas and roads is 0 ha.

Variance: Less than 5 ha for harvest related slides. Not applicable for natural slides.

Forecast: This indicator can not be forecast.

Legal or Other Requirements: Objective is supported by the WFP Terrain Management Code of Practice.

Programs:

- ✧ Annual Fire Pre-organization Plan for responding to emergency fire situations.
- ✧ Annual overview of insect and disease issues in the DFA.
- ✧ Western Forest Strategy. (See Section 2).
- ✧ Western Forest Products compliance monitoring program (# slides/occurrences).

2.3 Critical Element – Management Strategy

Western Forest Product's goals are to protect the forest and to maintain a healthy forest condition.

- Regenerate all harvested land promptly with appropriate species considering both silviculture characteristics and economic values.
- Limit the losses from fire through a rigorous program of fire prevention and suppression.

- Minimize losses to insects and disease through monitoring and appropriate control measures.

2.31 **Value:** Fire prevention and suppression

The fire protection strategy is addressed in Management Plan #8 for TFL 39.

Prevention and control are governed by operating policies and procedures and a series of plans. Mid Island Forest Operation maintains and deploys its own fire suppression equipment.

Fire protection activities include hazard induced logging closures, aerial and ground patrols during periods of high risk and quick initial action using fixed wing aircraft, helicopters and ground crews.

Western Forest Product's primary objective is to prevent fires through good housekeeping, diligent equipment maintenance and strict control of operations as fire danger rises. Our goal is to contain all fires within 24 hours of detection.

Damage to established stands in all blocks of TFL 39 has averaged less than 39 ha per year (less than 21 ha per year in mature stands) during the last 25 years.

2.32 **Value:** Forest insect and disease control

An insects and disease pest management strategy is included in TFL 39, MP #8. Insect infestations, disease outbreaks and associated management activities have been reported in the TFL 39 Annual Report.

The objective is to minimize losses due to insects and disease through a vigilant program of detection and appropriate control measures.

Forestlands will be assessed on an ongoing basis to identify potential pest problems. Any suspect areas will be examined and monitored by helicopter or ground surveys. Federal or provincial experts will be consulted on appropriate actions if beyond the expertise of our own registered professionals.

Losses due to insect or disease epidemics will be minimized by:

- Expedient salvage of trees and stands already dead, dying or threatened by pest infestations, subject to environmental and economic considerations.
- Maintaining tight inventory control to keep the volume of logs susceptible to ambrosia beetle attack as low as practical.
- Trapping insects such as ambrosia beetles, where appropriate.
- Carrying out harvesting and sanitation activities in areas identified as disease centers.

Management Plan #8 for TFL 39 has guidelines addressing the following issues:

- To reduce the risk of future losses to Abies species from the Balsam Woolly Adelgid (*Adelges piceae*). The adelgid is present in the eastern portion of the TFL and to a lesser extent in the west.
- For restricting planting of Sitka spruce in medium and high hazard zones for the Sitka spruce weevil (*Pissodes strobi*).

A conifer sawfly infestation (*Neodiprion* spp.) occurred in Block 2 during the mid 1990's. By 1999, sawfly populations had collapsed in high-risk areas.

2.33 **Value:** Wind damage

Activities are in place to minimize losses from wind damage. These include assessment of susceptibility to windthrow, cutblock design and management practices (treatment of edges where appropriate), monitoring of damage and recovery of downed trees where practical.

Small cutblock sizes and reserves within cutblocks (e.g., wildlife tree patches and riparian management areas) expose more timber edge to potential damage from strong wind events.

Although variable retention may create more exposed edges, the retention pattern could modify wind forces against edges and reduce windthrow relative to clearcuts.

The strategy to minimize losses from windthrow involves further development of practices already in place:

- Assessment of windthrow hazard and risk. This has been taken further in a FIA funded project at Mid Island Forest Operation where current windthrow hazard models have been applied to produce windthrow hazard maps. These maps facilitate better prescriptions and choice of retention levels.
- Cutblock and retention patch design based on knowledge of historic wind patterns and assessments.
- Management practices such as tree pruning and/or topping (applied according to the assessment results).
- Monitoring. The company has designed a windthrow monitoring program. This program will document the amount of windthrow occurring in variable retention areas and provide a baseline against which to measure future windthrow management.
- Recovery of downed trees where practical. The increased use of helicopter grapple yarding should allow retrieval of small patches of windthrow and individual trees that were uneconomic to salvage in the past. Large rotting logs play an important role in forest ecosystems. Hence a variety of size classes of woody debris and damaged or rotten logs will be left behind to maintain natural cycles and habitats.

Refer to “Company Guidelines for Variable Retention” for more details on prescription options for wind damage.

A catastrophic windthrow event occurred in December 2001 at select areas on the DFA. The intensity and magnitude of this unpredictable wind event resulted in approximately 600,000 cubic metres of windthrow. Salvage of recoverable timber was completed by mid 2003.

2.34 **Value:** Soil degradation

Roads, landings and other compacted areas remove area from the productive forest land base. These areas are measured in post harvest assessments. The data are compiled and reported annually for harvest areas.

Management practices are in place to ensure that impacts meet or exceed current standards, including site restoration where appropriate.

Also refer to TFL 39, MP #8.

2.35 **Value:** Reforestation

The reforestation strategy for the DFA is to reforest those blocks relying on artificial regeneration within a period of three years following harvest. Areas prescribed for natural regeneration may take up to 6 years to meeting stocking requirements. A measure of success has been to manage

the amount of Not Satisfactorily Restocked (NSR) area to be below three years of logging. These results are reported annually to the Ministry of Forests.

3.0 Criteria – Conservation of Soil and Water Resources

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

3.1 Critical Element – Soil Quality and Quantity

Conserve soil resources by maintaining soil quality and quantity.

3.11 **Value:** The productivity of the forest soils.

Objective: To minimize soils degradation resulting from management activities.

Indicator 18:	The annual percent of harvested openings in which soil disturbance exceeds plan.
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Target: Zero.

Variance: None.

Forecast: This indicator cannot be forecast.

Legal Requirements: Objective supported by FRPA s.46 Protection of Environment. FPPR s.5 Objectives Set by Government – Soils.

3.2 Critical Element – Water Quality and Quantity

Conserve water resources by maintaining water quality and quantity.

3.21 **Value:** The natural quality of the water is maintained at levels to sustain natural populations of trout and salmonids.

Objective: Management activities do not diminish the natural quality of the water beyond survival limits of required trout and salmonids.

Indicator 19:	The yearly “flush”, “high” and “low” water turbidity and temperature measurements for selected watersheds.
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Target: Less than 5 NTU for turbidity and less than 15 C for temperature.

Variance: 10%.

Forecast: This indicator can not be forecast.

Legal Requirements: FPPR s.8 for conservation of water quality.

3.22 **Value:** Clean water and productive soils.

Objective: Effectively manage harvesting activities to mitigate potential effects on soils and water resources.

Indicator 41:	The number of FRPA contraventions related to road, soil and water management.
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Target: To have no contraventions.

Variance: None.

Forecast: Anticipate full compliance moving forward.

Legal Requirements: FPPR ss.102, 103.

Programs:

✧ Fisheries programs: stream identification.

3.3 Critical Element – Management Strategy

Forest management activities can increase rates of soil erosion and affect the flow of sediment into streams and the peak flow levels in streams.

Management practices are designed to minimize these impacts. They are based on regulatory guidelines and standard operating procedures. Operational staff receive training for these standards and procedures, and post harvest assessments of operations are conducted annually.

Strategies for protection of soil and water resources are described in the Management Plan.

Since helicopter yarding systems significantly reduce impacts on soils and water resources, they are increasingly being used to access timber in sensitive areas.

3.31 **Value:** Soil Conservation

Forest areas are mapped by either five-class terrain stability mapping or sensitive site (ES) mapping. This information is used to identify sensitive areas for operational planning. It is also used to estimate appropriate allowances in strategic analyses (e.g., refer to TFL 39, MP #8).

The overall objective is to sustain the productivity of the landbase.

Strategies include:

- Standard Operating Procedures have been developed and are maintained for road construction, maintenance and deactivation.
- Terrain stability field assessments (TSFAs) are conducted on steep and sensitive sites.
- Forest practices reflect the sensitivity of the soil.
- Internal and external audits on road building and harvesting practices.
- Minimize the amount of permanent site degradation due to roads.

Concern has been expressed that variable retention might increase road requirements. There will be situations with increased road requirements and others with reduced requirements. It is expected that in sum they will tend to offset one another. For example, there has been an increase in helicopter harvesting (and hence fewer roads) on steeper terrain. Significant increases in roads are not expected on flatter terrain because of gains in reduced adjacency constraints.

3.32 **Value:** Water Protection

Particular attention is focused on managing riparian areas. In the TFL, riparian reserve and management areas are implemented according to FRPA requirements or better. Higher order streams (smaller streams with limited regulatory protection) are used as priority anchor points for the location of retention patches within settings. The objective is to sustain water quality and quantity.

Strategies include:

- Work closely with regional and community water boards regarding practices and standards in community watersheds. The Newcastle Creek watershed is a water supply area for the community of Sayward.
- Watershed Assessment Procedures have so far been applied to more than 40 watersheds and basins in TFL 39 according to a priority list developed by the MoE. Updates are completed as required and additional WAPs will be undertaken as requested by District Managers. Assessments for the Memekay drainage have been completed.
- Ensure that road construction and road maintenance are completed to required standards.
- Aerial yarding systems (helicopter) have increasingly been used in sensitive areas to minimize road density.
- Develop and implement road deactivation plans, and further reduce erosion through grass seeding and planting. Utilize FIA funding for watershed restoration work.
- Develop a water sampling program to collect baseline data associated with herbicide use in sensitive areas.

4.0 Criteria – Forest Ecosystem Contributions to Global Ecological Cycles

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

4.1 Critical Element – Carbon Uptake and Storage

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

4.11 **Value:** The free-growing status of regenerated stands in the DFA.

Objective: Regenerated stands meet their free-growing commitments.

Indicator 20:	The annual number of hectares not meeting their free-growing targets.
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Target: Zero hectares not meeting free-growing due date.

Variance: Less than the rolling 10-year average percentage.

Forecast: This indicator cannot be forecast.

Legal Requirements: FRPA s.29, FPPR ss.16, 44(1)(b).

4.2 Critical Element – Forest Land Conversions

Protect forestlands from deforestation or conversion to non-forests.

4.21 **Value:** The conversion of forest lands to permanent access structures.

Objective: To minimize conversion of forest land into permanent access structures.

Indicator 21:	The annual average percent of harvested openings that is occupied by permanent access structures.
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Target: The annual average percent of harvest openings that is occupied by permanent access structures is less than 5%.

Variance: 0.5 % (i.e. less than 5.5% of the area in openings).

Forecast: This indicator cannot be forecast.

Legal Requirements: Indicator target exceeds the performance target under FPPR s.36.

4.3 Critical Element – Management Strategy

The uptake and storage of carbon by actively growing forests reduce global carbon dioxide levels.

Mid Island Forest Operation's forest management activities are focused on prompt reforestation of harvested areas with well stocked stands and on restricting the area that is removed from production by roads and landings ([See Section 2.34](#)).

Surface water area is a significant contributor to hydrological cycles. The current management strategy has had minimal adverse impact on the surface water area in the DFA.

5.0 Criteria – Multiple Benefits to Society

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

5.1 Critical Element – Timber and Non-Timber Benefits

Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

5.11 **Value:** The rate of timber harvest.

Objective: Timber harvest is within the long term productive capacity of the resource base.

Indicator 22:	The annual harvest level.
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Target: The annual harvest is within 50% of the AAC on an annual basis within the 5 year cut control period for the TFL.

Variance: Not applicable.

Forecast: The Timber Supply Analysis for the TFL forecasts the harvest level. The harvest level will be reduced in future due to volume adjustments from takeback areas and the tie up of significant volumes in OGMAs. TSA analysis expected in 2009.

Legal Requirements: Forest Act s.8.

5.12 **Value:** The level of road access in the DFA.

Objective: To retain an active road network throughout the DFA.

Indicator 23:	The total km of active roads within the DFA.
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Target: The total km of active roads within the DFA does not decrease from year to year.

Variance: +/- 20%.

Forecast: The road network is mature and reasonably stable over the long term.

Legal Requirements: None.

5.13 **Value:** Recreation opportunities within the DFA.

Objective: Recreation opportunities are provided throughout the DFA.

Indicator 24:	The number of recreation sites provided and maintained.
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Target: The number of recreation sites does not decrease from year to year.

Variance: Not applicable.

Forecast: During 2009, establishment of a small parking lot, trail and float at Santa Maria (A20) Lake; road and trail access improvements to a limestone cave above Tlowils Lake; and establishment of a small parking lot, outhouse and trail to the Admiral Broeren big yellow cypress tree are proposed. Sgt Randally will not be maintained going forward.

Legal or Other Requirements: MP #8, s.5.6.

5.2 Critical Element – Communities and Sustainability

Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and to participate in their use and management.

5.21 **Value:** The safety of workers on the DFA.

Objective: The DFA workers operate at a high safety level.

Indicator 25:	Medical Incident Rates (MIR) for company and contractor crews and Severity Rate (SR) for WFP crews.
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Target: For 2008 MIR targets of 1.8 for WFP crews and 4.04 for contractors. The SR target for WFP crews is 183.

Variance: Less than the targets.

Forecast: This indicator cannot be forecast. However, the long-term corporate goal is to improve safety performance over time to have an MIR of zero.

Legal or Other Requirements: Corporate objective.

5.3 Critical Element – Fair Distributions of Benefits and Costs

Promote the fair distribution of timber and non-timber benefits and costs.

5.31 **Value:** Community receives a fair share of the economic benefits from the forest.

Objective: To have a relatively stable economic contribution to the economy.

Indicator 28:	Distribution of primary costs by percentage.
Target:	Track annual spending percentage in the following areas: contract services, own crew labour, payments to government, purchases and miscellaneous in relation to annual harvest level.
Variance:	Not applicable.
Forecast:	This indicator cannot be forecast.
Legal or Other Requirements:	Financial reporting is a corporate requirement.

5.4 Critical Element – Management strategy

5.41 Value: Recreation

Mid Island Forest Operation recognizes and supports the responsible use of forests for recreation activities. The DFA provides varied recreational opportunities for both local residents and visitors to the area. Recreation strategies are included in the TFL management plan. Several recreation sites are maintained by Western Forest Products through annual danger tree and accessibility assessments. Harvesting activities are restricted in some cases because of recreation and visual landscape values. Due to removal of area from the DFA by Government, three established recreation sites are no longer part of the SFM Plan (Junction Pool, Montague Creek and Lower Tsitika Crossing). However, new recreation sites are planned for establishment in 2009.

Public access is available throughout the DFA. Some restrictions are applied, especially in active logging areas, for safety reasons and protection of equipment. Access is limited during periods of high fire hazard.

Mid Island Forest Operation's strategy is to:

Continue to work with the MoF and local residents to develop appropriate strategies for public access to specific areas. Issues include road deactivation (environmental risk), road maintenance and safety.

Cooperate with commercial tour operators where access is required.

Develop and maintain recreation sites in concert with the MoF and subject to funding.

With the MoF, develop strategies for recreation sites and trails and define objectives for management of these features.

Continue to provide recreation maps showing recreation areas, roads and rules of access in future.

Continue to cooperate with MoF and local caving groups in managing and protecting sensitive caves and karst resources. This includes undertaking surface inventories in karst areas prior to development. Mid Island Forest Operation in cooperation with the Campbell River District (MoF) and local caving groups have developed Standard Operating Procedures for karst management.

5.42 **Value:** Visual impact

Mid Island Forest Operation's objective is to reconcile where possible the harvesting of trees with the visual landscape.

The strategy is to:

Maintain visual landscape inventories.

Recognize visual landscape objectives in plans and operations.

Work with MoF specialists to manage for visual landscape objectives more efficiently. This includes improved visual landscape design (assisted by variable retention) and management practices to reduce the time for achieving visually effective green-up.

5.43 **Value:** Archaeological and Cultural Heritage Sites

Mid Island Forest Operation will respect known sites of historic and cultural significance and account for such sites in strategic analysis.

Strategies include:

Review operational plans with local people to identify areas in which cultural resources of potential interest may be affected by forest development.

Conduct assessments and implement management to protect cultural resources in accordance with the Forest and Range Practices Act and the Heritage Conservation Act. This includes working with First Nations, the MoF and the Archaeology Branch (Ministry of Tourism, Sports and Arts) to identify the appropriate assessment procedures.

5.44 **Value:** First Nations

Economic — The objective is to develop enduring business relationships with First Nations.

Strategies include:

Encourage First Nations partnership activities that build towards employment in the forest sector.

Consultation – The objective is to improve communications and understanding by all involved and hence identify and solve concerns well in advance of planned operations.

Strategies include:

Western Forest Products encourages review of FSP and other operational plans.

Encourage First Nations representatives to participate in MIFLAG and in other public review and input initiatives.

Cultural Heritage – See Part 5.43 on archaeological and cultural heritage sites.

5.45 **Value:** Local economic benefits

Employment in the DFA is important to the economic health of the local communities, particularly Sayward and Campbell River.

Community economic and employment strategies include:

Mid Island Forest Operation managers are responsible for developing relationships with local communities, including First Nations.

Mid Island Forest Operation will support initiatives that promote aboriginal employment in the forest sector.

Western Forest Products will continue the practice of managing TFL 39 on a Block basis in response to local economic concerns including economic opportunities. Block contributions are defined in MP #8 AAC.

Mid Island Forest Operation is committed to tracking total forest sector jobs on the DFA. This will be reported and discussed quarterly with the public advisory group.

A comprehensive review of management strategies and operations led the company to reaffirm its commitment to the solid wood products industry in British Columbia. Western Forest Product's goal is to attain high standards in safety, environmental responsibility and business success.

Strategies to achieve these goals include:

- A dedicated effort to improve safety in the work place.

- Restructuring of operations to reduce produced log costs.

Western Forest Products will continue the practice of managing TFL 39 on a block basis in response to local economic concerns including employment opportunities. The current AAC for TFL 39 is allocated by block.

Economic benefits include employment, wages, contract services, purchases and payments to government, including stumpage fees and other taxes.

The financial health of the Mid Island Forest Operation relates directly to the economic health of the local community.

The capacity for timber production is indicated by the AAC allocation to TFL 39, Block 2. Substantial variation can occur on an annual basis largely due to changes in market situations or adverse climatic conditions.

6.0 Criteria – Accepting Society’s Responsibility for Sustainable Development

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

6.1 Critical Element – Aboriginal and Treaty Rights

Recognize and respect Aboriginal and treaty rights.

6.11 **Value:** Dialogue information sharing with First Nations.

Objective: An information sharing and referral program is maintained with First Nations with interests in the DFA.

Indicator 26:	The frequency of information sharing meetings and reviews held with First Nation representatives.
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Target: The frequency of information sharing meetings and FSP reviews held with First Nation representatives is at least once a year.

Variance: Not applicable.

Forecast: This indicator cannot be forecast.

Legal Requirements: Supports BC government’s duty to consult.

6.12 **Value:** Treaty settlements and interim measures agreements.

Objective: Implement measures to comply with treaty settlements or interim measures agreements on the DFA.

Indicator 39:	Compliance with treaty settlements and interim measures agreements.
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Target: 100% compliance.

Variance: Not applicable.

Forecast: K’omoks, Hamatla Treaty Society and Tlowitsis First Nations are in stage 4 of treaty negotiations.

Legal Requirements: Supports the acknowledgement of aboriginal rights.

Programs:

- ✧ First Nations partnership activities.
- ✧ Mid Island Forest Lands Advisory Group.

- ✧ Public outreach and education programs.
- ✧ Research programs including:
 - ∞ Western Forest Strategy.

6.2 Critical Element – Respect for Aboriginal Forest Values, Knowledge and Users

Respect traditional Aboriginal forest values and uses identified through the Aboriginal input process.

6.21 **Value:** First Nations employment in the forest sector.

Objective: First Nations training and education leading to employment in the forest sector.

Indicator 27:	Tracking of joint activity participation of First Nations and WFP.
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Target: To meet or exceed the indicated levels of activity.

Variance: Not applicable.

Forecast: This indicator cannot be forecast.

Legal Requirements: None.

6.22 **Value:** Old Growth Cedar

Objective: Old Growth cedar continues to be available to First Nations.

Indicator 29:	The annual volume of old growth cedar made available to First Nations.
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Target: The volume of old growth cedar made available to First Nation is as reasonably requested.

Variance: Not applicable.

Forecast: This indicator cannot be forecast.

Legal or Other Requirements: None but supports the acknowledgement of aboriginal rights.

6.23 **Value:** The regeneration of Cedar.

Objective: Cedar is regenerated in scale with its extraction and as ecologically suitable.

Indicator 30:	The 10-year average % variance between the % of annual harvested volume that is cedar and the % of the annual planted seedlings that are cedar.
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Target: The 10-year average % variance between the % of annual harvested volume that is cedar and the % of the annual planted seedlings that are cedar is within 20% of the harvested percentage.

Variance: None.

Forecast: This indicator cannot be forecast.

Legal Requirements: None.

6.3 Critical Element – Public participation

Demonstrate that the SFM public participation process is designed and functioning to the satisfaction of the participants.

6.31 **Value:** The sector representation on the PAG

Objective: All relevant sectors are represented on the PAG.

Indicator 31:	The percentage of PAG sector seats that have active representation.
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Target: Full (100%) PAG active sector seat participation.

Variance: PAG active sector seat representation is at least 90% from year to year.

Forecast: Terms of reference for the advisory group.

Legal Requirements: None.

Indicator 32 is currently vacant.

6.32 **Value:** Public awareness

Objective: To support open communication and dialogue with the public.

Indicator 33:	The annual total page hits on the MIFLAG website.
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Target: Increases from year to year.

Variance: None.

Forecast: This indicator cannot be forecast.

Legal Requirements: None.

6.33 **Value:** Stakeholder/First Nations' participation satisfaction

Objective: CSA public participation at this table is responsive, communicative and representative of the stakeholder and First Nations' values.

Indicator 34:	Stakeholder/First Nations' participation satisfaction evaluation.
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Target: Continual improvement.

Variance: None.

Forecast: This indicator cannot be forecast.

Legal Requirements: None.

6.4 Critical Element – Information for Decision-Making

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

6.41 **Value:** Research in alternatives to herbicides currently used in the DFA

Objective: The Forest Operation supports research in and deployment of non-herbicide alternatives.

Indicator 35:	Funding of applicable research projects by Western Forest Products.
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Target: Funding of applicable research projects by Western Forest Products is allocated.

Variance: None.

Forecast: Research support discontinued in 2008. Undertake literature review of other applicable research projects during 2009.

Legal Requirements: None.

6.42 **Value:** The use of herbicide in the DFA

Objective: Vegetation management in the DFA emphasizes non-herbicide methods.

Indicator 36:	The cumulative percentage of brushing activities that is done using herbicides over the term of the PMP is limited to 20%.
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Target: 20%.

Variance: None.

Forecast: Brush control is essential for the establishment of new plantations and achieving free growing obligations. Herbicides are used where manual methods are ineffective or economically impractical. While the area of herbicide treatment may fluctuate from year to year it is the company's intent to work towards the 20% target over the term of the Pest Management Plan.

Legal Requirements: None.

6.43 **Value:** Public education and communication

Objective: A continuous public education and communication program exists.

Indicator 37:	The annual percentage of the annual program elements that are fulfilled.
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Target: The annual % of the annual program elements that are fulfilled is 100%.

Variance: None.

Forecast: The objective is the forecast.

Legal Requirements: None.

6.44 **Value:** Research

Objective: There is ongoing research related to ecosystem management and operations.

Indicator 38:	The number of active ecosystem management and operation related research projects.
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Target: The number of active ecosystem management and operation related research projects is at least one in any given year.

Variance: Any value greater than one project.

Forecast: Continued allocation of resources to support applicable research is expected.

Legal Requirements: None.

6.45 **Value:** Public consultation.

Objective: Public input into operational and strategic plans.

Indicator 40:	Compliance with required public consultation processes.
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Target: 100% compliance.

Variance: None.

Forecast: Anticipate full compliance moving forward.

Legal Requirements: IPM Regulation ss.9 and 10, FRPA s.18, FPPR ss.20, 21, 22.

6.5 Critical Element – Management Strategy

6.51 **Value:** Community, stakeholder and First Nations involvement

Public participation processes are central to achievement of SFM goals. The objective is to provide ready access for public input and stakeholder involvement in our management process.

The Mid Island Forest Lands Advisory Group (MIFLAG) currently includes 14 community representatives who provide input on an ongoing basis. MIFLAG plays a central role in the development of this plan by identifying local values and goals, participating in indicator selection, and reviewing and commenting on performance results. Regular meetings provide both input for local management issues and opportunities for all to learn about forest management and how these activities relate to the communities.

There is a 28 year history of public involvement in the DFA. The process for developing management plans includes public review at different stages in preparation of the plan. Operational plans in TFL 39 are available for public review, and dialogue occurs with special interest groups such as cavers and other recreational users.

Representatives of local First Nations are participating in MIFLAG. The TFL 39 MP #8 process includes sending invitations to First Nation groups to discuss management issues, and Forest Stewardship Plan harvesting developments are referred annually to local groups for input. Mid Island Forest Operation supports a number of partnership activities with local First Nations for carrying out silvicultural work, training forest technicians, and supplying forest products for cultural uses.

Operational planning to identify Cultural Heritage Resource sites and to develop appropriate management prescriptions occurs according to FRPA Regulations and the Heritage Conservation Act. The strategy is summarized in the Statement of Management Options, Objectives and Procedures for TFL 39, MP #8.

6.52 **Value:** Research

There are several monitoring and research projects underway, including:

Nine "VRAM" (Variable Retention Adaptive Management) study sites are now established, with ongoing G&Y and other studies testing percentage group retention levels, and group removal under short/long cycles.

Windthrow monitoring.

Summer bird survey transects.

Two bird studies looking at VR groups, types/levels of retention.

Beetles.

Amphibians.

Glossary

Acronyms used in this document

AAC	Allowable Annual Cut
BCTS	British Columbia Timber Sales
BEC	Biogeoclimatic Ecosystem Classification
CCFM	Canadian Council of Forest Ministers
CSA	Canadian Standards Association
DFA	Defined Forest Area
EMS	Environmental Management System
FSP	Forest Stewardship Plan
FIA	Forest Investment Account
FRBC	Forest Renewal British Columbia
FRPA	Forest and Range Practices Act
FSP	Forest Stewardship Plan
GIS	Geographic Information System
HCV	High Conservation Value
ISO	International Organization for Standardization
MoE	BC Ministry of Environment
MIR	Medical Incident Rate
MoF	BC Ministry of Forests
MP	Management Plan
MIFLAG	Mid Island Forest Lands Advisory Group
NSR	Not Satisfactorily Restocked
NTFP	Non-Timber Forest Products
NTU	Nephelometric Turbidity Unit
PSP	Permanent Sample Plot
RIR	Recordable Incident Rate
SFM	Sustainable Forest Management
SP	Site Plan
TFL	Tree Farm License
VILUP	Vancouver Island Land Use Plan
VR	Variable Retention
WAP	Watershed Assessment Procedure
WTP	Wildlife Tree Patch

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

Area Awaiting Restocking (AAR): See Not Satisfactorily Restocked.

At-risk species: See Species at-risk.

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

Biogeoclimatic Ecosystem Classification (BEC): Developed in BC in 1965, the BEC System classifies areas of similar regional climate, expected climax plant communities and site factors such as soil moisture and soil nutrients. The subzone is the basic unit of this classification system. Within subzones, variants further identify more local climatic factors.

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

Biogeoclimatic variant: See Biogeoclimatic Ecosystem Classification.

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

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

British Columbia Timber Sales (BCTS): Is an independent organization within the Ministry of Forests and Range created to develop Crown timber for auction in order to establish market price and cost benchmarks and capture the value of the asset for the public.

Clearcut: An area of forest land from which all merchantable trees have recently been harvested.

Canadian Standards Association (CSA) standard: Refers to CSA Z809, a National Standard for Canada for a SFM System. It describes the components and performance objectives of a SFM system that when applied to a DFA will ensure that forest management objectives are set for the critical elements of the CCFM SFM criteria.

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.)

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.

Defined Forest Area (DFA): A specific area of forest, land, and water delineated for the purposes of registration of a Sustainable Forest Management system.

Ecological cycles: Refers to the major nutrient cycles (i.e. carbon and nitrogen) and the hydrological cycle.

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

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

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

Forest and Range Practices Act (FRPA): Forest and Range Practices Act is the province's new results based legislation governing forest and range practices. Over time, it will replace the Forest Practices Code of BC Act (FPC). Like the FPC, FRPA consists of an Act of the Legislature and Several Regulations made by Cabinet.

Forest Development Plan (FDP): These plans explain resource values present in a specified area, how the values will be protected or maintained, where roads will be built and what areas are proposed for harvest. They are revised annually, advertised and presented for public review and comment before presentation to the Ministry of Forests for approval.

Forest influence area: The area within an opening that is within one tree height of a patch of retention or retained single tree.

Forest Practices Code (FPC): The Forest Practices Code of British Columbia Act, the regulations made by Cabinet under the act, and the standards established by the BC Chief Forester. The term is sometimes used to include guidebooks associated with the Code.

Forest Stewardship Plan (FSP): Forest Stewardship Plan is the key operational plan under FRPA, replacing the Forest Development Plan (FDP) under the Forest Practices Code. Like FDPs, FSPs provide limits on where primary forestry activities such as timber harvesting and road construction may occur, are subject to public review and comment and must be approved by government before they take effect.

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 (e.g., species, density and size) that a stand of trees must meet to be considered free growing.

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 three meters is said to have achieved green-up (1.3 metres in the enhanced zone of the VILUP).

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

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

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 harvest.

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

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

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

Landscape unit: For the purpose of FRPA, 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.

Mature forest: Generally, 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. In the Mid Island SFM Plan, mature is defined as forest areas established before 1864 and includes old growth.

Medical Incident Rate (MIR also known as RIR): Number of incidents per 100 workers that require a doctor's medical attention or result in lost work time.
$$\frac{20,000 \times \# \text{ Medical Incidents}}{\text{Exposure Hours}}$$

Nephelometric turbidity unit (NTU): Unit of measure for the turbidity of water. Essentially, a measure of the cloudiness of water as measured by a nephelometer. Turbidity is based on the amount of light that is reflected off particles in the water.

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

Not Satisfactorily Restocked (NSR): Productive forest land that has been denuded and has not yet been regenerated to the specified stocking standards for the site.

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

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

Permanent access structure: A built structure, including a road, bridge, landing, gravel pit, etc. It is shown expressly or by necessary implication on a forest development plan, access management plan, 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.

Recordable Incident Rate (RIR): Comparable to Medical Incident Rate, above. The former MacMillan Bloedel used MIR to measure safety performance; Weyerhaeuser Company used RIR. Western Forest Products uses MIR.

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

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

Reserve zones: Zones where timber 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. Smaller streams are described as "higher order" streams.

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.

Site Plan: A site-specific integrated operational plan to carry out one or a series of silviculture treatments.

Silvicultural System: A planned program of treatments throughout the life of the stand to achieve defined objectives. A silvicultural 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.

Snag: A large, standing dead tree.

Species at-risk: Species identified by the BC Conservation Data Centre as red or blue listed.

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

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

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

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

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

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 forwarding, and aerial methods such as helicopter yarding.

Section 2 – Western Forest Strategy