



The **Teal-Jones Group**

Fraser Public Advisory Group

Biological Diversity

Forest License A19201 & Timber
License T0822

Sustainable Forest Management

Meeting #2: September 19, 2006



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Introduction

This document has been created to give members of the Fraser Public Advisory Group (FRASER PAG) relevant background information to participate in identifying and selecting local Values, Objectives, Targets and Indicators for biological diversity.

The goal of this meeting is to identify values, objectives, indicators and targets for Biological Diversity, considering:

- **Ecosystem Diversity**
- **Species Diversity**
- **Genetic Diversity**
- **Sites of special biological significance**

In order to aid members and their respective groups, the following information is provided in this document.

- Overview of Biodiversity
- FL A19201 and TL T0822 (the DFA) and biological diversity (including a brief description of mandatory indicators that Teal must measure for other commitments or processes e.g., legislative requirements, government policy, SRM Planning, etc.)
- Reference set of indicators from the Canadian Council of Forest Minister
- Examples of indicators used by other forest companies in Coastal British Columbia in their respective Sustainable Forest Management Plans

Ideally members will review this package prior to the meeting. This will enable members to:

- Educate themselves (and their group where applicable) on biodiversity
- Bring forth informed ideas and opinions to the meeting
- Participate effectively and efficiently to maximize valuable discussion time at meetings

Please feel free to contact us if you have any questions on this material, or bring your questions to the meeting!



Overview of Biodiversity

Biodiversity is the variability among living organisms from all sources and the ecological complexes of which they are part

Biological Diversity (or biodiversity) encompasses organization at levels ranging from entire ecosystems to the chemical structure that forms the basis of heredity. Maintenance of the natural range of ecosystems, and the ability of their components to react to external forces and processes, provides the equilibrium required for the maintenance of species diversity.

Protection of biological diversity for ecosystem, species and genetic diversity must be realized within the DFA. It should be noted however, that several planning scales, including national, regional, and local and site specific may contribute to biological diversity protection. Areas adjacent to the DFA may also be relevant to protecting biodiversity.

Spatial and temporal factors should be considered for ecosystem diversity, as they relate to stand structure and ecological processes. Any Red or Blue listed species, plant communities or ecosystems, in addition to locally important species, plant communities, ecosystems or special sites found within the DFA should be considered under this criterion.

Ecosystem diversity

Ecosystem diversity is the variety and pattern of communities and ecosystems. Maintenance of the variety and quality of the earth's ecosystems is necessary for the preservation of species.

Without sufficient quantities of their natural habitats, species become vulnerable. Generally, the more the diverse the habitat the greater the diversity of species one could expect to find in an area.

Species Diversity

Species diversity is the number and relative abundance of species in an area.

Species diversity is the most readily recognizable form of biodiversity. Slowing down the rate of species extinction due to anthropogenic factors is a key objective of the conservation of biodiversity. Changes in species population levels may also provide an early warning of changes in ecosystem integrity.

Genetic Diversity

Genetic diversity is the variation of genes within a species

Genetic diversity is the ultimate source of biodiversity at all levels. It is the material upon which the agents of evolution act. Loss of variation may have negative consequences for fitness and prevent adaptive change in populations. ¹

¹ Canadian Council of Forest Ministers Criteria & Indicators (2003) www.ccfm.org



Site of Special Biological Significance

A Wildlife Habitat Feature may be one of the following:

- A significant mineral lick or wallow
- An active nest of a Bald Eagle, Osprey or Great Blue Heron
- Any other localized feature identified as having a special biological significance



The DFA and Biodiversity

Biological Diversity management within the DFA involves management techniques at all levels including ecosystem, species, genetic and special sites maintenance. The following information should provide some background for traditional methods of biological conservation within the DFA, as well as briefly describing some of the mandatory indicators that Teal is currently tracking under other commitments (such as legislative requirements, etc.)

Ecosystem Diversity

Ecosystem biodiversity conservation is accomplished through many different methods within and adjacent to the DFA:

Protected Areas

B.C.'s parks system is the second largest in Canada – only the national parks system is bigger. B.C. has 821 parks, protected areas and ecological reserves. Approximately 13.8% (13.09 million hectares) of the province is dedicated to protected areas. Ecosystem representation is improving and 37% of the province's 100 terrestrial eco-sections now have at least 12% of their area protected² In addition to protected lands, B.C. has designated another 13 million hectares for special management, which means values such as wildlife habitat or scenic vistas take precedence over logging.

Directly adjacent to the DFA are the following parks: Cascade Recreation Area, Coquihalla Summit Recreation Area, E. C. Manning Provincial Park, Garibaldi Provincial Park, Golden Ears Provincial Park, Nahatlatch Provincial Park and Protected Area, Pinecone Burke Provincial Park, Skagit Valley Provincial Park, and Stein Valley Nlaka'pamux Heritage Park

Seral Stage Representation

Seral Stage representation is the pattern and timing of forest harvesting operations at the landscape level. Due to past harvesting practices, old growth seral stage is underrepresented for some ecosystem variants within the DFA. A major consideration in managing for biodiversity at the landscape level is leaving sufficient and reasonably located patches of forest cover at various ages or 'seral stages', including old-growth forest, for species that depend on or are strongly associated with these forests. Although some general forest management practices can broadly accommodate the forest cover needs of most ecosystems, more often a variety of practices is needed to represent the different natural disturbance patterns under which ecosystems have evolved. Within the DFA natural disturbance types (NDTs) vary from frequent wildfires in the dry interior regions to rare stand-initiating events (from wind, fire, and landslides) in the wetter coastal regions.

Landscape level biodiversity is managed by retaining Old Growth Management Areas (OGMA) during Sustainable Resource Management Planning (SRM Planning) conducted by the Integrated

² BC Protected Areas Strategy <http://wlapwww.gov.bc.ca/soerpt/1protectedareas/percentglance.html>



Land Management Bureau (ILMB). Achieving landscape-level biodiversity objectives involves maintaining forests with a variety of patch sizes, seral stages, and forest-stand attributes and structures across a variety of ecosystems and landscapes. Managing for biodiversity is based in part on the principle that these components together with other provisions in the Forest Practices Code or the Forest and Range Practices Act—such as riparian management, maintenance of wildlife trees, and other forest cover objectives will provide for the habitat needs of most forest and range organisms.

SRM Planning has been completed for 7 of the 9 Landscape Units in the DFA. Where LU plans have not been completed and OGMAs have not been established, there is a higher amount of area in wildlife tree patches is required for each harvest area within that LU. More information on LU plans within the DFA visit: <http://ilmbwww.gov.bc.ca/ilmb/lup/srmp/coast/chilliwack/index.html>

In Landscape Units where OGMAs have not been established they may be subject to a government directive (Order Establishing Provincial Non-Spatial Old Growth Objectives) to maintain older seral stages by forest type. This directive applies to the Pitt, Widgeon and Hatzic Landscape Units that overlap portions of Teal's DFA.

Stand Level Representation

Stand-level biodiversity is managed in part by retaining reserves of mature timber or Wildlife Tree Patches (WTP) within or adjacent to cutblocks to provide structural diversity and wildlife habitat. Wildlife Tree Patches are groups of tree retained with each harvest area to ensure the retention of features of valuable biological diversity throughout at least one harvest rotation. Government legislates a minimum level of retention for each ecosystem type. The amounts of forest cover required to be retained in wildlife tree patches are derived from the Province's Biodiversity Guidebook and the Landscape Unit Planning Guide. In the Fraser TSA, wildlife-tree retention values were developed and communicated to licensees for each draft landscape unit and biogeoclimatic variant. Licensees are then obligated to retain these levels of retention. The levels of retention are often adjusted after the LU plans have been established (i.e. made legal).

General Biodiversity Measures

Coarse woody debris is fallen dead material (stems, roots, branches) that contributes to maintaining site productivity and biodiversity. It provides shelter from extreme weather, nesting and denning sites, and foraging opportunities for many organisms ranging from fungi, salamanders and squirrels, to bears. As fallen wood slowly rots it releases nutrients into the soil. In addition, it can help to stabilize slopes, or act as nurse logs for young seedlings. Normal logging practices leave scattered large pieces of wood after harvesting, instead of yarding them to landings or roadsides.

In addition, general biodiversity considerations include cutblock design to provide a variety of cutblock sizes and shapes and retaining mature forest attributes within designated leave areas (such as internal retention areas, riparian areas and wildlife tree patches).



Species Diversity

Management of species is normally achieved through management of their primary and critical habitats. Several species of wildlife are actively managed within the DFA. The term "**Identified Wildlife**" refers to those Species at Risk and Regionally Important Wildlife that the Minister of Water, Land and Air Protection, designates as requiring special management attention under the *Forest and Range Practices Act*. For more information on Identified Wildlife visit: <http://www.env.gov.bc.ca/wld/identified/index.html>

Wildlife habitat areas (WHAs) are areas managed for selected species and plant communities that have been designated under the Forest Practices Code as "Identified Wildlife". *General Wildlife Measures for Identified Wildlife* is a government document that outlines specific management practices for identified species or plant communities. General wildlife measures have been approved by the chief forester and deputy minister of Environment, Lands and Parks. These are mandatory requirements that must be followed within approved wildlife habitat areas, or applied in a larger geographic unit, where approved.

Grizzly Bear

Management for grizzly bears is targeted towards managing forage (herbs, grubs, berries etc) and forest cover. Planning for grizzly bears is conducted at the landscape and stand levels. There are currently four designated Wildlife Habitat Areas (#'s 2-101, 2-201, 2-102, & 2-203) within the DFA for the purposes of managing habitat for Grizzly Bears. The legal order designating the WHAs prohibits or limits access (road and trail building), harvesting and silviculture, the use of pesticides, and range use (livestock grazing).

Black Bear

Management for black bear dens is not a legislated requirement, however activities are conducted to preserve existing dens, and provide options for the retention and recruitment of trees and other woody material with features suitable for bear hibernation and protection.

Black Tailed Deer, Mule Deer and Mountain Goat (Ungulates)

Critical habitat for Black Tailed Deer, Mule deer and Mountain Goats is addressed through management of winter range forage habitat variously referred to as Ungulate Winter Range (UWR, deer or goat), Deer Winter Range (DWR) or Goat Winter Range (GWR). UWRs have not been legally established within the DFA but draft DWRs have been proposed and licensee's plan around these reserves. As these areas are still in draft form they can be changed if necessary by following government guidelines on attributes to incorporate into UWR.

Coastal Tailed Frog

The Coastal Tailed Frog is currently "Blue Listed" in BC. It occupies cool, permanent mountain streams of the Coast Mountains from the lower mainland north to the Nass River. The most easterly range is thought to be the Cayoosh Mountain Range between Pemberton and Lilloet and Cathedral Provincial Park. In the eastern portion of its range it is limited by stream temperatures. In wet climates it may range only 100 to 200 meters from its natal stream. Management is



focused on targeting OGMAs to protect known populations, managing stream temperature and water quality, riparian habitat, flood events, coarse woody debris and stream crossings.

Northern Spotted Owl

The (Northern) Spotted Owl is “Red Listed” in BC. It occurs in the southwestern mainland of BC, western Washington, western Oregon, and northwestern California. In BC it occurs from the US border northwards to about Carpenter Lake, from Howe Sound to about 160 km east of Pemberton to the windward slopes of the Cascade Mountain Range. Its full range is still unknown. Management in BC is targeted towards the creation of Special Resource Management Zones (SRMZs). There are four established SRMZs within the DFA. Each SRMZ in the province varies in size and is clustered around owl activity centers and are generally about 3200 hectares in size. The goal of management for the spotted owl is to stabilize and, if possible increase, populations in BC by maintaining suitable habitat. The primary goal of SRMZs is to integrate spotted owl management and forest management taking environmental, social, and economical concerns into account. To achieve this goal, minimum amounts of suitable owl habitat will be maintained over the long-term within each SRMZ. This will help stabilise the owl population while being able to apply silviculture and harvesting systems that will create, enhance and maintain owl habitat. This strategy is designed to provide short- and long-term forestry employment and timber supply.

Pacific Water Shrew

The Pacific Water Shrew is Red listed in British Columbia. Within BC, the Pacific Water Shrew is restricted to the extreme southwest corner, occupying the Lower Fraser Valley at elevations less than 850 meters. It has been observed as far east as the Chilliwack River and Agassiz and as far north as the north shore of Burrard Inlet. The area currently mapped as potential Habitat includes portions of the DFA near Pitt Lake, West Harrison, Hatzic and Hope operating areas.

While there is limited information on this species, it appears to prefer moist, coastal forests of various ages that have high canopy closure, border slow moving streams or skunk cabbage marshes with an abundance of shrubs and coarse woody debris. Most water shrews are found within 25 to 50 meters from suitable streams.

Higher level management for this species is targeted towards protecting areas or special resource management zones such as Wildlife Habitat Areas created for other species overlapping in distribution with the Pacific Water Shrew (i.e., Spotted Owl, tall bugbane, Coastal Giant Salamander). This level of planning is currently ongoing. Site level management is focused on maintaining high retention within the management zone of suitable streams to promote understorey vegetation (shrubs and herbs) and multilayered forest canopies, and maintaining coarse woody debris.

Red Listed Plant Communities

The Conservation Data Centre (CDC) lists a number of natural plant communities that have been placed on the provincial ‘red list’ out of concern that they may be threatened with extirpation or extinction. Red Listed Plant Communities are managed at the planning stage where they are found to exist within and adjacent to proposed harvest areas.



Genetic Diversity

The majority of harvested areas within the DFA are planted. The Ministry of Forests, Tree Improvement Branch oversees the development and implementation of regulations, guidelines, policies and standards to ensure that tree seed used for Crown land reforestation is locally adapted and contains sufficient genetic diversity. These requirements are based on extensive research in both applied and theoretical conservation biology. For more information visit: <http://www.for.gov.bc.ca/hti/treeseed/genetic.htm>

Site of Special Biological Significance

Wildlife Habitat Features or other sites of biological significance have not been formerly identified within the DFA.



General Guidelines for Choosing Local Values, Objectives, Indicators and Targets

The following is a summary of the CCFM Criteria and CSA Elements, which will serve as a starting point for organizing the DFA values and objectives. Where local level values and objectives do not fit into CSA Elements, new elements may be developed.

CCFM SFM Criteria 1: Biological Diversity

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

CSA SFM Element 1.1 Ecosystem Diversity

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

CSA SFM Element 1.2 Species Diversity

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

CSA SFM Element 1.3 Genetic Diversity

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

CSA SFM Element 1.4 Protected Areas and Sites of Special Biological Significance

Respect protected areas within the DFA and implement management strategies appropriate to their long term maintenance.



Canadian Council of Forest Ministers Indicators

Ecosystem Diversity Indicators

- 1.1.1 Percentage and extent, in area, of forest types relative to historical condition and to total forest area
- 1.1.2 Percentage and extent of area by forest type and age class (ref. 2.2.1)
- 1.1.3 Area, percentage and representativeness of forest types in protected areas
- 1.1.4 Level of fragmentation and connectedness of forest ecosystem components

Species diversity Indicators

- 1.2.1 Number of known forest-dependent species classified as extinct, threatened, endangered, rare or vulnerable relative to total number of known forest-dependent species
- 1.2.2 Population levels and changes over time of selected species and species guilds
- 1.2.3 Number of known forest-dependent species that occupy only a small portion of their former range

Genetic Diversity Indicators

- 1.3.1 Implementation of an in situ/ex situ genetic conservation strategy for commercial and endangered forest vegetation species

As defined by the Canadian Biodiversity Strategy (Federal-Provincial-Territorial Biodiversity Working Group. 1994. Draft Canadian Biodiversity Strategy for Discussion. Biodiversity Convention Office, Hull, Quebec. 69 p.) and as established by Categories I - VI of the IUCN Guidelines (IUCN Commission on National Parks and Protected Areas with the assistance of the World Monitoring Centre. IUCN - The World Conservation Union, Gland, Switzerland. x + 261 pp.)



Example Indicators - Other Forest Companies/Operations

CCFM Criterion 1 – Biological Diversity

CSA SFM Element 1.1 Ecosystem Diversity					
Company	Operation	Value	Objective	Indicator	Target
Teal Cedar Products Ltd. (Teal Jones Group)	Southwest Island Timberlands	Variety & patterns of ecosystems and ecosystem processes at landscape level	Maintain representative ecosystems across the landscape	Old Growth representation	Meet Old growth Management Area representation by landscape unit as defined in the draft Landscape Unit Plan for Caycuse, Gordon, Nitinat, San Juan, and Walbran Landscape Units. Minimum: CWH 9% MH 3%
	(TFL 46, TL T0910 and FL A52027)			Stand level retention for each cutblock as a percent of the harvest area (Wildlife Tree Patch)	



CSA SFM Element 1.1 Ecosystem Diversity					
Company	Operation	Value	Objective	Indicator	Target
Teal Cedar Products Ltd. (Teal Jones Group)	Southwest Island Timberlands (TFL 46, TL T0910 and FL A52027)	Variety & patterns of ecosystems and ecosystem processes at landscape level	Structural Diversity at stand level	Component of Coarse Woody Debris	Complete a strategy for management of coarse woody debris by December 2006
Weyerhaeuser	West Island Timberlands	Variety & patterns of ecosystem types at landscape level	Maintain representative ecosystems across the landscape	Percent of commercial tree species in the Defined Forest Area (DFA) compared to historic baseline	Move toward historic baseline for all commercial tree species, within +/- 8% of the total Variance +/-15% Forecast +/-10%
		Variety & patterns of ecosystem types at landscape level	Maintain representative ecosystems across the landscape	Percent of the productive DFA that has >30% of areas in 0-20year age class in a given landscape unit	Less than 2% of the total productive areas Variance +/- 2% Forecast zero



CSA SFM Element 1.1 Ecosystem Diversity					
Company	Operation	Value	Objective	Indicator	Target
Weyerhaeuser	West Island Timberlands	Variety & patterns of ecosystem types at landscape level	Maintain representative ecosystems across the landscape	A spatial modeling of old seral stages (old growth) at the landscape and variant level.	Provide a spatial modeling of old seral stages at the landscape and variant level, for 300 years in 10 year increments (benchmark).
Weyerhaeuser	West Island Timberlands	Variety & patterns of ecosystem types at landscape level	Maintain representative ecosystems across the landscape	Number of units (as defined below) where inadequate old growth (as defined below) exists: <i>A unit is: Variant within a landscape unit within the DFA that is greater than 250 Hectares.</i> <i>Inadequate is defined as: the provincial guidelines</i>	Do not increase the number of units where inadequate old growth exists
		Variety & patterns of ecosystem types at landscape level	Maintain representative ecosystems across the landscape	Number of opportunities for WIWAG to participate in the West Island Timberlands (WIT) Old Growth Management Area (OMGA) planning process	Invitations are extended to WIWAG for 100% of Landscape Unit planning meetings.
		Variety & patterns of ecosystem types at landscape level	Harvest activities reflect natural landscape patterns	Percent of area harvested using Variable Retention (VR)	Year 2003-2005: 80% VR by area



CSA SFM Element 1.1 Ecosystem Diversity					
Company	Operation	Value	Objective	Indicator	Target
Weyerhaeuser	West Island Timberlands	Variety & patterns of ecosystem types at landscape level	Harvest activities reflect natural landscape patterns	Number of units (as defined below) where inadequate old growth (as defined below) exists: <i>A unit is:</i> Variant within a landscape unit within the DFA that is greater than 250 Hectares <i>Inadequate is defined as:</i> the provincial guidelines	Do not increase the number of units where inadequate old growth exists
		Connectivity & fragmentation	Forest connectivity is maintained (in order to protect genetic & species migration & relationships throughout the landscape unit)	FENs	Maintain the FEN in each LU until such time as the LU planning process has identified OGMA's
		Stand level diversity	Structural diversity is maintained at the stand level	Stand level retention in all cutblocks as percent of total cutblock area	≥ 15% in 2003-2005
Western Forest Products Inc.	North Vancouver Island Region	Natural processes and variability (includes cultural)	Maintain diversity of habitats across the landscape through time	Seral Stage distribution (on a 5 year basis)	Report Seral Stage status every 5 years



CSA SFM Element 1.1 Ecosystem Diversity					
Company	Operation	Value	Objective	Indicator	Target
Western Forest Products Inc.	North Vancouver Island Region	Natural processes and variability (includes cultural)	Maintain diversity of habitats across the landscape through time	Patch size distribution (on a 5 year basis)	Consider the recommended range of harvest patch sizes, as per Bio-diversity Guidebook and Chief Forester direction
		Natural processes and variability (includes cultural)	Maintain diversity of habitats across the landscape through time	Annual ha's attributed to stand and landscape level retention initiatives (by classification) vs. ha's harvested	10% of area harvested as WTP, report other retention
Canadian Forest Products Ltd.	Englewood Division	A diverse landscape	Manage forests to conserve ecosystem diversity throughout	Percent cover old growth by Landscape Unit (LU) and Biogeoclimatic Ecosystem Classification (BEC) variant	Submit for government review, old growth management areas (OGMA's) ($\pm 10\%$ of targets outlined in Table 5) by LU and BEC variant by March 31, 2003
Canadian Forest Products Ltd.	Englewood Division	A diverse landscape	Manage forests to conserve ecosystem diversity throughout	Seral stage representation by LU and BEC variant	Achieve seral stage representation objectives ($\pm 10\%$) by LU and BEC variant as detailed in the SFM plan, within three rotations, with focus on old seral until January 2004. Review every 5 years



CSA SFM Element 1.1 Ecosystem Diversity					
Company	Operation	Value	Objective	Indicator	Target
Canadian Forest Products Ltd.	Englewood Division	A diverse landscape	ecosystem diversity throughout	representation by LU and BEC variant	percentages ($\pm 5\%$) of the OGMA objective as forest interior habitat by LU and BEC sub-zone (see Table 8 for specific details), by January 1, 2005. Review amount of interior growth forest habitat every 5 years
		A diverse landscape	Manage forests to conserve	OGMA forest interior	Maintain variable
		A diverse landscape	Manage forests to conserve ecosystem diversity throughout	Patch size representation by LU and BEC zone	Maintain variable percentages of the forest that is ≤ 20 yrs old in variable patch sizes by LU. Review every 5 years
Canadian Forest Products Ltd.	Englewood Division	A diverse landscape	Manage forests to conserve ecosystem diversity throughout	Percent wildlife tree retention by LU and BEC sub-zone	Maintain variable percentages of the Harvest Area ($\geq 5\%$) as representative wildlife tree areas by LU and BEC sub-zone (as defined in the SFM plan, Table 10)



CSA SFM Element 1.1 Ecosystem Diversity					
Company	Operation	Value	Objective	Indicator	Target
Canadian Forest Products Ltd.	Englewood Division	A diverse landscape	Manage forests to conserve ecosystem diversity throughout	Percent forest influence by ecosystem management unit	Achieve forest influence objectives detailed in the SFM plan, by ecosystem management unit. Objectives will be met over a 5 year period on 90% (\geq -5%) of the total area under prescription by ecosystem management unit. Monitor annually after the implementation date of January 1, 2006.
Canadian Forest Products Ltd.	Englewood Division	A diverse landscape	Manage forests to conserve ecosystem diversity throughout	Number of individual trees per hectare retained by ecosystem management unit	Achieve objectives for number of individual trees per ha as detailed in the SFM plan, by ecosystem management unit. Objectives will be met over a 5 year period on \geq 90% (\geq -5%) of the total area under prescription by ecosystem management unit. Monitor annually after the implementation date of January 1, 2006



CSA SFM Element 1.1 Ecosystem Diversity					
Company	Operation	Value	Objective	Indicator	Target
Canadian Forest Products Ltd.	Englewood Division	A diverse landscape	Manage forests to conserve ecosystem diversity throughout	Percent wildlife tree patch requirement that is an internal retention patch by ecosystem management unit	Achieve objectives for internal retention patch percent as detailed in the SFM plan, by ecosystem management unit. Objectives will be met over a 5 year period on $\geq 90\%$ ($\geq 5\%$) of the total area under prescription by ecosystem management unit. Monitor annually after the implementation date of January 1, 2006

CCFM Criterion 1 – Biological Diversity

CSA SFM Element 1.2 Species Diversity					
Company	Operation	Value	Objective	Indicator	Target
Teal Cedar Products Ltd. (Teal Jones Group)	Southwest Island Timberlands	Species at risk	Maintain/ enhance habitat needs for threatened or endangered species	Conformance with Wildlife Habitat Area (WHA) orders and objectives	Full conformance with Wildlife Habitat Area (WHA) orders and objectives
	(TFL 46, TL T0910 and FL A52027)	At-risk species	Manage activities to support survival and success of species at risk	Conformance with Integrated Wildlife Management Strategies	Full conformance with Integrated Wildlife Management Strategies



CSA SFM Element 1.2 Species Diversity					
Company	Operation	Value	Objective	Indicator	Target
Teal Cedar Products Ltd. (Teal Jones Group)	Southwest Island Timberlands (TFL 46, TL T0910 and FL A52027)	Critical Habitat features for special interest species	Maintain Roosevelt Elk and black tailed deer critical habitat	Area within TFL 46 managed for Roosevelt Elk and black tailed deer winter range	Minimum of 1129.6 ha of the Timber Harvest Land Base managed as Ungulate Winter Range
		Identified species of special interest	Maintain existing and potential bear dens	Number of bear dens found during field work that are protected	Retain 100% 'high value' and 80% 'moderate value' bear dens as rated on the Bear Den protection key
		Cedar/ Cypress	Maintain Cedar/ Cypress population within TFL 46 for cultural, ecological and economic purposes.	Total cedar/ cypress trees planted by species	Average cedar/ cypress planted is minimum 205 of total trees planted over a 5 year rolling average.
		Wildlife	Minimize risk to wildlife	Public Access	Public has full access to TFL (open gate policy)
Teal Cedar Products Ltd. (Teal Jones Group)	Southwest Island Timberlands (TFL 46, TL T0910 and FL A52027)	Native flora and fauna	Maintain natural diversity of native flora and fauna	Sites with significant presence of invasive plant species	Complete a strategy for management of invasive species by December 2006
				Presence of hardwoods in stands	Complete a strategy for management of hardwoods by December 2006



CSA SFM Element 1.2 Species Diversity					
Company	Operation	Value	Objective	Indicator	Target
Weyerhaeuser	West Island Timberlands	At-risk species	At-risk species are identified and their habitat needs are maintained	Number of at-risk species in the DFA for which management programs exist as identified	Support habitat management programs in co-operation with regulatory agencies and others
			Populations of species are not put at risk as a result of forest management activities	Number of identified species at-risk in the DFA	Zero increase in at-risk status attributable to management activities
			Populations of species are not put at risk as a result of forest management activities	Sensitive Ecosystem Inventory (SEI)	Incorporate the SEI into the planning process
		Identified species of special interest	Identified species of special interest & localized populations are inventoried and strategies for their habitat needs are in effect	Existence of a habitat management program for identified species of special interest (includes a list)	Support habitat management programs in co-operation with regulatory agencies and others
Western Forest Products Inc.	North Vancouver Island Region	Native flora and fauna	Maintain a diversity of native flora and fauna (numbers of species and populations)	Number of known species classified as threatened or endangered (COSEWIC & CDC)	Prevent forest management activities on the DFA from causing new species being added to the COSEWIC or CDD lists
	North		Maintain a diversity of native flora and fauna (numbers of species and populations)	Annual ha's attributed to stand and landscape level retention initiatives (by classification) vs. ha's harvested	Annual ha's attributed to stand and landscape level retention initiatives (by classification) vs. ha's harvested



CSA SFM Element 1.2 Species Diversity					
Company	Operation	Value	Objective	Indicator	Target
Western Forest Products Inc.	Vancouver Island Region		Maintain a diversity of native flora and fauna (numbers of species and populations)	Total Trees planted by Species	Report annual number of trees planted by species
Canadian Forest Products Ltd.	Englewood Division	A diversity of native species within DFA	Provide a diversity of habitats to sustain a natural diversity of native species	Seral stage representation by LU and BEC variant	Achieve seral stage representation objectives ($\pm 10\%$) by LU and BEC variant as detailed in the SFM plan, within three rotations, with focus on old seral until January 2004. Review every 5 years
			Provide a diversity of habitats to sustain a natural diversity of native species	Area in LU and BEC variant managed for black bear habitat	Identify and manage areas of high and moderately high suitability for black bear denning habitat and seasonal foraging habitat, by March 31, 2003
Canadian Forest Products Ltd.	Englewood Division	A diversity of native species within DFA	Provide a diversity of habitats to sustain a natural diversity of native species	Area in DFA managed for black-tailed deer and Roosevelt elk critical winter range	Maintain $\geq 6,000$ ha as winter range for ungulates. Develop a strategy by July 1, 2001.



CSA SFM Element 1.2 Species Diversity					
Company	Operation	Value	Objective	Indicator	Target
Canadian Forest Products Ltd.	Englewood Division	A diversity of native species within DFA	Maintain a habitat supply for Identified Wildlife species currently in the DFA	Area in DFA managed for Queen Charlotte goshawk	Submit for government approval, ≥ 100 ha Wildlife Habitat Areas within each of the following goshawk territories by March 31, 2002: Loon, Toad, Rona, Claude Elliot, Lukwa, John Road, Klaklakama and Vernon. Prepare Queen Charlotte goshawk adaptive management strategy by March 31, 2002. Identify and manage areas of high and moderately high suitability for Queen Charlotte goshawk nesting habitat, by March 31, 2003.
			Maintain a habitat supply for Identified Wildlife species currently in the DFA	Area in DFA managed for Keen's Long-eared myotis	Establish a management area around Keen's long-eared myotis hibernacula and maternity sites within 1 month of discovery
Canadian Forest Products Ltd.	Englewood Division	A diversity of native species within DFA	Maintain a habitat supply for Identified Wildlife species currently in the DFA	Percent of area in LU managed for Marbled Murrelet	Maintain $\geq 10\%$ of original suitable Marbled Murrelet habitat by LU. Develop strategy by December 2004.



CSA SFM Element 1.2 Species Diversity					
Company	Operation	Value	Objective	Indicator	Target
Canadian Forest Products Ltd.	Englewood Division	A diversity of native species within DFA	Maintain native tree species diversity at the landscape level	Percent of cutblocks regenerated with more than one ecologically suited tree species, as indicated on free growing surveys	100% (-10%) of harvested areas regenerated with more than one ecologically suited tree species, as indicated on inventory labels on annual free growing surveys.
			Minimize potential negative effects of resource development on aquatic habitat	Percent of harvested areas adjacent to streams, lakes and/or wetlands that have riparian management areas that are suited to protection of the associated aquatic habitat.	100% of cutblocks adjacent to streams, lakes and/or wetlands must meet or exceed regulatory requirements for riparian management unless the District Manager approves a variance.
			Maintain native botanical forest species	Percent cover old growth by Landscape Unit (LU) and Biogeoclimatic Ecosystem Classification (BEC) variant	Submit for government review, old growth management areas (OGMA's) ($\pm 10\%$ of targets outlined in Table 5) by LU and BEC variant by March 31, 2003



CSA SFM Element 1.2 Species Diversity					
Company	Operation	Value	Objective	Indicator	Target
Canadian Forest Products Ltd.	Englewood Division	A diversity of native species within DFA	Maintain native botanical forest species	Seral stage representation by LU and BEC variant	Achieve seral stage representation objectives ($\pm 10\%$) by LU and BEC variant as detailed in the SFM plan, within three rotations, with focus on old seral until January 2004. Review every 5 years

CSA SFM Element 1.3 Genetic Diversity					
Company	Operation	Value	Objective	Indicator	Target
Teal Cedar Products Ltd. (Teal Jones Group)	Southwest Island Timberlands (TFL 46, TL T0910 and FL A52027)	Genetically diverse species	Maintain genetic diversity of native species	Percent of seed used for reforestation registered according to the Chief Forester's Standards for Seed Use	100% of the seed used for reforestation registered according to the Chief Forester's Standards for Seed Use
Weyerhaeuser	West Island Timberlands	THIS IS MANAGED THROUGH 1.1 AND 1.2 VALUES AND GOALS.			



CSA SFM Element 1.3 Genetic Diversity					
Company	Operation	Value	Objective	Indicator	Target
Western Forest Products Inc.	North Vancouver Island Region	Genetically diverse species	Maintain genetic diversity of native species	Number of ha's in natural regeneration	150 ha
		Genetically diverse species	Maintain genetic diversity of native species	Seral Stage distribution (on a 5 year basis) across the DFA	Seral Stage distribution (on a 5 year basis) across the DFA
Canadian Forest Products Ltd.	Englewood Division	Genetically diverse commercial tree species	Conserve genetic diversity of commercial tree species at the landscape level	Percent cover old growth by Landscape Unit (LU) and Biogeoclimatic Ecosystem Classification (BEC) variant	Submit for government review, old growth management areas (OGMA's) ($\pm 10\%$ of targets outlined in Table 5) by LU and BEC variant by March 31, 2003
		Genetically diverse commercial tree species	Conserve genetic diversity of commercial tree species at the landscape level	Percent of Ministry of Forests (MOF) registered seed used	100% of the seed and seed sources used for reforestation must be MOF registered



CSA SFM Element 1.4 Protected Areas and Sites of Special Biological Significance					
Company	Operation	Value	Objective	Indicator	Target
Teal Cedar Products Ltd. (Teal Jones Group)	Southwest Island Timberlands (TFL 46, TL T0910 and FL A52027)	Rare or unique biological features such as karst topography, caves, mineral licks, etc.	Manage rare or unique sites of ecological, geological, historical or cultural importance in a manner that recognizes their special qualities	Protection of sites of special significance	Complete a strategy for management of sites of special significance by December 2006
Western Forest Products Inc.	North Vancouver Island Region	Parks and Protected Areas	PAS objective	Protected areas strategy (Government Process)	Protected Areas in and around the DFA 80,000ha
Canadian Forest Products Ltd.	Englewood Division	Diverse Ecosystems	Rare ecosystems, conservation values, and ecosystem representation	Sites of Special Significance (SSS)	Complete a strategy for SSS by 2006