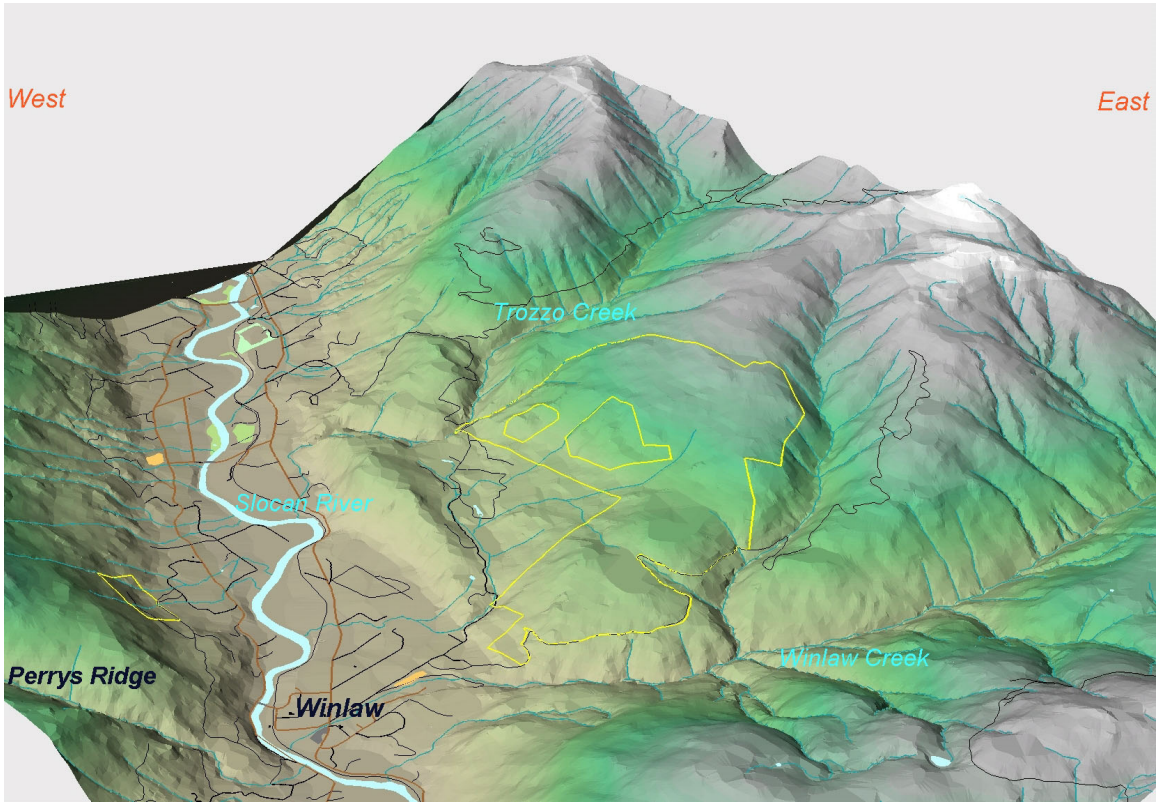
WOODLOT LICENCE # W1832



WOODLOT LICENCE PLAN

First Term

2006 to 2015

WOODLOT LICENCE # W1832

WOODLOT LICENCE PLAN

First Term

2006 to 2015

Winlaw Creek Woodlot Ltd.
Box 24
Winlaw, B.C. V0G 2J0

E-mail: info@winlawwoodlot.ca
Phone: **(250) 226-7792** Fax: **(250) 226-7159**

Authorized Licensee Signature: **Tom Bradley, RFT**

Date

DISCLAIMER

- Recognizing the special nature of management on a woodlot licence, this disclaimer forms part of the Woodlot Licence Plan (WLP) for Woodlot Licence Number W1832 and advises that:
    - the decision to operate under one or more of the Default Performance Requirements (DPR) provided in the Woodlot Licence Planning and Practices Regulation (WLPPR) is the sole responsibility of the woodlot licence holder, and involved no detailed oversight or advice from the prescribing registered professional forester. This disclaimer is signed on the explicit understanding and information provided by government that, the use and achievement of a Default Performance Requirement, meets the expectations of government with respect to the management of woodlot licences;
    - the undersigned Registered Professional Forester has been retained to provide advice on the practice of professional forestry with regard to items such as alternative performance requirements, applicable results and strategies and other required measures that do not have a default performance requirement provided in the WLPPR.

Signed _____

Name Brent Petrick, RPF

RPF # 2659 Contact phone number (250) 359-2209

Email: bpetric@telus.net Seal:

TABLE OF CONTENTS

I. MANDATORY CONTENT FOR A WOODLOT LICENCE PLAN (WLP)

INTRODUCTION

Woodlot Licence W1832 is located just east of the unincorporated settlement of Winlaw, British Columbia. The Licence was granted in 2000, and is held by Winlaw Creek Woodlot Ltd. The principles in Winlaw Creek Woodlot Ltd. are Bernie Clover, Tom Bradley and Breakaway Enterprises Ltd.

W1832 encompasses 598 ha of Crown land in the Trozzo, Dumont and Winlaw Creek watersheds east of Winlaw and 21 ha of private land on lower Perry's Ridge, in the Dunn Creek watershed. W1832 lies within the Arrow Boundary Forest District, in the Southern Interior Forest Region.

The management objective for Woodlot Licence W1832 is to manage the timber resources of the woodlot on a sustained yield basis following the principles of ecosystem management, while simultaneously maintaining or enhancing the non-timber uses, functions and products of the forest ecosystems of the woodlot.

Approximately 30% of the standing timber volume in W1832 is lodgepole pine, much of which is impacted by a mountain pine beetle epidemic. Salvage harvesting of beetle infested pine stands is ongoing in the woodlot, and will likely result in harvest levels above the sustainable long term harvest level for the next several years. The Allowable Annual Cut of W1832 will be reviewed in 5 to 10 years when beetle populations decline and salvage harvesting is completed, and adjusted as necessary to reflect the stand profile on the woodlot at that time.

This Woodlot Licence Plan establishes the legal framework under which W1832 will be managed in the next decade. The management of W1832 and the contents of this Woodlot Licence Plan are governed by the *Woodlot Licence Planning And Practices Regulation* *(B.C. Reg. 21/2004, effective January 31, 2004, Consolidated to March 18, 2005, including B.C. Reg. 106/2005 amendments)*. This Woodlot Licence Plan also conforms to Section 13 of the *Forest And Range Practices Act SBC 2002* *(c. 69 Consolidated to March 31, 2005 including 2004 Bill 25 B.C. Reg. 38/2005).*

PLAN AREA

⊗ This plan covers the entire area of the Woodlot Licence.

○ This plan covers a portion of the Woodlot Licence area.

MAP AND INFORMATION

A Woodlot Licence Plan Map is contained in Appendix 1. This map forms part of the legal content of this Woodlot Licence Plan.

AREAS WHERE TIMBER HARVESTING WILL BE AVOIDED

Timber harvesting will be avoided in the following areas:

- Terrain Stability Class V Areas
- Areas with Very High Potential for Sediment Delivery from Surface Erosion Sources to Watercourse

The location of these areas is shown on the Woodlot Plan Map.

Timber harvesting will be avoided in Terrain Stability Class V Areas and in Areas with Very High Potential for Sediment Delivery from Surface Erosion Sources to Watercourse to mitigate the risk of slope failure and delivery of sediment to watercourses. Field inspections by qualified terrain specialists may result in revision of these terrain classifications over the term of this Woodlot Licence Plan. These areas will also help to maintain biodiversity and wildlife habitat.

AREAS WHERE TIMBER HARVESTING WILL BE MODIFIED

Timber harvesting will be modified in the following areas:

- Wildlife tree patches
- Riparian Reserve Zones
- Riparian Management Zones
- Steep Terrain with Shallow Soils
- W1832 Ungulate Range Management Area
- Terrain Stability Class IV Areas
- KBLUP-IS Ungulate Winter Range
- KBLUP-IS Front Country Visual Zone Class 1

The location of these areas is shown on the Woodlot Plan Map.

Wildlife Tree Patches

Timber harvesting will be modified in Wildlife Tree Patches (WTP) to maintain biodiversity and wildlife habitat.

Timber harvesting will not be carried out in WTP except in the situations identified in Section 39 of the Woodlot Licence Planning and Practices Act.

Riparian Reserve Zones

Timber harvesting will be modified in Riparian Reserve Zones (RRZ) to maintain watercourse and streambank integrity, to maintain a long term source of large organic debris for water features, and to maintain biodiversity and wildlife habitat.

Timber harvesting will not be carried out in RRZ except in the situations identified in Section 39 of the Woodlot Licence Planning and Practices Act.

Riparian Management Zones

A minimum of 50% of the live stem basal area will be retained in riparian management zones (RMZ) following harvesting to manage riparian values. Retained live trees will be distributed throughout the RMZ, and will be representative of the pre-harvest species composition, size distribution, and stem form of live trees in the RMZ, except for small diameter stems that have a high risk of windthrow or snow press damage after harvest. Small diameter stems that have a high risk of windthrow or snow press damage after harvest will generally be harvested.

Steep Terrain with Shallow Soils

Initial forest cover mapping for W1832 was prepared by W1832 staff in 1999 from air photo interpretation, with reconnaissance level field verification. The forest cover mapping classified a number of areas as having steep slopes and/or shallow soils over bedrock, and thus not suited for timber management. Subsequent field inspection has shown that some of these areas are not as ecologically limited as initially interpreted, and are in fact suited for timber management.

Thus, the extent of areas currently identified as steep slopes and/or shallow soils over bedrock that are actually not suited for timber management cannot be determined at this level of planning.

Potential harvest areas within Steep Terrain with Shallow Soils areas will be assessed in the field to ensure that area that are harvested are suitable for timber management. Areas classified as ecologically limited and unsuited for timber management by a field based assessment will not be harvested.

W1832 Ungulate Range Management Area

The Management Plan for W1832 sets the objective of harvesting 20% of the net mean annual increment of timber in productive forest areas within the W1832 Ungulate Range Management Area. The biodiversity objective for this area is to maintain late winter and spring range for ungulates. Within the productive forest landbase in the Ungulate Range Area, we believe that these objectives can best be achieved by managing to create open, large diameter, fire resistant coniferous forests that contain old growth features and that are well suited to a Natural Disturbance Type 4 ecosystem.

Harvest pattern will be periodic thinning from below in intermediate cuts. Dispersed single stem harvesting or small group harvesting may be used. Priority harvest species will be lodgepole pine.

The harvest volume and harvest profile required to meet the management objectives will be determined at the site plan level of planning for each stand entry.

Terrain Stability Class IV Areas

Survey Intensity Level B Terrain Mapping for W1832 was prepared by Klohn Crippen Consultants Ltd. in 1998. Areas identified as Terrain Stability Class IV (Class IV) in this mapping project are described as follows by the authors:

Expected to contain areas where there is a moderate to high likelihood of slope failures following conventional road building. ...A field inspection of these areas should be made by a qualified terrain specialist prior to any development in order to assess in detail the stability of the affected area.

Thus, the extent of areas within Class IV polygons that are not suited for road construction and/or timber harvesting cannot be determined at this level of planning.

Potential roads and/or potential harvest areas within Class IV areas will be assessed by a qualified terrain specialist prior to any development in order to assess in detail the stability of the affected area. Directives from the terrain specialist to mitigate risks from road construction or harvesting, or to cancel construction or harvesting, will be followed.

Class IV areas classified as unstable by a field based assessment will not be harvested. Class IV areas classified as stable by a field based assessment will be harvested using standard methods, subject to the other constraints outlined in this Woodlot Licence Plan.

KBLUP-IS Ungulate Winter Range

Portions of W1832 lie within areas identified as Ungulate Winter Range (UWR) in the Kootenay Boundary Land Use Plan Implementation Strategy (KBLUP-IS), in the Interior Cedar Hemlock dry-warm (ICHdw) biogeoclimatic zone.

The Arrow Boundary Forest District has set the following UWR management targets for these areas:

- A minimum of 30% of forested area in a management unit should function as snow interception cover at any time. Snow interception cover should be located adjacent to or in close proximity to areas with ample forage species.
- No more than 40% of a management unit be in an early seral stage (i.e., stands < 21 years in age) at any given time.

Snow interception cover will be defined per the instructions of the Arrow Boundary Forest District, which are contained in Appendix 2.

KBLUP-IS Front Country Visual Zone Class 1

The portions of W1832 that are visible from Highway 6 are subject to the KBLUP-IS *Front Country Visual Management Guidelines* for Class 1 Visual Areas. The Guidelines specify:

For the purposes of the following, Foreground refers to landscape up to one kilometer away, Midground refers to landscape between one and five kilometers away, and Background refers to landscapes between five and twelve kilometers away.

In most visible foreground areas and in important or prominent midground areas, disturbance may be discernible but should not be evident in the landscape.

In less important or prominent foreground areas, most midground areas, and important or prominent background areas, visible disturbance should remain subordinate in the landscape.

In most background areas and less important midground areas, landscape alterations may be visually apparent, but should be designed to blend into the landscape in form and colour.

The visual management strategy will be to retain live, windfirm stems in harvested areas to mitigate the visual impact of harvesting. The target minimum retention level for visual management purposes is 20% of basal pre-harvest basal area, spatially well distributed. Leave tree selection will be skewed towards large, healthy stems of species well suited to post harvest site conditions.

W1832 contains extensive lodgepole pine leading species forest types that are infested with epidemic mountain pine beetle populations. Retained trees within pine types will be selected from the population of non-pine species in the harvest area. The target minimum retention level for visual management purposes is 20% of pre-epidemic basal area, spatially well distributed. However, this target will not be achievable in locations where lodgepole pine, ponderosa pine, and/or white pine make up more than 80% of stand basal area. In such cases, as many live, windfirm stems of non-pine species as possible will be retained, subject to operational and safety constraints.

PROTECTING AND CONSERVING CULTURAL HERITAGE RESOURCES

WLPPR Section 9(1)(d) directs that:

> *The plan must contain results or strategies that will be implemented to conserve and protect cultural heritage resources that are the focus of a traditional use by an aboriginal people and of continuing importance to them.*

At this time, there are no known features or areas in W1832 that are the focus of a traditional use by an aboriginal people and of continuing importance to them.

If in the future a First Nation identifies cultural or heritage resources within W1832, the Licencee will consult with the First Nation with the goal of ensuring that forestry activities on W1832 conserve or protect the cultural heritage resource.

Potential strategies to conserve or protect identified cultural heritage resources include, but are not limited to:

- Using partial cutting harvesting approaches to maintain representative forest cover in appropriate densities on harvested sites around cultural heritage resources.
- No harvesting zones around specific cultural heritage resource features.
- Aggressive harvesting to reduce forest density on dry, Natural Disturbance Type 4 sites.

WILDLIFE TREE RETENTION STRATEGY

The wildlife tree retention strategy follows the Woodlot Licence W1832 *Comprehensive Plan for Wildlife Tree Retention (Revised October 2005)* (CP4WTR) found in Appendix 3. Relevant information from the plan is summarized below.

W1832 is currently impacted by a mountain pine beetle epidemic. The CP4WTR will be reviewed in 5 to 10 years when the beetle populations decline and salvage harvesting is

completed, and modified if necessary to ensure that wildlife tree retention goals will be met.

INDIVIDUAL WILDLIFE TREES

Species and Characteristics:

The main species of wildlife trees on W1832 will be Douglas-fir, larch, ponderosa pine, white pine, cedar, hemlock, aspen, cottonwood and birch.

Wildlife trees are trees with specific features or groups of features which make them suitable and desirable for wildlife habitat. Typical features include, but are not limited to:

- large stem diameter,
- large spreading limbs,
- loose, sloughing bark,
- stem cracks and splits,
- decay,
- nesting cavities, and
- mistletoe brooms.

Large, old stems generally provide more and better wildlife habitat features than small or young stems.

Old growth wildlife trees are not common in W1832, but scattered large veteran stems and groups of large old stems do occur. Retention of these ecological structures is important, as is a management plan to replace them over time. Second growth wildlife trees are more common, but are still not abundant.

Conditions Under Which Individual Wildlife Trees May Be Removed:

Individual wildlife trees may be cut, modified or removed for the following purposes:

(a) felling or modifying a tree that is a safety hazard, if there is no other practicable option for addressing the safety hazard;

(b) topping or pruning a tree that is not wind firm;

(c) constructing a stream crossing;

(d) creating a corridor for full suspension yarding;

(e) creating guyline tiebacks;

(f) carrying out a sanitation treatment;

(g) felling or modifying trees that have been windthrown or have been damaged by fire, insects, disease or other causes.

Replacement of Individual Wildlife Trees:

Replacement wildlife trees of similar species and stem form will be designated as close as feasible to the cut or removed wildlife trees.

WILDLIFE TREE RETENTION AREAS

Forest Cover Attributes:

The table below lists the forest cover attributes of the wildlife tree patches (WTP) described in the CP4WTR. Note that the last line in the table body encompasses various small wildlife tree patches that were designated during harvest planning from 2000 to 2004 that are not included in the CP4WTR.

WTP Description	Forest Cover Type	Area (ha)
Open Conifer/Deciduous Forest with Root Disease	FdPy 5405-22, Pl 4307-19	1.4
Large Diameter Riparian Forests	CwFdLw(Se) 8416-25, CwFdLw 5406-23	10.3
Steep Terrain with Dense Cedar Forest	LwCwHw 5307-17	2.7
Large Diameter Pine in Complex Terrain with Wetlands	Pl 5307-25, Np Br	8.1
Deciduous Forest	AtFdPy 3305-27, FdAt 3305-27	7.2
Generic Riparian Forests	Various	11.1
Douglas-fir and Pine Forests on Dry, Shallow Soils	FdPl 5202, FdPl 5204,	27.6
Various WTP Designated During Harvest Planning	AtCwHw 5304-25, CwFd 5404-24, At 5306-22, FdCwLwAt 5307-28, FdCwLwHw 5304-28	5.0
	Total:	73.5

Conditions Under Which Trees May Be Removed from Wildlife Tree Retention Areas:

Trees may be cut, modified or removed from a WTP for the following purposes:

(a) felling or modifying a tree that is a safety hazard, if there is no other practicable option for addressing the safety hazard;

(b) topping or pruning a tree that is not wind firm;

(c) constructing a stream crossing;

(d) creating a corridor for full suspension yarding;

(e) creating guyline tiebacks;

(f) carrying out a sanitation treatment;

(g) felling or modifying trees that have been windthrown or have been damaged by fire, insects, disease or other causes;

(h) felling or modifying trees for the purpose of establishing or maintaining an interpretative forest site, recreation site, recreation facility or recreation trail.

WTP boundaries may be amended if field examination leads to the revision of the stream locations or forest type boundaries used to delineate the WTP's shown on the CP4WTR map.

Replacement of Trees Removed from Wildlife Tree Retention Areas:

If cutting or modification leads to a material adverse impact on a WTP, the adversely impacted area will be removed form the WTP and a forested area with similar terrain, moisture regime, and forest types, located as close as feasible to the adversely impacted area, will be added to the WTP network.

If the individual trees removed from a WTP have high habitat value (such as nest or roost trees), individual replacement wildlife trees may be recruited to replace the lost habitat if similar results cannot be obtained by adding or modifying a WTP.

MEASURES TO PREVENT INTRODUCTION OR SPREAD OF INVASIVE PLANTS

The following strategies will be used to limit the spread of invasive plants in W!832:

- disturbed areas will be seeded as soon as practicable with an appropriate mix of fast growing species of grasses and legumes,
- the undercarriage of harvesting and road construction equipment will be cleaned before it enters the woodlot landbase, and
- direct mechanical control of knapweed infestations along the Winlaw Forest Service Road right of way before seed heads mature to limit seed production and transport.

MEASURES TO MITIGATE EFFECT OF REMOVING NATURAL RANGE BARRIERS

There are no known range barriers, range licences, or livestock grazing activity on W1832.

STOCKING INFORMATION FOR SPECIFIED AREAS

The stocking standards described below apply to areas where harvesting is limited to commercial thinning, removal of individual trees, or a similar type of intermediate cutting, and for harvesting special forest products.

⊗ The Uneven-aged Stocking standards for single-tree selection, as found in the MoF Publication "Reference Guide for FDP Stocking Standards", are adopted for specified areas (Section 12 WLPPR). A copy of these standards is included in Appendix 4.

○ The stocking standards for specified areas are found in the Appendix.

PERFORMANCE REQUIREMENTS

SOIL DISTURBANCE LIMITS

⊗ Default: WLPPR s.24(1)

- 8% of Net Area to be Reforested

◯ Alternative:

PERMANENT ACCESS STRUCTURES

⊗ Default: WLPPR s.25

- the maximum area occupied by permanent access structures is as follows:
  - Cutblocks ≥ 5 ha – 7% of cutblock area
  - Cutblocks < 5 ha – 10% of cutblock area
  - Total Woodlot Area – 7% of Woodlot Licence area

◯ Alternative:

USE OF SEED

⊗ Default: WLPPR s.32

- Adoption of Chief Forester's Standards for Seed Use

◯ Alternative approved by the Chief Forester.

STOCKING STANDARDS

◯ Default: WLPPR s.35(1)

- Adoption of the stocking standards described in the MoF publication "Reference Guide for Forest Development Plan Stocking Standards", as amended from time to time, which are in effect at the time of harvest for each Cutting Permit.

⊗ Option:

- Use of the current stocking standards (as of WLP submission date) described in the MoF publication "Reference Guide for Forest Development Plan Stocking Standards", the pertinent sections (including footnotes) of which are shown in Appendix 5.

◯ Alternative**:**

WIDTH OF STREAM RIPARIAN AREAS

⊗ Default: as specified in Section 36(4) of the WLPPR.

◯ Alternative:

WIDTH OF WETLAND RIPARIAN AREAS

⊗ Default: as specified in Section 37(3) of the WLPPR.

◯ Alternative:

WIDTH OF LAKE RIPARIAN AREAS

⊗ Default: as specified in Section 38(2) of the WLPPR.

◯ Alternative:

RESTRICTIONS IN A RIPARIAN RESERVE ZONE

⊗ Default: WLPPR s.39

- Cutting, modifying or removing trees in a riparian reserve zone is limited to the purposes described in Section 39(1) of the WLPPR.
- Restrictions on constructing a road in a riparian reserve zone are as described in Section 39(2.1).

◯ Alternative:

RESTRICTIONS IN A RIPARIAN MANAGEMENT ZONE

⊗ Default: WLPPR s.40

- Construction of a road in a riparian management zone is limited to the conditions described is Section 40(1) of the WLPPR.
- Restrictions and conditions on road construction, maintenance and deactivation activities, and on cutting, modifying or removing trees in a riparian management zone are as described in Section 40.

◯ Alternative:

WILDLIFE TREE RETENTION

⊗ Default: WLPPR s.52(1)

- The proportion of the Woodlot Licence area that is occupied by wildlife tree retention areas is no less than the least of the following:
  - The proportion specified for the area in a land use objective, or
  - The proportion specified in the WLP, or
  - 8%

◯ Alternative:

COARSE WOODY DEBRIS

⊗ Default: WLPPR s.54(1)

- Area in Interior – minimum retention of 4 logs per ha ≥ 2 m in length and ≥ 7.5 cm in diameter at one end.

◯ Alternative:

RESOURCE FEATURES

⊗ Default: WLPPR s.56(1)

- ensure that forest practices do not damage or render ineffective a resource feature.

◯ Alternative:

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<u>Note:</u> Only the performance requirements in Part 3 (Practice Requirements) of the WLPPR for which an alternative can be proposed are shown in this Woodlot Licence Plan. The remaining performance requirements in Part 3 are not shown, nor are the performance requirements in Part 4 (Roads).

II. SUPPLEMENTAL INFORMATION REQUIRED TO BE SUBMITTED IN SUPPORT OF THE PROPOSED WOODLOT LICENCE PLAN

1. REVIEW AND COMMENT

Advertising

Notice was published in *The Valley Voice*, October 26, 2005 edition.

Winlaw Creek Woodlot – W1832

Proposed Woodlot Licence Plan - Arrow Boundary Forest District

Notice is hereby given that the holders of Woodlot Licence W1832 will hold a public viewing of our proposed 2006 to 2015 Woodlot Licence Plan for Woodlot W1832 on November 3, 2005 at the Spicer Center in Winlaw B.C.

The proposed Woodlot Licence Plan shows the location of areas in W1832 where timber harvesting will be avoided, areas where timber harvesting will be modified, and areas where timber harvesting will proceed as per usual. The Plan also proposes strategies to address wildlife habitat values, and non-pesticide based measures to control the spread of invasive plants. The Plan is available for review by the public before approval is considered by the Ministry of Forests.

The Woodlot Licence Plan will be available for review and comment on November 3, 2005 at the Spicer Center in Winlaw from 4 p.m. to 8 p.m. Representatives from Woodlot Licence W1832 will be available to discuss the proposed Plan.

If any interested parties are unable to review the proposed Plan during these times, arrangements can be made to view the plan at a time convenient for them. For those unable to travel to Winlaw, the plan can also be viewed online at http://www.winlawwoodlot.ca/ .

The licencees may be contacted at:

Winlaw Creek Woodlot info@winlawwoodlot.ca
Box 24
Winlaw, B.C.
V0G 2J0

Concerns and comments about this proposed Woodlot Licence Plan must be provided to the Licensees in writing on or before November 26, 2005.

Five people attended the open house, four of which were Winlaw Watershed Committee members.

Referrals

A complete WLP package consisting of WLP text, WLP map, and all appendices was provided to:

The Winlaw Watershed Committee

(hand delivered, 2 copies)

Ktunaxa Nation Council
7468 Mission Rd.
Cranbrook, BC
V1C 7E5

Attention : Dan Paradis

Lower Similkameen Indian Band
Box 100
Keremeos, B.C. V0X 1N0

Attention : Steve Borcsok

Penticton Indian Band
RR#2 Site 80 Comp 19
Penticton, B.C. V2A 6J7

Attention : Greg Gabriel

Okanagan Nation Alliance
3255-C Shannon Lake Rd.
Westbank, B.C. V4T 1V4

Attention : Pauline Terbasket

Sinixt Nation
GR 16 C2 RR1
Winlaw, B.C. V0G 2J0

Attention : Marilyn James

The cover letter accompanying the WLP in all cases clearly stated the importance of providing written comments, and indicated the date by which written comments had to be received.

Copy of Written Comments Received

One written comment was received from Marilyn Burgoon, who had been forwarded the WLP copy mailed to Marilyn James of the Sinixt.

Date: Wed, 23 Nov 2005 14:45:26 -0800
To: tomb@netidea.com
From: Marilyn Burgoon <mburgoon@netidea.com>
Subject: Woodlot 1832

Further to my telephone conversations I see on your letter dated October 31, 2005 to Sinixt Nation, (Marilyn James forwarded me the letter) that you state that you foresee no operations on Perry's Ridge over the next decade.

Please let me know if this changes

Thank you

Marilyn

Revisions made as a result of Comments Received

No revisions to the WLP were made as a result of the comment received. The following reply was sent:

Dear Marilyn:

We have no plans to operate in the Perry's Ridge portion of W1832 in the next ten years.

We might go there if Douglas-fir beetles, fire, or another factor killed a significant number of trees and we decided to salvage any portion of the dead timber that was on stable, operable ground.

We are not aware of any "forest health" issues in that portion of the woodlot at this time, so we do not expect salvage logging to occur. However, we need to be clear that our plans are subject to change in response to natural disturbance events.

2. EFFORTS MADE TO MEET WITH FIRST NATIONS

On October 31, 2005 a complete WLP package consisting of WLP text, WLP map, and all appendices was mailed to:

Sinixt Nation
GR 16 C2 RR1
Winlaw, B.C. V0G 2J0

Attention : Marilyn James

Ktunaxa Nation Council
7468 Mission Rd.
Cranbrook, BC
V1C 7E5

Attention : Dan Paradis

Lower Similkameen Indian Band
Box 100
Keremeos, B.C. V0X 1N0

Attention : Steve Borcsok

Penticton Indian Band
RR#2 Site 80 Comp 19
Penticton, B.C. V2A 6J7

Attention : Greg Gabriel

Okanagan Nation Alliance
3255-C Shannon Lake Rd.
Westbank, B.C. V4T 1V4

Attention : Pauline Terbasket

The cover letter accompanying the WLP in all cases contained the following statements:

> We seek consultation with the (First Nation Group) to identify cultural and heritage resources within W1832. I have enclosed a copy of the proposed WLP package.

The advertisement for the public review of this proposed Woodlot Licence Plan appeared on October 27th, and the deadline for written comments to be received is November 26th. Note that written comments are the most effective, as they are included in the official record of the planning process, and must be addressed by us, the proponent.

If you wish to have a meeting to discuss traditional uses and/or cultural and heritage resources on the woodlot landbase, I will be happy to accommodate.

If there are any questions, please contact me by email at tomb@netidea.com or by phone at (250) 226-7792.

Follow up calls were made on November 18, 2005 to remind First Nations of the WLP process and the deadline for written comments.

- Pauline Terbasket of the Okanagan Nation Alliance stated that this process did not constitute meaningful consultation as the Okanagan Nation Alliance does not have the capacity to meaningfully respond. She wished to be on record that the Government must provide funding that will enable First Nations to meaningfully address Licencee referrals to have an appropriate process.

  No meeting was desired, and no written comments were received.

- Dan Paradis of the Ktunaxa Nation Council was not available. A phone message was left reminding him of the WLP, inquiring about a meeting, and noting the deadline for written comments.

  No response was received.

- Steve Borcsok, representing the Lower Similkameen Indian Band, reviewed the contents of the WLP during our telephone conversation. He wanted to know if we had completed any archaeological or cultural use surveys.

  With regard to cultural use, we relayed that no specific surveys have been completed, but we believe that the low elevation, dry slopes in the south west corner of W1832 would have been managed and used for game production by First Nations prior to European settlement. We also feel that the very intense 1912 forest fore would have altered cultural use patterns in the entire woodlot area.

  An Archaeological Overview Assessment and a localized Archaeological Impact Assessment were completed in W1832 in 1997. These assessments found no archaeological features. Mr. Borcsok was interested in these documents, and was provided with the web address from which to obtain them. He noted that if we were planning to log in the area addressed by the AIA, the band might want to send someone over for a day. When informed that we had already completed harvesting in the area addressed by the AIA, and found nothing of archaeological interest, he felt that the matter was over.

  A meeting was offered by declined, and the upcoming deadline for written comments was reviewed.

- Greg Gabriel of the Penticton Indian Band informed us that a Band Councillor had taken over the Resources portfolio, but was not fully active yet. He committed to talk to the Councillor that day and see if he was looking into it.

  A meeting was offered by declined, and the upcoming deadline for written comments was reviewed.

- We understand that the Sinixt Nation forwarded our package to Marilyn Burgoon, who contacted us by telephone and email. The contents of this communication are reviewed above.

3. EXEMPTIONS

No Exemptions were requested.

4. RATIONALE IN SUPPORT OF PROPOSED ALTERNATIVE PERFORMANCE REQUIREMENTS

No Alternative Performance Requirements were proposed.

APPENDICES

Appendix 1.	Woodlot Licence Plan Map
Appendix 2.	Notice – Indicators Of The Amount, Distribution And Attributes Of Wildlife Habitat Required For The Winter Survival Of Ungulate Species In The Arrow Timber Supply Area *and* Information Concerning Wildlife Habitat For The Winter Survival Of Ungulate Species In Arrow Timber Supply Area
Appendix 3.	Woodlot Licence W1832 Comprehensive Plan for Wildlife Tree Retention (Revised October 2005)
Appendix 4.	Uneven-aged Stocking Standards For Single-Tree Selection
Appendix 5.	Pertinent sections of Reference Guide for Forest Development Plan Stocking Standards

Appendix 1. Woodlot Licence Plan Map

Appendix 2. Notice – Indicators Of The Amount, Distribution And Attributes Of Wildlife Habitat Required For The Winter Survival Of Ungulate Species In The Arrow Timber Supply Area

and

Information Concerning Wildlife Habitat For The Winter Survival Of Ungulate Species In Arrow Timber Supply Area

BRITISH COLUMBIA

NOTICE – INDICATORS OF THE AMOUNT, DISTRIBUTION AND ATTRIBUTES OF WILDLIFE HABITAT REQUIRED FOR THE WINTER SURVIVAL OF UNGULATE SPECIES IN THE ARROW TIMBER SUPPLY AREA

This notice is given under the authority of section 7(2) of the *Forest Planning and Practices Regulation* (B.C. Reg. 14/04*)* and 9(3) of the *Woodlot License Planning and Practices Regulation* (B.C. Reg. 21/04).

The following notice includes indicators of the amount, distribution and attributes of wildlife habitat required for the winter survival of the ungulate species outlined in Schedule 1.

This notice applies as specified within the Arrow Timber Supply Area, (excluding parks and protected areas and Landscape Units N505 and N529)**.**

Schedule 1

Arrow TSA

I) Ungulate Species: Moose

Amount:
A maximum of 4,740 ha, which includes 1,422 ha of snow interception cover.

Distribution:
Winter ranges are to be located in forested habitats within appropriate slopes, aspects and elevations typical of winter ranges in south eastern BC according to the attributes below. Winter range foraging habitat, security cover and snow interception cover is to be located by planning cells to provide a spatial distribution of attributes throughout the winter ranges.

Attributes:

1. Snow interception cover:
   - coniferous stands, greater than 60 years old.
   - crown closure of at least 40%.

2. Foraging habitat:
   - provided by sites located in close proximity to snow interception cover that contain preferred winter ground forage species, such as *Salix* spp.

II) Ungulate Species: Rocky Mountain Elk/Mule Deer/White-tailed Deer

Amount:
A maximum of 24,853 hectares, which includes 7,398 hectares of snow interception cover.

Distribution:
Winter ranges are to be located in forested habitats within appropriate slopes, aspects and elevations typical of winter ranges in south eastern BC according to the attributes below. Winter range foraging habitat, security cover and snow interception cover is to be located by planning cells to provide a spatial distribution of attributes throughout the winter ranges.

Attributes:

1. Snow interception cover:
    - mature coniferous stands, greater than 100 years old,
    - crown closure of at least 40% in moderate and deep snow areas.

2. Foraging habitat:
    - provided by sites located in close proximity to snow interception cover that contain preferred winter ground forage species, such as *Ceanothus* spp., saskatoon, *Rosa* spp., maple, *Salix* spp., *Cornus stolonifera* (red-osier dogwood), *Pseudoroegneria spicata* (bluebunch wheatgrass) and;
    - provided by sites that contain arboreal lichens and/or needles of mature Douglas-fir.

BRITISH COLUMBIA

MATERIAL SUPPORTING THE NOTICE, BUT NOT PART OF THE NOTICE.

INFORMATION CONCERNING WILDLIFE HABITAT FOR THE WINTER SURVIVAL OF UNGULATE SPECIES IN ARROW TIMBER SUPPLY AREA

This document is intended to provide background information and support to the legal framework of the notice of indicators of the amount, distribution and attributes of wildlife habitat required for the winter survival of ungulate species in the Arrow TSA. This document is not part of the legal notice. Its purpose is to provide additional information for consideration by delegated decision makers and by those persons required to prepare results and strategies consistent with section 7(1) of the Forest Planning and Practices Regulation or act in a manner consistent with section 9(3) of the *Woodlot License Planning and Practices Regulation*.

Note: It is expected that woodlots will only have to address the indicators in the Notice to the extent that their woodlot contains ungulate winter range as identified in the maps referenced in the appendix below.

Arrow Timber Supply Area

Amount:
The most recently revised UWR mapping derived from the KBLUP-IS that was used for FPC purposes was the basis for determining the amount of ungulate winter range area in this notice. The amount of snow interception cover was derived from the same mapping together with the retention targets provided for in the KBLUP-IS. In no case was the retention target amount increased compared to the KBLUP-IS provisions, but in some cases, where it was possible to do so, the retention targets were lowered to better reflect the collective work on the pending ungulate winter range linework for approval under the Government Actions Regulation (GAR). The attribute age definitions contained in this notice are also based on KBLUP-IS, but where possible to do so, were lowered to better reflect the pending GAR submission. Additionally, substantial areas of KBLUP-IS based ungulate winter range were excluded from this notice in consideration of caribou management.

The amount of ungulate winter range hectares and the amount of snow interception cover hectares exclude parks and protected areas, woodlots, private land and those landscape units (N505 and N529) where managing for over wintering deer, elk or moose conflicts with caribou management. Figure 1 shows the ungulate species winter range polygons.

Moose

Distribution:
Figures and spatial information (shapefiles) to support the amount and distribution statements are included in the folders titled "Figures" and "Spatial Data" on the following ftp site: ftp://ribftp.env.gov.bc.ca/pub/outgoing/cdc_data/Approved_FRPR_sec7_WLPPR_sec9_Notices_and_Supporting_Info/Ungulate_Winter_Range/Timber_Supply_Areas/Arrow_TSA/Supporting_Info/

Inclusion of draft and proposed Ungulate Winter Range boundaries in the supporting information does not prejudice the review and comment that may be ongoing around these Ungulate Winter Ranges. Where Ungulate Winter Ranges have not been through the full review and comment process, MWLAP will continue to work with affected parties to address the Ungulate Winter Range boundaries.

- A minimum of 30% forest cover area should be retained as snow interception cover within each 250 to 500 hectare management unit. This minimum retention applies to all BEC subzones where moose is the primary management species. The identification of each management unit is the responsibility of the relevant forest licensee.

- Snow interception cover should be located adjacent to or in close proximity to areas supporting forage species.

- To adequately manage suitable forage supply through time, it is recommended that no more than 40% of a management unit be in an early seral stage (i.e., stands < 21 years in age) at any given time.

Attributes:

- Douglas-fir or spruce leading stands are preferred for snow interception cover and should be located adjacent to flood plains, riparian areas, moist benches and early seral habitats that provide forage. Snow interception cover patches may be any shape but should have a minimum width of 40 meters at any given point. These forest stands should have a canopy closure of at least 40%.

- Forage species are generally available within harvested areas and early seral habitats throughout the winter range. During the late winter period, use and selection of riparian areas, high-production shrub areas, avalanche tracks, recent burns and early seral stands increases. Preferred forage species include *Salix spp*., *Alnus spp*., *Ceanothus spp*. and Douglas maple.

Mule Deer, White-tailed Deer, Rocky Mountain Elk

Distribution:

Figures and spatial information (shapefiles) to support the amount and distribution statements are included in the folders titled “Figures” and “Spatial Data” on the following ftp site: ftp://ribftp.env.gov.bc.ca/pub/outgoing/cdc_data/Approved_FRPR_sec7_WLPPR_sec9_Notices_and_Supporting_Info/Ungulate_Winter_Range/Timber_Supply_Areas/Arrow_TSA/Supporting_Info/

Inclusion of draft and proposed Ungulate Winter Range boundaries in the supporting information does not prejudice the review and comment that may be ongoing around these Ungulate Winter Ranges. Where Ungulate Winter Ranges have not been through the full review and comment process, MWLAP will continue to work with affected parties to address the Ungulate Winter Range boundaries.

The following table refers to the Crown forest land base and identifies the desired amount and distribution of forest retention for snow interception cover within each 250 to 500 hectare management unit.

Snow Conditions	BEC Subzone Variants	Minimum amount of forest cover retention (%)
Shallow (slopes>50%)	PPdh1, PPdh2, IDFdm1, IDFdm2, IDFun, IFDxh1, ICHxw, MSdk (only on site series 2&3 on slopes >50%)	15
Moderate (slopes< 50%)	PPdh1, PPdh2, IDFdm1, IDFdm2, IDFun, IDFxh1, ICHxw, MSdk (only on site series 2&3 on slopes < 50%)	25
Deep	MSdm1, MSdk (except site series 2&3), ICHdw, ICHmk1, ICHmw1,2&3, ICHvk1, ICHwk1, ESSFdk	30

- Snow interception cover should be located adjacent to or in close proximity to areas with ample forage species.

- To adequately manage suitable forage supply through time, it is recommended that no more than 40% of a management unit be in an early seral stage (i.e., stands < 21 years in age) at any given time.

Attributes:

- Snow interception cover for deer and elk is comprised of mature forested stands that reduce mid-winter snow depth by at least 30% compared to open sites in the same area. Desired stand structure features include large, well-developed crowns, preferably comprised of Douglas-fir dominants or co-dominants. In areas where moderate and deep snow is prevalent, dense stands with interlocking crowns provide the best attributes. Snow interception cover patches in these areas may be any shape but should have a minimum width of 40 meters at any given point. These forest stands should support a canopy closure of at least 40%. In areas with shallow snow conditions, mature trees with

large, well developed crowns provide the best attributes. It is best to distribute these retention trees in a variable semi-open, dispersed and small clumped manner. These areas provide both understory forage and snow interception micro sites.

- Forage species are generally available within harvested areas, early seral, open and semi-open habitats. Preferred forage species for deer and elk include Ceanothus spp., Saskatoon, Douglas maple, Salix spp., red-osier dogwood, Douglas-fir, cedar and aspen. Elk prefer grazing on grasses and sedges in open and semi-open areas.

Appendix 3. Woodlot Licence W1832 Comprehensive Plan for Wildlife Tree Retention (Revised October 2005)

Woodlot Licence W1832
Comprehensive Plan for Wildlife Tree Retention
August 2002
Revised October 2005

Arrow Boundary Forest District

Southern Interior Forest Region

Woodlot Licence W1832
Comprehensive Plan for Wildlife Tree Retention
August 2002
Revised October 2005

1 Introduction

This Comprehensive Plan for Wildlife Tree Retention provides information on individual wildlife trees and wildlife tree patches which will be retained to meet objectives for wildlife tree retention in Woodlot Licence W1832. This Plan was initially prepared in August 2002 in accordance with Section 11(5) of the Woodlot Licence Forest Management Regulation. The Plan was revised in October 2005:

- to reflect edits to the forest cover and watercourse mapping from 2002 to 2005,
- to include Wildlife Tree Patches added in Site Plans from 2002 to 2005, and
- to add information required by the change in administrative environment from the Forest Practices Code to the Forest And Range Practices Act.

2 Wildlife Tree Patches

The *Woodlot Licence Planning and Practices Regulation* requires that the areas occupied by wildlife tree retention areas be no less than 8% of the woodlot licence area.

Wildlife tree patches are designed on a site specific basis to meet the following strategies:

- Wildlife tree retention should, as a first priority, protect trees with valuable wildlife tree attributes. Where there are few trees with valuable attributes, retention should focus on areas with potential for wildlife tree recruitment.
- A diversity of wildlife tree retention strategies will result in more diverse habitat options. However, larger patches containing trees with valuable wildlife tree attributes generally serve a greater number of ecological functions
- It is particularly important to retain uncommon species, unusual stand characteristics, and other elements of stand level biodiversity.
- Wildlife tree retention areas will be chosen to minimize windthrow risk, and/or surrounding forest areas in the timber management landbase will be harvested to manage windthrow risk in designated wildlife tree patches.
- The dynamic nature of both individual trees and forest stands will be considered during planning and management of wildlife trees. Due to change and disturbance, designated wildlife trees may not continue to provide the planned and desired habitat attributes. This may result in modification to wildlife tree management areas.

Trees within wildlife tree patches are planned to be retained in W1832 permanently, and contribute to CWD to the forest site after their death.

The map enclosed in Appendix 1 shows the location of current wildlife tree patches in W1832. Table 1 and Table 2 list the areas of the various wildlife tree patches, and show their relationship to the landbase in W1832 which contributes to the AAC.

Vegetation Cover Type	Area (ha)	Percent of Total Area	Percent of Forested Area
Non Forested: Grass, Shrubs, Wetlands, Talus, Rock	39.0	6.3%	
Forests in Ungulate Range Management Area	26.3	4.2%	4.5%
Other Forested Areas Outside Wildlife Tree Retention Patches	485.7	78.4%	83.7%
Wildlife Tree Patch Types			
Open Conifer/Deciduous Forest with Root Disease	1.4	0.2%	0.2%
Large Diameter Riparian Forests	10.3	1.7%	1.8%
Steep Terrain with Dense Cedar Forest	2.7	0.4%	0.5%
Large Diameter Pine in Complex Terrain with Wetlands	8.1	1.3%	1.4%
Deciduous Forest	7.2	1.2%	1.2%
Generic Riparian Forests	11.1	1.8%	1.9%
Douglas-fir and Pine Forests on Dry, Shallow Soils	27.6	4.5%	4.8%
Subtotal:	68.5	11.1%	11.8%
Total:	619.4	100.0%	100.0%

Table 1: Area of Proposed Wildlife Tree patches by Vegetation Cover Type.

The proposed wildlife tree patches contain a range of wildlife tree types and densities. The general patch types are described briefly below

- Open Forest with Root Disease occurs in two locations
    - An area downslope of CP A Block 2, adjacent to an ungulate range area. This site has been affected by root disease with for many years, likely for decades. Species composition, height and density of vegetation cover is highly diverse. The root diseases(s) in the area have created many snags and stubs in various stages of decay, including some from large second growth trees. The diverse forest and snag population in this area has high wildlife values.
    - A small area within CP B Block 1. The lodgepole pine stand in this area has suffered almost complete mortality from root disease. The many standing snags, fallen trees, and diverse regeneration of cedar, hemlock and deciduous species provide wildlife habitat.
- Large Diameter Riparian Forests occur in several places in W1832. These moist areas have better than average quality growing sites and larger than average trees. Large stems which survived the 1912 fire are more common in these areas than in other portions of W1832. Therefore, these Wildlife Tree Patches contain concentrations of large second growth and/or old growth stems and snags, often with a significant Aspen component.

  The large trees on these sites have large spreading crowns, and are part of diverse multilayered canopies. The large deciduous trees that are prone to heartrot at a relatively early age. These factors provide valuable wildlife habitat attributes on

these sites. The adjacent water and/or open wetlands found in many locations increases habitat value and the value of wildlife trees in these areas.

- Steep Terrain with Dense Cedar Forest is an area on steep, north facing slopes adjacent to lower Dumont creek. This area has a limited wildlife tree population at this time, but the 90 year old second growth forest on this moisture receiving site will develop wildlife tree characteristics in the future.
- Large Diameter Pine in Complex Terrain with Wetlands are areas of unique forest near the highest point in W1832, on a complex, kettled glacial deposit. The forest has widely space, large diameter pine trees with large crowns. The areas between the large trees are occupied by shrubs and berry bushes that provide abundant food supplies and foraging areas with ungulates, rodents and birds. The pine forest occupies rolling terrain that contains moist depressions that enhance habitat diversity, and is adjacent to known perched wetlands. These wetlands provide accessible water for most or all of the year on an otherwise dry hillside, greatly increasing habitat values in the area.

  A small similar area has also been identified in the mid elevation portion of the Woodlot.

  The impact of the 2004 pine beetle epidemic on these wildlife tree patches is not known, but extensive overstory mortality is expected to have occurred.
- Deciduous Forest is a polygon of open aspen and birch forest with a dense deciduous shrub understory and scattered large conifers in the lowest elevation portion of W1832, adjacent to private land. The combination of deciduous trees and deciduous understory provide browsing resources for ungulates, and habitat for birds and small mammals. Deeply incised trails and abundant scat indicate that this area is well used by wildlife. The very large conifers found in some parts of this wildlife tree patch are ecologically significant structures, and will provide nesting, cavity nesting, and roosting opportunities for birds. Because of the low elevation and west aspect, this forest has a shallow snowpack in most winters and early snowmelt, and therefore is an important late winter/early spring habitat area.
- Generic Riparian Forests occur beside creeks and wetlands throughout W1832. These moist areas usually have better than average quality growing sites and larger than average trees. Large trees are ecologically significant structures within W1832 and most lower elevation areas in the Slocan Valley, and provide the best nesting and cavity dwelling habitat available in this landscape.

  The current wildlife tree density and quality in these forest types is variable. Many of the riparian forests are dominated by second growth, but a substantial portion of the remaining old growth stems on W1832 are found in these moist ecosystems, where the 1912 fire burned more slowly and did not kill all of the trees in the forest .
- Douglas-fir and Pine Forests on Dry, Shallow Soils occur on ecologically sensitive upland terrain throughout W1832. Stand density is variable due to frequent rock outcrops, and current wildlife tree density and quality is variable. Most areas contain a mixture of tree sizes, including scattered large and/or old growth stems. Growing sites are generally affected by moisture limitations and mature trees are

short, but older trees generally have spreading crowns and stem damage which create high quality wildlife habitat.

These stands were selected from the population of ecologically sensitive areas in W1832 by air photo interpretation. Selected polygons contain open forests with large, open grow trees, and/or veteran stems which survived the 1912 fire. These groups of larger trees provide habitat values and important ecological structures in the upper portions of W1832. Habitat values will increase over time as the 80 year old second growth trees in these patches mature and develop additional desirable wildlife tree characteristics.

Trees may be cut, modified or removed from a Wildlife Tree Patch for the following purposes:

(a) felling or modifying a tree that is a safety hazard, if there is no other practicable option for addressing the safety hazard;

(b) topping or pruning a tree that is not wind firm;

(c) constructing a stream crossing;

(d) creating a corridor for full suspension yarding;

(e) creating guyline tiebacks;

(f) carrying out a sanitation treatment;

(g) felling or modifying trees that have been windthrown or has been damaged by fire, insects, disease or other causes;

(h) felling or modifying trees for the purpose of establishing or maintaining an interpretative forest site, recreation site, recreation facility or recreation trail.

If cutting or modification leads to a material adverse impact on a Wildlife Tree Patch, the adversely impacted area will be removed from the Wildlife Tree Patch and a forested area with similar terrain, moisture regime, and forest types, located as close as feasible to the adversely impacted area, will be added to the Wildlife Tree Patch network.

Wildlife Tree Patch boundaries may be amended if field examination leads to the revision of the stream locations or forest type boundaries used to delineate the Wilde Tree Patches shown on the map in Appendix 1.

Vegetation Cover Type	In Landbase Which Contributes to AAC	Percent of Woodlot Area	Outside of Landbase Which Contributes to AAC	Percent of Woodlot Area	Total Area	Percent of Woodlot Area
Non Forested: Grass, Shrubs, Wetlands, Talus, Rock	0.0	0.0%	39.0	6.3%	39.0	6.3%
Forests in Ungulate Range Management Area	25.5	4.1%	0.7	0.1%	26.3	4.2%
Other Forested Areas Outside Wildlife Tree Retention Patches	394.9	63.8%	90.8	14.7%	485.7	78.4%
Wildlife Tree Patch Types						
Open Conifer/Deciduous Forest with Root Disease	1.4	0.2%	0.0	0.0%	1.4	0.2%
Large Diameter Riparian Forests	5.5	0.9%	4.8	0.8%	10.3	1.7%
Steep Terrain with Dense Cedar Forest	2.7	0.4%	0.1	0.0%	2.7	0.4%
Large Diameter Pine in Complex Terrain with Wetlands	5.6	0.9%	2.5	0.4%	8.1	1.3%
Deciduous Forest	7.2	1.2%	0.0	0.0%	7.2	1.2%
Generic Riparian Forests	0.0	0.0%	11.1	1.8%	11.1	1.8%
Douglas-fir and Pine Forests on Dry, Shallow Soils	0.0	0.0%	27.6	4.5%	27.6	4.5%
Subtotal:	22.4	3.6%	46.1	7.4%	68.5	11.1%
Total:	442.8	71.5%	176.6	28.5%	619.4	100%

Table 2: Relationship of Proposed Wildlife Tree Patches to AAC Contributing Landbase.

3 Individual Wildlife Trees

Wildlife trees are trees with specific features or groups of features which make them suitable and desirable for wildlife habitat. Typical features include, but are not limited to:

- large stem diameter,
- large spreading limbs,
- loose, sloughing bark,
- stem cracks and splits,
- decay,
- nesting cavities, and
- mistletoe brooms.

Large, old stems generally provide more and better wildlife habitat features than small or young stems.

Old growth wildlife trees are not common in W1832, but scattered large veteran stems and groups of large old stems do occur. Retention of these ecological structures is important, as is a management plan to replace them over time. Second growth wildlife trees are more common, but are still not abundant.

The individual wildlife tree management strategy for W1832 is:

- Retain individual old growth stems and snags inside logging blocks, or fall to produce CWD, based on the specific situation:
  - If the old growth stem is assessed to be stable per the Wildlife Tree Committee of B.C. standards, it will be retained.
  - If the old growth stem is assessed as unstable and dangerous to workers but has specific high value wildlife habitat features, it will be retained, with a no work zone as required.
  - If the old growth stem is highly unstable and deemed likely to fall in the near future regardless of human activity, and/or has no or few high value wildlife habitat features, it will be cut and left on site to create CWD.
- Abundant large diameter codominant and dominant leave trees will remain on logged sites after initial intermediate cutting operations. After initial harvesting, a subset of the leave trees will be identified as full cycle trees with the objective of capturing 15% of net timber management site productivity to create and maintain full cycle trees.

  Trees with identified features which make the desirable for wildlife will be favored when selecting full cycle trees. The full cycle trees will remain on site in perpetuity, to reach maturity, die, and fall to provide large live and large dead stem habitat. The management goal is to create a distributed population of large, old trees for wildlife habitat, and eventual creation of coarse woody debris. These structures will benefit cavity nesting birds, bats, small mammals and large perching birds.

Individual wildlife trees may be cut, modified or removed for the following purposes:

(a) felling or modifying a tree that is a safety hazard, if there is no other practicable option for addressing the safety hazard;

(b) topping or pruning a tree that is not wind firm;

(c) constructing a stream crossing;

(d) creating a corridor for full suspension yarding;

(e) creating guyline tiebacks;

(f) carrying out a sanitation treatment;

(g) felling or modifying trees that have been windthrown or have been damaged by fire, insects, disease or other causes;

Where feasible, replacement wildlife trees of similar species and stem form will be designated as close as feasible to the cut, modified, or removed trees.

4 Other Contributing Areas

The areas identified as Forests in Ungulate Range Management Area on the map are a group of dry site coniferous and deciduous forests, intermixed with deciduous brush fields and open grasslands, on steep south facing slopes. The current wildlife tree density and quality in these forest types is variable. Many forest patches are dominated by moderately dense second growth, but large single trees with high wildlife values also occur. Growing sites are generally poor due to moisture limitations, and mature trees are generally short. However, older trees generally have spreading crowns and stem damage which provide high quality wildlife habitat.

These polygons are not designated as Wildlife Tree Patches because timber harvesting is planned in the area. The management objective is to improve and maintain suitable spring/winter range conditions for ungulates. General objectives are to develop and maintain old growth forest characteristics in a dry NDT4[1] fire maintained ecosystem through silviculture. The Management Pan for W1832 assumes that 20% of the overall timber productivity in this area will be cut, with the remaining 80% directed to create and maintain large, old trees on the sites. Abundant wildlife trees and wildlife features will develop rapidly in this area.

Most lodgepole pine stems in this area were harvested in the winter of 2003-2004 in an effort to prevent the pine beetle population in those trees from spreading to the ecologically valuable ponderosa pines on this site. No further logging activity is planned in the near future.

While this area is not a Wildlife Tree Patch, it contributes significantly to maintaining wildlife habitat on W1832.

[1] Natural disturbance type 4 – see Biodiversity Guidebook for details.

Woodlot Licence W1832

Comprehensive Plan for Wildlife Tree Retention
Revised October 2005

Legend

Areas Outside Wildlife Tree Retention Patches

- Non Forested: Grass, Shrubs, Wetlands, Talus, Rock
- Forests in Ungulate Range Management Area
- Other Forested Areas Outside Wildlife Tree Patches

Proposed Wildlife Tree Patches

- Open Conifer/Deciduous Forest with Root Disease
- Large Diameter Riparian Forests
- Steep Terrain with Dense Cedar Forest
- Large Diameter Pine in Complex Terrain with Wetlands
- Deciduous Forest
- Generic Riparian Forests
- Douglas-fir and Pine Forests on Dry, Shallow Soils

N

1:15,000

200 0 200 400 600 800 m

20 m Contour Interval

Appendix 4. Uneven-aged Stocking Standards For Single-Tree Selection

Uneven-aged Stocking Standards* -- Single-tree selection only

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
Target from Table A standards	**Layer****	**Stocking*****			**Target from Table A standards**	**Layer****	**Stocking*****		
		Target pa	MIN pa	MIN p			Target pa	MIN pa	MIN p
(stems/ha)		(well-spaced/ha)			(stems/ha)		(well-spaced/ha)		
1200	1	600	300	250	**800**	1	300	150	150
ID 86000 (all layers)	2	800	400	300	**ID 86003 (all layers)**	2	400	200	200
	3	1000	500	400		3	600	300	300
	4	1200	700	600		4	800	400	400
1000	1	400	200	200	**600**	1	300	150	150
ID 86001 (all layers)	2	600	300	250	**ID 86004 (all layers)**	2	400	200	200
	3	800	400	300		3	500	300	300
	4	1000	500	400		4	600	400	400
900	1	400	200	200	**400**	1	200	100	100
ID 86002 (all layers)	2	500	300	250	**ID 86005 (all layers)**	2	300	125	125
	3	700	400	300		3	300	150	150
	4	900	500	400		4	400	200	200

MIN - minimum

* Maximum regeneration delay is seven years. For a seven-year regeneration delay, the early free growing is 12 years and the late free growing is 15 years. Regeneration delay can be met immediately following harvest if the residual stand has no significant damage or pest problems and meets minimum stocking standards. If regeneration is achieved immediately following harvest, earliest free growing date is 12 months after completion of harvest and the latest date is 24 months after completion of harvest.

***Stand Layer Definitio**

Layer 1	Mature	trees >= 12.5 cm dbh
Layer 2	Pole	trees 7.5 cm to 12.4 cm dbh
Layer 3	Sapling	trees >= 1.3 m height to 7.4 cm dbh
Layer 4	Regeneration	trees < 1.3 m height

*** pa - preferred and acceptable species p - preferred species

Preferred and acceptable species and "Target from Table A standards' are as specified in Table A by biogeoclimatic ecosystem classification (BEC) site series.

Appendix 5. Pertinent sections of Reference Guide for Forest Development Plan Stocking Standards

*Reference Guide for FDP Stocking Standards***

BGC Classification			Regeneration Guide						Free Growing Guide			
			Species		Stocking(i)			Regen	Assessment		Min. Height(ii)	
			Conifer		Target	MIN pa	MIN p	Delay	Earliest	Latest	Species	Ht
Zone/SZ	Series	Standards ID	Preferred (p)	Acceptable (a)	(well-spaced/ha)			(Max yrs)	(yrs)	(yrs)		(m)
ESSFwc1	01	83017	Bl Se	Pl[34] Cw[9,32]	1200	700	600	4	12	20	Pl	1.6
											Others	0.8
	02	83018	Pl Se	Bl Cw[55]	1000	500	400	7	15	20	Pl	1.2
											Others	0.6
	03	83019	Bl Se	Cw[9,32]	1200	700	600	4	12	20	Pl	1.6
											Others	0.8
	04	83020	Bl[1,32] Se[1,32]	Pl[1,34]	1200	700	600	7	15	20	Pl	1.6
											Others	0.8
	05	-	non-forested		-	-	-	-	-	-	-	-
ICHdw	01a	83041	Fd[58] Lw Py Pw[31,49,57]	Bg[28] Pl Cw Sx[10,13]	1200	700	600	7	12	15	Pl, Pw	2.0
											Lw	2.0
											Fd	1.4
											Others	1.0
	01b	83042	Fd[58] Lw Pl Py[9,14] Cw Pw[31,49,57] Sx[10,13]		1200	700	600	7	12	15	Pl, Pw	2.0
											Lw	2.0
											Fd	1.4
											Others	1.0
	02	83043	Fd[58] Lw Py	Cw	1000	500	400	7	12	15	Pl, Lw	1.4
											Fd	1.0
											Others	0.8
	03	83044	Fd[1,32,58] Lw[1,32] Sx Cw[32] Pw[31,49,57]	Bg[32] Hw[32] Pl[1]	1200	700	600	4	9	15	Pl, Pw	2.0
											Lw	2.0
											Fd	1.4
											Others	1.0
	04	83045	Cw[32] Sx Fd[1,32,58] Lw[1,32] Pw[1,31,49,57]	Bg[1,32] Pl[1]	1200	700	600	4	9	15	Pl, Pw	2.0
											Lw	2.0
											Fd	1.4
											Others	1.0
ICHmw2	01	83060	Fd[58] Lw Cw Sx[10,13]	Pw[31,57]	1200	700	600	4	9	15	Pl, Pw	2.0
											Lw	2.0
											Fd	1.4
											Others	1.0
	02	-	non-forested		-	-	-	-	-	-	-	-
	03	83061	Fd[58] Lw	Pl Cw Pw[31,57] Sx[10,13]	1200	700	600	7	12	15	Pl, Pw	2.0
											Lw	2.0
											Fd	1.4
											Others	1.0
	04	83062	Fd[58] Lw Sx[10,13]	Pl Cw Pw[31,57]	1200	700	600	7	12	15	Pl, Pw	2.0
											Lw	2.0
											Fd	1.4
											Others	1.0
	05	83063	Cw Fd[9,14,58] Hw Lw[9,14] S›	Bl Pw[31,57]	1200	700	600	4	9	15	Pl, Pw	2.0
											Lw	2.0
											Fd	1.4
											Others	1.0
	06	83064	Cw[32] Sx Fd[1,32,58] Lw[1,32]	Bl Hw[32] Pw[31,57]	1200	700	600	4	9	15	Pl, Pw	2.0
											Lw	2.0
											Fd	1.4
											Others	1.0
	07	83065	Cw[1,32] Sx[1]	Bl[1] Hw[1,32] Pw[1,31]	1000	500	400	4	9	15	Pl, Pw	1.4
											Others	0.8
	08	83066	Cw[1,32] Pl[1] Sx[1]	Bl[1] Hw[1, 32]	1000	500	400	4	9	15	Pl	1.4
											Others	0.8
	09	-	non-forested		-	-	-	-	-	-	-	-

1,2 etc - see "Footnotes"

*Avoid logging

** Additional information or requirements may be contained in the text portion of the reference guide.

Reference Guide for FDP Stocking Standards

Conifer Tree Species

"Ba" means amabilis fir;
"Bg" means grand fir;
"Bl" means subalpine fir;
"Bp" means noble fir;
"Cw" means western red cedar;
"Fd" means Douglas-fir;
"Hm" means mountain hemlock;
"Hw" means western hemlock;
“Lt” means tamarack;
"Lw" means western larch;
“Pa” means whitebark pine;
"Pl" means lodgepole pine;
"Pw" means white pine;
"Py" means ponderosa pine;
“Sb” means black spruce;
“Se” means Engelmann spruce;
"Ss" means Sitka spruce;
“Sw” means white spruce;
"Sx" means hybrid spruce or interior spruce;
"Sxs" means hybrid Sitka spruce;
“Sxw” means hybrid white spruce;
"Yc" means yellow cedar.

Broadleaf Tree Species

“Acb” means balsam poplar;
“Act” means black cottonwood;
“At” means trembling aspen;
“Dr” means red alder;
“Ep” means common paper birch;
“Mb” means bigleaf maple;
“Qg” means garry oak;
“Ra” means arbutus;

“**Biogeoclimatic unit**” or “**BGC classification**” means the zone, subzone, variant and site series described in the most recent field guide published by the Ministry of Forests for the identiication and interpretation of ecosystems, as applicable to a harvested area.

“**MIN** or “**Min**” means minimum.

Footnote #	Footnote
1	elevated microsites are preferred
2	suitable on thick forest floors
3	restricted to coarse-textured soils
4	restricted to medium-textured soils
5	footnote retired
6	restricted to nutrient-very-poor sites
7	restricted to nutrient-medium sites
8	restricted to steep slopes
9	restricted to southerly aspects
10	restricted to northerly aspects
11	restricted to crest slope positions
12	suitable on cold air drainage sites
13	restricted to upper elevations of biogeoclimatic unit
14	restricted to lower elevations of biogeoclimatic unit
15	restricted to northern portion of biogeoclimatic unit in region
16	restricted to southern portion of biogeoclimatic unit in region
17	restricted to western portion of biogeoclimatic unit in region
18	restricted to eastern portion of biogeoclimatic unit in region
19	restricted, not in Queen Charlotte Islands
20	restricted, not near outer coast
21	restricted to mainland
22	restricted to southern Gardner Canal-Kitlope area
23	restricted to trial use
24	suitable (as a major species) in wetter portion of biogeoclimatic unit
25	suitable on sites lacking salal
26	suitable minor species on salal-dominated sites
27	partial canopy cover required for successful establishment
28	limited by moisture deficit
29	risk of heavy browsing by moose
30	risk of porcupine damage
31	risk of white pine blister rust
32	limited by growing-season frosts
33	footnote retired and replaced with footnote 'a'
34	risk of snow damage
35	risk of weevil damage
36	suitable major species on salal-dominated sites
37	risk of heart rots
38	footnote retired
39	avoid exposed and windy sites
40	risk of redheart
41	limited by poorly drained soils
42	restricted to fresh soil moisture regimes
43	suitable on mainland coast only (QCI only)
44	suitable in areas with stronger maritime influence
45	suitable in areas with stronger continental influence
46	restricted to area north of the Dean Channel
47	risk of balsam wooly adelgid
48	risk of heavy browsing by deer
49	applies only to rust resistant, planted stock.
50	restricted to sites where the species occurs as a major species in a pre-harvest, natural stand
51	restricted to areas with proven Pl performance
52	restricted to sheltered microsites with deep soil
53	minor component
54	risk of unsuccessful release of advance regeneration
55	acceptable in sx-sm portion of site series

#	Broadleaf Management Constraints
a	productive, reliable, and feasible regeneration option
b	limited in productivity, reliability and/or feasibility

#	Localized Footnotes
56	**Kalum** forest district - spruce content restricted to < 20% well-spaced and free growing trees on a standards unit due to leader weevil.
57	**Arrow** forest district - Pw rust-resistant stock may be preferred to a max 50% of preferred and acceptable well-spaced stems.
58	**Arrow** forest district - Fd limited to a max 50% of preferred and acceptable well-spaced stems due to root rot.
59	**Prince George region** - max 1,400 total sph of aspen and cottonwood. Treat as 'ghost' trees in surveys.
60	**Squamish** forest district - species is acceptable in Squamish forest district only.
61	**Squamish** forest district only - acceptable on cold air drainage sites only.
62	**S. Island** forest district - may only be used as acceptable species within the balsam woolly adelgid quarantine zone.
63	**Queen Charlotte Islands** forest district - must meet district manager specified minimum well-spaced preferred stems per hectare and minimum height requirements for Cw and/or Yc
66	**Mackenzie** forest district - may be preferred where risk of snow damage is low or where risk of frost damage is excessive on spruce
67	**Chilliwack** forest district - species is acceptable in Chilliwack forest district only.
68	**Chilliwack** forest district - species is preferred in Chilliwack forest district only.
69	Species is restricted to upper elevations when used in the southern portion of the biogeoclimatic unit.
70	**Pr Rupert** region - Hw is restricted to a maximum of 50% of the well spaced stems at free growing