2011 - 2021
Detailed Forest Management Plan

Land Base Assignment

Weyerhaeuser Grande Prairie
Forest Management Agreement Area
FMA # 6900016

24 September 2009

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1 Introduction

Weyerhaeuser's Detailed Forest Management Plan (DFMP) for the Grande Prairie Forest Management Agreement (FMA) area (Figure 1-1) is due in 2011 and requires a timber supply analysis (TSA) to guide forest management decisions. Weyerhaeuser's core value is to manage forestlands for the sustainable production of raw materials while protecting water quality, fish and wildlife habitat, soil productivity and cultural, historical and aesthetic values. The TSA will address multiple forest values and landscape features that reflect these values.

Land base assignment defines the net harvestable land base available for timber harvesting; it is based on the operating ground rules, the most up-to-date land base exclusions, and economic and technical considerations. Land base assignment processes can be expected to change in future analyses as newer data and/or improved methods become available. For the Grande Prairie FMA area, Weyerhaeuser adopted the Alberta Forest Management Planning Standard (ASRD 2004) as a guide for determining the contributing land base available for timber harvesting.

This document describes the processes and the data used to define the net harvestable land base. The processes described in this document are largely based on those developed for the Mountain Pine Beetle Plan (Weyerhaeuser 2006, Appendix A).

The Grande Prairie FMA covers 1,117,072 ha, a reduction of 20,207 ha from the 1,138,279 ha included in the 2006 plan. Five Forest Management Units (G01P, G03P, G04P, G06P, and G07P) identified in the Grande Prairie FMA in 2006 have been combined into a single FMU (G16).

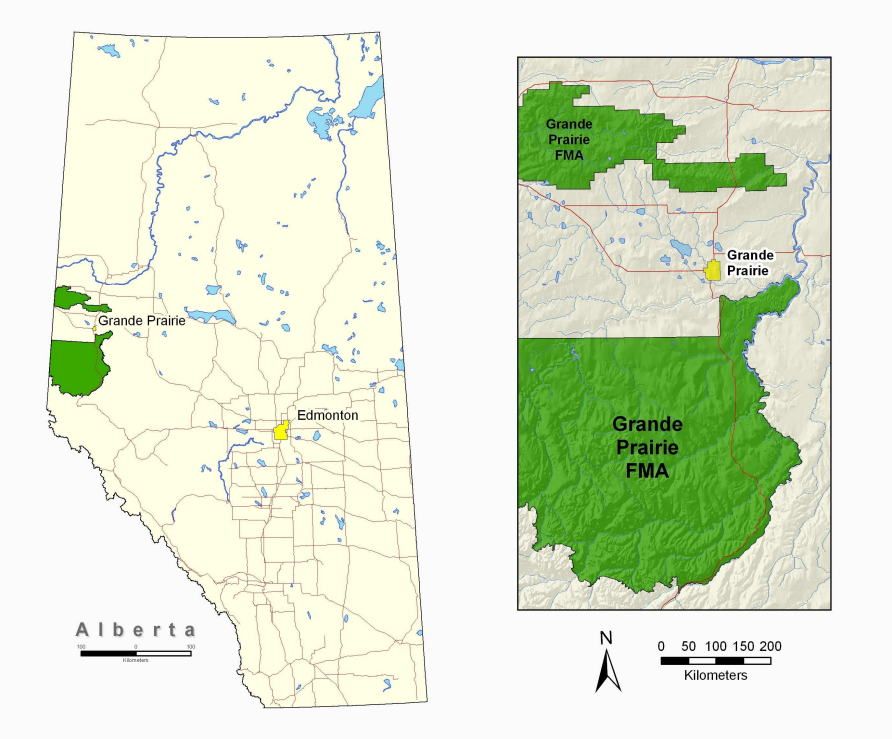


Figure 1-1 Grande Prairie FMA Location Map

2 Data Layers and Methods

The following data sources were compiled to obtain the final results for this report (for details refer to Appendix B):

1) Updated FMA and FMU boundaries;
2) Updated Alberta Vegetation Inventory (AVI replaced RSI);
3) New Watershed units (updated by Weyerhaeuser following SRD approval);
4) Boundaries of Weyerhaeuser's work areas;
5) Natural Subregion boundaries;
6) Ecosite classification;
7) Digital Integrated Dispositions (AltaLIS DIDS and LSAS);
8) Cutlines;
9) Steep slopes;
10) Unique areas;
11) Trumpeter Swan protected areas;

12) Grizzly Bear watershed boundaries;
13) Elevation data (stands over 1,500 m);
14) Watercourse data;
15) Updated Caribou Management Zones;
16) Seed deployment areas for Breeding Zones B1 and G1;
17) ARIS silviculture records; and
18) Existing and planned cutblocks.

To assist the auditing of the land base assignment process, the land base data fields are referenced in italics in the form *[FIELD]*.

2.1 Effective Date

The effective date used for the Timber Supply Analysis (TSA) modeling in Weyerhaeuser Grande Prairie FMA is May 1, 2009. All datasets used in this document were considered up-to-date and correct as of the effective date.

2.2 Land Base Inventory

Alberta Vegetation Inventory (AVI) is the primary inventory dataset covering the Weyerhaeuser Grande Prairie analysis area; it provides a continuous geo-spatial cover. Previously used Regenerated Stand Inventory (RSI) datasets were replaced by an updated AVI. All RSI and AVI related information was supplied by GreenLink Forestry Inc.

The AVI for the Grande Prairie FMA area was initiated in 1997 and completed in 2004. The inventory updates were completed over a seven-year period; the final product was standardized to AVI version 2.1 specifications. The Forest Management Division of Alberta Sustainable Resource Development (ASRD) audited the inventory and advised Weyerhaeuser that the inventory met the standards for an AVI as stated in the audit report of August 22, 2005.

The RSI polygon data were replaced by AVI equivalents in January 2008. The RSI updates were based on two types of photography: color infrared flown in October of 2000 and March of 2004 and black-and-white infrared flow in August 2001. The final product was standardized to AVI version 2.1 specifications. The Forest Management Division of ASRD audited the updated

inventory and advised Weyerhaeuser that the inventory met the standards for an AVI as stated in the audit report of April 7, 2008.

2.3 Tools Used

Several software applications were used to store, process, analyze and retrieve the timber harvest land base input files including: Arc/Info™ 9.2, ArcMap™ 9.2, PC ArcView™ 3.2, Python 2.4.1, and Visual FoxPro™ 8, a database programming software package. Arc/Info™ 9.2 was the geographic information system (GIS) software used to manage the land base feature class and coverages.

2.4 GIS Processing and Resultant File Geodatabase

All data sets were transformed to an Arc/Info file geodatabase format from the source information and re-projected to UTM, Zone 11, NAD 83 Datum. Only the required attributes identified by Weyerhaeuser or required attributes for land base assignments or timber supply analysis (TSA) were maintained from each input layer; other information was removed to keep the geodatabase file size within manageable limits. All input data sets were overlaid to produce a resultant (composite) file geodatabase land base feature class that subsequently was used by the net land base assignment procedures.

3 Land Base Stratification

The net operable and inoperable land base was determined using the resultant land base and consisted of the following process:

1) Determine administrative designations;
2) Prepare attribute data;
3) Update the cutblock information;
4) Collect stand structure variables;
5) Identify subjective deletions;
6) Assign land use dispositions;
7) Determine reserve status and unique areas;
8) Identify other necessary land base stratification elements; and
9) Determine non-forested and horizontal stand area adjustments.

3.1 Administrative Designations

Administrative designations are legal boundaries that include:

1) Forest Management Agreement *[FMA_CODE]* and the Forest Management Unit *[FMU_CODE]* boundaries – care was taken to ensure that the Grande Prairie FMA and FMU boundaries were correctly portrayed. The FMA and FMU boundaries used as an input layer were based on information provided by Weyerhaeuser and cross-referenced with information provided by Alberta government officials. Netdown analysis was only performed in polygons with *[SHAPE_AREA]* greater than zero. Attributes for all other polygons remained empty or were assigned the value of zero.
2) Weyerhaeuser Working Areas *[WORKING_AR]* – areas internally defined by Weyerhaeuser to assist with operational activities. Specific areas will be used during the TSA modeling to control locations of harvesting activities and were used during the land base netdown to provide information for assigning the expected regeneration forest type on cutblocks.
3) Cost Zones *[TSA_COST_Z]* – twenty-nine areas defined by contiguous operationally important zones within the FMA area.
4) Ainsworth and Tolko dispositions *[DTA_NEW]* and *[DTA_NAME]* – areas incorporated to track Weyerhaeuser's deciduous timber dispositions. This field contains both Ainsworth and Tolko dispositions.

3.2 Preparation of Attribute Data

D_RESULTANT_ATT.dbf database was created following a series of GIS overlays, a dissolve of sliver polygons, and export of file geodatabase attribute table. During the net land base assignment process, D_RESULTANT_ATT.dbf database created an input for the net land base assignment process and was renamed to AVI_DBASE.dbf. At the end of the process, AVI_DBASE.dbf was related back to D_RESULTANT feature class providing the output of the net land base assignment process. Unless otherwise noted, AVI_DBASE.dbf is referenced during the netdown assignment process. Its structure was modified by adding new fields for netdown calculation. The list of fields, their types, and allowable codes for both D-RESALTANT.dbf and AVI_DBASE.dbf are provided in Appendix A.

The net land base processing started with an assignment of default values as follows:

1) All empty *[REG_PATH]* records were updated with '*NAT*';
2) Areas were calculated in hectares (*[SHAPE_AREA]*/10,000) and results were stored in *[AREA_HA]*;
3) For records where *[SHAPE_AREA]* was greater than 0, *[NSR_YC]* values were assigned the values from *[NSR_CODE];*
4) Replaced *[AH_FLD_NUM]* with '6050680306' if *[AH_FLD_NUM]* was '6050680302';
5) Replaced *[ARIS_ONUM]* with *[AH_FLD_NUM]* if *[AH_FLD_NUM]* was not empty;
6) Replaced *[ARIS_ONUM]* with *[AH_FLD_NUM]* if *[OPEN_NUM]* was not empty;
7) Replaced *[SKID_CLEAR]* with null if the date was unrealistic (i.e. 12/31/1899);
8) Replaced *[AH_DATE]* with null if the date was unrealistic (i.e. 12/31/1899); and
9) Replaced *[AP_DATE]* with null if the date was unrealistic (i.e. 12/31/1899).

3.3 Linking Cutblock and ARIS Information

Weyerhaeuser, Ainsworth, Tolko, and ASRD community timber program (CTP) cutblock information was assembled in order to represent past, present and future harvesting activities. Every existing cutblock was linked to Alberta Regeneration Information System (ARIS), providing a direct linkage to stand silviculture and development records. ARIS data were used to assign cutblock age, broad cover groups, and leading species of the regenerating stand.

Both spatial and cutblock attribute information was prepared during the GIS processing with only relevant records carried into the net land base determination process. Using Python scripting language, both cutblock and planned block information were added to the resultant land base attribute table. Weyerhaeuser provided two databases containing harvest information – actual harvests and planned cutblocks. Ainsworth provided three databases containing harvest information – actual harvests, planned cutblocks, and designed cutblocks. Tolko provided information on a single block in the Saddle Hills area; ASRD provided information on three CTP cutblocks.

The ARIS database (ARIS_DBASE.dbf) was created to provide additional information for Weyerhaeuser and Ainsworth cutblocks. A link between ARIS and AVI_DBASE databases was created by merging Weyerhaeuser's existing cutblock opening numbers *[OPEN_NUM]* and

Ainsworth's field numbers of existing cutblocks *[AH_FLD_NUM]* into a single field *[ARIS_ONUM]*. Then, using matching values in ARIS database field *[OPEN_NUM]* and AVI_DBASE database field *[ARIS_ONUM],* the following ARIS information was added: land base design *[LND_BASE]* into AVI_DBASE field *[ARIS_LBASE]*, harvest date *[ARIS_SKID1]* into AVI_ DBASE field *[ARIS_SKID]*, and leading regenerating species *[SPP]* was added into AVI_ DBASE field *[ARIS_SPP]*[1].

Tolko provided ARIS records for their single block in the Saddle Hills area. Data from the cutblock ARIS data fields were directly added to the resulting land base database as follows: ARIS land base *[TLKO_BASE]*, ARIS harvest date *[TLKO_SKID]*.

ASRD provided ARIS information for three CTP cutblocks. Unfortunately, it included open or active cutblocks and the ARIS information was only used to validate land base assignments and harvest dates.

3.4 Identifying Cutblocks

All potential cutblocks are identified in the resultant database using field *[CUTBLK]*. The polygon is considered to be a cutblock and *[CUTBLK]* is assigned 'Y' if:

[CTP_CUT] is not empty, or
[CTP_PLAN] is not empty, or
[OPEN_NUM] is not empty, or
[SKID_CLEAR] is not empty, or
length of *[ARIS_LBASE]* is greater than zero, or
length of *[ARIS_SPP]* is greater than zero, or
[BLK_NAME] is not empty, or
[WP_OPEN_NU] is not empty, or
[WP_DATE] is greater than zero, or
[AH_FLD_NUM] is not empty, or
[AH_DATE] is not empty, or
[AH_REGEN] is not empty, or

[1] The status of Weyerhaeuser cutblock *[OPEN_NUM]* = "6080612664" has been changed from existing to planned cutblock therefore no matching ARIS record was provided.

[AP_FLD_NUM] is not empty, or
[AP_DATE] is not empty, or
[AD_FLD_NUM] is not empty, or
[AD_DATE] is not empty, or
[TLKO_SKID] is not empty, or
[MODIFIER] is “CC”.

3.5 Stand Structure Assignment

Presented stand structure assignments are the same as those provided in the 2006 land base assignment document.

3.5.1 Broad Cover Groups

Broad cover group attributes were developed as a function of the AVI tree species and percentage of crown closure.

For forested areas, AVI overstory and understory species specific percent crown closure data (in 10% classes) were calculated for the following eight tree species:

1) Overstory black spruce *[PCTSB]* and understory black spruce *[UPCTSB]*;
2) Overstory larch *[PCTLT]* and understory larch *[UPCTLT]*;
3) Overstory Engelmann or white spruce *[PCTSW]* and understory Engelmann or white spruce *[UPCTSW]*;
4) Overstory pine (combined ‘P’, ‘PJ’, and ‘PL’) *[PCTPL]* and understory pine *[UPCTPL]*;
5) Overstory fir (combined ‘FB’ and ‘FA’) *[PCTFB]* and understory fir *[UPCTFB]*;
6) Overstory aspen *[PCTAW]* and understory aspen *[UPCTAW]*;
7) Overstory balsam poplar *[PCTPB]* and understory balsam poplar *[UPCTPB]*; and
8) Overstory birch *[PCTBW]* and understory birch *[UPCTBW]*.

Using individual tree species percent crown closure data, total deciduous and total coniferous crown closures for both overstory and understory layers were summarized. *[PCTDEC]* combined all AVI overstory deciduous species percentages if the species included 'A', 'AW', 'BW', or 'PB'. *[PCTCON]* combined all AVI overstory coniferous species percentages if the species included 'FA', 'FB', 'LT', 'P', 'PJ', 'PL', 'SB', 'SW', or 'SE'. Similarly, AVI species

summaries were calculated for understory data. *[UPCTDEC]* combined all AVI understory deciduous species percentages if the species included 'A', 'AW', 'BW', or 'PB'. *[UPCTCON]* combined all AVI understory coniferous species percentages if the species included 'FA', 'FB', 'LT', 'P', 'PJ', 'PL', 'SB', 'SW', or 'SE'.

The resulting overstory and understory aggregated deciduous and coniferous percent values were used to assign broad cover groups (BCG). The assignment rules are presented in Table 3-1. All evenly stands are assigned to the coniferous/deciduous (CD) or deciduous/coniferous (DC) cover group based on the conifers or deciduous leading species group, respectively. If the leading species group in 50-50 stands is coniferous, stands are assigned a CD broad cover group; if the leading species group is deciduous, stands are assigned a DC broad cover group. Pure deciduous and coniferous broad cover groups are identified as DX and CX, respectively.

Table 3-1 Summary of rules used to assign Broad Cover Groups (overstory or understory) to inventory of forest overstory and understory

Broad Cover Group	Deciduous Crown Closure %	Coniferous Crown Closure %
CX	0 - 20	80 - 100
CD	30 - 50	50 - 70
DC*	50 - 70	30 - 50
DX	80 - 100	0 - 20
CM**	n/a	n/a

* Includes 'switch stands' for which crown closure classes may be different (refer to section 3.5.3 for definition).
** Area weighted resultant yield curve (refer to *[STD_BCG]* and Section 3.5.2).

By default, the values in the overstory broad cover group *[BCGP]* and understory broad cover group *[UBCGP]* fields are set to 'XX.'

Values are assigned to *[BCGP]* as follows:

1) If *[PCTCON]* is greater or equal to 8 then *[BCGP]* is assigned the value 'CX';
2) If *[PCTCON]* is greater or equal to 6 but less than 8 or *[PCTCON]* is 5 and *[SP1]* includes 'FA', 'FB', 'LT', 'PJ', 'PL', 'P', 'SB', 'SE', or 'SW' then *[BCGP]* is assigned the value 'CD';
3) If *[PCTCON]* is greater than 2 but less than 5 or *[PCTCON]* is 5 and *[SP1]* includes 'AW', 'BW', or 'PB' then *[BCGP]* is assigned the value 'DC'; or

4) If *[PCTCON]* less than or equal to *2* and *[SP1]* includes ‘AW’, ‘BW’, or ‘PB’ then *[BCGP]* is assigned the value ‘DX’.

Values were assigned to *[UBCGP]* as follows:

1) If *[UPCTCON]* is greater or equal to 8 then *[UBCGP]* is assigned the value ’CX’;
2) If *[UPCTCON]* is greater or equal to 6 but less than 8 or *[UPCTCON]* is 5 and *[SP1_U]* included ‘FA’, ‘FB’, ‘LT’, ‘PJ’, ‘PL’, ‘P’, ‘SB’, ‘SE’, or ‘SW’ then *[UBCGP]* is assigned the value ’CD’;
3) If *[UPCTCON]* is greater than 2 but less than 5 or *[UPCTCON]* is 5 and *[SP1_U]* includes ‘AW’, ‘BW’, or ‘PB’ then *[UBCGP]* is assigned the value ’DC’; or
4) If *[UPCTCON]* less than or equal to 2 and *[SP1_U]* includes ‘AW’, ‘BW’, or ‘PB’ then *[UBCGP]* is assigned the value ‘DX’.

3.5.2 Stand Variables

Stand variables are used in the final netdown assignment. Stand variables in the netdown database can be identified by their prefix ‘STD_’ followed by the attribute variable. By default, stand variables are assigned from AVI overstory information as follows:

[STORY_USED] is assigned the value ‘OS’;
[STD_BCG] is assigned the value of field *[BCGP]*;
[STD_SP1] is assigned the value of field *[SP1]*;
[STD_SP2] is assigned the value of field *[SP2]*;
[STD_SP1PER] is assigned the value of field *[SP1PER]*;
[STD_CC] is assigned the value of field *[CC]*;
[STD_TPR] is assigned the value of field *[TPR]*;
[STD_PCTCON] is assigned the value of field *[PCTCON]*;
[STD_PCTDEC] is assigned the value of field *[PCTDEC]*;
[STD_PCTCON] is assigned the value of field *[PCTCON]*;
[STD_PCTLT] is assigned the value of field *[PCTLT]*;
[STD_PCTPL] is assigned the value of field *[PCTPL]*;
[STD_PCTSB] is assigned the value of field *[PCTSB]*;
[STD_PCTSW] is assigned the value of field *[PCTSW]*;

[STD_PCTAW] is assigned the value of field *[PCTAW]*;
[STD_PCTBW] is assigned the value of field *[PCTBW]*;
[STD_PCTPB] is assigned the value of field *[PCTPB]*;
[STD_PCTFB] is assigned the value of field *[PCTFB]*; and
[STD_ORIGIN] is assigned the value of field *[ORIGIN]*.

Stand variables could be updated during the netdown process only if a stand had been identified as a switch stand (Section 3.5.3) or had been harvested (Section 4).

3.5.3 Switch Stands

In the net land base determination process, some stand understory calls are used in place of overstory calls. If stands were managed for understory coniferous component then these stands were referred to as 'switch stands'. For these stands, stand variables are updated using AVI understory information. All 'switch stands' were assigned to yield curve 40 (Section 5.2).

In natural forests, 'switch stands' are identified if *[BCGP]* was 'DX' and *[UBCGP]* includes 'CX', 'CD', 'DC', or 'DX' and *[STEMCLASS]* is greater than or equal to 2.

For switch stands in natural forests the stand assignment was based on the AVI understory as follows:

[SWITCH] is assigned the value 'Y';
[STORY_USED] is assigned the value 'US';
[STD_BCG] is assigned the value of field *[UBCGP];*
[STD_SP1] is assigned the value of field *[SP1_U];*
[STD_SP2] is assigned the value of field *[SP2_U];*
[STD_SP1PER] is assigned the value of field *[SP1PER_U];*
[STD_CC] is assigned the value of field *[CC_U];*
[STD_TPR] is assigned the value of field *[TPR_U];*
[STD_PCTCON] is assigned the value of field *[UPCTCON];*
[STD_PCTDEC] is assigned the value of field *[UPCTDEC];*
[STD_PCTCON] is assigned the value of field *[UPCTCON];*
[STD_PCTLT] is assigned the value of field *[UPCTLT];*

[STD_PCTPL] is assigned the value of field *[UPCTPL];*
[STD_PCTSB] is assigned the value of field *[UPCTSB];*
[STD_PCTSW] is assigned the value of field *[UPCTSW];*
[STD_PCTAW] is assigned the value of field *[UPCTAW];*
[STD_PCTBW] is assigned the value of field *[UPCTBW];*
[STD_PCTPB] is assigned the value of field *[UPCTPB];*
[STD_PCTFB] is assigned the value of field *[UPCTFB];* and
[STD_ORIGIN] is assigned the value of field *[ORIGIN_U].*

For managed stands, the stratification of switch stands is described in Cutblock Rule 7A (Section 4.5 and Section 4.10.1).

3.6 Subjective Deletions

Subjective deletions are used to identify potentially non-merchantable stands; their definition has not changed from the 2006 land base assignment procedures with an exception of a new range improvement deletion. The range improvement subjective deletion has been added by Ainsworth and applies only to stands outside the FMA area. Range improvement deletions are described in more detail in Section 6.4. Stands identified as subjective deletions, regardless of their age, may never be harvested; they are typically based on forest cover type characteristics, operational and economic considerations. In the FMA area, black spruce and larch are indicative of stands that are non-merchantable and/or sites where successful regeneration may be difficult. Steep slopes were also considered to be subjective deletions; however, their description is provided as part of reserve status documentation in Section 3.8.1.

The following summarizes subjective deletion procedures that were identified and applied to the land base using *[DEL]*.

3.6.1 'A' Density Pure Deciduous Deletion

'A' density pure deciduous stands with no significant conifer component (where *[STD_CC]* is 'A', *[STD_BCG]* is 'DX', and *[STEMCLASS]* is less than 2) were considered for subjective deletion. A-density deciduous overstory stand sequencing options were provided by Ainsworth. Figure

3-1 provides an overview of the decision process to determine whether a stand should be classified as a subjective deletion or retained in the contributing land base.

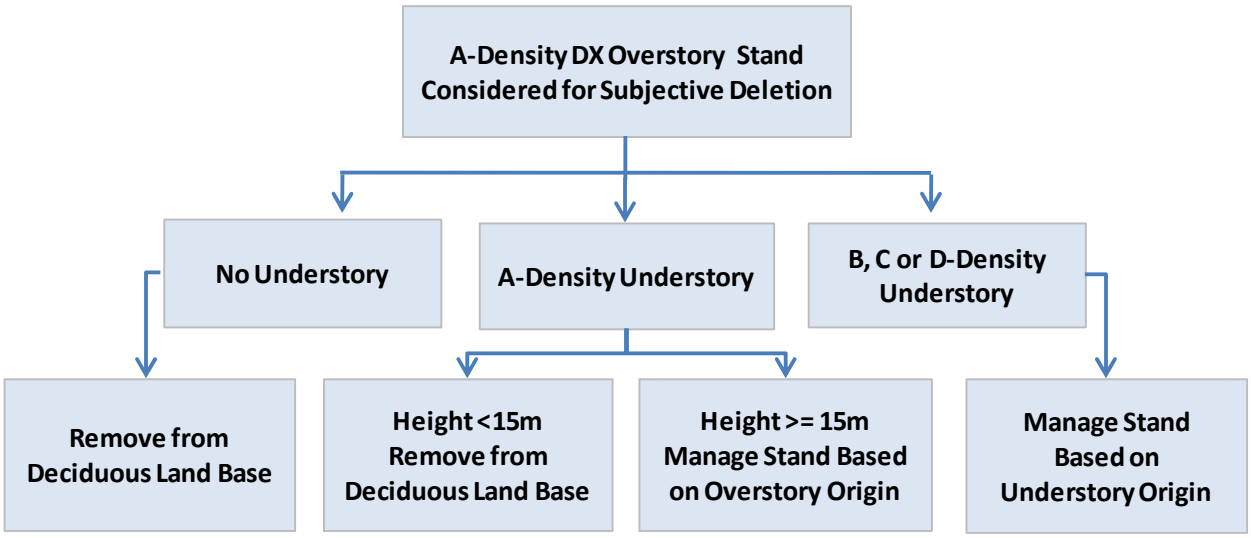


Figure 3-1 A-Density Deciduous Overstory Stand Sequencing Options

The net land base procedures used to sequence A-density deciduous stand sequencing were as follows:

If *[BCGP]* was "DX" and *[CC]* was "A" and *[STEMCLASS]* < 2 then

If *[CC_U]* was not present, then replace *[DEL]* with "ADENS";

If *[CC_U]* was "A" and *[HEIGHT_U]* was less than 15 then replace *[DEL]* with "ADENS";

If *[CC_U]* was "A" and *[HEIGHT_U]* was equal to or greater than 15 then:

[STD_BCG] is assigned the value of field *[BCGP]*;

[STD_SP1] is assigned the value of field *[SP1]*;

[STD_SP2] is assigned the value of field *[SP2]*;

[STD_SP1PER] is assigned the value of field *[SP1PER]*;

[STD_CC] is assigned the value of field *[CC]*;

[STD_TPR] is assigned the value of field *[TPR]*;

[STD_PCTCON] is assigned the value of field *[PCTCON]*;

[STD_PCTDEC] is assigned the value of field *[PCTDEC]*;

[STD_PCTCON] is assigned the value of field *[PCTCON]*;

[STD_PCTLT] is assigned the value of field *[PCTLT]*;

[STD_PCTPL] is assigned the value of field *[PCTPL]*;
[STD_PCTSB] is assigned the value of field *[PCTSB]*;
[STD_PCTSW] is assigned the value of field *[PCTSW]*;
[STD_PCTAW] is assigned the value of field *[PCTAW]*;
[STD_PCTBW] is assigned the value of field *[PCTBW]*;
[STD_PCTPB] is assigned the value of field *[PCTPB]*;
[STD_PCTFB] is assigned the value of field *[PCTFB]*; and
[STD_ORIGIN] is assigned the value of field *[ORIGIN]*.

If *[CC_U]* contained "B", "C", or "D" then manage stand based on understory:
[STORY_USED] is assigned the value 'US';
[STD_BCG] is assigned the value of field *[UBCGP];*
[STD_SP1] is assigned the value of field *[SP1_U];*
[STD_SP2] is assigned the value of field *[SP2_U];*
[STD_SP1PER] is assigned the value of field *[SP1PER_U];*
[STD_CC] is assigned the value of field *[CC_U];*
[STD_TPR] is assigned the value of field *[TPR_U];*
[STD_PCTCON] is assigned the value of field *[UPCTCON];*
[STD_PCTDEC] is assigned the value of field *[UPCTDEC];*
[STD_PCTCON] is assigned the value of field *[UPCTCON];*
[STD_PCTLT] is assigned the value of field *[UPCTLT];*
[STD_PCTPL] is assigned the value of field *[UPCTPL];*
[STD_PCTSB] is assigned the value of field *[UPCTSB];*
[STD_PCTSW] is assigned the value of field *[UPCTSW];*
[STD_PCTAW] is assigned the value of field *[UPCTAW];*
[STD_PCTBW] is assigned the value of field *[UPCTBW];*
[STD_PCTPB] is assigned the value of field *[UPCTPB];*
[STD_PCTFB] is assigned the value of field *[UPCTFB];* and
[STD_ORIGIN] is assigned the value of field *[ORIGIN_U].*

3.6.2 Black Spruce Deletion

Black Spruce Deletion - greater than or equal to 80% of combined black spruce and larch composition on unproductive stands. The net land base procedures used to identify black

spruce deletions were as follows: if the sum of *[STD_PCTSB]* and *[STD_PCTLT]* is greater than or equal to eight and *[STD_TPR]* is 'U' then *[DEL]* is assigned the value 'BSPRUCE'.

3.6.3 Larch Deletion

Larch Deletion - greater than or equal to 20% larch composition. Overstory for non-switch stands and understory for switch stands is used as follows: if *[STD_PCTLT]* ≥ *2* then *[DEL]* is assigned 'LARCH'.

Some subjectively deleted stands were brought back into the net harvestable land base. Black spruce and larch deletions were not applied when a cutblock or planned block ([CUTBLK] = "Y" or "P") was present in the cutblock because if a stand was previously harvested or had been selected for harvest, the stand was considered merchantable. For deciduous stands, only yield curve 18 and 'A' density stands were removed from the net harvestable land base (refer to Deletion Hierarchy in Section 6).

3.7 Land Use Dispositions

Numerous land uses unrelated to forest harvesting occur within the Grande Prairie FMA. These land uses differ from those employed in the 2006 netdown; the modeling of current land use dispositions is based on AltaLIS DIDS Application shapefiles and LSAS databases. To simplify GIS processing while creating the resultant land base cover, different disposition types were aggregated into three groups: land use restrictions, grazing leases (GRLs) and protective notations (PNTs). DIDS LSAS Conflict and Historical shapefiles were not used for this analysis (AltaDIDS 2008 and ASRD 2005). Details of how all spatial land use disposition datasets were handled are provided in Appendix B.

3.7.1 Land Use Restrictions

In the AVI_ DBASE database, the *[LANDUSE]* field is used to identify land use restrictions. This field is used to flag polygons as being part of a linear disposition: if *[DIDS_APPL]* is not empty and did not contain "CNC", "CNT", "FGL", or "ISP" then *[LANDUSE]* is assigned the value 'LLN'. Table 3-2 summarizes DIDS land use disposition types and deletions within the FMA area.

Table 3-2 Disposition Classification

Disposition Code	Description	Deletion
CNC	Consultative Notation Company	No
CNT	Consultative Notation	No
CUP	Cultivation Permit	Yes
DRS	Disposition reservation	Yes
EZE	Easement	Yes
FDL	Farm Development License	Yes
FGL	Forest Grazing License	No
FRD	Forestry Road	Yes
GRL	Grazing Lease	Yes*
ISP	Industrial PSP (not a deletion)	No
LOC	License of Occupation	Yes
MLL	Miscellaneous Lease	Yes
MLP	Miscellaneous Permit	Yes
MSL	Mineral Surface Lease	Yes
PIL	Pipeline Installation Lease	Yes
PLA	Pipeline Agreement	Yes
PNT	Protective Notation	Yes*
RDS	Provisional Roadway	Yes
REA	Rural Electric Association Easement	Yes
REC	Recreation Lease	Yes
ROE	Right-of-Entry Agreement	Yes
RRD	Registered Roadway	Yes
SMC	Surface material license	Yes
SME	Surface material exploration	Yes
SML	Surface material lease	Yes
VCE	Vegetation Control Easement	Yes

* dispositions were modeled as separate feature types

3.7.2 Grazing Dispositions

Both grazing licences and grazing leases were assessed using the AltaLIS DIDS dataset. Stands within grazing licenses (FGL) contributed to the AAC and no FDLs were maintained in the resultant land base. However, grazing leases (GRL) were considered as deletions only for coniferous operators. Just over 266 ha within the FMA area were in GRL dispositions and a portion of them were removed from the productive forest land base. In the 2006 submission, the grazing leases amounted to approximately 13,126 ha; in 2009 most of them have been

removed from the FMA area and were not part of this analysis (Section 7). If *[DISP_GRL]* is 'GRL' then *[GRAZING]* is assigned the value 1. Appendix B provides details on how grazing leases were included in the resultant land base.

3.7.3 Protected Notations

Only those protected notations (PNTs) that legally imposed restrictions on the harvest activities were identified as deletions. The AltaLIS DIDS database was used to identify 52 such PNTs (4,260 ha). Any portion of a stand identified as a protected notation area in field *[DISP_PNT]* was removed from the productive FMA area as follows: if *[DISP_PNT]* is not empty then the *[PNT]* field is assigned the value 1. A detailed list of PNTs is provided in the resultant database data dictionary in Appendix A.

3.8 Reserve Status and Unique Areas

This section details classification of steep slopes, watercourse buffers, non-merchantable stands, and unique areas. Reserve status field *[RES_STAT]* reflects timber harvest planning and operating ground rules in the FMA area; unique areas were captured in field *[LAND_STAT]*.

3.8.1 Operability Restrictions – Steep Slopes

Lands that are inoperable due to slope, their position, sensitivity or accessibility were excluded from the timber harvesting land base. Slopes were classified by GreenLink Forestry Inc. and work was completed on February 8th, 2006. The slopes were delineated using 3D DiAP Viewer technology. All areas with sustained slopes equal to or greater than 45 per cent were identified as inoperable (*[RANK]* had value 'DEL'). Areas constrained by these operability restrictions were given the reserve status code 'INOP' (*[RES_STAT]* is assigned the value 'INOP').

3.8.2 Watercourse Buffers

While current ground rules apply mostly to short-term planning, watercourse buffers were also integrated into the TSA to become a part of the long term planning process. This was done to strengthen the link between short and long-term planning.

The buffering process excluded areas from the timber harvesting land base including riparian areas adjacent to oxbows, lakes, streams, and rivers. The buffering was done using stream data acquired from AVI and the Alberta Base National Topographic Series (NTS) using DRAIN1 and DRAIN2 GIS coverages (for details on GIS processing refer to Appendix B). Watercourse buffer covers were generated in accordance with buffer definitions as described by the current Operating Ground Rules (Table 3-3).

Table 3-3 Riparian Buffer Widths

Classification	Field Name	Buffer Width
Lakes	*[AVI_L]*	100m
Rivers	*[AVI_R]*	100m
Large Permanent Streams, Lakes (>4ha)	*[DRAIN2_TYPE]*	100m
Water bodies (≤4ha)	*[DRAIN2_TYPE]*	60m
Small Perennial Streams	*[DRAIN1_TYPE]*	30m
Ephemeral Streams		---
Intermittent Streams		---

AVI lakes and double-line rivers are buffered using a 100 meter buffer (rivers are buffered from either side of the channel). Ephemeral streams and intermittent streams are not buffered. The resulting buffered geodatabase features were merged to identify stands and/or portions of stands that were within the specified buffer distance.

The reserve status code is assigned in the following sequence:

1) If *[BUFF_DIST]* is 30 then *[RES_STAT]* is assigned the value‘STM1’;
2) If *[DRAIN_CODE]* is 60 then *[RES_STAT]* is assigned the value ‘STM2’;
3) If *[DRAIN_CODE]* is 100 then *[RES_STAT]* is assigned the value ‘STM3’;
4) If *[AVI_L]* is ‘NWL’ then *[RES_STAT]* is assigned the value ‘LAKE’; and
5) If *[AVI_R]* is ‘NWR’ then *[RES_STAT]* is assigned the value ‘RIVR’.

3.8.3 Seismic Lines

The forest inventories do not include seismic lines as individual polygons, as the seismic line width is often less than the minimum width that can be captured digitally as a polygon. During creation of the resultant database, the seismic lines *[SEISMIC]* were buffered to a total of 6 m width and applied as a deletion to the land base using the reserve status field *[RES_STAT]*. If the value in field *[SEISMIC]* is 299 then *[RES_STAT]* is assigned the value 'SEIS.'

3.8.4 Trumpeter Swan Lakes

Water bodies identified as habitat used by Trumpeter Swans were also excluded from the net harvestable land base. The following resultant land base conditions were tested for presence of trumpeter swan areas: if *[SWANS]* has the value 200 (i.e. 200 m buffer) then the value 'SWAN' is assigned to the reserve status field *[RES_STAT]*. Trumpeter Swan GIS coverage was provided by ASRD.

3.8.5 Unique Areas

Unique areas in the FMA area were identified using land status *[LAND_STAT]*. Sixteen areas were identified as unique in resultant cover provided by Weyerhaeuser; these areas have not changed since the 2006 submission. Points identified as unique areas have been given 200m radius protection buffers and deleted from the net harvestable land base as follows: if *[UNQ_AREA]* is 'Y' then *[LAND_STAT]* is assigned the value 'UNIQ'.

3.9 Additional Land Base Stratification

Additional land base stratification includes Natural Subregion, ecosite, caribou management zone, Grizzly Bear watershed, and elevation classification.

3.9.1 Natural Subregions and Ecosites

The FMA boundary cover was overlaid with the 2005/2006 ecological land classification (ELC) coverage provided by GreenLink Forestry Inc. Seven Natural Subregions *[NSR_CODE]* and dominant ecosite call *[ECO_CODE]* were identified in the FMA area. Proportional Natural Subregion distribution within the FMA is summarized in Table 3-4.

Table 3-4 FMA Area Distribution by NSR

[NSR_CODE]	Description	FMA (ha)	Non-FMA (ha)	Total (ha)	Total (%)
A	Alpine	46	0	46	0.0%
CMW	Central Mixedwood	131,823	3,844	135,668	11.9%
DMW	Dry Mixedwood	49,537	6,602	56,139	4.9%
LF	Lower Foothills	534,851	13,233	548,085	48.0%
M	Montane	7,408	113	7,521	0.7%
SA	Subalpine	143,820	670	144,489	12.6%
UF	Upper Foothills	249,586	1,391	250,977	22.0%
Total		**1,117,071**	**25,853**	**1,142,924**	**100.0%**

* Differences between total and actual column summary are due to rounding errors. Note that *[AREA_HA]* was used for this summary.

3.9.2 Woodland Caribou Management Areas

A digital overlay of the FMA area with Woodland Caribou Management Zones (CMZ) *[CMZ_CODE]* was used to determine areas of special management considerations for forestry operations. In 2009, the Daniel Creek, Calahoo, and Prairie Creek CMZs were aggregated resulting in three main CMZ areas including Lengrell, Narraway and Redrock; special attention (deferral) zones were identified for Narraway and Redrock CMZs. CMZ overlays were processed during the preparation of the resultant database and are described in Appendix B. Table 3-5 summarizes CMZ zones in the FMA area.

Table 3-5 CMZ Area Distribution within FMA

[CMZ_CODE]	Description	FMA (ha)	Non-FMA (ha)	Total (ha)	Total (%)
n/a	Non-CMZ Area	745,170	23,728	768,898	67.3%
LNG_AA	Lingrell Core Area A	25,500	62	25,562	2.2%
NRW	Narraway Area B	53,599	22	53,621	4.7%
NRW_AA	Narraway Core Area A	24,787	0	24,787	2.2%
RRC	Redrock Area B	118,468	1,977	120,445	10.5%
RRC_AA	Redrock Core Area A	149,548	64	149,612	13.1%
Total		**1,117,071**	**25,854**	**1,142,925**	**100.0%**

* Differences between total and actual column summary are due to rounding errors. Note that *[AREA_HA]* was used for this summary.

The CMZ areas that have been identified in the net productive forest land base may have special forest management considerations applied within the timber supply analysis.

3.9.3 Watershed Basins

Two hundred eighty-eight watershed basins were delineated and provided for this netdown assignment process by Weyerhaeuser analysts. Just over 316 ha (mostly sliver polygons located along the FMA boundaries and a small portion of land base in the south west corner of Saddle Hill area) have not been assigned to any watershed. Watershed classification is provided in *[WATERSHED]*; although it does not impact the netdown, watersheds will be used to report on harvesting activities within each basin in the TSA.

3.9.4 Grizzly Bear Watersheds

Grizzly Bear sensitive watershed coverage was prepared and provided by SRD; there were 18 such watersheds identified in the south western portion of the FMA area. Field *[AB_1PGEOGB]* is used to link net land base to the unique watershed identification number in the SRD coverage. If *[AB_1PGEOGB]* is not empty then stands are located in one or more sensitive Grizzly Bear watersheds.

3.9.5 Elevation Data

Stands that are located at higher elevations – altitudes in excess of 1,500 m – are identified in field *[ELEV]* by assigning a value of 'HIGH'.

3.10 Non-Forested Land Base Area Reductions

Non-forested land base area reductions are determined differently for managed and natural forests. For managed forests (if *[CUTBLK]* is 'Y') land base area reductions are identified as follows:

1) If *[NATNONVEG]* is not empty then *[DEL]* is assigned the value 'NATNONVEG';
2) *If [ANTHNONVEG]* is not empty then *[DEL]* is assigned the value 'ANTHNONVEG'.

Natural (non-harvested) forests (where *[CUTBLK]* is not 'Y') were processed as follows:

1) If *[NONFORTYPE]* is not empty then *[DEL]* is assigned the value 'NONFORTYPE';
2) If *[ANTHVEG]* is not empty then *[DEL]* is assigned the value 'ANTHVEG';
3) If *[NATNONVEG]* is not empty then *[DEL]* is assigned the value 'NATNONVEG'; and
4) If *[ANTHNONVEG]* is not empty then *[DEL]* is assigned the value 'ANTHNONVEG'.

3.11 Horizontal Stands

Horizontal stand analysis for this land base assignment is identical to that used in the 2006 land base assignment process. The total FMA area has been reduced by about 5 ha due to AVI horizontal stands. Horizontal stands are defined in the *Alberta Vegetation Inventory Standards Manual* (Version 2.1) as "Stands…composed of numerous homogeneous stands within other distinctly different homogeneous stands, but both or each individual stand is too small to delineate..." Therefore, horizontal stands are processed somewhat differently than non-horizontal cover types. Although the different parts of a horizontal stand are located in the overstory and understory fields they are not to be understood as overstory and understory but rather as separate "mini-stands" within the polygon.

Horizontal stands are identified using field *[H_LAYER]*. By default, *[H_LAYER]* is assigned the value 'N.'

Horizontal stands are identified if the first character in the *[STRUCTURE]* field is 'H' and the value of the second character in *[STRUCTURE]* field is less than the value of the second character in *[STRUCT_U]* field (i.e., comparing percentage of horizontal stands between overstory and understory in the AVI dataset).

The horizontal stands were processed as follows:

1) If the horizontal stands have a valid AVI forest cover type for both the overstory and understory fields then the following adjustments are applied:
    a) If the overstory proportion of the stand is 50% or greater, then the overstory is defined as the story of primary management (SoPM), (*[STORY_USED]* is assigned

the value 'OS' and *[H_LAYER]* is assigned the value 'Y') and no horizontal stand area reduction is applied.

b) If the understory proportion of the stand is greater than 50% then the understory is defined as the SoPM, (*[STORY_USED]* is assigned the value 'US' and *[H_LAYER]* is assigned the value 'N'), and no horizontal stand area reduction is applied.

2) If the horizontal stands have only one valid AVI forest cover type then the following adjustments were applied:

a) If only the overstory forest cover type is valid then the SoPM is defined as the overstory (*[STORY_USED]* is assigned the value 'OS' and *[H_LAYER]* is assigned the value 'Y') and the stand area is reduced by a percentage of the horizontal stand in the understory[2].

b) If only the understory cover type is valid then the SoPM is defined as the understory (*[STORY_USED]* is assigned the value 'US' and *[H_LAYER]* is assigned the value 'Y') then the stand area is reduced by a percentage of the horizontal stand in the overstory.

4 Determination of Cutblocks

Cutblock identification and classification have changed from the 2006 submission. There are two main differences. The first difference is that RSI cutblock information has been replaced by stand-level AVI calls; the change meant that some Cutblock Rules were not needed and have been removed. The other difference is due to better datasets as all existing industry cutblocks in the FMA area have now been linked to ARIS.

4.1 Overview

Nine cutblock assignment rules were adapted and modified from the 2006 submission to spatially capture the assignment of cutblock regeneration in the Weyerhaeuser Grande Prairie FMA area. These rules are based on identification of existing or planned harvests. The primary data sources used for cutblock identification were the spatial cutblock layers provided by

[2] Suppose there was a 10 ha stand with 70% horizontal stand structure (*[STRUCTURE]* was 'H7'). This stand should only contribute 7 ha to the land base area. Therefore, *[HORZHA]* was assigned a value for area adjustment as follows: *[AREA]* converted to ha and multiplied by 0.3 (second value of *[STRUCT_U]* divided by ten).

Weyerhaeuser, Ainsworth, Tolko, and SRD. These cutblock layers were assumed to be the most accurate source of cutblock information. Cutblock information was linked to the Alberta Regeneration Information System (ARIS) silviculture database using the unique cutblock opening or field numbers. There are 5,751 unique records in the ARIS database; all Weyerhaeuser, Tolko, and Ainsworth existing cutblock data within the FMA area were linked to ARIS. CTP cutblocks were linked to the ARIS database that included partial information (only portions of the cutblocks have been completed); ARIS information was use to validate harvest dates, if present, and land base assignment.

In addition to the existing harvest block information and ARIS records, there were also some cutblocks identified in the AVI coverage. Most of these cutblocks were pre-1991 cutblocks with 'CC' modifier. These cutblocks were subject to 2008 AVI updates and subsequent AVI-based land base classification. However, if no valid AVI calls were available but ARIS records were available (*i.e.,* an overlap with other existing cutblocks was present), these cutblocks were classified using ARIS information.

4.2 Cutblock Rules

All cutblocks are classified using modified 2006 Cutblock Rules. In 2009 some cutblocks rules were omitted; other naming convention was retained but with some minor changes. For example, Cutblock Rule R1 split into R1A – pre-1991 cutblocks and R1B – Weyerhaeuser ARIS cutblocks. Because one polygon could potentially be assigned to more than one Cutblock Rule, a hierarchy was developed so that only one Cutblock Rule is assigned to each polygon. Final area distribution by Cutblock Rules is summarized in Table 4-1.

Table 4-1 Cutblock Rule area summary within net harvestable land base

Spatial Cutblock Source	Cutblock Rule [HRV_RULE]	Description	FMA (ha)	Non-FMA (ha)	Total (ha)	Total (%)
ARIS	R1A	Pre-1991 Weyerhaeuser ARIS Data or AVI	61,392	189	61,580	24.3%
ARIS	R1B	Post-1991 Weyerhaeuser ARIS Data	95,283	44	95,327	37.7%
ARIS	R2	Tolko and Ainsworth ARIS Data	21,756	389	22,145	8.8%
Harvest Data & ARIS	R6	SRD CTP, partial ARIS data	134	0	134	0.1%
AVI	R7A	CC Modifier, Modifier Year, and AVI Understory; use Switch Stands	14,447	39	14,486	5.7%
AVI	R7B	CC Modifier and Modifier Year; no AVI Understory	2,334	8	2,342	0.9%
AVI	R7C	CC Modifier, no Modifier Year, no AVI Understory; use AVI SoPM; Probably not a Cutblock	6,724	72	6,796	2.7%
AVI	R8	AVI BCG missing; Assign Area-Weighted Yield Curve	4,909	257	5,165	2.0%
AOP & GDP	R9	Planned / Designed Cutblocks	44,810	116	44,926	17.8%
Total			**251,789**	**1,114**	**252,902**	**100.0%**

The Cutblock Rules are used to determine the following regenerating stand attributes:

1) Harvest date *[HRV_DATE]*;
2) Stand origin *[STD_ORIGIN]*;
3) Stand Broad Cover Group *[STD_BCG]*;
4) Stand Crown Closure class *[STD_CC]*;
5) Stand conifer percent *[STD_PCTCON]*; and
6) Stand first leading species *[STD_SP1]* and second leading species *[STD_SP2]*.

Regenerating stand age *[STD_AGE]* is calculated based on stand origin *[STD_ORIGIN]* using the following equation:

[STD_AGE] = 2009 – [STD_ORIGIN]

One of the following ages for stand origin *[STD_ORIGIN]* is used, listed in preferred order according to the accuracy of available data:

1) ARIS cut year;
3) AVI 'CC' modifier year;
4) AVI year of understory or overstory origin; or
5) 2008 (cutblocks were assigned to be one year old).

If the cutblock harvest month is known, the harvest year has been adjusted because Weyerhaeuser's harvest year is between May 1 and April 30. For example, if the harvest month was February 2003, it belonged to the 2002 harvest year. A regenerating stand was assumed to be one year old only if no ARIS cut year, AVI modifier year, or AVI year of origin information was available.

The sequence of Cutblock Rule assignments is presented in Figure 4-1 and Figure 4-2.

Figure 4-1 Cutblock Rules for Primary Data Source (cutblocks with spatial polygon reference and planned blocks)

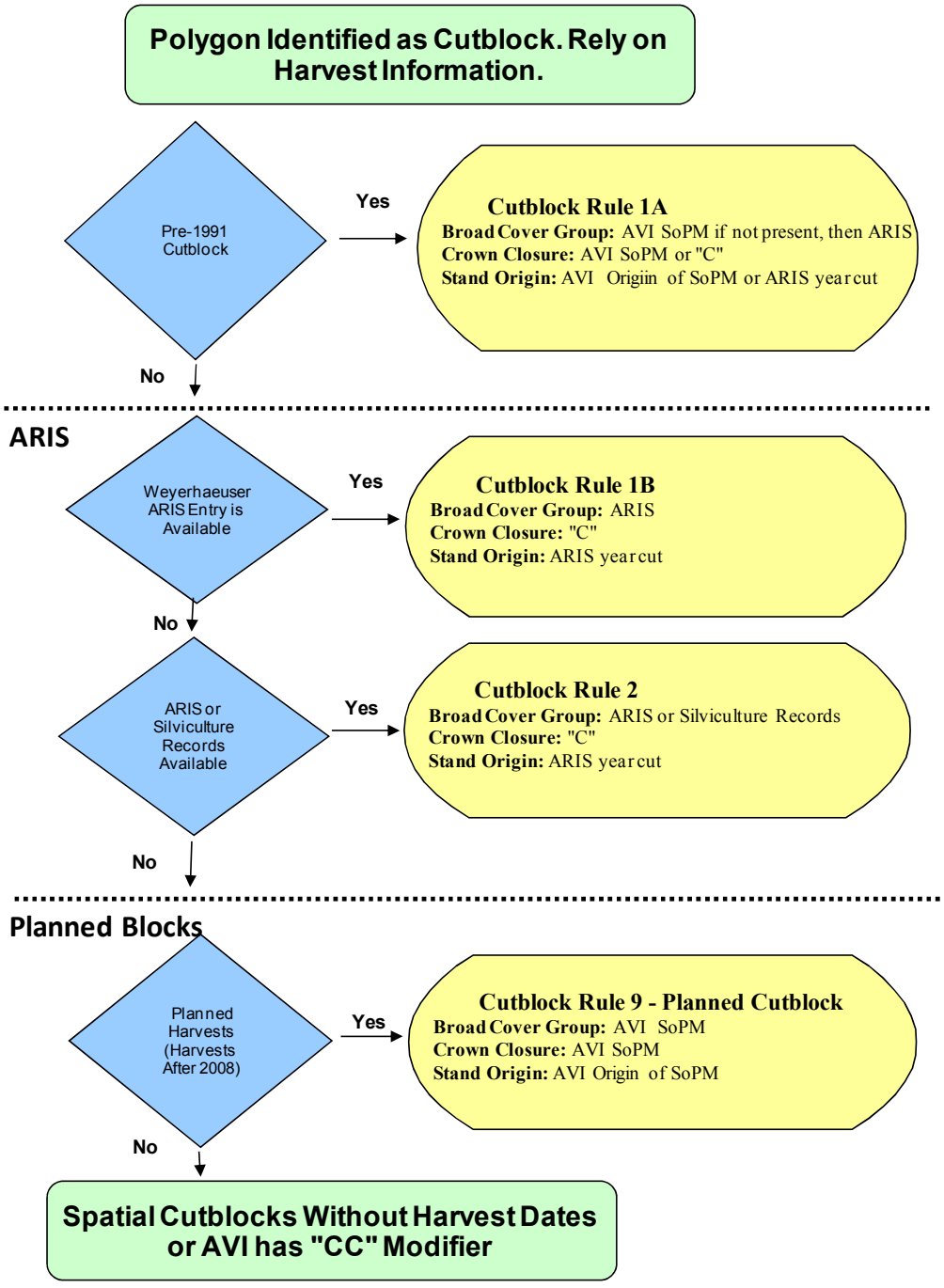
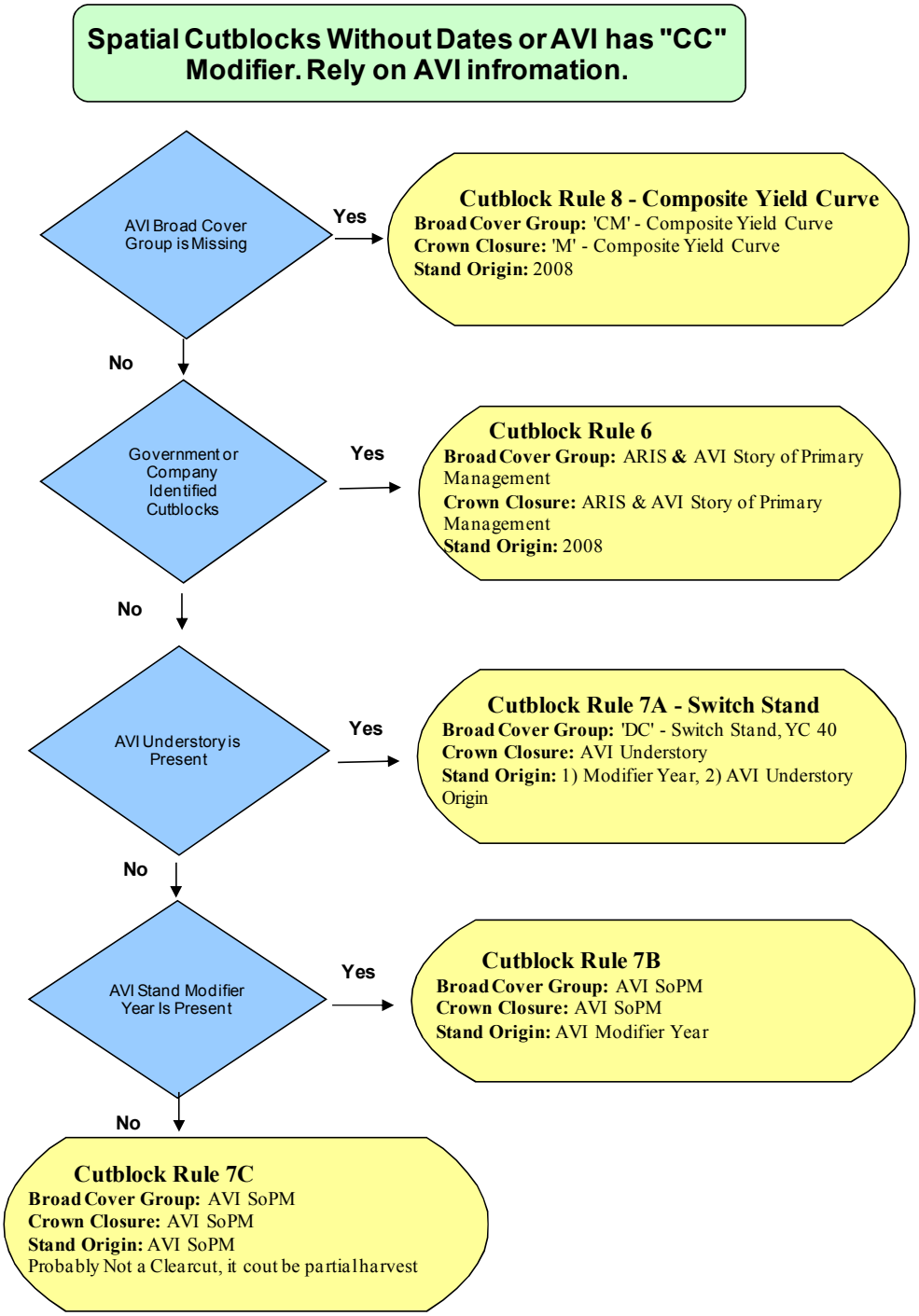


Figure 4-2 Cutblock Rules for secondary data sources (cutblocks with AVI "CC" modifier, harvests without date and attribute data)



The following sections describe the Cutblock Rule assignment procedure in more detail. Note that the order in which the Cutblock Rules are assigned is important; subsequent rules may

overwrite previous assignments. Only polygons with the value 'Y' in the *[CUTBLK]* field were included in the analysis of cutblocks.

4.3 Cutblock Rule 9

Weyerhaeuser Grande Prairie and Ainsworth operations have identified a number of future planned and designed blocks; they were captured in Cutblock Rule 9. Provided planned blocks were included as a spatial cover within the resultant land base. Additional planned blocks could also be included in the TSA if their extent and timing is provided before the TSA work commences.

Planned cutblocks were treated the same way as existing cutblocks except the planned harvest date (*[HRV_DATE]*). All planned harvests were assigned 'P' in the *[CUTBLK]* field, *[HRV_RULE]* was assigned 'R9', and *[HRV_DATE]* was assigned 2015. Harvest dates were further updated as follows:

1) If value of *[*WP_OPEN_NU*]* and *[*WP_DATE*]* is not empty then *[HRV_DATE]* is assigned the value in field *[*WP_DATE*]*;
2) If value of *[A*P_FLD_NUM*]* and *[A*P_DATE*]* is not empty then *[HRV_DATE]* is assigned the value in field *[A*P_DATE*]*;
3) If value of *[AD*_FLD_NUM*]* and *[A*D_DATE*]* is not empty then *[HRV_DATE]* is assigned the value in field *[A*D_DATE*]*;
4) If year of *[SKID_CLEAR]* is 2009 and month of *[SKID_CLEAR]* is greater than 5 then *[HRV_DATE]* is assigned the value in field *[SKID_CLEAR]*; or
5) If Weyerhaeuser cutblock (*[OPEN_NUM]* is '6080612664') *[HRV_DATE]* is assigned 2015 because this cutblock has never been harvested and its status has been changed from actual harvest to planned block.

4.4 Cutblock Rule 8

Cutblock Rule 8 summarizes AVI stands marked as cutblocks without a valid broad cover group. Spatial review of areas under this cutblock rule identified many sliver polygons around existing cutblocks. These sliver polygons were created by overlaying more accurate, often GPS-traced, cutblock boundaries onto the AVI polygon boundaries. It was impossible to determine to which adjacent forest stand these slivers belonged and therefore adjacent forest attributes could not

be used. Because such sliver polygons are artefacts of the GIS process, it was agreed that these cutblocks would be assigned to area-weighted resultant yield strata.

For stands in Cutblock Rule 8 (i.e., *[FIELD_NO]* is empty and *[STD_BCG]* is 'XX'), stand crown closure is assigned to '*M'* and broad cover groups is set to '*CM'*. These attributes are used in the area-weighted resultant yield strata assignment. Stand origin is assigned using AVI stand modifier year or, if it was missing, stand origin is assumed to be 2008 (one year old stand). The following updates were applied according to this rule:

[STD_CC] was assigned the value 'M';
[STD_BCG] was assigned the value 'CM' (broad cover group for switch stands was later assigned to 'CD' as described in Section 5.2);
[HRV_DATE] was assigned the value in field *[YEAR]*;
If *[YEAR]* was zero then *[HRV_DATE]* was assigned the value 2008;
[STD_ORIGIN] was assigned the value in field *[HRV_DATE]*; and
[HRV_RULE] was assigned the value 'R8'.

4.5 Cutblock Rule 7

Cutblock Rule 7 summarized harvested stands using AVI data. Based on AVI understory and modifier year, Cutblock Rule 7 is further subdivided into three Cutblock Rules:

7A. If AVI understory is present (*[MODIFIER]* was 'CC' and *[YEAR]* > 0 or *[ORIGIN]* not equal to zero and *[HRV_RULE]* is not 'R9' or 'R8' *and [SP1_U]* is not empty), then cutblocks are identified as 'switch' stands. AVI understory is used to assign cutblock crown closure. Cutblock origin is determined from AVI modifier year or AVI understory origin. If AVI understory is not present, then Cutblock Rules 7B or 7C are applied.

The following updates were applied to Cutblock Rule 7A:

[HRV_RULE] was assigned the value 'R7A';
[SWITCH] was assigned the value 'Y';
[STORY_USED] was assigned the value 'US';
[STD_BCG] was assigned the value in field *[UBCGP]*;

[STD_SP1] was assigned the value in field *[SP1_U]*;
[STD_SP2] was assigned the value in field *[SP2_U]*;
[STD_SP1PER] was assigned the value in field *[SP1PER_U]*;
[STD_CC] was assigned the value in field *[CC_U]*;
[STD_TPR] was assigned the value in field *[TPR_U]*;
[STD_PCTCON] was assigned the value in field *[UPCTCON]*;
[STD_PCTDEC] was assigned the value in field *[UPCTDEC]*;
[STD_PCTLT] was assigned the value in field *[UPCTLT]*;
[STD_PCTPL] was assigned the value in field *[UPCTPL]*;
[STD_PCTSB] was assigned the value in field *[UPCTSB]*;
[STD_PCTSW] was assigned the value in field *[UPCTSW]*;
[STD_PCTAW] was assigned the value in field *[UPCTAW]*;
[STD_PCTBW] was assigned the value in field *[UPCTBW]*;
[STD_PCTPB] was assigned the value in field *[UPCTPB]*;
[STD_PCTFB] was assigned the value in field *[UPCTFB]*;
[STD_ORIGIN] was assigned the value in field *[YEAR]*;
If *[YEAR]* was 0 then *[STD_ORIGIN]* was assigned the value in field *[ORIGIN_U];* and
[HRV_DATE] was assigned the value in updated field *[STD_ORIGIN]*.

7B. Cutblock Rule 7B is defined as follows: *[HRV_RULE]* is not ‘R9’ or ‘R8’ and *[MODIFIER]* was ‘CC’ and [SP1_U] is empty and *[YEAR]* is greater than 0. The story of primary management (SoPM) is used to determine each cutblock’s broad cover group and crown closure. AVI stand modifier year is used to mark cutblock origin.

The following updates were applied:

[HRV_RULE] was assigned the value ‘R7B’;
[HRV_DATE] was assigned the value in field *[YEAR]*; and
[STD_ORIGIN] was assigned the value in field *[HRV_DATE]*.

7C. Cutblock Rule 7C is defined as follows: *[HRV_RULE]* is not ‘R9’ or ‘R8’ and *[MODIFIER]* is ‘CC’ and *[SP1_U]* is empty. A closer review of cutblock attributes indicated that these were clearcuts or partial clearcuts with valid AVI overstory calls. For the update process,

AVI cutblock assignment was assumed to be incomplete and the stand was not treated as a cutblock (at the end of all cutblock rule processing the *[CUTBLK]* field was later assigned the value 'C'). No changes to the stand's broad cover group, crown closure class, or origin were applied. The only update that was made was to modify the value for harvest rule (*[HARV_RULE]* was assigned the value 'R7C').

4.6 Cutblock Rule 6

Cutblock Rule 6 has been updated for 2009 and identified only CTP cutblocks. These cutblocks that had a polygon present in the spatial cutblock cover without or with incomplete ARIS records. These cutblocks are assigned a value using Cutblock Rule 6 (*[MODIFIER]* is not 'CC' and *[ORIGIN]* is not equal to zero and *[HRV_RULE]* is not 'R9' or 'R8').

For the update process, a combination of existing AVI (SoPM) and ARIS information were used to determine the land base assignment, stand's crown closure class, and broad cover group. Stand origin and harvest year were set to 2008 (one year old cutblocks) as follows:

[STORY_USED] was assigned the value 'CT'; and
[HRV_DATE] and *[STD_ORIGIN]* were assigned the value 2008.

4.7 Cutblock Rule 3, 4, and 5

Cutblock Rules 3 and 4 were present in the 2006 submission but they are not applied to the current land base assignment process because they dealt with RSI block information. Cutblock Rule 5 was omitted because all company harvested blocks were linked to ARIS datasets or their equivalents.

4.8 Cutblock Rule 2

Deciduous Tolko and Ainsworth cutblocks present in the spatial cutblock cover were assigned to Cutblock Rule 2 (the values in fields *[AH_DATE]* and *[AH_REGEN]* were not empty or *[TLKO_SKID]* was not empty). Ainsworth cutblock *[AH_FLD_NUM]* = '6090671649' was located outside the FMA area; it was identified as subjective deletion due to range improvement initiatives and was excluded from the ARIS dataset.

The following Ainsworth cutblock data were used to update the net land base database:

If [*AH_DATE]* and *[AH_REGEN]* were not null then *[HRV_DATE]* was assigned the value in field *[AH_DATE]* plus one year*;*

If a month in *[AH_DATE]* was less than 5 (before May) then *[HRV_DATE]* was assigned the year value from *[HRV_DATE]* minus 1 (assigned previous harvest year);

If *[HRV_DATE]* was less than 2004 then *[STD_ORIGIN]* was assigned the value of year from *[HRV_DATE]*;

[HRV_RULE] was assigned the value ‘R2’; and

[STORY_USED] was assigned the value ‘CT’.

By default, all Ainsworth existing cutblocks were assigned to the pure deciduous broad cover group:

[STD_CC] was assigned the value ‘C’;

[STD_BCG] was assigned the value ‘DX’;

[STD_SP1] was assigned the value ‘AW’;

[STD_SP2] was assigned the value ‘SW’;

[STD_PCTAW] was assigned the value 9;

[STD_PCTSW] was assigned the value 1;

[STD_PCTCON] was assigned the value 1;

[STD_PCTDEC] was assigned the value 9;

[STD_SP1PER] was assigned the value 9;

[STD_PCTLT] was assigned the value 0;

[STD_PCTSB] was assigned the value 0;

[STD_PCTPL] was assigned the value 0;

[STD_PCTBW] was assigned the value 0;

[STD_PCTPB] was assigned the value 0; and

[STD_PCTFB] was assigned the value 0.

However, if *[AH_REGEN]* was ‘DC’ then:

[STD_BCG] was assigned the value ‘DC’;

[STD_SP1] was assigned the value ‘AW’;
[STD_SP2] was assigned the value ‘SW’;
[STD_PCTAW] was assigned the value 7;
[STD_PCTSW] was assigned the value 3;
[STD_PCTCON] was assigned the value 3;
[STD_PCTDEC] was assigned the value 7; and
[STD_SP1PER] was assigned the value 7.

The land base was further updated based on ARIS database records. If *[ARIS_LBASE]* was ‘CS’, ‘DS’, ‘HS’, ‘MS’, ‘SS’, ‘CC’, ‘DC’, ’HC’, ‘SC’ then:

[STD_CC] was assigned the value ‘C’;
[STD_BCG] was assigned the value ‘CX’;
[STD_PCTCON] was assigned the value 9;
[STD_PCTDEC] was assigned the value 1;
[STD_SP1PER] was assigned the value 9;
IF *[ARIS_SPP]* was "PL" then:
[STD_SP1] was assigned the value ‘PL’*;*
[STD_PCTPL] was assigned the value 9; and
[STD_PCTSW] was assigned the value 0.
Otherwise:
[STD_SP1] was assigned the value "SW";
[STD_PCTSW] was assigned the value 9; and
[STD_PCTPL] was assigned the value 0.
If *[STD_PCTSW]* was value < 2 then *[STD_SP2]* was assigned the value "AW";
[STD_PCTAW] was assigned the value 1;
[STD_PCTLT] was assigned the value 0;
[STD_PCTSB] was assigned the value 0;
[STD_PCTBW] was assigned the value 0;
[STD_PCTPB] was assigned the value 0; and
[STD_PCTFB] was assigned the value 0.

If *[ARIS_LBASE]* was 'CD', 'DD', 'HD', 'SD', 'CH', 'DH', 'HH', 'MH', or 'SH' then:

[STD_CC] was assigned the value 'C';

[STD_BCG] was assigned the value 'DX';
[STD_SP1] was assigned the value 'AW';
[STD_SP2] was assigned the value 'SW';
[STD_PCTCON] was assigned the value 1;
[STD_PCTDEC] was assigned the value 9;
[STD_SP1PER] was assigned the value 9;
[STD_PCTPL] was assigned the value 1;
[STD_PCTAW] was assigned the value 9;
[STD_PCTLT] was assigned the value 0;
[STD_PCTSB] was assigned the value 0;
[STD_PCTSW] was assigned the value 0;
[STD_PCTBW] was assigned the value 0;
[STD_PCTPB] was assigned the value 0; and
[STD_PCTFB] was assigned the value 0.

The following Tolko ARIS data was used to update the net land base database:

If [*TLKO_SKID]* was not empty then *[HRV_DATE]* was assigned the value of year from *[TLKO_SKID];*
If a month in *[TLKO_SKID]* was less than 5 (before May) then *[HRV_DATE]* was assigned the value of year from *[HRV_DATE]* minus 1 (assigned previous harvest year);
If *[HRV_DATE]* was less than 2004 then *[STD_ORIGIN]* was assigned the value of year from *[HRV_DATE]*;
[HRV_RULE] was assigned the value ‘R2’; and
[STORY_USED] was assigned the value ‘CT’.

If *[TLKO_LBASE]* was 'CD', 'DD', 'HD', 'SD', 'CH', 'DH', 'HH', 'MH', or 'SH' then:

[STD_CC] was assigned the value 'C';
[STD_BCG] was assigned the value 'DX';
[STD_SP1] was assigned the value 'AW';
[STD_SP2] was assigned the value 'SW';
[STD_PCTCON] was assigned the value 1;

[STD_PCTDEC] was assigned the value 9;
[STD_SP1PER] was assigned the value 9;
[STD_PCTPL] was assigned the value 1;
[STD_PCTAW] was assigned the value 9;
[STD_PCTLT] was assigned the value 0;
[STD_PCTSB] was assigned the value 0;
[STD_PCTSW] was assigned the value 0;
[STD_PCTBW] was assigned the value 0;
[STD_PCTPB] was assigned the value 0; and
[STD_PCTFB] was assigned the value 0.

4.9 Cutblock Rule 1

Cutblock Rule 1 was divided into two parts. Existing Weyerhaeuser cutblocks post-1991 (existing cutblocks completed after March 1, 1991) were assigned to Cutblock Rule 1B. All Weyerhaeuser cutblocks were linked to ARIS. Weyerhaeuser ARIS information was captured in land base fields *[WGP_SKID]* and *[ARIS_LBASE]*; Cutblock Rule *[HRV_RULE]* R1B was applied if neither of these fields was null.

Weyerhaeuser ARIS data were processed the same way as Ainsworth and Tolko ARIS records. *[WGP_SKID]* field was treated similar to *[AH_FLD_SKID]* field. *[HRV_RULE]* was assigned the value 'R1B'.

Pre-1991 cutblocks were assigned to Cutblock Rule 1A (*[HRV_RULE]* was assigned the value 'R1A'*)* and their attributes were derived from AVI calls or ARIS. By default, these cutblocks were classified using AVI information; however, if AVI data were not available but ARIS records existed, cutblock attributes were derived from Weyerhaeuser ARIS records similar to Cutblock Rule R2.

4.10 Additional Cutblock Updates

Following cutblock rule assignments, additional updates were applied. These updates included switch stands, cutblock label and harvest period updates.

4.10.1 Cutblocks and Switch Stands

All areas in cutblocks described by cutblock rules other than cutblock rules R9 and R7A were assigned non-switch stand status. It was assumed that post-harvested stand conditions were correctly assigned using cutblock rules and any AVI information about switch stands should be ignored.

After updates were performed according to the appropriate cutblock rule, the following changes were applied to all cutblocks:

> If *[CUTBLK]* was 'Y' and *[HRV_RULE]* was not 'R9' or 'R7A' and *[SWITCH]* was 'Y' then *[SWITCH]* was assigned the value 'C' (meaning 'changed').

4.10.2 Cutblock Label Updates

To separate planned and uncertain cutblocks from valid cutblocks for the net land base summaries, the following changes to the *[CUTBLK]* field were applied:

1) If *[HRV_RULE]* was 'R9' then *[CUTBLK]* was assigned the value 'P'; and
2) If *[HRV_RULE]* was 'R7C' then *[CUTBLK]* was assigned the value 'C.'

4.10.3 Harvest Period Assignments

During the timber supply analysis, existing and planned blocks will be used in green up modeling and building adjacency constraints. The *[CUTPERIODS]* field was used to apply the correct planning period when harvest took place. Using a sorted dataset and only the first matching condition in *[HRV_DATE]* field, *[CUTPERIODS]* were assigned as follows:

1) If *[HRV_DATE]* > 2018 then *[CUTPERIODS]* was assigned the value '3';
2) If *[HRV_DATE]* > 2013 then *[CUTPERIODS]* was assigned the value '2';
3) If *[HRV_DATE]* > 2008 then *[CUTPERIODS]* was assigned the value '1';
4) If *[HRV_DATE]* > 2003 then *[CUTPERIODS]* was assigned the value '0';
5) If *[HRV_DATE]* > 1998 then *[CUTPERIODS]* was assigned the value '-1';
6) If *[HRV_DATE]* > 1993 then *[CUTPERIODS]* was assigned the value '-2'; or
7) If *[HRV_DATE]* > 1988 then *[CUTPERIODS]* was assigned the value '-3'.

All other records in the *[CUTPERIODS]* field were left empty.

4.10.4 ARIS AOP Area versus Net Land Base Area

Cutblock areas indicated by the GIS cover, where available, took precedence over the ARIS Annual Operating Plan (AOP) area. The main reason for this was that the land base netdown was based on a spatial cover but ARIS is aspatial. Therefore, ARIS could not equate to spatially derived areas.

4.10.5 Cutblock and Land Use Updates

Cutblocks have been defined using helicopter GPS which can be done any time after harvesting of the cutblock is complete. However, helicopter GPS mapping has been done typically in late winter and early spring. Weyerhaeuser is responsible for cutblock data collection, preparation, and delivery to Silvacom, the contractor responsible for cutblock updates early in the second quarter.

5 Yield Class Attributes

This section details how the yield curves and their attributes were assigned to the forested polygons. They have not changed from 2006 submission except for managed stand portion of yield curve 40 (see page 39 for more details).

5.1 Stand Age and Age Class Assignment

Stand ages were derived from the inventory stand origin and adjusted for the difference between the time of inventory interpretation and the Grande Prairie FMA netdown effective date. The *[STD_AGE]* field was added to the netdown database to track current stand age. Timber supply modeling begins in May 2009 (the effective date); therefore current age is 2009 minus year of stand origin. The year of stand origin *[STD_ORIGIN]* was adjusted by story of primary management (SoPM) and corresponded to the overstory or understory layer used in the timber

supply model. Stand age *[STD_AGE]* was assigned the value of 2009 minus the value of *[STD_ORIGIN].*

Stand age was assigned to age classes using five-year intervals (age class 1 equals 0 – 5 years, age class 2 equals 6 – 10 years, age class 3 equals 11 - 15 years, etc.). Five-year stand age classes (*[STD_AGE5]*) were rounded down to the full integer value of (*[STD_AGE]* + 4) / 5.

Polygons without tree species (i.e., non-forested) and with stand age zero defaulted to an age class of 1 (0 – 5 years).

5.2 Yield Class Assignment

Yield curves are based on PSP's for each Natural Subregion and yield stratum. Natural Subregions with similar tree growth productivity potential are combined into Natural Subregion Groups for modelling purposes as shown in Table 5-1.

Table 5-1 Natural Subregion productivity groups for yield curve modelling

NSR Group for Yield Curve Modeling*	[NSR_CODE]
CMW/DMW	CMW, DMW
LF	LF
UF	UF
M/SA/A	M, SA, A

*CMW=Central Mixedwood, DMW=Dry Mixedwood, LF=Lower Foothills, UF=Upper Foothills, M=Montane, SA=Subalpine, A=Alpine (by definition not treed)

Alpine NSR was not modeled as by definition, it has no trees. The net land base contained additional Natural Subregions that did not have adequate PSP representation for modeling in some yield strata. These areas are grouped with the most similar Natural Subregion within each yield stratum (Table 5-2).

Table 5-2 Grouping of areas in the net land base without adequate PSP representation for yield table development

NSR_CODE Group	[YIELD_STRATA] Affected	Yield Table Assigned NSRCODE Group ([NSR_YC] in net land base assignment)	Area affected (% net land base)
M/SA/A	6, 7, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21	UF (21 to LF)	0.7%
CMW/DMW	6, 7, 8, 9, 10, 11, 12,17	LF	1.0%
UF	15, 21	LF (assigned due to the small sample size)	0.2%

The land base assignment process identified 65 unique yield tables for incorporation into the timber supply analysis (Appendix D). Yield curve classifications cannot be modified after assignment except for yield stratum 40 (switch stands).

The following rules are applied to yield strata assignment.

1) Assign *pure coniferous strata* (where *[STD_BCG]* has the value 'CX'):

If *[STD_PCTPL]* ≥ 8 then:

If *[STD_CC]* includes 'A' or 'B' then *[YLD_STRATA]* was assigned the value 1;

If *[STD_CC]* is 'C' then *[YLD_STRATA]* is assigned the value 2;

If *[STD_CC]* is 'D' then *[YLD_STRATA]* is assigned the value 3;

If *[STD_PCTSW]* + *[STD_PCTFB]* ≥ 8 then:

If *[STD_CC]* includes 'A' or 'B' then *[YLD_STRATA]* is assigned the value 4;

If *[STD_CC]* includes 'C' or 'D' then *[YLD_STRATA]* is assigned the value 5;

If *[STD_PCTSB]* + *[STD_PCTLT]* ≥ 8 then:

If *[STD_CC]* includes 'A' or 'B' then *[YLD_STRATA]* is assigned the value 6*;*

If *[STD_CC]* includes 'C' or 'D' then *[YLD_STRATA]* is assigned the value 7;

If *([STD_PCTPL] + [STD_PCTFB] + [STD_PCTSW] > [STD_PCTSB] + [STD_PCTLT])* and *([STD_PCTFB] + [STD_PCTSW] >= [STD_PCTSB] + [STD_PCTLT])* and *[STD_PCTPL] > ([STD_PCTFB] + [STD_PCTSW])* or *([STD_PCTPL] = ([STD_PCTFB] + [STD_PCTSW])* and *[STD_SP1]* is 'PL'*)* and *([STD_PCTSW]* > 0 or *[STD_PCTFB]* > 0*)* and:

If *[STD_CC]* includes ‘A’, ‘B’, ‘C’, or ‘D’ then *[YLD_STRATA]* is assigned the value 8;

If *([STD_PCTPL] + [STD_PCTFB] + [STD_PCTSW] > [STD_PCTSB] + [STD_PCTLT])* and *([STD_PCTPL] ≥ [STD_PCTSB] + [STD_PCTLT])* and *[STD_PCTFB] + [STD_PCTSW] > [STD_PCTPL]* or *([STD_PCTPL] = (STD_PCTFB] + [STD_PCTSW])* and *[STD_SP1]* includes ‘SW’, ‘SE’, ‘FA’, or ‘FB’)) and *[STD_PCTPL]* > 0 and:

If *[STD_CC]* includes ‘A’, ‘B’, ‘C’, or ‘D’ then *[YLD_STRATA]* is assigned the value 9;

If *([STD_PCTSB] + [STD_PCTLT] + [STD_PCTPL] > [STD_PCTSW] + [STD_PCTFB])* and *([STD_PCTSB] + [STD_PCTLT] ≥ [STD_PCTSW] + [STD_PCTFB])* and *([STD_PCTPL] ≥ [STD_PCTSW] + [STD_PCTFB])* and *[STD_PCTPL] > 0* and *([STD_PCTSB] + [STD_PCTLT] > 0)* then:

If *[STD_CC]* includes ‘A’ or ‘B’ then *[YLD_STRATA]* is assigned the value 10;

If *[STD_CC]* includes ‘C’ or ‘D’ then *[YLD_STRATA]* is assigned the value 11;

If *(STD_PCTSB + STD_PCTLT + STD_PCTSW + STD_PCTFB > STD_PCTPL)* and *(STD_PCTSB + STD_PCTLT >= STD_PCTPL)* and *(STD_PCTFB + STD_PCTSW >= STD_PCTPL)* and *(STD_PCTSB + STD_PCTLT>0)* and *(STD_PCTSW + STD_PCTFB* > 0*)* and:

If *[STD_CC]* includes ‘A’, ‘B’, ‘C’, or ‘D’ then *[YLD_STRATA]* is assigned the value 12;

2) Assign *coniferous/deciduous strata* (where *[STD_BCG]* has the value ‘CD’):

If *[STD_PCTPL] > [STD_PCTSW] + [STD_PCTFB] + [STD_PCTSB] + [STD_PCTLT]* and

If *[STD_CC]* includes ‘A’, ‘B’, ‘C’, or ‘D’ then *[YLD_STRATA]* is assigned the value 13;

If *[STD_PCTPL] < [STD_PCTSW] + [STD_PCTFB] + [STD_PCTSB] + [STD_PCTLT]* then:

If *[STD_CC]* includes ‘A’ or ‘B’ then *[YLD_STRATA]* is assigned the value 14;

If *[STD_CC]* includes ‘C’ or ‘D’ then *[YLD_STRATA]* is assigned the value 15;

If *[STD_PCTPL] = [STD_PCTSW] + [STD_PCTFB] + [STD_PCTSB] + [STD_PCTLT]* then:

If *[STD_SP1]* is ‘PL’ and

If *[STD_CC]* includes ‘A’, ‘B’, ‘C’, or ‘D’ then *[YLD_STRATA]* is assigned the value 13;

If *[STD_SP1]* includes ‘SE’, ‘SW’, ‘FA’, or ‘FB’ then:

If *[STD_CC]* includes ‘A’ or ‘B’ then *[YLD_STRATA]* is assigned the value 14;

If *[STD_CC]* includes ‘C’ or ‘D’ then *[YLD_STRATA]* is assigned the value 15;

If *[STD_SP1]* includes ‘AW’, ‘BW’, or ‘PB’

If *[STD_SP2]* is ‘PL’ and *[STD_CC]* includes ‘A’, ‘B’, ‘C’, or ‘D’ then *[YLD_STRATA]* is assigned the value 13;

If *[STD_SP2]* includes ‘SE’, ‘SW’, ‘FA’, or ‘FB’ then:

If *[STD_CC]* includes ‘A’ or ‘B’ then *[YLD_STRATA]* is assigned the value 14;

If *[STD_CC]* includes ‘C’ or ‘D’ then *[YLD_STRATA]* is assigned the value 15;

3) Assign ***deciduous/coniferous strata*** (where *[STD_BCG]* has the value ‘DC’):
If *[STD_CC]* includes ‘A’ or ‘B’ then *[YLD_STRATA]* is assigned the value 16;
If *[STD_CC]* includes ‘C’ or ‘D’ then *[YLD_STRATA]* is assigned the value 17;

4) Assign pure deciduous strata (where *[STD_BCG]* has the value ‘DX’);
If *[STD_CC]* is ‘A’ then *[YLD_STRATA]* is assigned the value 18;
If *[STD_CC]* is ‘B’ then *[YLD_STRATA]* is assigned the value 19;
If *[STD_CC]* is ‘C’ then *[YLD_STRATA]* is assigned the value 20;
If *[STD_CC]* is ‘D’ then *[YLD_STRATA]* is assigned the value 21;

5) If *[SWITCH]* is 'Y' then *[YLD_STRATA]* is assigned the value 40 (note that stands managed for deciduous understory will be not assigned to yield strata 40);
6) If *[STD_BCG]* is 'CM' then *[YLD_STRATA]* is assigned the value 50; and
7) If *[STD_BCG]* is 'XX' or if *[YLD_STRATA]* is empty then *[YLD_STRATA]* is assigned the value 98 and *[STD_CC]* is assigned the value 'X'.

Regenerating stand type *[REG_PATH]* is simplified for 2009 and updated as follows:

1) If *[CUTBLK]* is "Y" then *[REG_PATH]* is assigned the value 'MGD';
2) If *[YLD_STRATA]* is 40 and *[CUTBLK]* is not "Y" then *[REG_PATH]* is assigned the value 'NAT' and *[STD_BCG]* is assigned the value 'DC';
3) If *[YLD_STRATA]* is 40 and *[CUTBLK]* is "Y" and *[STD_CC]* is 'A' or 'B' then *[REG_PATH]* is assigned the value 'MGD' and *[YLD_STRATA]* is assigned the value 14; and
4) If *[YLD_STRATA]* is 40 and *[CUTBLK]* is "Y" and *[STD_CC]* is 'C' or 'D' then *[REG_PATH]* is assigned the value 'MGD' and *[YLD_STRATA]* is assigned the value 15.

NSR used for yield curve assignment were updated if there were too few PSPs available to develop a separate yield curve:

[NSR_YC] is assigned the value 'UF' if:
    [YLD_STRATA] includes 6,7,10,11,12,14,15,16,17,18,19,20,21 and *[NSRCODE]* includes 'M', 'SA', or 'A';
[NSR_YC] is assigned the value 'LF' if:
    [YLD_STRATA] includes 6,7,8,9,10,11,12,17 and *[NSRCODE]* includes 'CMW' or 'DMW';
[NSR_YC] is assigned the value 'LF' if:
    [YLD_STRATA] includes 15 or 21 and *[NSRCODE]* is 'UF';
[NSR_YC] is assigned the value 'MIX' if *[NSR_YC]* includes 'CMW' or 'DMW';
[NSR_YC] is assigned the value 'ALP' if *[NSR_YC]* includes 'M', 'SA', or 'A'.

6 Deletion Hierarchy

Many land base polygons could potentially be assigned to several netdown types. Therefore, a deletion hierarchy is ranked from “harder” to “softer” deletions. The “harder” deletions identified areas that can confidently be removed from the net land base because of productivity or land use. This method helped to determine how much forested land is removed by the land base assignment process.

[NETLABEL] is the over-riding field for determining deletions. Once *[NETLABEL]* has been assigned to a polygon, it cannot be assigned another deletion type.

[FOR_TYPE] is used to identify non-forested, non-harvestable, and harvestable areas in the net land base: for non-forested areas *[FOR_TYPE]* is assigned the value 1, in non-harvestable areas *[FOR_TYPE]* is assigned the value 2; and in harvestable areas *[FOR_TYPE]* is assigned the value 3. By default, if *[STD_BCG]* is not ‘XX’ then *[FOR_TYPE]* is assigned the value 2.

The following section provides categories of the deletion hierarchy ranging from harder to softer deletions divided into four main groups.

6.1 Land Use Dispositions, Unique and Protected Areas

Land use dispositions, unique areas, and Trumpeter swan areas are allocated as follows:

1) Protected Notations (refer to Section 3.7.3)
   - applied to entire landscape including cutblocks as follows: if *[PNT]* = 1 then *[TYPE]* is assigned the value ‘1. Dispositions’ and *[NETLABEL]* is assigned the value ‘1. PNTs’.
2) Unique areas (refer to Section 3.8.5)
   - applied to entire landscape including cutblocks as follows: if [LAND_STAT] = "UNIQ" then *[TYPE]* is assigned the value ‘1. Dispositions’ and *[NETLABEL]* is assigned the value ‘2. Unique Areas’.
3) Trumpeter swan areas (refer to Section 3.8.4)
   - applied to entire landscape including cutblocks as follows: if *[RES_STAT]* is ‘SWAN’ then *[TYPE]* is assigned the value ‘1. Dispositions’ and *[NETLABEL]* is assigned the value ‘3. Trumpeter Swan Areas’.
4) Land Use Dispositions (refer to Section 3.7)

- applied to entire landscape including cutblocks as follows: if *[LANDUSE]* is 'LLN' or 'LPL' then *[TYPE]* is assigned the value '1. Dispositions' and *[NETLABEL]* is assigned the value '4. Land Use Dispositions'.

6.2 Non-Forested Area Reductions

Non-forested reductions are allocated as follows:

1) Anthropogenic Non-Vegetated (refer to Section 3.10)
   - applied to entire landscape including cutblocks as follows: if *[DEL]* is 'ANTHNONVEG' then *[TYPE]* is assigned the value '2. Non-Forested' and *[NETLABEL]* is assigned the value '1. Anthropogenic Non-Vegetated'.
2) Naturally Non-Vegetated (refer to Section 3.10)
   - applied to entire landscape including cutblocks. For example, if *[DEL]* is 'NATNONVEG' then *[TYPE]* is assigned the value '2. Non-Forested' and *[NETLABEL]* is assigned the value '2. Naturally Non-Vegetated'.
3) Anthropogenic Vegetated (refer to Section 3.10)
   - applied to entire landscape excluding cutblocks. It is assumed AVI is mistyped as a non-cutblock. For example, if *[DEL]* is 'ANTHVEG' and *[CUTBLK]* is not 'Y' then *[TYPE]* is assigned the value '2. Non-Forested' and *[NETLABEL]* is assigned the value '3. Anthropogenic Vegetated'.
4) Non-Forested Vegetated (refer to Section 3.10)
   - applied to entire landscape excluding cutblocks. It is assumed AVI is mistyped as a non-cutblock. For example, if *[DEL]* is 'NONFORTYPE' and *[CUTBLK]* is not 'Y' then *[TYPE]* is assigned the value '2. Non-Forested' and *[NETLABEL]* is assigned the value '4. Non-Forested Vegetated'.

6.3 Water Buffers and Seismic Lines

Water buffers and seismic line deletions are allocated as follows:

1) Seismic lines (refer to Section 3.8.3)
   - applied to entire landscape excluding cutblocks (*[CUTBLK]* not 'Y') as follows: if *[RES_STAT]* is 'SEIS' then *[TYPE]* is assigned the value '3. Buffers' and *[NETLABEL]* is assigned the value '1. Seismic Lines'.
2) River Buffer (100m) (refer to Section 3.8.2)

- applied to entire landscape excluding existing and planned cutblocks. For cutblocks, it is assumed that since harvesting and regeneration occurred in a given location in the past, the area would be available for harvest in future. For example, if *[RES_STAT]* is 'RIVR' and *[CUTBLK]* is not 'Y' or 'P' then *[TYPE]* is assigned the value '3. Buffers' and *[NETLABEL]* is assigned the value '2. River Buffer'.

3) Lake Buffer (100m) (refer to Section 3.8.2)

- applied to entire landscape excluding existing and planned cutblocks. For cutblocks, it is assumed that since harvesting and regeneration occurred in a given location in the past, the area would be available for harvest in future. For example, if *[RES_STAT]* is 'LAKE' and *[CUTBLK]* is not 'Y' or 'P' then *[TYPE]* is assigned the value '3. Buffers' and *[NETLABEL]* is assigned the value '3. Lake Buffer'.

4) 100m water buffers (refer to Section 3.8.2)

- applied to entire landscape excluding existing and planned cutblocks. For cutblocks, it is assumed that since harvesting and regeneration occurred in a given location in the past, the area would be available for harvest in future. For example, if *[RES_STAT]* is 'STM3' and *[CUTBLK]* is not 'Y' or 'P' then *[TYPE]* is assigned the value '3. Buffers' and *[NETLABEL]* is assigned the value '4. 100m Buffer'.

5) 60m water buffers (refer to Section 3.8.2)

- applied to entire landscape excluding existing and planned cutblocks. For cutblocks, it is assumed that since harvesting and regeneration occurred in a given location in the past, the area would be available for harvest in future. For example, if *[RES_STAT]* is 'STM2' and *[CUTBLK]* is not 'Y' or 'P' then *[TYPE]* is assigned the value '3. Buffers' and *[NETLABEL]* is assigned the value '5. 60m Buffer'.

6) 30m water buffers (refer to Section 3.8.2)

- applied to entire landscape excluding existing and planned cutblocks. For cutblocks, it is assumed that since harvesting and regeneration occurred in a given location in the past, the area would be available for harvest in future. For example, if *[RES_STAT]* is 'STM1' and *[CUTBLK]* is not 'Y' or 'P' then *[TYPE]* is assigned the value '3. Buffers' and *[NETLABEL]* is assigned the value '6. 30m Buffer'.

6.4 Operability Restrictions and Subjective Deletions

Operability restrictions and subjective deletions are allocated as follows:

1. Sensitive and Steep slopes (refer to Section 3.8.1)
   - applied to entire landscape excluding existing and planned cutblocks. For cutblocks, it is assumed that since harvesting and regeneration occurred in a given location in the past, the area would be available for harvest in future. If *[RES_STAT]* is 'INOP' and *[CUTBLK]* not equal 'Y' or 'P' then *[TYPE]* is assigned the value '4. Subjective' and *[NETLABEL]* is assigned the value '1. Steep Slopes'.
2. Larch Deletion (refer to Section 3.6)
   - applied to entire landscape excluding existing and planned cutblocks: if *[DEL]* is 'LARCH' and *[CUTBLK]* not equal to 'Y' or 'P' then *[TYPE]* is assigned the value '4. Subjective' and *[NETLABEL]* is assigned the value '2. Larch'.
3. Black Spruce Deletion (refer to Section 3.6)
   - applied to entire landscape excluding existing and planned cutblocks: if *[DEL]* is 'BSPRUCE' and *[CUTBLK]* not equal to 'Y' or 'P' then *[TYPE]* is assigned the value '4. Subjective' and *[NETLABEL]* is assigned the value '3. Black Spruce'.
4. A-Density Deciduous Stands (refer to Section 3.6)
   - applied to entire landscape excluding existing and planned cutblocks: if *[YLD_STRATA]* is 18, *[DEL]* is 'ADENS' and *[CUTBLK]* not equal to 'Y' or 'P' then *[TYPE]* is assigned the value '4. Subjective' and *[NETLABEL]* is assigned the value '4. A-Density DX Stands'.
5. Unidentified Opening
   - applied to entire landscape regardless of existing or planned cutblocks as follows: if *[STD_BCG]* is 'XX' or *[YLD_STRATA]* is empty then *[TYPE]* is assigned the value '4. Subjective' and *[NETLABEL]* is assigned the value '5. Unidentified Opening'.
6. Horizontal Stands
   - applied to entire landscape based on gross land base summary (Appendix E).
7. Range Improvement
   - applied to entire landscape regardless of existing or planned cutblocks as follows: if *[AH_FLD_NUM]* was '6090671649' then *[TYPE]* is assigned the value '4. Subjective' and *[NETLABEL]* is assigned the value '7. Range Improvement'.

Otherwise, assign net harvestable land base or unclassified opening. For example,

1) If *[STD_CC]* is 'M' and *[CUTBLK]* is 'Y' then *[TYPE]* is assigned the value '5. Productive' and *[NETLABEL]* is assigned the value 'xCOMP' and *[FOR_TYPE]* is assigned the value 3;
2) If *[STD_BCG]* is not empty or *[STD_BCG]* is not null then *[TYPE]* is assigned the value '5. Productive' and *[NETLABEL]* is assigned *[STD_BCG],* and *[FOR_TYPE]* is assigned the value 3; or
3) Unclassified areas are assigned as follows: *[TYPE]* is assigned the value '4. Subjective' and *[NETLABEL]* is assigned the value 'Unclassified' and *[FOR_TYPE]* is assigned the value 1.

6.5 Stand Age Updates

Stand age is updated if the stand age was outside the modeled age (for coniferous including DC more than 300 years and deciduous more than 200 years) as follows:

1) If *[STD_BCG]* is 'DX' and *[STD_AGE5]* > 40 then *[STD_AGE5]* is assigned the value 40;
2) If *[STD_BCG]* includes 'CD', 'CX', or 'DC' and *[STD_AGE5]* > 60 then *[STD_AGE5]* is assigned the value 60.

Natural regeneration outside the operable forest land base is assigned as follows:

If *[TYPE]* is not '5. Productive' then *[REG_PATH]* is assigned the value 'NAT'.

The horizontal stands adjustment is calculated by adding all areas in *[HORZHA]* field.

7 Final Results

Table 7-1 provides a summary of Weyerhaeuser Grande Prairie's land base netdown. The summary includes a comparison between FMA and Non-FMA and GRL and Non-GRL areas. This split is due to different harvest rights for Weyerhaeuser Grande Prairie operations and deciduous quota operators.

Table 7-1 Summary of Weyerhaeuser Grande Prairie FMA Netdown (ha)*

Category	FMA			Non-FMA			Land Base Total
	Non-GRL	GRL	Total	Non-GRL	GRL	Total	
1. Dispositions							
1. PNTs	4,245	0	4,245	85	0	85	4,330
2. Unique Areas	162	0	162	38	0	38	199
3. Trumpeter Swan Areas	3,552	0	3,552	566	0	566	4,118
4. Land Use Dispositions	40,792	0	40,792	639	275	915	41,707
Sub-Total	**48,751**	**0**	**48,751**	**1,328**	**275**	**1,603**	**50,354**
2. Non-Forested							
1. Anthropogenic Non-Vegetated	7,065	0	7,065	347	148	495	7,560
2. Naturally Non-Vegetated	12,335	0	12,335	1,158	82	1,240	13,575
3. Anthropogenic Vegetated	2,714	0	2,714	3,133	622	3,756	6,469
4. Non-Forested Vegetated	24,428	0	24,428	918	1,077	1,995	26,423
Sub-Total	**46,540**	**1**	**46,541**	**5,556**	**1,929**	**7,486**	**54,027**
3. Buffers							
1. Seismic Lines	7,164	1	7,164	3	6	9	7,173
2. River Buffer	14,451	0	14,451	167	197	365	14,816
3. Lake Buffer	705	0	705	72	0	72	776
4. 100m Buffer	325	0	325	1	0	1	327
5. 60m Buffer	2,620	0	2,620	164	46	210	2,830
6. 30m Buffer	49,697	0	49,697	298	327	624	50,322
Sub-Total	**74,962**	**1**	**74,963**	**705**	**576**	**1,281**	**76,244**
4. Subjective							
1. Steep Slopes	43,815	0	43,815	542	9	551	44,366
2. Larch	20,880	0	20,880	1,181	424	1,605	22,485
3. Black Spruce	8,032	0	8,032	105	198	303	8,335
4. A-Density DX Stands	15,130	0	15,130	239	270	509	15,639
5. Unidentified Opening	0	0	0	0	0	0	0
6. Horizontal Stands**	5	0	5	0	0	0	5
7. Range Improvement	0	0	0	0	16	16	16
Sub-Total	**87,863**	**0**	**87,863**	**2,067**	**916**	**2,983**	**90,846**
5. Productive							
Pure Conifer (CX)	507,907	0	507,908	2,111	996	3,107	511,014
Conifer Leading (CD)	45,714	0	45,714	109	259	368	46,081
Deciduous Leading (DC)	86,836	1	86,837	352	1,318	1,670	88,507
Pure Deciduous (DX)	214,238	1	214,239	1,723	5,398	7,121	221,360
xCOMP	4,261	0	4,261	222	13	236	4,497
Sub-Total	**858,957**	**2**	**858,959**	**4,517**	**7,985**	**12,502**	**871,460**
Grand Total	**1,117,072**	**4**	**1,117,076**	**14,173**	**11,682**	**25,854**	**1,142,931**

* To replicate netdown summaries, the following AVI_DBASE fields should be used: *[FMA_CODE]*, *[TYPE]*, *[NETLABEL]*, *[GRAZING]*, summarized by *[AREA_HA]*.

** The horizontal stand adjustment was calculated by adding areas in *[HORZHA]*.

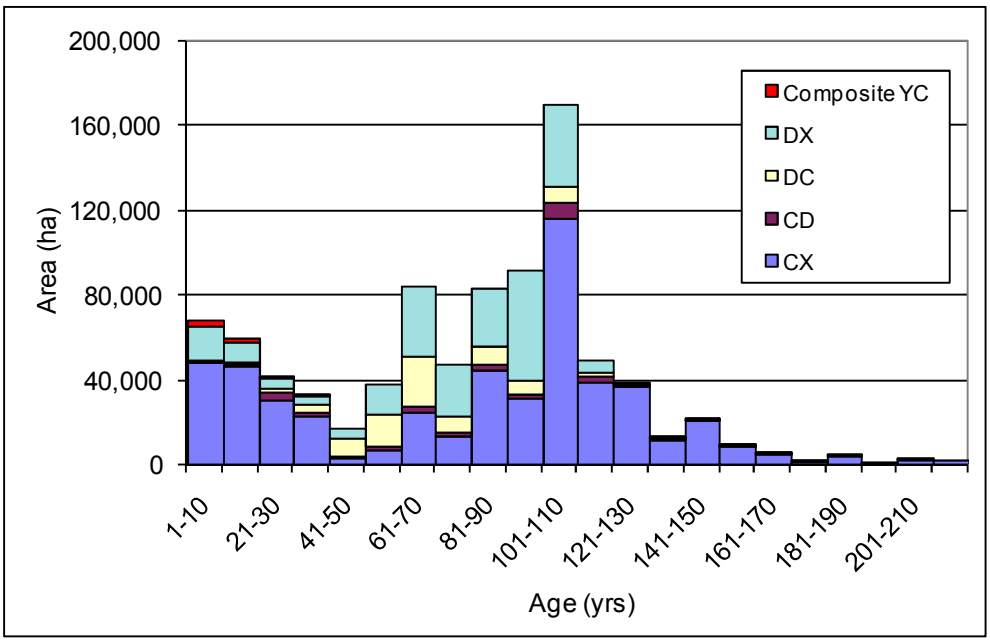


Figure 7-1 Grande Prairie FMA age class distribution by broad cover groups for contributing (net harvestable) forest land base

8 References

Alberta Sustainable Resource Development. 2004. Alberta Forest Management Planning Manual. Draft. Alberta Sustainable Resource Development, Public Lands and Forests Division, Forest Management Branch. Edmonton, Alberta, Canada. May 2004.

Alberta Sustainable Resource Development. 2005. Digital Integrated Dispositions. Compilation and Delivery Specifications. November 25, 2005.

AltaLIS 2008. Digital Integrated Dispositions (DIDS) Specifications. December 8, 2008.

Weyerhaeuser. 2006. Appendix A. Grande Prairie Forest Management Area, Land Base Assignment, Forest Management Agreement Area, FMA #6900016. May 2006.

9 Appendix A Data Library

9.1 Resultant Land Base Data Library

Software: Visual FoxPro 8.0
Database: D_resultant_att.dbf
Number of records: 1,098,595

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
1	RANK	String	3	-	Steep Slopes: DEL, NA (default)
2	WORKING_AR	String	25	-	Weyerhaeuser Working Areas: Bay Tree, Amerada East, Amerada South, Amerada West, Bad Heart River, Bald Mountain, Basil Ridge, Big Mountain, Boone Lake, Bowen North, Burnt River, CFO Ridge, Campbell Creek, Central Narraway, Central Ridge, Chaleur Valley, Chinook Valley, Copton Tower, Dimond Dick, East Iroquois Creek, Gordondale, Grizzly Creek, Haglund Creek, Hammerhead, Hat Mountain, Henning Line, Hidding Creek, Hilltop Lake, Jackfish Lake, Jackfish Lake West, Kakwa Tower, Kakwa West South, Kistuan River, Lick Creek, Lingrell Pit, Lynx Creek, Muddy Creek, Nisby, North Musreau, North Narraway, Nose Escarpment, Nose Lake, Nose Mountan Basin, Nose Ridge, Odum Ridge, Pine Ridges, Pinto North, Pinto South, Porcupine, Prairie Creek North, Prairie Creek South, Rats Ass, Redrock Creek, Route Creek, Sandbar Creek, Seafort, Sheep Creek, Shetler, Smoky North, Smoky South, Snaky Creek, South Musreau, South Narraway, Stetson Creek, Stony Creek, The Beach, Torrens Tower, Two Lakes, Unocal, Valley Creek, Walton Mountain, Wapiti, Webster, West Iroquois Creek, West Torrens, Wolf Creek
3	TSA_COST_Z	String	20	-	Weyerhaeuser TSA cost zones: empty (default), 1800 Timber Berth, Amerada, Bowen, Bull Creek, CHinnok Ridge, Calahoo, Chicken Creek, Chinook Ridge, Daniel Creek, Hammerhead, Kakwa Tower, Kakwa West, Lingrell, Lynx Creek, Musreau, Narraway, Nose Mountain, Pine Rat, Pinto, Pinto Cut Across, Prairie Creek, Redrock, Saddle Hills East, Saddle Hills North, Saddle Hills South, Sherman, Wapiti, Wilson Lake, Winyandy Flats
4	DRAIN_CODE	Numeric	4	0	Buffer distance (m): 0 (default), 60, 100
5	ELEV	String	5	-	Elevation over 1,500 m: empty (default), HIGH
6	SEISMIC	Double	11	0	0 (default), 299
7	BUFF_DIST	Double	11	0	0 (default), 30
8	FMA_CODE	String	1	-	P, empty (default)
9	DTA_NEW	String	15	-	DTLG910005, empty (default)
10	AB_1PGEOGB	Numeric	9	0	Unique link to GB watershed dataset
11	DTA_NAME	String	30	-	empty (default), Ainsworth, Tolko
12	DTA_LICENS	String	25	-	empty (default), DTLG910001, DTLG910002, DTLG910003, DTLG910004, DTPG910001, DTPG910002
13	SWANS	Numeric	9	0	0 (default), 200
14	DISP_APPL	String	3	-	empty (default), CUP, DRS, EZE, FDL, FRD, LOC, MLL, MLP, MSL, PIL, PLA, RDS, REA, REC, ROE, RRD, SMC, SME, SML, VCE

Continued…

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
15	DISP_PNT	String	15	-	Protected Notations: empty (default), PNT000004, PNT000008, PNT000009, PNT000010, PNT000011, PNT000012, PNT000013, PNT000014, PNT000015, PNT000016, PNT000017, PNT000018, PNT000019, PNT000020, PNT000021, PNT000205, PNT010018, PNT010019, PNT010022, PNT010023, PNT010024, PNT010025, PNT010026, PNT010027, PNT010028, PNT010029, PNT010030, PNT010031, PNT010032, PNT010033, PNT010034, PNT010036, PNT010224, PNT020220, PNT020221, PNT030001, PNT040109, PNT040279, PNT050125, PNT060008, PNT810094, PNT840441, PNT840442, PNT840443, PNT840444, PNT880549, PNT900323, PNT900403, PNT980117, PNT980175, PNT990204
16	UNQ_AREA	String	1	-	Y, empty (default)
17	CTP_PLAN	String	14	-	CTP_PLAN_*, empty (default)
18	CTP_CUT	String	15	-	6120680627A, 6120680633A, 6130680163A
19	OPEN_NUM	String	11	-	Weyerhaeuser existing cutblock Opening Number
20	SKID_CLEAR	Date	8	-	Weyerhaeuser date of cutblock clearing
21	LND_BASE	String	10	-	Weyerhaeuser land base identifier: CC, CD, CH, CS, DC,DH, DS, HC, HD, HH, HS, MS, SC, SD, SH, SS
22	BLK_NAME	String	30	-	Tolko block number(s)
23	TLKO_SKID	Date	8	-	Tolko skid date
24	TLKO_LBASE	String	10	-	Tolko ARIS land base identifier: empty (default), HH
25	DISP_GRL	String	3	-	empty (default), GRL
26	AP_FLD_NUM	String	10	-	Ainsworth planned cutblock Field Numbers
27	AP_DATE	Date	8	-	Ainsworth planned cutblock dates
28	WP_OPEN_NU	String	11	-	Weyerhaeuser planned cutblock Opening Numbers
29	WP_DATE	Numeric	4	0	Weyerhaeuser planned cutblock dates
30	AD_FLD_NUM	String	15	-	Ainsworth designed cutblock Field Numbers
31	AD_DATE	String	4	-	Ainsworth designed cutblock dates
32	AVI_L	String	3	-	AVI Lakes: NWL or empty (default)
33	BRDG_CODE	String	5	-	Seed Breading Region Codes: B1, B1G1, G1, or empty (default)
34	AVI_R	String	3	-	AVI Rivers: NWR or empty (default)
35	AH_FLD_NUM	String	10	-	Ainsworth Existing Cutblock Field Numbers
36	AH_DATE	Date	8	-	Ainsworth Existing Cutblock Dates
37	AH_REGEN	String	10	-	Ainsworth Existing Cutblock Regeneration BCG: D, DC, or empty (default)
38	NSR_CODE	String	3	-	Natural Subregion Codes: empty (default), A, CM, DMW, LF, M, SA, UF
39	ECO_CODE	String	4	-	Leading ecosite: empty (default), a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, xx
40	WATERSHED	String	9	-	List of 288 unique watersheds
41	FMU_CODE	String	5	-	Empty (default), G16
42	CMZ_CODE	String	6	-	CMZ zones: empty (default), LNG_AA, NRW, NRW_AA, RRC, RRC_AA
43	AVIRSI_FIN	Numeric	9	0	AVI coverage unique identifier
44	PID	Numeric	4	0	AVI Polygon ID
45	MER	Numeric	4	0	Meridian

Continued…

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
46	TWP	Numeric	4	0	Township
47	RGE	Numeric	4	0	Range
48	MOISTURE	String	1	-	Moisture class: empty (default), A, D, M,W
49	CC	String	1	-	Crown Closure class: empty (default), A,B,C,D
50	HEIGHT	Numeric	4	0	Three height (m)
51	SP1	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
52	SP1PER	Numeric	4	0	Species 1 percentage
53	SP2	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
54	SP2PER	Numeric	4	0	Species 2 percentage
55	SP3	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
56	SP3PER	Numeric	4	0	Species 3 percentage
57	SP4	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
58	SP4PER	Numeric	4	0	Species 4 percentage

Continued…

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
59	SP5	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
60	SP5PER	Numeric	4	0	Species 5 percentage
61	STRUCTURE	String	2	-	AVI stand structure: empty (default), 0, C4, C6, H1, H2, H3, H4, H5, H6, H7, H8, H9, M, M0
62	ORIGIN	Numeric	4	0	Year of origin
63	TPR	String	1	-	AVI Timber Productivity Rating: empty (default), F, G, M, U
64	INTERPTPR	String	1	-	empty (default), I
65	INTERPRETE	String	2	-	empty (default), TP
66	NONFORTYPE	String	2	-	Naturally Non-Forested Vegetated Land: empty (default), BR, HG, SC, SO
67	NONFORCL	Numeric	4	0	Non-Forested Natural Vegetated Land Shrub Closure: 0, 2, 3, 4, 5, 6, 7, 8, 9
68	ANTHVEG	String	3	-	Anthropogenic Vegetated Land: empty (default), CA, CIP, CIW, CP, CPR, NWF, NWL
69	ANTHNONVEG	String	3	-	Anthropogenic Non-Vegetated Land: empty (default), AIF, AIG, AIH, ASR, CIP, CIW
70	NATNONVEG	String	3	-	Naturally Non-Vegetated Land: empty (default), AIG, AIH,ASC, NMC, NMR, NMS, NWF, NWL, NWR
71	FCHECK	String	1	-	Reference source identifier: A, F, I, empty (default)
72	REFYEAR	Numeric	4	0	Reference year
73	STEMCLASS	Numeric	4	0	Stem Class: 1 - 100..250 stems/ha 2 - 251…500 stems/ha 3 - 501…750 stems/ha 4 - 751+ stems/ha
74	DECID_DC	Numeric	4	0	Deciduous density / stem class: 0-6
75	CONIF_DC	Numeric	4	0	Coniferous density / stem class: 0-6
76	MODIFIER	String	2	-	empty (default), CC, BU, WF, CL, DI, IK, UK, WE, DT, BT, SN, ST, SI, SC, PL, TH, GR, IR
77	EXTENT	Numeric	4	0	0-5
78	YEAR	Numeric	4	0	1900 - current year
79	MODIFIER2	String	2	-	empty (default), CC, BU, WF, CL, DI, IK, UK, WE, DT, BT, SN, ST, SI, SC, PL, TH, GR, IR
80	EXTENT2	Numeric	4	0	0-5
81	YEAR2	Numeric	4	0	1900 - current year
82	MODIFIER3	String	2	-	empty (default), CC, BU, WF, CL, DI, IK, UK, WE, DT, BT, SN, ST, SI, SC, PL, TH, GR, IR
83	EXTENT3	Numeric	4	0	0-5
84	YEAR3	Numeric	4	0	1900 - current year
85	MOISTURE_U	String	1	-	Understory Moisture Regime: D, M, W
86	CC_U	String	1	-	Understory Crown Closure class: A,B,C,D
87	HEIGHT_U	Numeric	4	0	Understory height (m)

Continued…

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
88	SP1_U	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
89	SP1PER_U	Numeric	4	0	Understory species 1 percentage
90	SP2_U	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
91	SP2PER_U	Numeric	4	0	Understory species 2 percentage
92	SP3_U	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
93	SP3PER_U	Numeric	4	0	Understory species 3 percentage
94	SP4_U	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
95	SP4PER_U	Numeric	4	0	Understory species 4 percentage
96	SP5_U	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
97	SP5PER_U	Numeric	4	0	Understory species 5 percentage
98	STRUCTURE_	String	2	-	AVI understory stand structure: empty (default), 0, H2, H3, H4, H5, H6, H7, H8, H9

Continued…

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
99	ORIGIN_U	Numeric	4	0	Understory year of origin
100	TPR_U	String	1	-	Understory Timber Productivity Rating: empty (default), F, G, g, M, U
101	NONFORTY_1	String	2	-	Understory Naturally Non-Forested Vegetated Land: empty (default), BR, HG, SC, SO
102	NONFORCL_U	Numeric	4	0	Understory Non-Forested Natural Vegetated Land Shrub Closure: 0, 2, 3, 4, 5, 6, 7, 8, 9
103	ANTHVEG_U	String	3	-	Understory Anthropogenic Vegetated Land: empty (default), CA, CIP, CIW, CP, CPR, NWF, NWL
104	ANTHNONV_1	String	3	-	Understory Anthropogenic Non-Vegetated Land: empty (default), AIF, AIG, AIH, ASR, CIP, CIW
105	NATNONVEG_	String	3	-	Understory Naturally Non-Vegetated Land: empty (default), AIG, AIH,ASC, NMC, NMR, NMS, NWF, NWL, NWR
106	GIS_LINK	Numeric	9	0	Resultant database unique identifier
107	SHAPE_LENG	Double	19	11	GIS shape length (m)
108	SHAPE_AREA	Double	19	11	GIS polygon area (m2)
109	DGIS_LINK	Numeric	9	0	Dissolved Resultant database unique identifier

9.2 Netdown Data Library

Software: Visual FoxPro 8.0
Database: AVI_DBASE.dbf
Number of records: 1,098,595

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
1	RANK	String	3	-	Steep Slopes: DEL, NA (default)
2	WORKING_AR	String	25	-	Weyerhaeuser Working Areas: Bay Tree, Amerada East, Amerada South, Amerada West, Bad Heart River, Bald Mountain, Basil Ridge, Big Mountain, Boone Lake, Bowen North, Burnt River, CFO Ridge, Campbell Creek, Central Narraway, Central Ridge, Chaleur Valley, Chinook Valley, Copton Tower, Dimond Dick, East Iroquois Creek, Gordondale, Grizzly Creek, Haglund Creek, Hammerhead, Hat Mountain, Henning Line, Hidding Creek, Hilltop Lake, Jackfish Lake, Jackfish Lake West, Kakwa Tower, Kakwa West South, Kistuan River, Lick Creek, Lingrell Pit, Lynx Creek, Muddy Creek, Nisby, North Musreau, North Narraway, Nose Escarpment, Nose Lake, Nose Mountan Basin, Nose Ridge, Odum Ridge, Pine Ridges, Pinto North, Pinto South, Porcupine, Prairie Creek North, Prairie Creek South, Rats Ass, Redrock Creek, Route Creek, Sandbar Creek, Seafort, Sheep Creek, Shetler, Smoky North, Smoky South, Snaky Creek, South Musreau, South Narraway, Stetson Creek, Stony Creek, The Beach, Torrens Tower, Two Lakes, Unocal, Valley Creek, Walton Mountain, Wapiti, Webster, West Iroquois Creek, West Torrens, Wolf Creek
3	TSA_COST_Z	String	20	-	Weyerhaeuser TSA cost zones: empty (default), 1800 Timber Berth, Amerada, Bowen, Bull Creek, CHinnok Ridge, Calahoo, Chicken Creek, Chinook Ridge, Daniel Creek, Hammerhead, Kakwa Tower, Kakwa West, Lingrell, Lynx Creek, Musreau, Narraway, Nose Mountain, Pine Rat, Pinto, Pinto Cut Across, Prairie Creek, Redrock, Saddle Hills East, Saddle Hills North, Saddle Hills South, Sherman, Wapiti, Wilson Lake, Winyandy Flats
4	DRAIN_CODE	Numeric	4	0	Buffer distance (m): 0 (default), 60, 100
5	ELEV	String	5	-	Elevation over 1,500 m: empty (default), HIGH
6	SEISMIC	Double	11	0	0 (default), 299
7	BUFF_DIST	Double	11	0	0 (default), 30
8	FMA_CODE	String	1	-	P, empty (default)
9	DTA_NEW	String	15	-	DTLG910005, empty (default)
10	AB_1PGEOGB	Numeric	9	0	Unique link to GB watershed dataset
11	DTA_NAME	String	30	-	empty (default), Ainsworth, Tolko
12	DTA_LICENS	String	25	-	empty (default), DTLG910001, DTLG910002, DTLG910003, DTLG910004, DTPG910001, DTPG910002
13	SWANS	Numeric	9	0	0 (default), 200
14	DISP_APPL	String	3	-	empty (default), CUP, DRS, EZE, FDL, FRD, LOC, MLL, MLP, MSL, PIL, PLA, RDS, REA, REC, ROE, RRD, SMC, SME, SML, VCE

Continued…

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
15	DISP_PNT	String	15	-	Protected Notations: empty (default), PNT000004, PNT000008, PNT000009, PNT000010, PNT000011, PNT000012, PNT000013, PNT000014, PNT000015, PNT000016, PNT000017, PNT000018, PNT000019, PNT000020, PNT000021, PNT000205, PNT010018, PNT010019, PNT010022, PNT010023, PNT010024, PNT010025, PNT010026, PNT010027, PNT010028, PNT010029, PNT010030, PNT010031, PNT010032, PNT010033, PNT010034, PNT010036, PNT010224, PNT020220, PNT020221, PNT030001, PNT040109, PNT040279, PNT050125, PNT060008, PNT810094, PNT840441, PNT840442, PNT840443, PNT840444, PNT880549, PNT900323, PNT900403, PNT980117, PNT980175, PNT990204
16	UNQ_AREA	String	1	-	Y, empty (default)
17	CTP_PLAN	String	14	-	CTP_PLAN_*, empty (default)
18	CTP_CUT	String	15	-	6120680627A, 6120680633A, 6130680163A
19	OPEN_NUM	String	11	-	Weyerhaeuser existing cutblock Opening Number
20	SKID_CLEAR	Date	8	-	Weyerhaeuser date of cutblock clearing
21	LND_BASE	String	10	-	Weyerhaeuser land base identifier: CC, CD, CH, CS, DC,DH, DS, HC, HD, HH, HS, MS, SC, SD, SH, SS
22	BLK_NAME	String	30	-	Tolko block number(s)
23	TLKO_SKID	Date	8	-	Tolko ARIS skid date
24	TLKO_LBASE	String	10	-	Tolko ARIS land base identifier: empty (default), HH
25	DISP_GRL	String	3	-	empty (default), GRL
26	AP_FLD_NUM	String	10	-	Ainsworth planned cutblock Field Numbers
27	AP_DATE	Date	8	-	Ainsworth planned cutblock dates
28	WP_OPEN_NU	String	11	-	Weyerhaeuser planned cutblock opening numbers
29	WP_DATE	Numeric	4	0	Weyerhaeuser planned cutblock dates
30	AD_FLD_NUM	String	15	-	Ainsworth designed cutblock Field Numbers
31	AD_DATE	String	4	-	Ainsworth designed cutblock dates
32	AVI_L	String	3	-	AVI Lakes: NWL or empty (default)
33	BRDG_CODE	String	5	-	Seed Breading Region Codes: B1, B1G1, G1, or empty (default)
34	AVI_R	String	3	-	AVI Rivers: NWR or empty (default)
35	AH_FLD_NUM	String	10	-	Ainsworth Existing Cutblock Field Numbers
36	AH_DATE	Date	8	-	Ainsworth Existing Cutblock Dates
37	AH_REGEN	String	10	-	Ainsworth Existing Cutblock Regeneration BCG: D, DC, or empty (default)
38	NSR_CODE	String	3	-	Natural Subregion Codes: empty (default), A, CM, DMW, LF, M, SA, UF
39	ECO_CODE	String	4	-	Leading ecosite: empty (default), a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, xx
40	WATERSHED	String	9	-	List of 288 unique watersheds
41	FMU_CODE	String	5	-	Empty (default), G16
42	CMZ_CODE	String	6	-	CMZ zones: empty (default), LNG_AA, NRW, NRW_AA, RRC, RRC_AA
43	AVIRSI_FIN	Numeric	9	0	AVI coverage unique identifier
44	PID	Numeric	4	0	AVI Polygon ID
45	MER	Numeric	4	0	Meridian

Continued…

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
46	TWP	Numeric	4	0	Township
47	RGE	Numeric	4	0	Range
48	MOISTURE	String	1	-	Moisture class: empty (default), A, D, M,W
49	CC	String	1	-	Crown Closure class: empty (default), A,B,C,D
50	HEIGHT	Numeric	4	0	Three height (m)
51	SP1	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
52	SP1PER	Numeric	4	0	Species 1 percentage
53	SP2	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
54	SP2PER	Numeric	4	0	Species 2 percentage
55	SP3	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
56	SP3PER	Numeric	4	0	Species 3 percentage
57	SP4	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
58	SP4PER	Numeric	4	0	Species 4 percentage

Continued…

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
59	SP5	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
60	SP5PER	Numeric	4	0	Species 5 percentage
61	STRUCTURE	String	2	-	AVI stand structure: empty (default), 0, C4, C6, H1, H2, H3, H4, H5, H6, H7, H8, H9, M, M0
62	ORIGIN	Numeric	4	0	Year of origin
63	TPR	String	1	-	AVI Timber Productivity Rating: empty (default), F, G, M, U
64	INTERPTPR	String	1	-	empty (default), I
65	INTERPRETE	String	2	-	empty (default), TP
66	NONFORTYPE	String	2	-	Naturally Non-Forested Vegetated Land: empty (default), BR, HG, SC, SO
67	NONFORCL	Numeric	4	0	Non-Forested Natural Vegetated Land Shrub Closure: 0, 2, 3, 4, 5, 6, 7, 8, 9
68	ANTHVEG	String	3	-	Anthropogenic Vegetated Land: empty (default), CA, CIP, CIW, CP, CPR, NWF, NWL
69	ANTHNONVEG	String	3	-	Anthropogenic Non-Vegetated Land: empty (default), AIF, AIG, AIH, ASR, CIP, CIW
70	NATNONVEG	String	3	-	Naturally Non-Vegetated Land: empty (default), AIG, AIH,ASC, NMC, NMR, NMS, NWF, NWL, NWR
71	FCHECK	String	1	-	Reference source identifier: A, F, I, empty (default)
72	REFYEAR	Numeric	4	0	Reference year
73	STEMCLASS	Numeric	4	0	Stem Class: 1 - 100..250 stems/ha 2 - 251…500 stems/ha 3 - 501…750 stems/ha 4 - 751+ stems/ha
74	DECID_DC	Numeric	4	0	Deciduous density / stem class: 0-6
75	CONIF_DC	Numeric	4	0	Coniferous density / stem class: 0-6
76	MODIFIER	String	2	-	empty (default), CC, BU, WF, CL, DI, IK, UK, WE, DT, BT, SN, ST, SI, SC, PL, TH, GR, IR
77	EXTENT	Numeric	4	0	0-5
78	YEAR	Numeric	4	0	1900 - current year
79	MODIFIER2	String	2	-	empty (default), CC, BU, WF, CL, DI, IK, UK, WE, DT, BT, SN, ST, SI, SC, PL, TH, GR, IR
80	EXTENT2	Numeric	4	0	0-5
81	YEAR2	Numeric	4	0	1900 - current year
82	MODIFIER3	String	2	-	empty (default), CC, BU, WF, CL, DI, IK, UK, WE, DT, BT, SN, ST, SI, SC, PL, TH, GR, IR
83	EXTENT3	Numeric	4	0	0-5
84	YEAR3	Numeric	4	0	1900 - current year
85	MOISTURE_U	String	1	-	Understory Moisture Regime: D, M, W
86	CC_U	String	1	-	Understory Crown Closure class: A,B,C,D
87	HEIGHT_U	Numeric	4	0	Understory height (m)

Continued…

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
88	SP1_U	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
89	SP1PER_U	Numeric	4	0	Understory species 1 percentage
90	SP2_U	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
91	SP2PER_U	Numeric	4	0	Understory species 2 percentage
92	SP3_U	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
93	SP3PER_U	Numeric	4	0	Understory species 3 percentage
94	SP4_U	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
95	SP4PER_U	Numeric	4	0	Understory species 4 percentage
96	SP5_U	String	2	-	AVI allowed species codes: AW - Trembling aspen, BW - White birch, FA - Alpine fir, FB - Balsam fir, LT - Larch, PB - Balsam poplar, PL - Lodgepole pine, SB - Black spruce, SE - Engelmann spruce, SW - White spruce
97	SP5PER_U	Numeric	4	0	Understory species 5 percentage
98	STRUCTURE_	String	2	-	AVI understory stand structure: empty (default), 0, H2, H3, H4, H5, H6, H7, H8, H9

Continued…

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
99	ORIGIN_U	Numeric	4	0	Understory year of origin
100	TPR_U	String	1	-	Understory Timber Productivity Rating: empty (default), F, G, g, M, U
101	NONFORTY_1	String	2	-	Understory Naturally Non-Forested Vegetated Land: empty (default), BR, HG, SC, SO
102	NONFORCL_U	Numeric	4	0	Understory Non-Forested Natural Vegetated Land Shrub Closure: 0, 2, 3, 4, 5, 6, 7, 8, 9
103	ANTHVEG_U	String	3	-	Understory Anthropogenic Vegetated Land: empty (default), CA, CIP, CIW, CP, CPR, NWF, NWL
104	ANTHNONV_1	String	3	-	Understory Anthropogenic Non-Vegetated Land: empty (default), AIF, AIG, AIH, ASR, CIP, CIW
105	NATNONVEG_	String	3	-	Understory Naturally Non-Vegetated Land: empty (default), AIG, AIH,ASC, NMC, NMR, NMS, NWF, NWL, NWR
106	GIS_LINK	Numeric	9	0	Resultant database unique identifier
107	SHAPE_LENG	Double	19	11	GIS shape length (m)
108	SHAPE_AREA	Double	19	11	GIS polygon area (m2)
109	DGIS_LINK	Numeric	9	0	Dissolved Resultant database unique identifier
110	NSR_YC	String	3	-	NSR used for yield strata assignment: CM, LF, MIX, UF
111	AREA_HA	Double	17	6	Area (ha) adjusted for horizontal stands
112	HORZHA	Double	17	6	Horizontal stand area adjustment (ha)
113	HRV_DATE	Numeric	4	0	Harvest date (year)
114	REG_PATH	String	3	-	Regeneration Pathway: NAT, MGD
115	SWITCH	String	1	-	Flag for swithc stands: C (changed due to cutblocks) , Y, empty (default)
116	STORY_USED	String	2	-	Story of Primary Management (SoPM): CT (area weighted yeild curves), OS, US
117	DEL	String	10	-	Netdown deletion type: ADENS, ANTHNONVEG, ANTHVEG, BSPRUCE, LARCH, NATNONVEG, NONFORTYPE
118	BCGP	String	2	-	Overstory broad cover group: CD, CX, DC, DX, XX (default)
119	UBCGP	String	2	-	Understory broad cover group: CD, CX, DC, DX, XX (default)
120	LAND_STAT	String	4	-	Land Status: UNIQ
121	RES_STAT	String	4	-	Reserve Status: empty (default), INOP, LAKE, RIVR, SEIS, STM1, STM2, STM3, SWAN
122	YLD_STRATA	Numeric	3	0	Yield curve number assigned to stand (see yield curve document): empty (default), 1 - 21, 40, 50, 98.
123	LANDUSE	String	3	-	empty (default), LLN
124	PNT	Numeric	1	0	PNT disposition deletion flag: empty (default), 1
125	GRAZING	Numeric	1	0	Grazing disposition deletion flag: empty (default), 1 (lease)
126	CUTBLK	String	1	-	Cutblock identifier: empty (default), C = probably not a cutblock, P = planned cutblock, Y = cutblock
127	CUTPERIODS	String	2	-	Cutblock harvest period used by Woodstock / Stanley greenup modeling: empty (default), -3, -2, -1, 0, 1, 2
128	TYPE	String	15	-	Net land base final stratification type (see land base assignment document)
129	NETLABEL	String	30	-	Net land base stratification description (see base assignment document)
130	FOR_TYPE	Numeric	2	0	Land base type: 1 = non-forested, 2 = inoperable forested, 3 = net operable / contributing land base

Continued…

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
131	PCTDEC	Numeric	2	0	Composition of overstory deciduous species as defined by AVI: 0~10
132	PCTCON	Numeric	2	0	Composition of overstory coniferous species as defined by AVI: 0~10
133	PCTLT	Numeric	2	0	Composition of overstory larch as defined by AVI: 0~10
134	PCTPL	Numeric	2	0	Composition of overstory pine as defined by AVI: 0~10
135	PCTSB	Numeric	2	0	Composition of overstory black spruce as defined by AVI: 0~10
136	PCTSW	Numeric	2	0	Composition of overstory white spruce as defined by AVI: 0~10
137	PCTFB	Numeric	2	0	Composition of overstory balsam fir as defined by AVI: 0~10
138	PCTAW	Numeric	2	0	Composition of overstory white aspen as defined by AVI: 0~10
139	PCTBW	Numeric	2	0	Composition of overstory white birch as defined by AVI: 0~10
140	PCTPB	Numeric	2	0	Composition of overstory balsam poplar as defined by AVI: 0~10
141	UPCTDEC	Numeric	2	0	Composition of understory deciduous species as defined by AVI: 0~10
142	UPCTCON	Numeric	2	0	Composition of understory coniferous species as defined by AVI: 0~10
143	UPCTLT	Numeric	2	0	Composition of understory larch as defined by AVI: 0~10
144	UPCTPL	Numeric	2	0	Composition of understory pine as defined by AVI: 0~10
145	UPCTSB	Numeric	2	0	Composition of understory black spruce as defined by AVI: 0~10
146	UPCTSW	Numeric	2	0	Composition of understory white spruce as defined by AVI: 0~10
147	UPCTFB	Numeric	2	0	Composition of understory balsam fir as defined by AVI: 0~10
148	UPCTAW	Numeric	2	0	Composition of understory white aspen as defined by AVI: 0~10
149	UPCTBW	Numeric	2	0	Composition of understory white birch as defined by AVI: 0~10
150	UPCTPB	Numeric	2	0	Composition of understory balsam poplar as defined by AVI: 0~10
151	STD_BCG	String	2	-	Stand broad cover group: CD, CM, CX, DC, DX, XX (default)
152	STD_CC	String	1	-	Stand crown closure cass: A, B, C, D, M, X (default)
153	STD_ORIGIN	Numeric	4	0	Stand origion (year)
154	STD_AGE	Numeric	4	0	Stand age in 2009 (years)
155	STD_AGE5	Numeric	4	0	Stand age in 2009 expressed with 5-year age classes
156	STD_TPR	String	1	-	Stand timber productivity rating: F, G, M, U
157	STD_SP1	String	2	-	Stand leading species as defined by AVI
158	STD_SP2	String	2	-	Stand second leading species as defined by AVI
159	STD_SP1PER	Numeric	2	0	Stand composition of leading species as defined by AVI: 0~10
160	STD_PCTCON	Numeric	2	0	Stand composition of coniferous species as defined by AVI: 0~10
161	STD_PCTDEC	Numeric	2	0	Stand composition of deciduous species as defined by AVI: 0~10
162	STD_PCTLT	Numeric	2	0	Stand composition of larch as defined by AVI: 0~10
163	STD_PCTPL	Numeric	2	0	Stand composition of pine as defined by AVI: 0~10
164	STD_PCTSB	Numeric	2	0	Stand composition of black spruce as defined by AVI: 0~10

Continued…

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
165	STD_PCTSW	Numeric	2	0	Stand composition of white spruce as defined by AVI: 0~10
166	STD_PCTAW	Numeric	2	0	Stand composition of white aspen as defined by AVI: 0~10
167	STD_PCTBW	Numeric	2	0	Stand composition of white birch as defined by AVI: 0~10
168	STD_PCTPB	Numeric	2	0	Stand composition of balsam poplar as defined by AVI: 0~10
169	STD_PCTFB	Numeric	2	0	Stand composition of fir as defined by AVI: 0~10
170	H_LAYER	String	1	-	N (default), Y
171	HRV_RULE	String	3	-	Cutblock Rules: empty (default), R1A, R1B, R2, R7A, R7B, R7C, R8, R9
172	ARIS_ONUM	String	11	-	ARIS link to Weyerhaeuser and Ainsworth cutblock Opening or Field Numbers
173	ARIS_SKID	Date	8	-	ARIS skid date, empty (default)
174	ARIS_LBASE	String	10	-	ARIS land base assignment: empty (default), CC, CS, DC, HC, HH, SC, SH, SS
175	ARIS_SPP	String	3	-	ARIS leading species: empty (default), AW, PL, SB, SW, SWs (SW in Saddle Hills, PL elsewhere)

9.3 ARIS Data Library

Software: Visual FoxPro 8.0
Database: ARIS_DBASE.dbf
Number of records: 5,751

ID	NAME	FIELD TYPE	FIELD WIDTH	NO. OF DECIMALS	FIELD DESCRIPTION
1	OPEN_NUM	String	11	-	Block opening number (Weyerhaeuser or Ainsworth)
2	WGP_SKID	Date	8	-	Weyerhaeuser skid date
3	LND_BASE	String	10	-	ARIS declared land base: CC, CD, CH, CS, DC, DH, DS, HC, HD, HH, HS, MS, SC, SD, SH, SS
4	ARIS_SKID	String	20	-	ARIS skid date
5	LFN_DATE	String	15	-	LFN date
6	DISTB_DATE	String	20	-	Disturbance date
7	AOP_DATE	String	18	-	AOP date
8	REGEN	String	27	-	Regeneration standard: C-2000, CD-2000, CONF, D-2000, DC-2000, DECD, PR91
9	AOP_LND	String	26	-	ARIS declared land base: CC, CD, CH, CS, DC, DH, DS, HC, HD, HH, HS, MS, SC, SD, SH, SS
10	PLANT_DATE	String	15	-	Planting date 1
11	PLANT_DAT2	String	15	-	Planting date 2
12	PLANT_SPP	String	13	-	Planted species: PL, SB, SW, SX
13	REGSURV_DT	String	12	-	Regeneration survey date1
14	STOCKING	Double	15	2	Stocking
15	SPP_GRP	String	19	-	Species group: CONF, DECD
16	RGN_SRV_DT	String	12	-	Regeneration survey date 2
17	MAX_STOCKI	String	23	-	Max stocking
18	REG_STOCK	String	22	-	Regenerating stocking
19	SEED_DAT	String	15	-	Seeding date 1
20	SEED_DT2	String	15	-	Seeding date 2
21	SPP_SEED1	String	13	-	Seeded species 1: PL, SW
22	SPP_SEED2	String	13	-	Seeded species 1: PL, SW
23	ST_PREP_DT	String	15	-	Site preparation date
24	SITE_PREP	String	22	-	Site preparation type: CHEM, MECH
25	ST_PREP_D2	String	15	-	Site preparation date 2
26	SITE_PREP2	String	22	-	Site preparation type: CHEM, MECH
27	OPERATOR	String	1	-	W, A
28	PLNT_DATE	Date	8	-	Planting date
29	PLNT_SPP	String	3	-	Planted species: PL, SB, SW, SX
30	SPP	String	3	-	Stand regenerating leading species: AW, PL, SB, SW, SWs
31	HRV_RND	Double	11	0	Random number: 1~100

10 Appendix B GIS Processing Document

10.1 Development of spatial composite land base coverage for net land base determination

All datasets were assembled into ArcInfo™ file geodatabase format from the source information and projected to UTM, Zone 11, NAD83 Datum where required. Only the required attributes (see table below) were maintained for each input layer. All input data sets were overlaid using the 'UNION' function to produce a composite (resultant) land base coverage. The software and operating system used to produce this overlay product was ESRI, NT workstation, ArcInfo 9.2 on Windows XP™ Professional operating system, ESRI Model Builder, and Python routines. The input datasets were overlaid in the order provided below. All spatial processing was done using a default fuzzy tolerance of 0.0001 m and a dangle tolerance of 0. All of the coverages used to produce the composite land base coverage have been provided to Weyerhaeuser. The AVI attribute database files including data dictionaries outlining the attribute items for these files have been added to this document.

10.1 Input Covers

Input cover quality control procedures were adapted from the development of 2006 spatial composite land base coverage determination. All input covers were individually verified including both their spatial representation (overlapping/duplicate polygons) as well as associated attribute data quality. The following table describes individual covers in more details.

GIS Coverage / Shapefile	Description of GIS Cover
AVIRSI_FINAL	Current approved AVI database
wgp_07312009	Approved FMA boundaries (modified on July 31, 2009)
Slope	Steep slope classification
Trumpeter_Swan_Buffers	Trumpeter Swan lake buffers
Work Area83	Working Areas
ELC-FINAL	Ecological land classification. Used to extract Natural Subregion and leading ecosite data.
wgp_raster2	Elevation data identifies stands located at altitudes over 1,500m
gb_csa_080924	ASRD Grizzly Bear watersheds
BF_FMU_POLYGON	Approved FMU G16 boundaries
83L_APPL	DIDS dataset – Applications in 83L. Used for GRL and PNT extraction. No historical or conflict DIDS used.

Continued...

GIS Coverage / Shapefile	Description of GIS Cover
83M_APPL	DIDS dataset – Applications in 83M. Used for GRL and PNT extraction. No historical or conflict DIDS used.
Ainsworth_and_Tolko's_ existing_DTA	Ainsworth new dispositions
Ainsworth_new_DTA	Ainsworth and Tolko's dispositions
UNQ_ABD	Unique Areas 200 m radius buffers around points [retained from 2007 submission]
G16_CTP_Cut	FMU G16 CTP planned blocks
G16Blocks_Merged	FMU G16 CTP harvest blocks (three shapefiles) between May 2004 and February 2009
Weyco_actual_cutblocks2	Weyerhaeuser actual harvest blocks
Weyco_planned_cutblocks	Weyerhaeuser planned blocks
AEC_G16_Harvested_Blocks2	Ainsworth actual harvest blocks
AEC_G16_Planned_Blocks2	Ainsworth planned blocks
AEC_G16_Design_Stands	Ainsworth designed blocks
75-6-0347	Tolko actual harvest block in Saddle Hills area
wc0ref	Caribou Management Zone outside boundaries including herds; herd names were coded
Lingrell_AreaA_April09	Caribou Management Zones: Lingrell Area A
Narraway_AreaA_April09	Caribou Management Zones: Narraway Area A
RR_AreaA_April09	Caribou Management Zones: Red Rock Area A
b1_breeding_region	B1 breeding region; may have an overlap with G1
g1_breeding_region	G1 breeding region; may have an overlap with B1
cutlines	Seismic (cutline) polygons [from 2006 submission]
Drain1_DFMP	Drainage coverage. 30 m buffer applied.
Drainage_2	Drainage coverage. 60 m buffer applied. Following Ground Rules, 100 m buffer applied for areas > 4ha and FCODE_LU_K was not 85, 95, or 234
Watershed_Topology	Delineated watersheds in the FMA area

10.2 Retained Variables

The following table summarizes retained spatial attributes from input coverages used in creating the resultant land base GIS coverage.

GIS Coverage / Shapefiles	Source	Cover Type	Buffer Width	Retained Attribute Items
AVIRSI_FINAL	GreenLink	Polygon		AVI attributes
wgp_07312009	ASRD	Polygon		WGP_07312009-ID >0 renamed as FMA_CODE = 'P'
Slope	GreenLink	Polygon		RANK ('IN' and 'OUT' renamed as 'DEL')
Trumpeter_Swan_Buffers	Weyerhaeuser	Polygon	200 m radius	DISTANCE renamed SWANS
Work_area83	Weyerhaeuser	Polygon		WORKING_AR, TSA_COST_Z
ELC-FINAL	GreenLink	Polygon		NSR_CODE, ECO1 renamed ECO_CODE
wgp_raster2	Timberline	Polygon		ELEV
gb_csa_080924	ASRD	Polygon		AB_1PGEOGB
BF_FMU_POLYGON	AltaLIS	Polygon		FMU_CODE
83L_APPL	AltaLIS	Polygon		DISP_TYPE renamed DISP_APPL or DISP_GRL, DISP_NUM renamed DISP_PNT
83M_APPL	AltaLIS	Polygon		DISP_TYPE renamed DISP_APPL or DISP_GRL, DISP_NUM renamed DISP_PNT
AVIRSI_FINAL	GreenLink	Polygon	100 m radius	NATNONVEG = NWL renamed AVI_L
AVIRSI_FINAL	GreenLink	Polygon	100 m radius	NATNONVEG = NWR renamed AVI_R
Ainsworth_and_Tolko's_ existing_DTA	Weyerhaeuser	Polygon		MAP_NAME renamed DTA_NAME; LICENSE renamed DTA_LICENSE
Ainsworth_new_DTA	Weyerhaeuser	Polygon		DTL renamed DTA_NEW
UNQ_ABD	GreenLink	Polygon		NAME renamed UNQ_ABD
G16_CTP_Cut	ASRD	Polygon		OPEN_NUM renamed CTP_CUT
G16Blocks_Merged	ASRD	Polygon		IDENT renamed CTP_PLAN
Weyco_actual_cutblocks2	Weyerhaeuser	Polygon		OPEN_NUM, SKID_CLEAR, LANDBASE renamed LND_BASE
Weyco_planned_cutblocks	Weyerhaeuser	Polygon		OPEN_NUM renamed WP_OPEN_NU, STATUSDATE renamed WP_DATE
AEC_G16_Harvested_Blocks2	Ainsworth	Polygon		FIELD_NO renamed AH_FLD_NUM, DATE_ renamed AH_DATE, REGEN renamed AH_REGEN

Continued...

GIS Coverage / Shapefiles	Source	Cover Type	Buffer Width	Retained Attribute Items
AEC_G16_Planned_Blocks2	Ainsworth	Polygon		FIELD_NO renamed AP_FLD_NUM, DATE_ renamed AP_DATE
AEC_G16_Design_Stands	Ainsworth	Polygon		OPERATOR renamed AD_FLD_NUM, DATE_ renamed AD_DATE
75-6-0347	Tolko	Polygon		BLOCK_ID renamed BLK_NAME, SKID_DATE renamed TLKO_SKID, ARIS_LANDB renamed TLKO_LBASE
wc0ref	ASRD	Polygon		HERD renamed CMZ_CODE
Lingrell_AreaA_April09	ASRD	Polygon		CMZ_LNG_AA added to CMZ_CODE
Narraway_AreaA_April09	ASRD	Polygon		CMZ_NRW_AA added to CMZ_CODE
RR_AreaA_April09	ASRD	Polygon		CMZ_RRC_AA added to CMZ_CODE
b1_breeding_region	Weyerhaeuser	Polygon		IN_RANGE added to BRD_CODE
g1_breeding_region	Weyerhaeuser	Polygon		IN_RANGE added to BRD_CODE
cutlines	Silvicom	Polygon	3m radius	FCODE_LU_K renamed SEISMIC
Drain1_DFMP	Weyerhaeuser	Polygon	30m radius	BUFF_DIST
Drainage_2	Weyerhaeuser	Polygon	60 m or 100 m	DRAIN_CODE
Watershed_Topology	Weyerhaeuser	Polygon		WATERSHED

The list of PNTs was selected if 'No surface disposition' was present in the PNT description field. Those that created slivers with FMA boundary and legal description was outside the FMA area were excluded. The final selection of PNTs identified for land base deletion was reviewed by Weyerhaeuser land use foresters to ensure its completeness.

10.3 Resultant Coverage Quality Control

Quality control checks were performed on both the input and output databases. The employed process ensured that no duplicate shapefile polygons were added to the resultant database. The GIS process was documented using the Python program, making the process verifiable and repeatable.

11 Appendix C Sliver Removal Procedures and Results

The GIS processing of the land base determination process involved an overlay of 32 file geodatabase feature classes (see table on the next page). The overlay resulted in a creation of many small polygons. In fact, there were almost fourteen times as many polygons in the resultant file geodatabase as there were in the initial AVI layer. To reduce the file spatial complexity and improve processing time required to obtain the resultant database, a range of smaller polygons (slivers) were eliminated.

The sliver removal procedure was designed by Doug Crane, ASRD, and adapted by Timberline. It is very time consuming; its purpose is to reduce the number of polygons while having no effect on the operational realism of the resultant land base file. The sliver elimination procedure was developed in Python and provided capability of eliminating small polygons by merging them into adjacent polygons based on minimum polygon size and the attribute rules. For the Weyerhaeuser Grande Prairie FMA area, all sliver polygons were considered for removal if their area was less than 0.1 ha. The attribute rules were based on the field list – a sliver polygon was considered for a merger into a larger adjacent polygon if the values in the 'hard' attribute types were the same. The resultant post-merged polygon retained attributes of the adjacent larger polygon; the area of the post-merged polygon has increased by amount of the sliver polygon; and the post-merged polygon outer boundaries[3] remained intact.

The following table summarizes 'hard' and 'soft' attribute types by source GIS datasets.

[3] During the sliver removal process, polygon lines separating different 'hard' attributes could not be removed or dissolved; only matching 'soft' attributes were eligible to be dissolved if required.

GIS Feature Layers and Attribute Classification for Sliver Removal

Index	GIS Coverage / Shapefiles	Attribute Type
1.1	AVIRSI_FINAL	Soft
1.2	AVIRSI_FINAL (AVI Lakes and Rivers)	Hard
2	wgp_07312009	Hard
3	Slope	Soft
4	Trumpeter_Swan_Buffers	Hard
5	Work Area83	Hard
6	ELC-FINAL	Soft
7	wgp_raster2	Soft
8	gb_csa_080924	Hard
9	BF_FMU_POLYGON	Hard
10	83L_APPL	Hard
11	83M_APPL	Hard
12	Ainsworth_and_Tolko's_existing_DTA	Hard
13	Ainsworth_new_DTA	Hard
14	UNQ_ABD	Hard
15	G16_CTP_Cut	Soft
16	G16Blocks_Merged	Soft
17	Weyco_actual_cutblocks2	Soft
18	Weyco_planned_cutblocks	Soft
19	AEC_G16_Harvested_Blocks2	Soft
20	AEC_G16_Planned_Blocks2	Soft
21	AEC_G16_Design_Stands	Soft
22	75-6-0347	Soft
23	wc0ref	Hard
24	Lingrell_AreaA_April09	Hard
25	Narraway_AreaA_April09	Hard
26	RR_AreaA_April09	Hard
27	b1_breeding_region	Hard
28	g1_breeding_region	Hard
29	cutlines	Hard
30	Drain1_DFMP	Hard
31	Drainage_2	Hard
32	Watershed_Topology	Soft

The following table summarizes polygon statistics before and after sliver polygon removal. The results from sliver removal process indicate a loss of total land base area of less than 1 ha (0.87 ha). Further analysis suggested that the area loss was outside the FMA area. The origin of this discrepancy is due to a split of the land base into 14 smaller units based on aggregated TSA cost zones ('hard' attribute type) to meet limitations of the computer processing requirements. These cost zones, however, did not cover entire land base area modeled outside the FMA boundaries. This resulted in some loss of the sliver polygons outside the FMA.

Sliver polygon removal summary

Polygon Statistics	Before Sliver Removal		After Sliver Removal		% Difference		Difference	
	Count (#)	Area (ha)	Count (#)	Area* (ha)	Count (#)	Area (ha)	Count (#)	Area (ha)
Polygon Count	1,669,224	1,142,930	1,098,595	1,142,931	-34.2%	0.0%	-570,629	<1
Average Size (ha)	n/a	0.68	n/a	1.04	n/a	51.9%	n/a	0.36
Polygon Area Classes (ha)								
0 - 1	1,443,054	164,855	869,555	153,777	-39.7%	-6.7%	-573,499	-11,077
1 - 5	170,760	390,868	173,059	395,504	1.3%	1.2%	2,299	4,635
5 - 10	36,300	251,265	36,644	253,657	0.9%	1.0%	344	2,392
10 - 25	16,531	239,771	16,728	242,702	1.2%	1.2%	197	2,931
25 - 50	2,258	73,852	2,286	74,819	1.2%	1.3%	28	967
50 - 100	289	18,192	291	18,338	0.7%	0.8%	2	146
> 100	32	4,126	32	4,133	0.0%	0.2%	0	7
Sub-section total	1,669,224	1,142,930	1,098,595	1,142,931	-34.2%	0.0%	-570,629	<1
Area by Leading Species								
AW	441,762	375,179	297,380	375,301	-32.7%	0.0%	-144,382	122
BW	7,134	5,349	4,766	5,347	-33.2%	0.0%	-2,368	-2
FA	174	41	107	41	-38.5%	-0.7%	-67	0
FB	6,547	4,811	4,409	4,807	-32.7%	-0.1%	-2,138	-4
LT	11,904	14,151	8,395	14,162	-29.5%	0.1%	-3,509	11
PB	36,838	20,376	26,672	20,365	-27.6%	-0.1%	-10,166	-11
PL	417,605	330,562	261,083	330,657	-37.5%	0.0%	-156,522	95
SB	82,381	73,634	55,064	73,597	-33.2%	0.0%	-27,317	-37
SE	27,931	25,380	17,896	25,372	-35.9%	0.0%	-10,035	-8
SW	258,089	164,870	176,660	164,844	-31.6%	0.0%	-81,429	-26
N/A	378,859	128,578	246,163	128,438	-35.0%	-0.1%	-132,696	-140
Sub-section total	1,669,224	1,142,930	1,098,595	1,142,931	-34.2%	0.0%	-570,629	<1

12 Appendix D Complete List of Yield Curves

The following table provides a complete list of yield curves and their distribution by Natural Subregions.

YIELD_STRATA	NSRCODE_group	NSRCODEs included						
		CMW	DMW	LF	UF	M	SA	A
1	CMW/DMW	Y	Y					
1	LF			Y				
1	UF				Y			
1	M/SA/A					Y	Y	Y
2	CMW/DMW	Y	Y					
2	LF			Y				
2	UF				Y			
2	M/SA/A					Y	Y	Y
3	CMW/DMW	Y	Y					
3	LF			Y				
3	UF				Y			
3	M/SA/A					Y	Y	Y
4	CMW/DMW	Y	Y					
4	LF			Y				
4	UF				Y			
4	M/SA/A					Y	Y	Y
5	CMW/DMW	Y	Y					
5	LF			Y				
5	UF				Y			
5	M/SA/A					Y	Y	
6	LF	Y	Y	Y				
6	UF				Y	Y	Y	
7	LF	Y	Y	Y				
7	UF				Y		Y	
8	LF	Y	Y	Y				
8	UF				Y			
8	M/SA/A					Y	Y	
9	LF	Y	Y	Y				
9	UF				Y			
9	M/SA/A					Y	Y	Y
10	LF	Y	Y	Y				
10	UF				Y		Y	

YIELD_STRATA	NSRCODE_group	NSRCODEs included						
		CMW	DMW	LF	UF	M	SA	A
11	LF	Y		Y				
11	UF				Y		Y	
12	LF	Y	Y	Y				
12	UF				Y		Y	
13	CMW/DMW	Y	Y					
13	LF			Y				
13	UF				Y			
13	M/SA/A					Y	Y	
14	CMW/DMW	Y	Y					
14	LF			Y				
14	UF				Y	Y	Y	
15	CMW/DMW	Y	Y					
15	LF			Y	Y	Y	Y	
16	CMW/DMW	Y	Y					
16	LF			Y				
16	UF				Y	Y	Y	
17	LF	Y	Y	Y				
17	UF				Y	Y	Y	
18	CMW/DMW	Y	Y					
18	LF			Y				
18	UF				Y	Y	Y	
19	CMW/DMW	Y	Y					
19	LF			Y				
19	UF				Y	Y	Y	
20	CMW/DMW	Y	Y					
20	LF			Y				
20	UF				Y	Y	Y	
21	CMW/DMW	Y	Y					
21	LF			Y	Y	Y	Y	
40	CMW/DMW	Y	Y					
40	LF			Y				
40	UF				Y			
50	CM	Y	Y	Y	Y	Y	Y	Y

13 Appendix E Land Base Summary of Unique Netdown Categories

Table 13-1 Land Base Summary by Unique Netdown Categories for the FMA*

Category	FMA			Non-FMA			Land Base Total
	Non-GRL	GRL	Total	Non-GRL	GRL	Total	
1. Dispositions							
1. PNTs	4,245	0	4,245	85	0	85	4,330
2. Unique Areas	163	0	163	38	0	38	200
3. Trumpeter Swan Areas	3,969	0	3,969	566	0	566	4,535
4. Land Use Dispositions	41,132	0	41,132	707	275	983	42,115
Sub-Total	**49,508**	**0**	**49,508**	**1,396**	**275**	**1,671**	**51,179**
2. Non-Forested							
1. Anthropogenic Non-Vegetated	15,205	0	15,206	430	236	666	15,872
2. Naturally Non-Vegetated	13,518	0	13,518	1,236	82	1,319	14,837
3. Anthropogenic Vegetated	7,972	0	7,972	3,170	681	3,851	11,823
4. Non-Forested Vegetated	26,198	0	26,198	1,020	1,102	2,122	28,319
Sub-Total	**62,893**	**1**	**62,893**	**5,857**	**2,101**	**7,958**	**70,851**
3. Buffers							
1. Seismic Lines	9,230	1	9,231	5	7	12	9,243
2. River Buffer	16,834	0	16,834	252	218	471	17,305
3. Lake Buffer	2,232	0	2,232	356	0	356	2,587
4. 100m Buffer	2,237	0	2,237	960	0	960	3,197
5. 60m Buffer	19,307	0	19,307	1,114	267	1,381	20,688
6. 30m Buffer	60,919	0	60,920	636	546	1,182	62,101
Sub-Total	**110,759**	**1**	**110,760**	**3,322**	**1,038**	**4,361**	**115,121**
4. Subjective							
1. Steep Slopes	53,804	0	53,804	673	10	684	54,488
2. Larch	23,093	0	23,093	1,290	456	1,745	24,838
3. Black Spruce	8,877	0	8,877	111	213	324	9,201
4. A-Density DX Stands	18,066	0	18,066	288	323	612	18,678
5. Unidentified Opening	60,780	1	60,780	5,857	2,087	7,945	68,725
6. Horizontal Stand	5	0	5	0	0	0	5
7. Range Improvement	0	0	0	0	16	16	16
Sub-Total	**164,625**	**1**	**164,626**	**8,220**	**3,105**	**11,325**	**175,951**

* To replicate netdown summaries, the following AVI_DBASE fields should be used: *[FMA_CODE]*, *[TYPE]*, *[NETLABEL]*, *[GRAZING]*, summarized by *[AREA_HA]*.