Appendix 3 Land base Classification

Mountain Pine Beetle Action Plan
Land base Classification

JANUARY 15, 2007

Sundre Forest Products
A division of West Fraser Mills Ltd.

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Sundre Forest Products
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Introduction

As part of the Mountain Pine Beetle Strategy outlined by the government of Alberta, Sundre Forest Products is undergoing and interim timber supply analysis and AAC calculation.

The timber supply analysis is required as part of the plan and will include the following activities:

➢ Defining a land base that details the areas available for timber harvest.

➢ Yield analysis to quantify the growth of the land base.

➢ Timber supply analysis to determine the harvest levels (Annual Allowable Cut - AAC).

➢ Allocation of the harvest to the various timber operations.

This document details the first activity of defining a land base. A classification methodology was used to derive the final data set for use in the timber supply analysis.

The total area for the R10 Forest Management Units (FMU) is 574,867 ha (13,063 has lie within the analysis area but outside the R10 FMU). The net AAC contributing land base for the FMU is 380,485 ha or 66%. In total, the land base has been reduced by 11.8 % from the previously approved DFMP[1] mostly due to the additional deletions in inaccessible areas, slopes and stream buffers areas.

Included with this document are:

➢ The digital coverages of the final land base in Arc/Info export format, including linkable attribute tables

➢ A digital copy of this document.

Land base Classification

Land base classification can be divided into two separate processes:

➢ Manipulation of the spatial layers using the Geographic Information System (GIS) software Arc/Info™ (Version 9.1).

➢ Manipulation of the tabular data using programming software (SQL Server™ version 8.0 and Microsoft Visual Basic 6.3).

All attributes contained within the submitted land base file are used and consistent with the defined objectives and goals defined in the forest management plan strategies.

Table 1 provides a summary of the siginificant changes between the approved and revised landbase

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[1] See Land base Classification document submitted to Sustainable Resource Development - June 4, 2002

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Table 1 Land base changes

Item	2002 Land base	2006 Land base
Cut off date	May, 1998	May, 2006
AVI	Combination of SFP AVI and Areas outside the FMA	Revised in 2002 for areas to the east and south, updated for harvest to 2002
FMUs	B6, B8, R2, R5, R6, R7, R8, R9	R10
Layers	14 - FMU, AVI, ESIP, PA, PRA, Hydro (Provincial), Access (Gov't and SFP Data), Slope 8 classes (Gov't DEM), Patented lands, Cut blocks, Land status (6 Disposition types), Nregions, Compartments, Inaccessible areas	13 - FMUS, Dispositions (17 disposition types SFP Data), Trails (new), Harvest, Fires(new), Protected (includes ESIP, PA, PRA and PNTs), Slope 9 Classes (SFP DEM) , Water buffer (SFP data no change in buffering), Inaccessible (enhanced), yarding(new), AVI and compartments.
Processing	Arc/Info, SAS and MSAccess	Arc/Info and SQLServer
AVI Classification - Rank	N/A	Applied
Deletion Codes	10 Classes 0 defines net netlandbase	13 - 99, 991 and 992 Define net landbase
MPBIndex	N/A	Applied
Post 91 Block Stratification	N/A	Applied
Gross area	581,427	574,867
Net Area	502,317	380,485
	86.4%	66.2%

GIS Processing of Spatial Data

Data contained in the Sundre GIS is processed to create nine intermediate layers. These layers are combined using ARC/Info™ to produce the final layer of all data required to complete the land base classification.

The effective date[2] used for the purposes of the land base classification will be May 1, 2006.

A fuzzy tolerance of .01 and dangle tolerance of .01 was used in all coverages.

The layers[3], their purpose and their description are:

> ➢ FMUS – Definition of the sustained yield units.

> ➢ DISPS – Land use disturbances and areas not available for harvest.

> ➢ TRAILS – Trails and seismic line disturbances.

> ➢ HARV – Harvested areas that are not reflected in the current forest cover layer.

> ➢ FIRES – Burned areas that are not reflected in the current forest cover layer.

> ➢ PROT – Protected areas that area not available for harvest.

> ➢ SLOPE – Inoperable slopes.

> ➢ WBUF – Stream buffers not available for harvest.

> ➢ INACC – Areas that are not accessible with given current harvesting technologies and economies.

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[2] This is the date that the final approved AAC will be retroactive to.
[3] Layer names were kept abbreviated and short (< 8 characters) to avoid conflicts in cases where there are name length restrictions.

> ➢ YARD – Areas that are located within inoperable slopes and inaccessible areas that are accessible through high lead logging.

> ➢ AVI – Forest Cover as defined by the Alberta Vegetation Inventory.

> ➢ COMPS – Sundre compartment boundaries.

A description, purpose, scale of accuracy, reference date and source are provided for each layer in Table 6. In addition, a map showing the location of the each of areas has been provided for reference.

The order in which the layers are described is the order in which they are combined to produce the final resultant dataset.

A data dictionary for the final land base file is provided in Appendix 1.

FMUS

In 1997 a process was initiated that involved negotiations with Weyerhaeuser Canada Ltd. (Drayton Valley Division) and Spray Lakes Sawmills Ltd. The objective was to realign the Forest Management Unit boundaries to exclude these Quota interests from SFP's FMA. The process was completed in 2001, with a revised FMU boundary approved by the Alberta Government on July 24, 2001 (O.C. 283/2001).

This layer is used to define the Sustained Yield Units (SYU) or Forest Management Units (FMU) in the analysis[4]. It is also used to clip the other layers (SeeFigure 1).

The units are:

> ➢ R10U – SFP's FMA.

> ➢ R10 – Areas to the east of the FMA that are mostly contained within grazing leases.

> ➢ Patent Land – These are areas within the contiguous boundaries that are not freehold. They are identified in this coverage and do not contribute to the AAC land base.

DISPS

This is a layer of the land use dispositions within R10U /R10 that will not contribute to the final AAC land base. Table 1 provides a list of the disposition types. The dispositions will be designated as forested or non-forested. Dispositions that are deemed non-forested will have the forest cover attributes (i.e. land base designation, yield class and cover group assignments) changed to reflect the non-forested state. All dispositions that have an issuance date prior to the effective date will be used (See Figure 2). DRS44 was not excluded as SFP has been given approval to harvest within this area by SRD (See Appendix 3.)

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[4] The current approved Timber Supply Analysis document submitted June 4, 2002 details the process used in defining the new FMU boundary. The final boundary was approved and provided to Sundre Forest Products Ltd. on Oct 29, 2001.

Table 2 Disposition types

Disposition Type	Description	Forested
DRS	Disposition Reservation	Yes
EZE	Easement	No
FRD	Forestry Road	No
LOC	Licence of Occupation	No
MLL	Miscellaneous Lease	No
MLP	Miscellaneous Permit	No
MSL	Mineral Surface Lease	No
PIL	Pipeline Installation	No
PLA	Pipeline	No
RDS	Road Disposition	No
REA	Right of Entry	No
REC	Recreation	Yes
ROE	Right of Entry	No
RRD	Rural Road	No
SMC	Surface Materials	No
SML	Surface Materials Lease	No
VCE	Vegetation Control	No

TRAILS

This layer was derived by the Government of Alberta. A discussion was held with ASRD as part the the land base classification in reference to the additional areas affected by the GeoPhysical acitivities in the FMU. Since the creation of the Trails coverage, there has been some activity. However, the majority of this acitivity was completed as low impact (i.e. narrow line widths not discernable through photo interpretation). The amount of area that was affected by traditional methods is approximately 200 ha. Given the small area and the time required to update the layer, it was decided to to use the layer with no updates.

This layer contains trails and seismic lines within the FMA. It will be used to update the AVI attributes to non-forested.

Since the original coverage had only line topology, all lines were buffered by 3.0 m to create a line width of 6.0 meters (See Figure 3).

HARV

This layer contains all cut blocks, harvested and planned. This information will be used to update the forest cover attributes to reflect the harvest (See Figure 4).

FIRES

This layer contains all major fires that had not been updated into the forest cover between the last update and the effective date. Table 3 provides a summary of the major fire occurrences.

This information will be used to update the forest cover attribute to reflect the disturbance (See Figure 5).

Table 3 Summary of Major Fire Occurrences within FMU R10

Fire Number	Name	Fire Size	Fire Year
CWF-044-2004	N/A	168.6	2004
CWF-092-2003	Burnt Timber	275.3	2003
RWF047053021	Colt Creek	414.9	2001
RWF-082-2001	Dog Rib	7,067.0	2001
RWF-193-2003	N/A	73.2	2003
RWF-029-2006	Burntstick Lake	659.9	2006

PROT

This layer contains areas within the FMA that are under protection (See Table 4 and Figure 6). It is a combination of several layers including:

> Integrated land management zones defined under the Eastern Slopes Integration Policy (ESIP).

> Forest Land Use Zones (FLUZ).

> Protected Areas (PA).

> Provincial Recreation Areas (PRA).

> Protective Notations (PNT). Includes only areas that have a "No Surface Disturbance" and an exception other than "Comm/Ind/Res"

Table 4 Protected areas cover names and classifications

COVER	Class	Area
ESIP	Patent Land	9,620.1
	Prime Protection	240.2
ESIP Total		9,860.3
PA	Alexo	45.5
	Aurora	3.6
	Jack Fish Lake	615.9
	North Ram/Nice Creek	1,904.6
	Red Deer River	148.8
	Swan Lake	516.9
	West Stony Creek	263.8
PA Total		3,499.0
PNT	PNT020180	10.0
	PNT550009	8.1
	PNT630014	48.1
	PNT750009	61.5
	PNT800284	17.7
	PNT830459	247.0
	PNT880609	16.1
	PNT880610	16.2
	PNT880611	17.0
	PNT880614	33.8
	PNT880615	17.0
	PNT890049	16.2
	PNT890050	63.9
	PNT890075	16.2
	PNT890077	17.0
	PNT890079	16.2
	PNT900210	32.8
	PNT910215	0.4
	PNT910239	8.1
	PNT910240	8.1

COVER	Class	Area
	PNT910243	16.2
	PNT910244	4.1
	PNT910245	4.1
	PNT910248	4.0
	PNT910249	4.0
	PNT910250	4.5
	PNT910251	8.1
	PNT910252	4.5
	PNT910253	12.2
	PNT910347	16.2
	PNT910349	17.0
	PNT910350	17.0
	PNT910351	16.2
	PNT910355	32.4
	PNT910359	16.2
	PNT910362	17.0
	PNT910365	16.2
	PNT910367	16.2
	PNT910368	16.1
	PNT910369	16.2
	PNT910371	16.2
	PNT910373	17.0
	PNT910374	16.2
	PNT910381	16.9
	PNT920003	32.5
	PNT920176	4.0
	PNT920251	32.4
	PNT920400	11.0
	PNT930422	1.0
PNT Total		1,077.0
PRA	Aylmer	7.5
	Beaverdam	80.7
	Burnt Timber	25.3
	Deer Creek	5.6
	Elk Creek Fish Pond	4.6
	Harlech	15.7
	Horburg	13.3
	Jackfish Lake	169.2
	James-Wilson	17.0
	North Ram River	0.0
	Phyllis Lake	6.6
	Prairie Creek	42.2
	Prairie Creek Group Camp	13.8
	Red Deer River	124.1
	Saunders	9.5
	Seven Mile Flats	25.5
	Shunda Viewpoint	16.2
	Swan Lake	14.0
	Wild Horse	5.2
PRA Total		595.8

SLOPE

SFP initiated a project under Forest Resource Improvement Association of Alberta (FRIAA) to enhance the current Digital Elevation Model (DEM)[5]. This coverage was then modified using the revised hydrographic layer (described later in this report) and the Arc/Info process "TOPOGRID" which generates a hydro-logically correct grid of elevation from point, line, and polygon layers[6]. This data was then used to develop the inoperable slopelayer. Table 5 provides a list the classes used and the classes that will be deleted from the AAC land base.

Table 5 Slope Classes

Slope Code	Slope Class	Deletion
-9999	No Data	No

5 FRIAA Project SUNPIN-01-30 Digital Elevation Model (DEM) Enhancement
6 See Arc/Info Copyright © 1982-2002 Environmental Systems Research Institute. Inc. ARC 8.2 Documentation

Slope Code	Slope Class	Deletion
1	0 - 15	No
2	16 - 30	No
3	31 - 35	No
4	36 - 40	No
5	41 - 45	No
6	46 - 50	Yes
7	51 - 55	Yes
8	56 - 60	Yes
9	60 +	Yes

WBUF

SFP has completed a project under FRIAA[7] to reclassify all streams within the FMA according to the SFP Timber Harvest Planning and Operating Ground Rule Guidelines[8]. This layer contains all small and large permanent lakes, streams, rivers and watercourses (See Figure 8). The following buffers and their map representations were applied:

> ➢ Intermittent and Permanent Lakes (poly) – 100 meters.

> ➢ Large Permanent Rivers (poly)– 60 meters.

> ➢ Small Permanent Streams (line) – 30 meters.

INACC

This layer contains areas that are currently viewed as being inaccessible given current economics and harvesting technologies. It includes mainly areas that are on top of hills and at valley bottoms (See Figure 9).

YARD

This layer identifies those areas within the FMA that are operable through high lead logging methods. It was developed using AVI, estimates of tree attributes and local knowledge from our planning staff (See Figure 10).

AVI

This layer contains the forest cover according to the AVI 2.1 Standard. Details of the approved inventory will be provided as part of the timber supply document to be submitted under separate cover.

COMPS

This layer contains the compartment boundaries within the SYU's. In addition, cut plan areas have been included to account for the smaller scale operations of the quota holders.

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[7] FRIAA Project SUNPIN-01-28 FMA Watercourse Assessment and Classification
[8] Sundre Timber Harvest Planning and Operating Ground Rules, 1994

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It will be used to identify and schedule compartments in the timber supply analysis (See Figure 11).

Table 6 Summary of Coverage Spatial Information

Coverage	Sub Layer	Net Down Order	Reference Date	Scale of Accuracy	Projection	Datum	Zunits	Units	Spheriod	Source
FMUs	FMUs	1	July 24, 2001	1:20,000	UTM 11	NAD83	No	Meters	GRS1980	Sustainable Resource Development
Disps	Disps	2	May 1, 2006	< 1:5,000	UTM 11	NAD83	No	Meters	GRS1980	Sundre Forest Products
Trails	Trails	3	2002	1:60,000	UTM 11	NAD83	No	Meters	GRS1980	Sustainable Resource Development
Harv	Harv	4	May 1, 2006	1:5,000	UTM 11	NAD83	No	Meters	GRS1980	Sundre Forest Products
Fires	Fires	5	May 1, 2006	1:5,000	UTM 11	NAD83	No	Meters	GRS1980	Sustainable Resource Development
Protected Areast	Prot	6	June 2, 2004	1:250,000	UTM 11	NAD83	No	Meters	GRS1980	Sustainable Resource Development
ESIP	Prot	6	May 1, 2000	1:250,000	UTM 11	NAD83	No	Meters	GRS1980	Sustainable Resource Development (Digitized by SFP)
FLUZ	Prot	6	March 21, 2005	1:250,000	UTM 11	NAD83	No	Meters	GRS1980	Sustainable Resource Development
Provincial Recreation Areas	Prot	6	April 14, 2005	1:250,000	UTM 11	NAD83	No	Meters	GRS1980	Sustainable Resource Development
PNTs	Prot	6	May 1, 2006	1:250,000	UTM 11	NAD83	No	Meters	GRS1980	Sundre Forest Products
Slope	Slope	7	November 7, 2005	1:100,000	UTM 11	NAD83	No	Meters	GRS1980	Sundre Forest Products
Wbuf	Wbu	8	November, 2002	1:20,000	UTM 11	NAD83	No	Meters	GRS1980	Sundre Forest Products
Inacc	Inacc	9	10-Jul-06	1:50,000	UTM 11	NAD83	No	Meters	GRS1980	Sundre Forest Products
Yard	Yard	10	28-Nov-05	1:20,000	UTM 11	NAD83	No	Meters	GRS1980	Sundre Forest Products
AVI	AVI	11	10-Jul-06	1:20,000	UTM 11	NAD83	No	Meters	GRS1980	Sundre Forest Products
Comps	Comps	12	30-Nov-05	1:50,000	UTM 11	NAD83	No	Meters	GRS1980	Sundre Forest Products

Figure 1 Forest Management Units (FMUS)

Legend

FMU

Sustained Yield Units

R10

R10U

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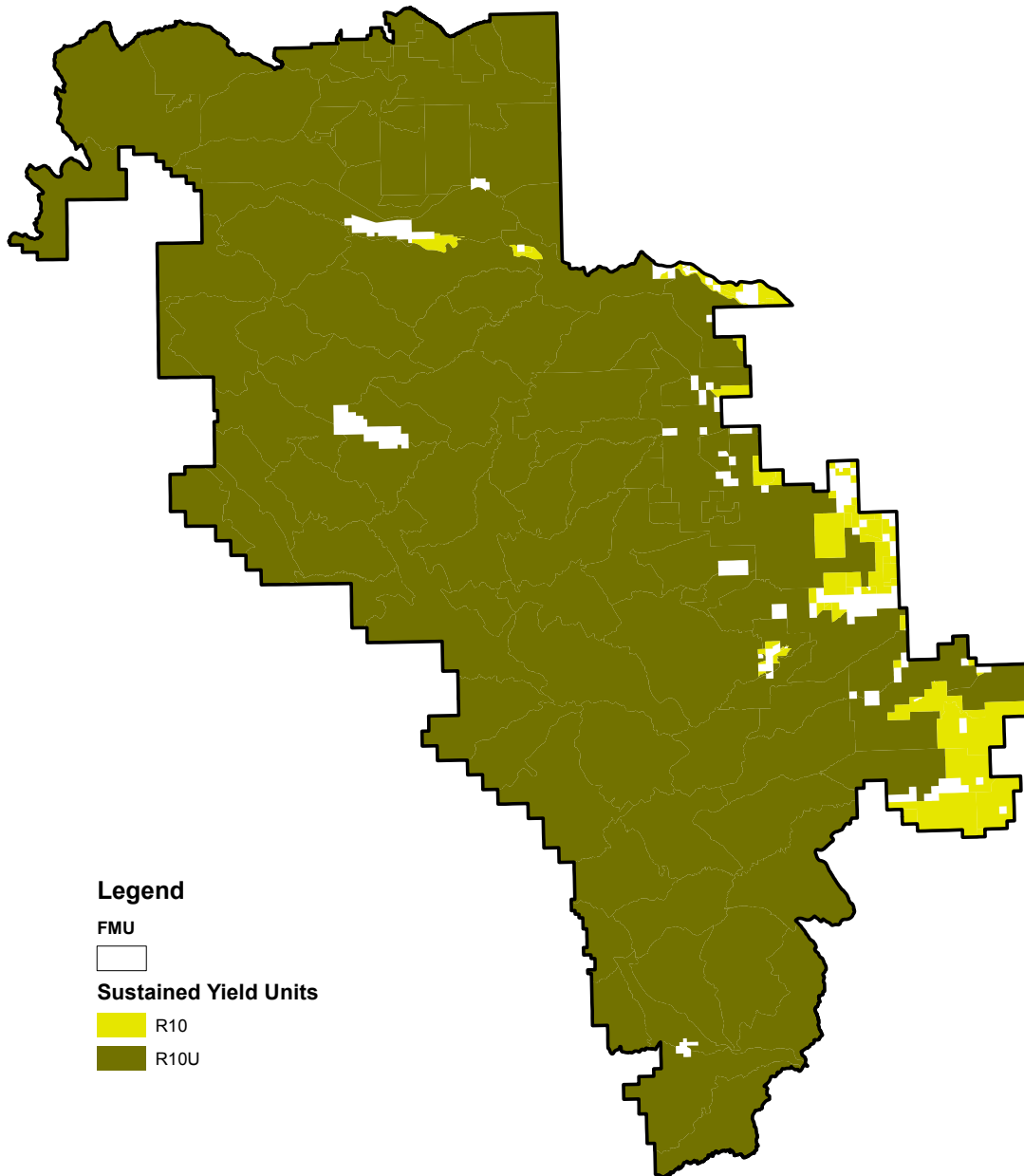
Figure 2 Land Use Dispositions (DISPS)

Legend

FMU

DISPS
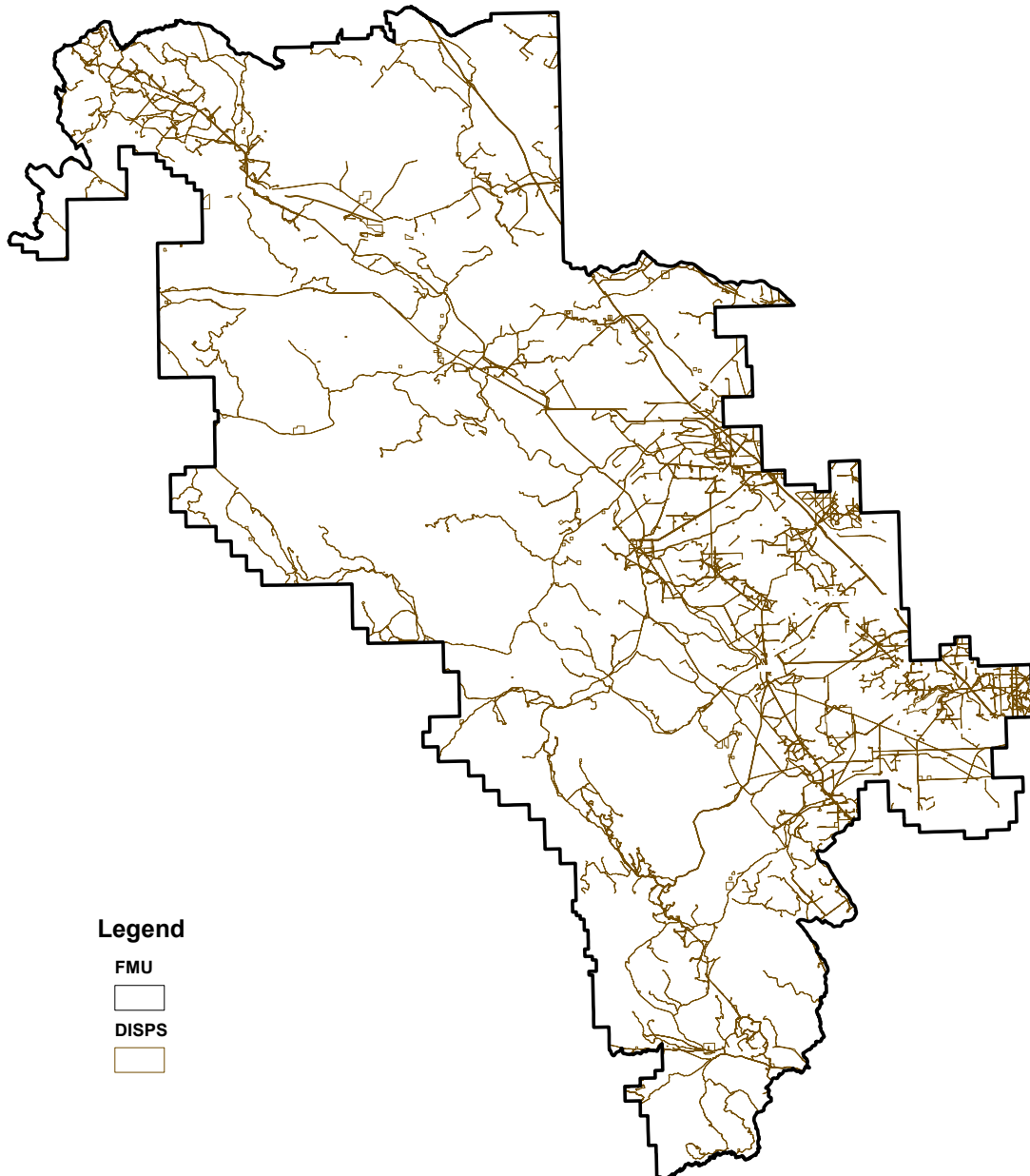
Figure 3 Trails and Seismic (TRAILS)

Legend

FMU

TRAILS
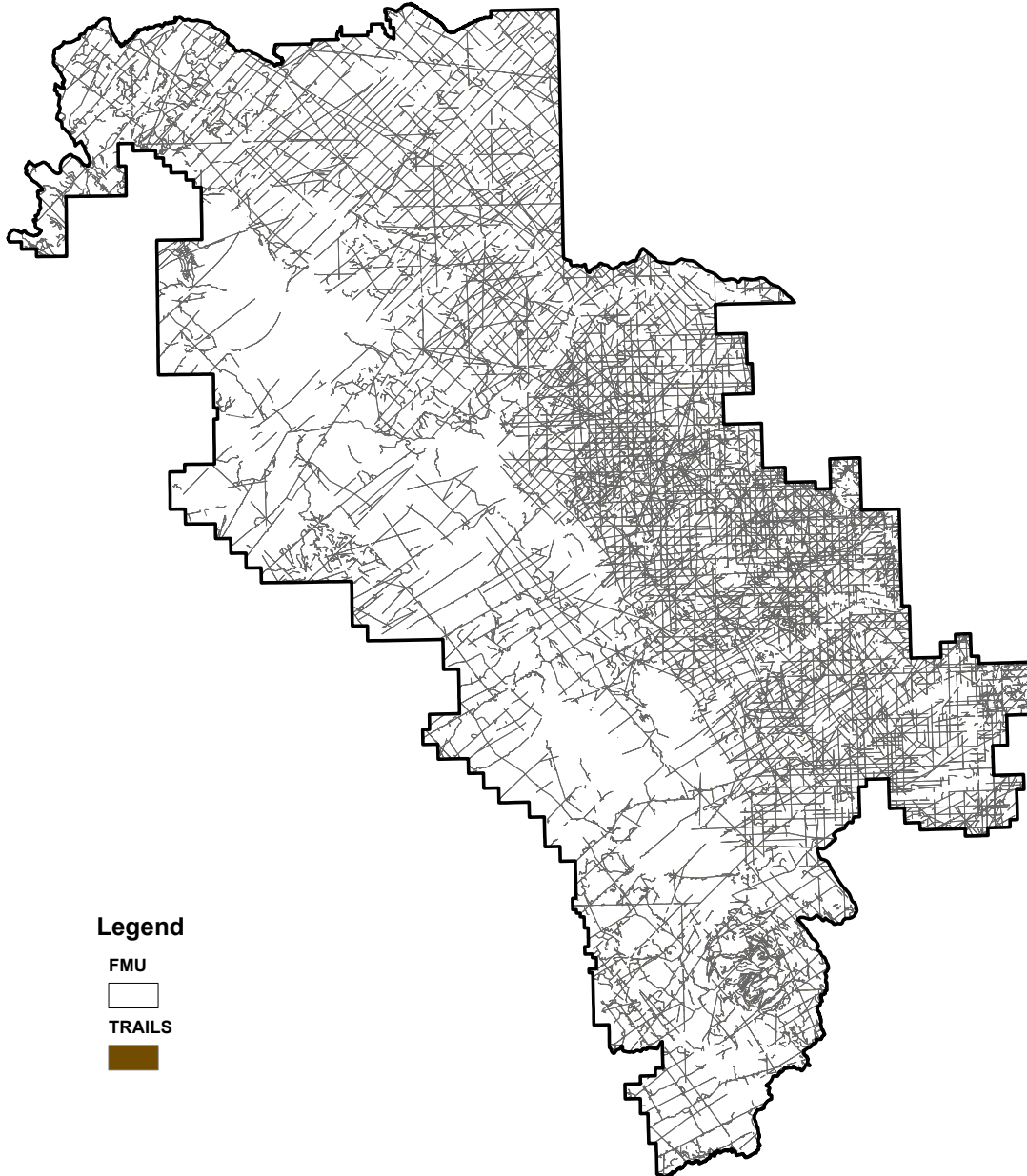
Figure 4 Harvested Areas (HARV)

Legend

FMU

HARV

Figure 5 Fires (FIRES)

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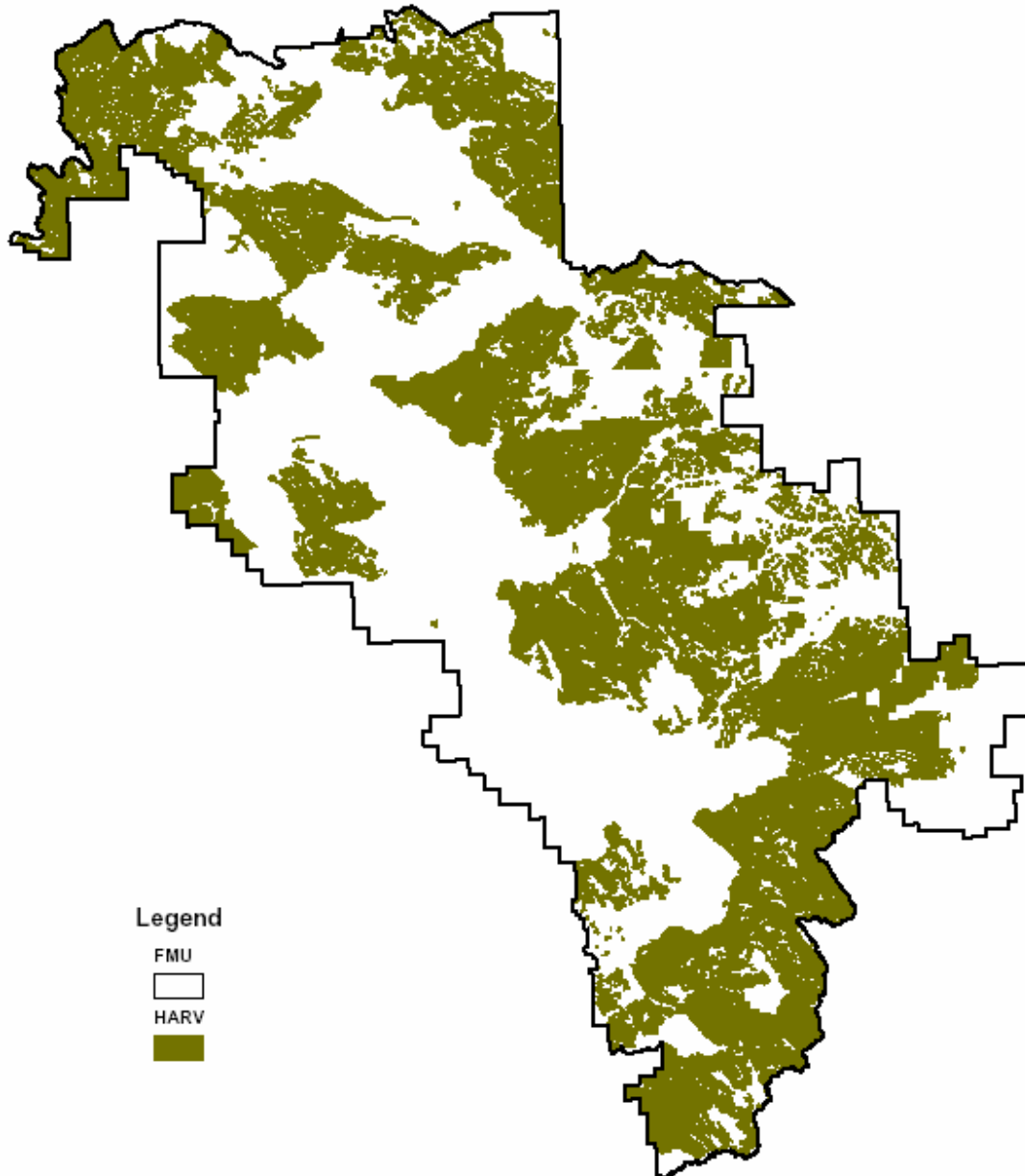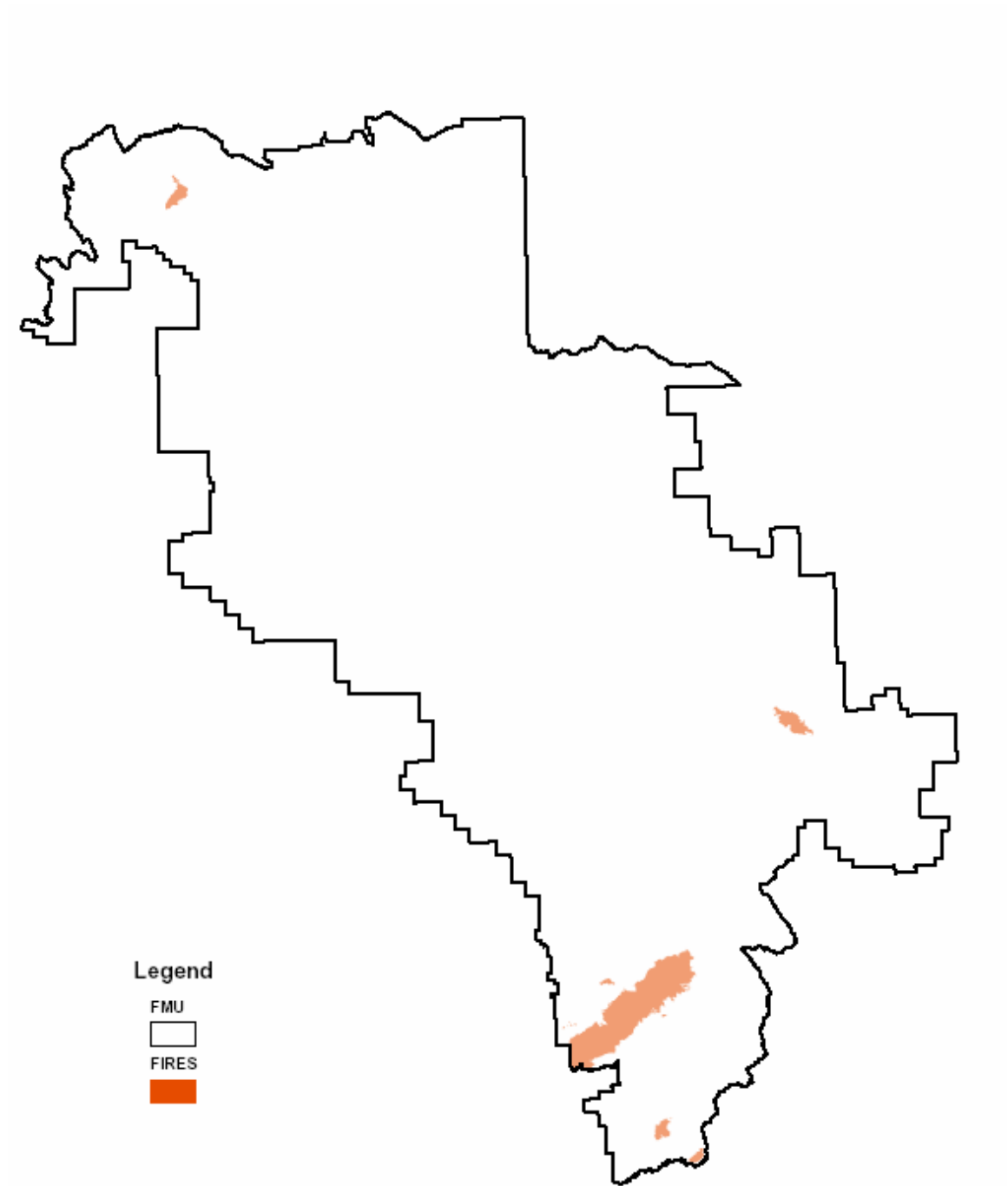
Figure 6 Protected Areas (PROT)

Legend
ESIP
PA
PNT
PRA
FMU
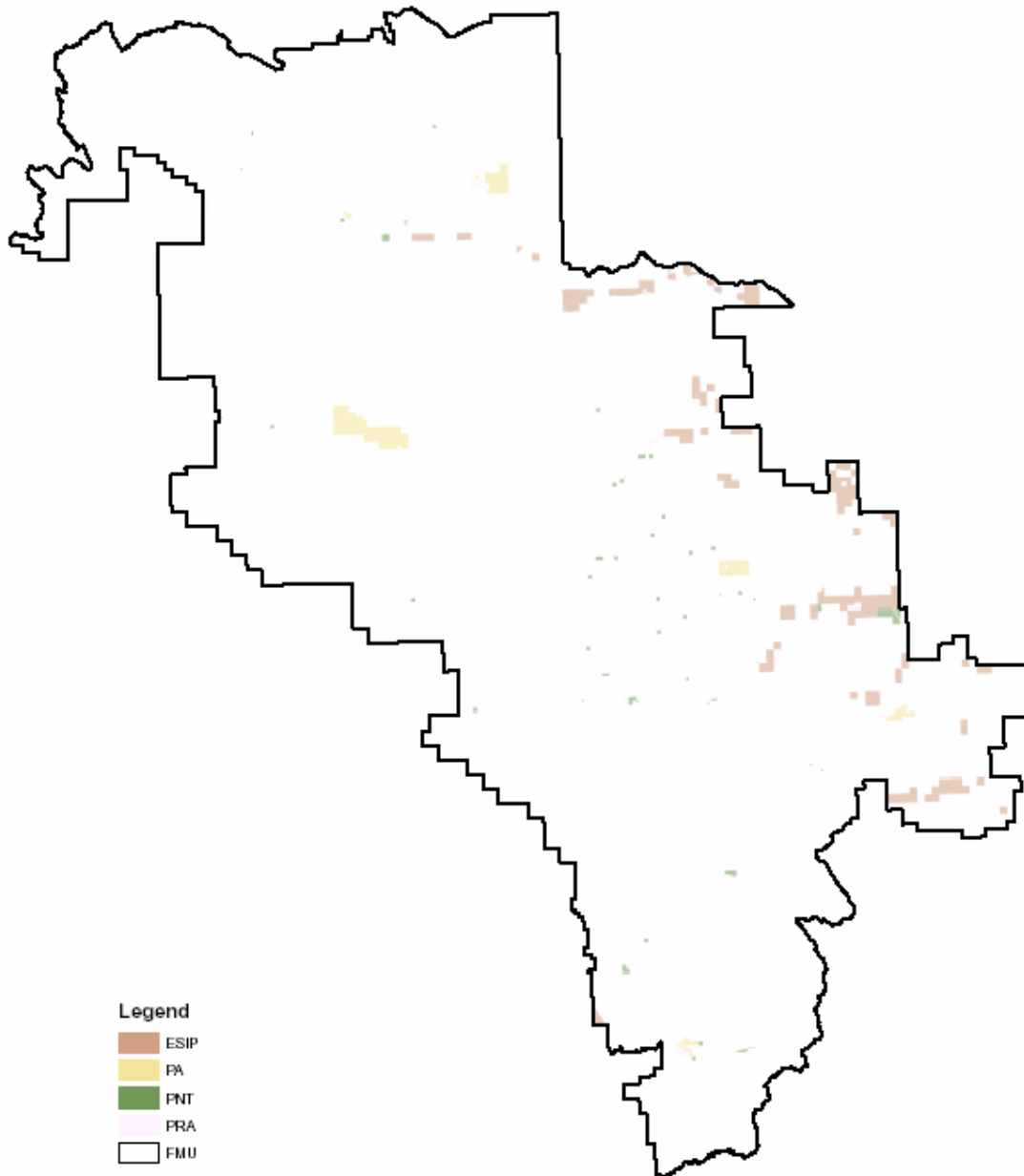
Figure 7 Inoperable Slopes (SLOPE)

Legend
FMU
SLOPE
0 - 15
16 - 30
31 - 35
36 - 40
41 - 45
46 - 50
51 - 55
56 - 60
60 +
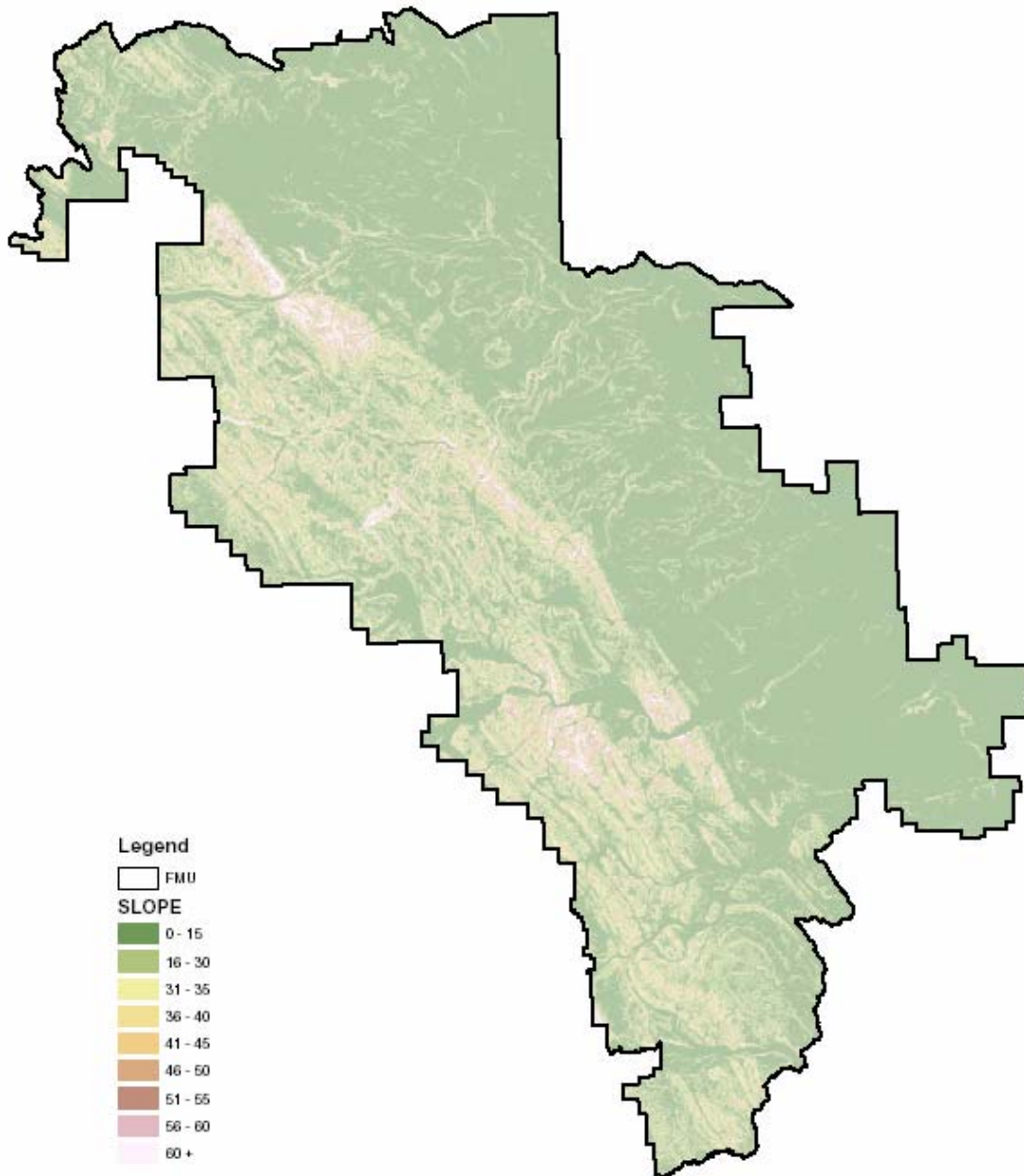
Figure 8 Stream Buffers (WBUF)

Legend

FMU

Line

Poly
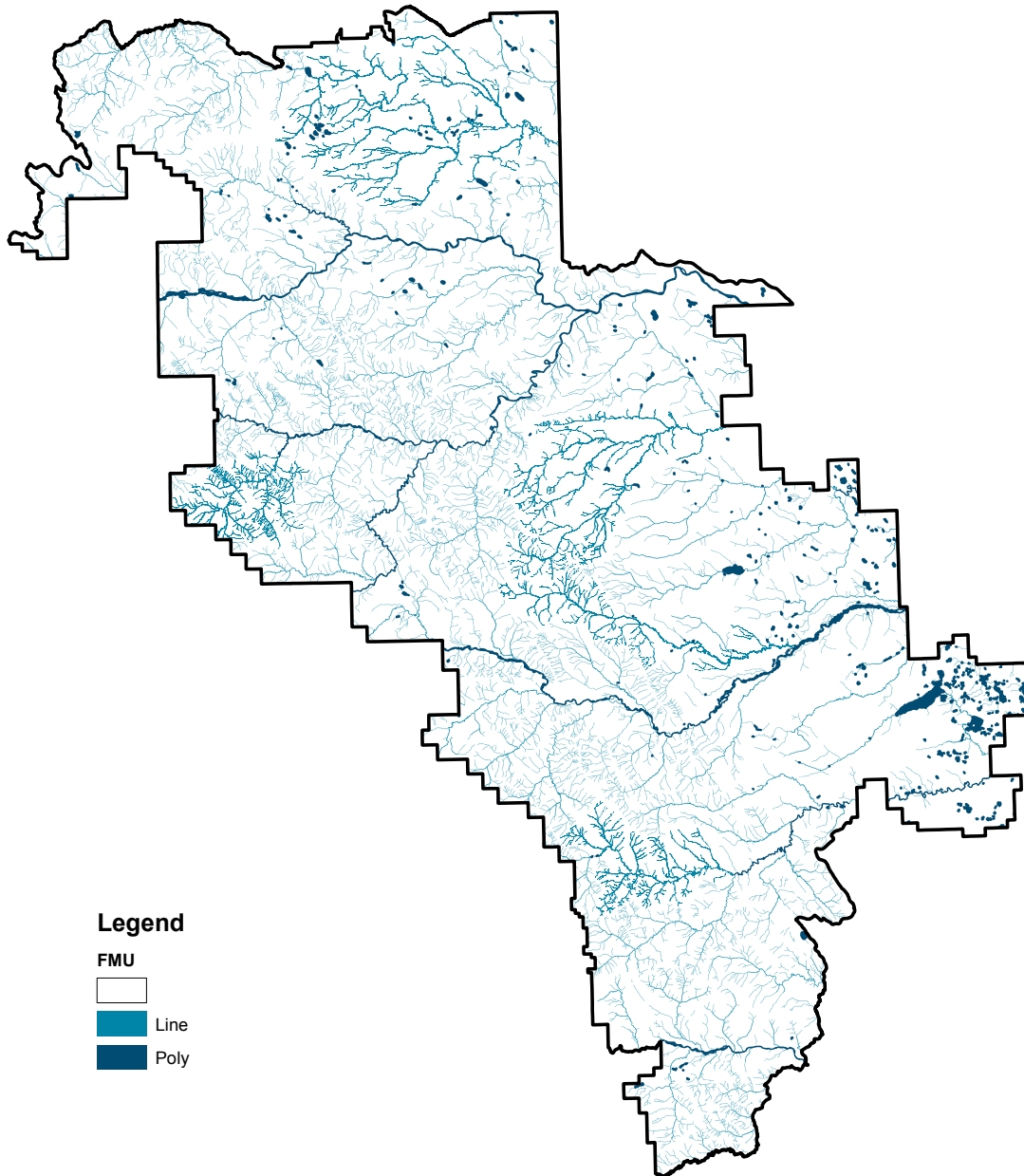
Figure 9 Inaccessible Areas (INACC)

Legend

FMU
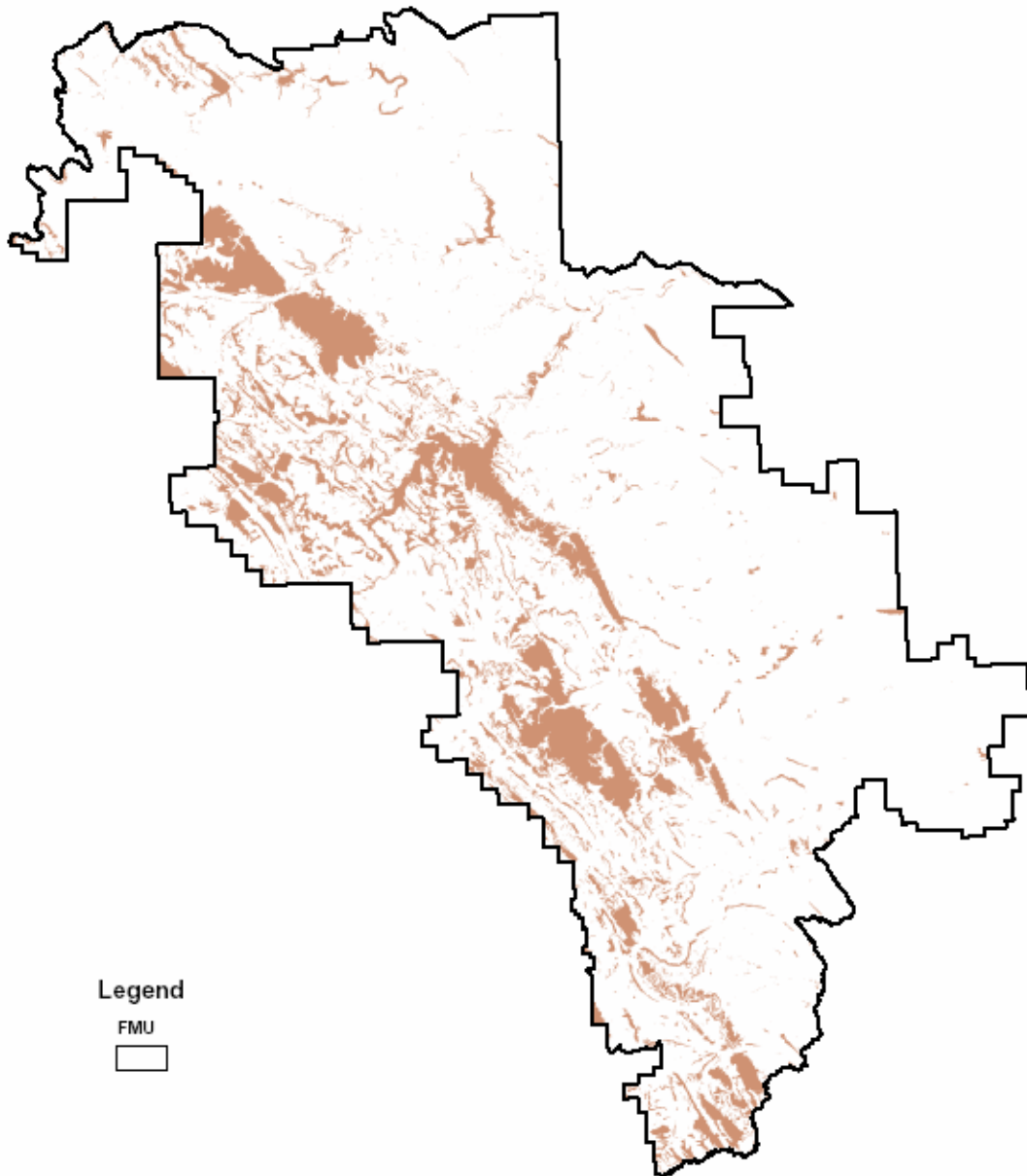
Figure 10 Yarding Areas (YARD)

Legend

FMU

YARD
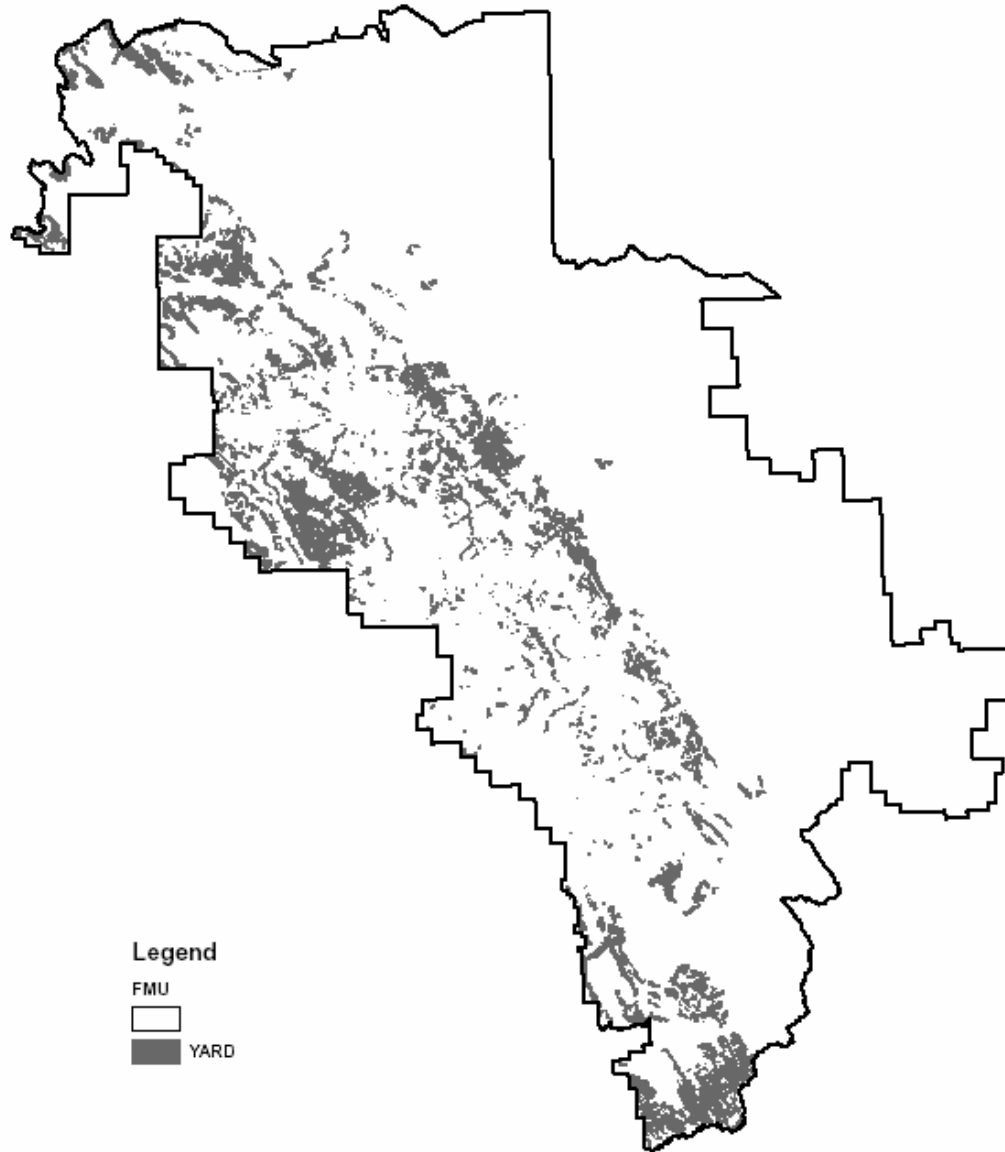
Figure 11 Compartment Boundaries (COMPS)

Legend

FMU

COMPs
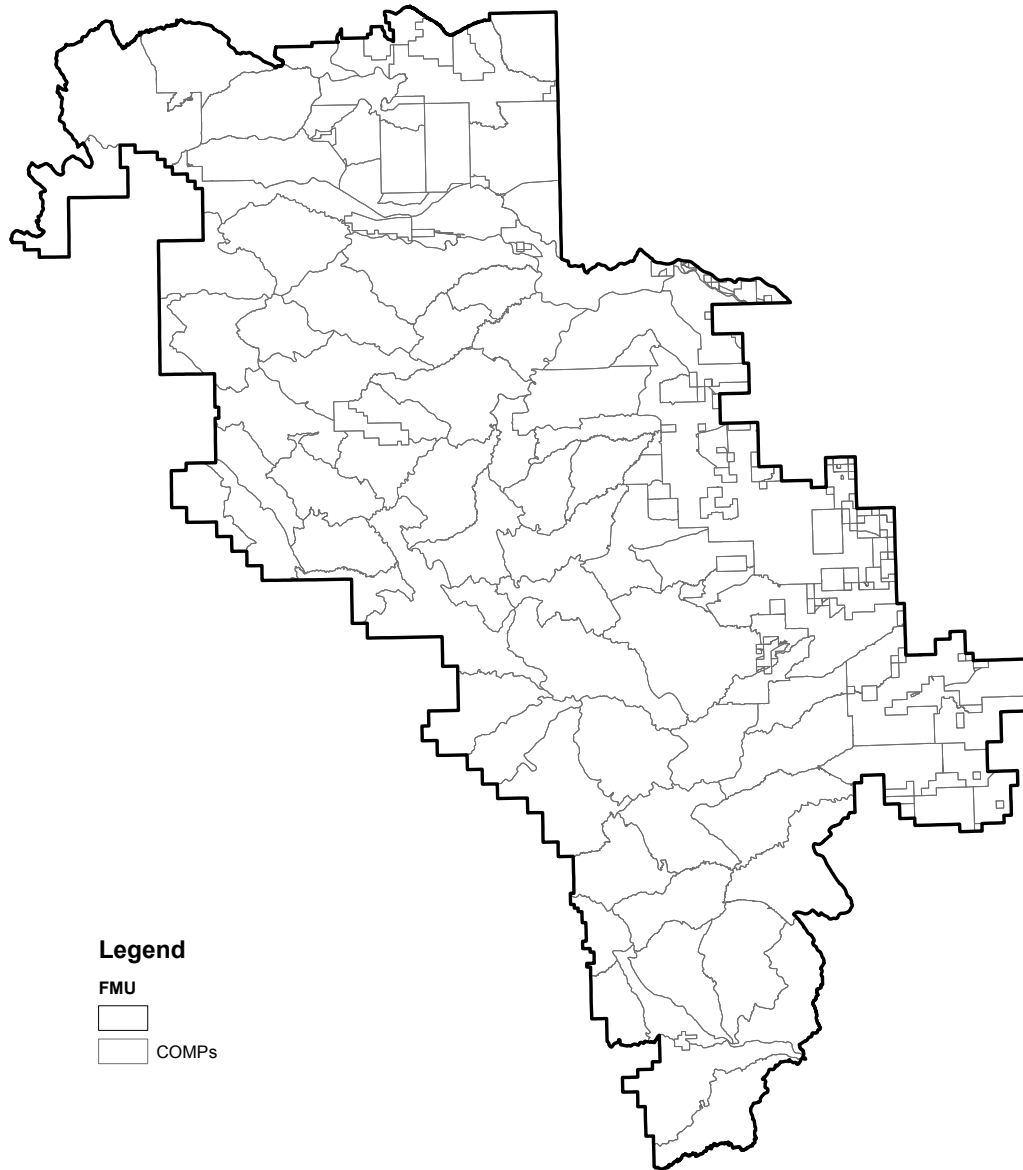
Data processing

The process can be broken down into 5 distinct phases

➢ Combine the intermediate layers using the Arc/Info® identity command (See Appendix 2 - Netdown.aml) to produce an interim layer (LBOVL).

➢ Export the attribute table LBOVL.Pat to LBOVL.Txt and upload data into SQL Server ® database (Table WLMA_OVL.dbo.WLMA_LandbaseOVL)

➢ Classify the raw AVI using MSAccess Visual Basic (Appendix 2 AVI_Labels_v5).

➢ Classify the land base using and SQL Server ®   (Appendix 2 – LandbaseDefinition_v10.sql)

➢ Link LandbaseDefinition_v10.sql table to coverage and delete unnecessary fields to create final land base coverage (Appendix 2 – Finalandbase.AML)

AVI Classification

The following is a description of the primary variables and decision rules used to determine the attributes in AVI. These attributes will updated as part of the land base classification process if a disturbance has occurred.

The raw AVI attributes where pre-processed to provide compiled information in a separate table. This process involved:

➢ Population of a table to provide Natural Sub-region information for each AVI polygon. The polygon is assigned the most dominant Natural Sub-region by area. This table can be provided upon request.

➢ Population of a table to provide the Moutain Pine Beetle Index as provided by the ASRD application Mountian Pine Beetle Stand Susceptibility Index Version Sept 12, 2006. This table can be provided upon requests

➢ Population of a table to provide compiled AVI information using using MSAccess Visual Basic script modAVI_Labels_v5 (Appendix 2). The script combines the raw AVI Attributes, Natural Sub-region information and MPB information. This table can be provided upon request.

COVERGROUP

Stand cover group (overstory and understory) is assigned based on the following criteria:

➢ If the sum of coniferous species composition has a value of 8 or greater then the cover group is assigned a value of 'C' (pure coniferous).

➢ If the sum of deciduous species composition has a value 8 or greater then the cover group is assigned a value of 'D' (pure deciduous).

➢ If the sum of coniferous species composition has a value of 6 or 7 then cover group is assigned a value of 'CD' (coniferous/deciduous).

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> ➢ If the sum of coniferous species composition has a value of 5 and the first species is coniferous then cover group is assigned a value of 'CD' (coniferous/deciduous).

> ➢ If the sum of deciduous species composition has a value of 6 or 7 then cover group is assigned a value of 'DC' (deciduous/coniferous).

> ➢ If the sum of deciduous species composition has a value of 5 and the first species is deciduous then cover group is assigned a value of 'DC' (deciduous/coniferous).

Stands that contain no forested overstory attributes, but have a 'CC' modifier were assigned a cover group value of 'C'.

Cover type

If a forested overstory exists a cover type is assigned the concatenation of the forested attribute values.

If there is no forested overstory then the following decision rules were applied (subsequent rules could potentially overwrite the previous value):

> ➢ If the NFL value is not empty then the overstory cover type variable is assigned the concatenation of the NFL and the NFL_PER values.

> ➢ If the ANTH_VEG value is not empty then the overstory cover type is assigned the ANTH_VEG value.

> ➢ If the ANTH_NON value is not empty then the overstory cover type is assigned the ANTH_NON value.

> ➢ If the UNFL value is not empty then the overstory cover type variable is assigned the concatenation of the UNFL and the UNFL_PER values.

> ➢ If the UANTH_VEG value is not empty then the overstory cover type is assigned the UANTH_VEG value.

> ➢ If the UANTH_NON value is not empty then the overstory cover type is assigned the UANTH_NON value.

> ➢ The COVERTYPE variable is assigned the concatenation of the overstory and understory values.

Dominant Species

Dominant species groups were assigned to each forested polygon. The decision rules are as follows:

> ➢ If SP1 = 'PL' then DOMSP = 'PL'.

> ➢ If SP1 = 'SW' or 'SE' or 'FB' or 'FA' then DOMSP variable is assigned a value of 'SW/FB'.

> ➢ If SP1 = 'SB' or 'LT' then DOMSP variable is assigned a value of 'SB/LT'.

> ➢ If SP1 = 'AW' or 'PB' or 'BW' then DOMSP variable is assigned a value of 'DEC'.

> ➢ Stands that contain no forested overstory attributes, but have a 'CC' modifier were assigned a dominant species of 'PL'.

Productivity Deletion

Stands were excluded from the land base for productivity using the following rules:

> ➢ If there is an overstory and the TPR class = 'U' then the PRODDEL variable is assigned a value of 1.

> ➢ If the values of SP1, SP2, SP3, SP4 or SP5 are 'Lt' then the PRODDEL variable is assigned a value of 2.

> ➢ If the value of SP1 is 'SB' then the PRODDEL variable is assigned a value of 3.

Rank

A decision rule was applied to each polygon as to whether the overstory or understory will define the land base and yield stratification of the stand. Table 7 provides as summary of areas by rank and land base classification.

If overstory crown closure class is 'A' or 'B' and the understory crown closure class is 'C' or 'D' and the understory height is greater than or equal to 13 and the difference between the understory and overstory height is less than or equal to 6 meters then the rank is 2 otherwise it is 1.

Land base and Age assignments

The land base assignment is based on the rank and cover group.

If the rank is 1:

> ➢ If the overstory cover group variable has a value of 'C' or 'CD' or DC' then the land base variable is assigned a value of 1.

> ➢ If then overstory cover group variable has a value of 'D' and there is no understory then the land base variable is assigned a value of 2.

> ➢ If the overstory cover group variable has a value of 'D' and the understory cover group value 'C' or 'CD' or 'DC' and the understory density is equal to 'A' then the land base variable is assigned a value 5

> ➢ If the overstory cover group variable has a value of 'D' and the understory cover group value 'C' or 'CD' or 'DC' and the understory density does not equal 'A' then the land base variable is assigned a value 4

> ➢ If the overstory density is empty and the MOD2 variable = 'CC' then the LANDBASE variable is assigned a value of 6, the COVERTYPE variable is assigned a value of 'CC' and the age is calculated as 2002 less the MOD2_YR value.

> If the overstory density is empty and the MOD1 variable = 'CC' then the LANDBASE variable is assigned a value of 6, the COVERTYPE variable is assigned a value of 'CC' and the age is calculated as 2002 less the MOD1_YR value.

If the rank is 2:

> If the understory cover group variable has a value of 'C' or 'CD' or DC' then the land base variable is assigned a value of 1.

> If then understory cover group variable has a value of 'D' and there is no overstory then the land base variable is assigned a value of 2.

> If the understory cover group variable has a value of 'D' and the overstory cover group value 'C' or 'CD' or 'DC' and the overstory density is equal to 'A' then the land base variable is assigned a value 5

> If the understory cover group variable has a value of 'D' and the overstory cover group value 'C' or 'CD' or 'DC' and the overstory density does not equal 'A' then the land base variable is assigned a value 4

> If the understory density is empty and the UMOD2 variable = 'CC' then the LANDBASE variable is assigned a value of 6, the COVERTYPE variable is assigned a value of 'CC' and the age is calculated as 2002 less the UMOD2_YR value.

> If the understory density is empty and the UMOD1 variable = 'CC' then the LANDBASE variable is assigned a value of 6, the COVERTYPE variable is assigned a value of 'CC' and the age is calculated as 2002 less the UMOD1_YR value.

Table 7 Summary of Ranks for Active and Passive Land Base

Land Base Classification	Rank 1		Rank 2		Total
Active	371,313	97.6%	9,146	2.4%	380,459
Passive	192,260	98.9%	2,120	1.1%	194,379
Total	563,573	98.0%	11,266	2.0%	574,838

Independent of rank:

> LANDBASE values of 1, 4 or 6 designate the coniferous land base, while LANDBASE values of 2 or 5 designate the deciduous land base.

> All non-forested stands with the exceptions of the cutovers are assigned a LANDBASE value of 0.

> A Mountain Pine Beetle (MPB index) was assigned to each AVI Polygon. This information was derived by SRD and provided to SFP.

Yield Class

Each AVI polygon was assigned a Natural Sub-region code based on the predominant Natural Sub-region and assigned to the NREGION_ID variable (See Table 8 for codes)[9].

The steps taken to assign a Natural Subregion code are as follows:

> Intersect AVI with the Natural Subregion coverage[10].

> Populate table (AVI_Coords) in the SQL Server Database with the unique forestkey identifier and assign the Natural Subregion that constitutes the greatest area.

> As part the Land base classification process assign the Natural subregion that is identified in the AVI_Coords Table.

Table 8 Applicable Natural Sub-regions and codes

Natural Sub-region	NREGION_ID code
Upper Foothills	10
Lower Foothills	11
Sub-alpine	8
Dry Mixed wood	2

The yield class was assigned based on the cover group, natural sub-region, crown closure and TPR classes. If the rank is 1 then the overstory attributes where used. If the Rank is 2 then the understory attributes where used. The following are the decision rules.

> Stands with a cover group of 'C', within natural sub-regions 8 or 10, crown closure class or 'A' or 'B' and TPR values of 'U' or 'F' are assigned a YIELDCLASS of 1.

> Stands with a cover group of 'C', within natural sub-regions 8 or 10, crown closure class or 'A' or 'B' and TPR values of 'M' or 'G' or missing are assigned a YIELDCLASS of 2.

> Stands with a cover group of 'C', within natural sub-regions 8 or 10, crown closure class or 'C' or 'D' and TPR values of 'U' or 'F' are assigned a YIELDCLASS of 3.

> Stands with a cover group of 'C', within natural sub-regions 8 or 10, crown closure class or 'C' or 'D' and TPR values of 'M' or 'G' or missing are assigned a YIELDCLASS of 4.

> Stands with a cover group of 'C', within natural sub-regions 11 or 2, crown closure class or 'A' or 'B' and TPR values of 'U' or 'F' are assigned a YIELDCLASS of 5.

> Stands with a cover group of 'C', within natural sub-regions 11 or 2, crown closure class or 'A' or 'B' and TPR values of 'M' or 'G' or missing are assigned a YIELDCLASS of 6.

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[9] See Sunpine Forest Products Ltd. Yield Analysis submitted June 4, 2002
[10] Alberta Sustainable Resource Development, Alberta Environment, Alberta Community Development, Agri-food and Agriculture Canada, June 2, 2005, 2005 Natural Regions and Subregions: Alberta Sustainable Resource Development

➢ Stands with a cover group of 'C', within natural sub-regions 11 or 2, crown closure class or 'C' or 'D' and TPR values of 'U' or 'F' are assigned a YIELDCLASS of 7.

➢ Stands with a cover group of 'C', within natural sub-regions 11 or 2, crown closure class or 'C' or 'D' and TPR values of 'M' or 'G' or missing are assigned a YIELDCLASS of 8.

➢ Stands with a cover group of 'MX', within natural sub-regions 8 or 10, crown closure class or 'A' or 'B' and TPR values of 'U' or 'F' are assigned a YIELDCLASS of 9.

➢ Stands with a cover group of 'MX', within natural sub-regions 8 or 10, crown closure class or 'A' or 'B' and TPR values of 'M' or 'G' or missing are assigned a YIELDCLASS of 10.

➢ Stands with a cover group of 'MX', within natural sub-regions 8 or 10, crown closure class or 'C' or 'D' and TPR values of 'U' or 'F' are assigned a YIELDCLASS of 11.

➢ Stands with a cover group of 'MX', within natural sub-regions 8 or 10, crown closure class or 'C' or 'D' and TPR values of 'M' or 'G' or missing are assigned a YIELDCLASS of 12.

➢ Stands with a cover group of 'MX', within natural sub-regions 11 or 2, crown closure class or 'A' or 'B' and TPR values of 'U' or 'F' are assigned a YIELDCLASS of 13.

➢ Stands with a cover group of 'MX', within natural sub-regions 11 or 2, crown closure class or 'A' or 'B' and TPR values of 'M' or 'G' or missing are assigned a YIELDCLASS of 14.

➢ Stands with a cover group of 'MX', within natural sub-regions 11 or 2, crown closure class or 'C' or 'D' and TPR values of 'U' or 'F' are assigned a YIELDCLASS of 15.

➢ Stands with a cover group of 'MX', within natural sub-regions 11 or 2, crown closure class or 'C' or 'D' and TPR values of 'M' or 'G' or missing are assigned a YIELDCLASS of 16.

➢ Stands with a cover group of 'D', crown closure class or 'A' or 'B' and TPR values of 'U' or 'F' are assigned a YIELDCLASS of 17.

➢ Stands with a cover group of 'D', crown closure class or 'A' or 'B' and TPR values of 'M' or 'G' or missing are assigned a YIELDCLASS of 18.

➢ Stands with a cover group of 'D', crown closure class or 'C' or 'D' and TPR values of 'U' or 'F' are assigned a YIELDCLASS of 19.

➢ Stands with a cover group of 'D', crown closure class or 'C' or 'D' and TPR values of 'M' or 'G' are assigned a YIELDCLASS of 12.

Table 9 provides as summary of the yield stratification.

Table 9 Summary of Yield Strata

Yield Class	CoverGroup	Natural Subregion	Crown Closure	Site Class
1	Pure Coniferous	Upper Foothills	A/B	U/F
2	Pure Coniferous	Upper Foothills	A/B	M/G
3	Pure Coniferous	Upper Foothills	C/D	U/F

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Yield Class	CoverGroup	Natural Subregion	Crown Closure	Site Class
4	Pure Coniferous	Upper Foothills	C/D	M/G
5	Pure Coniferous	Lower Foothills	A/B	U/F
6	Pure Coniferous	Lower Foothills	A/B	M/G
7	Pure Coniferous	Lower Foothills	C/D	U/F
8	Pure Coniferous	Lower Foothills	C/D	M/G
9	Mixed wood	Upper Foothills	A/B	U/F
10	Mixed wood	Upper Foothills	A/B	M/G
11	Mixed wood	Upper Foothills	C/D	U/F
12	Mixed wood	Upper Foothills	C/D	M/G
13	Mixed wood	Lower Foothills	A/B	U/F
14	Mixed wood	Lower Foothills	A/B	M/G
15	Mixed wood	Lower Foothills	C/D	U/F
16	Mixed wood	Lower Foothills	C/D	M/G
17	Pure Deciduous	All	A/B	U/F
18	Pure Deciduous	All	A/B	M/G
19	Pure Deciduous	All	C/D	U/F
20	Pure Deciduous	All	C/D	M/G

Land Base Classification

Once the data is loaded into the SQL Server ® table several steps were completed to classify the land base.

NetDownName, DeletionClass and LB_Deletion Assignments

1) Reset all variables to defaults: FMA_id = 1, Compartments are assigned to a Sustained Yield Unit, Type is assigned the land use disposition type code, Fire years are assigned to the individual fires, Natural Sub-region, Cover type label, dominant species, stand modifier, overstory and understory cover group information, age, age class, land base and yield class are assigned values from the original AVI Information. Stand Status is set to null, LB_DELETION code is set to 99.

2) If the LANDBASE value is not greater than 0, then the NETDOWNCLASS is assigned the value of 'NON-FORESTED', the DELETIONCLASS is assigned the applicable non-forested AVI type and the LB_DELETION variable is assigned a value of 1.

3) If LB_DELETION is 99 and the DISPDEL value > 0 then the NETDOWNNAME variable is assigned a value of 'OIL AND GAS', the DELETIONCLASS variable is assigned a value of the land-use disposition type (Table 2) and the LB_DELETION variable is assigned a value of 2. In addition stand attributes are changed to reflect the non-forested state where the disposition type is assumed to be non-forested (Table 2). The dominant species (DOMSP), stand Modifier (MODIFIER), cover groups (OCG, UCG), AGE, AGECLASS and STATUS are set to 'NULL', while the LANDBASE and YIELDCLASS are set to 0.

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4) If LB _DELETION is 99 and the TRLDEL value > 0 then the NETDOWNNAME variable is assigned a value of 'TRAILS AND SEISMIC LINES', the DELETIONCLASS variable is assigned a value of 'DISP' and the LB_DELETION variable is assigned a value of 3. In addition stand attributes are changed to reflect the non-forested state. The dominant species (DOMSP), stand Modifier (MODIFIER), cover groups (OCG, UCG), AGE, AGECLASS and STATUS are set to 'NULL', while the LANDBASE and YIELDCLASS are set to 0

5) If LB _DELETION is 99 and the PROTDEL value > 0 then the NETDOWNNAME variable is assigned a protection definition and the DELETIONCLASS is assigned the value of 'PROTECTED' and the LB_DELETION variable is assigned a value of 4.

6) If LB _DELETION is 99 and Deletion = 'Yes' (Table 5) then the NETDOWNNAME variable is assigned a value of 'INOPERABLE SLOPE', then DELETIONCLASS variable is assigned the applicable SLOPECLASS value and the LB_DELETION variable is assigned a value of 5.

7) If LB _DELETION is 99 and the HYDDEL value > 0 and the then the NETDOWNNAME variable is assigned a value of 'STEAM BUFFER, the DELETIONCLASS variable is assigned a value of ''STEAM BUFFER', and the LB_DELETION variable is assigned a value of 6.

8) If LB_DELETION is 99 and the PRODDEL value > 0 then the NETDOWNNAME variable is assigned a value of 'NONPRODUCTIVE' and the DELETIONCLASS variable is assigned a value of the productivity deletion in AVI and the LB_DELETION variable is assigned a value of 7.

9) If LB_DELETION is 99 and the INACCDEL value > 0 then the NETDOWNNAME variable is assigned a value of 'INACCESSIBLE', the DELETIONCLASS variable is assigned a value of the 'INACCESSIBLE' variable, and the LB_DELETION variable is assigned a value of 9

10) If LB_DELETION is 5 (Inoperable) or the LB_DELETION = 9 (Inaccessible) and the YARDDEL value > 0 then the NETDOWNNAME variable is assigned a value of 'YARDING', the DELETIONCLASS variable is assigned a value of the 'None' variable, and the LB_DELETION variable is assigned a value of 991.

11) If LB_DELETION >= 99 (Currently net land base) and the NETDOWNNAME variable is assigned a value of 'Fair PL', the DELETIONCLASS variable is assigned a value of the 'None' variable, and the LB_DELETION variable is assigned a value of 992.

12) IF the COMPARTMENT_ID = 18 (GAP Creek) and then LB _DELETION >= 992 and the MPBRank is between 1 and 2 and then stand exists within and existing planned cut block and the LANDBASE value > 0 then set the LB_DELETIONOVR Value to 99.

13) If LB_DELETION >= 99 (Currently net land base) and the area is within a fire (Table 3) and there is no assumed liability then the LB_DELETION variable is set to 10

14) If LB_DELETION >= 99 (Currently net land base) and the area is within a Cut block and there is no assumed liability then the LB_DELETION variable is set to 11 and the ASSUMEDLIABILITY value is set to 0.

15) If LB_DELETION >= 99 and the SYU is not equal to R10 or R10U then the LB_Deletion value is set to 13.

Table 10 provides a summary of the final deletion codes applied.

Table 10 Summary of Deletion Codes

Deletion Code	Description
1	Non –Forested
2	Oil and Gas Disturbances
3	Trails and Seismic
4	Protected Areas
5	Inoperable Slopes
6	Riparian Areas
7	Non – Productive
9	Inaccessible
10	Net Land base within Burns
11	Reforestation Liability Waived
13	Not part of SYUs R10 or R10U
99	No Deletion- 15/11 Merchantability
991	No Deletion – Yarding areas
992	No Deletion – 13/7 Merchantability

Once all the deletion codes are assigned some attributes are adjusted to reflect the current state (i.e. as of the cut of date).

Ages for Harvested Polygons

If the LB_DELETION code > 3 (i.e. the area does not exist within a land use disposition or trail) and the AVI Modifier indicates a clear cut (CC) with and extent >= 4 and the modifier year > 0 then age is assigned a value of Cut of Year – AVI mod1_yr. the MODIFIER is assigned a value of CC-5 and LANDBASE is assigned a value of 6.

Ages for Burned Polygons

If the LB_DELETION code > 3 (i.e. the area does not exist within a land use disposition or trail) and the Fire year > 0 then age is assigned a value of Year of Cut – Fire year and the MODIFIER is assigned a value of BU-5 and LANDBASE is

assigned a value of 6. The MODIFIER value is tracked independently of the AVI Modifiers. AVI modifier values have not been changed as part of this process.

Status

This attribute reflects the whether the stand is in a natural or managed state.

If the land base code = 6 then the Code is 'RT' otherwise it is 'ST'.

Defaults

Default values are assigned where insufficient information exists to correctly assign a dominant species, and yield class.

If the land base designation is greater than 0 and the dominant species is null then 'PL' is assigned to the dominant species.

If the land base designation is greater than 0 and the yield class is null and the NREGION_ID is 8, 9 or 10, then a yield class of 4 is assigned.

If the land base designation is greater than 0 and the yield class is null and the NREGION_ID is either 11 or 3 then a yield class of 8 is assigned.

MPB Index

The MPB index was assigned the value as provided by ASRD for each polygon that has as land base code > 0 and the status is 'ST' or the Status is 'RT' with and age >= 60 Years.

Post -91 Cut Block stratification

As per the Alberta Forest Management Planning Standard, areas harvested after March 1, 1991, shall be assigned to the yield stratum based on the regeneration stratum for the harvest area as defined in the Alberta Regeneration Information System (ARIS) and the most current information on the harvest area and its associated regeneration stratum in ARIS.

All blocks harvested after March 1, 1991 with a silvicultural declaration, will have the entire block declared to the applicable cover group, yield class and land base as provided in Table 11.

In addition, blocks that have been harvested prior to March 1, 1991 or have been harvested prior to the cut off date and have no declaration will retain the stratification as defined by AVI.

Table 11 Post 1991 Cut Block Stratification

Natural Sub-region	Declaration	Cover group	Land base	Yield Class
2	C-2000	C	6	8
2	CD-2000	CD	6	12
2	CONF	C	6	8
2	D-2000	D	7	20

Natural Sub-region	Declaration	Cover group	Land base	Yield Class
2	DC-2000	DC	6	12
7	C-2000	C	6	4
7	CD-2000	CD	6	16
7	CONF	C	6	4
7	D-2000	D	7	20
7	DC-2000	DC	6	16
8	C-2000	C	6	4
8	CD-2000	CD	6	16
8	CONF	C	6	4
8	D-2000	D	7	20
8	DC-2000	DC	6	16
10	C-2000	C	6	4
10	CD-2000	CD	6	16
10	CONF	C	6	4
10	D-2000	D	7	20
10	DC-2000	DC	6	16
11	C-2000	C	6	8
11	CD-2000	CD	6	12
11	CONF	C	6	8
11	D-2000	D	7	20
11	DC-2000	DC	6	12

Due to lack of information and change in responsibilities (SFP Quota vs SFP FMA) a declaration could not be obtained for each block Post 91 standard. Approximately 21% of the total block area is affected. This area has been assigned a covergroup, yield class and land base according to the underlying AVI. This is a known problem that will be corrected. However, due to time constraints, this can not be corrected for this MPB Action Plan. It will be addressed in the upcoming Detailed Forest Management Plan.

Table 12 Summary of Declarations by operator

Area	Total Block Area	No Strata Declaration
Cech	11	11
CTPP	3,405	3,046
Gray	73	73
GRL	276	194
Mclean	37	37
RWP	3,258	3,258
SFP	25,080	69
Total	32,139	6,687

Other

Primary and secondary highways have been accounted for in the AVI information therefore no additional deletions were made.

Some stands with a Horizontal structure call exist within the land base. This is a result of imperfect edge matching between SFP's and ARSD's AVI. The total area of these stands is approximately .015 ha. The entire area exists in the passive land base. Due the the very small area and that these stands will not contribute to the AAC no area adjustments have been made.

All polygons regardless of size are retained in the final coverage (i.e. nothing was done to the sliver polygons).

Fire Smart objectives are not part of this interim plan, therefore no attributes pertaining to Fire Smart objectives have been included in this land base classification.

Summary and Results

Table 13 provides a summary of the classifications applied and a comparison to current approved land base.

The land base information will be aggregated and reformatted to be used in the timber supply analysis component of the the Mountain Pine Beetle Action Plan. A description of how the data will be modified and summary information for the analyis will be provided in the final MPB Plan.

Since the final land base size exceeded the files sizes required, the landbase was divided into 4 separate files. Figure 12 shows the grouped areas. The files provided have the naming convention of:

  ➤ LB1_v8 – land base group 1 – SFP Compartments -878,382 records

  ➤ LB2_v8 – land base group 2 – SFP Compartments -900,994 records

  ➤ LB3_v8 – land base group 3 – SFP Compartments – 945,593 reocords

  ➤ LB4_v8 – land base group 4 – Non SFP Compartments – 289,829 records.

Figure 12 Land Base Groupings

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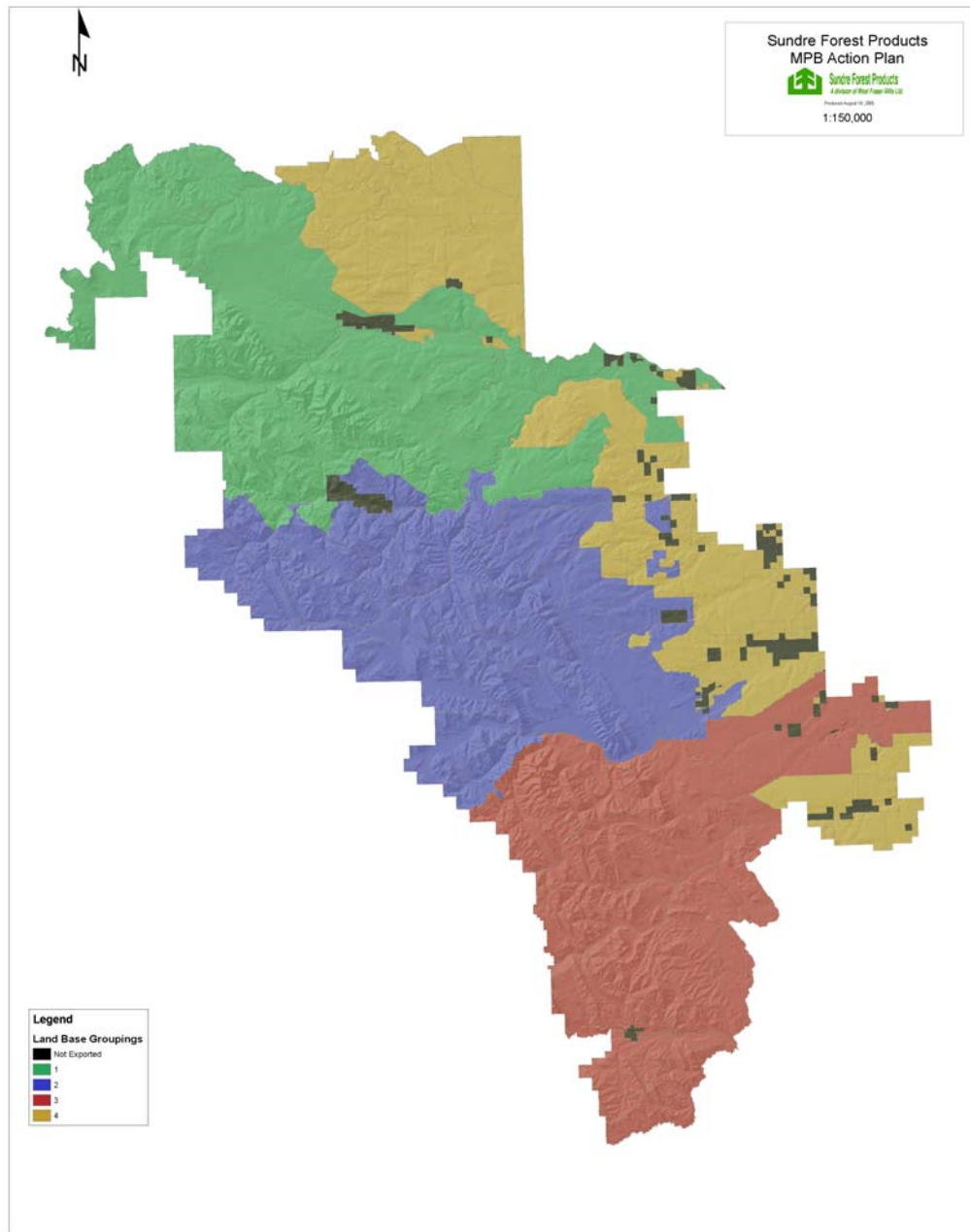
Table 13 Summary of Land base Classification

Deletion	Approved 2002 Land Base SYU			2006 Land Base SYU			Variance SYU		
	R10	R10U	Total	R10	R10U	Total	R10	R10U	Total
Non-Forested	3,700.9	48,092.8	51,793.7	4,397.7	47,971.5	52,369.2	18.8%	-0.3%	1.1%
Status	160.2	5,863.0	6,023.2	-	-	-	-100.0%	-100.0%	-100.0%
Land Use				106.9	5,102.0	5,208.9	0.0%	0.0%	0.0%
Protected Areas				222.3	3,267.0	3,489.3	0.0%	0.0%	0.0%
Prime Protection	-	877.7	877.7	-	-	-	0.0%	-100.0%	-100.0%
Total Status	160.2	5,863.0	6,023.2	329.2	8,369.0	8,698.3	105.5%	42.7%	44.4%
Slope	24.7	22,600.0	22,624.7	9.0	20,163.5	20,172.5	-63.7%	-10.8%	-10.8%
Ground Rule	1,164.0	11,235.2	12,399.2	-	-	-	-100.0%	-100.0%	-100.0%
Trail and Seismic	-	-	-	355.5	6,281.0	6,636.5	0.0%	0.0%	0.0%
Stream Buffer	-	-	-	978.0	23,758.0	24,735.9	0.0%	0.0%	0.0%
Total Ground Rule	1,164.0	11,235.2	12,399.2	1,333.5	30,039.0	31,372.5	14.6%	167.4%	153.0%
Productivity	1,176.7	46,733.1	47,909.8	1,279.3	45,806.2	47,085.5	8.7%	-2.0%	-1.7%
Inaccessible	9.9	9,091.2	9,101.1	78.3	29,495.5	29,573.8	691.1%	224.4%	224.9%
Horizontal	120.5	246.1	366.6	-	-	-	-100.0%	-100.0%	-100.0%
Burn Deletions				-	5,093.9	5,093.9	0.0%	0.0%	0.0%
Waived Reforestation Liability				-	16.2	16.2	0.0%	0.0%	0.0%
Non R10 FMU				-	-	13,062.6	0.0%	0.0%	0.0%
Net Land Base									
15/11 Merchantibility	13,593.8	417,615.0	431,208.8	12,264.6	276,126.5	288,391.2	-9.8%	-33.9%	-33.1%
Yarding	-	-	-	-	9,105.8	9,129.6	0.0%	0.0%	0.0%
13/7 Merchantibility	-	-	-	219.1	82,745.3	82,964.3	0.0%	0.0%	0.0%
Total Net Land Base	13,593.8	417,615.0	431,208.8	12,483.7	367,977.6	380,485.1	-8.2%	-11.9%	-11.8%
Land Base Total	**19,950.7**	**561,476.4**	**581,427.1**	**19,910.7**	**554,932.4**	**587,929.6**	**-0.2%**	**-1.2%**	**1.1%**

Appendix 1 Data Dictionaries

Filename: lb1_v8,lb2_v8,lb3_v8,lb4_v8
File Type: Arc/Info coverage
No of Records: 3,060,475
Projection: UTM 11
Datum: NAD 83
Note: Information has been provided in Arc/Info compressed export format. When coverage is converted to shapefile truncation of field names occurs. Shape File field name provides the renamed fields.

Arc/Info Coverage Field name	Shape File Field name	Data Type	Width	# Decimals	DESCRIPTION
AREA	AREA	Float	8	5	Polygon area (m2)
PERIMETER	PERIMETER	Float	8	5	Polygon perimeter (m)
LB_V8#	LB_V8#	Binary	4	0	Arc/Info ID
LB_V8-ID	LB_V8-ID	Binary	4	0	Arc/Info ID
FMU_NAME	FMU_NAME	Character	6	0	Forest Management Unit (R10)
DISPOSITION	DISPOSITIO	Character	20	0	Land Use Disposition (2,431 unique occurances)
DISPDEL	DISPDEL	Integer	8	0	Land Use Disposition Deletion identifier (0 or 2)
TRLDEL	TRLDEL	Integer	8	0	Trail Deletion Identifier (0 or 3)
LINK	LINK	Character	32	0	Cut block Indentifier (12,765 unique occurances)
FIRENUMBER	FIRENUMBER	Character	32	0	Fire Number (See Table 2 in report)
COVER	COVER	Character	10	0	Arc/Info coverage used to define protected area (ESIP, PNT, PA, PRA) See Table 3 in report. Note: the default value will ESIP.
PROTCLASS	PROTCLASS	Character	50	0	Name of the protecte area. See Table 3 in report
PROTDEL	PROTDEL	Integer	8	0	Protection Deletion identifier (0 or 6)
SLOPE-CODE	SLOPE_CODE	Binary	4	0	Slope code -9999 = no data 1 = 0 - 15 2 = 16 - 30 3 = 31 - 35 4 = 36 - 40 5 = 41 - 45 6 = 46 - 50 7 = 51- 55 8 = 56 - 60 9 = 60+
GRDTYPE	GRDTYPE	Character	8	0	Stream type (Line or Poly)
HYDDEL	HYDDEL	Integer	8	0	Stream buffer Deletion Indentifier (0 or 8)
TRAP	TRAP	Character	16	0	Inaccessible code (Interp Trapped or Trapped)
INACCDEL	INACCDEL	Integer	8	0	Inaccessible deletion identifier (0 or 9
YARDDEL	YARDDEL	Integer	8	0	Yarding area idenifier (0 or 10)
FORESTKEY	FORESTKEY	Integer	16	0	AVI Polygon identifier. Used to link in AVI Attributes from AVI.dat
AVIVERSIONID	AVIVERSION	B	4	0	AVI Version ID (2)
M	M	B	4	0	Meridian
RG	RG	B	4	0	Range
TWP	TWP	B	4	0	Township
STAND	STAND	B	4	0	Stand Number
MOIST_REG	MOIST_REG	C	1	0	Moisture Regime d = Dry m = mesic w = wet a = aquatic
DENSITY_VAL	DENSITY_VA	B	4	0	Numeric value for the stand density (NULL)
DENSITY	DENSITY	C	1	0	Crown Closure (%) A= 6 - 30 % B = 31 - 50% C = 51 - 70% D = 70 + %
HEIGHT	HEIGHT	B	4	0	Stand Height >0 (m)
SP1	SP1	C	2	0	Overstory Species Sw, Sb, Se Pl, Pj Fb, Lt, Aw, Pb, Bw,Fa,Fd
SP1_PER	SP1_PER	B	4	0	Actual % (to nearest 10) of species listed above.
SP2	SP2	C	2	0	Overstory Species Sw, Sb, Se Pl, Pj Fb, Lt, Aw, Pb, Bw,Fa,Fd
SP2_PER	SP2_PER	B	4	0	Actual % (to nearest 10) of species listed above.
SP3	SP3	C	2	0	Overstory Species Sw, Sb, Se Pl, Pj Fb, Lt, Aw, Pb, Bw,Fa,Fd
SP3_PER	SP3_PER	B	4	0	Actual % (to nearest 10) of species listed above.
SP4	SP4	C	2	0	Overstory Species Sw, Sb, Se Pl, Pj Fb, Lt, Aw, Pb, Bw,Fa,Fd
SP4_PER	SP4_PER	B	4	0	Actual % (to nearest 10) of species listed above.
SP5	SP5	C	2	0	Overstory Species Sw, Sb, Se Pl, Pj Fb, Lt, Aw, Pb, Bw,Fa,Fd
SP5_PER	SP5_PER	B	4	0	Actual % (to nearest 10) of species listed above.
SP6	SP6	C	2	0	Overstory Species Sw, Sb, Se Pl, Pj Fb, Lt, Aw, Pb, Bw,Fa,Fd
SP6_PER	SP6_PER	B	4	0	Actual % (to nearest 10) of species listed above.

Arc/Info Coverage Field name	Shape File Field name	Data Type	Width	# Decimals	DESCRIPTION
STRUC	STRUC	C	1	0	Stand structure Blank=inferred single storey M =multi-layer canopy (2 storey) C =Complex (multiple or uneven stories) H =Horizontal (Homogeneous stand w/ scattered pockets)
STRUC_VAL	STRUC_VAL	B	4	0	Structure Pecent
ORIGIN	ORIGIN	B	4	0	Stand Origin Year
TPR	TPR	C	1	0	Tree Producitivity Rating (U, F, M, G) Tree productivity rating (site index grouping) U =Unproductive F =Fair M =Medium G =Good
TPR_INTERP	TPR_INTERP	C	1	0	Interpreted Tree Productivity Rating (U, F, M, G) Tree productivity rating (site index grouping) U =Unproductive F =Fair M =Medium G =Good
INITIALS	INITIALS	C	2	0	Interpreter intials
NFL	NFL	C	2	0	Non-forest vegetated land (>6% plant cover and <6% tree cover) SC=closed shrub SO=open shrub HG=herbaceous grassland HF=herbaceous forbs BR=bryophyte (moss)
NFL_PER	NFL_PER	B	4	0	Nfl % closure, SC or SO only
NAT_NON	NAT_NON	C	3	0	Naturally non-vegetated (<6% plant cover) NWI =Permanent ice/snow NWL =Seasonal thaws, lakes, ponds NWR =River NWF =Flooded NMB =Recent burn, N/A NMC =Cutbank NMR =Rock/barren NMS =Sand
ANTH_VEG	ANTH_VEG	C	3	0	Human-induced vegetation CA =Annual crops (farmland) CP =Perennial forage crops CPR =Rough pasture (>10% woody cover) CIP =Pipelines, powerlines etc. seeded to grass CIW =Geophysical + wellsites seeded to grass
ANTH_NON	ANTH_NON	C	3	0	Anthropogenic non-vegetated land ASC =Cities, towns, villages, hamlets ASR =Ribbon development, subdivisions, acreages AIH =Permanent right-of-way AIE =Peat extractions AIG =Gravel/borrow pits AIF =Farmyards AIM =Surface mines AII =Industrial sites, sewage lagoons
MOD1, MOD2, MOD3, MOD4, MOD5, MOD6	MOD1, MOD2, MOD3, MOD4, MOD5, MOD6	C	2	0	Stand modifier 1 (or 2) condition/treatment CC =Clearcut, partial cut BU =Burn WF =Windfall CL =Clearing DI =Disease IK =Insect kill UK =Unknown kill WE =Weather (ex. redbelt) DT =Discolored/dead tops BT =Broken tops SN =snags ST =Scattered timber SI =Site improvement (fert, drain) SC =Seedbed prepared PL =Planted/seeded

Arc/Info Coverage Field name	Shape File Field name	Data Type	Width	# Decimals	DESCRIPTION
					TH =Thinned GR =Grazing development (domestic) IR =Irrigated
MOD1_EXT, MOD2_EXT, MOD3_EXT, MOD4_EXT, MOD5_EXT, MOD6_EXT	MOD1_EXT, MOD2_EXT, MOD3_EXT, MOD4_EXT, MOD5_EXT, MOD6_EXT	B	4	0	Modifier extent
					Blank =nil 1 =1 to 25% loss of crown closure or area affected 2 =26 tp 50% 3 =51 to 75% 4 =76 to 94% 5 =Entire
MOD1_YR, MOD2_YR, MOD3_YR, MOD4_YR, MOD5_YR, MOD6_YR	MOD1_YR, MOD2_YR, MOD3_YR, MOD4_YR, MOD5_YR, MOD6_YR	B	4	0	Year of the stand modifying occurrence
DATA	DATA	C	1	0	Interpreter
DATA_YR	DATA_YR	B	4	0	Year of the data source
STEMS	STEMS	B	4	0	Number of Stems (Null)
UMOIST_REG	UMOIST_REG	C	1	0	Moisture Regime d = Dry m = mesic w = wet a = aquatic
UDENSITY_VAL	UDENSITY_V	B	4	0	Numeric value for the stand density (NULL)
UDENSITY	UDENSITY	C	1	0	Understory Crown Closure (%) A= 6 - 30 % B = 31 - 50% C = 51 - 70% D = 70 + %
UHEIGHT	UHEIGHT	B	4	0	Understory Height (m)
USP1	USP1	C	2	0	Understory Species Sw, Sb, Se Pl, Pj Fb, Lt, Aw, Pb, Bw,Fa,Fd
USP1_PER	USP1_PER	B	4	0	Actual % (to nearest 10) of species listed above.
USP2	USP2	C	2	0	Understory Species Sw, Sb, Se Pl, Pj Fb, Lt, Aw, Pb, Bw,Fa,Fd
USP2_PER	USP2_PER	B	4	0	Actual % (to nearest 10) of species listed above.
USP3	USP3	C	2	0	Understory Species Sw, Sb, Se Pl, Pj Fb, Lt, Aw, Pb, Bw,Fa,Fd
USP3_PER	USP3_PER	B	4	0	Actual % (to nearest 10) of species listed above.
USP4	USP4	C	2	0	Understory Species Sw, Sb, Se Pl, Pj Fb, Lt, Aw, Pb, Bw,Fa,Fd
USP4_PER	USP4_PER	B	4	0	Actual % (to nearest 10) of species listed above.
USP5	USP5	C	2	0	Understory Species Sw, Sb, Se Pl, Pj Fb, Lt, Aw, Pb, Bw,Fa,Fd
USP5_PER	USP5_PER	B	4	0	Actual % (to nearest 10) of species listed above.
USP6	USP6	C	2	0	Understory Species Sw, Sb, Se Pl, Pj Fb, Lt, Aw, Pb, Bw,Fa,Fd
USP6_PER	USP6_PER	B	4	0	Actual % (to nearest 10) of species listed above.
USTRUC	USTRUC	C	1	0	Understory Stand structure Blank=inferred single storey M =multi-layer canopy (2 storey) C =Complex (multiple or uneven stories) H =Horizontal (Homogeneous stand w/ scattered pockets)
USTRUC_VAL	USTRUC_VAL	B	4	0	Understory Structure Pecent
UORIGIN	UORIGIN	B	4	0	Understory Origin year
UTPR	UTPR	C	1	0	Tree productivity rating (site index grouping) U =Unproductive F =Fair M =Medium G =Good
UTPR_INTERP	UTPR_INTER	C	1	0	Interpreted Understory Tree Producitivity Rating (U, F, M, G) U =Unproductive F =Fair M =Medium G =Good
UINITIALS	UINITIALS	C	2	0	Understory interpreter
UNFL	UNFL	C	2	0	Non-forest vegetated land (>6% plant cover and <6% tree cover) SC=closed shrub SO=open shrub HG=herbaceous grassland HF=herbaceous forbs BR=bryophyte (moss)

Arc/Info Coverage Field name	Shape File Field name	Data Type	Width	# Decimals	DESCRIPTION
UNFL_PER	UNFL_PER	B	4	0	Nfl % closure, SC or SO only
UNAT_NON	UNAT_NON	C	3	0	Naturally non-vegetated (<6% plant cover) NWI =Permanent ice/snow NWL =Seasonal thaws, lakes, ponds NWR =River NWF =Flooded NMB =Recent burn, N/A NMC =Cutbank NMR =Rock/barren NMS =Sand
UANTH_VEG	UANTH_VEG	C	3	0	Human-induced vegetation CA =Annual crops (farmland) CP =Perennial forage crops CPR =Rough pasture (>10% woody cover) CIP =Pipelines, powerlines etc. seeded to grass CIW =Geophysical + wellsites seeded to grass
UANTH_NON	UANTH_NON	C	3	0	Anthropogenic non-vegetated land ASC =Cities, towns, villages, hamlets ASR =Ribbon development, subdivisions, acreages AIH =Permanent right-of-way AIE =Peat extractions AIG =Gravel/borrow pits AIF =Farmyards AIM =Surface mines AII =Industrial sites, sewage lagoons
UMOD1, UMOD2, UMOD3, UMOD4, UMOD5, UMOD6	UMOD1, UMOD2, UMOD3, UMOD4, UMOD5, UMOD6	C	2	0	Stand modifier 1 (or 2) condition/treatment CC =Clearcut, partial cut BU =Burn WF =Windfall CL =Clearing DI =Disease IK =Insect kill UK =Unknown kill WE =Weather (ex. redbelt) DT =Discolored/dead tops BT =Broken tops SN =snags ST =Scattered timber SI =Site improvement (fert, drain) SC =Seedbed prepared PL =Planted/seeded TH =Thinned GR =Grazing development (domestic) IR =Irrigated
UMOD1_EXT, UMOD2_EXT, UMOD3_EXT, UMOD4_EXT, UMOD5_EXT, UMOD6_EXT	UMOD1_EXT, UMOD2_EXT, UMOD3_EXT, UMOD4_EXT, UMOD5_EXT, UMOD6_EXT	B	4	0	Modifier extent Blank =nil 1 =1 to 25% loss of crown closure or area affected 2 =26 tp 50% 3 =51 to 75% 4 =76 to 94% 5 =Entire
UMOD1_YR, UMOD2_YR, UMOD3_YR, UMOD4_YR, UMOD5_YR, UMOD6_YR	UMOD1_YR, UMOD2_YR, UMOD3_YR, UMOD4_YR, UMOD5_YR, UMOD6_YR	B	4	0	Year of the stand modifying occurrence
UDATA	UDATA	C	1	0	Interpreter
UDATA_YR	UDATA_YR	B	4	0	Year of the data source
USTEMS	USTEMS	B	4	0	Number of Stems (Null)
SYU	SYU	Character	32	0	Sustained Yield Unit (R10 or R10U)

Arc/Info Coverage Field name	Shape File Field name	Data Type	Width	# Decimals	DESCRIPTION
FMA_ID	FMA_ID	Integer	8	0	Forest Management Area Identifier (1)
COMP_ID	COMP_ID	Float	8	0	Compartment Identifier
ID	ID	Integer	8	0	Unique polygon identifier used to link in landbase attributes from lb.dat
FIREYR	FIREYR	Binary	4	0	Fire Year
NREGION_ID	NREGION_ID	Binary	4	0	Natural subregion identifier 2 = Dry Mixedwood 7 = Alpine 8 = Sub-Alpine 10 = Upper Foothills 11 = Lower Foothills
FULLLABEL	FULLLABEL	Character	50	0	AVI covertype (overstory and understory)
Rank	Rank	Integer	8	0	Managed Layer 1 = Overstorey, 2 = Understorey
DOMSP	DOMSP	Character	10	0	Dominant species group PL = Pine Sw/FB = White Spruce, Engelmann Spruce, Balsam Fir, Alpine Fir Sb/Lt = Black Spruce or Larch Dec = Aspen, Balsam Poplar, Birch
MODIFIER	MODIFIER	Character	20	0	Stand modifier from AVI - Concatenation of Modifier code (BU, CC, CL, DI, DT, GR, IK, SN, ST, TH, WE, WF, and extent(1 to 5)
OCG	OCG	Character	5	0	Overstory covergroup (C, CD,DC,D)
UCG	UCG	Character	5	0	Understory covergroup (C, CD,DC,D)
AGE	AGE	Binary	4	0	Stand age (years)
LANDBASE	LANDBASE	Binary	4	0	Landbase code 0 = Non-Forested 1 = Coniferous 2 = Deciduous 4 = Coniferous - Deciduous Overstorey with C, CD, DC, Understorey (B,C,D density) 5 = Deciduous - Deciduous Overstorey with C, CD, DC, Understorey (A density) 6 = Coniferous Cutover 7 = Deciduous Cutover
YIELDCLASS	YIELDCLASS	Binary	4	0	Yield Class (0 to 20)
LB_DELETION	LB_DELETIO	Binary	4	0	Landbase Deletion Code 1 = Non Forested 2 = Oil and Gas 3 = Trails and Seismic 4 = Protected Areas 5 = Inoperable Slope 6 = Riparian 7 = Productivity 9 = Inaccessible 10 = Unharvested Burn 11 = Reforestation Liability Waived 13 = Non R10 FMU 99 = AAC 991 = AAC including Yarding areas 992 = Fair Site Pine
LBOVR	LBOVR	Binary	4	0	Landbase Deletion Code Overide 99 = AAC
DELETIONCLASS	DELETIONCL	Character	50	0	A more detailed desciption for the deletion (2,488 unique values)
NETDOWNCLASS	NETDOWNCLA	Character	50	0	Net down Description Fair-PL Inaccessible Inoperable Slope None Non-forested Oil and Gas Productivity Protected Areas Stream Buffer Trails and Seismic Yarding
MPBINDEX	MPBINDEX	Float	8	5	Mountain Pine Beetle Stand Susceptibility Index (0 to 100)
MPBRANK	MPBRANK	Binary	4	0	Mountain Pine Beetle Stand Susceptibility Ranking (0, 1,2,3)
MPBCLASS	MPBCLASS	Character	50	0	Breakdown of Stand Susceptibility codes (SSI, Risk, Climate Factor) that were into calculation of the rank
AreaHa	AreaHa	Float	8	0	Polygon area in Hectares
LBStatus	LBStatus	Character	20	0	AAC Contribution (Passive/Active)
LandbaseClass	LandbaseCla	Character	20	0	Landbase Designation - Non-Forested, Coniferous or Deciduous
StrataDeclaratio	StrataDecl	Character	2	0	Silvicultural Block Declaration
AssumedLiability	AssumedLia	Integer	8	0	Designates whether SFP has assumed a silvicultural liability null, 0 or 1

Arc/Info Coverage Field name	Shape File Field name	Data Type	Width	# Decimals	DESCRIPTION
ClockStart	ClockStart	datetime			ARIS Clock Start date
HarvYr	HarvYr	Integer	8	0	Harvest Year of block
LANDID	LANDID	Integer	8	0	Landbase version identifier (8)

Appendix 2 ARC/Info and SQL Server Code

ARC/Info Code

```
/*==========================================================================
/*
/* Name:   P115_Yarding.aml
/*
/* Author:  B.Held
/* Date:    Nov 28, 2005
/*
/* Purpose:    Creates the yarding coverage (Yarding) for use in landbase Classification Process
/*


/*------------------------------------------------------------------
/*   History:
/*
/*==========================================================================
/*

    precision double

    w d:\projects\p115\landbase\data

    &args del_code

    &if [exists yard -cover] &then kill yard all
    clip O:\ABGIS\P115\Landbase\data\Yarding_2_0 fmus Yard

    Additem yard.pat yard.pat yarddel 8 8 I

    tables
    select yard.pat
    resel Yarding <> "
    calculate Yarddel = %del_code%
    q

    tolerance  inacc fuzzy .01

/
```

```
*===========================================================================
/*
/* Name:   CreateAVI.aml
/*
/* Author:  B.Held
/* Date:    Sep 19, 2002
/*
/* Purpose:  Creates an AVI coverage from north and south files and clips to
/*                      the current FMUs coverage
/*
/*----------------------------------------------------------
/* Routines:
/*
/*----------------------------------------------------------------
/*    Usage: CreateAVI
/*
/* Arguments: ARG - FUNCTION
/*
/*   Globals: (none external)
/*----------------------------------------------------------------
/*    Calls:
/*----------------------------------------------------------------
/*    Notes: - Will Need to modify this when new AVI comes
/*
/*
/*----------------------------------------------------------------
/*   History:
/*
/*===========================================================================
/*

    precision double

    w d:\projects\p115\landbase\data

    &if [exists avi -cover] &then kill avi all

    Clip o:\abgis\p115\landbase\data\avi_4_3 fmus avi

    infodbase avi.pat avi.dbf
    dropitem avi.pat avi.pat m rg twp stand moist_reg density height sp1 sp1_per sp2 sp2_per sp3 sp3_per sp4 sp4_per sp5 sp5_per
    dropitem avi.pat avi.pat struc struc_val origin tpr tpr_interp initials nfl nfl_per nat_non anth_veg anth_non mod1 mod1_ext mod1_yr mod2 mod2_ext
mod2_yr data data_yr
    dropitem avi.pat avi.pat umoist_reg udensity uheight usp1 usp1_per usp2 usp2_per usp3 usp3_per usp4 usp4_per usp5 usp5_per
    dropitem avi.pat avi.pat ustruc ustruc_val uorigin utpr utpr_interp uinitials unfl unfl_per unat_non uanth_veg uanth_non umod1 umod1_ext umod1_yr
umod2 umod2_ext umod2_yr udata udata_yr trm sunkey yrfld
    dropitem avi.pat avi.pat test overlab underlab

    tolerance  avi fuzzy .0001
```

```
/*==========================================================================
/*
/* Name:   P115_Comps.aml
/*
/* Author:  B.Held
/* Date:    Apr 8, 2005
/*
/* Purpose:    Creates Compartment Boundary Coverage
/*
/*------------------------------------------------------------------
/*   History:
/*
/*==========================================================================
/*
    precision double


    w d:\projects\p115\landbase\data

/*   Create fma area coverage - includes R10U and R10


    &if [exists comps -cover] &then kill comps all
    Clip S:\GIS_nad83\Admin_Bdry\compartments fmus comps

    dropitem comps.pat comps.pat wc desc DFA Year Rights b_comp cutplan T T_1
    tolerance  comps fuzzy .01
```
/

```
*===============================================================================
/*
/* Name:    P115_Disps.aml
/*
/* Author:  B.Held
/* Date:    Apr 7, 2005
/*
/* Purpose:    Creates the disposition coverage (DISPS) for use in landbase Classification Process
/*
/*-----------------------------------------------------------
/*  History:
/*
/*===============================================================================
/*
   precision double
   w d:\projects\p115\landbase\data

   &args del_code


   dtsrun -S swdsv01 -E -P wl_v1 -N UploadLanduseInformation

/*  Get the disposition Attributes from the Landuse database

        &if [exists disp.dat -info] &then killinfo disp.dat

        Connect sqlsrvr WL
               dbmsinfo sqlsrvr Select disp.dat
               Select DispositionNumber as Disposition, Type, TSADeletion, Status, Issuance_Date From WLMA_LandUSeInformation where
TSADeletion > 0 and Issuance_date <= '05/01/06'
               [unquote "]
               y
               y
        Disconnect sqlsrvr

        tables
        select disp.dat
        sort disposition
        q

/*  copy from base coverage

   &if [exists disptemp -cover] &then kill disptemp all
   &if [exists dispc -cover] &then kill dispc all
   &if [exists disps -cover] &then kill disps all

        relate add disp disp.dat info disposition disposition ordered ro


   reselect S:\GIS_nad83\land_use\dispositions disptemp region.dispositions
   resel disp//TSAdeletion = 1 and disp//status <> 'Cancelled' and Disposition <> 'DRS44'
   [unquote "]
   n
   n

   &if [exists dsafe -info] &then killinfo dsafe

   regionpoly disptemp dispc dispositions dsafe
   clip dispc fmus disps

   additem disps.pat disps.pat dispdel 8 8 I

        tables
        select disps.pat
        reselect Disp//TSAdeletion = 1
        calculate dispdel = %del_code%
        q

   dropitem disps.pat disps.pat poly# subclass subclass# Amendment_id Date Compiled Source


        kill dispc all
   kill disptemp all
```

```
killinfo disp.dat
killinfo dsafe

tolerance  disps fuzzy .01
```

```
/*=============================================================================
/*
/* Name:   P115_Fires.aml
/*
/* Author: B.Held
/* Date:    Apr 8, 2005
/*
/* Purpose:    Creates the forest fire coverage (FIRES) for use in landbase Classification Process
/*


/*-------------------------------------------------------------------
/*   History:
/*
/*=============================================================================
/*
      precision double
            w d:\projects\p115\landbase\data


            &if [exists fires -cover] &then kill fires all
            clip S:\GIS_nad83\Fire\fma_fires fmus fires

            additem fires.pat fires.pat fire_yr 8 8 I

            tables
            select fires.pat
            calculate fire_yr = Fire_year
            q

            dropitem fires.pat fires.pat Fire_yr

            tolerance  fires fuzzy .01
```

```
/*=========================================================================
/*
/* Name:   P115_FMU.aml
/*
/* Author:  B.Held
/* Date:    Apr 7,2005
/*
/* Purpose:    Creates the sustained yield unit coverage (FMUS) for use in landbase Classification Process
/*
/*
/*-------------------------------------------------------------------
/*   History:  Copy of CreateDisps.aml used in 2002 landbase exercisce
/*
/*=========================================================================
/*

    precision double

   w d:\projects\p115\landbase\data

/*   Create fma area coverage - includes R10U and R10

    &if [exists fmus -cover ] &then kill fmus all
    reselect S:\GIS_nad83\Admin_Bdry\ab_fmu fmus
    resel fmu_name = 'R10' or fmu_name = 'R10U'
    [unquote ' ']
    n
    n

    dropitem fmus.pat fmus.pat name

    tolerance fmus fuzzy .01
```

```
/*=========================================================================
/*
/* Name:   P115_Harv.aml
/*
/* Author:  B.Held
/* Date:    Apr 7, 2005
/*
/* Purpose:    Creates the harvest coverage (HARV) for use in landbase Classification Process
/*

/*
/*-----------------------------------------------------------------
/*   History:
/*
/*=========================================================================
/*
      precision double

         w d:\projects\p115\landbase\data

         &if [exists tmp -cover] &then kill tmp all
         &if [exists harv -cover] &then kill harv all
         &if [exists harv.dat -info] &then killinfo harv.dat

         Connect sqlsrvr wl

         Dbmsinfo sqlsrvr Select harv.dat
                 Select Link, HarvestDate From Wlma_BlockInformation Where FMA_ID = 1  Order by Link
                 [unquote "]
                 y
                 y
         Disconnect sqlsrvr

         Relate add harv harv.dat info link link ordered ro

         copy S:\GIS_nad83\Blocks\blk_fma_2_0 tmp

         Clip tmp fmus harv

         dropitem harv.pat harv.pat block sub_blk harv_sys time cover comp_id descript opening plan_id skid_date cut_yr field cap plink ctppupd cons_road
laid_out harch_app arch_pot hectares

      tolerance  harv fuzzy .01

      kill tmp all

/
```

```
*==========================================================================
/*
/* Name:   P115_Inacc.aml
/*
/* Author:  B.Held
/* Date:    Apr 8, 2005
/*
/* Purpose:    Creates the inaccessible areas coverage (INACC) for use in landbase Classification Process
/*


/*----------------------------------------------------------------
/*   History:
/*
/*==========================================================================
/*

    precision double

    w d:\projects\p115\landbase\data

    &args del_code

    &if [exists inacc -cover] &then kill inacc all
    clip o:\ABGIS\P115\Landbase\data\inacc_3_0 fmus Inacc

    Additem inacc.pat inacc.pat inaccdel 8 8 I

    tables
    select inacc.pat
    resel trap <> "
    calculate inaccdel = %del_code%
    q

    tolerance  inacc fuzzy .01
```

```
/*=============================================================================
/*
/* Name:   P115_Prot.aml
/*
/* Author:  B.Held
/* Date:    Apr 8, 2005
/*
/* Purpose:    Creates the protected areas coverage (PROT) for use in landbase Classification Process
/*
/*----------------------------------------------------------------
/*   History:
/*
/*=============================================================================
/*

    precision double

    w d:\projects\p115\landbase\data


    &arg del_code

   /*  ESIP Zones
      &if [exists esip -cover] &then kill esip all
      clip o:\ABGIS\P115\landbase\data\esip_1_1 fmus ESIP

       additem esip.pat esip.pat cover 10 10 C

       tables
       select esip.pat
       calculate cover = 'ESIP'
       q

       &if [exists esip.lut -info] &then killinfo esip.lut
        connect sqlsrvr wL
            dbmsinfo sqlsrvr select esip.lut
            select  code as irp_zone, description as ProtClass, Deletion as ProtDeletion
                from tsa_coverageclasses
                where coveragename = 'ESIP'
                end
          Disconnect sqlsrvr

       jointitem esip.pat esip.lut esip.pat irp_zone
       dropitem esip.pat esip.pat irp_zone irp_desc

/*        &Pause


 /* Forest Land Use Zones

       &if [exists fluz -cover] &then kill fluz all
       clip o:\ABGIS\P115\landbase\data\fluz fmus fluz

       additem fluz.pat fluz.pat cover 10 10 C
       additem fluz.pat fluz.pat ProtClass 50 50 C
       additem fluz.pat fluz.pat ProtDeletion 1 1 C


       tables
       select fluz.pat
       calculate cover = 'FLUZ'
       calculate ProtClass = 'Forest Land Use Zone'
       calculate ProtDeletion = '1'
       q

       dropitem fluz.pat fluz.pat ab_1mgeofl ab_1mgeofla fluz_code fluz_name
       dropfeatures fluz annotation.igds

/*        &Pause

 /* Protected Areas

       &if [exists pa -cover] &then kill pa all
```

```
       clip o:\ABGIS\P115\landbase\data\pa_2_0 fmus pa

      additem pa.pat pa.pat cover 10 10 C

      tables
      select pa.pat
      calculate cover = 'PA'
      q

      &if [exists pa.lut -info] &then killinfo pa.lut
        connect sqlsrvr wL
            dbmsinfo sqlsrvr select pa.lut
            select  code as pa_id, description as ProtClass, Deletion as ProtDeletion
                from tsa_coverageclasses
                where coveragename = 'pa'
                end
          Disconnect sqlsrvr

      joinitem pa.pat pa.lut pa.pat pa_id
      dropitem pa.pat pa.pat pa_id r newfield1

/*        &Pause

  /* Provincial Recreation Areas

      &if [exists pra -cover] &then kill pra all
        clip o:\ABGIS\P115\landbase\data\pra_1_1 fmus pra

      additem pra.pat pra.pat cover 10 10 C

      tables
      select pra.pat
      calculate cover = 'PRA'
      q

      &if [exists pra.lut -info] &then killinfo pra.lut
        connect sqlsrvr wL
            dbmsinfo sqlsrvr select pra.lut
            select  code as pra_id, description as ProtClass, Deletion as ProtDeletion
                from tsa_coverageclasses
                where coveragename = 'PRA'
                end
          Disconnect sqlsrvr

      joinitem pra.pat pra.lut pra.pat pra_id
      dropitem pra.pat pra.pat pra_id

/*        &Pause

/* PNT's

            &if [exists pnttmp -cover] &then kill pnttmp all
            &if [exists pntreg -cover] &then kill pntreg all
            &if [exists pnts -cover] &then kill pnts all
            &if [exists pnt.dat -info] &then killinfo pnt.dat
            &if [exists junk.dat -info] &then killinfo junk.dat


            Connect sqlsrvr WL
            dbmsinfo sqlsrvr select PNT.dat
            select dispositionNumber as disposition, type, purpose, name, restriction, exception from WLMA_LandUseInformation where Type ='PNT'  and
Status <> 'Cancelled' and Restriction <> 'NO AGRICULTURAL DISPOSITION' and Exception <> 'COMM/IND/RES' and  Name <> 'Sundre Forest Products
Inc.' order by disposition
            [unquote "]
            y
            y
            Disconnect sqlsrvr

            Relate add pnt pnt.dat info disposition disposition ordered ro

            reselect s:\gis_nad83\land_use\dispositions pnttmp region.dispositions
            resel PNT//type = 'PNT'
            [unquote "]
```

```
                    n
                    n

                    Joinitem pnttmp.patdispositions pnt.dat pnttmp.patdispositions disposition disposition ordered

                    Reselect pnttmp pntreg region.dispositions
                    resel restriction <> "
                    [unquote "]
                    n
                    n

                    &if [exists pnttmp -cover] &then kill pnttmp all
                    regionpoly pntreg pnttmp dispositions junk.dat


                    clip pnttmp fmus pnts
                    Additem pnts.pat pnts.pat cover 10 10 C
                    Additem pnts.pat pnts.pat protclass 50 50 C
                    Additem pnts.pat pnts.pat protdeletion 4 10 B

                    Tables
                    select pnts.pat
                    calculate cover = 'PNT'
                    Calculate protclass = disposition
                    Calculate protdeletion  = 1
                    q


                    Dropitem pnts.pat pnts.pat poly# subclass subclass# disposition amendment_id date compiled source type restriction exception purpose name

                    kill pnttmp all
                    kill pntreg all
                    killinfo junk.dat
                    killinfo pnt.dat


/*        &Pause


  /* Create Protected Cover

      &if [exists temp2 -cover] &then kill temp2 all
      update esip pa temp2

      &if [exists temp3 -cover] &then kill temp3 all
      update temp2 pra temp3

      &if [exists temp4 -cover] &then kill temp4 all
      update temp3 pnts temp4

      &if [exists prot -cover] &then kill prot all
      reselect temp4 prot

      resel ProtDeletion = 1
      [unquote "]
      n
      n

      additem prot.pat prot.pat protdel 8 8 I
      tables
      select prot.pat
      reselect protdeletion = 1
      calculate protdel = %del_code%
      q

/*        &Pause

  /* cleanup

      dropitem prot.pat prot.pat protdeletion

      killinfo esip.lut
      kill esip all
```

```
kill fluz all
killinfo pa.lut
kill pa all
killinfo pra.lut
kill pra all
kill pnts all
kill temp2 all
kill temp3 all
kill temp4 all
tolerance prot fuzzy .01
```

```
/*========================================================================
/*
/* Name:  P115_Slope.aml
/*
/* Author: B.Held
/* Date:    Apr 8, 2005
/*
/* Purpose:    Creates Compartment Boundary Coverage
/*
/*----------------------------------------------------------------
/*   History:
/*
/*========================================================================
/*
 &severity &error &routine error

 precision double

 w d:\projects\p115\landbase\data

  &if [exists slope.lut -info] &then killinfo slope.lut
  connect sqlsrvr WL
  dbmsinfo sqlsrvr select slope.lut
    select range as percent_Slope, code from TSA_CoverageClasses where CoverageName = 'Slope'
    end
  Disconnect sqlsrvr

  additem slope.lut slope.lut slope-code 4 5 B
  tables
  select slope.lut
  calculate slope-code = code
  sort slope-code
  q

  dropitem slope.lut slope.lut code

  &if [ exists dem -grid ] &then kill dem all

  grid
   gridclip S:\GIS_nad83\dem\topo\fma_topo dem cover FMUs
  q

  &if [exists slope -cover ] &then kill slope
  latticepoly dem slope slope slope.lut

  &return

  &routine error
  &severity &error &fail
  &type An error has occurred in P115_Slope.aml...
  &pause
  &return &error Terminating program, ADDIT.AML.




/*
/* Name:   P115_Trails.aml
/*
/* Author:  B.Held
/* Date:     Apr 7,2005
/*
/* Purpose:    Creates the trails and seismic coverage (TRAILS) for use in landbase Classification Process
/*----------------------------------------------------------------------
/*   History:
/*
/*========================================================================
/*
      precision double

          w d:\projects\p115\landbase\data

      &args del_code
```

```
        &if [exists trailstemp -cover ] &then kill trailstemp all

        clip S:\GIS_nad83\Trails_Seismic\trailcutline2 fmus trailstemp line

        &if [exists trails -cover ] &then kill trails all

        buffer trailstemp trails # # 3.0 .0000001

Additem trails.pat trails.pat trldel 8 8 I

        tables
        select trails.pat
        resel inside = 100
        calculate trldel = %del_code%
        q

        dropitem trails.pat trails.pat inside

        kill trailstemp all

        tolerance  trails fuzzy .01
```

```
/*=============================================================================
/*
/* Name:   P115_Hydro.aml
/*
/* Author:  B.Held
/* Date:     Apr 8, 2005
/*
/* Purpose:    Creates the riparian areas coverage for use in landbase Classification Process
/*
/*----------------------------------------------------------------
/*   History:
/*
/*=============================================================================
/*
    precision double

   w d:\projects\p115\landbase\data

    &args del_code

    /* Create line buffer

    &if [ exists hydro_arc -cover ] &then kill hydro_arc all
    &if [ exists hydro.lut -info ] &then killinfo hydro.lut
    &if [ exists GRDline -cover ] &then kill GRDline all

    Connect sqlsrvr WL
    dbmsinfo sqlsrvr select hydro.lut
        select class, code as hydro_code, deletion, range as buffer_width
        from TSA_coverageclasses
        where coveragename = 'Hydro_arc'
        end
    Disconnect sqlsrvr

    tables
    select hydro.lut
    sort hydro_code
    q

    clip S:\GIS_nad83\Water\Hydro_2_0 fmus hydro_arc line

    additem hydro_arc.aat hydro_arc.aat hydro_code 10 10 I
    tables
    select hydro_arc.aat
    calculate hydro_code = ID
    q

    joinitem hydro_arc.aat hydro.lut hydro_arc.aat hydro_code hydro_code ordered

    buffer hydro_arc GRDline buffer_width

    additem grdline.pat grdline.pat grdtype 8 8 C
    tables
    select grdline.pat
    Resel inside = 100
    calculate grdtype = 'Line'
    q

    kill hydro_arc all


    /* Create polygon buffer

    &if [ exists hydro_poly -cover ] &then kill hydro_poly all
    &if [ exists hydro.lut -info ] &then killinfo hydro.lut
    &if [ exists GRDpoly -cover ] &then kill GRDpoly all

    Connect sqlsrvr WL
    dbmsinfo sqlsrvr select hydro.lut
        select class as hydro_code, code, deletion, range as buffer_width
        from TSA_coverageclasses
        where coveragename = 'Hydro_poly'
        end
```

```
Disconnect sqlsrvr


tables
select hydro.lut
sort hydro_code
q

clip S:\GIS_nad83\Water\waterdbl fmus hydro_poly

additem hydro_poly.pat hydro_poly.pat hydro_code 15 15 C
tables
select hydro_poly.pat
calculate hydro_code = Feature-Code

q

joinitem hydro_poly.pat hydro.lut hydro_poly.pat hydro_code hydro_code ordered

buffer hydro_poly GRDpoly buffer_width # # # poly

additem grdpoly.pat grdpoly.pat grdtype 8 8 C
tables
select grdpoly.pat
reselect inside = 100
calculate grdtype = 'Poly'
q


/* Clean up
killinfo hydro.lut
kill hydro_poly all

&if [ exists WBuf -cover ] &then kill WBuf all

update grdline grdpoly wbuf


additem WBuf.pat WBuf.pat hyddel 8 8 I

tables
select WBuf.pat
resel grdtype = 'Line'
calculate hyddel = %del_code%
asel
resel grdtype = 'Poly'
calculate hyddel = %del_code%
q

dropitem WBuf.pat WBuf.pat inside

/* Clean up
kill grdline all
kill grdpoly all

tolerance  WBuf fuzzy .01
```

```
/*=========================================================================
/*
/*  Name :     P115_Netdown.AMI
/*
/*  Created on:        6/17/2005
/*
/*  Created by: Bob Held
/*
/*=========================================================================

w d:\projects\p115\landbase\data\

&Args landid

&if [ exists temp1 -cover ] &then kill temp1 all
identity FMUs Disps temp1 poly .01

&if [ exists temp2 -cover ] &then kill temp2 all
Identity temp1 Trails temp2 poly .01
kill temp1 all

&if [ exists temp3 -cover ] &then kill temp3 all
identity temp2 Harv temp3 poly .01
kill temp2 all

&if [ exists temp4 -cover ] &then kill temp4 all
identity temp3 Fires temp4 poly .01
kill temp3 all

dropitem temp4.pat temp4.pat temp1# temp1-id temp2# temp2-id temp3# temp3-id fmus# fmus-id disps# disps-id trails# trails-id harv# harv-id fires# fires-id

&if [ exists temp5 -cover ] &then kill temp5 all
identity temp4 prot temp5 poly .01
kill temp4 all

&if [ exists temp6 -cover ] &then kill temp6 all
identity temp5 Slope temp6 poly .01
kill temp5 all

&if [ exists temp7 -cover ] &then kill temp7 all
identity temp6 Wbuf temp7 poly .01
kill temp6 all

dropitem temp7.pat temp7.pat temp4# temp4-id temp5# temp5-id temp6# temp6-id prot# prot-id  slope# slope-id wbuf# wbuf-id

&if [ exists temp8 -cover ] &then kill temp8 all
identity temp7 InAcc temp8 poly .01
kill temp7 all

&if [ exists temp9 -cover ] &then kill temp9 all
identity temp8 Yard temp9 poly .01
kill temp8 all

&if [ exists temp10 -cover ] &then kill temp10 all
identity temp9 AVI temp10 poly .01
kill temp9 all
dropitem temp10.pat temp10.pat temp7# temp7-id temp8# temp8-id temp9# temp9-id inacc# inacc-id avi# avi-id fire_year

&if [ exists lbovl -cover] &then kill lbovl all
Identity temp10 Comps lbovl poly .01
kill temp10 all
dropitem lbovl.pat lbovl.pat comps# comps-id temp10# temp10-id Yard# Yard-id

additem lbovl.pat lbovl.pat id 8 8 I
additem lbovl.pat lbovl.pat landid 8 8 I
Tables
select lbovl.pat
resel area > 0
calculate id = lbovl-id
calculate landid = %landid%
Unload lbovl.csv landid id area FMA_ID comp_id SYU dispdel disposition trldel protdel protclass slope-code hyddel grdtype inaccdel trap Yarddel forestkey
Link deletions firenumber init
q
```

```
killinfo *.lut
killinfo *.dat
killinfo $*

dtsrun -S swdsv01 -E -P wl_v1 -N UploadLBOVL -L UploadLBOVL.log
```

```
Attribute VB_Name = "modAVILabels_v5"
Option Compare Database

Function AVILabels_v5()

    Dim dbs As New ADODB.Connection
    Dim cmd As New ADODB.Command
    Dim rst As New ADODB.Recordset
    Dim cnt As New ADODB.Recordset
    Dim AVI As New ADODB.Recordset

    Dim VarReturn As Variant, lngx As Long
    Dim count, DBHAge, OperCon, OperDec, UperCon, UperDec, rank As Long
    Dim Sp1_per, Sp2_per, Sp3_per, Sp4_per, Sp5_per, Usp1_per, Usp2_per, Usp3_per, Usp4_per, Usp5_per As Long
    Dim OS, US, lab, Storey, CC_Class, OCg, OCg_2 As String

    Dim cb0(30), cb1(30), cb2(30), cc0(30), cc1(30), cc2(30), cc3(30), cc4(30), cc5(30), cc6(30) As Double
    Dim db0(30), db1(30), db2(30), dc0(30), dc1(30), dc2(30), dc3(30), dc4(30), dc5(30), dc6(30) As Double

    Set dbs = New ADODB.Connection
    StrConnect = "Driver={SQL Server}; Server=SWDSV01; Database=WL_V1;"
    dbs.Open StrConnect
    cmd.ActiveConnection = dbs

'*** Run parameters ***;

    FMA_ID = 2

    SRCAVIVersionid = 3
    DSTAVIVersioNID = 3

    DVTVEr = "CVD"
    DVTConUTil = 5
    DVTDecUtil = 5

    YLDVer = 0
    YLDConUTil = 0
    YLDDecUtil = 0

    CutOffDate = 2006

    ApplyRank = 1
    Debug.Print "Updateing AVI_Versions"
    SQLStr = "Update AVI_Versions Set SourceAVIVersionid = " & SRCAVIVersionid & ", " _
        & "DVTVersionID = '" & DVTVEr & "', " _
        & "DVTConiferousUTil = " & DVTConUTil & ", " _
        & "DVTDecidousUtil = " & DVTDecUtil & ", " _
        & "YLDVersionID = " & YLDVer & "," _
        & "YLDConiferousUTil = " & YLDConUTil & ", " _
        & "YLDDecidousUtil = " & YLDDecUtil & ", " _
        & "ApplyRank = " & ApplyRank & ", " _
        & "AVILabelsLoad = '" & Date & "' " _
        & "Where FMA_ID = " & FMA_ID & " and AVIVersionID = " & DSTAVIVersioNID

DoCmd.RunSQL (SQLStr)

Debug.Print "Purging AVI_labels"

SQLStr = "Delete from AVI_Labels where FMA_ID = " & FMA_ID & " and AVIVersionId = " & DSTAVIVersioNID
DoCmd.RunSQL (SQLStr)

Debug.Print "Get AVI Attribute Information"
SQLStr = "Select AVI.* From AVI_Attributes AVI " _
        & "Where AVI.FMA_Id = " & FMA_ID & " and AVI.AVIVersionId = " & SRCAVIVersionid

cmd.CommandText = SQLStr
cmd.CommandTimeout = 300
Set rst = cmd.Execute

SQLStr = "Select count(*) as norecs from (" & SQLStr & ") AVI"

cmd.CommandText = SQLStr


Set cnt = cmd.Execute

Set AVI = New ADODB.Recordset
AVI.Open "AVI_Labels", dbs, adOpenKeyset, adLockOptimistic

VarReturn = SysCmd(acSysCmdClearStatus)

lngx = 0
lngCount = 0
DoCmd.Hourglass False
StrMsg = "Calculating " & cnt!norecs
lngCount = cnt!norecs
VarReturn = SysCmd(acSysCmdInitMeter, StrMsg, lngCount)

Debug.Print "Appending AVI_Labels"
```

```vba
Do While Not rst.EOF

    lngx = lngx + 1
    If lngx Mod 100 = 0 Then Debug.Print rst!Forestkey

    VarReturn = SysCmd(acSysCmdUpdateMeter, lngx)

    SQLStr = "Select Nregionid from AVI_coords Where FMA_ID = " & FMA_ID & " and AVIVersionID = " & DSTAVIVersioNID & " and Forestkey = " & rst!Forestkey
    cmd.CommandText = SQLStr
    Set nrg = cmd.Execute

    If nrg.RecordCount > 0 Then
        NRegionId = nrg!NRegionId
        SQLStr = "select * from AVI_AgeAdjustments Where FMA_ID = " & FMA_ID & " and Nregionid = " & nrg!NRegionId & " and Species = '" & rst!Sp1 & "'"
        cmd.CommandText = SQLStr
        Set adj = cmd.Execute

        SQLStr = "select * from Coefficients_SiteIndex Where FMA_ID = " & FMA_ID & " and Nregionid = " & nrg!NRegionId & " and Species = '" & rst!Sp1 & "'"
        cmd.CommandText = SQLStr
        Set cfs = cmd.Execute

    If rst!Origin > 0 Then DBHAge = 2000 - rst!Origin - adj!AgeAdjustment
    If DBHAge < 0 Then DBHAge = 0
    Refage = 50
    TSI0 = 10
    TSI = 0
    If (rst!Sp1 = "SW" Or rst!Sp1 = "SE" Or rst!Sp1 = "FB" Or rst!Sp1 = "FD" Or rst!Sp1 = "FA") And Abs(cfs!Slb1) > 0 And DBHAge > 0 And rst!Height > 5 Then
        n = 0
        Do Until (Abs(TSI0 - TSI1) < 0.00000001 Or n > 100)
            n = n + 1
            c = cfs!Slb3 * (TSI0 - 1.3) ^ cfs!Slb4 * Refage ^ cfs!Slb5
            TSI1 = 1.3 + (rst!Height - 1.3) / _
                ((1 - Exp(-cfs!Slb0 * (TSI0 - 1.3) ^ cfs!Slb1 * cfs!Slb2 ^ ((TSI0 - 1.3) / Refage) * DBHAge)) / _
                (1 - Exp(-cfs!Slb0 * (TSI0 - 1.3) ^ cfs!Slb1 * cfs!Slb2 ^ ((TSI0 - 1.3) / Refage) * Refage))) ^ c
            TSI0 = (TSI0 + TSI1) / 2
            TSI = TSI0
        Loop
        'Debug.Print "Species: "; !SP1; " Height: "; !Height; " Age: "; DBHAge; " SI: "; TSI
    End If
    If (rst!Sp1 = "P" Or rst!Sp1 = "PL" Or rst!Sp1 = "PJ" Or rst!Sp1 = "AW" Or rst!Sp1 = "BW" Or rst!Sp1 = "PB" Or rst!Sp1 = "SB" Or rst!Sp1 = "LT") And Abs(cfs!Slb1) > 0 And DBHAge > 0 And rst!Height > 5 Then
        n = 0
        Do Until (Abs(TSI0 - TSI1) < 0.00000001 Or n > 100)
                n = n + 1
            c = cfs!Slb3 * (TSI0 - 1.3) ^ cfs!Slb4 * Refage ^ cfs!Slb5
            TSI1 = 1.3 + (cfs!Height - 1.3) / _
                ((1 - Exp(-cfs!Slb0 * (TSI0 - 1.3) ^ cfs!Slb1 * cfs!Slb2 ^ ((TSI0 - 1.3)) * DBHAge)) / _
                (1 - Exp(-cfs!Slb0 * (TSI0 - 1.3) ^ cfs!Slb1 * cfs!Slb2 ^ ((TSI0 - 1.3)) * Refage))) ^ c
            TSI0 = (TSI0 + TSI1) / 2
            TSI = TSI0
        Loop
    End If
    'Debug.Print "Species: "; rst!sp1; " Height: "; rst!Height; " Age: "; DBHAge; " SI: "; tsi; rst!Nregion
    Else
    TSI = Null
    NRegionId = Null
    End If


    With AVI

        OperCon = 0
        OperDec = 0
        UperCon = 0
        UperDec = 0
        OS = ""
        US = ""
        Storey = " "

        Sp1_per = rst!Sp1_per
        Sp2_per = rst!Sp2_per
        Sp3_per = rst!Sp3_per
        Sp4_per = rst!Sp4_per
        Sp5_per = rst!Sp5_per

        Usp1_per = rst!Usp1_per
        Usp2_per = rst!Usp2_per
        Usp3_per = rst!Usp3_per
        Usp4_per = rst!Usp4_per
        Usp5_per = rst!Usp5_per

        If Sp1_per = 0 Then Sp1_per = Null
        If Sp2_per = 0 Then Sp2_per = Null
        If Sp3_per = 0 Then Sp3_per = Null
        If Sp4_per = 0 Then Sp4_per = Null
        If Sp5_per = 0 Then Sp5_per = Null

        If Usp1_per = 0 Then Usp1_per = Null
        If Usp2_per = 0 Then Usp2_per = Null
        If Usp3_per = 0 Then Usp3_per = Null
        If Usp4_per = 0 Then Usp4_per = Null
        'If Usp5_per = 0 Then Usp5_per = Null

        .AddNew
        numden = 0
        numuden = 0
        If rst!density = " " Then numden = 0
        If rst!density = "A" Then numden = 1
```

```vb
    If rst!density = "B" Then numden = 2
    If rst!density = "C" Then numden = 3
    If rst!density = "D" Then numden = 4
    If rst!Udensity = " " Then numuden = 0
    If rst!Udensity = "A" Then numuden = 1
    If rst!Udensity = "B" Then numuden = 2
    If rst!Udensity = "C" Then numuden = 3
    If rst!Udensity = "D" Then numuden = 4
    newnum = numden + numuden
    If newnum = 0 Then !AdjCC = " "
    If newnum = 1 Then !AdjCC = "A"
    If newnum = 2 Then !AdjCC = "B"
    If newnum = 3 Then !AdjCC = "C"
    If newnum >= 4 Then !AdjCC = "D"
    'Debug.Print rst!density, numden, rst!udensity, numuden; newnum, !adjcc

    !area = rst!area
    !Siteindex = TSI
    !FMA_ID = FMA_ID
    !AVIVersionid = DSTAVIVersioNID
    !Forestkey = rst!Forestkey
    !Nregion_id = NRegionId
    !TRM = rst!twp * 1000 + rst!Rg * 10 + rst!M
    !stand = rst!stand
    !Mreg = rst!Moist_reg
    !density = rst!density
    !Height = rst!Height
    !Modifier = rst!mod1
    !Extent = rst!mod1_ext
    !UModifier = rst!Umod1
    !UExtent = rst!Umod1_ext
    !tpr = rst!tpr
    !Utpr = rst!Utpr

    ' Height classes

    If !Height < 12 Then !HeightClass = 1
    If !Height < 15 And !Height >= 12 Then !HeightClass = 2
    If !Height < 18 And !Height >= 15 Then !HeightClass = 3
    If !Height < 21 And !Height >= 18 Then !HeightClass = 4
    If !Height < 24 And !Height >= 21 Then !HeightClass = 5
    If !Height >= 24 Then !HeightClass = 6

    ' Overstorey and Understorey Labels
    Anth = "No"
    If rst!density <> "" Then
        If Not isnull(rst!density) Then OS = rst!density & rst!Height & rst!Sp1 & Sp1_per & rst!sp2 & Sp2_per & rst!sp3 & Sp3_per & rst!sp4 & Sp4_per & rst!sp5 & Sp5_per
        If Not isnull(rst!Udensity) Then US = rst!Udensity & rst!UHeight & rst!USp1 & Usp1_per & rst!USP2 & Usp2_per & rst!USP3 & Usp3_per & rst!USP4 & Usp4_per
        Else


        If rst!NFL <> "" Then
            If rst!nfl_per > 0 Then
                OS = rst!NFL & "-" & rst!nfl_per
            Else
                OS = rst!NFL
            End If
        End If
        If rst!nat_non <> "" Then
            OS = rst!nat_non
            Anth = "Yes"
        End If
        If rst!anth_veg <> "" Then
            OS = rst!anth_veg
            Anth = "Yes"
        End If
        If rst!anth_non <> "" Then
            OS = rst!anth_non
            Anth = "Yes"
        End If
        If rst!UNfl <> "" Then
            If rst!Unfl_per > 0 Then
                US = rst!UNfl & "-" & rst!Unfl_per
            Else
                US = rst!UNfl
            End If
            USpres = 1
        End If
        If rst!Unat_non <> "" Then
            US = rst!Unat_non
            USpres = 1
            Anth = "Yes"
        End If
        If rst!Uanth_veg <> "" Then
            US = rst!Uanth_veg
            USpres = 1
            Anth = "Yes"
        End If
        If rst!Uanth_non <> "" Then
            US = rst!Uanth_non
            USpres = 1
            Anth = "Yes"
        End If
    End If
    !Anthropogenic = Anth

    ' Covertype Rank
```

```
!rank = 1
If (rst!density = "A" Or rst!density = "B") And (rst!Udensity = "C" Or rst!density = "D") And (rst!Height - rst!UHeight <= 6 And rst!UHeight >= 13) Then
    !rank = 2
    End If
If !rank = 2 Then Storey = "-M"

'Crown Closure Classes

If rst!density = "C" Or rst!density = "D" Then CC_Class = "C/D"
If rst!density = "A" Or rst!density = "B" Then CC_Class = "A/B"


' Define layered stands
Dim layered As Boolean
If (rst!Udensity = "B" Or rst!Udensity = "C" Or rst!Udensity = "D") And rst!Height - rst!UHeight < 10 Then
    layered = False
    Else
    layered = True
    End If

' Overstorey covergroup

If UCase(rst!Sp1) = "PL" Or UCase(rst!Sp1) = "PJ" Or Trim(UCase(rst!Sp1)) = "P" Or UCase(rst!Sp1) = "SW" Or UCase(rst!Sp1) = "SB" Or _
UCase(rst!Sp1) = "SE" Or UCase(rst!Sp1) = "FB" Or UCase(rst!Sp1) = "FD" Or UCase(rst!Sp1) = "FA" Or UCase(rst!Sp1) = "LT" Then _
OperCon = OperCon + rst!Sp1_per
If UCase(rst!sp2) = "PL" Or Trim(UCase(rst!sp2)) = "P" Or UCase(rst!sp2) = "SW" Or UCase(rst!sp2) = "SB" Or _
UCase(rst!sp2) = "SE" Or UCase(rst!sp2) = "FB" Or UCase(rst!sp2) = "FA" Or UCase(rst!sp2) = "LT" Then _
OperCon = OperCon + rst!Sp2_per
If UCase(rst!sp3) = "PL" Or Trim(UCase(rst!sp3)) = "P" Or UCase(rst!sp3) = "SW" Or UCase(rst!sp3) = "SB" Or _
UCase(rst!sp3) = "SE" Or UCase(rst!sp3) = "FB" Or UCase(rst!sp3) = "FA" Or UCase(rst!sp3) = "LT" Then _
OperCon = OperCon + rst!Sp3_per
If UCase(rst!sp4) = "PL" Or Trim(UCase(rst!sp4)) = "P" Or UCase(rst!sp4) = "SW" Or UCase(rst!sp4) = "SB" Or _
UCase(rst!sp4) = "SE" Or UCase(rst!sp4) = "FB" Or UCase(rst!sp4) = "FA" Or UCase(rst!sp4) = "LT" Then _
OperCon = OperCon + rst!Sp4_per
If UCase(rst!sp5) = "PL" Or Trim(UCase(rst!sp5)) = "P" Or UCase(rst!sp5) = "SW" Or UCase(rst!sp5) = "SB" Or _
UCase(rst!sp5) = "SE" Or UCase(rst!sp5) = "FB" Or UCase(rst!sp5) = "FA" Or UCase(rst!sp5) = "LT" Then _
OperCon = OperCon + rst!Sp5_per
If UCase(rst!Sp1) = "AW" Or Trim(UCase(rst!Sp1)) = "A" Or UCase(rst!Sp1) = "PB" Or UCase(rst!Sp1) = "BW" Then _
OperDec = OperDec + rst!Sp1_per
If UCase(rst!sp2) = "AW" Or Trim(UCase(rst!sp2)) = "A" Or UCase(rst!sp2) = "PB" Or UCase(rst!sp2) = "BW" Then _
OperDec = OperDec + rst!Sp2_per
If UCase(rst!sp3) = "AW" Or Trim(UCase(rst!sp3)) = "A" Or UCase(rst!sp3) = "PB" Or UCase(rst!sp3) = "BW" Then _
OperDec = OperDec + rst!Sp3_per
If UCase(rst!sp4) = "AW" Or Trim(UCase(rst!sp4)) = "A" Or UCase(rst!sp4) = "PB" Or UCase(rst!sp4) = "BW" Then _
OperDec = OperDec + rst!Sp4_per
If UCase(rst!sp5) = "AW" Or Trim(UCase(rst!sp5)) = "A" Or UCase(rst!sp5) = "PB" Or UCase(rst!sp5) = "BW" Then _
OperDec = OperDec + rst!Sp5_per

If OperCon >= 8 Then !OCg = "C"

If (OperCon < 8 And OperCon >= 5) Then !OCg = "CD"

If (OperDec < 8 And OperDec >= 5) Then !OCg = "DC"

If OperCon = 5 And _
    (UCase(rst!Sp1) = "PL" Or UCase(rst!Sp1) = "P" Or UCase(rst!Sp1) = "SW" Or UCase(rst!Sp1) = "SB" Or _
    UCase(rst!Sp1) = "SE" Or UCase(rst!Sp1) = "FB" Or UCase(rst!Sp1) = "FA" Or UCase(rst!Sp1) = "LT") _
    Then !OCg = "CD"

If OperDec = 5 And _
    (UCase(rst!Sp1) = "AW" Or UCase(rst!Sp1) = "PB" Or UCase(rst!Sp1) = "BW") _
    Then !OCg = "DC"

If OperDec >= 8 Then !OCg = "D"

If Trim(UCase(rst!Sp1)) = "P" Or UCase(rst!Sp1) = "PL" Then !ODomSp = "PL"
If UCase(rst!Sp1) = "SW" Or UCase(rst!Sp1) = "SE" Or UCase(rst!Sp1) = "FB" Or UCase(rst!Sp1) = "FA" _
    Or UCase(rst!Sp1) = "FD" Then !ODomSp = "SW/FB"
If UCase(rst!Sp1) = "SB" Or UCase(rst!Sp1) = "LT" Then !ODomSp = "SB/LT"
If UCase(rst!Sp1) = "AW" Or Trim(UCase(rst!Sp1)) = "A" Or UCase(rst!Sp1) = "PB" Or UCase(rst!Sp1) = "BW" Then !ODomSp = "DEC"
!OCg_2 = !OCg
If !OCg = "CD" Or !OCg = "DC" Then !OCg_2 = "MX"


' Understorey covergroup

If UCase(rst!USp1) = "PL" Or UCase(rst!USp1) = "PJ" Or Trim(UCase(rst!USp1)) = "P" Or UCase(rst!USp1) = "SW" Or UCase(rst!USp1) = "SB" Or _
UCase(rst!USp1) = "SE" Or UCase(rst!USp1) = "FB" Or UCase(rst!USp1) = "FD" Or UCase(rst!USp1) = "FA" Or UCase(rst!USp1) = "LT" Then _
UperCon = UperCon + rst!USp1_per
If UCase(rst!USP2) = "PL" Or Trim(UCase(rst!USP2)) = "P" Or UCase(rst!USP2) = "SW" Or UCase(rst!USP2) = "SB" Or _
UCase(rst!USP2) = "SE" Or UCase(rst!USP2) = "FB" Or UCase(rst!USP2) = "FA" Or UCase(rst!USP2) = "LT" Then _
UperCon = UperCon + rst!Usp2_per
If UCase(rst!USP3) = "PL" Or Trim(UCase(rst!USP3)) = "P" Or UCase(rst!USP3) = "SW" Or UCase(rst!USP3) = "SB" Or _
UCase(rst!USP3) = "SE" Or UCase(rst!USP3) = "FB" Or UCase(rst!USP3) = "FA" Or UCase(rst!USP3) = "LT" Then _
UperCon = UperCon + rst!Usp3_per
If UCase(rst!USP4) = "PL" Or Trim(UCase(rst!USP4)) = "P" Or UCase(rst!USP4) = "SW" Or UCase(rst!USP4) = "SB" Or _
UCase(rst!USP4) = "SE" Or UCase(rst!USP4) = "FB" Or UCase(rst!USP4) = "FA" Or UCase(rst!USP4) = "LT" Then _
UperCon = UperCon + rst!Usp4_per
If UCase(rst!USP5) = "PL" Or Trim(UCase(rst!USP5)) = "P" Or UCase(rst!USP5) = "SW" Or UCase(rst!USP5) = "SB" Or _
UCase(rst!USP5) = "SE" Or UCase(rst!USP5) = "FB" Or UCase(rst!USP5) = "FA" Or UCase(rst!USP5) = "LT" Then _
UperCon = UperCon + rst!Usp5_per
If UCase(rst!USp1) = "AW" Or Trim(UCase(rst!USp1)) = "A" Or UCase(rst!USp1) = "PB" Or UCase(rst!USp1) = "BW" Then _
UperDec = UperDec + rst!Usp1_per
If UCase(rst!USP2) = "AW" Or Trim(UCase(rst!USP2)) = "A" Or UCase(rst!USP2) = "PB" Or UCase(rst!USP2) = "BW" Then _
UperDec = UperDec + rst!Usp2_per
If UCase(rst!USP3) = "AW" Or Trim(UCase(rst!USP3)) = "A" Or UCase(rst!USP3) = "PB" Or UCase(rst!USP3) = "BW" Then _
UperDec = UperDec + rst!Usp3_per
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        If UCase(rst!USP4) = "AW" Or Trim(UCase(rst!USP4)) = "A" Or UCase(rst!USP4) = "PB" Or UCase(rst!USP4) = "BW" Then _
        UperDec = UperDec + rst!Usp4_per
        If UCase(rst!USP5) = "AW" Or Trim(UCase(rst!USP5)) = "A" Or UCase(rst!USP5) = "PB" Or UCase(rst!USP5) = "BW" Then _
        UperDec = UperDec + rst!Usp5_per

        If UperCon >= 8 Then !UCg = "C"

        If (UperCon < 8 And UperCon >= 5) Then !UCg = "CD"

        If (UperDec < 8 And UperDec >= 5) Then !UCg = "DC"

        If UperCon = 5 And _
          (UCase(rst!USp1) = "PL" Or UCase(rst!USp1) = "P" Or UCase(rst!USp1) = "SW" Or UCase(rst!USp1) = "SB" Or _
          UCase(rst!USp1) = "SE" Or UCase(rst!USp1) = "FB" Or UCase(rst!USp1) = "FA" Or UCase(rst!USp1) = "LT") _
          Then !UCg = "CD"

        If UperDec = 5 And _
          (UCase(rst!USp1) = "AW" Or UCase(rst!USp1) = "PB" Or UCase(rst!USp1) = "BW") _
          Then !UCg = "DC"

        If UperDec >= 8 Then !UCg = "D"

        If Trim(UCase(rst!USp1)) = "P" Or UCase(rst!USp1) = "PL" Then !UDomsp = "PL"
        If UCase(rst!USp1) = "SW" Or UCase(rst!USp1) = "SE" Or UCase(rst!USp1) = "FB" Or UCase(rst!USp1) = "FA" _
          Or UCase(rst!USp1) = "FD" Then !UDomsp = "SW/FB"
        If UCase(rst!USp1) = "SB" Or UCase(rst!USp1) = "LT" Then !UDomsp = "SB/LT"
        If UCase(rst!USp1) = "AW" Or Trim(UCase(rst!USp1)) = "A" Or UCase(rst!USp1) = "PB" Or UCase(rst!USp1) = "BW" Then !UDomsp = "DE"

        !UCg_2 = !UCg
        !OSconif = OperCon
        !OSdecid = OperDec
        !USConif = UperCon
        !USDecid = UperDec
        !Overstorey = OS
        !Understorey = US
        !OverstoreyOrigin = rst!Origin
        !Understoreyorigin = rst!UOrigin

        If Trim(US) = "" Then
          !FullLabel = OS
          Else
          !FullLabel = OS & " / " & US
          End If
'*** Volume Strata Assignment ***;
        If !UCg = "CD" Or !UCg = "DC" Then !UCg_2 = "MX"
        If !OCg = "DC" Or !OCg = "CD" Then !OCg_2 = "MX"
        If !OCg = "" And (rst!mod1 = "CC" Or rst!mod2 = "CC") Then
          !OCg = "C"
          !OCg_2 = "C"
          !Overstorey = "CC"
          End If

        If NRegionId = 8 Or NRegionId = 9 Or NRegionId = 10 Then Nregion = 10
        If NRegionId = 11 Or NRegionId = 2 Then Nregion = 11

        If Not isnull(rst!density) Then
          !InventoryStrata = CC_Class & "-" & !HeightClass & "-" & !OCg
          !volumestrata = CC_Class & "-" & !HeightClass & "-" & !OCg & "-" & !ODomSp & Storey
          !VolumeStrata_2 = CC_Class & "-" & !HeightClass & "-" & !OCg_2 & "-" & !ODomSp & Storey

          If FMA_ID = 1 Then
            !Volumestrata_3 = Nregion & "-" & rst!density & "-" & !HeightClass & "-" & !OCg_2 & "-" & !ODomSp
            End If
          If FMA_ID = 2 Then
            If rst!Sp1 = "PL" And (rst!USp1 = "SB" Or (rst!sp2 = "SB" And rst!Sp2_per >= 2)) Then Storey = "/SB"
            CC_Class = !density
            Newden = !density
            Denstr = ("ABCD")
            If rst!UHeight >= 11 Then
              If InStr(1, Denstr, rst!density) + InStr(1, Denstr, rst!Udensity) = 1 Then Newden = "A"
              If InStr(1, Denstr, rst!density) + InStr(1, Denstr, rst!Udensity) = 2 Then Newden = "B"
              If InStr(1, Denstr, rst!density) + InStr(1, Denstr, rst!Udensity) = 3 Then Newden = "C"
              If InStr(1, Denstr, rst!density) + InStr(1, Denstr, rst!Udensity) > 3 Then Newden = "D"
              End If

            If Newden = "C" Or Newden = "D" Then CC_Class = Newden
            If Newden = "A" Or Newden = "B" Then CC_Class = "A/B"
            !Volumestrata_3 = Trim(CC_Class & "-" & !HeightClass & "-" & !OCg & "-" & !ODomSp & Storey)
            End If

          !TimberModel = CC_Class & "-" & !HeightClass & "-" & !OCg
          End If
'*** Subjective Deletions ***;

        !ProductivityDeletion = 0
        If rst!density <> "" And rst!tpr = "U" Then !ProductivityDeletion = 1
        If rst!Sp1 = "LT" Or rst!sp2 = "LT" Or rst!sp3 = "LT" Or rst!sp4 = "LT" Or rst!sp5 = "LT" Then !ProductivityDeletion = 2
        If rst!Sp1 = "SB" Then !ProductivityDeletion = 3


'*** Land Base Assignment ***

        !landbase = 0

        If !rank = 1 Then
```

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If !OCg = "C" Or !OCg = "CD" Or !OCg = "DC" Or !OCg = "MX" Then !landbase = 1
If !OCg = "D" Then !landbase = 2
If !OCg = "D" And ((!UCg = "C" Or !UCg = "CD" Or !UCg = "DC") And rst!Udensity <> "A") Then !landbase = 4
If !OCg = "D" And ((!UCg = "C" Or !UCg = "CD" Or !UCg = "DC") And rst!Udensity = "A") Then !landbase = 5

    If isnull(rst!density) And (rst!mod2 = "CC") Then
      !landbase = 6
      !Overstorey = "CC"
      !OverstoreyOrigin = rst!MOD2_YR
      !OCg = "C"
      !OCg_2 = "C"
      !ODomSp = "PL"
      End If
  End If

If !rank = 2 Then
    If !UCg = "C" Or !UCg = "CD" Or !UCg = "DC" Or !UCg = "MX" Then !landbase = 1
    If !UCg = "D" Then !landbase = 2
    If !UCg = "D" And ((!OCg = "C" Or !OCg = "CD" Or !OCg = "DC") And rst!density <> "A") Then !landbase = 4
    If !UCg = "D" And ((!OCg = "C" Or !OCg = "CD" Or !OCg = "DC") And rst!density = "A") Then !landbase = 5

    If isnull(rst!Udensity) And (rst!Umod2 = "CC") Then
      !landbase = 6
      !Understorey = "CC"
      !Understoreyorigin = rst!UMOD2_YR
      !UCg = "C"
      !UCg_2 = "C"
      !UDomsp = "PL"
      End If
    End If


'**** Yield Class 1 as per 2002 approved TSA Assignment

    If !rank = 1 Then

        If !landbase > 0 And (!Nregion_id = 10 Or !Nregion_id = 8) Then !Yieldclass1 = 4
        If !landbase > 0 And (!Nregion_id = 11 Or !Nregion_id = 2 Or !Nregion_id = 0) Then !Yieldclass1 = 5

        If !OCg = "C" Then
            If 7 <= !Nregion_id <= 10 Then
                If rst!density = "A" Or rst!density = "B" Then
                    If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 1
                    If rst!tpr = "M" Or rst!tpr = "G" Or rst!tpr = "" Then !Yieldclass1 = 2
                    End If
                If rst!density = "C" Or rst!density = "D" Or rst!density = "" Then
                    If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 3
                    If rst!tpr = "M" Or rst!tpr = "G" Or rst!tpr = "" Then !Yieldclass1 = 4
                    End If
                End If
            If !Nregion_id >= 11 Or !Nregion_id < 7 Then
                If rst!density = "A" Or rst!density = "B" Then
                    If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 5
                    If rst!tpr = "M" Or rst!tpr = "G" Or !tpr = "" Then !Yieldclass1 = 6
                    End If
                If rst!density = "C" Or rst!density = "D" Or rst!density = "" Then
                    If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 7
                    If rst!tpr = "M" Or rst!tpr = "G" Or rst!tpr = "" Then !Yieldclass1 = 8
                    End If
                End If
            End If
        If !OCg = "MX" Or !OCg = "DC" Or !OCg = "CD" Then
            If 7 <= !Nregion_id <= 10 Then
                If rst!density = "A" Or rst!density = "B" Then
                    If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 9
                    If rst!tpr = "M" Or rst!tpr = "G" Or !tpr = "" Then !Yieldclass1 = 10
                    End If
                If rst!density = "C" Or rst!density = "D" Or rst!density = "" Then
                    If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 11
                    If rst!tpr = "M" Or rst!tpr = "G" Or rst!tpr = "" Then !Yieldclass1 = 12
                    End If
                End If
            If !Nregion_id >= 11 Or !Nregion_id < 7 Then
                If rst!density = "A" Or rst!density = "B" Then
                    If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 13
                    If rst!tpr = "M" Or rst!tpr = "G" Or rst!tpr = "" Then !Yieldclass1 = 14
                    End If
                If rst!density = "C" Or rst!density = "D" Or rst!density = "" Then
                    If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 15
                    If rst!tpr = "M" Or rst!tpr = "G" Or rst!tpr = "" Then !Yieldclass1 = 16
                    End If
                End If
            End If

        If !OCg = "D" Then
        If rst!density = "A" Or rst!density = "B" Then
            If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 17
            If rst!tpr = "M" Or rst!tpr = "G" Or rst!tpr = "" Then !Yieldclass1 = 18
            End If
        If rst!density = "C" Or rst!density = "D" Or rst!density = "" Then
            If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 19
            If rst!tpr = "M" Or rst!tpr = "G" Or rst!tpr = "" Then !Yieldclass1 = 20
            End If
            End If

        If !landbase = 6 Then
            If 7 <= !Nregion_id <= 10 Then
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        If rst!density = "A" Or rst!density = "B" Then
            If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 1
            If rst!tpr <> "F" Then !Yieldclass1 = 3
            End If
        If rst!density = "C" Or rst!density = "D" Or rst!density = "" Then
            If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 5
            If rst!tpr <> "F" Then !Yieldclass1 = 7
            End If
        End If
    If !Nregion_id = 11 Or !Nregion_id < 7 Then
        If rst!density = "A" Or rst!density = "B" Then
            If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 2
            If rst!tpr <> "F" Then !Yieldclass1 = 4
            End If
        If rst!density = "C" Or rst!density = "D" Or rst!density = "" Then
            If rst!tpr = "F" Or rst!tpr = "U" Then !Yieldclass1 = 6
            If rst!tpr <> "F" Then !Yieldclass1 = 8
            End If
        End If
    End If
End If

If !rank = 2 Then

    If !landbase > 0 And (!Nregion_id = 10 Or !Nregion_id = 8) Then !Yieldclass1 = 4
    If !landbase > 0 And (!Nregion_id = 11 Or !Nregion_id = 2 Or !Nregion_id = 0) Then !Yieldclass1 = 5

    If !UCg = "C" Then
        If 7 <= !Nregion_id <= 10 Then
            If rst!Udensity = "A" Or rst!Udensity = "B" Then
                If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 1
                If rst!Utpr = "M" Or rst!Utpr = "G" Or rstU!tpr = "" Then !Yieldclass1 = 2
                End If
            If rst!Udensity = "C" Or rst!Udensity = "D" Or rst!Udensity = "" Then
                If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 3
                If rst!Utpr = "M" Or rst!Utpr = "G" Or rst!Utpr = "" Then !Yieldclass1 = 4
                End If
            End If
        If !Nregion_id >= 11 Or !Nregion_id < 7 Then
            If rst!Udensity = "A" Or rst!Udensity = "B" Then
                If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 5
                If rst!Utpr = "M" Or rst!Utpr = "G" Or !Utpr = "" Then !Yieldclass1 = 6
                End If
            If rst!Udensity = "C" Or rst!Udensity = "D" Or rst!Udensity = "" Then
                If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 7
                If rst!Utpr = "M" Or rst!Utpr = "G" Or rst!Utpr = "" Then !Yieldclass1 = 8
                End If
            End If
        End If
    If !UCg = "MX" Or !UCg = "DC" Or !UCg = "CD" Then
        If 7 <= !Nregion_id <= 10 Then
            If rst!Udensity = "A" Or rst!Udensity = "B" Then
                If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 9
                If rst!Utpr = "M" Or rst!Utpr = "G" Or !Utpr = "" Then !Yieldclass1 = 10
                End If
            If rst!Udensity = "C" Or rst!Udensity = "D" Or rst!Udensity = "" Then
                If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 11
                If rst!Utpr = "M" Or rst!Utpr = "G" Or rst!Utpr = "" Then !Yieldclass1 = 12
                End If
            End If
        If !Nregion_id >= 11 Or !Nregion_id < 7 Then
            If rst!Udensity = "A" Or rst!Udensity = "B" Then
                If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 13
                If rst!Utpr = "M" Or rst!Utpr = "G" Or rst!Utpr = "" Then !Yieldclass1 = 14
                End If
            If rst!Udensity = "C" Or rst!Udensity = "D" Or rst!Udensity = "" Then
                If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 15
                If rst!Utpr = "M" Or rst!Utpr = "G" Or rst!Utpr = "" Then !Yieldclass1 = 16
                End If
            End If
        End If

    If !UCg = "D" Then
    If rst!Udensity = "A" Or rst!Udensity = "B" Then
        If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 17
        If rst!Utpr = "M" Or rst!Utpr = "G" Or rst!Utpr = "" Then !Yieldclass1 = 18
        End If
    If rst!Udensity = "C" Or rst!Udensity = "D" Or rst!Udensity = "" Then
        If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 19
        If rst!Utpr = "M" Or rst!Utpr = "G" Or rst!Utpr = "" Then !Yieldclass1 = 20
        End If
    End If

    If !landbase = 6 Then
        If 7 <= !Nregion_id <= 10 Then
            If rst!Udensity = "A" Or rst!Udensity = "B" Then
                If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 1
                If rst!Utpr <> "F" Then !Yieldclass1 = 3
                End If
            If rst!Udensity = "C" Or rst!Udensity = "D" Or rst!Udensity = "" Then
                If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 5
                If rst!Utpr <> "F" Then !Yieldclass1 = 7
                End If
            End If
        If !Nregion_id = 11 Or !Nregion_id < 7 Then
            If rst!Udensity = "A" Or rst!Udensity = "B" Then
                If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 2
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                    If rst!Utpr <> "F" Then !Yieldclass1 = 4
                  End If
                If rst!Udensity = "C" Or rst!Udensity = "D" Or rst!Udensity = "" Then
                    If rst!Utpr = "F" Or rst!Utpr = "U" Then !Yieldclass1 = 6
                    If rst!Utpr <> "F" Then !Yieldclass1 = 8
                  End If
              End If
          End If
      End If

'*** FBP Assignment ***;
        FBP = 0
        If (rst!Sp1 = "SB" Or rst!Sp1 = "LT") And (rst!density = "A" Or rst!density = "B") Then FBP = 1
        If FBP = 0 And (rst!Sp1 = "SB" Or rst!Sp1 = "LT" Or rst!Sp1 = "SE" Or rst!Sp1 = "SW" Or rst!Sp1 = "FB" Or rst!Sp1 = "FA") And (rst!density = "C" Or rst!density = "D") Then FBP = 2
        If FBP = 0 And (rst!Sp1 = "PL" Or rst!Sp1 = "P") And (rst!density = "C" Or rst!density = "D") And (rst!Origin <= 1920) Then FBP = 3
        If FBP = 0 And (rst!Sp1 = "PL" Or rst!Sp1 = "P") And (rst!density = "C" Or rst!density = "D") And (rst!Origin >= 1920) Then FBP = 4
        If FBP = 0 And (rst!Sp1 = "PL" Or rst!Sp1 = "P") And (rst!density = "C" Or rst!density = "D") And (rst!Origin >= 1980) And rst!mod1 = "CC" Then FBP = 6
        If FBP = 0 And (rst!Sp1 = "SW" Or rst!Sp1 = "SE" Or rst!Sp1 = "FB" Or rst!Sp1 = "FA") And ((rst!density = "A" Or rst!density = "B" Or rst!density = "C")) Then FBP = 10
        If FBP = 0 And (rst!Sp1 = "PL" Or rst!Sp1 = "P") And ((rst!density = "A" Or rst!density = "B")) Then FBP = 10
        If FBP = 0 And OCg = "D" Then FBP = 8
        If FBP = 0 And (OCg = "DC" Or OCg = "DC") And (rst!density = "A") Then FBP = 8
        If FBP = 0 And (OCg = "CD" Or OCg = "DC") Then FBP = 9
        If FBP = 0 And rst!mod1 = "CC" And rst!density = "" Then FBP = 13
        If FBP = 0 And landbase = 0 And (rst!NFL = "HG" Or rst!NFL = "SO" Or rst!NFL = "SC") Then FBP = 16
        If FBP = 0 And rst!Sp1 = "FD" Then FBP = 7
        !FBP = FBP

'*** Assign age ***
      If !rank = 1 Then
        If rst!Origin > 0 Then
           !Age = CutOffDate - rst!Origin
           Else
           If rst!mod1 = "CC" And rst!mod1_yr > 0 Then
              !Age = 2002 - rst!mod1_yr
              Else
              !Age = 0
              End If
           End If
        End If

      If !rank = 2 Then
        If rst!UOrigin > 0 Then
           !Age = CutOffDate - rst!UOrigin
           Else
           If rst!Umod1 = "CC" And rst!Umod1_yr > 0 Then
              !Age = 2002 - rst!Umod1_yr
              Else
              !Age = 0
              End If
           End If
        End If

      .Update
      End With
    rst.MoveNext
    Loop

'**** Update Volume table estimates

    SQLStr = "Update AVI_Labels " _
        & "Set DVT_ConiferousVolume = DVT.DVT_coniferousVolume, DVT_ConiferousTPM = DVT.DVT_coniferousTPM, " _
        & "DVT_DeciduousVolume = DVT.DVT_DeciduousVolume, DVT_DeciduousTPM = DVT.DVT_DeciduousTPM, " _
        & "DVT_TotalVolume = DVT.DVT_TotalVolume, DVT_TotalTPM = DVT.DVT_TotalTPM " _
        & "From AVI_Labels AVI " _
        & "Inner join (Select FMA_ID, STratum_id, " _
        & "max(Case when Utilization_id = " & DVTConUTil & " Then Conif_Gvol else 0 end) as DVT_ConiferousVolume, " _
        & "max(Case when Utilization_id = " & DVTConUTil & " and Conif_Gvol > 0 then Conif_Stem / Conif_Gvol else null end) as DVT_ConiferousTPM, " _
        & "max(Case when Utilization_id = " & DVTDecUtil & " Then Decid_Gvol else 0 end) as DVT_DeciduousVolume, " _
        & "max(Case when Utilization_id = " & DVTDecUtil & " and Decid_Gvol > 0 then Decid_Stem / Decid_Gvol else null end) as DVT_DeciduousTPM, " _
        & "max(Case when Utilization_id = " & DVTConUTil & " Then Conif_Gvol else 0 end) + " _
        & "max(Case when Utilization_id = " & DVTDecUtil & " Then Decid_Gvol else 0 end) as DVT_TotalVolume, " _
        & "Case when max(Case when Utilization_id = " & DVTConUTil & " Then Conif_Gvol else 0 end) + " _
        & "max(Case when Utilization_id = " & DVTDecUtil & " Then Decid_Gvol else 0 end) > 0 then " _
        & "(max(Case when Utilization_id = " & DVTConUTil & " Then Conif_Stem else 0 end) + " _
        & "max(Case when Utilization_id = " & DVTDecUtil & " Then Decid_Stem else 0 end)) / " _
        & "(max(Case when Utilization_id = " & DVTConUTil & " Then Conif_Gvol else 0 end) + " _
        & "max(Case when Utilization_id = " & DVTDecUtil & " Then Decid_Gvol else 0 end)) else null end  as DVT_TotalTPM " _
        & "From DVT_Volumes " _
        & "Where Versionid = '" & DVTVEr & "' and (Utilization_id = " & DVTConUTil & " or Utilization_id = " & DVTDecUtil & " ) " _
        & "Group by FMA_ID, STratum_id) DVT on DVT.FMA_ID = AVI.FMA_ID and DVT.Stratum_id = AVI.VolumeStrata_3 " _
        & "Where AVI.FMA_ID = " & FMA_ID & " and AVI.AVIVersionID = " & DSTAVIVersioNID

    DoCmd.RunSQL (SQLStr)

    VarReturn = SysCmd(acSysCmdClearStatus)

    Set yld = New ADODB.Recordset
    cmd.CommandText = "Select * from Yield_Relationships where model = 'Vol/Age' and versionid = " & YLDVer
    Set yld = cmd.Execute
    count = 0
    If yld.RecordCount > 0 Then
      yld.MoveFirst
      Do Until yld.EOF
        cb0(yld!Yieldclass) = yld!conif_b0
        cb1(yld!Yieldclass) = yld!conif_b1
        cb2(yld!Yieldclass) = yld!conif_b2
        cc0(yld!Yieldclass) = yld!conif_c0
```

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            cc1(yld!Yieldclass) = yld!conif_c1
            cc2(yld!Yieldclass) = yld!conif_c2
            cc3(yld!Yieldclass) = yld!conif_c3
            cc4(yld!Yieldclass) = yld!conif_c4
            cc5(yld!Yieldclass) = yld!conif_c5
            cc6(yld!Yieldclass) = yld!conif_c6
            db0(yld!Yieldclass) = yld!decid_b0
            db1(yld!Yieldclass) = yld!decid_b1
            db2(yld!Yieldclass) = yld!decid_b2
            dc0(yld!Yieldclass) = yld!decid_c0
            dc1(yld!Yieldclass) = yld!decid_c1
            dc2(yld!Yieldclass) = yld!decid_c2
            dc3(yld!Yieldclass) = yld!decid_c3
            dc4(yld!Yieldclass) = yld!decid_c4
            dc5(yld!Yieldclass) = yld!decid_c5
            dc6(yld!Yieldclass) = yld!decid_c6
        yld.MoveNext
        Loop

    yld.Close

    Set AVI = New ADODB.Recordset

    AVI.Open "Select * from AVI_Labels where FMA_ID = " & FMA_ID & " and AVIVersionid = " & DSTAVI!VersioNID & " and YieldClass1 > 0 ", dbs, adOpenKeyset, adLockOptimistic

    Do While Not AVI.EOF

        AVI!YLD_ConiferousVolume = ((cb0(AVI!Yieldclass1) + cc0(AVI!Yieldclass1) + cc1(AVI!Yieldclass1) _
            + cc2(AVI!Yieldclass1) + cc3(AVI!Yieldclass1) + cc4(AVI!Yieldclass1)) _
            * AVI!Age ^ cb1(AVI!Yieldclass1) * Exp(-cb0(AVI!Yieldclass1) * AVI!Age))
        AVI!YLD_DeciduousVolume = ((db0(AVI!Yieldclass1) + dc0(AVI!Yieldclass1) + dc1(AVI!Yieldclass1) _
            + dc2(AVI!Yieldclass1) + dc3(AVI!Yieldclass1) + dc4(AVI!Yieldclass1)) _
            * AVI!Age ^ db1(AVI!Yieldclass1) * Exp(-db0(AVI!Yieldclass1) * AVI!Age))

        AVI.Update

        AVI.MoveNext
        Loop

    End If

    SQLStr = "Update AVI_Labels set " _
        & "MPBIndex_SRD = MAS.MPBIndex, " _
        & "MPBIndex_CF = MAC.MPBIndex " _
        & "From AVI_Labels AVI " _
        & "Left Join (Select Forestkey, MPBIndex as MPBIndex from MPB_Index where MPBVersionid = 1) MAS on MAS.Forestkey = AVI.Forestkey " _
        & "Left Join (Select Forestkey, MPBIndex as MPBIndex from MPB_Index where MPBVersionid = 3) MAC on MAC.Forestkey = AVI.Forestkey " _
        & "WHERE AVI.FMA_ID = " & FMA_ID & " And AVI.AVIVersionID = " & DSTAVI!VersioNID
    DoCmd.RunSQL (SQLStr)

    DoCmd.Hourglass False
End Function
```

SQL Code

```
/********************************************************************/
-- Name: LandbaseDefinition_v10

-- Created: January 16, 2007

-- Description: SQL Code to Update wlma_ovl.dbo.WLMA_landbaseOVL
--                    Currently Assigns yield version 11 yield classes
--                    Includes classification of Yarding areas.
--                    Based on LandbaseDefinition_v7
--                    Modified to only include those areas defined by the yarding layer that
--                    are on steep slopes and in inaccessible areas and Coniferous TPM <= 4.5
--                    TPM estimate based on 13/7 volumes DVT Version 1.12
--                    Modified to delete those ares within burns are on the net landbase but not harvested.
--                    Assign Silviculture strata declarations to blocks harvested after March 1, 1991.
--                    Fair site Pine Dominated separated out for deletion (Coded as 992) - Include SI Maximum as Criteria
--                    MPB SSI determined from MPB_index information -MPBVerionid is now an input.
--                    Assignment of MPB Rank
--                    Corrected Coding Error in Assigning Deletion 10 Codes - use WBI information not OVL information for filter
--                    01/06/07 - Added Areaha, LBStatus, LandbaseClass, Clockstart, StrataDeclaration, AssumedLiability
--
-- Arguments: Fma_id, LandbaseId, AVIVersionID, YieldVersionid, MPBVerionsID, MAXSI, Util, CutoffYear

/********************************************************************/


Declare @FMA_ID Int
Declare @LandbaseID Int
Declare @AVIVersionid Int
Declare @YieldVersionid Int
Declare @MPBVersionid Int
Declare @MaxSI int
Declare @Util int
Declare @StepId Int
Declare @CutoffYear int

Set @FMA_id = 1
Set @LandbaseID = 8
Set @AVIVersionId = 2
Set @YieldVersionId = 11
Set @MPBVersionId = 2
Set @MaxSI = 99
Set @Util = 5
Set @CutOffYear = 2006

Set @Stepid = 1

        Delete From TSA_LandbaseExecution
        Where Landbaseid = @LandbaseID and PhaseID = 3

        Update tsa_Landbases
                set ClassificationStart = CURRENT_TIMESTAMP
                where FMA_ID = @FMA_ID and landbaseid = @LandbaseID

        Insert into TSA_LandbaseExecution(FMA_ID, Phaseid,LandbaseID, Step, Description, StartTime)
        Select @FMA_ID,3, @LandbaseID, @Stepid, 'Reset', Current_timeStamp

SELECT 'Started Landbase Classification: '+ CONVERT(char(30), CURRENT_TIMESTAMP)

        --Delete from wlma_ovl.dbo.WLMA_landbaseOVL where area < 0

SELECT 'Update Base Info: '+ CONVERT(char(30), CURRENT_TIMESTAMP)

        Update wlma_ovl.dbo.WLMA_landbaseOVL
        Set       wlma_ovl.dbo.WLMA_landbaseOVL.FMA_ID = @FMA_ID,
                  wlma_ovl.dbo.WLMA_landbaseOVL.SYU = LCS.SYU,
                  wlma_ovl.dbo.WLMA_landbaseOVL.Type = WLI.Type,
                  wlma_ovl.dbo.WLMA_landbaseOVL.FireYr = WFI.FireYear,
                  wlma_ovl.dbo.WLMA_landbaseOVL.Nregion_id = avi.Nregion_id,
                  wlma_ovl.dbo.WLMA_landbaseOVL.Fulllabel = avi.fulllabel,
                  wlma_ovl.dbo.WLMA_landbaseOVL.domsp= avi.odomsp,
                  wlma_ovl.dbo.WLMA_landbaseOVL.Modifier = avi.Modifier + '-' + cast(avi.Extent as nvarchar(2)),
                  wlma_ovl.dbo.WLMA_landbaseOVL.OCg = avi.OCg,
                  wlma_ovl.dbo.WLMA_landbaseOVL.UCg = avi.UCg,
                  wlma_ovl.dbo.WLMA_landbaseOVL.age= avi.age,
                  wlma_ovl.dbo.WLMA_landbaseOVL.ageclass= round(avi.age/10,0),
                  wlma_ovl.dbo.WLMA_landbaseOVL.Landbase = avi.Landbase,
                  wlma_ovl.dbo.WLMA_landbaseOVL.YieldClass= avi.YieldClass1,
                  wlma_ovl.dbo.WLMA_landbaseOVL.Status= null,
                  wlma_ovl.dbo.WLMA_landbaseOVL.LB_Deletion = 99,
                  wlma_ovl.dbo.WLMA_landbaseOVL.DeletionClass = 'None',
                  wlma_ovl.dbo.WLMA_landbaseOVL.NetDownClass ='None',
                  wlma_ovl.dbo.WLMA_landbaseOVL.StandingConiferousLRSYA = null,
                  wlma_ovl.dbo.WLMA_landbaseOVL.StandingDeciduousLRSYA = null,
                  wlma_ovl.dbo.WLMA_landbaseOVL.RegeneratedConiferousLRSYA = null,
                  wlma_ovl.dbo.WLMA_landbaseOVL.RegeneratedDeciduousLRSYA = null,
                  wlma_ovl.dbo.WLMA_landbaseOVL.ConiferousVolume = null,
                  wlma_ovl.dbo.WLMA_landbaseOVL.ConiferousTPM = null,
                  wlma_ovl.dbo.WLMA_landbaseOVL.DeciduousVolume = null,
                  wlma_ovl.dbo.WLMA_landbaseOVL.DeciduousTPM = null,
                  wlma_ovl.dbo.WLMA_landbaseOVL.MPBIndex = null,
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                        wlma_ovl.dbo.WLMA_landbaseOVL.MPBClass = null,
                        wlma_ovl.dbo.WLMA_landbaseOVL.DevelopmentType = null,
                        wlma_ovl.dbo.WLMA_landbaseOVL.StepID = @Stepid

            From wlma_ovl.dbo.WLMA_landbaseOVL  OVL
            Left join landbase_compartmentstrategic LCS On
                        OVL.FMA_ID  = LCS.FMA_id and ovl.compartment_id = LCS.Compartment_id
            Left Join (Select * from WLMA_BlockInformation where FMA_ID = 1) WBI On
                        OVL.Link = WBI.Link
            Left Join WLMA_LandUseInformation WLI On
                        OVL.Disposition = WLI.DispositionNumber
            Left Join WLMA_FireInformation WFI On
                        OVL.FireNo = WFI.FireNumber
            Left join (Select * from Avi_Labels
                                    Where AVIVersionID = 2)  AVI On
                        OVL.forestkey = avi.forestkey
            Where  OVL.LandbaseId = @LandbaseID

            Update TSA_LandbaseExecution
            Set EndTime = Current_TimeStamp
            Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 2: Non-Forested Deletions*/
SELECT 'Update Non-Forested: '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @Stepid + 1

            Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
            Select @FMA_ID,3, @LandbaseID, @Stepid, 'Non_Forested', Current_timeStamp

            Update wlma_ovl.dbo.WLMA_landbaseOVL
            Set wlma_ovl.dbo.WLMA_landbaseOVL.LB_Deletion = 1,
                        wlma_ovl.dbo.WLMA_landbaseOVL.DeletionClass = avi.fulllabel,
                        wlma_ovl.dbo.WLMA_landbaseOVL.NetDownClass = 'Non-forested',
                        wlma_ovl.dbo.WLMA_landbaseOVL.StepID = OVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
            From wlma_ovl.dbo.WLMA_landbaseOVL ovl
            Left join(Select * from Avi_Labels
                                    Where AVIVersionID = 2)  AVI On
                        ovl.forestkey = avi.forestkey
            Where not Avi.landbase > 0 and OVL.Landbaseid = @LandbaseID

            Update TSA_LandbaseExecution
            Set EndTime = Current_TimeStamp
            Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 3: Oil and Gas Deletions*/
SELECT 'Update Oil and Gas: '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @Stepid + 1

            Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
            Select @FMA_ID,3, @LandbaseID,@Stepid, 'Oil and Gas', Current_timeStamp

            Update wlma_ovl.dbo.WLMA_landbaseOVL
            Set wlma_ovl.dbo.WLMA_landbaseOVL.LB_Deletion = 2,
                        wlma_ovl.dbo.WLMA_landbaseOVL.DeletionClass = Disposition,
                        wlma_ovl.dbo.WLMA_landbaseOVL.NetDownClass = 'Oil and Gas',
                        wlma_ovl.dbo.WLMA_landbaseOVL.DomSp = Case When DDT.AssumedForested  = 1 then wlma_ovl.dbo.WLMA_landbaseOVL.DomSp else Null end,
                        wlma_ovl.dbo.WLMA_landbaseOVL.Modifier = Case When DDT.AssumedForested  = 1 then wlma_ovl.dbo.WLMA_landbaseOVL.Modifier else Null end,
                        wlma_ovl.dbo.WLMA_landbaseOVL.Ocg = Case When DDT.AssumedForested  = 1 then wlma_ovl.dbo.WLMA_landbaseOVL.OCg else Null end,
                        wlma_ovl.dbo.WLMA_landbaseOVL.Ucg = Case When DDT.AssumedForested  = 1 then wlma_ovl.dbo.WLMA_landbaseOVL.UCg else Null end,
                        wlma_ovl.dbo.WLMA_landbaseOVL.Age = Case When DDT.AssumedForested  = 1 then wlma_ovl.dbo.WLMA_landbaseOVL.Age else Null end,
                        wlma_ovl.dbo.WLMA_landbaseOVL.AgeCLass = Case When DDT.AssumedForested  = 1 then wlma_ovl.dbo.WLMA_landbaseOVL.AgeClass else Null end,
                        wlma_ovl.dbo.WLMA_landbaseOVL.Landbase = Case When DDT.AssumedForested  = 1 then wlma_ovl.dbo.WLMA_landbaseOVL.Landbase else 0 end,
                        wlma_ovl.dbo.WLMA_landbaseOVL.YieldClass = Case When DDT.AssumedForested  = 1 then wlma_ovl.dbo.WLMA_landbaseOVL.YieldClass else 0 end,
                        wlma_ovl.dbo.WLMA_landbaseOVL.Status = Case When DDT.AssumedForested  = 1 then wlma_ovl.dbo.WLMA_landbaseOVL.Status else Null end,
                        wlma_ovl.dbo.WLMA_landbaseOVL.StepID = wlma_ovl.dbo.WLMA_landbaseOVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
            From wlma_ovl.dbo.WLMA_landbaseOVL
            Left Join D_DispositionTypes DDT on
                        DDT.Type = wlma_ovl.dbo.WLMA_landbaseOVL.TYPE
            Where wlma_ovl.dbo.WLMA_landbaseOVL.LandbaseId = @LandbaseID and LB_Deletion = 99 and DispDel > 0

            Update TSA_LandbaseExecution
            Set EndTime = Current_TimeStamp
            Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 4: Trail and Seismic Deletions*/
SELECT 'Update Trail and Seismic: '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @Stepid + 1

            Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
            Select @FMA_ID,3, @LandbaseID,@Stepid, 'Trail and Seismic', Current_timeStamp

            Update wlma_ovl.dbo.WLMA_landbaseOVL
            Set wlma_ovl.dbo.WLMA_landbaseOVL.LB_Deletion = 3,
                        wlma_ovl.dbo.WLMA_landbaseOVL.DeletionClass = 'Disp',
                        wlma_ovl.dbo.WLMA_landbaseOVL.NetDownClass = 'Trails and Seismic',
                        wlma_ovl.dbo.WLMA_landbaseOVL.DomSp = Null,
                        wlma_ovl.dbo.WLMA_landbaseOVL.Modifier = Null,
                        wlma_ovl.dbo.WLMA_landbaseOVL.Ocg = Null,
                        wlma_ovl.dbo.WLMA_landbaseOVL.Ucg = Null,
                        wlma_ovl.dbo.WLMA_landbaseOVL.Age = Null,
                        wlma_ovl.dbo.WLMA_landbaseOVL.AgeCLass = Null,
                        wlma_ovl.dbo.WLMA_landbaseOVL.Landbase = 0,
                        wlma_ovl.dbo.WLMA_landbaseOVL.YieldClass = 0,
                        wlma_ovl.dbo.WLMA_landbaseOVL.Status = Null,
                        wlma_ovl.dbo.WLMA_landbaseOVL.StepID = wlma_ovl.dbo.WLMA_landbaseOVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
            Where wlma_ovl.dbo.WLMA_landbaseOVL.LandbaseId = @LandbaseID and LB_Deletion = 99  and TrlDel > 0
```

```
                    Update TSA_LandbaseExecution
                    Set EndTime = Current_TimeStamp
                    Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 5: Protected Areas Deletions*/
SELECT 'Update Protected Areas: '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

                    Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                    Select @FMA_ID,3, @LandbaseID,@Stepid, 'Protected Areas Deletions', Current_timeStamp

                    Update wlma_ovl.dbo.WLMA_landbaseOVL
                    Set wlma_ovl.dbo.WLMA_landbaseOVL.LB_Deletion = 4,
                            wlma_ovl.dbo.WLMA_landbaseOVL.DeletionClass = ProtClass,
                            wlma_ovl.dbo.WLMA_landbaseOVL.NetDownClass = 'Protected Areas',
                            wlma_ovl.dbo.WLMA_landbaseOVL.StepID = wlma_ovl.dbo.WLMA_landbaseOVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                    Where  wlma_ovl.dbo.WLMA_landbaseOVL.LandbaseId = @LandbaseID and LB_Deletion = 99 and ProtDel > 0

                    Update TSA_LandbaseExecution
                    Set EndTime = Current_TimeStamp
                    Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 6: Inoperability Deletions*/
SELECT 'Update inoperability: '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

                    Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                    Select @FMA_ID,3, @LandbaseID,@Stepid, 'Inoperability Deletions', Current_timeStamp

                    Update wlma_ovl.dbo.WLMA_landbaseOVL
                    Set wlma_ovl.dbo.WLMA_landbaseOVL.LB_deletion = 5,
                            wlma_ovl.dbo.WLMA_landbaseOVL.DeletionClass = slp.SlopeClass,
                            wlma_ovl.dbo.WLMA_landbaseOVL.NetDownClass = 'Inoperable Slope',
                            wlma_ovl.dbo.WLMA_landbaseOVL.StepID = OVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                    From wlma_ovl.dbo.WLMA_landbaseOVL OVL
                            Inner join d_slope slp on
                                    slp.code = OVL.slope_code
                    Where ovl.LandbaseId = @LandbaseID and ovl.LB_Deletion = 99 and slp.deletion >0 and slp.fma_id = 1

                    Update TSA_LandbaseExecution
                    Set EndTime = Current_TimeStamp
                    Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 7: Stream Buffer Deletions*/
SELECT 'Update Stream Buffers: '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

                    Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                    Select @FMA_ID,3, @LandbaseID,@Stepid, 'Stream Buffer Deletions', Current_timeStamp

                    Update wlma_ovl.dbo.WLMA_landbaseOVL
                    Set wlma_ovl.dbo.WLMA_landbaseOVL.LB_deletion = 6,
                            wlma_ovl.dbo.WLMA_landbaseOVL.DeletionClass = 'Stream Buffer',
                            wlma_ovl.dbo.WLMA_landbaseOVL.NetDownClass = 'Stream Buffer',
                            wlma_ovl.dbo.WLMA_landbaseOVL.StepID = wlma_ovl.dbo.WLMA_landbaseOVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                    Where wlma_ovl.dbo.WLMA_landbaseOVL.LandbaseId = @LandbaseID and LB_Deletion = 99 and hyddel > 0

                    Update TSA_LandbaseExecution
                    Set EndTime = Current_TimeStamp
                    Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 8: Non Productive Deletions */
SELECT 'Update Non-Productive: '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

                    Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                    Select @FMA_ID,3, @LandbaseID,@Stepid, 'Non Productive Deletions', Current_timeStamp

                    Update wlma_ovl.dbo.WLMA_landbaseOVL
                    Set wlma_ovl.dbo.WLMA_landbaseOVL.LB_deletion = 7,
                            wlma_ovl.dbo.WLMA_landbaseOVL.deletionclass = avi.ProductivityDeletion,
                            wlma_ovl.dbo.WLMA_landbaseOVL.netdownclass = 'Productivity',
                            wlma_ovl.dbo.WLMA_landbaseOVL.StepID = OVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                    from wlma_ovl.dbo.WLMA_landbaseOVL ovl
                    Inner join (Select forestkey, productivitydeletion from avi_labels where productivitydeletion > 0 and FMA_ID = 1 and AVIVersionId = @AVIVersionId) avi on
                            ovl.forestkey = avi.forestkey
                    where ovl.LandbaseId = @LandbaseID and ovl.LB_deletion = 99

                    Update TSA_LandbaseExecution
                    Set EndTime = Current_TimeStamp
                    Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 9: Inaccessible Deletions */
SELECT 'Update Inaccessible: '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

                    Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                    Select @FMA_ID,3, @LandbaseID,@Stepid, 'Inaccessible Deletions', Current_timeStamp

                    Update wlma_ovl.dbo.WLMA_landbaseOVL
                    Set wlma_ovl.dbo.WLMA_landbaseOVL.LB_deletion = 9,
                            wlma_ovl.dbo.WLMA_landbaseOVL.deletionclass = 'Inaccessible',
                            wlma_ovl.dbo.WLMA_landbaseOVL.netdownclass = 'Inaccessible',
                            wlma_ovl.dbo.WLMA_landbaseOVL.StepID = OVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                    From wlma_ovl.dbo.WLMA_landbaseOVL ovl
                    where ovl.LandbaseId = @LandbaseID and LB_deletion = 99 and inaccdel > 0
```

```
                Update TSA_LandbaseExecution
                Set EndTime = Current_TimeStamp
                Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid


/*Step 10:  Include Yarding Areas */
SELECT 'Update Yarding: '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

                Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                Select @FMA_ID,3, @LandbaseID,@Stepid, 'Yarding Inclusions', Current_timeStamp

                Update wlma_ovl.dbo.WLMA_landbaseOVL
                Set wlma_ovl.dbo.WLMA_landbaseOVL.LB_deletion = 991,
                            wlma_ovl.dbo.WLMA_landbaseOVL.deletionclass = 'None',
                            wlma_ovl.dbo.WLMA_landbaseOVL.netdownclass = 'Yarding',
                            wlma_ovl.dbo.WLMA_landbaseOVL.StepID = OVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                From wlma_ovl.dbo.WLMA_landbaseOVL ovl
                Inner join (Select AVI.forestkey, DVT.volumestrata_3, TPM
                                                    from AVI_Labels AVI
                                                    Inner join (select Stratum_id as volumeStrata_3,  Conif_stem / Conif_gvol as TPM
                                                                        from dvt_volumes
                                                                        Where Versionid = '1.12' and utilization_id = 6 and Conif_gvol > 0 and Conif_stem / Conif_gvol <= 4.5) DVT on
                                                    AVI.Volumestrata_3 = DVT.VolumeStrata_3
                                                    where FMA_ID = 1 and AVIVersionID = 2 and not AVI.volumestrata_3 is null ) AVI on
                            AVI.forestkey = ovl.forestkey
                where ovl.LandbaseId = @LandbaseID and (LB_deletion = 5 or LB_deletion = 9) and yarddel > 0

                Update TSA_LandbaseExecution
                Set EndTime = Current_TimeStamp
                Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 11:  Include Yarding Areas */
SELECT 'Update Fair Pine Sites: '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

                Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                Select @FMA_ID,3, @LandbaseID,@Stepid, 'Fair Pine Sites', Current_timeStamp

                Update wlma_ovl.dbo.WLMA_landbaseOVL
                Set wlma_ovl.dbo.WLMA_landbaseOVL.LB_deletion = 992,
                            wlma_ovl.dbo.WLMA_landbaseOVL.deletionclass = 'None',
                            wlma_ovl.dbo.WLMA_landbaseOVL.netdownclass = 'Fair-PL',
                            wlma_ovl.dbo.WLMA_landbaseOVL.StepID = OVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                From wlma_ovl.dbo.WLMA_landbaseOVL ovl
                Inner join (Select AVI.forestkey, Odomsp, TPR, SiteIndex
                                                    from AVI_Labels AVI
                                                    where FMA_ID = 1 and AVIVersionID = 2 and Odomsp = 'PL' and TPR = 'F' and SiteIndex <= 99 ) AVI on
                            AVI.forestkey = ovl.forestkey
                where ovl.LandbaseId = @LandbaseID and (LB_deletion >= 99)

                Update TSA_LandbaseExecution
                Set EndTime = Current_TimeStamp
                Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 12:  LB_Deletion OverRide */
SELECT 'LB_Deletion OverRide '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

                Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                Select @FMA_ID,3, @LandbaseID,@Stepid, 'LB_Deletion OverRide', Current_timeStamp

                Update wlma_OVI.dbo.wlma_landbaseovl
                set lb_deletionovr = 99
                from wlma_ovl.dbo.wlma_landbaseovl OVL
                Left Join (Select Compartment_id, Link, pass
                                                    From WLMA_BLockInformation
                                                    Where FMA_ID =1 ) WBI on
                            WBI.Link = OVL.Link
                Where OVL.Compartment_id = 18 and OVL.LB_deletion = 992 and MPBRank between 1 and 2 and WBI.LInk <> '' and OVL.Landbase >= 0

                Update TSA_LandbaseExecution
                Set EndTime = Current_TimeStamp
                Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 13:  Update Non Harvested Areas within Burns */
SELECT 'Delete Non Harvested Areas within Burns '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

                Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                Select @FMA_ID,3, @LandbaseID,@Stepid, 'Non Harvested Burn', Current_timeStamp

                Update wlma_ovl.dbo.wlma_landbaseovl
                Set lb_deletion = 10,
                wlma_ovl.dbo.WLMA_landbaseOVL.StepID = OVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                from wlma_ovl.dbo.wlma_landbaseovl OVL
                Left Join (select * from wlma_blockInformation where fma_id = 1) WBI on
                WBI.link = OVL.link
                where ovl.lb_deletion >= 99 and fireno <> ''  and (WBI.AssumedLiability = 0 or WBI.AssumedLiability is null)

                Update TSA_LandbaseExecution
                Set EndTime = Current_TimeStamp
                Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 14: No Liability */
SELECT 'Delete blocks with no assumed Liability: '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1
```

```
                Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                Select @FMA_ID,3, @LandbaseID, @Stepid, 'No Liability', Current_timeStamp

                Update wlma_ovl.dbo.wlma_landbaseovl
                Set lb_deletion = 11,
                        AssumedLiability = WBI.AssumedLiability,
                        wlma_ovl.dbo.WLMA_landbaseOVL.StepID = OVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                from wlma_ovl.dbo.wlma_landbaseovl OVL
                inner join (Select *
                                From WLMA_BLockInformation
                                where FMA_ID = 1 and AssumedLiability = 0) WBI on
                        WBI.Link = OVL.Link
                Where ovl.lb_deletion >= 99

                Update TSA_LandbaseExecution
                Set EndTime = Current_TimeStamp
                Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 15: Non R10 and R10U deletions*/
SELECT 'Non R10 and R10U deletions '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @Stepid + 1

                Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                Select @FMA_ID,3, @LandbaseID,@Stepid, 'Non R10 and R10U deletions ', Current_timeStamp

                Update wlma_OVI.dbo.wlma_landbaseovl
                set lb_deletion = 13,
                wlma_ovl.dbo.WLMA_landbaseOVL.StepID = OVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                from wlma_ovl.dbo.wlma_landbaseovl OVL
                Where OVL.LB_deletion >= 99 and (SYU <> 'R10' and SYU <> 'R10U')

                Update TSA_LandbaseExecution
                Set EndTime = Current_TimeStamp
                Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Update Ages*/
/*Step 16: AVI CC age */
SELECT 'Update Ages: '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @Stepid + 1

                Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                Select @FMA_ID,3, @LandbaseID,@Stepid, 'AVI CC age', Current_timeStamp

                Update wlma_ovl.dbo.WLMA_landbaseOVL
                Set wlma_ovl.dbo.WLMA_landbaseOVL.Age = @CutOffYear - avi.mod1_yr,
                        Modifier = 'CC-5',
                        Landbase = 6,
                        wlma_ovl.dbo.WLMA_landbaseOVL.StepID = wlma_ovl.dbo.WLMA_landbaseOVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                From wlma_ovl.dbo.WLMA_landbaseOVL
                Left join AVI_Attributes AVI on
                        AVI.Fma_id = wlma_ovl.dbo.WLMA_landbaseOVL.fma_id and avi.forestkey= wlma_ovl.dbo.WLMA_landbaseOVL.forestkey
                Where wlma_ovl.dbo.WLMA_landbaseOVL.LandbaseId = @LandbaseID and LB_deletion > 3 and AVI.mod1 = 'CC' and mod1_yr > 0 and AVI.mod1_ext >= 4 and (AVI.AVIVersionID = 2 or
AVI.AVIVersionID  is null)

                Update TSA_LandbaseExecution
                Set EndTime = Current_TimeStamp
                Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 17: Fire */
Set @Stepid = @Stepid + 1

                Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                Select @FMA_ID,3, @LandbaseID,@Stepid, 'Fire', Current_timeStamp

                Update wlma_ovl.dbo.WLMA_landbaseOVL
                Set wlma_ovl.dbo.WLMA_landbaseOVL.Age = @CutOffYear - Fireyr,
                        Modifier = 'BU-5',
                        Landbase = 6,
                        Ageclass = round((@CutOffYear - FireYr)/10,0),
                        wlma_ovl.dbo.WLMA_landbaseOVL.StepID = wlma_ovl.dbo.WLMA_landbaseOVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                From wlma_ovl.dbo.WLMA_landbaseOVL
                Where wlma_ovl.dbo.WLMA_landbaseOVL.LandbaseId = @LandbaseID and lb_deletion > 3 and fireYr > 0

                Update TSA_LandbaseExecution
                Set EndTime = Current_TimeStamp
                Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 18:  Harvest*/
Set @Stepid = @Stepid + 1

                Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                Select @FMA_ID,3, @LandbaseID,@Stepid, 'Harvest', Current_timeStamp

                Update wlma_ovl.dbo.WLMA_landbaseOVL
                Set wlma_ovl.dbo.WLMA_landbaseOVL.Age = @CutOffYear - Year(WBI.HarvestDate),
                        Modifier = 'CC-5',
                        Landbase = 6,
                        HarvYr = Year(WBI.HarvestDate),
                        Ageclass = round((@CutOffYear - Year(WBI.HarvestDate))/10,0),
                        wlma_ovl.dbo.WLMA_landbaseOVL.StepID = wlma_ovl.dbo.WLMA_landbaseOVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                From wlma_ovl.dbo.WLMA_landbaseOVL
                Inner join WLMA_BlockInformation WBI on
                        WBI.link = wlma_ovl.dbo.WLMA_landbaseOVL.Link
                Where wlma_ovl.dbo.WLMA_landbaseOVL.LandbaseId = @LandbaseID and LB_Deletion > 3 and Year(WBI.HarvestDate) > 0 and not Year(HarvestDate) is null

                Update TSA_LandbaseExecution
```

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                    Set EndTime = Current_TimeStamp
                    Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 19: Post 91 Harvest Yieldclass and Landbase Assignments */
SELECT 'Post 91 Blocks '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

                    Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                    Select @FMA_ID,3, @LandbaseID, @Stepid, 'Post 91 Blocks', Current_timeStamp

                    Update WLMa_OVL.Dbo.WLMA_landbaseovl
                    Set OCG = DS.Covergroup,
                            Landbase = DS.Landbase,
                            YieldClass = DS.DefaultYieldClass,
                            ClockStart = WBI.ClockStart,
                       StrataDeclaration = WBI.StrataDeclaration,
                      AssumedLiability = WBI.AssumedLiability,
                            StepID = OVL.StepID ++ ',' ++ cast(@stepid as nvarchar(3))
                    From WLMA_OVL.dbo.wlma_landbaseovl OVL
                            Inner Join (Select * from  wlma_blockInformation
                                                    Where FMA_id = 1 and Clockstart > '03/01/1991' and not StrataDeclaration is null) WBI on
                                                    WBI.Link = OVL.Link
                            Left Join D_SilvicultureDeclarations DS on
                                            DS.Nregionid = OVL.Nregion_id and DS.Declaration = WBI.StrataDeclaration

                    Update TSA_LandbaseExecution
                    Set EndTime = Current_TimeStamp
                    Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @stepid

/*Step 20: Status*/
SELECT 'Status '+ CONVERT(char(30), CURRENT_TIMESTAMP)

Set @Stepid = @StepId + 1

                    Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                    Select @FMA_ID,3, @LandbaseID,@Stepid, 'Status', Current_timeStamp

                    Update wlma_ovl.dbo.WLMA_landbaseOVL
                    set Status = case when landbase = 6 then 'RT' Else 'ST' end,
                            wlma_ovl.dbo.WLMA_landbaseOVL.StepID = wlma_ovl.dbo.WLMA_landbaseOVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                    where landbase > 0

                    Update TSA_LandbaseExecution
                    Set EndTime = Current_TimeStamp
                    Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @Stepid

/*Step 21:Defaults */
SELECT 'Defaults '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

                    Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                    Select @FMA_ID,3, @LandbaseID, @Stepid, 'Defaults', Current_timeStamp

                    Update wlma_ovl.dbo.WLMA_landbaseOVL
                            set domsp = 'PL',
                            wlma_ovl.dbo.WLMA_landbaseOVL.StepID = wlma_ovl.dbo.WLMA_landbaseOVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3)) ++ 'a'
                            where landbase > 0 and domsp is null

                    Update wlma_ovl.dbo.WLMA_landbaseOVL
                            set YieldClass = Case when nregion_id = 10 or nregion_id = 8 or nregion_id = 9 then 4 else 8 end,
                            wlma_ovl.dbo.WLMA_landbaseOVL.StepID = wlma_ovl.dbo.WLMA_landbaseOVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3)) ++ 'b'
                            where lb_deletion > 3 and landbase > 0 and  yieldclass is null

                    Update TSA_LandbaseExecution
                    Set EndTime = Current_TimeStamp
                    Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @stepid

/*Step 22: LRSYAs*/
SELECT 'LRSYA '+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

                    Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
                    Select @FMA_ID,3, @LandbaseID,@Stepid, 'LRSYA', Current_timeStamp

                    Update WLMA_OVL.dbo.WLMA_landbaseOVL
                            Set StandingConiferousLRSYA = YLD.StandingConiferousLRSYA* OVL.Area/ 10000,
                            StandingDeciduousLRSYA = YLD.StandingDeciduousLRSYA* OVL.Area/ 10000,
                            RegeneratedConiferousLRSYA = YLD.RegeneratedConiferousLRSYA* OVL.Area/ 10000,
                            RegeneratedDeciduousLRSYA = YLD.RegeneratedDeciduousLRSYA* OVL.Area/ 10000,
                            wlma_ovl.dbo.WLMA_landbaseOVL.StepID = OVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                            From WLMA_OVL.dbo.WLMA_landbaseOVL OVL
                            Left Join (Select YR.FMA_ID, YR.YieldClass,
                                            YR.ConiferousLRSYA as StandingConiferousLRSYA, YT.ConiferousLRSYA as RegeneratedConiferousLRSYA,
                                            YR.DeciduousLRSYA as StandingDeciduousLRSYA, YT.DeciduousLRSYA as RegeneratedDeciduousLRSYA
                                            From Yield_Relationships YR
                                            Inner join (Select Distinct FMA_ID, VersionId, Model, Yieldclass,ConiferousLRSYA, DeciduousLRSYA
                                                            From Yield_Relationships) YT on
                                                    YR.FMA_ID = YT.FMA_ID and YR.VersionID = YT.VersionID and YR.Model = YT.Model and YR.CCTransition = YT.YieldClass
                                            Where YR.VersionID = @YieldVersionid and YR.Model = 'Vol/Age') YLD ON
                    OVL.FMA_Id = YLD.FMA_ID and OVL.YieldClass = YLD.Yieldclass
                    Where OVL.LB_deletion > 3 and OVL.Landbase > 0

                    Update TSA_LandbaseExecution
                    Set EndTime = Current_TimeStamp
                    Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @stepid

/*Step 23: Volumes*/
```

```sql
SELECT 'Volumes'+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

        Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
        Select @FMA_ID,3, @LandbaseID,@stepid, 'Volumes', Current_timeStamp

        Update WLMA_OVL.dbo.WLMA_landbaseOVL
                Set ConiferousVolume = AVI.Conif_gvol ,
                DeciduousVolume = AVI.Decid_gvol ,
                ConiferousTPM = Case WHen Avi.Conif_gvol > 0 then Avi.Conif_stem/ Avi.Conif_gvol else 0 end,
                DeciduousTPM = Case WHen Avi.Decid_gvol > 0 then Avi.Decid_stem/ Avi.Decid_gvol else 0 end,
                wlma_ovl.dbo.WLMA_landbaseOVL.StepID = OVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
        from wlma_ovl.dbo.WLMA_landbaseOVL ovl
        Inner join (Select AVI.forestkey, DVT.volumestrata_3, Conif_gvol, Decid_gvol,Conif_stem,Decid_stem
                        from AVI_Labels AVI
                        Inner join (select Stratum_id as volumeStrata_3, Conif_gvol, Decid_gvol,Conif_stem,Decid_stem
                                        from dvt_volumes
                                        Where Versionid = '1.12' and utilization_id = @Util) DVT on
                        AVI.Volumestrata_3 = DVT.VolumeStrata_3
                        where AVIVersionID = 2 and not AVI.volumestrata_3 is null) AVI on
                AVI.forestkey = ovl.forestkey
        Where LB_deletion > 3 and Landbase > 0

        Update TSA_LandbaseExecution
        Set EndTime = Current_TimeStamp
        Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @stepid


/*Step 24: MPB Index*/
SELECT 'MPBIndex'+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

        Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
        Select @FMA_ID,3, @LandbaseID,@StepId, 'MPB Index', Current_timeStamp

                Update wlma_OVL.dbo.wlma_landbaseovl
                Set MPBindex = AVI.MPBIndex,
                MPBClass = 'Risk:' ++ cast(MPBRisk as nvarchar(1))++ '' ++ ' CF: ' ++ cast(isnull(ClimateFactor,0) as nvarchar(10)) ++ ' SSI: ' ++ cast(avi.MPBIndex as nvarchar(10)) ++
                ' Rank: ' ++ cast(Case
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 1.0 and LCS.MPBRisk = 1  then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 1.0 and LCS.MPBRisk = 2 and AVI.MPBIndex between 0 and 30 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 1.0 and LCS.MPBRisk = 2 and AVI.MPBIndex between 31 and 100 then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 1.0 and LCS.MPBRisk = 3 and AVI.MPBIndex between 0 and 50 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 1.0 and LCS.MPBRisk = 3 and AVI.MPBIndex between 51 and 100 then 1

                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.8 and LCS.MPBRisk = 1  then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.8 and LCS.MPBRisk = 2 and AVI.MPBIndex between 0 and 50 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.8 and LCS.MPBRisk = 2 and AVI.MPBIndex between 51 and 100 then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.8 and LCS.MPBRisk = 3 and AVI.MPBIndex between 0 and 80 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.8 and LCS.MPBRisk = 3 and AVI.MPBIndex between 81 and 100 then 1

                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.5 and LCS.MPBRisk = 1 and AVI.MPBIndex between 0 and 30 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.5 and LCS.MPBRisk = 1 and AVI.MPBIndex between 31 and 100 then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.5 and LCS.MPBRisk = 2 and AVI.MPBIndex between 0 and 80 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.5 and LCS.MPBRisk = 2 and AVI.MPBIndex between 81 and 100 then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.5 and LCS.MPBRisk = 3 and AVI.MPBIndex between 0 and 30 then 3
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.5 and LCS.MPBRisk = 3 and AVI.MPBIndex between 31 and 100 then 2

                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.2 and LCS.MPBRisk = 1 and AVI.MPBIndex between 0 and 30 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.2 and LCS.MPBRisk = 1 and AVI.MPBIndex between 31 and 100 then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.2 and LCS.MPBRisk = 2 and AVI.MPBIndex between 0 and 30 then 3
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.2 and LCS.MPBRisk = 2 and AVI.MPBIndex between 31 and 100 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.2 and LCS.MPBRisk = 3 and AVI.MPBIndex between 0 and 30 then 3
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.2 and LCS.MPBRisk = 3 and AVI.MPBIndex between 31 and 100 then 2

                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.1 and LCS.MPBRisk = 1 and AVI.MPBIndex between 0 and 30 then 3
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.1 and LCS.MPBRisk = 1 and AVI.MPBIndex between 31 and 100 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.1 and LCS.MPBRisk = 2 and AVI.MPBIndex between 0 and 50 then 3
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.1 and LCS.MPBRisk = 2 and AVI.MPBIndex between 51 and 100 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.1 and LCS.MPBRisk = 3 then 3
                                Else 0
                                end as nvarchar(1)) ,
                MPBRank = Case
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 1.0 and LCS.MPBRisk = 1  then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 1.0 and LCS.MPBRisk = 2 and AVI.MPBIndex between 0 and 30 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 1.0 and LCS.MPBRisk = 2 and AVI.MPBIndex between 31 and 100 then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 1.0 and LCS.MPBRisk = 3 and AVI.MPBIndex between 0 and 50 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 1.0 and LCS.MPBRisk = 3 and AVI.MPBIndex between 51 and 100 then 1

                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.8 and LCS.MPBRisk = 1  then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.8 and LCS.MPBRisk = 2 and AVI.MPBIndex between 0 and 50 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.8 and LCS.MPBRisk = 2 and AVI.MPBIndex between 51 and 100 then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.8 and LCS.MPBRisk = 3 and AVI.MPBIndex between 0 and 80 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.8 and LCS.MPBRisk = 3 and AVI.MPBIndex between 81 and 100 then 1

                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.5 and LCS.MPBRisk = 1 and AVI.MPBIndex between 0 and 30 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.5 and LCS.MPBRisk = 1 and AVI.MPBIndex between 31 and 100 then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.5 and LCS.MPBRisk = 2 and AVI.MPBIndex between 0 and 80 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.5 and LCS.MPBRisk = 2 and AVI.MPBIndex between 81 and 100 then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.5 and LCS.MPBRisk = 3 and AVI.MPBIndex between 0 and 30 then 3
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.5 and LCS.MPBRisk = 3 and AVI.MPBIndex between 31 and 100 then 2

                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.2 and LCS.MPBRisk = 1 and AVI.MPBIndex between 0 and 30 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.2 and LCS.MPBRisk = 1 and AVI.MPBIndex between 31 and 100 then 1
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.2 and LCS.MPBRisk = 2 and AVI.MPBIndex between 0 and 30 then 3
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.2 and LCS.MPBRisk = 2 and AVI.MPBIndex between 31 and 100 then 2
                                When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.2 and LCS.MPBRisk = 3 and AVI.MPBIndex between 0 and 30 then 3
```

```
                    When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.2 and LCS.MPBRisk = 3 and AVI.MPBIndex between 31 and 100 then 2

                    When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.1 and LCS.MPBRisk = 1 and AVI.MPBIndex between 0 and 30 then 3
                    When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.1 and LCS.MPBRisk = 1 and AVI.MPBIndex between 31 and 100 then 2
                    When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.1 and LCS.MPBRisk = 2 and AVI.MPBIndex between 0 and 50 then 3
                    When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.1 and LCS.MPBRisk = 2 and AVI.MPBIndex between 51 and 100 then 2
                    When (OVL.Status = 'ST' Or (Status = 'RT' and OVL.Age >= 60)) and ClimateFactor = 0.1 and LCS.MPBRisk = 3 then 3
                    Else 0

                    end,
                    wlma_ovl.dbo.WLMA_landbaseOVL.StepID = OVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
            From wlma_ovl.dbo.wlma_Landbaseovl OVL
            Inner Join (Select Compartment_id, Name, SunpineCompartment, MPBRisk from Landbase_compartmentStrategic where fma_id = 1) LCS on
                            LCS.compartment_id = OVL.Compartment_id
            Inner Join (Select AVI.Forestkey,
                            MPB.MPBIndex, MPB.ClimateFactor
                            From AVI_labels AVI
                            Left Join (Select * from MPB_Index where MPBVersionid = @MPBVersionid ) MPB on
                                    MPB.AVIVersionid= AVI.AVIVersionid and MPB.Forestkey = AVI.Forestkey
                            Where AVI.FMA_id= 1 and AVI.AVIVersionid = @AVIVersionID) AVI on
                    AVI.Forestkey = OVL.Forestkey
        Update TSA_LandbaseExecution
        Set EndTime = Current_TimeStamp
        Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @stepid

/*Step 25: Area Updates and Landbase status*/
SELECT 'Area Updates and Landbase Status'+ CONVERT(char(30), CURRENT_TIMESTAMP)
Set @Stepid = @StepId + 1

        Insert into TSA_LandbaseExecution(FMA_ID, PhaseID, LandbaseID, Step, Description, StartTime)
        Select @FMA_ID,3, @LandbaseID,@StepId, 'Area Updates and Landbase Status', Current_timeStamp

        Update wlma_ovl.dbo.wlma_landbaseovl
                set areaha =  cast(area / 10000 as Decimal(10,2)),
                landbaseclass = DLC.LandbaseClass,
                LBStatus = Case when Lb_deletion >= 99 or LB_deletionOVR > 0 then 'Active' else 'Passive' end,
                wlma_ovl.dbo.WLMA_landbaseOVL.StepID = OVL.StepID ++ ',' ++ Cast(@Stepid as nvarchar(3))
                from wlma_ovl.dbo.wlma_landbaseovl OVL
                Left Join D_LandbaseClass DLC on
                DLC.LandbaseID = OVL.Landbase
        Where SYU = 'R10' or SYU = 'R10u'

        Update TSA_LandbaseExecution
        Set EndTime = Current_TimeStamp
        Where FMA_ID = @FMA_ID and Landbaseid = @LandbaseID and PhaseID = 3 and Step = @stepid


SELECT 'Finished Landbase Classification: '+ CONVERT(char(30), CURRENT_TIMESTAMP)
        Update tsa_Landbases
                set ClassificationEND = CURRENT_TIMESTAMP,
                Classificationtime = datediff(Minute,ClassificationEnd, ClassificationStart )
                where FMA_ID = @FMA_ID and landbaseid = @landbaseid


        Update TSA_LandbaseExecution
                Set Duration = cast(datediff(second,starttime, endtime) as float) / 60,
                DurationPercent = cast(datediff(second,starttime, endtime) as float) /
                (select sum(cast(datediff(second,starttime, endtime) as float)) from tsa_LandbaseExecution)
                from tsa_landbaseExecution
```

```
w d:\projects\p115\landbase\data


&if [exists lb.dat -info] &then killinfo lb.dat
&if [exists avi.dat -info] &then killinfo avi.dat
&if [exists grp.dat -info] &then killinfo grp.dat
&if [exists lb1_v8 -cover] &then kill lb1_v8 all
&if [exists lb2_v8 -cover] &then kill lb2_v8 all
&if [exists lb3_v8 -cover] &then kill lb3_v8 all
&if [exists lb4_v8 -cover] &then kill lb4_v8 all

Connect sqlsrvr wl
dbmsinfo sqlsrvr  select lb.dat
select ovl_id as id, FireYr, Nregion_id, Fulllabel, Domsp, Modifier, OCG, UCG, Age, Landbase, YieldClass, LB_deletion, LB_deletionOVR as LBOVR, DeletionClass, NetDownClass, MPBIndex,
MPBRank, MPBCLass, AreaHa, LBstatus, LandbaseClass, StrataDeclaration, AssumedLiability, ClockStart, HarvYr
from wlma_ovl.dbo.wlma_landbaseovl
where landbaseid = 8
order by ovl_id
end

dbmsinfo sqlsrvr 'select * from AVI_Attributes where FMA_ID = 1 and AVIVersionid = 2 order by forestkey' avi.dat
dbmsinfo sqlsrvr 'select compartment_id as comp_id, lbgroup from landbase_compartmentstrategic where FMA_ID = 1 order by compartment_id' grp.dat
disConnect sqlsrvr

dropitem avi.dat avi.dat moist_reg_val umoist_reg_val

relate add grp grp.dat info comp_id comp_id ordered ro

reselect d:\projects\p115\landbase\data\lbovl lb1_v8
resel grp//lbgroup = 1
[unquote "]
n
n


jointem lb1_v8.pat avi.pat lb1_v8.pat forestkey forestkey ordered
jointem lb1_v8.pat lb.dat lb1_v8.pat id id ordered

reselect d:\projects\p115\landbase\data\lbovl lb2_v8
resel grp//lbgroup = 2
[unquote "]
n
n


jointem lb2_v8.pat avi.pat lb2_v8.pat forestkey forestkey ordered
jointem lb2_v8.pat lb.dat lb2_v8.pat id id ordered

reselect d:\projects\p115\landbase\data\lbovl lb3_v8
resel grp//lbgroup = 3
[unquote "]
n
n


jointem lb3_v8.pat avi.pat lb3_v8.pat forestkey forestkey ordered
jointem lb3_v8.pat lb.dat lb3_v8.pat id id ordered

reselect d:\projects\p115\landbase\data\lbovl lb4_v8
resel grp//lbgroup = 4
[unquote "]
n
n


jointem lb4_v8.pat avi.dat lb4_v8.pat forestkey forestkey ordered
jointem lb4_v8.pat lb.dat lb4_v8.pat id id ordered
```

Appendix 3 Approval to Harvest within DRS44

Canadian Forest Service

Northern Forestry Centre
5320 - 122 Street
Edmonton, Alberta
T6H 3S5
(403) 435-7210
Fax (403) 435-7359

Service canadien des forêts

Centre de foresterie du Nord
5320 - 122ᵉ rue
Edmonton (Alberta)
T6H 3S5
(403) 435-7210
Fax (403) 435-7359

Your file   *Votre référence*

Our file   *Notre référence*

23 April 1999

Edgar T. Wassink
Sunpine Forest Products Ltd.
Box 1
Sundre, Alberta
T0M 1X0

Dear Ed:

Surj forwarded your letter on to me as the one of the last people to work on the James River Watershed Experiment. Your understanding that we have no plans for further detailed observations or experimental manipulations in the James River Study Area is correct. You should be able to go ahead with developing your plans for the area without concern about jeopardizing any of our ongoing projects. I have one request to make before we close the book on the experiment.

Over the course of our work there, we created a number of circular clearings ranging from one to six tree heights in diameter. Some of these were cut again in the 1980's. We request your permission to go in and take some cores from canopy trees and disks from 1970's and 1980's regeneration on north to south transects through some of our plots. If this last foray into the site is agreeable to you, then we would need to know the cutting schedule so that we can work it into our other activities.

Regards

P A (Rick) Hurdle
Vegetation-Climate Interaction Biologist
(780) 435 7263
rhurdle@NRCan.gc.ca

cc S Malhotra

Canada

Alberta

ENERGY

```
-------------------------------------------- ADHOC REPORT SUBMISSION OPTION PARAMETERS  --------------------------------------------

                              JOB CREATION TIME:   15:24:59
                                    REPORT TYPE:   D

---------------------------------------------------------- ACTIVITY KEYS ----------------------------------------------------------

      DRS-     44


                                  *** END OF PARAMETER LIST ***
```

Alberta

ENERGY

```
 ACTIVITY ID ====>        DRS    4400            DISPOSITION RESERVATION
 STATUS:                  5  APPROVED
 AREA (HECTARES):              906.496                    (ACRES):              2240.00
 PURPOSE:                 0280 RESEARCH OR SAMPLE PLOT / EXP. PROG
 RESTRICTION:
 RESTRICTION EXCEPTION:    710 SPECIFIED IN COMMENTS FIELD
 STR CODE:
 KEY FILE ID:
 FLW PLAN NO:             000000 DUM


 -------------------------YYYY-MM-DD--------------------D A T E S-------------YYYY-MM-DD--------------------------------------

 APPLICATION:             0000-00-00               EXPIRY DATE:      9999-99-99
 EFFECTIVE:               1970-02-02               AMENDMENT:        1985-05-06
 CANCELLATION:            0000-00-00               RENEWAL:          0000-00-00


 *********************************************************** R E M A R K S *********************************************************
             JAMES WATERSHED RESEARCH AREA.

 *************************************************** L A N D   L I S T ************************************************************

 ---LAND IDENTIFIER---------HECTARES----------ACRES-----------------------------METES AND BOUNDS----------------------------------

 5-08-034-35-SE
 5-08-034-35-SW
 5-08-034-35-NW
 5-08-034-35-NE
 5-08-034-36-02
 5-08-034-36-07
 5-08-034-36-SW
 5-08-034-36-NW
 5-08-034-36-10
 5-08-034-36-15
 5-08-035-01-SE
 5-08-035-01-SW
 5-08-035-01-NW
 5-08-035-01-NE
```

ENERGY

Sundre Forest Products   Dave ref none   ACTIVITY DETAIL REPORT
REQ: R1387985 ACCT: EN0759   RESERVATION REPORT   LSRCRSDR
 REPORT DATE: 2006-07-18 TIME: 15:25:26   REQUESTED BY: LSDMIBAB PAGE: 2

                     ACTIVITY ID ====> DRS   4400   DISPOSITION RESERVATION

  5-08-035-02-SE
  5-08-035-02-03
  5-08-035-02-06
  5-08-035-02-11
  5-08-035-02-14
  5-08-035-02-NE

                          *** NOTE: THE FOLLOWING DISCLAIMER ***

ENERGY

Sundre Forest Products   Dave ref none   ACTIVITY DETAIL REPORT
REQ: R1387985 ACCT: EN0759   RESERVATION REPORT   **LSRCRSDR**
 REPORT DATE: 2006-07-18 TIME: 15:25:26   REQUESTED BY: LSDMIBAB PAGE: 3

```
                    ------------------------ D I S C L A I M E R ------------------------------
                        THIS STANDING REPORT IS PROVIDED SUBJECT TO THE CONDITION THAT HER
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                    (2)  SHALL NOT BEAR ANY RESPONSIBILITY FOR ANY LOSS OR DAMAGE OF ANY
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 **************************************************** C L I E N T   L I S T *****************************************************

  CLIENT ID                              NAME AND ADDRESS                                RELATIONSHIP

  805-9502  001     SUNDRE OFFICE - LAND AND FOREST      SERVICE                                        SERVICE AND OWNER
                    DEPT. OF SUSTAINABLE RESOURCE DEV
                    PO BOX 519
                    SUNDRE                               ALBERTA              T0M 1X0

                                          *** END OF REPORT ***
```

Appendix 4 Harvest Blocks with Reforestation Liability Waived

Block	Area
1_1_10_515042_1141	1.8
1_1_10_515042_1149	4.0
1_1_10_515042_1152	2.0
1_1_10_515042_1186	11.6
1_1_10_515042_1451	11.9
1_1_172_509030_1023	3.0
1_1_172_509030_1054	37.1
1_1_172_509030_1106	1.8
1_1_172_509030_1109	14.6
1_1_172_509030_1560	10.8
1_1_172_509030_1593	7.1
1_1_172_509030_1963	14.5
1_1_172_509030_1978	6.3
1_1_172_509030_2004	3.5
1_1_172_509030_2007	17.6
1_1_172_509030_2032	11.2
1_1_172_509030_2986	12.9
1_1_174_507035_1707	34.8
1_1_174_507035_1733	38.9
1_1_174_507035_1767	26.7
1_1_174_507035_1828	17.3
1_1_174_507035_1844	30.8
1_1_174_507035_1866	6.5
1_1_174_507035_1882	12.7
1_1_174_507035_1922	21.5
1_1_174_507035_1943	6.4
1_1_174_507035_1947	45.4
1_1_174_507035_1961	69.9
1_1_174_507035_1975	2.5
1_1_174_507035_1981	10.9
1_1_174_507035_2034	55.5
1_1_174_507035_2072	16.9
1_1_182_508035_18	13.1
1_1_182_508035_59	7.5
1_1_182_508035_60	10.8
1_1_182_508035_62	21.1
1_1_6_509032_10	7.9
1_1_6_509032_1026	14.8
1_1_6_509032_1086	14.2
1_1_6_509032_11	2.0
1_1_6_509032_13	12.5
1_1_6_509032_14	9.9
1_1_6_509032_15	7.8
1_1_6_509032_1518	18.7
1_1_6_509032_2117	5.5
1_1_6_509032_2148	8.3
1_1_6_509032_2193	8.6
1_1_6_509032_2216	7.8

Block	Area
1_1_6_509032_2222	7.9
1_1_6_509032_2231	19.2
1_1_6_509032_2237	13.2
1_1_6_509032_2254	7.7
1_1_6_509032_2256	5.8
1_1_6_509032_2269	14.2
1_1_6_509032_2276	9.4
1_1_6_509032_2283	13.2
1_1_6_509032_2710	12.6
1_1_6_509032_2725	19.8
1_1_6_509032_2764	28.5
1_1_6_509032_2767	14.7
1_1_6_509032_2769	12.4
1_1_6_509032_2792	17.4
1_1_6_509032_2811	7.5
1_1_6_509032_2832	3.5
1_1_6_509032_2833	7.0
1_1_6_509032_2841	3.9
1_1_6_509032_2853	4.3
1_1_6_509032_2871	10.4
1_1_6_509032_31	11.7
1_1_6_509032_32	1.3
1_1_6_509032_44	7.6
1_1_6_509032_45	5.8
1_1_6_509032_588	2.6
1_1_6_509032_596	12.0
1_1_6_509032_6	22.6
1_1_6_509032_8	13.3
1_1_6_509032_9	6.0
1_1_6_509032_966	14.5
1_1_6_509032_973	15.2
1_1_6_509032_985	12.9
1_1_75_509032_1	9.6
1_1_75_509032_16	7.0
1_1_75_509032_17	4.8
1_1_75_509032_1881	33.6
1_1_75_509032_1885	25.2
1_1_75_509032_1991	73.0
1_1_75_509032_2	4.2
1_1_75_509032_2025	3.4
1_1_75_509032_2078	24.7
1_1_75_509032_2992	26.1
1_1_75_509032_3	6.3
1_1_75_509032_30	8.0
1_1_75_509032_4	2.1
1_1_75_509032_43	3.5
1_1_75_509032_5	4.4
1_1_75_509032_527	4.6
1_1_75_509032_535	16.9
1_1_75_509032_591	27.1
1_1_75_509032_6	8.3

Block	Area
1_1_75_509032_634	11.8
1_1_75_509032_649	18.0
1_1_75_509032_694	13.4
1_1_75_509032_699	15.3
1_1_75_509032_7	5.0
1_1_75_509032_712	8.7
1_1_75_509032_755	22.8
1_1_75_509032_784	21.6
1_1_75_509032_834	17.3
1_1_75_509032_846	25.4
1_1_75_510031_3549	57.0
1_1_75_510031_3566	17.9
1_1_75_510031_3634	23.6
1_1_75_510032_1123	34.3
1_1_75_510032_1164	48.2
1_1_75_510032_117	20.8
1_1_75_510032_1224	132.5
1_1_75_510032_1392	47.3
1_1_75_510032_197	41.3
1_1_75_510032_253	39.3
1_1_75_510032_287	18.8
1_1_75_510032_366	34.4
1_1_75_510032_383	18.8
1_1_75_510032_388	76.6

Appendix 5 Compartment List

Compartment_id	Compartment Name
1	Sundre CTPP
2	Bob Mclean Quota
3	Gray Quota
6	Bluehill
7	Bridgeland Creek
8	Clearwater River
9	Swale Creek
10	Colt Creek
11	Contingency
12	Cutoff Creek
13	Dutch Creek
15	East Ram River
16	Elk Creek
17	Falls Creek
18	Gap Creek
19	Gap Lake
20	Gloomy Creek
21	Haven Creek
22	Highway 11
23	Highway 752
24	James Pass
25	James River
26	Jock Lake
27	Lewis Creek
28	Lick Creek
29	Limestone
30	Lower Cripple Creek
31	Lower Pinto Creek
32	Lynx Creek
33	Marble Mountain
34	South Burnstick Lake
35	Meadows Creek
36	North Ram River
37	Otter Creek
38	Pineneedle Creek
39	Pinto Creek
40	Prairie Creek
49	North Prairie Creek
50	Radiant Creek
51	Ram Mountain
52	Rapid Creek
53	Raven River
54	Red Deer River
55	Rocky Creek
56	Rough Creek
57	North Saskatchewan River
58	Shunda Creek
59	Skunk Creek

Compartment_id	Compartment Name
60	South Creek
61	South James River
62	South Ram River
63	Stoney Creek
64	Swan Creek
65	Swan Lake
66	Tawadina Creek
67	Tay River
68	Teepee Creek
69	The Forks
70	Trout Creek
71	Two Dam Creek
72	Upper Cripple Creek
73	Upper Lick Creek
74	Upper Tay River
75	Bluehill West
76	Wildhorse Creek
77	Williams Creek
78	Willson Creek
79	Yara Creek
172	Burnt Timber Creek
173	South Swan Lake
174	North Burnstick Lake
175	North Horburg
176	South Horburg
177	Harlech
178	Moosewallow Creek
179	Hazard
180	CTPP Central
181	CTPP North
182	CTPP South
183	CTPP South
184	CTPP Central
185	Cech Quota
186	Lower Stoney Creek
187	GRL 37082
188	East Horburg
189	CTPP Central
190	Bob Mclean Quota-A
191	GRL 788162
192	FGL 930001
193	GRL 39369
194	GRL 37426
195	GRL 36488
196	GRL 33068
197	GRL 38240
198	GRP 787977
199	GRL 37082
200	GRP 788162
201	GRL 810777
202	GRL 810778

Compartment_id	Compartment Name
203	GRL 39138
204	GRL 38421
205	GRL 38145
206	GRL 780044
207	GRL 37269
208	GRL 37718
209	GRL 405047
210	GRL 37013
211	GRL 39051
212	GRL 37346
213	GRL 38880
214	GRL 37363
215	GRL 39062
216	GRL 39959
217	GRL 40374
218	GRL 40750
219	GRL 39488
220	GRL 40403
221	GRL 38276
222	FGL810007
223	GRL16629
224	GRL 40274
225	GRL 37831
226	GRL 38090
227	GRL 39696
228	GRL 38036
229	GRL 38258
230	GRP 787427
231	GRP 787421
232	GRP 78977
233	Weyerhaeuser Canada Limited
234	Spray Lake Sawmills (1980) Limit
235	Alexo Development Node
236	North Ram - Nice Creek
238	Stachan Mill Site
239	Jack Fish Lake Provincial Recrea
241	Red Deer River Ranger Station
244	Stachan Gas Plant
245	Patent Land
247	B8 West
248	West Country
249	Strubel Lake
250	Swan Lake Recreation Area
253	Aurora Natural Area
254	GRL 780044 - Weyerhaeuser
255	FGL 810024
256	FGL 810024 - Weyerhaeuser
257	Beaver Lake
259	Mitchell Lake Recreation Area
1501	CTLR020034
1502	CTLR020040

Compartment_id	Compartment Name
1503	CTLR020044
1506	CTLR020035
1507	RWP-1 CPA 1
1508	RWP-1 CPA 2
1509	RWP-1 CPA 3
1510	RWP-1 CPA 4
1511	RWP-1 CPA 5
1512	RWP-1 CPA 6
1513	RWP-1 CPA 7
1514	RWP-1 CPA 8
1515	RWP-1 CPA 9
1516	RWP-1 CPA 10
1517	RWP-1 CPA 11
1518	RWP-1 CPA 12
1519	RWP-1 CPA 13
1520	RWP-1 CPA 14
1521	RWP-1 CPA 15
1522	RWP-1 CPA 16
1550	RWP-2 CPA 1
1551	RWP-2 CPA 2
1552	RWP-2 CTLR070042