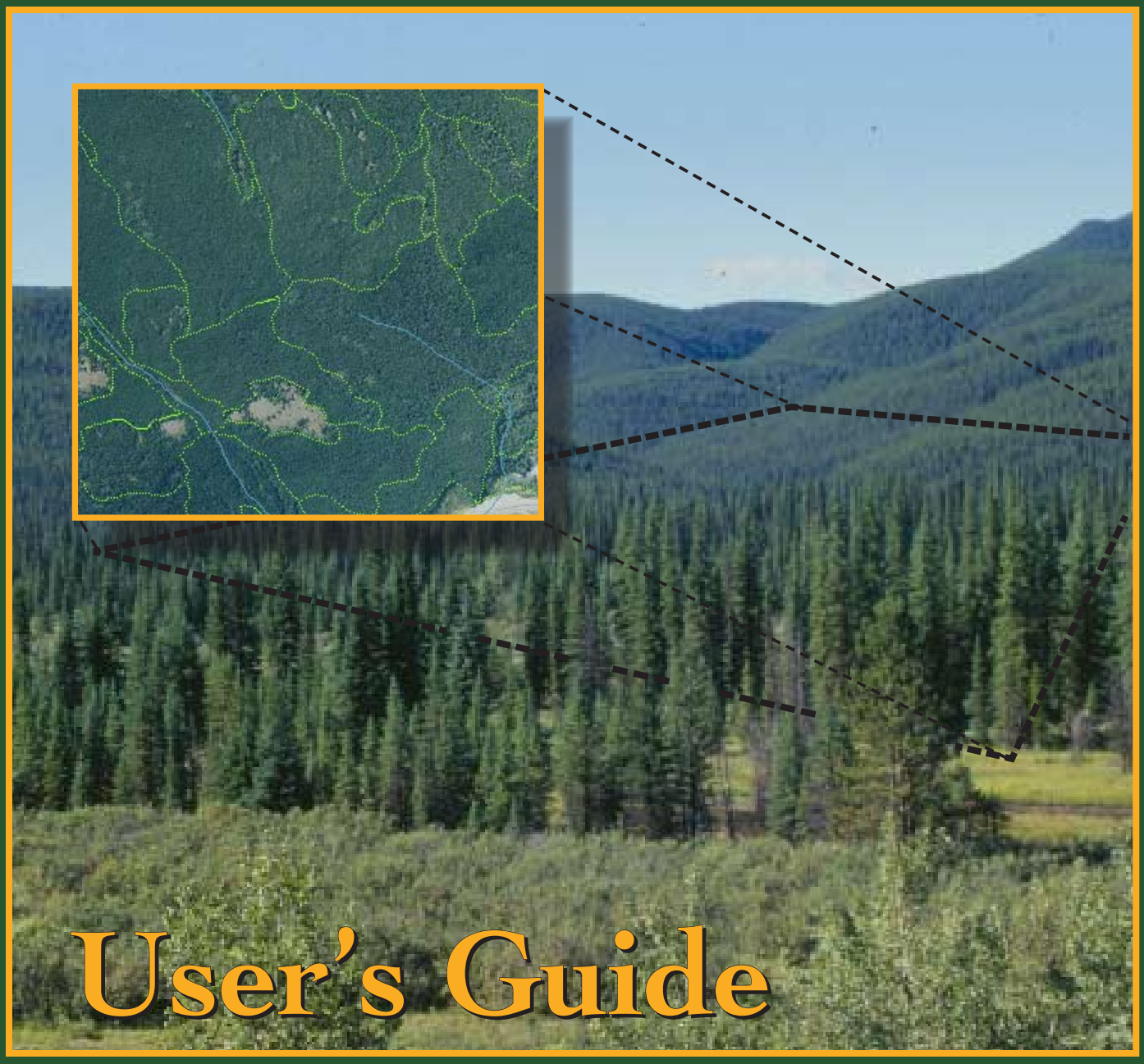

to the

VEGETATION RESOURCES INVENTORY

A User's Guide to the Vegetation Resources Inventory

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Timberline
Forest Inventory Consultants

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Preface

Webster's defines the word **inventory** as *"…a detailed list of articles with their estimated value; a collection of those articles that are or may be so listed (i.e. stock); or the process of making such a list."* The Vegetation Resources Inventory, or VRI as it is most commonly referred to, is an inventory of the natural resources such as trees, vegetation, and other types of land cover that exist across the Province of British Columbia.

Like many resource managers and users of inventory data in BC, you have undoubtedly seen many references to the VRI since its unveiling in 1995. However, you most likely did not receive the in-depth training offered to those tasked with its production. Little formal effort has been devoted to explaining the wealth of information it contains to the growing number of end users. In 2005, Tolko Industries contracted Timberline and Craig Farnden, RPF to assemble a user's guide to the VRI, a document that would in a sense 'de-mystify' the VRI in its processes, attributes, and available data formats. This user's guide will make your journey through the VRI world easier, by providing you with the small picture, the big picture, and an easy to use data dictionary to allow you to navigate through the various data formats, technical terms, and collection of attributes that is the VRI.

Organization of This User's Guide

Section 1, Introduction to the VRI, is designed to introduce you to the VRI, its context within forest management and a bit of background.

Section 2, VRI Phase I Components, provides you with a basic understanding of the structure of the VRI and some basic details on components.

Section 3, The VRI Phase II Process, takes you through a compressed description of the Phase II (statistical adjustment) process.

Section 4, Change Management, describes very briefly the concept of change management that sees the VRI through its annual review and the revision process for continuous improvement.

Section 5, Data Dictionary, provides a summary of and links to the actual data dictionary tables found in Appendices 1 through 4.

Section 6, Strengths and Limitations, provides some commentary on aspects of the VRI and its attributes that should be considered by users of the data…the pros and cons if you will.

Section 7, Forest Management Case Studies, shows you some actual applications of the VRI data; it's more than just for making inventory maps.

Section 8, Background Reading, provides a condensed list of references that provide in-depth detail about the VRI.

Glossary, lists and defines names and terms that may not be familiar to all readers.

Appendix 1, VegCAP Contents and relationships to Oracle Tables, clearly lays out the attribute interrelationships between the MS Access™ database and Oracle field names.

Appendix 2, ArcInfo Export Table Contents and their relationship to Oracle Tables, for ArcInfo users, describes the attribute interrelationships between the .e00 file fields and Oracle field names.

Appendix 3, SDE Oracle Field Descriptions, lists all SDE Oracle attributes (alphabetically), their plain English equivalents, short descriptions and default/permissible values (if any)

Appendix 4, Attribute Code Tables, lists and explains the more elusive attribute codes of the VRI.

Table of Contents

List of Figures

List of Tables

Section 1 Introduction to the VRI

The Vegetation Resources Inventory (VRI) is one of several resource inventories in British Columbia that are either new or are significantly altered from their predecessors. While the resource professionals involved in developing and implementing these inventories are intimately familiar with their scope and content, few others are. The purpose of the guidebook, then, is to provide resource managers and other users with the background knowledge required to understand, access and utilize the forest vegetation resource knowledge contained within the VRI.

The Forest Management Context for Inventories

Forest inventories are the formalized summary of knowledge that we have about the condition of our forest land base. In a general sense, forest inventories include all of the information in the base maps (i.e. mountains, roads, lakes, rivers etc.) in addition to a wide range of other information layers (i.e. terrain and soils, ecosystem classes, vegetation cover) that might be of interest. The information contained in forest inventories is used for a wide range of interpretive and planning exercises that allow us to manage a vast and diverse resource.

As a description of the current forest condition, inventories are used to quantify resource values and assess short term management options. Examples of things we can or would like to do in this manner include:

- Forest Apportionment or Zonation – determining the best use of various parts of the land base, and allocating them to specific uses (i.e. intensive forestry, habitat emphasis with minimal harvest, parks/recreation emphasis)
- Harvest Planning – determining where timber suitable for harvest is located, and planning access to and timing of that harvest
- Pest Hazard and Risk Assessments – determining extent, spatial distribution and susceptibility of timber to losses from diseases, various insect pests such as mountain pine beetle, and wildfire
- Habitat Mapping – determining the extent and spatial distribution of critical habitat for threatened or endangered species
- Watershed Assessments – determining the ability of the forest cover in a watershed to intercept rain/snowfall and control flow rates

Such assessments and practices are critical components of day to day forest management activities.

While such “snapshots” of the forest condition are extremely valuable, a great deal of the utility of inventories for forest management is derived by linking the inventories to models which can forecast future forest conditions. It is at this stage that we can truly start to manage the forest by evaluating the impacts of a wide range of management options.

With stand level growth models we can project how the forest will grow and change over time. With forest estate models, we can show the cumulative impact of stand growth, various intensities and patterns of harvest, and a wide range of potential outcomes of natural disturbance agents (i.e. fires and insect epidemics). By projecting the inventory into the future under a wide range of management strategies, we can make value judgements both about the range of possible future conditions, and about the flow of goods and services from the forest. Based on such information, we can make informed choices about which courses of action (or inaction) best satisfy our management objectives.

Origin and Intent of the VRI

Toward the end of the 1980's it became apparent that the Forest Cover inventory then in use was inadequate for a wide range of emerging forest management needs. In the early 1990's the Forest Resources Commission, in its report *The Future of our Forests,* recommended a review of the provincial resource inventory process. The Resources Inventory Committee (RIC) was established with the objective of achieving common standards and procedures. Toward this end, several task forces and ancillary working groups were established. The Vegetation Inventory Working Group within the Terrestrial Ecosystem Task Force was charged with:

> *"…making recommendations pertaining to the Vegetation Inventory… (and)…designing and recommending standards and procedures for an accurate, flexible…inventory process."*

The Vegetation Inventory Working Group, formed in 1993, recommended a photo-based, two-phase vegetation inventory program for British Columbia. In 1995, the Ministry of Forests, Resources Inventory Branch, Ministry of Environment, other branches of the Ministry of Forests, and several consultants unveiled the new inventory based on the recommendations of the working group. The inventory was designed to answer two basic questions:

1. Where is the resource located?
2. How much of a given vegetation resource (for example, timber or coarse woody debris) is within an inventory unit?

While borrowing many concepts and procedures from the old inventory, the new Vegetation Resources Inventory was intended to expand the focus from primarily timber to the entire vegetation resource.

Phase I of the VRI would involve the identification of homogeneous land cover types (or polygons) on aerial photographs (Figure 1-1), and the "estimation" or interpretation of vegetation attributes for each of those polygons. This exercise would be enhanced through the use of existing data sources such as ground plots from silviculture surveys. The strength of this phase of the VRI is in identifying the location and extent of resource values through the mapping and interpretation of polygons.

Phase II of the VRI is comprised of a set of randomly located sample plots, each of which provides precise estimates of attributes for point locations. Taken as a whole, these

plots can provide statistically valid estimates of the quantity of a resource, but would be extremely inefficient at mapping the locations (far too many plots would be required). Instead, the accurate attribute estimates from Phase II are used to detect and eliminate bias (average error) in the Phase I estimates. The overall result is that the precision of attribute estimates for any one polygon is based on the procedures of aerial photo interpretation, but the overall average for any one attribute is unbiased (accurate) over a large set of polygons.

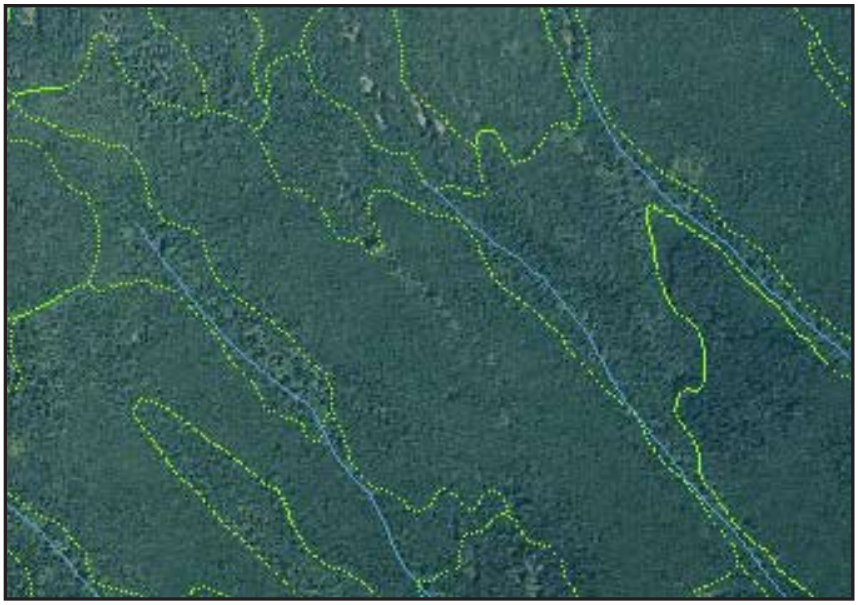


Figure 1-1. Polygons are identified on aerial photos as units of forest land where the cover is relatively homogenous. Skilled photo interpreters are able to distinguish tree species composition, age, height, stocking and several other attributes for individual polygons.

Planning a VRI

The VRI planning process for a specific land base is designed to ensure that the inventory meets the needs of resource users, and that it is completed in an efficient and professional manner. There are 3 components in the planning process:

- Resource-specific issues are identified by the stakeholder(s);
- VRI Strategic Inventory Plan (VSIP) - objectves are outlined specific to stakeholder needs, and VRI products are identified to meet those objectives
- VRI Project Implementation Plan (VPIP) - includes funding, priorities, area sequence, and plot location coordination.

The VSIP is a requirement of the Ministries of Forests and Sustainable Resource Management that looks at the information needs for the inventory, and ensures that various

options undertaken within the VRI process will clearly meet the identified needs. No two VRI's are totally alike, as the information needs supported by an inventory will vary with local demands. It is critical that for the VRI to fully meet its potential utility, that all such local objectives are identified at the outset, and the VRI be appropriately designed to satisfy them.

The VPIP is a document designed to meet the business case needs of the Forest Investment Account or other funding agencies. It provides implementation details such as costs, scheduling, manpower, and responsibilities. It may also provide technical details such as methodology and sampling strategies.

Section 2 VRI Phase I Components

Inventories such as the VRI are a key part of the foundation for forest management planning. The VRI provides a strategic and spatial accounting of the forest cover, including both treed and non-treed vegetation, and non-vegetated land cover. The VRI serves the same function in this regard as the previous Forest Cover inventory, but is enhanced both through the addition of numerous timber attributes and through much more detailed and complete descriptions of non-timber attributes. The latter improvement is of particular importance for areas where the land cover is not dominated by trees, such as alpine areas and open (non-treed) muskeg.

The Phase I VRI is divided up into several broad attribute components as follows:

- General / bio-physical attributes
- BC Land Cover Classification Scheme
  - Non-vegetated cover
  - Vegetated cover (treed and non-treed)
- Vegetated treed attributes
- Disturbance history

VRI Attribute Types

There exist within the VRI database four types of attributes:

Interpreted

Interpreted attributes are those entered by the photo interpreters during the attribute estimation phase of an inventory project. These are the original source attribute estimations from photo interpretation, silviculture surveys, inventory field collections or other acceptable sources. All of the general and biophysical attributes in the VRI exist only as interpreted attributes.

All interpreted attributes are date referenced. For attributes interpreted from aerial photos, this is the date that the photo was taken. For field data, it is the date of measurement.

Derived

There are attributes in the VRI that are derived from either individual or combinations of interpreted attributes. These are attributes that are either classes (i.e. “Dense” versus “Open” vegetation cover classes) that can be derived from the absolute interpreted values, or absolute values that can be modelled from combinations of interpreted attributes (such as stand volume and site index).

Projected

In many cases, the value for an attribute may need to be projected forward to a date other than at which it was originally recorded. Most attributes are not particularly time sensitive,

and are simply carried forward unchanged. Altered attributes are primarily those based on age and height (i.e. timber volume), the latter of which is "grown" based on the derived site index. Note that there are no patterns of stand dynamics in the projection process, and that attributes such as % crown closure and percent occurrence of different species are left unchanged.

There are two main reasons for projecting the inventory: coordinating the entire inventory to a single time reference, and evaluating future forest conditions and values. The concept of the VRI as a "snapshot" inventory is somewhat misleading, as the base data may be derived from several different time periods (i.e. aerial photo dates, silviculture and inventory survey dates). Where it is necessary to evaluate the land base at a particular date, projected attributes are required. The date of interest may be the current date, some date in the future, or a sequence of dates in between.

Adjusted

As mentioned in Section 1, the VRI is a two-phased inventory with Phase I creating the spatial photo based inventory and Phase II providing the statistical adjustment of key selected attributes through a random sampling process. Based on measurements from the random sampling in comparison to the original photo interpreted estimates, some of the attributes are 'adjusted' to provide a statistically defensible set of attributes for the inventory that can be used in subsequent analyses. The 'adjusted' attributes are not replacements for the original, polygon specific 'interpreted' attributes.

General Bio-physical Attributes

All inventory polygons are described using several general attributes that describe the bio-physical condition of the unit. These attributes are intended to provide a simplified picture (either for individual polygons or collectively for the landscape) of the distribution and coverage of ecosystems, landscape patterns, wildlife habitat values, and biological diversity as related to resource extraction activities, forest and ecosystem productivity, silviculture and harvesting options, and land use planning.

The general / bio-physical attributes include:

Polygon number: a database link between mapping units and attribute files

Data source: the primary origin of information used to describe the polygon, such as aerial photo interpretation, inventory air or ground calls or siviculture surveys. A complete list of valid data sources can be found in Table D-3 in Appendix 4.

Surface expression: a coded descriptor of the form and pattern of form of the surficial material within a polygon. Given the fact that a canopy of trees often obscures the ground surface, a relatively coarse classification is used. This attribute is useful for helping to predict soil parent materials and soil quality for plant growth. A list of codes is provided in Table C-1 in Appendix 3.

Modifying process: a coded descriptor of weathering, erosion and soil deposition processes that modify surficial materials and landforms. This attribute is useful for terrain classification, predicting soil quality for plant growth, and identifying the potential for hazards such as avalanches, slope instability and flooding. A list of codes is provided in Table C-1 in Appendix 3.

Site position meso: a coded descriptor of the relative position of a polygon along major slope segments (i.e. ridge crest to creek bottom), with particular reference to the shape of the slope and its impact on the movement of soil water. A list of codes is provided in Table C-1 in Appendix 3.

Alpine designation: a single class designator that indicates whether or not a polygon is above or below the elevation limit of potential continuous tree cover.

Soil nutrient regime: a coded descriptor of the typical amount of essential soil nutrients available to vascular plants over a multi-year period, expressed on a relative scale. A list of codes is provided in Table C-1 in Appendix 3.

BC Land Cover Classification Scheme (BCLCS)

One of the tasks of the Vegetation Inventory Working Group was the creation of a broadly defined land cover classification scheme to meet the needs of resource managers today and into the future. From the perspective of developing a broad classification system to assess integrated resource management options and the growing worldwide demand for an accurate assessment of land cover, the BCLCS was created to provide data for global vegetation accounting.

The BCLCS, like the VRI as a whole, is based on current cover. There are five levels to the classification scheme (Figures 2-1 and 2-2), starting at the broadest where the land cover is either Vegetated or Non-vegetated (or Unreported) and progressively providing greater detail about the cover type characteristics. Polygon classification under the BCLCS is based on a seven letter code, which is an amalgamation of the class codes for the 5 levels in the system. All classes are derived based on other interpreted attributes.

A complete list of coded attributes with associated descriptions is provided in Table D-4 of Appendix 4.

Land Cover Components

Where the BCLCS provides a single classification for an entire polygon and is used for broad scale land cover reporting, Land Cover Components (LCC's) allow detailed description of cover complexes that occur within polygons. Up to four LCC's can be defined within a polgon, and are ranked based on percent cover. Attributes for each LCC include cover codes from either level 4 or 5 of the BCLCS, plus a reporting of soil moisture regime based on nine classes.

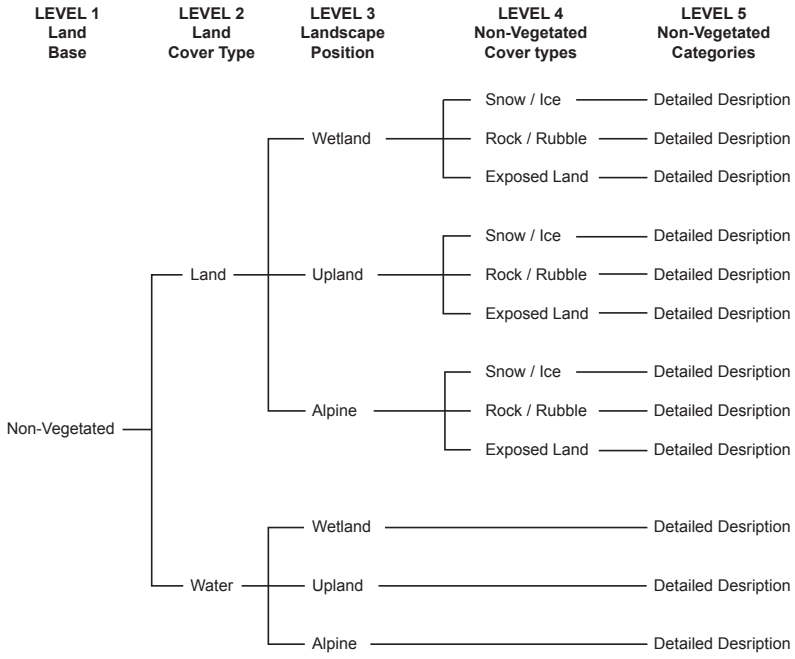


Figure 2-1. Structure of the B.C. Land Cover Classification Scheme for Non-vegetated Units (adapted from *Vegetation Resource Inventory Photo Interpretation Procedures*)

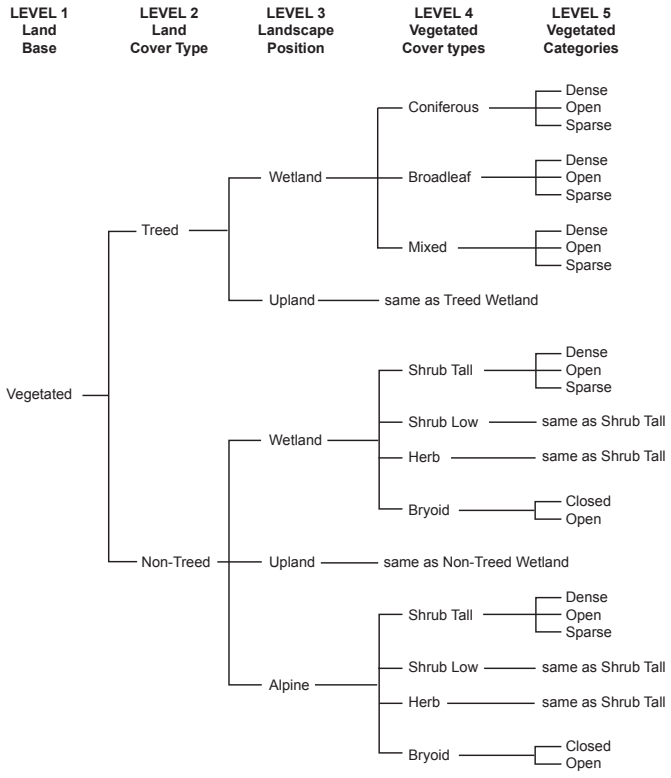


Figure 2-2. Structure of the B.C. Land Cover Classification Scheme for Vegetated Units (adapted from *Vegetation Resource Inventory Photo Interpretation Procedures*)

Figure 2-3. Example of varied BCLCS land cover classes.
The wetland complex includes open water, a graminoid dominated non-treed wetland, and a fringe of closed tall shrub wetland. The surrounding forest would be classed as either open or dense coniferous upland treed cover, while the road behind the wetland complex would be roaded, non-vegetated upland.

Basic Attributes for Vegetated Treed Polygons

From the standpoint of vegetated treed attributes, the VRI was designed to expand upon its predecessor, the Forest Cover inventory, which was primarily focused on the timber resource. For treed polygons, numerous attributes were added to provide a more comprehensive description of the vegetation. The basic attributes of the VRI (for each intepreted tree layer) are as follows:

Cover pattern: a coded description of the spatial distribution of trees in a polygon. Cover pattern codes are listed in Table D-2 in Appendix 4.

Crown closure: the percentage of ground area covered by a vertical projection of the visible tree crowns for each layer.

Tree layer: a number that identifies the tree layer being described in a multi-layered stand. The VRI eliminated the 'rank' code that previously assigned a management qualification to each of the layers in a multi-layered stand. The VRI simply lists each layer present from tallest to shortest. Up to nine layers can be listed, although the number used rarely exceeds two.

Vertical complexity: A subjective classification of the relative uniformity of tree heights within a canopy. It provides an indication of the variability of tree heights within a stand and is useful, along with age attributes, in the determination of seral stage. Codes are listed in Table C-1 in Appendix 3.

Species composition: a description of the tree species present (to a maximum of six) and an estimate of the percentage of each within the polygon, based on basal area or density (density is used for juvenile stands, basal area for all others) in descending order. Species codes are listed in Table D-1 in Appendix 4.

Age: interpreted for both the leading and second species, weighted by basal area of the dominant, co-dominant and high intermediate trees.

Height: interpreted for both the leading and second species, weighted by basal area of the dominant, co-dominant and high intermediate trees.

Basal area: the total cross sectional area, at breast height, of all living trees visible to the photo interpreter (dominant, co-dominant, and high intermediates), expressed in m^2/ha.

Density: an estimate of the average number of living trees per hectare visible to the interpreter in the dominant, co-dominant, and high intermediate crown positions.

Snag Frequency: an estimate of the average number of standing dead trees per hectare visible to the interpreter in the dominant, co-dominant, and high intermediate crown positions.

Confidence Indices: present for numerous attributes in the VRI; a subjective value reflecting the interpreters 'confidence' in the estimation of several key attributes. Its intention is to temper the degree of Phase II adjustment performed for the attribues in a given polygon[1]. Through change management (see Section 4), it has recently been relegated to an 'optional' attribute.

Data Source Codes: numeric values providing an indication of the primary source of the attribute values (i.e. aerial photos, silviculture surveys) and to a degree a confidence indicator themselves for the attributes to which they are assigned. Numeric codes are listed in Table D-3 in Appendix 4.

Disturbance History

VRI disturbance history codes are based closely on those of the Forest Cover inventory. Disturbances, treatments, etc remain unchanged, although the qualitative stand productivity and stocking status codes (i.e. NCBr, NSR, NP, NCC) have essentially been replaced by other attributes that can for the most part be queried (in combination) to derive qualitative equivalents.

History attributes use 4 base codes[2], a large two-layered set of activity codes (Table D-8 in Appendix 4), and fields for start and end dates of the activity. In the case of pests, there are also fields for damaging agent, damage severity and percent disturbance (Table D-9). These attributes are designed to correspond to those in the Ministry of Forests' RESULTS silviculture history database. Procedures are currently underway to facilitate inventory updates directly from the RESULTS reporting system.

1 While the adjustment for any one polygon would be tempered by this attribute, the cumulative adjustment for the inventory as a whole would be unaffected.

2 DI = disturbance, SI = site preparation, PL = Plantation, ST = Stand Tending

Section 3 The VRI Phase II Process

VRI Phase II Ground Sampling is a statistically based means of providing the information necessary to determine how much of a given characteristic is within the inventory area. A stratified random sampling methodology is employed to collect data that is truly representative of the sampled area, within statistical limits of uncertainty.

VRI Phase II Sample Selection

Target polygon selection uses either VRI Phase I photo interpretation data, or older Forest Cover inventory data in which case the BCLCS for each polygon has to be derived from available attribute information.

A target population for Phase II sampling is defined as all polygons within an inventory unit or a clearly delineated sub-unit. The administrative boundary of the target population can include Forest District, TSA, TFL or private land boundaries, or some combination thereof. Polygon selection is done using the probability proportional to size with replacement (PPSWR[1]) sampling method. This means that the larger polygons have a proportionately greater chance of being included in the sample relative to smaller polygons. As the PPSWR sampling design requires the replacement of selected polygons back into the sampling frame, sample polygons may be selected more than once. This is undertaken once polygons in the population have been stratified based upon the criteria specified in the VRI Project Implementation Plan (VPIP). With this methodology, each sample selection is totally independent of the other selections[2].

Pre-stratification is a requirement of the PPSWR sampling strategy, making PPSWR more efficient than simple random sampling (strata which occupy large portions of the landscape are not over-sampled, and identified strata that are less common have no chance of being missed). For most inventory units, the polygons are initially stratified into the following land cover categories using the BCLCS:

1. non-vegetated,
2. vegetated non-treed, and
3. vegetated treed polygons.

Vegetated treed polygons (those having 10% tree crown closure or greater) require further sub-stratification, while non-vegetated (lakes, double line streams, rock, bare ground, and double line roads) and vegetated non-treed polygons are not further stratified. Stratification criteria identified in the VPIP are used to ensure that vegetated treed

1 For further information on PPSWR, please refer to *The Statistical Estimation and Adjustment Process Using PPSWR Sampling Design in the Vegetation Resources Inventory* currently available at:

http://srmwww.gov.bc.ca/tib/vri/vri/reports

2 Another way of looking at this issue is to imagine that each hectare of land is a basic sampling unit. In this case, every hectare of land has an equal chance of being chosen, regardless of which polygon it is in or whether or not another hectare has been sampled in the same polygon.

polygons are classified into appropriate categories. It is recommended that the number of strata be restricted to range between two and six. Strata can be defined by leading species or species groups, and then further stratified by three or four volume classes or appropriate surrogates (such as basal area).

The actual number of samples selected depends on how comfortable the proponent is with the statistical reliability of the results. Currently, a minimum sample size of 15 samples per stratum is recommended. The overall sample size and the allocation to the strata are predetermined prior to sample selection and are usually specified in the VRI Strategic Inventory Plan (VSIP). A copy of the sample list should also be appended to either the VSIP or the VPIP.

VRI Phase II Ground Sampling gathers two broad sets of data from target polygons: timber attributes and ecological attributes. The usual practice is to gather timber attributes along with none, some or all ecological attributes. Timber Emphasis Plot (TEP) ground samples are used to gather (minimally) only timber attributes, while Full VRI ground samples are used to gather timber and all ecological attributes. Sample selection for TEP's looks to proportionally allocate ground samples to all sub-strata within only the vegetated treed land cover category. Sample selection for Full VRI plots looks to proportionally allocate ground samples to all three land cover categories.

For further information on VRI Phase II Ground Sample data and procedures, please refer to Vegetation Resource Inventory Ground Sampling Procedures v 4.5 currently available at:

http://srmwww.gov.bc.ca/tib/vri/vri/standards/index.html#vri

Figure 3-1. For full VRI Phase II plots (as opposed to timber emphasis plots), a complete description of all vegetation is completed, regardless of whether or not trees are present.

VRI Phase II Adjustment

Measurements resulting from the ground sampling process are used to estimate means and totals for the population. The relationship between the interpreted polygon estimates and ground samples is then used to adjust the interpreted estimates. The goal of ground sampling is to obtain reliable data from a small percentage of the population to make certain inferences about the population as a whole. Errors in the sample selection process are translated directly into errors in the resultant data.

The attribute adjustment procedure is a two-step process currently referred to as the 'Fraser Protocol'. In the first step, the VRI Phase I height bias is corrected using an adjustment ratio calculated from the VRI Phase I photo-interpreted heights and the VRI Phase II ground sampling heights. The VRI Phase I age bias is addressed in the same manner. An attribute-adjusted volume can then be estimated with VDYP[1] using the adjusted heights and ages. In the second step, an adjustment ratio estimated from the attribute-adjusted volume and the NVAF adjusted VRI Phase II volume is calculated, and this ratio is used to correct the model bias in the attribute-adjusted volume.

At this time only three VRI Phase I attributes are adjusted: **leading species** age, **leading species** height, and **leading species** volume.

Net Volume Adjustment Factor Sampling

The Net Volume Adjustment Factor (NVAF) is an integral part of the VRI, and is one of the components that must be completed in order to provide VRI sample data that meets all of the Ministry of Sustainable Resource Management (MSRM) inventory standards. The NVAF is used as part of the process to ensure that inventory based estimates of net volume are accurate.

The process of estimating timber volumes has several steps, any of which may introduce bias into the volume estimates:

1. For individual trees, measured variables such as species, height and diameter are used as predictor variables in a "taper equation" which predicts whole stem volume and merchantable[2] stem volume.
2. Expected volume losses to decay and waste are estimated based on tree species, size, and indicators of decay (external signs of decay such as conks or physical damage).
3. Net volume per tree is calculated by deducting the decay and waste losses from the merchantable volume.

1 VDYP: Varibale Density Yield Prediction model. This model, developed by the BC MoF and now managed by the MSRM, uses inventory attributes to predict timber volumes.

2 Merchantable volume is the whole stem volume minus deductions for stumps and tops - entire trees are also discounted from merchantable volume if they don't meet a minimum size threshold.

4. Stand volumes (m^3/ha) are calculated first by multiplying tree volumes by an expansion factor that is based on the size and type of sample plot used, and then summing the values for individual trees.

While much effort has been put into making this process as accurate as possible, there are several possible sources of bias:

1. The tally of loss indicators by the inventory cruiser is a subjective application of a set of standard rules. Any one cruiser may be more or less observant in detecting the indicators, and may be more or less inclined to make "positive" calls in borderline cases.
2. The estimates of waste and decay losses based on the observed indicators are not always based on data that is truly representative of the area being inventoried (they may be taken, for example, from a broader geographic area).
3. The BEC-based taper equations also may not be based on data that is truly representative of the area being inventoried.

The NVAF process seeks to test for biases that may arise as a result of these sources of uncertainty. A stratified random sub-sample of trees from the VRI Phase II plots is destructively sampled (felled and sectioned), with detailed measurements taken to calculate solid and decayed wood volumes. The actual net volume for each destructively sampled tree can then be compared to what would have been estimated for that tree using the steps described above. If the overall "true" mean volume for a stratum of such trees is statistically different from the mean of the estimated values, a bias can be said to exist and the volumes can be adjusted (the NVAF for a stratum is determined as the ratio between the mean net volume measured in the destructive sampling to the cruise based mean volume estimated for the same trees).

A more detailed discussion of the NVAF sampling methodology can be found in the *Net Volume Adjustment Factor Sampling Standards and Procedures v 4.0* currently available at: http://srmwww.gov.bc.ca/risc

Section 4 VRI Change Management Process

The first operational variant of the VRI was unveiled in 1995. Through a process known as 'Change Management', government, industry, and consultants have suggested, reviewed, and implemented changes. The process is annual, where solicitations are made by MSRM to government, industry, and consultants for any suggestions or recommendations regarding adding, removing, modifying, or simply redefining aspects of both Phase I and II of the VRI.

As would be expected, the most significant changes to the VRI were made in the first few years.

A few examples of changes to Phase I of the VRI implemented since 1995 are as follows:

Soil Nutrient Regime: no longer to be provided for polygons in which only a form of water (lake, river, snow, ice) is described.

Confidence Indices: no longer required for leading species age, leading species height or layer basal area.

BCLCS and LCC: A number of existing non-vegetated feature codes were changed so that they matched the Terrestrial Ecosystem Mapping (TEM Codes) as Listed in Table 2-1.

Table 2-1. List of BCLCS and LCC non-vegetated feature codes updated through the VRI change management process.

Old Code	New Code	Feature	Description
SC	PN	Snow Cover	Unchanged.
MS	MZ	Rubbly Mine Spoils	Unchanged.
RP	RZ	Road Surface	Unchanged.
MO	MN	Moraine	Unchanged.
TS	TZ	Tailings	Unchanged.
RR	RN	Railway Surface	Unchanged.
BP	UR	Urban	Buildings and associated developments such as roads and parking areas which form an almost continuous covering of the landscape.
PM	MI	Open Pit Mine	Unchanged.
SW	OC	Ocean	Unchanged.
RT	TA	Talus	Rock fragments of any size accumulated on or at the foot of slopes as a result of successive rock falls. This is a type of colluvium. Was part of the undifferentiated Rubble, Talus, Block field in previous versions
RT	BI	Block Field	Blocks of rock derived from the underlying bedrock by weathering and / or frost heaving. These have not undergone and significant down slope movement as they occur on level or gently sloping areas. Was part of the undifferentiated Rubble, Talus, Block field in previous versions

Through these changes, the VRI has been improved by, but not limited to:

- the elimination of attributes that were more suitably derived rather than interpreted (such as gross volume),
- the optional categorization of inconsistently interpreted attributes (i.e. confidence indices),
- the refinement of several non-vegetated cover type definitions and re-coding of others

For more information related to the VRI Change Management process, go to:

http://srmwww.gov.bc.ca/tib/vri/vri/changemgmt/index.html

Section 5 VRI Data Dictionary

The purpose of this section is to define or describe each of the VRI attributes, and to cross reference the same attributes as made available from various sources. Currently, there are three different data formats in which VRI data may be available:

1. **VegCAP**: a Microsoft access file (.mdb) format used by inventory practitioners to deliver VRI Phase I data to the MSRM. Each VegCAP file uses the naming convention: [mapsheet]_VEG_[district].MDB. (i.e. 093J057_VEG_DPG.MDB).
2. **SDE Oracle**: a database format used by the MSRM for VRI data storage.
3. **ArcInfo Export**: upon request, MSRM staff can export VRI data as an ArcInfo export file (.e00) format. These files use the naming convention: veg[mapsheet].e00. (i.e. veg093J057.e00).

These three database sources of VRI data are not perfectly equivalent. Some important differences include:

1. The MSRM imports most, but not all, of the attributes from VegCAP files into the SDE Oracle database.
2. The program that exports data from Oracle to ArcInfo files was designed for the old Forest Cover inventory, and does not export approximately three dozen VRI attributes
3. The same attribute may have different field names in different databases.
4. The three databases have different structures with different sets of tables and attribute locations.

The tables forming the bulk of the data dictionary are extremely lengthy and are located in Appendices 1 to 4.To facilitate the look-up of desired information, each is listed and described below:

Table A-1. VegCap contents and relationships to Oracle tables. This table is primarily intended for MS Access users, and lists all VegCAP file fields in alphabetical order along with their parent table and the corresponding SDE Oracle field name.

Table B-1. **ArcInfo Export table contents and relationships to Oracle tables.** This table is primarily for ArcInfo users, and lists all .e00 file fields in alphabetical order along with their parent table and the corresponding SDE Oracle field name.

Table C-1. SDE Oracle field descriptions. This table lists all SDE Oracle attributes in alphabetical order along with a plain English name, a description, and default and permissible values (if any).

Table D-1. List of Species Codes.

Table D-2. List of Cover Pattern Codes and descriptions

Table D-3. List of Data Source Codes

Table D-4. List of BCLCS and LCC Codes and descriptions

Table D-5. List of Inventory Type Groups

Table D-6. List of Organization Unit (Forest District) Codes

Table D-7. List of Disturbance Activity Codes

Table D-8. List of Disturbance Activity Sub-codes

Table D-9. List of Damage Agent and Condition Codes

Much of this information is also available in the MSRM's VRI data dictionary tables, which are currently available at: http://srmwww.gov.bc.ca/tib/reports/datadictionary/index.html. The following ten attributes, however, are missing from that document:

- silv_base
- silv_technique
- silv_method
- activity_start_date
- activity_end_date
- damage_agent_code
- pest_severity_code
- disturbance_pct
- plantation_species1
- plantation_species2

An explanation of these attributes can be found among various other documents at the above link and in the FCAP v.3.4 User's Manual currently available at:

http://www.for.gov.bc.ca/his/appinv/software/#fcap

Further damage agent code details are currently available at:

http://www.for.gov.bc.ca/hfp/PUBS/forest_health/Fs747.pdf

Section 6 Strengths and Limitations

One of the greatest and most common misconceptions about the VRI has been that it is more 'accurate' than the forest cover inventory it replaced. In practice, this is only partially true. If the question is *"Will the VRI consistently provide better estimates of interpreted polygon attributes than the old Forest Cover inventory?"*, the answer must be "no". If the question is *"Will the VRI provide a better mean estimate of certain adjusted attributes over the entire inventoried area?"*, then the answer is certainly "yes". The VRI also provides more complete polygons descriptions through the addition of many attributes, particularly for vegetated non-treed and non-vegetated cover types.

The VRI was specifically designed to improve on the mean value for certain selected attributes, and does an excellent job of achieving that end. While Phase II of the VRI can provide a statistically defensible set of inventory attributes for use in forest estate planning and analysis, it cannot improve the spatial or operational utility of an inventory. Where the precision of attributes for individual polygons is of greater importance than the overall accuracy of mean attribute values, other methods of enhancement would be required.

As has always been the case, the accuracy and precision of an inventory (for use as a spatial product) is based on numerous factors, including:

- the quality, distribution, and quantity of the calibration information available to the photo interpreters tasked with its completion;
- the skill level and training of the photo interpreters, and;
- the quality (resolution, emulsion, etc…) and scale of the aerial photos / imagery used.

That said, attributes in the VRI can be divided into two broad classes from an interpretation standpoint; those that can be interpreted with variable or lesser confidence from aerial photographs and therefore are usually more inconsistent, and those that are simple, more repeatable and therefore consistent. The attributes that can be interpreted consistently are those that can be seen and reasonably quantified from aerial photographs of appropriate scale.

In addition, the effects of aerial photo or image vintage, scale, emulsion type, resolution, and general quality must be considered when addressing attribute reliability. If a VRI is conducted using inferior imagery, for example, it is quite likely that the precision and accuracy of attribute estimation will be significantly degraded relative to an older Forest Cover inventory (and this certainly appears to be the case for some VRI's). While the reference year (provided in the database) gives the user an idea of the vintage of the aerial photographs or imagery used, other image related variables affecting VRI veracity are not evident from the database and must be researched by other means.

The following sections describe VRI attributes from the perspective of interpretive strengths and limitiations.

General / Biophysical Attributes

Within the broader category of general / biophysical attributes there is a level of variability that can be ascribed to interpreter training and skill. These are largely subjective classifications based on terrain and sub-canopy information interpretation, and considerable effort is required to maintain accuracy and consistency. For the most part, these attributes are not quantified or qualified in the field and are strictly photo based.

The ability to view a polygon being interpreted within the larger landscape is important for the accurate and consistent estimation of these attributes. Many of these attribute values exist relative to those in adjacent polygons and the landscape matrix represented by the inventory as a whole.

Land Cover Components

The attribute interpretations for the determination of Land Cover Components are more straightforward than for general biophysical attributes as they are based on the vegetated and non-vegetated cover that is described in greater detail as attributes elsewhere within the VRI.

LCC's provide a very general description of the dominant cover type(s) and associated relative soil moisture regime(s) for each polygon. This summary of the vegetated and/or non-vegetated state of the polygon is valid as of the reference date of the inventory (or polygon in the case of depletion or status survey updates).

Vegetated Non-treed and Non-vegetated Cover Attributes

The vegetated non-treed attribute estimations and non-vegetated cover classifications are as reliable as the photo scale and resolution permit. In the case of the vegetated non-treed attributes for shrub, herbaceous and bryoid cover, they are limited to descriptions of visible and interpretable attributes.

A major inconsistency in the interpretation of these attributes relates to percent cover interpretations for vegetated, non-treed cover types, where two different approaches appear to be common. One approach dictates that if only vegetated non-treed attributes exist in a polygon (or a majority of a polygon), then percent cover should be interpreted to a maximum value (i.e. 100%). Alternatively, some interpreters will take an intuitive approach based on local knowledge, where percent cover is interpreted to reflect a value closer to what is known to exist. Analyses potentially using these attributes may be affected considerably by this inconsistency.

Vegetated Treed Attributes

The majority of attributes associated with descriptions of vegetated treed cover are based either on straight photo interpretation or on referential photo interpretation assisted by field calibration information. There are, however, some attributes that are more subjective and variable in their interpretation (due to the variable nature of the aerial photographs or imagery) and are therefore more difficult to quantify consistently.

The following subsections describe the key vegetated treed attributes and some associated strengths and/or potential limitations. Most if not all tree attributes are interpreted only for the trees in the dominant, co-dominant and high intermediate crown classes. These are the trees that can be seen on aerial photo or images and are not otherwise obscured by the main canopy or crown shadows.

Stand structure

The VRI, as with most photo-based inventories, is designed on the premise that only what can be seen from aerial photographs should be included in the interpretation. In this regard, the Phase I standards are quite strict as this forms the basis for the 'consistency of interpretation' required for Phase II adjustments. One interpretation procedure affected by this concept is the requirement for the collective crown closure of all interpreted vegetation cover, including that of multi-layered stand structures, to not exceed 100%. The rationale for this limit is that photo interpreters cannot realistically quantify overlapping crowns. Intensive field calibration data cannot override this crown closure limitation. As such, multi-layered stands where the collective crown closure in fact exceeds 100% (e.g. 60+% crown closure deciduous stands over 50% crown closure coniferous understories) cannot be reported as they actually exist.

Interpreting stand structure attributes is also strongly influenced by the scale of aerial photographs (and scan rate in the case of softcopy) used in the inventory, as all but the most obvious multi-layered stand structures become less evident as scales decrease (become smaller).

The VRI is less limited than the Forest Cover inventory with respect to the number of layers that can be described in a single polygon. While up to nine layers can be described, in practice no more than two or three can be described with any reliability.

Vertical complexity

An excellent attribute that is clearly explained and well understood by most photo interpreters, and provides a fairly clear visualization of the vertical complexity or range of heights within a layer of trees. Vertical complexity, in conjunction with species composition, age and height, is an important attribute for assisting with determining older seral stage stands.

Species composition

Arguably one of the most critical collective attributes associated with any forest inventory, correct species composition interpretation is strongly linked to the quality (emulsion, correct exposure, and resolution) and scale of the aerial photographs available to the photo

interpreters. Species composition is interpreted using a combination of calibration information from adjacent field calibrated stands, as well as tone, colour, texture, shape, size, location, and pattern of tree crowns as expressed through the aerial photographs used to complete the inventory.

The percent breakdown by species in the VRI is based on the distribution of species by basal area. While assigning species composition from aerial photographs based on crown closure would be easier and possibly more consistent, a composition using basal area is much easier to relate to the direct measures of species composition that are also collected in the field.

The use of basal area for describing species composition is a change from the old Forest Cover inventory, which instead used volume. For the purposes of accuracy and overall consistency, this change has been positive, but must be factored in when using the VRI.

Age (leading and second species)

Age is a very critical attribute in any forest inventory. Interpretation relies heavily on field calibration data; specifically the direct measurements collected most often from ground calibration plots but also available (with perhaps a little less reliability) from historical ground plot data sources or disturbance history information. The importance of a well designed field calibration data collection program is paramount. The field data must provide the interpreters with the spatial distribution and number of plots necessary for proximal calibration reference points, but must also address the age distribution patterns of the land base. It must provide age information for all or most species present with a wide enough range of ages by species to be able to relate that to height and other site and stand characteristics visible on aerial photos.

Age is one of the more difficult attributes to consistently quantify in that it cannot be directly seen on aerial photographs. It can only be inferred through other photo interpretable stand characteristics such as but not limited to species composition, height, stand structure, crown closure, crown size, and vertical complexity.

The second species age and height attributes are a significant improvement over the Forest Cover inventory which provided only for age and height attributes on the leading species (by volume).

Height (leading and second species)

Height is a close equal to age with respect to importance as an attribute. It's interpretation is limited similarly to age by the amount of field calibration information data available and the quality and scale of the aerial photographs or imagery used to complete the inventory. Height is somewhat less limited than age in that it can be seen directly on the photographs to be interpreted.

In many cases, aerial photo interpretation is done using a digital system where scanned (softcopy) images are viewed stereoscopically on a computer monitor. These systems typically have built-in tools for measuring trees heights. Such height measurements can

be highly accurate, but depend on excellent stereo vision, the ability to see open ground, and adequate image sharpness to be able to resolve the tips of the tree crowns.

Crown closure

As simple as this attribute would seem to be in terms of interpretation, it is significantly affected by the scale and overall quality of the aerial photographs or imagery used for an inventory. It is extremely difficult to interpret or measure from the ground, so only very general crown closure estimates can be provided. Crown closure estimates acquired from helicopters during air call programs are probably the best and most accurate source of calibration data.

The general trend with crown closure, other than inconsistency amongst interpreters, is to over-estimate due to various factors including the radial displacement present on all aerial photographs, crown shadows, and crown resolution (associated with photo scale). On average, crown closures are usually overestimated by anywhere from 10 to 20%.

Basal area

Like age, basal area cannot be directly photo interpreted or measured from aerial photographs. Once again the importance of a sufficient number of VRI field calibration plots is critical (for the most part, previous inventory plot data did not collect basal area as an attribute).

Consistency in basal area estimates for local areas is facilitated through the use of look-up tables that relate basal area to crown closure and height. These tables are developed specific to typical stand compositions found in the land base being inventoried. If sufficient VRI Phase I plot data is collected, this information can be stratified and compiled, and used to populate this attribute with excellent results.

Live tree density

Like several other attributes, live tree density is a very positive addition to the VRI, although it can be difficult to consistently interpret from aerial photos. The importance of field calibration plot data can once again not be overstated. The spatial distribution of calibration plots must provide both proximal reference data as well as address the stand variability that will be encountered by photo interpreters.

Snag (dead tree) density

Snag density is an attribute that has considerable potential value from a wildlife habitat, stand mortality, and coarse woody debris recruitment perspective, but is extremely difficult to interpret from aerial photos. The most significant problem associated with the estimation of this attribute is the ability to adequately identify snags on aerial photographs or imagery that do not provide the requisite resolution. Important factors include photo scale, film type, and image blurr due to forward motion of the camera platform.

Photo estimates of snag density, unless derived from compiled ground plot data where snags were recorded, are usually quite unreliable.

Pattern

Cover pattern, applied to either vegetated treed, vegetated non-treed, or non-vegetated cover is a valuable attribute that provides a degree of spatial expression within a polygon; a horizontal distribution of trees. Through the nine possible patterns described in the VRI, interpreters can describe the distribution of the various vegetated or non-vegetated cover types that may occur within a polygon.

While seemingly a relatively simple attribute to interpret, the complex descriptions and attendant line drawing examples provided for each cover pattern code in the manuals has created situations of either limited or non-use of a number of cover patterns.

Limitations of the VRI

Most things are limited by their design objectives, and the VRI is no different. While it would be flippant to say that no two VRI's are alike, one must consider the objectives that each VRI was designed around when addressing the limitations of the VRI as a whole.

The VRI as a standard has its limitations, as most inventories are designed with certain objectives in mind, and rarely can all things be the same to all people. In some instances (woodlots for example), the VRI could be considered to be excessive in terms of attributes and processes required. The VRI in it's base form, like the Forest Cover inventory before it, was designed as a strategic level vegetation inventory to address the land cover reporting requirements at the TSA level for the entire province. In that capacity it is an extremely well thought out inventory, and has very successfully met the objectives for which it was designed.

At the operational level, a VRI for a specific land base is limited only by the degree of augmentation required to meet the inventory objectives. As with all inventories, the first step must always be designing the inventory to address its stated needs (see "Planning a VRI" in Section 1). Within that context, the VRI has few limitations.

Those VRI's that have been designed around the objectives they were intended to meet have proven themselves to be limited only by afterthoughts. Any number of additional and custom attributes, from the simple addition of forest cover productivity codes and non-forest descriptors to specific additional attributes required to address post inventory growth and yield or analysis requirements, have been suggested and incorporated into numerous VRI projects completed to date.

The VRI was designed as a strategic tool to answer specific forest level questions according to the needs of the B.C. government. The VRI approach and methodology was developed to provide statistically defensible timber volume estimates at the forest level. It was never designed to be an operational inventory (i.e. the VRI does not contain sufficient information for the purpose of providing product values). Of course, as the only inventory available, it is being used at an operational level, and the usual result is some level of dissatisfaction.

Increasing complexity in forest management and resource protection regimes is asking more and more of the VRI. In order for the inventory to meet the needs of resource man-

agers, the typical resolution must be increased, and the polygon accuracy levels must be improved. It must be recognized, however, that the desired resolution and stand level accuracy is funding dependant.

VRI Customization Options

Through the use of softcopy technology and it's ability to drape an existing inventory over scanned, aerial triangulated, and DEM draped imagery, any number of inventory shortcomings or 'limitations' can be addressed in a cost effective manner. Inventories can be enhanced to address standard attributes that have been found to be sub-standard due to such factors as the original imagery or aerial photographs that were used. Additional attributes can be custom retro-fitted to the VRI to address desired land base specifics.

Attribute enhancements to the VRI are restricted only by funding and what additional field calibration information and / or the image resolution are capable of providing.

Section 7 Forest Management Case Studies

As mentioned previously, a forest inventory in all its parts forms the basis for almost all forest management planning. Where the attributes for polygons provide value intepretations for individual stands, the summing of those attributes along with their spatial inter-relationships are used to make value judgements on the forest as a whole. The value placed on any one land base will vary with its current condition and its ability to supply a desired flow of goods and services (timber, habitat, recreational opportunities, biodiversity conservation etc.).

Timber Supply Review

The process and methodology for determining allowable harvest levels in B.C., referred to as Timber Supply Review (TSR), is founded on the inventory, and in many cases that is now the VRI. TSR analyses are conducted by the Forest Analysis Branch of the B.C. Ministry of Forests, with cooperation from the licencees within a forest management unit (TSA's, TFL's and woodlots)[1]. A full description of the program can currently be found at www.for.gov.bc.ca/hts/tsr.htm.

As input to analysis, the VRI provides spatial and tabular information on current forest condition (such as tree species, age, height), which is used both to help determine land classification (contributing to harvest and not contributing), and to support management zonation. As the starting resource for forest modelling, it provides basic inputs to yield models such as species, age, and site quality. Stand age or tree heights are also used to determine green-up condition, which is used to control harvest pattern and as a sustainability indicator in forest estate modelling.

Of particular concern to the timber supply analyst is identifying from the VRI database the appropriate values to use. It is crucial to ensure that projected, and if available, phase II adjusted attributes are used. Understanding the source the data may also be important, as it may have a large impact on attribute reliability[2].

Case Study – Arrow TSA

The Arrow Timber Supply Area (TSA) provides an interesting case study in the application of the VRI to timber supply analysis. Two issues, land base classification (Figure 7-1) and integration of the ecological inventory, are discussed below.

1 The Ministry of Forests is currently moving to a system whereby groups of licensees within a management unit will conduct the analyses, with the Forest Analysis Branch providing an oversight function.

2 A case in point for variable reliability of attribute data relative to source is that for site index. Site index estimates based on photo-interpreted heights and ages have consistently been found to be lower than those based on field measurements from properly selected samples. Given that site index has a very large impact on predictions of timber yields, such a bias can have important implications for timber supply analysis.

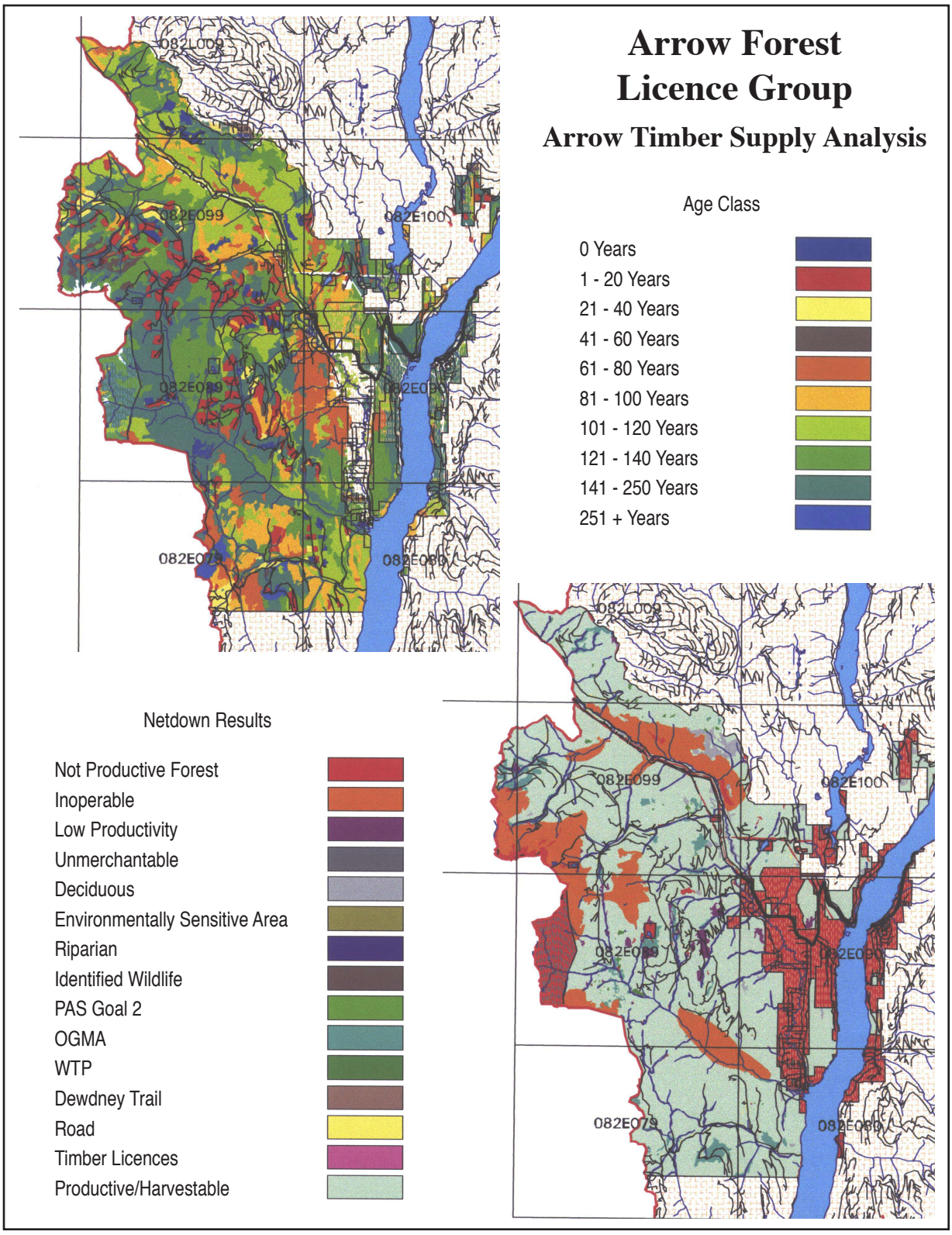


Figure 7-1. Example of VRI-based land classifications used as a basis for a TSR analysis in the Arrow TSA.

The switch to VRI data from traditional forest cover information introduced many fundamental differences in implementation. The VRI takes a more objective and non-cultural approach to inventory than the previous system, such as the use of specific land cover codes to replace the previously used subjective land classes such as “non-productive forest”. Instead, information about the percentage of vegetation cover is provided. For example, large areas of high elevation parkland forest previously described as non-productive forest are now simply described as vegetated treed. However, the land base classification system used to determine the net harvesting land base was robust enough to deal with this. Most of the high elevation parkland forest was above the operability line (based on elevation) and reclassified at the operability step.

For preparation of the analysis data set, the VRI and Predictive Ecosystem Mapping (PEM) data were merged. Due to the large size of the PEM and VRI inventories for the TSA, adding both inventories as separate databases would have created an unwieldy and sometimes unmanageable resultant. Instead, the PEM attributes were merged into the VRI without adding the PEM linework. This created a single inventory capable of addressing forest inventory and ecological (biodiversity) constraints. In addition, this method of combining the inventories maintains VRI linework and associated attributes while simultaneously maintaining the integrity of the PEM. This was achieved by representing each ecological unit (site series) as a percentage of a specified area. When the size, shape, or area of a polygon changes, the ecological composition remains the same.

For complete information see the Arrow TSA Information Package (Timberline, 2004). The full suite of documents is available at www.for.gov.bc.ca/hts/tsa/tsa01/docs.htm.

SFM Scenario Planning

Sustainable Forest Management (SFM) balances economic, social and ecological values in a specific area, helping to ensure resource opportunities for both present and future generations. Sustainable Forest Management provides a mechanism for all key forest and non-forest values to be identified and monitored over time, with scientifically defensible targets assigned for each value. Adaptive management principles are used to ensure that targets not being met are promptly identified, and management practices adjusted accordingly.

The VRI can be utilized in many ways to achieve the objectives of SFM. The most common uses of the VRI in an SFM process are:

- current status monitoring for specific indicators,
- modelling of habitat supply, and
- forecasting future forest conditions.

Species composition changes, seral stage analysis, and patch distribution are common indicators of SFM that directly rely on spatially accurate data found in the VRI databases. Habitat supply models utilize VRI attributes such as tree species, age, LCC and others to accurately model where the best habitat is for specific species or where other SFM values are likely to exist. Data from the VRI are inserted into forecasting software to optimize

future landscape conditions. There are many other indirect uses of the VRI throughout many stages of the SFM process, and many of these uses are actively being developed as SFM activities increase across the province.

Linking VRI, Strategic Planning and Development Planning

Case Study – Westbank First Nation Community Forest

The timber supply analysis undertaken to support management planning for the Westbank First Nation Community Forest (Timberline, 2003) is a good example of the process of bridging strategic planning to operations planning.

Use of spatial timber supply analysis for the management plan allowed the production of a 20-year harvest feasibility plan (Figure 7-2) as a by-product. Other than using existing Schedule A blocks made available to the Westbank First Nation, no previous forest planning had been undertaken. This was a perfect situation to let the spatial modelling exercise nominate a harvest schedule that meets the various management goals expressed in the analysis. The 20-year plan became the first draft of a forest development plan.

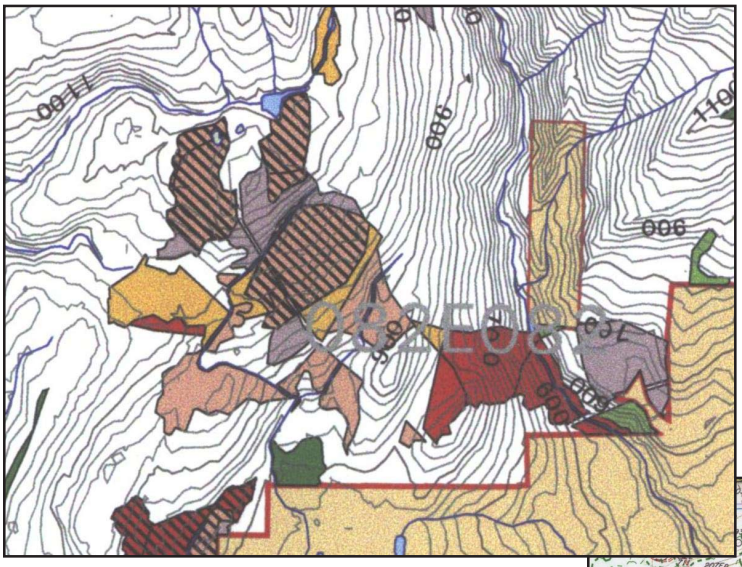
Through this process, VRI data was a basic input to operational planning process, although ground reconnaissance was needed to overcome the limitations of the input data. Blocks were confirmed or rejected, and boundaries were confirmed or altered as required.

Habitat Mapping / Planning

An important component of sustainable forest management is to conserve biological diversity. An essential component of biodiversity conservation is to manage for species and related habitats, particularly for those species that are endangered and threatened. The VRI provides a significant amount of information for mapping potential habitats of many species selected for sustainable forest management indicators. In conjunction with other land base inventories (e.g. biogeoclimatic ecosystem classification, TRIM/DEM, etc.), the VRI provides detailed information required to map site characteristics as well as structural elements and landscape context for habitat identification and conservation.

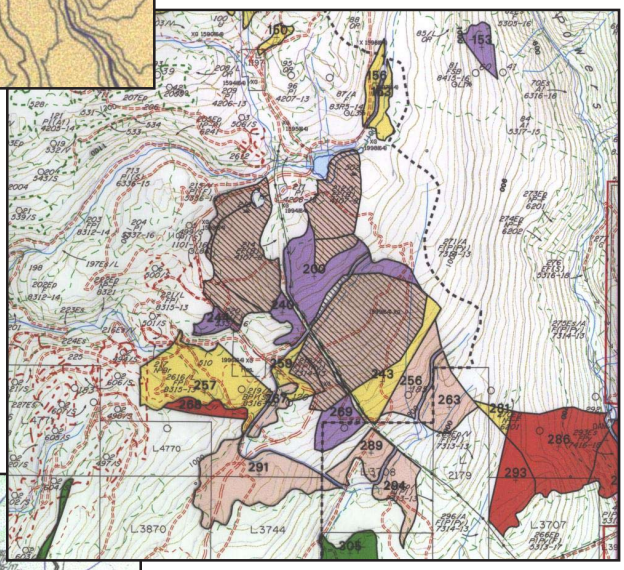
The VRI has been successfully used by numerous projects in B.C. to map the potential habitat of a variety of species, both plant and animal. Site condition of the habitat may be inferred by using the VRI ecological attributes such as soil moisture regime, soil nutrient regime, slope position and non-vegetated cover type (see Figure 7-3). Structural elements of the habitat can be derived from vegetation and tree species related attributes (seral stage, vertical complexity, number of snags, large diameter trees). The landscape context, another component of habitat, can be analyzed based on the spatial patterns of vegetation cover types as related to disturbance regimes (concepts such as corridor management, connectivity, and fragmentation).

Management of species at risk (plants and animals) is considered a key component in biodiversity conservation. The critical habitats of many red- and blue-listed species are often associated with extreme sites (i.e. rock outcrop sites and non-treed wetlands) or

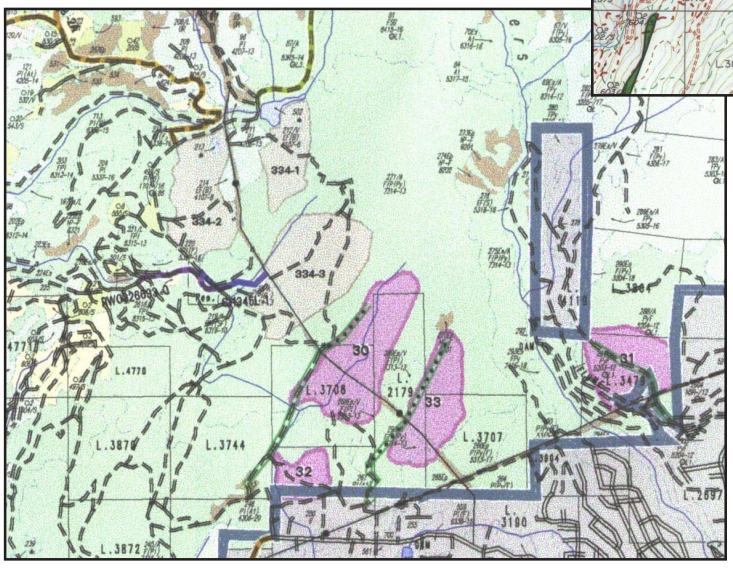


Westbank Community Forest Analysis

20-Year Plan Map



Reconnaissance Map



Forest Development Plan Map

Figure 7-2. Example of modeled harvest blocks based on Inventory data as used in the development of operational plans for the Westbank First Nation Community Forest.

Figure 7-3. Land cover can be a valuable predictor of habitat. For the Vancouver Island Marmot, predictor variables would almost certainly include talus slopes in close proximity to suitable alpine vegetation, possibly with the addition of other information such as elevation and aspect.

with uncommon forest structures (open growing, old forests). Overall, the VRI provides valuable information to map the habitat of the species concerned.

Input Data for PEM

The VRI provides detailed information useful for modelling terrestrial ecosystems (i.e. ecosystem units or site series). Depending on the different methods of Predictive Ecosystem Mapping (PEM), the VRI may or may not be a prerequisite for such mapping projects. However, a quality VRI can provide useful information to model terrestrial ecosystems in all PEM methods. A number of successfully completed PEM projects in BC have used the VRI as a foundation inventory.

A VRI based PEM typically uses the following VRI attributes: Land Cover Components, SMR, SNR, meso slope position, modifying process, non-vegetated cover and proportions, species composition, tree species ages and heights, crown closure, calculated site index, vertical structure, tree species type group, and disturbance history. Based on expert opinion and/or the analysis of field data, ecological relationships between ecosystem map entities and the VRI attributes (or derivatives) are explicitly captured in a knowledge base inference engine. Some of the VRI attributes have a direct relationship to certain units of ecosystems or site series, others are used to derive new attributes. In some cases, several VRI attributes are combined in order to infer a given type of ecosystem. Depending on the attribute reliability, the VRI has the potential to provide almost all important base information required to successfully model terrestrial ecosystems.

Botanical Forest Products Potential Mapping

Botanical Forest Products are often referred as Non-Timber Forest Products (NTFP's) or specialty products. There are many types of NTFP's such as wild edible mushrooms, medicinal and pharmaceutical products, wild berries and fruit, and floral and greenery products. To the extent that each product can be associated with a specific type of forest

(i.e. tree species and structural stage) and certain site/soil conditions, the quantity and location of the resource can be inferred from a VRI.

The VRI provides ecological as well as structural information to map the potential locations of many NTFP's. While some NTFP's can be simply queried or derived from the VRI database (basal poplar bark, western red cedar boughs, etc), others need multiple VRI attributes combined to infer the habitat of the specific NTFP's. Pine mushrooms for example, often occur in stands of trees 100 to 200 years old, with lodgepole pine, Douglas-fir, or western hemlock as the dominant overstory species. The mushroom is typically found in well to rapidly drained sites with coarse textured sand soil condition. Multiple queries or a predictive model can be built based on the above-described conditions and be applied to the geographic/climate range of pine mushroom distribution. A spatially explicit location map of potential pine mushroom sites can then be produced.

Support for Research and Other Special Studies

The amount of attribute information collected, estimated, projected, and adjusted in the VRI is considerable. As such it has the potential to provide a wealth of information for individual or multiple queries for research projects or special studies. Accuracy of the attributes aside, the VRI contains far more attributes about the vegetated and non-vegetated condition of the landscape than its predecessor. In the case of all cover types, be they vegetated treed, vegetated non-treed, or non-vegetated landscape, the VRI provides much greater refinement and detail in support of research or special studies queries for the selection of research sites, plot establishment, etc. In addition, the Phase II VRI sampling program can provide researchers with a pre-established set of non-biased random (marked and re-visitable) plot locations for conducting monitoring of existing plot attributes or additional attribute measurements.

Section 8 Background Reading

The following sections provide background reading sources on various facets of the VRI. Availability of these documents will vary, although most can be downloaded or viewed on-line as noted at the end of each section. Some of the documents may be available at various university or college libraries with strong forestry collections (UBC, UNBC, CNC, BCIT), although the best such source may be the Ministry of Forests library in Victoria (http://www.for.gov.bc.ca/hfd/library/). All of these libraries allow public viewing on site, or borrowing through inter-library loans.

Inventory (General)

Ministry of Forests, Forest Inventory Manual (1992):

- Volume 4 - Photogrammetry and Photo Interpretation
- Volume 5 - Preparation and Creation of FRGIS Data Files *(contains the Specifications and Standards for 1:20,000 Digital Mapping and 1:20,000 TRIM Digital Mapping).

Ministry of Forests Colour Stereogram Handbook (1987)

Ministry of Forests Black and White Stereogram Handbook (1987)

Vegetation Resources Inventory Localization Procedures Version 1.0

VRI Phase I

The following references can currently be found at: http://srmwww.gov.bc.ca/RISC/standards.htm

Vegetation Resources Inventory Guidelines for Preparing a Project Implementation Plan for Photo Interpretation Version 1.0

Vegetation Resources Inventory Photo Interpretation Procedures Version 2.4

Vegetation Resources Inventory Ground Call (Ground Calibration) Data Collection Procedures and Standards Version 3.0

Vegetation Resources Inventory Air Call (Air Calibration) Data Collection Procedures and Standards Version 2.0

Vegetation Resources Inventory Quality Assurance Procedures for Photo Interpretation Version 2.0

Vegetation Resources Inventory Photo Estimation Retrofit Procedures Version 1.0

Vegetation Resources Inventory The BC Land Cover Classification Scheme Version 1.3

Standard and Procedures for Integration of Terrestrial Ecosystem Mapping (TEM) and Vegetation Resources Inventory (VRI) in British Columbia Version 1.0

Associated Mapping References (Terrain, TEM)

The above following can currently be found at: http://srmwww.gov.bc.ca/risc/pubs/teecolo/index.htm

Standard for Digital Terrestrial Ecosystem Mapping Data Capture in British Columbia, (RIC, 2000)

Field Manual for Describing Terrestrial Ecosystems, (Min. of For., 1998)

Terrain Classification Manual, Version 2.0, (Howes and Kenk, 1997)

Standard for Digital Terrain Mapping Data Capture in British Columbia. (RIC, 1996).

VRI Phase II

The above references can currently be found at: http://srmwww.gov.bc.ca/RISC/standards.htm

Vegetation Resources Inventory Guidelines for Preparing a Project Implementation Plan for Ground Sampling Version 1.0

Vegetation Resources Inventory Ground Sampling Procedures Version 4.5

Vegetation Resources Inventory Quality Assurance Procedures for VRI Ground Sampling Version 3.0

Vegetation Resources Inventory Sample Selection Procedures for Ground Sampling Version 3.3

Vegetation Resources Inventory Data Collection Standards for VRI Ground Sampling Version 2.0

Vegetation Resources Inventory Ground Sampling Data Collection Procedures for Inaccessible Samples Version 1.0

VRI: Ground Sampling – Procedure and Guidelines for Operational Forest Resource Survey and Mapping Using Global Positioning System Technology (version 3.0)

Vegetation Resources Inventory Procedures and Standards for Data Analysis Attribute Adjustment and Implementation of Adjustment in a Corporate Database Version 2.0

NVAF

Net Volume Adjustment Factor: Sampling Standards and Procedures Version 4.0

The above reference can currently be found at: http://srmwww.gov.bc.ca/RISC/standards.htm

Glossary

Accuracy: The degree of conformity of a measured or calculated quantity to its actual, nominal, or some other reference value.

Alpine: Treeless by definition, the land area above the maximum elevation for most tree species with the exception of scattered environmentally stunted trees. It is dominated by vegetated (low shrubs, graminoids, forbs, bryoids, and lichen) and non-vegetated (rock, ice, and snow) cover types.

Attribute: A polygon based estimate of cover characteristics described by a photo interpreter.

Basal area: The cross-sectional area (in m^2/ha at breast height) of the stems of all living trees visible to a photo interpreter in the dominant, co-dominant, and high intermediate crown positions in each tree layer in a polygon.

BCGS (British Columbia Geographic System): The BC provincial mapping index system that breaks up the province into 7,027 map sheet tiles. It is based on the national topographic system (NTS), but is a more detailed indexing system. Each is numbered using a combination of the NTS lettering system - e.g. 93B - plus a number from 1 to 100 - e.g. 93B020. This method is used across the province to uniquely identify any map sheet area.

Bias: In statistics, the word bias means that an estimator (in the case of the VRI, an interpreter) for some reason on average, over- or under-estimates the value of a characteristic being observed.

Bryoid: Bryophytes (mosses, liverworts, hornworts) and non-crustose lichens.

Co-dominant tree: A tree having a crown forming part of the general level of the crown canopy

Confidence index: A subjective value that reflects the confidence that the photo interpreter has in their estimation of age, height and basal area. (from *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Cover pattern: Describes the spatial distribution of tree, vegetated non-treed, and non-vegetated cover within each layer in a polygon.

Crown closure: The percentage of ground area covered by the vertically projected crowns of trees and vegetated non-treed cover for each layer in a polygon.

Data source: The primary source of information used to assist in the description of an attribute or attributes being described.

Density: The average number of living trees (in stems/ha) visible to the photo interpreter in the dominant, co-dominant, and high intermediate crown positions in each tree layer in a polygon.

Derived attribute: An attribute that is generated from one or more other interpreted attributes.

DBH (diameter at breast height): Defined as the diameter of a tree stem measured 1.3m up from the high side of a tree; the most common point on a tree at which measurements such as diameter and age are taken.

Dominant tree: A tree having a well-developed crown that extends above the general level of the tree canopy around it.

Estimated site index: An estimate of site productivity for tree growth, defined as the height in meters achieved at a breast height age of 50 years. (from *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Estimated site index species: A tree species upon which the site index is based. (from *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

FCAP (Forest Cover Attribute Program): The attribute validation and projection program used for the Forest Cover inventories FIP files.

FIP (Forest Inventory and Planning): The file format used for the Forest Cover inventory attribute database.

Forb: An herbaceous plant other than a graminoid; includes ferns, clubmosses, and horsetails. (from *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Forest Cover Inventory: The provincial inventory system used in BC up until 1996. A timber emphasis inventory that dealt with non-timber cover types in a cursory manner.

GIS (Geographic Information System): A system for managing spatial data. In the strictest sense, it is a computer system capable of integrating, storing, editing, analyzing, and displaying geographically referenced information (from http://en.wikipedia.org/wiki/GIS).

Graminoid: An herbaceous plant with long, narrow leaves characterized by linear venation. Includes grasses, sedges, rushes, and other related plants. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Herbs: Non-woody plants, including graminoids (sedges, rushes, grasses, and grass-like plants), vascular cryptogams (ferns, fern allies, club mosses and horsetails) and some dwarf woody species and intermediate life forms listed in Table 4-1 of *Describing Ecosystems in the Field,* MOE Manual 11 (Luttmerding et al. 1990).

High intermediate tree: A tree having a smaller than average crown, positioned slightly below but extending into the general level of the tree canopy around it.

Land cover component: Identifies a type of land cover, under the B.C. Land Cover Classification Scheme, to the most detailed level possible. They consist of continuous areas within a polygon that are individually 10% or more of the polygon area, and would otherwise be delineated and classified at approximately twice the map scale. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Land cover type: The second level of the B.C. Land Cover Classification Scheme. This classifies the polygon as treed or non-treed; land or water. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Landscape position: The third level of the B.C. Land Cover Classification Scheme. This classifies the polygon as Alpine, Wetland, or Upland.

LRMP (Land and Resource Management Plan): A strategic, multi-agency, integrated resource plan at the sub-regional level. It is based on the principles of enhanced public involvement, consideration of all resource values, consensus-based decision making, and resource sustainability.[1]

Modifying process: The natural mechanisms of weathering, erosion, and deposition that result in the modification of surficial materials and land forms at the earth's surface. It is described by single letter codes that include descriptions of avalanching, river channeling, mass movements, flooding, and gully erosion. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Non-Treed: A polygon with less than 10% (by crown cover) of tree species of any size.

Non-Vegetated: A polygon with less than 5% (by crown cover) of trees, shrubs, herbs, and bryoids (other than crustose lichens). Described at the fourth level of the B.C. Land Cover Classification Scheme. This classifies the polygon as Snow / Ice, Rock / Rubble or Exposed Land if Non-Vegetated. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

NVAF (Net Volume Adjustment Factor): an adjustment factor used during Phase II sample compilation to produce unbiased estimates of net merchantable tree volume. It works to adjust the combined estimates of gross volume produced by taper equations, and Phase II timber sampled in field estimates of decay and waste losses produced through the net factoring process.

PEM (Predictive Ecosystem Mapping): A computer, GIS, and knowledge-based method to assist in the stratification of landscapes into ecologically-oriented map units (typically site series) based on the overlaying of mapped themes and the processing of resultant attributes by inference methods (normally automated software) in association with a formalized knowledge base comprising ecological-landscape relationships.

Phase I: The Provincial Vegetation Resources Inventory process involving photo estimation of detailed land cover attributes. Also referred to as Photo Interpretation. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Phase II: The Provincial Vegetation Resources Inventory process involving ground sampling of polygon attributes. Data gathered is used to adjust Phase I estimates. Also referred to as Ground Sampling. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Polygon: A relatively homogeneous portion of land area delineated according to defined criteria for the purpose of applying land cover descriptions.

PPSWR (Probability Proportional to Size With Replacement): A method of randomly sampling within an identified stratum of the inventory, in which every point in the stratum must have an equal chance of being sampled, even though variable sized polygons are treated as the basic sampling units. A polygon that is twice as large as another has twice the chance of being chosen, and once chosen they are still eligible to be chosen again.

Precision: The degree of mutual agreement among a series of individual measurements, values, or results.

PSYU (Public Sustained Yield Unit): an archaic designation for an area of Crown land, usually a natural topographic unit determined by drainage areas, managed for sustained yield by the Crown through the Ministry of Forests. It included all Crown lands within the established boundaries of the unit and excluded federal lands, provincial parks, experimental forest reserves, gazetted watersheds and tree farm licences.

SFM (Sustainable Forest Management): The balance of economic, social, ecological, and cultural values in a specific area, providing opportunities for present and future generations.

Site position meso: Indicates the relative position of the polygon within a catchment area. A single letter code indicates crest, upper slope, middle slope, lower slope, toe, depression or flat site position. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Snag frequency: The number of standing dead trees visible to the photo interpreter in the dominant, co-dominant, and high intermediate crown positions. It is expressed as snags/ha for each tree layer in the polygon.

SNR (Soil Nutrient Regime)**:** The amount of essential soil nutrients, particularly nitrogen, available to vascular plants over a period of several years. SNR classes include A (very poor), B (poor), C (medium), D (rich), E (very rich) and F (ultra rich, saline). (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

SMR (Soil Moisture Regime)**:** The average amount of soil moisture annually available for evapo-transpiration by vascular plants over several years. SMR classes include 0 (very xeric), 1 (xeric), 2 (subxeric), 3 (submesic), 4 (mesic), 5 (subhygric), 6 (hygric), 7 (subhydric) and 8 (hydric). (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Surface expression: The form and patterns of form of the surficial material within a polygon. It is described by single letter codes that indicate the following forms: C (cone), D (depression), F (fan), H (hummocky), M (rolling), P (plain), R (ridges), T (terraced), U (undulating), or N (none of the above). (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

TEM (Terrestrial Ecosystem Mapping): The stratification of the landscape into units that reflect differences in climate, geomorphology, bedrock geology, and vegetation. A total of four classifications are typically mapped, including: ecoregions, biogeoclimatic units, ecosystem units (site series), and seral community types (structural stage). Ecosystem units are delineated on aerial photographs based on bioterrain criteria and confirmed through field sampling.

TEP (Timber Emphasis Plot): A Phase II plot where only (in its basic form) timber attributes are collected. Any number of specific attribute enhancements (from the full suite of attributes sampled with a full VRI Phase II sample) can be added to this plot to address project specific sampling objectives.

TFL (Tree Farm Licence): A Tree Farm Licence is a form of area-based tenure defined under Part 3: Division 6 of the Forest Act. TFL's are designed to enable owners of Crown-granted forest lands and old temporary tenures or the timber licences which replace them, to combine these with enough unencumbered Crown land to form self-contained sustained yield management units. These licences commit the licencee to manage the entire area under the general supervision of the Forest Service. A TFL has a term of 25 years.[1]

Treed: A vegetated polygon with 10% or more (by crown cover) of tree species of any size.

TRIM (Terrain Resource Information Management): The base mapping system used in British Columbia for natural resource mapping. TRIM I was completed over the entire province, bring the base maps up to NAD 83 specifications. TRIM II is an ongoing effort to provide base mapping with greater detail using 1:40,000 scale aerial photographs.

TSA (Timber Supply Area): An integrated resource management unit established in accordance with Section 6 of the Forest Act. TSA's were originally defined by an established pattern of wood flow from management units to the primary timber-using industries.[1]

TSR (Timber Supply Review): Under Section 8 of the Forest Act the chief forester is required to determine an allowable annual cut for all crown land within a TSA and all TFL's. Timber supply review is the process whereby the following information is collected to support the chief forester in his or her AAC determination:

- The economic, environmental and social information that reflects current forest management practices — including their effects on the short– and long–term timber supply;
- Where improved information is required for future timber supply forecasts; and
- Any other information required by the chief forester to make any necessary adjustments to the AACs.

Upland: a broad class that includes all non-wetland ecosystems below the Alpine that range from very xeric, moss- and lichen-covered rock outcrops to highly productive forest ecosystems on hygric (SMR 6) soils. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

VDYP (Variable Density Yield Prediction)**:** a computer model, based on empirical data, of calculating mensurational data (primarily stand volume and tree diameter) from photo-interpreted data (such as species composition, age, height, crown closure). (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

VegCAP (Vegetation Cover Attribute Program): The MS Access ™ based attribute validation and projection program used for the VRI.

Vegetated: A vegetated polygon with at least 5% total cover of trees, shrubs, herbs, and/or bryoids (other than crustose lichens).

Vegetation cover types: The fourth level of the B.C. Land Cover Classification Scheme. This classifies the polygon as Coniferous, Broadleaf or Mixed if treed; as Tall Shrub or Low Shrub if shrub cover; undifferentiated Herbs, Forbs or Graminoids if herb cover; and undifferentiated Bryoids, Moss or Lichens if the cover is bryoids. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Vegetated density classes: The fifth level of the B.C. Land Cover Classification Scheme. This classifies the polygon as Dense, Open or Sparse for tree, shrub and herb covers; and classes the polygon as Closed or Open for bryoid cover. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Vertical complexity: A subjective classification that describes the form of each tree layer as indicated by the relative uniformity of the forest canopy as it appears on mid scale aerial photographs. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

Volume: The average gross stem volume of all living trees in the dominant, co-dominant, and high intermediate crown positions. It is expressed in m^3/ha. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002)

VPIP (VRI Project Implementation Plan): The VPIP identifies the needs for VRI management inventories, and provides the details for implementation of the provincial VRI in terms of geographic areas, scheduling, priorities, plot location coordination, estimated inventory costs by year, and roles and responsibilities. The VPIP replaces a portion of the former pre-inventory assessment (PIA) process. (From http://srmwww.gov.bc.ca/tib/vri/vri/lifecycle/plan.html)

VSIP (VRI Strategic Inventory Plan): A VSIP broadly outlines the VRI activities and products needed to address the identified forest management issues. Coordinated, multi-year VPIPs are prepared based on the VSIP, for submission to Forest Investment Account (FIA) or other agency for possible funding. (From http://srmwww.gov.bc.ca/tib/vri/vri/lifecycle/plan.html)

Wetland: Land having the water table near, at, or above the soil surface, or which is saturated for a long enough period to promote wetland or aquatic processes. These processes are indicated by poorly drained soils, specialized vegetation, and various kinds of biological activity, which are adapted to the wet environment. (From *Vegetation Resources Inventory Photo Interpretation Procedures* version 2.4, 2002

1. B.C. Ministry of Forests. *Glossary of Forestry Terms.* http://www.for.gov.bc.ca/hfd/library/documents/glossary/index.htm

Appendix 1

Table A-1. VegCAP Contents and Relationships to Oracle Tables

Fields are listed alphabetically

VegCAP Field	VegCAP Table	SDE Oracle Attribute (Field)	Notes	SDE Oracle Sub-Type (Table)
accuracy_cd	Feature_Link	n/a	specific to VegCAP	n/a
ACTIVITY_END_DATE	HISTORY	activity_end_date		resource_inventory_history
ACTIVITY_START_DATE	HISTORY	activity_start_date		resource_inventory_history
ADJOINING_NTS_MAP_NUMBER	HISTORY	adjoining_nts_map_num		vegrpt_polylayer
Adjusted_AGE_Site_Height	LEADING_SPECIES	n/a	not used	n/a
Adjusted_AGE_Site_Height	SECONDARY_SPECIES	n/a	not used	n/a
Adjusted_AGE_Top_Height	LEADING_SPECIES	n/a	not used	n/a
Adjusted_AGE_Top_Height	SECONDARY_SPECIES	n/a	not used	n/a
Adjusted_ALPINE_DESIGNATION	POLYGON	adj_alpine_designation	not used	veg_vegetation_cover_polygon
Adjusted_BASAL_AREA	LAYER	adj_basal_area	not used	tree_cover_layer
Adjusted_BRYOID_COVER_PERCENT	NON_TREE	n/a	not used	n/a
Adjusted_COMP1	LAND_COVER_COMPONENTS	n/a	not used	n/a
Adjusted_COMP2	LAND_COVER_COMPONENTS	n/a	not used	n/a
Adjusted_COMP3	LAND_COVER_COMPONENTS	n/a	not used	n/a
Adjusted_CROWN_CLOSURE	LAYER	n/a	not used	n/a
Adjusted_Density_VRI_LIVE_STEMS_PER_HA	LAYER	adj_vri_live_stem_ha	not used	tree_cover_layer
Adjusted_ESTIMATED_SITE_INDEX	LAYER	n/a	not used	n/a
Adjusted_Gross_Volume	SPECIES	n/a	not used	n/a
Adjusted_HERB_COVER_PERCENT	NON_TREE	n/a	not used	n/a
Adjusted_HERB_COVER_TYPE	NON_TREE	n/a	not used	n/a
Adjusted_Lorey_HEIGHT	LEADING_SPECIES	n/a	not used	n/a
Adjusted_Lorey_HEIGHT	SECONDARY_SPECIES	n/a	not used	n/a
Adjusted_MEAN_QUADRATIC_DIAM_PRI_UTIL_LVL	LAYER	n/a	not used	n/a
Adjusted_MEAN_QUADRATIC_DIAM_SEC_UTIL_LVL	LAYER	n/a	not used	n/a
Adjusted_Net_Volume	SPECIES	n/a	not used	n/a
Adjusted_NON_VEG_COVER_TYPE	NON_VEG	n/a	not used	n/a
Adjusted_PERCENT1	LAND_COVER_COMPONENTS	n/a	not used	n/a
Adjusted_PERCENT2	LAND_COVER_COMPONENTS	n/a	not used	n/a
Adjusted_PERCENT3	LAND_COVER_COMPONENTS	n/a	not used	n/a
Adjusted_Random_Tree_AGE	LEADING_SPECIES	n/a	not used	n/a
Adjusted_Random_Tree_AGE	SECONDARY_SPECIES	n/a	not used	n/a
Adjusted_Random_Tree_HEIGHT	LEADING_SPECIES	n/a	not used	n/a
Adjusted_Random_Tree_HEIGHT	SECONDARY_SPECIES	n/a	not used	n/a
Adjusted_SHRUB_CROWN_CLOSURE	NON_TREE	n/a	not used	n/a
Adjusted_SHRUB_HEIGHT	NON_TREE	adj_shrub_height	not used	vegetative_cover
Adjusted_Site_HEIGHT	LEADING_SPECIES	adj_height	not used	tree_species
Adjusted_Site_HEIGHT	SECONDARY_SPECIES	adj_height	not used	tree_species
Adjusted_SITE_POSITION_MESO	POLYGON	adj_site_position_meso	not used	veg_vegetation_cover_polygon
Adjusted_SNAG_Freq_VRI_DEAD_STEMS_PER_HA	LAYER	adj_dead_stem_ha	not used	tree_cover_layer
Adjusted_SOIL_MOIST1	LAND_COVER_COMPONENTS	n/a	not used	n/a
Adjusted_SOIL_MOIST1	LAND_COVER_COMPONENTS	n/a	not used	n/a
Adjusted_SOIL_MOIST2	LAND_COVER_COMPONENTS	n/a	not used	n/a
Adjusted_SOIL_MOIST2	LAND_COVER_COMPONENTS	n/a	not used	n/a
Adjusted_SOIL_MOIST3	LAND_COVER_COMPONENTS	n/a	not used	n/a
Adjusted_SOIL_MOIST3	LAND_COVER_COMPONENTS	n/a	not used	n/a
Adjusted_SOIL_NUTRIENT_REGIME	POLYGON	adj_soil_nutrient_regime	not used	veg_vegetation_cover_polygon
Adjusted_SPECIES_CD	SPECIES	n/a	not used	n/a
Adjusted_SPECIES_PERCENT	SPECIES	n/a	not used	n/a
Adjusted_Top_HEIGHT	LEADING_SPECIES	n/a	not used	n/a
Adjusted_Top_HEIGHT	SECONDARY_SPECIES	n/a	not used	n/a
Adjusted_VERTICAL_COMPLEXITY	LAYER	n/a	not used	n/a

Table A-1. Continued

VegCAP Field	VegCAP Table	SDE Oracle Attribute (Field)	Notes	SDE Oracle Sub-Type (Table)
AGE	LEADING_SPECIES	age		tree_species
AGE	SECONDARY_SPECIES	age		tree_species
AGRICULTURAL_LAND_RESERVE	RESULTANT	n/a	not used	n/a
ALPINE_DESIGNATION	POLYGON	alpine_designation		veg_vegetation_cover_polygon
ASPECT_CD	RESULTANT	n/a	not used	n/a
ATTACK_LEVEL	RESULTANT	n/a	not used	n/a
BASAL_AREA	LAYER	basal_area		tree_cover_layer
BCLCS_LEVEL_1	POLYGON	bclcs_level_1		veg_vegetation_cover_polygon
BCLCS_LEVEL_2	POLYGON	bclcs_level_2		veg_vegetation_cover_polygon
BCLCS_LEVEL_3	POLYGON	bclcs_level_3		veg_vegetation_cover_polygon
BCLCS_LEVEL_4	POLYGON	bclcs_level_4		veg_vegetation_cover_polygon
BCLCS_LEVEL_4_INDICATOR	POLYGON	bclcs_level_4_ind		veg_vegetation_cover_polygon
BCLCS_LEVEL_5	POLYGON	bclcs_level_5		veg_vegetation_cover_polygon
BCLCS_LEVEL_5_INDICATOR	POLYGON	bclcs_level_5_ind		veg_vegetation_cover_polygon
BGC_PHASE	RESULTANT	n/a	not used	n/a
BGC_SUBZONE	RESULTANT	n/a	not used	n/a
BGC_VARIANT	RESULTANT	n/a	not used	n/a
BGC_ZONE	RESULTANT	n/a	not used	n/a
BRYOID_COVER_PERCENT	NON_TREE	bryoid_cover_pct		vegetative_cover
capture_method_cd	Feature_Link	n/a	specific to VegCAP	n/a
CHANGE_KEY	POLYGON	n/a	not used	n/a
COAST_INTERIOR_CD	POLYGON	coast_interior_cd		veg_vegetation_cover_polygon
COAST_INTERIOR_DATA_SOURCE_CODE	POLYGON	coast_interior_data_src_cd		veg_vegetation_cover_polygon
COMP1	LAND_COVER_COMPONENTS	land_cover_class_cd		land_cover_component
COMP1	LAND_COVER_COMPONENTS	land_cover_id		land_cover_component
COMP2	LAND_COVER_COMPONENTS	land_cover_class_cd		land_cover_component
COMP2	LAND_COVER_COMPONENTS	land_cover_id		land_cover_component
COMP3	LAND_COVER_COMPONENTS	land_cover_class_cd		land_cover_component
COMP3	LAND_COVER_COMPONENTS	land_cover_id		land_cover_component
COMPARTMENT	RESULTANT	compartment		veg_vegetation_cover_polygon
COMPARTMENT_LETTER	RESULTANT	compartment_letter		veg_vegetation_cover_polygon
CONF_INDEX_AGE	LEADING_SPECIES	conf_index_age_cd		tree_species
CONF_INDEX_BASAL_AREA	LAYER	conf_index_basal_area_cd		tree_cover_layer
CONF_INDEX_HT	LEADING_SPECIES	conf_index_ht_cd		tree_species
CROWN_CLOSURE	LAYER	crown_closure		tree_cover_layer
CULMINATION_MAI_PRI_LVL	LAYER	culmination_mai_pri_lvl		tree_cover_layer
CULMINATION_MAI_SEC_LVL	LAYER	culmination_mai_sec_lvl		tree_cover_layer
DAMAGE_AGENT_CODE	HISTORY	damage_agent_code		resource_inventory_history
DATA_SOURCE_AGE	LEADING_SPECIES	data_source_age_cd		tree_species
DATA_SOURCE_BASAL_AREA	LAYER	data_source_basal_area_cd		tree_cover_layer
data_source_cd	Feature_Link	n/a	specific to VegCAP	n/a
DATA_SOURCE_ECOLOGY	POLYGON	ecosys_class_data_src_cd		veg_vegetation_cover_polygon
DATA_SOURCE_HEIGHT	LEADING_SPECIES	data_source_height_cd		tree_species
DATA_SOURCE_VRI_LIVE_STEMS_PER_H	LAYER	data_src_vri_live_stem_ha_cd		tree_cover_layer
DATE_OF_PHOTOGRAPHY	POLYGON	date_of_photography		veg_vegetation_cover_polygon
DATE_UPDATE	RESULTANT	n/a	not used	n/a
DBH_LIMIT	LAYER	dbh_limit		tree_cover_layer
DEVELOPMENT_PLAN	RESULTANT	n/a	not used	n/a
DISTURBANCE_CD	RESULTANT	n/a	not used	n/a
DISTURBANCE_PERCENT	HISTORY	disturbance_pct		resource_inventory_history
ELEVATION	RESULTANT	n/a	not used	n/a
entry_timestamp	Feature_Link	n/a	specific to VegCAP	n/a
entry_userid	Feature_Link	n/a	specific to VegCAP	n/a
ENVIRONMENT_SENSITIVE_AREA_1	RESULTANT	n/a	not used	n/a
ENVIRONMENT_SENSITIVE_AREA_2	RESULTANT	n/a	not used	n/a
ENVIRONMENT_SENSITIVE_WILDLIFE	RESULTANT	n/a	not used	n/a
ESTIMATED_SITE_INDEX	LAYER	est_site_index		tree_cover_layer
ESTIMATED_SITE_INDEX_SPECIES	LAYER	est_site_index_species_cd		tree_cover_layer

Table A-1. Continued

VegCAP Field	VegCAP Table	SDE Oracle Attribute (Field)	Notes	SDE Oracle Sub-Type (Table)
feature_id	Feature_Link	feature_id		veg_vegetation_cover_polygon
FEATURE_ID	FEATURE_LINK_PHOTO CENTRE	feature_id		veg_vegetation_cover_polygon
FEATURE_ID	feature_id			veg_vegetation_cover_polygon
FEATURE_ID	feature_link_wing_point	feature_id		veg_vegetation_cover_polygon
feature_id	flt_union	feature_id		veg_vegetation_cover_polygon
FEATURE_ID	POLYGON	feature_id		veg_vegetation_cover_polygon
FISH_AREA	RESULTANT	n/a	not used	n/a
FIZ_CODE	RESULTANT	fiz_cd		veg_vegetation_cover_polygon
FOR_COVER_RANK_CD	LAYER	for_cover_rank_cd		tree_cover_layer
FOREST_DISTRICT	RESULTANT	n/a	not used	n/a
FOREST_REGION	RESULTANT	n/a	not used	n/a
FREDDY_DATE	VERSION	n/a	not used	n/a
FREDDY_VERSION	VERSION	n/a	not used	n/a
GRAPHICS_DATE	VERSION	n/a	not used	n/a
GRAPHICS_VERSION	VERSION	n/a	not used	n/a
GRID_AREA	RESULTANT	n/a	not used	n/a
GRID_NO	RESULTANT	n/a	not used	n/a
GROSS_VOL_PER_HA_WHOLE_STEM_GT_4CM	LAYER	n/a	not used	n/a
GROSS_VOL_PER_HA_WHOLE_STEM_GT_4CM	SPECIES	n/a	not used	n/a
HAY_CUTTING_NO	RESULTANT	n/a	not used	n/a
HEIGHT	LEADING_SPECIES	height		tree_species
HEIGHT	SECONDARY_SPECIES	height		tree_species
HERB_COVER_PATTERN	NON_TREE	herb_cover_pattern		vegetative_cover
HERB_COVER_PERCENT	NON_TREE	herb_cover_pct		vegetative_cover
HERB_COVER_TYPE	NON_TREE	herb_cover_type		vegetative_cover
HIST_CLASS_S	LAYER	hist_class_s_cd		tree_cover_layer
HIST_CLASS_SS	LAYER	hist_class_ss_cd		tree_cover_layer
HISTORY_CNT	POLYGON	history_cnt		vegrpt_polylayer
HISTORY_ID	HISTORY	vif_ver_hist_id		resource_inventory_history
INPUT_DATE	POLYGON	input_date		veg_vegetation_cover_polygon
INTERPRETATION_DATE	POLYGON	interpretation_date		veg_vegetation_cover_polygon
INTERPRETED_DATA_SOURCE_CODE	LAYER	interpreted_data_src_cd		tree_cover_layer
INTERPRETER	POLYGON	interpreter		veg_vegetation_cover_polygon
INVENTORY_REGION	RESULTANT	inventory_region		veg_vegetation_cover_polygon
INVENTORY_STANDARD	POLYGON	inventory_standard_cd		veg_vegetation_cover_polygon
INVENTORY_TYPE_GROUP_NUMBER	LAYER	inventory_type_group_num		tree_cover_layer
INVENTORY_TYPE_GROUP_SOURCE	LAYER	inventory_type_group_src_cd		tree_cover_layer
LAST_EDIT_DATE	VERSION	last_edit_date		veg_data_set_version
LAST_ERROR_CHECK_DATE	VERSION	last_error_check_date		veg_data_set_version
LAST_ERROR_CHECK_VERSION	VERSION	last_error_check_ver		veg_data_set_version
LAST_FIPUPDATE_DATE	VERSION	last_fipupdate_date		veg_data_set_version
LAST_FIPUPDATE_VERSION	VERSION	last_fipupdate_ver		veg_data_set_version
LAYER_CNT	POLYGON	layer_cnt		vegrpt_polylayer
LAYER_ID	HISTORY	layer_id		tree_layer_history_link
LAYER_ID	LAYER	layer_id		tree_layer_history_link
LAYER_ID	LEADING_SPECIES	layer_id		tree_layer_history_link
LAYER_ID	SECONDARY_SPECIES	layer_id		tree_layer_history_link
LAYER_ID	SPECIES	layer_id		tree_layer_history_link
LOSS_TYPE_CD	LAYER	loss_type_cd		tree_cover_layer
LOSS_TYPE_CD	SPECIES	loss_type_cd		tree_cover_layer
MANAGEMENT_ZONE	RESULTANT	n/a	not used	n/a
MAP_ID	FEATURE_LINK_PHOTO CENTRE	map_id		tree_layer_history_link
MAP_ID	map_id			tree_layer_history_link
MAP_ID	feature_link_wing_point	map_id		tree_layer_history_link
MAP_ID	HISTORY	map_id		resource_inventory_history
MAP_ID	LAND_COVER_COMPONENTS	map_id		land_cover_component
MAP_ID	LAYER	map_id		tree_layer_history_link
MAP_ID	LEADING_SPECIES	map_id		tree_layer_history_link

Table A-1. Continued

VegCAP Field	VegCAP Table	SDE Oracle Attribute (Field)	Notes	SDE Oracle Sub-Type (Table)
MAP_ID	NON_TREE	map_id		tree_layer_history_link
MAP_ID	NON_VEG	map_id		tree_layer_history_link
MAP_ID	POLYGON	map_id		tree_layer_history_link
MAP_ID	RESULTANT	map_id		tree_layer_history_link
MAP_ID	SECONDARY_SPECIES	map_id		tree_layer_history_link
MAP_ID	SPECIES	map_id		tree_layer_history_link
MAP_ID	VERSION	map_id		tree_layer_history_link
MAP_QUAD	HISTORY	map_quad		veg_data_set_version
MAP_QUAD	LAND_COVER_COMPONENTS	map_quad		veg_data_set_version
MAP_QUAD	LAYER	map_quad		veg_data_set_version
MAP_QUAD	LEADING_SPECIES	map_quad		veg_data_set_version
MAP_QUAD	NON_TREE	map_quad		veg_data_set_version
MAP_QUAD	NON_VEG	map_quad		veg_data_set_version
MAP_QUAD	POLYGON	map_quad		veg_data_set_version
MAP_QUAD	RESULTANT	map_quad		veg_data_set_version
MAP_QUAD	SECONDARY_SPECIES	map_quad		veg_data_set_version
MAP_QUAD	SPECIES	map_quad		veg_data_set_version
MAP_QUAD	VERSION	map_quad		veg_data_set_version
MAP_SUB_QUAD	HISTORY	map_sub_quad		veg_data_set_version
MAP_SUB_QUAD	LAND_COVER_COMPONENTS	map_sub_quad		veg_data_set_version
MAP_SUB_QUAD	LAYER	map_sub_quad		veg_data_set_version
MAP_SUB_QUAD	LEADING_SPECIES	map_sub_quad		veg_data_set_version
MAP_SUB_QUAD	NON_TREE	map_sub_quad		veg_data_set_version
MAP_SUB_QUAD	NON_VEG	map_sub_quad		veg_data_set_version
MAP_SUB_QUAD	POLYGON	map_sub_quad		veg_data_set_version
MAP_SUB_QUAD	RESULTANT	map_sub_quad		veg_data_set_version
MAP_SUB_QUAD	SECONDARY_SPECIES	map_sub_quad		veg_data_set_version
MAP_SUB_QUAD	SPECIES	map_sub_quad		veg_data_set_version
MAP_SUB_QUAD	VERSION	map_sub_quad		veg_data_set_version
MEAN_QUADRATIC_DIAM_PRI_UTIL	LAYER	quad_diam_pri_util		tree_cover_layer
MEAN_QUADRATIC_DIAM_SEC_UTIL	LAYER	quad_diam_sec_util		tree_cover_layer
metadata_comment	Feature_Link	md_comment		veg_vegetation_cover_polygon
MODIFYING_PROCESS	POLYGON	modifying_process		veg_vegetation_cover_polygon
NET_VOL_PER_HA_PRI_UTIL	LAYER	n/a	not used	n/a
NET_VOL_PER_HA_PRI_UTIL	SPECIES	n/a	not used	n/a
NET_VOL_PER_HA_SEC_UTIL	LAYER	n/a	not used	n/a
NET_VOL_PER_HA_SEC_UTIL	SPECIES	n/a	not used	n/a
NON_FOREST_DESCRIPTOR	LAYER	non_forest_descriptor		tree_cover_layer
NON_PRODUCTIVE_CD	POLYGON	non_productive_cd		veg_vegetation_cover_polygon
NON_PRODUCTIVE_DESCRIPTOR	POLYGON	non_productive_descriptor_cd		veg_vegetation_cover_polygon
NON_TREE_CNT	POLYGON	n/a	not used	n/a
NON_TREE_ID	NON_TREE	veg_id		vegetative_cover
NON_VEG_COVER_PATTERN	NON_VEG	non_veg_cover_pattern		non_vegetative_cover
NON_VEG_COVER_PERCENT	NON_VEG	non_veg_cover_pct		non_vegetative_cover
NON_VEG_COVER_TYPE	NON_VEG	non_veg_cover_type		non_vegetative_cover
NON_VEG_ID	NON_VEG	non_veg_id		non_vegetative_cover
observation_date	Feature_Link	n/a	specific to VegCAP	n/a
OPENING_NUMBER	HISTORY	opening_number		veg_vegetation_cover_polygon
OPERABILITY_CD	RESULTANT	n/a	not used	n/a
ORG_UNIT_NO	HISTORY	org_unit_no		tree_cover_layer
ORG_UNIT_NO	LAYER	org_unit_no		tree_cover_layer
ORG_UNIT_NO	LEADING_SPECIES	org_unit_no		tree_cover_layer
ORG_UNIT_NO	SECONDARY_SPECIES	org_unit_no		tree_cover_layer
ORG_UNIT_NO	SPECIES	org_unit_no		tree_cover_layer
OTHER_PERCENT	LAND_COVER_COMPONENTS	est_coverage_pct		land_cover_component
OWNERSHIP_CD	RESULTANT	n/a	not used	n/a
OWNERSHIP_CHARACTER_CD	RESULTANT	n/a	not used	n/a
PERCENT1	LAND_COVER_COMPONENTS	est_coverage_pct		land_cover_component

Table A-1. Continued

VegCAP Field	VegCAP Table	SDE Oracle Attribute (Field)	Notes	SDE Oracle Sub-Type (Table)
PERCENT2	LAND_COVER_COMPONENTS	est_coverage_pct		land_cover_component
PERCENT3	LAND_COVER_COMPONENTS	est_coverage_pct		land_cover_component
PEST_SEVERITY_CD	HISTORY	pest_severity_code		resource_inventory_history
PLANNING_CELL	RESULTANT	n/a	not used	n/a
PLANTATION_SPECIES1	HISTORY	plantation_species1		resource_inventory_history
PLANTATION_SPECIES2	HISTORY	plantation_species2		resource_inventory_history
POLYGON_AREA	POLYGON	polygon_area		veg_vegetation_cover_polygon
POLYGON_ID	FEATURE_LINK_PHOTO CENTRE	polygon_id		tree_layer_history_link
POLYGON_ID	polygon_id			tree_layer_history_link
POLYGON_ID	feature_link_wing_point	polygon_id		tree_layer_history_link
POLYGON_ID	HISTORY	polygon_id		resource_inventory_history
POLYGON_ID	LAND_COVER_COMPONENTS	polygon_id		land_cover_component
POLYGON_ID	LAYER	polygon_id		tree_layer_history_link
POLYGON_ID	LEADING_SPECIES	polygon_id		tree_layer_history_link
POLYGON_ID	NON_TREE	polygon_id		tree_layer_history_link
POLYGON_ID	NON_VEG	polygon_id		tree_layer_history_link
POLYGON_ID	POLYGON	polygon_id		tree_layer_history_link
POLYGON_ID	RESULTANT	polygon_id		tree_layer_history_link
POLYGON_ID	SECONDARY_SPECIES	polygon_id		tree_layer_history_link
POLYGON_ID	SPECIES	polygon_id		tree_layer_history_link
PRI_UTIL_LEVEL_CD	POLYGON	pri_util_lvl_cd		veg_vegetation_cover_polygon
PROJECT	POLYGON	project		veg_vegetation_cover_polygon
PROJECTED_AGE	LEADING_SPECIES	proj_age		tree_species
PROJECTED_AGE	SECONDARY_SPECIES	proj_age		tree_species
PROJECTED_BASAL_AREA	LAYER	n/a	not used	n/a
PROJECTED_DATE	VERSION	projected_date		veg_data_set_version
PROJECTED_HEIGHT	LEADING_SPECIES	proj_height		tree_species
PROJECTED_HEIGHT	SECONDARY_SPECIES	proj_height		tree_species
PROJECTED_STOCKING_CLASS	LAYER	projected_stocking_class_cd		tree_cover_layer
PROJECTED_TYPE_ID	LAYER	proj_type_id		tree_cover_layer
PROVINCIAL_FOREST	RESULTANT	n/a	not used	n/a
PROVINCIAL_FOREST_SUB_CD	RESULTANT	n/a	not used	n/a
RANGE_COMMUNITY_TYPE_NO	RESULTANT	n/a	not used	n/a
RANGE_PASTURE	RESULTANT	n/a	not used	n/a
RANGE_TYPE_NO	RESULTANT	n/a	not used	n/a
RANGE_UNIT	RESULTANT	n/a	not used	n/a
REC_ACTIVITY_CD	RESULTANT	n/a	not used	n/a
REC_FEATURE_CD	RESULTANT	n/a	not used	n/a
REC_FEATURE_SIG	RESULTANT	n/a	not used	n/a
REC_MGMNT_CD	RESULTANT	n/a	not used	n/a
REC_MGMNT_CLASS_CD	RESULTANT	n/a	not used	n/a
REC_ROS	RESULTANT	n/a	not used	n/a
RECREATION_POLYGON_NO	RESULTANT	n/a	not used	n/a
REFERENCE_YEAR	LAYER	reference_date		tree_cover_layer
RESULT_AREA	RESULTANT	n/a	not used	n/a
RESULTANT_CNT	POLYGON	resultant_cnt		vegrpt_polylayer
RESULTANT_ID	RESULTANT	n/a	not used	n/a
retirement_date	Feature_Link	n/a	specific to VegCAP	n/a
revision_number	IODM_CONTROL	n/a	specific to VegCAP	n/a
ROAD_AREA	RESULTANT	n/a	not used	n/a
SEC_UTIL_LEVEL_CD	POLYGON	sec_util_lvl_cd		veg_vegetation_cover_polygon
SHRUB_COVER_PATTERN	NON_TREE	shrub_crown_pattern		vegetative_cover
SHRUB_CROWN_CLOSURE	NON_TREE	shrub_crown_closure		vegetative_cover
SHRUB_HEIGHT	NON_TREE	shrub_height		vegetative_cover
SILV_BASE	HISTORY	silv_base		resource_inventory_history
SILV_METHOD	HISTORY	silv_technique		resource_inventory_history
SILV_STEMS_PER_HECTARE	LAYER	n/a	not used	n/a
SILV_TECHNIQUE	HISTORY	silv_method		resource_inventory_history

Table A-1. Continued

VegCAP Field	VegCAP Table	SDE Oracle Attribute (Field)	Notes	SDE Oracle Sub-Type (Table)
SILV_WELL_SPACED_STEMS	LAYER	well_spaced_stems		vegrpt_polylayer
SITE_INDEX	LAYER	site_index		tree_cover_layer
SITE_POSITION_MESO	POLYGON	site_position_meso		veg_vegetation_cover_polygon
SLOPE	RESULTANT	n/a	not used	n/a
SOIL_MOIST1	LAND_COVER_COMPONENTS	soil_moisture_regime		land_cover_component
SOIL_MOIST2	LAND_COVER_COMPONENTS	soil_moisture_regime		land_cover_component
SOIL_MOIST3	LAND_COVER_COMPONENTS	soil_moisture_regime		land_cover_component
SOIL_NUTRIENT_REGIME	POLYGON	soil_nutrient_regime		veg_vegetation_cover_polygon
SOIL_UNIT	RESULTANT	n/a	not used	n/a
SPECIAL_CRUISE_NUMBER	RESULTANT	special_cruise_number		veg_vegetation_cover_polygon
SPECIAL_CRUISE_NUMBER_CODE	RESULTANT	special_cruise_number_cd		veg_vegetation_cover_polygon
SPECIES_CD	SPECIES	species_cd		tree_species
SPECIES_CD	SPECIES	species_cd_1		vegrpt_polylayer
SPECIES_CD	SPECIES	species_cd_2		vegrpt_polylayer
SPECIES_CD	SPECIES	species_cd_3		vegrpt_polylayer
SPECIES_CD	SPECIES	species_cd_4		vegrpt_polylayer
SPECIES_CD	SPECIES	species_cd_5		vegrpt_polylayer
SPECIES_CD	SPECIES	species_cd_6		vegrpt_polylayer
SPECIES_CNT	LAYER	n/a	not used	n/a
SPECIES_ID	LEADING_SPECIES	species_id		tree_species
SPECIES_ID	SECONDARY_SPECIES	species_id		tree_species
SPECIES_ID	SPECIES	species_id		tree_species
SPECIES_PERCENT	SPECIES	species_pct		tree_species
SPECIES_PERCENT	SPECIES	species_pct_1		vegrpt_polylayer
SPECIES_PERCENT	SPECIES	species_pct_2		vegrpt_polylayer
SPECIES_PERCENT	SPECIES	species_pct_3		vegrpt_polylayer
SPECIES_PERCENT	SPECIES	species_pct_4		vegrpt_polylayer
SPECIES_PERCENT	SPECIES	species_pct_5		vegrpt_polylayer
SPECIES_PERCENT	SPECIES	species_pct_6		vegrpt_polylayer
STOCK_RANGE	RESULTANT	n/a	not used	n/a
STOCKING_CLASS_CD	LAYER	stocking_class_cd		tree_cover_layer
STOCKING_CLASS_SOURCE_CD	LAYER	stocking_class_src_cd		tree_cover_layer
SUPPLIED_SITE_INDEX_SOURCE	LAYER	derived_site_index_cd		tree_cover_layer
SURFACE_EXPRESSION	POLYGON	surface_expression		veg_vegetation_cover_polygon
table_source	flt_union	n/a	specific to VegCAP	n/a
TREE_COVER_PATTERN	LAYER	tree_cover_pattern		tree_cover_layer
TSA_NUMBER	RESULTANT	n/a	not used	n/a
TSB_NUMBER	RESULTANT	n/a	not used	n/a
TYPE_IDENTITY_REFERENCE	LAYER	ref_year_type_id		tree_cover_layer
UPDATE_AGE_DATE	LEADING_SPECIES	update_age_date		tree_species
UPDATE_HEIGHT_DATE	LEADING_SPECIES	update_height_date		tree_species
update_timestamp	Feature_Link	update_timestamp		veg_age_class_code
update_userid	Feature_Link	n/a	specific to VegCAP	n/a
version_number	IODM_CONTROL	n/a	specific to VegCAP	n/a
VERTICAL_COMPLEXITY	LAYER	vertical_complexity		tree_cover_layer
VIF_GENERATION_DATE	VERSION	vif_generation_date		veg_data_set_version
VOL_PER_HA_PRI_UTIL_LVL	SPECIES	vol_per_ha_spp1_pri_util_lvl		vegrpt_polylayer
VOL_PER_HA_PRI_UTIL_LVL	SPECIES	vol_per_ha_spp2_pri_util_lvl		vegrpt_polylayer
VOL_PER_HA_PRI_UTIL_LVL	SPECIES	vol_per_ha_spp3_pri_util_lvl		vegrpt_polylayer
VOL_PER_HA_PRI_UTIL_LVL	SPECIES	vol_per_ha_spp4_pri_util_lvl		vegrpt_polylayer
VOL_PER_HA_PRI_UTIL_LVL	SPECIES	vol_per_ha_spp5_pri_util_lvl		vegrpt_polylayer
VOL_PER_HA_PRI_UTIL_LVL	SPECIES	vol_per_ha_spp6_pri_util_lvl		vegrpt_polylayer
VOL_PER_HA_PRI_UTIL_LVL	SPECIES	volume_per_ha		tree_species_volume
VOL_PER_HA_SEC_UTIL_LVL	SPECIES	vol_per_ha_spp1_sec_util_lvl		vegrpt_polylayer
VOL_PER_HA_SEC_UTIL_LVL	SPECIES	vol_per_ha_spp2_sec_util_lvl		vegrpt_polylayer
VOL_PER_HA_SEC_UTIL_LVL	SPECIES	vol_per_ha_spp3_sec_util_lvl		vegrpt_polylayer
VOL_PER_HA_SEC_UTIL_LVL	SPECIES	vol_per_ha_spp4_sec_util_lvl		vegrpt_polylayer
VOL_PER_HA_SEC_UTIL_LVL	SPECIES	vol_per_ha_spp5_sec_util_lvl		vegrpt_polylayer

Table A-1. Continued

VegCAP Field	VegCAP Table	SDE Oracle Attribute (Field)	Notes	SDE Oracle Sub-Type (Table)
VOL_PER_HA_SEC_UTIL_LVL	SPECIES	vol_per_ha_spp6_sec_util_lvl		vegrpt_polylayer
VOL_PER_HA_SEC_UTIL_LVL	SPECIES	volume_per_ha		tree_species_volume
VOLUME_ADJUSTMENT_FACTOR	LAYER	volume_adj_factor		tree_cover_layer
VRI_DEAD_STEMS_PER_HA	LAYER	vri_dead_stems_per_ha		tree_cover_layer
VRI_LIVE_STEMS_PER_HA	LAYER	vri_live_stems_per_ha		tree_cover_layer
WILDLIFE	RESULTANT	n/a	not used	n/a
WOODCOST	RESULTANT	n/a	not used	n/a
YEAR_OF_ESTABLISHMENT	LAYER	year_of_estab		tree_cover_layer
n/a	n/a	adj_age	no equivalent	tree_species
n/a	n/a	adjustment_area_id	no equivalent	veg_vegetation_cover_polygon
n/a	n/a	age_class_code	oracle reference table	veg_age_class_code
n/a	n/a	attribution_base_date	not used	veg_vegetation_cover_polygon
n/a	n/a	avail_label_height	no equivalent	veg_label
n/a	n/a	avail_label_width	no equivalent	veg_label
n/a	n/a	description	oracle reference table	veg_age_class_code
n/a	n/a	district_admin_unit	specific to oracle	veg_data_set_version
n/a	n/a	effective_date	oracle reference table	veg_age_class_code
n/a	n/a	expiry_date	oracle reference table	veg_age_class_code
n/a	n/a	feature_class_skey	specific to oracle	veg_vegetation_cover_polygon
n/a	n/a	full_label	no equivalent	veg_label
n/a	n/a	geometry	no equivalent	veg_label
n/a	n/a	label_centre_x	no equivalent	veg_label
n/a	n/a	label_centre_y	no equivalent	veg_label
n/a	n/a	label_height	no equivalent	veg_label
n/a	n/a	label_width	no equivalent	veg_label
n/a	n/a	line_1_opening_number	no equivalent	veg_label
n/a	n/a	line_1_opening_symbol_cd	no equivalent	veg_label
n/a	n/a	line_2_polygon_id	no equivalent	veg_label
n/a	n/a	line_3_tree_species	no equivalent	veg_label
n/a	n/a	line_4_classes_indexes	no equivalent	veg_label
n/a	n/a	line_5_vegetation_cover	no equivalent	veg_label
n/a	n/a	line_6_site_prep_history	no equivalent	veg_label
n/a	n/a	line_7_activity_hist_symbol	no equivalent	veg_label
n/a	n/a	line_7A_ stand_tending_history	no equivalent	veg_label
n/a	n/a	line_7B_disturbance_history	no equivalent	veg_label
n/a	n/a	line_8_planting_history	no equivalent	veg_label
n/a	n/a	mapstand	no equivalent	vegrpt_polylayer
n/a	n/a	md_capture_method_cd	no equivalent	veg_vegetation_cover_polygon
n/a	n/a	md_data_accuracy_cd	no equivalent	veg_vegetation_cover_polygon
n/a	n/a	md_data_source_code	no equivalent	veg_vegetation_cover_polygon
n/a	n/a	md_observation_date	no equivalent	veg_vegetation_cover_polygon
n/a	n/a	md_retirement_date	no equivalent	veg_vegetation_cover_polygon
n/a	n/a	norm_age	no equivalent	tree_species
n/a	n/a	norm_height	no equivalent	tree_species
n/a	n/a	object_version_skey	no equivalent	land_cover_component
n/a	n/a	objectid	no equivalent	veg_label
n/a	n/a	opening_ind	not used	veg_vegetation_cover_polygon
n/a	n/a	opening_source	not used	veg_vegetation_cover_polygon
n/a	n/a	printable	no equivalent	veg_label
n/a	n/a	process_date	no equivalent	veg_vegetation_cover_polygon
n/a	n/a	proj_adj_age	no equivalent	tree_species
n/a	n/a	proj_adj_height	no equivalent	tree_species
n/a	n/a	projected_to_date	no equivalent	veg_vegetation_cover_polygon
n/a	n/a	small_label	no equivalent	veg_label
n/a	n/a	species_volume_type_cd	metadata	tree_species_volume
n/a	n/a	tree_species_code	oracle reference table	veg_tree_species_code
n/a	n/a	vif_ver_hist_id	no equivalent	tree_layer_history_link
n/a	n/a	volume_min_dbh	derived	tree_species_volume

Appendix 2 Table B-1. ArcInfo Export Tables and Relationships to Oracle Tables

Fields are listed alphabetically

e00 Field	e00 Table(s)	SDE Oracle Attribute (Field)	Notes	SDE Oracle Sub-Type (Table)
access	REL	n/a	specific to e00	n/a
actv_end_date	HIS	activity_end_date		resource_inventory_history
actv_start_date	HIS	activity_start_date		resource_inventory_history
adj_alp_desg	PAT	adj_alpine_designation		veg_vegetation_cover_polygon
adj_area_id	PAT	adjustment_area_id		veg_vegetation_cover_polygon
adj_nts_map	HIS	adjoining_nts_map_num		resource_inventory_history
adj_soil_nutr_rg	PAT	adj_soil_nutrient_regime		veg_vegetation_cover_polygon
adj_ste_pos_meso	PAT	adj_site_position_meso		veg_vegetation_cover_polygon
adjoining_nts_ma	L1V to L4V, LSV, R1V	adjoining_nts_map_num		vegrpt_polylayer
age	L1V to L4V, LSV, R1V	age		tree_species
alp_desg	PAT	alpine_designation		veg_vegetation_cover_polygon
area	PAT	polygon_area		veg_vegetation_cover_polygon
asdbase#	REL	n/a	specific to e00	n/a
aslckid#	REL	n/a	specific to e00	n/a
attrib_base_date	PAT	attribution_base_date		veg_vegetation_cover_polygon
bclcs_4_ind	PAT	bclcs_level_4_ind		veg_vegetation_cover_polygon
bclcs_5_ind	PAT	bclcs_level_5_ind		veg_vegetation_cover_polygon
bclcs_lv_1	PAT	bclcs_level_1		veg_vegetation_cover_polygon
bclcs_lv_2	PAT	bclcs_level_2		veg_vegetation_cover_polygon
bclcs_lv_3	PAT	bclcs_level_3		veg_vegetation_cover_polygon
bclcs_lv_4	PAT	bclcs_level_4		veg_vegetation_cover_polygon
bclcs_lv_5	PAT	bclcs_level_5		veg_vegetation_cover_polygon
ci_cd	L1V to L4V, LSV, R1V	coast_interior_cd		veg_vegetation_cover_polygon
column	REL	n/a	specific to e00	n/a
comp_let	PAT	compartment_letter		veg_vegetation_cover_polygon
compartment	PAT	compartment		veg_vegetation_cover_polygon
crown_clos	L1V to L4V, LSV, R1V	crown_closure		tree_cover_layer
cst_int_cd	PAT	coast_interior_cd		veg_vegetation_cover_polygon
cst_int_src_cd	PAT	coast_interior_data_src_cd		veg_vegetation_cover_polygon
cul_mai_pri	L1V to L4V, LSV, R1V	culmination_mai_pri_lvl		tree_cover_layer
cul_mai_sec	L1V to L4V, LSV, R1V	culmination_mai_sec_lvl		tree_cover_layer
damage_agent_cd	HIS	damage_agent_code		resource_inventory_history
data_src_cd	L1V to L4V, LSV, R1V	interpreted_data_src_cd		tree_cover_layer
database	REL	n/a	specific to e00	n/a
date_of_photo	PAT	date_of_photography		veg_vegetation_cover_polygon
dbh_lim	L1V to L4V, LSV, R1V	dbh_limit		tree_cover_layer
dist_admin_unit	VER	district_admin_unit		veg_data_set_version
dist_pct	HIS	disturbance_pct		resource_inventory_history
drvd_si_src	L1V to L4V, LSV, R1V	derived_site_index_cd		tree_cover_layer
ecosys_class_cd	PAT	ecosys_class_data_src_cd		veg_vegetation_cover_polygon
estab_year	L1V to L4V, LSV, R1V	year_of_estab		tree_cover_layer
feature_id	L1V to L4V, LSV, R1V	feature_id		veg_vegetation_cover_polygon
feature_id	PAT	feature_id		veg_vegetation_cover_polygon
fiz_cd	PAT	fiz_cd		veg_vegetation_cover_polygon
height	L1V to L4V, LSV, R1V	height		tree_species

Table B-1. Continued

e00 Field	e00 Table(s)	SDE Oracle Attribute (Field)	Notes	SDE Oracle Sub-Type (Table)
hist_cl_s	L1V to L4V, LSV, R1V	hist_class_s_cd		tree_cover_layer
hist_cl_ss	L1V to L4V, LSV, R1V	hist_class_ss_cd		tree_cover_layer
histor_cnt	L1V to L4V, LSV, R1V	history_cnt		vegrpt_polylayer
input_date	L1V to L4V, LSV, R1V	input_date		veg_vegetation_cover_polygon
input_date	PAT	input_date		veg_vegetation_cover_polygon
interp_date	PAT	interpretation_date		veg_vegetation_cover_polygon
interpreter	PAT	interpreter		veg_vegetation_cover_polygon
inv_region	PAT	inventory_region		veg_vegetation_cover_polygon
inv_type	L1V to L4V, LSV, R1V	inventory_type_group_src_cd		tree_cover_layer
inv_typgrp	L1V to L4V, LSV, R1V	inventory_type_group_num		tree_cover_layer
item	REL	n/a	specific to e00	n/a
last_edit_date	VER	last_edit_date		veg_data_set_version
last_errck_date	VER	last_error_check_date		veg_data_set_version
last_errck_ver	VER	last_error_check_ver		veg_data_set_version
last_fipupd_date	VER	last_fipupdate_date		veg_data_set_version
last_fipupd_ver	VER	last_fipupdate_ver		veg_data_set_version
layer_cnt	L1V to L4V, LSV, R1V	layer_cnt		vegrpt_polylayer
layer_id	L1V to L4V, LSV, R1V	layer_id		tree_layer_history_link
map_id	HIS	map_id		resource_inventory_history
map_id	L1V to L4V, LSV, R1V	map_id		land_cover_component
map_id	PAT	map_id		tree_layer_history_link
map_id	NVEG	map_id		land_cover_component
map_id	VER	map_id		land_cover_component
map_quad	VER	map_quad		veg_data_set_version
map_sub_quad	VER	map_sub_quad		veg_data_set_version
mapstand	L1V to L4V, LSV, R1V	mapstand		vegrpt_polylayer
mapstand	HIS	mapstand		vegrpt_polylayer
mapstand	NVEG	mapstand		vegrpt_polylayer
mapstand	PAT	mapstand		vegrpt_polylayer
md_accur_cd	PAT	md_data_accuracy_cd		veg_vegetation_cover_polygon
md_comment	PAT	md_comment		veg_vegetation_cover_polygon
md_obs_date	PAT	md_observation_date		veg_vegetation_cover_polygon
md_retir_date	PAT	md_retirement_date		veg_vegetation_cover_polygon
md_src_cd	PAT	md_data_source_code		veg_vegetation_cover_polygon
mod_process	PAT	modifying_process		veg_vegetation_cover_polygon
nf_descr	L1V to L4V, LSV, R1V	non_forest_descriptor		tree_cover_layer
non_prod_desc	L1V to L4V, LSV, R1V	non_productive_descriptor_cd		veg_vegetation_cover_polygon
non_veg_cover_pa	NVEG	non_veg_cover_pattern		non_vegetative_cover
non_veg_cover_pc	NVEG	non_veg_cover_pct		non_vegetative_cover
non_veg_cover_ty	NVEG	non_veg_cover_type		non_vegetative_cover
non_veg_id	NVEG	non_veg_id		non_vegetative_cover
np_cd	L1V to L4V, LSV, R1V	non_productive_cd		veg_vegetation_cover_polygon
npd_cd	PAT	non_productive_cd		veg_vegetation_cover_polygon
npd_descrp	PAT	non_productive_descriptor_cd		veg_vegetation_cover_polygon
obj_ver_skey	HIS	object_version_skey		resource_inventory_history
obj_ver_skey	PAT	object_version_skey		tree_layer_history_link
obj_ver_skey	VER	object_version_skey		tree_layer_history_link
object_version_s	L1V to L4V, LSV, R1V	object_version_skey		land_cover_component
object_version_s	NVEG	object_version_skey		tree_layer_history_link
opening_ind	PAT	opening_ind		veg_vegetation_cover_polygon
opening_number	HIS	opening_number		resource_inventory_history

Table B-1. Continued

e00 Field	e00 Table(s)	SDE Oracle Attribute (Field)	Notes	SDE Oracle Sub-Type (Table)
opening_number	PAT	opening_number		veg_vegetation_cover_polygon
opening_source	PAT	opening_source		veg_vegetation_cover_polygon
perimeter	PAT	n/a	specific to e00	n/a
pest_sev_cd	HIS	pest_severity_code		resource_inventory_history
plant_sp1	HIS	plantation_species1		resource_inventory_history
plant_sp2	HIS	plantation_species2		resource_inventory_history
polygon_area	L1V to L4V, LSV, R1V	polygon_area		veg_vegetation_cover_polygon
polygon_id	HIS	polygon_id		resource_inventory_history
polygon_id	L1V to L4V, LSV, R1V	polygon_id		land_cover_component
polygon_id	NVEG	polygon_id		tree_layer_history_link
polygon_id	PAT	polygon_id		tree_layer_history_link
pri_util	L1V to L4V, LSV, R1V	pri_util_lvl_cd		veg_vegetation_cover_polygon
pri_utl_lv_cd	PAT	pri_util_lvl_cd		veg_vegetation_cover_polygon
prj_to_date	PAT	projected_to_date		veg_vegetation_cover_polygon
prjed_date	VER	projected_date		veg_data_set_version
processed_date	PAT	process_date		veg_vegetation_cover_polygon
proj_age	L1V to L4V, LSV, R1V	proj_age		tree_species
proj_ht	L1V to L4V, LSV, R1V	proj_height		tree_species
proj_stkcl	L1V to L4V, LSV, R1V	projected_stocking_class_cd		tree_cover_layer
proj_typid	L1V to L4V, LSV, R1V	proj_type_id		tree_cover_layer
project	PAT	project		veg_vegetation_cover_polygon
psyu	PAT	special_cruise_number		veg_vegetation_cover_polygon
psyu_cd	PAT	special_cruise_number_cd		veg_vegetation_cover_polygon
quad_dia_pri	L1V to L4V, LSV, R1V	quad_diam_pri_util		tree_cover_layer
quad_dia_sec	L1V to L4V, LSV, R1V	quad_diam_sec_util		tree_cover_layer
rank_cd	L1V to L4V, LSV, R1V	for_cover_rank_cd		tree_cover_layer
ref_date	L1V to L4V, LSV, R1V	reference_date		tree_cover_layer
relation	REL	n/a	specific to e00	n/a
result_cnt	L1V to L4V, LSV, R1V	resultant_cnt		vegrpt_polylayer
sec_util	L1V to L4V, LSV, R1V	sec_util_lvl_cd		veg_vegetation_cover_polygon
sec_utl_lv_cd	PAT	sec_util_lvl_cd		veg_vegetation_cover_polygon
si_estimat	L1V to L4V, LSV, R1V	est_site_index		tree_cover_layer
silv_base	HIS	silv_base		resource_inventory_history
silv_method	HIS	silv_method		resource_inventory_history
silv_technique	HIS	silv_technique		resource_inventory_history
site_index	L1V to L4V, LSV, R1V	site_index		tree_cover_layer
soil_nutrient_rg	PAT	soil_nutrient_regime		veg_vegetation_cover_polygon
spc_1	L1V to L4V, LSV, R1V	species_cd_1		vegrpt_polylayer
spc_2	L1V to L4V, LSV, R1V	species_cd_2		vegrpt_polylayer
spc_3	L1V to L4V, LSV, R1V	species_cd_3		vegrpt_polylayer
spc_4	L1V to L4V, LSV, R1V	species_cd_4		vegrpt_polylayer
spc_5	L1V to L4V, LSV, R1V	species_cd_5		vegrpt_polylayer
spc_6	L1V to L4V, LSV, R1V	species_cd_6		vegrpt_polylayer
spcpct_1	L1V to L4V, LSV, R1V	species_pct_1		vegrpt_polylayer
spcpct_2	L1V to L4V, LSV, R1V	species_pct_2		vegrpt_polylayer
spcpct_3	L1V to L4V, LSV, R1V	species_pct_3		vegrpt_polylayer
spcpct_4	L1V to L4V, LSV, R1V	species_pct_4		vegrpt_polylayer
spcpct_5	L1V to L4V, LSV, R1V	species_pct_5		vegrpt_polylayer
spcpct_6	L1V to L4V, LSV, R1V	species_pct_6		vegrpt_polylayer
ste_pos_meso	PAT	site_position_meso		veg_vegetation_cover_polygon
stems_ha	L1V to L4V, LSV, R1V	vri_live_stems_per_ha		tree_cover_layer

Table B-1. Continued

e00 Field	e00 Table(s)	SDE Oracle Attribute (Field)	Notes	SDE Oracle Sub-Type (Table)
stk_cl_src	L1V to L4V, LSV, R1V	stocking_class_src_cd		tree_cover_layer
stk_class	L1V to L4V, LSV, R1V	stocking_class_cd		tree_cover_layer
surf_exp	PAT	surface_expression		veg_vegetation_cover_polygon
table-id	REL	n/a	specific to e00	n/a
typ_id_ref	L1V to L4V, LSV, R1V	ref_year_type_id	see above	tree_cover_layer
type	REL	n/a	specific to e00	n/a
v_spc1dia1	L1V to L4V, LSV, R1V	vol_per_ha_spp1_pri_util_lvl		vegrpt_polylayer
v_spc1dia2	L1V to L4V, LSV, R1V	vol_per_ha_spp1_sec_util_lvl		vegrpt_polylayer
v_spc2dia1	L1V to L4V, LSV, R1V	vol_per_ha_spp2_pri_util_lvl		vegrpt_polylayer
v_spc2dia2	L1V to L4V, LSV, R1V	vol_per_ha_spp2_sec_util_lvl		vegrpt_polylayer
v_spc3dia1	L1V to L4V, LSV, R1V	vol_per_ha_spp3_pri_util_lvl		vegrpt_polylayer
v_spc3dia2	L1V to L4V, LSV, R1V	vol_per_ha_spp3_sec_util_lvl		vegrpt_polylayer
v_spc4dia1	L1V to L4V, LSV, R1V	vol_per_ha_spp4_pri_util_lvl		vegrpt_polylayer
v_spc4dia2	L1V to L4V, LSV, R1V	vol_per_ha_spp4_sec_util_lvl		vegrpt_polylayer
v_spc5dia1	L1V to L4V, LSV, R1V	vol_per_ha_spp5_pri_util_lvl		vegrpt_polylayer
v_spc5dia2	L1V to L4V, LSV, R1V	vol_per_ha_spp5_sec_util_lvl		vegrpt_polylayer
v_spc6dia1	L1V to L4V, LSV, R1V	vol_per_ha_spp6_pri_util_lvl		vegrpt_polylayer
v_spc6dia2	L1V to L4V, LSV, R1V	vol_per_ha_spp6_sec_util_lvl		vegrpt_polylayer
vif_gen_date	VER	vif_generation_date		veg_data_set_version
vif_ver_hist_id	HIS	vif_ver_hist_id		tree_layer_history_link
vol_adjust	L1V to L4V, LSV, R1V	volume_adj_factor		tree_cover_layer
vri_cd	PAT	inventory_standard_cd		veg_vegetation_cover_polygon
where	REL	n/a	specific to e00	n/a
ws_stems	L1V to L4V, LSV, R1V	well_spaced_stems		vegrpt_polylayer
n/a	n/a	adj_age	not exported	tree_species
n/a	n/a	adj_basal_area	not exported	tree_cover_layer
n/a	n/a	adj_dead_stem_ha	not exported	tree_cover_layer
n/a	n/a	adj_height	not exported	tree_species
n/a	n/a	adj_shrub_height	not exported	vegetative_cover
n/a	n/a	adj_vri_live_stem_ha	not exported	tree_cover_layer
n/a	n/a	age_class_code	oracle reference table	veg_age_class_code
n/a	n/a	avail_label_height	not exported	veg_label
n/a	n/a	avail_label_width	not exported	veg_label
n/a	n/a	basal_area	not exported	tree_cover_layer
n/a	n/a	bryoid_cover_pct	not exported	vegetative_cover
n/a	n/a	conf_index_age_cd	not exported	tree_species
n/a	n/a	conf_index_basal_area_cd	not exported	tree_cover_layer
n/a	n/a	conf_index_ht_cd	not exported	tree_species
n/a	n/a	data_source_age_cd	not exported	tree_species
n/a	n/a	data_source_basal_area_cd	not exported	tree_cover_layer
n/a	n/a	data_source_height_cd	not exported	tree_species
n/a	n/a	data_src_vri_live_stem_ha_cd	not exported	tree_cover_layer
n/a	n/a	description	not exported	veg_age_class_code
n/a	n/a	effective_date	not exported	veg_age_class_code
n/a	n/a	est_coverage_pct	not exported	land_cover_component
n/a	n/a	est_site_index_species_cd	not exported	tree_cover_layer
n/a	n/a	expiry_date	not exported	veg_age_class_code
n/a	n/a	feature_class_skey	specific to oracle	veg_vegetation_cover_polygon
n/a	n/a	full_label	specific to oracle	veg_label
n/a	n/a	geometry	specific to oracle	veg_label
n/a	n/a	herb_cover_pattern	not exported	vegetative_cover

Table B-1. Continued

e00 Field	e00 Table(s)	SDE Oracle Attribute (Field)	Notes	SDE Oracle Sub-Type (Table)
n/a	n/a	herb_cover_pct	not exported	vegetative_cover
n/a	n/a	herb_cover_type	not exported	vegetative_cover
n/a	n/a	label_centre_x	not exported	veg_label
n/a	n/a	label_centre_y	not exported	veg_label
n/a	n/a	label_height	not exported	veg_label
n/a	n/a	label_width	not exported	veg_label
n/a	n/a	land_cover_class_cd	not exported	land_cover_component
n/a	n/a	land_cover_id	not exported	land_cover_component
n/a	n/a	line_1_opening_number	not exported	veg_label
n/a	n/a	line_1_opening_symbol_cd	not exported	veg_label
n/a	n/a	line_2_polygon_id	not exported	veg_label
n/a	n/a	line_3_tree_species	not exported	veg_label
n/a	n/a	line_4_classes_indexes	not exported	veg_label
n/a	n/a	line_5_vegetation_cover	not exported	veg_label
n/a	n/a	line_6_site_prep_history	not exported	veg_label
n/a	n/a	line_7_activity_hist_symbol	not exported	veg_label
n/a	n/a	line_7A_ stand_tending_history	not exported	veg_label
n/a	n/a	line_7B_disturbance_history	not exported	veg_label
n/a	n/a	line_8_planting_history	not exported	veg_label
n/a	n/a	loss_type_cd	not exported	tree_cover_layer
n/a	n/a	md_capture_method_cd	not exported	veg_vegetation_cover_polygon
n/a	n/a	norm_age	not exported	tree_species
n/a	n/a	norm_height	not exported	tree_species
n/a	n/a	objectid	not exported	veg_label
n/a	n/a	org_unit_no	not exported	tree_cover_layer
n/a	n/a	printable	not exported	veg_label
n/a	n/a	proj_adj_age	not exported	tree_species
n/a	n/a	proj_adj_height	not exported	tree_species
n/a	n/a	shrub_cover_pattern	not exported	vegetative_cover
n/a	n/a	shrub_crown_closure	not exported	vegetative_cover
n/a	n/a	shrub_height	not exported	vegetative_cover
n/a	n/a	small_label	not exported	veg_label
n/a	n/a	soil_moisture_regime	not exported	land_cover_component
n/a	n/a	species_cd		tree_species
n/a	n/a	species_id	not exported	tree_species
n/a	n/a	species_pct		tree_species
n/a	n/a	species_volume_type_cd	not exported	tree_species_volume
n/a	n/a	tree_cover_pattern	not exported	tree_cover_layer
n/a	n/a	tree_species_code		veg_tree_species_code
n/a	n/a	update_age_date	not exported	tree_species
n/a	n/a	update_height_date	not exported	tree_species
n/a	n/a	update_timestamp	not exported	veg_age_class_code
n/a	n/a	veg_id	not exported	vegetative_cover
n/a	n/a	vertical_complexity	not exported	tree_cover_layer
n/a	n/a	volume_min_dbh	not exported	tree_species_volume
n/a	n/a	volume_per_ha	not exported	tree_species_volume
n/a	n/a	vri_dead_stems_per_ha	not exported	tree_cover_layer

Appendix 3

Table C-1. SDE Oracle Field Descriptions

Attribute names are listed alphabetically

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
Name of the attribute	*Another naming convention based on forestry term based on the FIP data model.*	*The descriptive details or meaning of the attribute.*	*The default value for the attribute field.*	*List the permitted values or accepted values for an attribute field.*
activity_end_date	Activity End Date	Latest year of silviculture activity.	blank	
activity_start_date	Activity Start Date	Earliest year of silviculture activity.	blank	
adj_age	Age Adjustment	Not currently used		
adj_alpine_designation	Alpine Designation Adjustment	Not currently used		
adj_basal_area	Basal Area Adjustment	Not currently used		
adj_dead_stem_ha	Dead Stem per Hectare Adjustment	Not currently used		
adj_height	Height Adjustment	Not currently used		
adj_shrub_height	Shrub Height Adjustment	Not currently used		
adj_site_position_meso	Site Position Meso Adjustment	Not currently used		
adj_soil_nutrient_regime	Soil Nutrient Regime Adjustment	Not currently used		
adj_vri_live_stem_ha	VRI Live Stem per Hectare Adjustment	Not currently used		
adjoining_nts_map_num	Adjoining NTS Map Number	Holds the adjoining or adjacent NTS or BCGS map number from which the history component was derived. Normally only used where data attributes are derived from the adjacent or adjoining map sheet.		
adjustment_area_id	Area Identity Adjustment	Not Currently Used		
age	Stand Age at Reference Year	Age is an average age, weighted by basal area, of the dominant, co dominant and high intermediate trees for the leading and second species of each tree layer identified. Stand age can be based on an estimate from aerial photographs.	0	1-999
age_class_code	Age Class at Reference Year	A code indicating the age class of the stand at the reference year. Age classes are intervals, or ranges, of ages into which trees, forests, stands, or forest types are divided into for classification and use.	must have value	0 stand age 0 1 stand age 1 to 20 years 2 stand age 21 to 40 years 3 stand age 41 to 60 years 4 stand age 61 to 80 years 5 stand age 81 to 100 years 6 stand age 101 to 120 years 7 stand age 121 to 140 years 8 stand age 141 to 250 years 9 stand age 251 + years
alpine_designation	Alpine Designation	Alpine designation pertains to one category of landscape position (the third level of the BC Land Cover Classification Scheme). It describes an interpretation as to whether the tree unit is above or below the tree elevation limit of continuous tree, or potential tree if cut-over, cover. Alpine designation contributes to the framework for delineation of ecosystems and habitat.		A = Alpine Alpine is land area above maximum elevation for tree species; dominated by shrubs, herbs, bryoids, lichens, rock, ice, snow. Maybe a few rare trees (<1% crown closure). N = not Alpine
attribution_base_date	Attribution Base Date			
avail_label_height	Available Label Height	Derived during the label generation process to calculate if the VRI label will fit within a polygon shape or be written on the map side.		
avail_label_width	Available Label Width	Derived during the label generation process to calculate if the VRI label will fit within a polygon shape or be written on the map side.		
basal_area	Basal Area at Reference Year	Basal area is the total cross sectional area, at breast height, of all living trees visible to the photo interpreter in the dominant, co dominant and high intermediate crown positions for each tree layer in the polygon.	0.0	

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
bclcs_level_1	British Columbia Land Cover Classification Scheme Level 1	The first level of the BC land cover classification scheme classifies the presence or absence of vegetation within the boundaries of the polygon. Presence or absence is recognized by the vertical projection of vegetation upon the land base within the polygon.		See List of BCLCS and LCC Codes in Table D-4
bclcs_level_2	British Columbia Land Cover Classification Scheme Level 2	The second level of the BC land cover classification scheme classifies the polygon as to the land cover type: treed or non-treed for vegetated polygons; land or water for non-vegetated polygons.		See List of BCLCS and LCC Codes in Table D-4
bclcs_level_3	British Columbia Land Cover Classification Scheme Level 3	The location of the polygon relative to elevation and drainage, and is described as either alpine, wetland or upland. In rare cases, the polygon may be alpine wetland.		See List of BCLCS and LCC Codes in Table D-4
bclcs_level_4	British Columbia Land Cover Classification Scheme Level 4	Classifies the vegetation types and non-vegetated cover types (as described by the presence of distinct features upon the land base within the polygon).		See List of BCLCS and LCC Codes in Table D-4
bclcs_level_4_ind		Not Currently Used		
bclcs_level_5	British Columbia Land Cover Classification Scheme Level 5	Classifies the vegetation density classes and Non-Vegetated categories.		See List of BCLCS and LCC Codes in Table D-4
bclcs_level_5_ind		Not Currently Used		
bryoid_cover_pct	Bryoid Cover Percentage	The percent cover of Bryoids: includes bryophytes (mosses, liverworts, hornworts) and non-crustose lichens.		Integer: 1 to 100
coast_interior_cd	Coast Interior Code	A code indicating that the stand is located in the Coast or Interior Region of the Province. The coast region is defined as the mainland west of the Cascade and Coast Mountains, including the off-shore islands. Forest Inventory Zones (FIZ) A to C are included in the Coast region. The Interior Region is defined as the mainland east of the Cascade and Coast Mountains. Forest Inventory Zones (FIZ) D to L are included in the Interior Region.	must have value	I Interior (FIZ D, E, F, G, H, I, J, K, L) C Coast (FIZ A, B, C)
coast_interior_data_src_cd	Coast Interior Data Source Code	The source of the assigned Coast Interior Code for the polygon.		
compartment	Inventory Compartment	Inventory Compartments are a geographic subdivision of an Inventory Region, usually defining a watershed or part thereof. Inventory Compartment is also part of the reference key for identifying the geographic location of all Inventory Branch samples.	999	0 = Salt Water Integers between 1 and 206 999 = Areas outside the Province.
compartment_letter	Inventory Compartment Letter	The Compartment Letter(s) that fall within the forest cover polygon. Compartment Letter is a geographic subdivision of an Inventory Compartment. It is also part of the reference key for identifying the geographic location of all Inventory Branch samples.	blank	<blank> = No compartment A, B, etc.
conf_index_age_cd	Confidence Index Age Code	A subjective value that reflects confidence of the photo interpreter in the estimation of age for each layer.		1-9
conf_index_basal_area_cd	Confidence Index Basal Area Code	Confidence indices are a subjective value that reflect confidence of the photo interpreter in the estimation of basal area for each layer.		1-9
conf_index_ht_cd	Confidence Index Height Code	The subjective value that reflects confidence of the photo interpreter in the estimation of height for each layer.		1-9
crown_closure	Crown Closure	Tree crown closure is the percentage of ground area covered by the vertically projected crowns of the tree cover for each tree layer within the polygon and provides an essential estimate of the vertical projection of tree crowns upon the ground.	0	0 to 100
culmination_mai_pri_lvl	Culmination Mean Annual Increment - Primary Utilization	The maximum annual increment in stand volume at the primary utilization level. Culmination MAI is determined net decay only and only for TYPID's 1, 2, 3, 4, 5 and 9.	0.0	
culmination_mai_sec_lvl	Culmination Mean Annual Increment - Secondary Utilization	The maximum annual increment in stand volume at the secondary utilization level. Culmination MAI is determined net decay only and only for TYPID's 1, 2, 3, 4, 5 and 9.	0.0	

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
damage_agent_code		VRI codified damage agents. These are similar to the Insect Or Disease Disturbance Code from Forest Cover (see Oracle field name silv_method).		See List of Damage Agent Codes in Table D-9
data_source_age_cd	Data Source Age Code	The source of data used for the interpretation of age and the derivation of the year of origin.	must have value	See List of Data Sources Codes in Table D-3
data_source_basal_area_cd	Data Source Basal Area Code	The source of data used for the interpretation of the basal area.	must have value	See List of Data Sources Codes in Table D-3
data_source_height_cd	Data Source Height Code	The source of data used for the interpretation height.	must have value	See List of Data Sources Codes in Table D-3
data_src_vri_live_stem_ha_cd	Data Source VRI Live Stem per Hectare Code	The source of the data that was used for the interpretation of the VRI live stems per hectare, or stand density.		See List of Data Sources Codes in Table D-3
date_of_photography	Date of Photography	The date the photo from which data was interpreted was taken.		
dbh_limit	Diameter Breast Height Limit	A code indicating the minimum diameter breast height (DBH) for measuring trees (i.e. stems) in the field sample.	0	1. <= 0.0 cm DBH 2. >= 0.0 cm but < 7.5 cm DBH 3. >= 7.5 cm DBH 4. >= 12.5 cm DBH 5. >= 17.5 cm DBH 6. >= 22.5 cm DBH 7. >= 27.5 cm DBH
derived_site_index_cd	Derived Site Index Code	This site index is the average site index of the leading top-height trees (those used for average BH age and Average top height). The site index of each candidate tree is calculated and then averaged excluding those without both height and age.		1 to 56 (coast) 1 to 46 (interior)
description	Description			
district_admin_unit	District Administration Unit			
disturbance_pct	Disturbance Percent	Degree of disturbance based on percent gross volume lost through disturbance. Applies to all disturbances except clear cut logging.	blank	1 to 100, inclusive
ecosys_class_data_src_cd	Ecosystem Class Data Source Code	The source of the data used in the interpretation of the ecological attributes (Surface expression, modifying process, site position meso, alpine designation, and soil nutrient regime) that describe the polygon.		See List of Data Sources Codes in Table D-3
effective_date	Effective Date			
est_coverage_pct	Estimated Coverage Percentage	The estimation of the percentage coverage of a polygon occupied by each Land Cover Component. Generally, sizes under 10% will not be estimated		0 to 100 percent
est_site_index	Estimated Site Index	The mean height that the dominant and co-dominant trees are estimated to attain at a base index of 50 years. This is used for the purpose of estimating forest site growth capability. The site index is based on a normalized set of coefficients, calibrated to reflect the range of heights for a given tree species. Site index is estimated where stand growing conditions are masked by external agents or by a large variability of heights and ages (typically young or disturbed stands). Estimated site index is an estimate of site productivity for tree growth (height in metres at breast height age of 50 years).		1 to 56 (coast) 1 to 46 (interior)
est_site_index_species_cd	Estimated Site Index Species Code	Estimated site index species is the tree species from which the site index for the polygon has been estimated. The site index species provides a link between the estimated site index and a particular tree species' productivity at that site.		See List of Species Codes in Table D-1
expiry_date	Expiry Date			
feature_class_skey	Feature Class Skey			
feature_id	Feature Identity			
fiz_cd	Forest Inventory Zone	The Forest Inventory Zone(s) (FIZ) that fall within the forest cover polygon and provide a broadly based ecological classification of the forestland.	must have value	A to L

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
for_cover_rank_cd	Forest Cover Rank Code - Rank or Importance of Layer	A numeric designation of the relative importance of the layer component in the stand, as determined by the business area. For vegetation cover - originated data, this value is assigned via a business rule. The rule is based on the supplied order of the layer records, as recorded by the interpreter. For FIP originated data, this value is known as the Rank CD, and is explicitly supplied by the interpreter, based on regional guidelines at the time of interpretation. Rank is used to determine the layer of tree volumes that will be calculated by VDYP. VDYP is the current yield prediction model used in production. A code indicating the importance of each layer in the stand.	blank	1 = Rank 1, most important layer 2 = Rank 2, second most important layer 3 = Rank 3, third most important layer
full_label	Full Label			
geometry	Geometry			
height	Stand Height at Reference Year	The average height, weighed by basal area, of the dominant, co-dominant, and high intermediate trees for the leading and second species of each tree layer identified. Note: Dominant trees have well developed crowns that extend above the general level of the trees around them. Co dominant trees have crowns forming the general level of trees around them. High intermediate trees have small crowns slightly below but extending into the general level of trees around them.	0.0 m	0.1 to 90 m (coast 0.1 to 63 m (interior) Individually limited by species
herb_cover_pattern	Herb Cover Pattern	Herb cover pattern is a code that describes the spatial distribution of the herbaceous species within the polygon. Herb cover pattern is used to describe the herb layer spatial distribution. Examples include clumps of herbaceous species on rock outcrops, scattered patches or individual herbs or solid, continuous herbaceous cover.		See List of Cover Patterns in Table 6.5
herb_cover_pct	Herb Cover Percentage	Herb cover percent is the percentage of ground area covered by herbaceous cover visible to the photo interpreter. Herb cover percent is analogous to tree and shrub crown closures and is expressed as a percentage of the entire polygon.		Integer: 1 to 100
herb_cover_type	Herb Cover Type	This set of attributes describes the portion of herb cover that is no obscured by the vertical projection of the crowns of either trees or shrubs. Herbs are defined as non-woody (vascular) plants, including graminoids (sedges, rushes, grasses), forbs (ferns, club mosses, and horsetails) and some low, woody species and intermediate life forms.		HE = Herb HF = Herb - Fords HG =Herb - Graminoids See List of BCLCS and LCC Codes in Table 6.7
hist_class_s_cd	Historical Site Class	A code for the site class (e.g. stand productivity) at the time of classification.	blank	<blank> = No site class G = Good Site M = Medium Site P = Poor Site L = Low Site
hist_class_ss_cd	Historical Special Site Class Code	A code indicating that the old site class of the stand, based on stand age and height, does not reflect the productive capacity of the land due to masking by external agents or to a high degree of variability between heights and ages.	blank	<blank> G = Good Site M = Medium Site P = Poor Site L = Low Site
history_cnt	History Count	The number of HISTORY records that are stored in the FIP file for the particular polygon being described. Indicates that events in the stand's history have been recorded.		0 to 99
input_date	Input Date	The date the forest cover information was entered into the Provincial Data Base.		
interpretation_date	Interpretation Date	The date on which the polygon estimates were photo interpreted.		
interpreted_data_src_cd	Interpreted Data Source Code	A code describing the origin of the information that contributed to the determination of the VRI attributes. The source of the data that contributed to the determination of the classification description as per the specifications of the Photo Interpretation Procedures, Vegetation Inventory.		See List of Data Sources Codes in Table 6.6

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
interpreter	Interpreter	The name of the person who provided the estimates for the data associated with each polygon.		
inventory_region	Inventory Region	Inventory Regions are an administrative and planning level boundary used to subdivide the Province into 88 units. Inventory Region is also part of the reference key for identifying the geographic location of all Inventory Branch samples.	99	0 = Salt Water 1 to 88 = Valid Inventory Regions 99 = Areas outside the Province
inventory_standard_cd	Inventory Standard Code	Code indicating under which inventory standard the data was collected.		V = VRI F = FIP I = INCOSADA rollover (i.e. Incomplete VRI)
inventory_type_group_num	Inventory Type Group	The designation of species composition by one of 42 type groups, each being a unique combination of pure or mixed species.	0	See List of Inventory Type Groups in Table 6.8
inventory_type_group_src_cd	Inventory Type Group Source Code	The data source of the value of the Inventory Type Group (a grouping of the leading species and their relative composition percent).		
label_centre_x	Label Centre X	The x co-ordinate of the suggested centre of the label.		
label_centre_y	Label Centre Y	The y co-ordinate of the suggested centre of the label.		
label_height	Label Height	The height of the full label for a 1:15,000 map presentation in meters. It is calculated as 30 times the number of lines in the full label.		
label_width	Label Width	The width of the full label for a 1:15,000 map presentation in meters. It is calculated as 18 times the number of characters in the longest line.		
land_cover_class_cd	Land Cover Class Code	The codes for the Land Cover Classification land cover types within the polygon that contribute to the overall polygon description, but are too small to be delineated using current guidelines, may be described by land cover components. The sub-division of a polygon by a quantified Land Cover Component, allowing non- spatial resolution for modeling of wildlife habitat capability.		See List of BCLCS and LCC codes in Table 6.7
land_cover_id	Land Cover Identity	The number of a specific instance of a land cover component as attached to a polygon record. This can be from 1 to 4		
last_edit_date	Last Edit Date	Last date that the FIP file was modified using the data entry processing system.		Format = 1991123110 1991 representing year 12 representing month 01 representing day 10 representing hour
last_error_check_date	Last Error Check Date	The last most date the file was validated using external (to the Vegetative Cover database) application software. Indicates that the file has been checked for validity and gives the date the Validity Check took place.		Format = 1991123110 1991 representing year 12 representing month 01 representing day 10 representing hour
last_error_check_ver	Last Error Check Version	Identifies the version of the error checking (validation) software used for validating FIP attributes as an aid to change management for the database and related applications.		Position = Meaning 58-59 = Release number 60 = (period) 61-63 = Release version 61-62 = numeric 63 = alpha
last_fipupdate_date	Last FIP Update Date	The date the source file was updated for derivation of the tree volumes and their projection, i.e. the 'completion' processes. The date is updated by the local application.		
last_fipupdate_ver	Last FIP Update Version	The version identifier of the Variable Density Yield Prediction (VDYP) used to calculate tree volumes and their projections.		Position = Meaning 42-43 = Release number 44 = (period) 45-47 = Release version
layer_cnt	Layer Count	The number of LAYER records (each layer in the stand is described in a separate record) for the particular polygon being described.		

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
layer_id	Layer Identity	The unique business identification of a layer, or horizontal stratum, in a stand. Each layer is normally characterized as a distinct canopy containing a common forest cover structure with timer of similar ages (at least 40 years between layers) and heights (at least 10 meters between layers). Layers are assigned from the tallest layer downward.		0 to 9, S, V* (* F stadard only)
line_1_opening_number		Indicates combination of layers and tree class to be summarized for volume.		
line_1_opening_symbol_cd		The opening symbol code is represented as on of the following characters: 'x', '|', or '~'. If the opening number is null, line 1 is not populated, so there is no opening symbol. If the adjoining NTS map number is in the form "num num num char num / char", it is an NTS number, the corresponding opening symbol is a hexagon with an 'N' in it,, and is represented here by '~'. If the adjoining NTS map number is in the form "num num num char num num num", it is a BCGS number, the corresponding opening symbol is a hexagon with an 'X' in it, and is represented here by '|'. Otherwise the opening symbol is an empty hexagon, and is represented here by 'x'.		
line_2_polygon_id		The polygon ID for which this is the label. This is followed by /L (a multi-layered stand) or /S (a separate silviculture description is available in the data base.		
line_3_tree_species		A list of major species (minor species), ordered by percentage.		See Table D-1
line_4_classes_indexes		Line 4 is made up of 4 numerical characters followed by a hyphen, the site index, a slash, and the estimated site index. The four numerical characters represent age class, height class, stocking class, and crown closure class in that order.		
line_5_vegetation_cover		The non-productive descriptor (npd) or a list of what covers the ground ordered from most to least common. Possible values in the list are sh (shrub), he (herb), by (bryoid), or ri (non-vegetative cover).		
line_6_site_prep_history		The site preparation history represented by a list of abbreviations for the techniques used, followed by the years each technique was used.		B = broadcast burn C = chemical G = grass seeded H = hand preparation M = mechanical MS = mechanical and spot burn RB = range management burn S = spot burn W = windrow
line_7_activity_hist_symbol		A symbol representing what techniques were used in the labeled area. The symbol is a circle with 1 to 4 radius lines. Each line represents a technique applied to the labeled area.		
line_7A_ stand_tending_ history				
line_7B_disturbance_history		The disturbance history described as a list of abbreviations for the techniques along with the years each technique was employed.		B = wildfire BE = escaped burn BG = ground burn BR = range burn BW = wildlife burn D = disease F = flooding I = insect K = fume kill L = logging L% = logged with percentage R = site rehabilitation S = slide W = wind throw.

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
line_8_planting_history		The planting (or regeneration) history described as a list of years during which artificial plantings was performed.		
loss_type_cd	Loss Type Code	Refers to the path indicator (conks, frost cracks). This field is intended to hold a code indicating the method use to determine volume reductions.		N = Net Volume Adjustment Factor (NVAF) L = Loss Indicators.
map_id	Forest Cover Map Number	Identifies the Forest Cover Map corresponding to the FIP file. It is the British Columbia Geographic System's (BCGS) Key Reference Number of the Forest Cover Map. The map sheet most commonly used is the 6' X 12' BCGS map sheet.	must have value	Position 2 - 4 = Map sheet Grid NTS or BCGS. Values = 82, 83, 92, 93, 94, 102, 103, 104, or 114. Position 5 = Map sheet Letter BCGS/NTS letter. Values = A - P, and W. Position 6 - 8 = Map sheet Square BCGS Number or NTS Number and letter. BCGS number values = 1-100, NTS number values = 1-16 NTS letter values =A-H , and W. Position 9 = Map sheet Quad an identifier for 3' x 6' (1: 10,000 scale) map sheets. e.g.. 082G002 - 6' x 12' minute map sheet
map_quad	Map Quad	A 3' by 6' quarter portion of a 6' by 12' (nominally 1: 20000) map sheet. Numbered from left to right bottom to top.		
map_sub_quad	Map Sub Quad	A 1.5' by 3' quarter portion of a 3' by 6' (nominally 1: 10000) map sheet. Numbered from left to right bottom to top row, nominally 1:5000 scale.		
mapstand	Mapstand			
md_capture_method_cd				
md_comment				
md_data_accuracy_cd				
md_data_source_code				
md_observation_date				
md_retirement_date				
modifying_process	Modifying Process	A natural mechanism of weathering, erosion and soil material deposition that result in the modification of surficial materials and landforms. Used for terrain classification, site classification, soil condition and identification of potential hazards such as avalanches, slope instability and flooding.		A = Avalanching B = River Channeling F = Mass Movements N = None U = Flooding V = Gully Erosion
non_forest_cd	Non-Forest Descriptor Basic Class ID	A unique numeric code that references the classes or type of non-forest area		5 NC = Non-Commercial 5 NCBR = Non-commercial brush 4 or 9 NSR = Not sufficiently restocked 8 NTA = No typing available
non_forest_descriptor_cd	Non Forest Descriptor	A classification code indicating that the forest cover type is not currently forested, but is capable of supporting commercial forests.		5 NC = Non-Commercial 5 NCBR = Non-commercial brush 4 or 9 NSR = Not sufficiently restocked 8 NTA = No typing available

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
non_productive_cd	Non Productive Descriptor Basic Class ID	A unique numeric code that references the classes or type of non-productive areas.		01 ICE = Ice field 02 A = Alpine 03 R = Rock 06 GR = Gravel Pit 07 SAND = Sand 09 CL =Clay Bank 10 AF = Alpine Forest (with species etc.) 11 NPBR = Non-Productive Brush 12 NP = Non-Productive 12 NP = Non-Productive Forest (with species etc.) 13 NPBU = Non-Productive Burn 15 L = Lake 16 TIDE = Tidal Flat 18 G = Gravel Bar 25 RIV = River 26 MUD = Mud Flat 35 S = (for input) Swamp (completed file) 42 C = Clearing 50 U = Roads 54 U = Urban 60 P = Hayfield 62 M = Meadow 63 OR = Open Range 64 NA = Salt water
non_productive_descriptor_cd	Non Productive Descriptor Code	Land that is incapable of supporting commercial forests. This relates directly to the FIP attribute, non productive descriptor and is also utilized for the determination of the BC Land Cover Classification. This is a FIP classification based attribute only, and is retained for the purposes of business transition from FIP to VRI. Based on the current growth projection. A classification code describing land, water or wetland that is incapable of supporting commercial forests. A classification code describing land, water or wetland that is incapable of supporting commercial forests model, 'VDYP', requires this attribute as a key input variable, and will continue to be utilized for vegetative cover until phased out. There is no expectation that this attribute would be updated or created under vegetation inventory classification practice.		A = Alpine AF = Alpine Forest (with Species etc.) C = Clearing CL = Clay Bank G = Gravel Bar GR = Gravel Pit ICE = Ice field L = Lake M = Meadow MUD = Mud Flat NA = Non-Applicable (salt water) NP = Non-Productive NP = Non-Productive Forest (with species etc.) NPBR = Non-Productive Brush NPBU = Non-Productive Burn OR = Open Range P = Hayfield R = Rock RIV = River S = Swamp (muskeg) SAND = Sand TIDE = Tidal Flat U = Roads U = Urban
non_veg_cover_pattern	Non Vegetation Cover Pattern	Number of the visual pattern chart that best represents the spatial distribution and prevalence of non- vegetative cover.		See List of Cover Patterns in Table 6.5
non_veg_cover_pct	Non Vegetation Cover Percentage	Area of a polygon that the non-vegetated portion covers, expressed as a percentage.		001 to 100 Non-Vegetated Cover Percent is entered as "004" for 4%.

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
non_veg_cover_type	Non Vegetation Cover Type	Designated type for all of the observable non-vegetated land cover within a polygon.		See List of BCLCS and LCC Codes in Table 6.7
non_veg_id	Non Vegetation Identity	The number of a specific instance of a non-vegetative record as attached to a polygon record.		1-99
norm_age	Normal Age			
norm_height	Normal Height			
object_version_skey	Object Version Skey			
objectid	Object Identity			
opening_ind				
opening_number	Opening Number	A unique number assigned to each opening in the forest caused by a disturbance (e.g. fire, logging, etc.)		Numeric value 0 to 9999
opening_source	Opening Source			
org_unit_no	Organization Unit Number	Number from Org Unit code table representing the organization that collected the data.		See Table of Organization Unit Numbers in Appendix
pest_severity_code	Degree of Insect or Disease Infestation.	The degree of disturbance is he proportion of the crown canopy removed or killed expressed as a percentage.		
plantation_species1	Plantation Species 1	Leading plantation species		
plantation_species2	Plantation Species 2	Second leading plantation species		
polygon_area	Forest Polygon Area	The area of a polygon; usually derived from geographic information system processing.	must have value	
polygon_id	Forest Cover Polygon Number	Unit adjustment project version. The polygon number is a unique number assigned to each Vegetated or Non-Vegetated polygon after it is delineated. The polygon number provides the link between the graphic and descriptive files.	must have value	Between 1 and 2999
pri_util_lvl_cd	Primary Utilization Level Code	The utilization level defines the stump height and top diameter, inside bark, between which the volume of individual trees are determined.		04 = 12.5 cm + inside bark diameter at 30 cm stump height to a 10 cm inside bark top diameter. Primary utilization level for Interior stands. 08 = 17.5 cm + inside bark diameter at 30 cm stump height to a 10 cm inside bark top diameter. Primary utilization level for Coast stands.
printable	Printable	"Y" means print the label. "N" means do not print the label.		
process_date	Process Date			
proj_adj_age	Projected Adjustment Age			
proj_adj_height	Projected Adjustment Height			
proj_age	Projected Age	Age is an average age, weighed by basal area, of the dominant, co dominant and high intermediate trees for the leading and second species of each tree layer identified. Stand age can be based on an estimate from aerial photographs. Note: Dominant trees have well developed crowns that extend above the general level of the trees around them. Co dominant trees have crowns forming the general level of trees around them. High intermediate trees have smaller crowns slightly below but extending into the general level of trees around them. The age of the layer at the year of projection.	0 years	

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
proj_height	Projected Height	The average height, weighed by basal area, of the dominant, co-dominant, and high intermediate trees for the leading and second species of each tree layer identified. Note: Dominant trees have well developed crowns that extend above the general level of the trees around them. Co dominant trees have crowns forming the general level of trees around them. High intermediate trees have small crowns slightly below but extending into the general level of trees around them. The height of the layer at the year of projection.	0.0 m	The Projected Height is determined by applying the Projected Age to various site index functions for the leading commercial species: - an ecologically based site index is used (e.g. mid- point of site class) for young stands (i.e. Projected Age less than 30 years). -site index functions are used to determine Projected Height for older stands (i.e. Projected Age greater than, or equal to, 30 years).
proj_type_id	Projected Type Identity	The classification of the layer's vegetation cover at the year of projection. The classification reflects the absence or value / importance / status of the vegetation cover with respect to forestry values.		1 = Immature (always stocking class 0) 2 = Mature (stocking classes 1,2,3,4) 3 = Immature Residual (stocking class R) 4 = NSR (Not Sufficiently Restocked) 5 = NC (Non-Commercial) 6 = Non-Productive (includes all NP) 7 =. (There is no Projected Type Identity 7) 8 = NTA (No Typing Available) 9 = Silviculture NSR
project	Project	The business assigned name of the project. The name typically reflects a Timber Supply Area, an initiating Agency, or a land area.		
projected_date	Projected Date	The date to which time dependent stand information is projected. Used to determine the date to which time dependent variables in the stand have been projected. All maps within a project area should be projected to the same date.		
projected_stocking_class_cd	Projected Stocking Class Code	A code describing the stocking class of the layer at the year of projection.		R = Residual 0 = Immature Stands 1 = Stocking Class 1 2 = Stocking Class 2 3 = Stocking Class 3 4 = Stocking Class 4
projected_to_date	Projected to Date	Date to which the inventory has been projected		
quad_diam_pri_util	Quadratic (Mean) Diameter Primary Utilization	The quadratic mean stand diameter (breast height), at the projection date, based on the primary utilization level.	0.0 cm	
quad_diam_sec_util	Quadratic (Mean) Diameter Secondary Utilization	The quadratic mean stand diameter (breast height), at the projection date, based on the secondary utilization level.	0.0 cm	
ref_year_type_id	Reference Year Type Identity			
reference_date	Reference Date	The year of the photo or source survey that was used to generate the attribute.	must have value	1953 to present year.
resultant_cnt	Resultant Count	The number of RESULTANT records (each resultant polygon in the stand is recorded as a separate record) that are stored in the FIP file for the particular polygon being described.		0 to 999
sec_util_lvl_cd	Secondary Utilization Level Code			

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
shrub_cover_pattern	Shrub Cover Pattern	Shrub cover pattern is a code that describes the spatial distribution of the shrubs within the polygon. Shrub cover pattern is used to describe the shrub layer spatial distribution. Examples include clumps of shrubs on rocky patches or individual shrubs or solid, continuous shrub cover. Attribute sometimes erroneously listed as "shrub_crown_pattern."		See List of Cover Patterns in Table D-2
shrub_crown_closure	Shrub Crown Closure	Shrub crown closure is the percentage of ground area covered by the vertically projected crowns of the shrub cover visible to the photo interpreter. Shrub crown closure is expressed as a percentage of the entire polygon.		1 to 100
shrub_height	Shrub Height	The average height of the shrubs contained in the polygon as interpreted from medium scale photography.		
silv_base	History Attribute Codes	To what the history is attributed.		DI = disturbance PL = plantation SI = site preparation ST = stand tending
silv_method	Insect Or Disease Disturbance Code	Codified disturbance vectors, including insects, disease, animals and environmental events.		See List of Activity Sub-codes in Table D-8
silv_technique	History Activity Code	Codified types of disturbance, plantation, site preparation and stand tending.		See List of Activity Codes in Table D-7
site_index	Site Index	Estimated site index is an estimate of site productivity for tree growth (height in metres at breast height age of 50 years). The estimated site index provides an estimate of the site productivity for tree species growth.		1 to 56 (coast) 1 to 46 (interior) Individually limited by species
site_position_meso	Site Position Meso	A code denoting the relative position of the sampling site within a catchments area with the intent to be consistent within the scale of topography affecting surface water flow. The vertical difference is usually between 3 and 300 m, and the surface area generally exceeds 0.5 has in size. Also known as slope position, and meso site position. Definition Source; "Describing Ecosystems in the Field", MOE Manual 11, Province of B.C. 1990, p. 31. Site position meso is the relative position of the polygon within a catchments area which often falls within one of the major slope segments of site position macro.		C = Crest D = Depression F = Flat (Level) L = Lower slope M = Middle slope T = Toe U = Upper slope
small_label	Small Label	The two-line (or format 3) version of the label. This label contains, at most, 2 lines build from the line 1 and 2 attributes. A back slash represents a carriage return.		
soil_moisture_regime	Soil Moisture Regime	A class-based code approximating the average amount of soil water available annually for evapotranspiration by vascular plants, averaged over many years. Soil moisture Regime is an interpretive attribute for estimation of site potential and site series classification. The value is between 0 and 8 or blank.		0 = very xeric 1 = xeric 2 = subxeric 3 = submesic 4 = mesic 5 = subhygric 6 = hygric 7 = subhydric 8 = hydric
soil_nutrient_regime	Soil Nutrient Regime	Soil nutrient Regime (SNR) refers to a code to denote the relative amount of essential soil nutrients, particularly nitrogen, available to vascular plants over a period of several years. Soil nutrient regime is an interpretative attribute that together with soil moisture region, is used to assist in site series identification.		A = Very poor B = Poor C = Medium D = Rich E =.Very rich F - Ultra rich
special_cruise_number	Special Cruise Number	The numeric code of the Public Sustained Yield Unit(s) (PSYU) that fall within the forest cover polygon.		9999 - areas outside PSYU
special_cruise_number_cd	Special Cruise Number Code	The numbers of the Public Sustained Yield Unit (PSYU) Block(s) that fall within the forest cover polygon. PSYU Blocks are subdivisions of a PSYU, and indicate the presence of a sub-unit survey (i.e. 1:10,000 scale inventory).		<blank> No sub-unit survey, Salt Water 9 Sub-unit exist

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
species_cd	Species Code	A code indicating the type of tree species in the layer. A "leading" species is identified as being the highest percent basal area or, if a very young stand, the relative number of stems per hectare. Species must be a specified diameter to be recognized in the species composition of the layer. Species are described in terms of Genus, Species and variety.	blank	See List of Species Codes in Table D-1.
species_cd_1	Species Composition Code - Leading Species	A code describing the leading commercial species or brush species in the layer. The species with the highest percent composition (e.g. gross volume or, if a very young stand, the relative number of stems per hectare) is identified a the leading commercial species. Species must be above a specified diameter to be recognized in the species composition of the layer. Leading species are described in terms of Genus, Species and Subspecies. There are currently 27 commercial tree species and five genus values recognized in the Province. The code may also used to describe brush species in cases where the Non-Productive Descriptor is NPBR or the Non-Forest Descriptor is NCBR.	blank	See List of Species Codes in Table D-1.
species_cd_2	Species Composition Code Second Species	Same description as species_cd_1	blank	See List of Species Codes in Table D-1.
species_cd_3	Species Composition Code Third Species	Same description as species_cd_1	blank	See List of Species Codes in Table D-1.
species_cd_4	Species Composition Code Fourth Species	Same description as species_cd_1	blank	See List of Species Codes in Table D-1.
species_cd_5	Species Composition Code Fifth Species	Same description as species_cd_1	blank	See List of Species Codes in Table D-1.
species_cd_6	Species Composition Code Sixth Species	Same description as species_cd_1	blank	See List of Species Codes in Table D-1.
species_id	Species Identity	The business area supplied sequence of tree species. Normally, tree species are ordered by the estimated composition percentage, however, this attribute represents the implied distinction where the percentage is equal for two tree species, their supplied sequence implies an order of business preference.	blank	1 to 6
species_pct	Species Percentage	Percentage of the layer that he commercial species occupies. For older stands, tree species percentage is based on relative gross volume (i.e. whole stem volume); for younger stands, tree species percentage is based on the number of stems per hectare. Tree species percentage is estimated to the nearest percent for all living trees above a specified diameter	0, must have value	0 to 100
species_pct_1	Leading Species Percentage	Same description as species_pct	0, must have value	0 to 100
species_pct_2	Second Species Percentage	Same description as species_pct	0, must have value	0 to 50
species_pct_3	Third Species Percentage	Same description as species_pct	0, must have value	0 to 33
species_pct_4	Fourth Species Percentage	Same description as species_pct	0, must have value	0 to 25
species_pct_5	Fifth Species Percentage	Same description as species_pct	0, must have value	0 to 20
species_pct_6	Sixth Species Percentage	Same description as species_pct	0, must have value	0 to 16
species_volume_type_cd	Species Volume Type Code			
stocking_class_cd	Stocking Class Code	A code describing the stocking class of the layer at the reference year. Stocking class is based on leading commercial species, stand age and/or the size (diameter) and number of stems per hectare.		R = Residual 0 = Immature Stands 1 = Stocking Class 1 2 = Stocking Class 2 3 = Stocking Class 3 4 = Stocking Class 4
stocking_class_src_cd	Stocking Class Source Code	A code indicating whether the layer's Stocking Class was input (e.g. measured or estimated) or derived. Indicates the reliability of the Stocking Class Code.		T = Table derived I = Input D = Derived

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
surface_expression	Surface Expression	Surface expression refers to the form and patterns of form of the surficial material within the polygon. Given the fact that a canopy of trees often blankets the ground surface, a simple classification attribute was selected. Surface expression is relatively easy to photo interpret on the medium scale photography and together with the attributes "modifying processes" and "site position meso" will provide clues to soil parent material and useful site classification data.		C = Cone D = Depression F = Fan H = Hummock(s) M = Rolling N = None P = Plain R = Ridge(s) T = Terrace(s) U = Undulating
tree_cover_pattern	Tree Cover Pattern	A numeric code that identifies the spatial distribution of the tree layer in the polygon. Examples include treed islands in the sub-alpine parkland, clumps of trees on rocky outcrops, scattered groves or individual trees in an otherwise shrubby flood plain, or solid continuous tree cover. Tree cover pattern provides information on the amount of "edge" and "interior" habitat or growing conditions within the polygon. Tree cover pattern describes the spatial distribution of the tree cover within each tree layer in the polygon. Tree cover pattern is used to describe the tree layer spatial distribution.		See List of Cover Patterns in Table D-2
tree_species_code	Tree Species Code			See List of species codes, Table D-1
update_age_date	Update Age Date	The date the DATE OF ORIGIN (tree age to many users) was revised after it was originally interpreted as part of the Vegetation Inventory classification.		
update_height_date	Update Height Date	The year, after year of photography, that an update or revision has occurred to the height of the leading tree species in the layer of the polygon.		
update_timestamp	Update Timestamp			
veg_id	Vegetation Identity		blank	1 to 99
vertical_complexity	Vertical Complexity	The subjective classification that describes the form of each tree layer as indicated by the relative uniformity of the height of the forest canopy as it appears on mid-scale aerial photographs. Vertical complexity is influenced by stand age, species (succession as it relates to shade tolerance) and degree and age of past disturbances. The tree height range is calculated as the total difference in height between the tallest and shortest visible dominant, co-dominant, and high intermediate trees. To most adequately represent the tree layer of interest, occasional occurrences of either very tall or very short trees should be ignored so that the vertical complexity indicated is for the majority of stems in the dominant, co-dominant, and high- intermediate portion of each tree layer. Vertical complexity is a subjective classification that describes the form of each tree layer as indicated by the relative uniformity of the forest canopy as it appears on mid- scale aerial photographs.		1 = Very uniform (less than 11%) 2 = Uniform (11% to 20%) 3 = Moderately uniform (21% to 30%) 4 = Non-uniform (31% - 40%) 5 = Very non-uniform (more than 40%)
vif_generation_date		Date the VIF file was generated		
vif_ver_hist_id		Unique id for history records within VIF data sets. This is necessary to resolve the complex relationship of history to vegetation cover polygon and tree cover layer.		
vol_per_ha_spp1_pri_util_lvl	Leading Species Volume Per Hectare - Primary Utilization	Net volume per hectare of the leading commercial species at the primary utilization level. Net volume per hectare is determined as gross volume less decay, waste, and breakage. Depending on the magnitude of the species' decay, waste and breakage, the net volume for the leading species may be lower than volume for other species in the stand.	0.0 m3/ha	

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
vol_per_ha_spp1_sec_util_lvl	Leading Species Volume per Hectare - Secondary Utilization	Net volume per hectare of the leading commercial species at the second utilization level. Net volume per hectare is determined as gross volume less decay, waste, and breakage. Depending on the magnitude of the species' decay, waste and breakage, the net volume for the leading species may be lower than volume for other species in the stand.	0.0 m3/ha	
vol_per_ha_spp2_pri_util_lvl	Second Species Volume Per Hectare - Primary Utilization	Net volume per hectare of the second commercial species at the primary utilization level. Net volume per hectare is determined as gross volume less decay, waste, and breakage. Depending on the magnitude of the species' decay, waste and breakage, the net volume for the second species may be lower than volume for other species in the stand.	0.0 m3/ha	
vol_per_ha_spp2_sec_util_lvl	Second Species Volume Per Hectare - Secondary Utilization	Net volume per hectare of the second commercial species at the secondary utilization level. Net volume per hectare is determined as gross volume less decay, waste, and breakage. Depending on the magnitude of the species' decay, waste and breakage, the net volume for the second species may be lower than volume for other species in the stand.	0.0 m3/ha	
vol_per_ha_spp3_pri_util_lvl	Third Species Volume Per Hectare - Primary Utilization	Net volume per hectare of the third commercial species at the primary utilization level. Net volume per hectare is determined as gross volume less decay, waste, and breakage. Depending on the magnitude of the species' decay, waste and breakage, the net volume for the third species may be lower than volume for other species in the stand.	0.0 m3/ha	
vol_per_ha_spp3_sec_util_lvl	Third Species Volume Per Hectare - Secondary Utilization	Net volume per hectare of the third commercial species at the secondary utilization level. Net volume per hectare is determined as gross volume less decay, waste, and breakage. Depending on the magnitude of the species' decay, waste and breakage, the net volume for the third species may be lower than volume for other species in the stand.	0.0 m3/ha	
vol_per_ha_spp4_pri_util_lvl	Fourth Species Volume Per Hectare - Primary Utilization	Net volume per hectare of the fourth commercial species at the primary utilization level. Net volume per hectare is determined as gross volume less decay, waste, and breakage. Depending on the magnitude of the species' decay, waste and breakage, the net volume for the fourth species may be lower than volume for other species in the stand.	0.0 m3/ha	
vol_per_ha_spp4_sec_util_lvl	Fourth Species Volume Per Hectare - Secondary Utilization	Net volume per hectare of the fourth commercial species at the secondary utilization level. Net volume per hectare is determined as gross volume less decay, waste, and breakage. Depending on the magnitude of the species' decay, waste and breakage, the net volume for the fourth species may be lower than volume for other species in the stand.	0.0 m3/ha	
vol_per_ha_spp5_pri_util_lvl	Fifth Species Volume Per Hectare - Primary Utilization	Net volume per hectare of the fifth commercial species at the primary utilization level. Net volume per hectare is determined as gross volume less decay, waste, and breakage. Depending on the magnitude of the species' decay, waste and breakage, the net volume for the fifth species may be lower than volume for other species in the stand.	0.0 m3/ha	
vol_per_ha_spp5_sec_util_lvl	Fifth Species Volume Per Hectare - Secondary Utilization	Net volume per hectare of the fifth commercial species at the second utilization level. Net volume per hectare is determined as gross volume less decay, waste, and breakage. Depending on the magnitude of the species' decay, waste and breakage, the net volume for the fifth species may be lower than volume for other species in the stand.	0.0 m3/ha	

Table C-1. Continued

Attribute Name or Field	Forestry Term	Description	Default	Permitted Values
vol_per_ha_spp6_pri_util_lvl	Sixth Species Volume Per Hectare - Primary Utilization	Net volume per hectare of the sixth commercial species at the primary utilization level. Net volume per hectare is determined as gross volume less decay, waste, and breakage. Depending on the magnitude of the species' decay, waste and breakage, the net volume for the sixth species may be lower than volume for other species in the stand.	0.0 m3/ha	
vol_per_ha_spp6_sec_util_lvl	Sixth Species Volume Per Hectare - Secondary Utilization	Net volume per hectare of the sixth commercial species at the secondary utilization level. Net volume per hectare is determined as gross volume less decay, waste, and breakage. Depending on the magnitude of the species' decay, waste and breakage, the net volume for the sixth species may be lower than volume for other species in the stand.	0.0 m3/ha	
volume_adj_factor	Volume Adjustment Factor	A volume multiplier that can be used to increase or decrease stand volumes.		
volume_min_dbh	Volume minimum diameter breast height			
volume_per_ha	Volume per Hectare			
vri_dead_stems_per_ha	VRI Dead Stems per Hectare	The number of standing dead trees visible to the photo interpreter in the dominant, co dominant and high intermediate crown layer. Snag frequency is expressed as stem per hectare for each tree layer. The snag frequency provides a direct estimate of snags per hectare that can be used for wildlife and fire management. Note: Dominant trees have well-developed crowns that extend above the general level of the trees around them. Co dominant trees have crowns forming the general level of trees around them. High intermediate trees have smaller crowns slightly below but extending into the general level of trees around them.		
vri_live_stems_per_ha	VRI Live Stems per Hectare	The average number of living trees visible to the photo interpreter in the dominant, co-dominant and high intermediate crown positions in each tree layer in the polygon. It is expressed as stems per hectare. This attribute is also called stand density.		
well_spaced_stems	Well Spaced Stems per Hectare	The number of well spaced stems per hectare.	0	1 to 9999
year_of_estab	Year of Establishment	The year the tree began to grow; applied to a layer (FIP) or a tree species (Vegetative Cover).	0	

Appendix 4 VRI Attribute Codes

Table D-1. List of Species Codes

Group	Code	Common Name	Scientific Name
Commercial Species	Ac	Balsam poplar	*Populus balsamifera ssp. balsamifera*
	Ac	Black Cottonwood	*Populus balsamifera ssp. trichocarpa*
	AT	Aspen	*Populus tremuloides*
	B	True fir	*Abies spp.*
	Bl	Alpine fir	*Abies lasiocarpa*
	Ba	Amabalis fir	*Abies amabalis*
	Bg	Grand fir	*Abies grandis*
	Cw	Western redcedar	*Thuja plicata*
	Dr	Red alder	*Alnus rubra*
	E	Birch	*Betula spp.*
	Ep	Common paper birch	*Betula papyrifera*
	Ea	Alaska paper birch	*Betula neoalaskansa*
	Fd	Douglas-fir	*Pseudotsuga menziesii*
	H	Hemlocks	*Tsuga spp.*
	Hw	Western hemlock	*Tsuga heterophylla*
	Hm	Mountain hemlock	*Tsuga mertensiana*
	L	Larch	*Larix spp.*
	La	Alpine larch	*Larix lyalli*
	Lt	Tamarack	*Larix laricina*
	Lw	Western larch	*Larix occidentalis*
	Mb	Broadleaf maple	*Acer macrophyllum*
	Pf	Limber pine	*Pinus flexilis*
	Pl	Lodgepole pine	*Pinus contorta*
	Pw	Western white pine	*Pinus monticola*
	Pa	Whitebark pine	*Pinus albicalis*
	Py	Yellow pine	*Pinus ponderosa*
	Pj	Jack pine	*Pinus banksiana*
	S	Spruce	*Picea spp.*
	Sb	Black spruce	*Picea mariana*
	Se	Engelmann spruce	*Picea engelmannii*
	Ss	Sitka spruce	*Picea sitchensis*
	Sw	White spruce	*Picea glauca*
	Yc	Yellow cedar	*Chamaecyparis nootkatensis*
Brush Species	Dm	Mountain alder	*Alnus incana*
	R	Arbutus	*Arbutus menziesii*
	Ew	Water birch	*Betula occidentalis*
Native Conifers	C	Cedar	*Thuja*
	Cw	Western redcedar	*Thuja plicata*
	Y	Cypress	*Chamaecyparis*
	Yc	Yellow cedar	*Chamaecyparis nootkatensis*
	F	Douglas-fir	*Pseudotsuga*
	Fd	Douglas-fir	*P. menziesii*
	Fdc	Coastal Douglas-fir	*P. menziesii var. menziesii*
	Fdi	Interior Douglas-fir	*P. menziesii var. glauca*
	B	Fir (Balsam)	*Abies*
	Ba	Amabilis fir	*A. amabilis*
	Bg	Grand fir	*A. grandis*
	Bl	Subalpine fir	*A. lasiocarpa*
	H	Hemlock	*Tsuga*
	Hm	Mountain hemlock	*T. mertensiana*
	Hw	Western hemlock	*T. heterophylla*
	Hxm	Mountain x western hemlock	Hybrid *T. mertensiana x heterophylla*
	J	Juniper	*Juniperus*

Table D-1. Continued

Group	Code	Common Name	*Scientific Name*
Native Conifers cont'd	Jr	Rocky Mtn. juniper	*J. scopulorum*
	L	Larch	*Larix*
	La	Alpine larch	*L. lyallii*
	Lt	Tamarack	*L. laricina*
	Lw	Western larch	*L. occidentalis*
	P	Pine	*Pinus*
	Pj	Jack pine	*P. banksiana*
	Pf	Limber pine	*P. flexilis*
	Pl	Lodgepole pine	*P. contorta*
	Pli	Lodgepole pine	*P. contorta var. latifolia*
	Pxj	Lodgepole x jack pine hybrid	*P. x murraybanksiana*
	Py	Ponderosa pine	*P. ponderosa*
	Plc	Shore pine	*P. contorta var. contorta*
	Pw	Western white pine	*P. monticola*
	Pa	White bark pine	*P. albicaulis*
	S	Spruce	*Picea*
	Sb	Black spruce	*P. mariana*
	Se	Engelmann spruce	*P. engelmannii*
	Ss	Sitka spruce	*P. sitchensis*
	Sw	White spruce	*P. glauca*
	Sx	Spruce hybrid	*Picea cross*
	Sxw	Engelmann x white	*P. engelmannii x glauca*
	Sxl	Sitka x white	*P. x lutzii*
	Sxs	Sitka x unknown hybrid	*P. sitchensis x ?*
	T	Yew	*Taxus*
	Tw	Western yew	*Taxus brevifolia*
Native Hardwoods	D	Alder	*Alnus*
	Dr	Red alder	*A. rubra*
	U	Apple	*Malus*
	Up	Pacific crab apple	*Malus fusca*
	A	Aspen, Cottonwood or Poplar	*Populus*
	Ac	Poplar	*P. balsamifera*
	Acb	Balsam poplar	*P. b. ssp. balsamifera*
	Act	Black cottonwood	*P. b. ssp. trichocarpa*
	Ax	Hybrid poplars	*P. spp.*
	At	Trembling aspen	*P. tremuloides*
	R	Arbutus	*Arbutus*
	Ra	Arbutus	*Arbutus menziesii*
	E	Birch	*Betula*
	Ea	Alaska paper birch	*B. neoalaskana*
	Exp	Alaska x paper birch hybrid	*B. x winteri*
	Ep	Paper birch	*B. papyrifera*
	Ew	Water birch	*B. occidentalis*
	K	Cascara	*Rhamnus*
	Kc	Cascara	*R. purshiana*
	V	Cherry	*Prunus*
	Vb	Bitter cherry	*P. emarginata*
	Vv	Choke cherry	*P. virginiana*
	Vp	Pin cherry	*P. pensylvanica*
	G	Dogwood	*Cornus*
	Gp	Pacific dogwood	*Cornus nuttallii*
	M	Maple	*Acer*
	Mb	Bigleaf maple	*A. macrophyllum*
	Mv	Vine maple	*A. circinatum*
	Q	Oak	*Quercus*
	Qg	Garry oak	*Q. garryana*

Table D-1. Continued

Group	Code	Common Name	*Scientific Name*
Native Hardwoods Cont'd	W	Willow	*Salix spp.*
	Wb	Bebb's willow	*S. bebbiana*
	Wp	Pacific willow	*S. lucida*
	Wa	Peachleaf willow	*S. amygdaloides*
	Wd	Pussy willow	*S. discolor*
	Ws	Scouler's willow	*S. scouleriana*
	Wt	Sitka willow	*S. sitchensis*
Unknowns	X	Unknown	
	Xc	Unknown conifer	
	Xh	Unknown hardwood	
Others	Z	Other tree, not on list	
	Zc	Other conifer	
	Zh	Other hardwood	
Exotics	U	Apple	*Malus*
	Ua	Apple	*Malus pumila*
	A	Aspen, Cottonwood or Poplar	*Populus*
	Ad	Southern cottonwood	*P. deltoides*
	E	Birch	*Betula*
	Ee	European birch	*B. pendula*
	Es	Silver birch	*B. pubescens*
	Ey	yellow birch	*B. alleghaniensis*
	V	Cherry	*Prunus*
	Vs	Sweet cherry	*P. avium*
	Y	Cypress	*Chamaecyparis*
	Yp	Port Orford-cedar	*C. lawsoniana*
	B	Fir (Balsam)	*Abies*
	Bb	Balsam fir	*A. balsamea*
	Bp	Noble fir	*A. procera*
	Bm	Shasta red fir	*A. magnifica var. shastensis*
	Bc	White fir	*A. concolor*
	L	Larch	*Larix*
	Ld	Dahurian larch	*L. gmelinii*
	M	Maple	*Acer*
	Me	Box elder	*A. negundo*
	Mn	Norway maple	*A. platanoides*
	Ms	Sycamore maple	*A. pseudoplatanus*
	Oa	Incense-cedar	*Calocedrus decurrens*
	Ob	Giant sequoia	*Sequoiadendron giganteum*
	Oc	Coast redwood	*Sequoia sempervirens*
	Od	European mountain-ash	*Sorbus aucuparia*
	Oe	Siberian elm	*Ulmus pumila*
	Of	Common pear	*Pyrus communis*
	Og	Oregon ash	*Fraxinus latifolia*
	Oh	White ash	*Fraxinus americana*
	Oi	Shagbark hickory	*Carya ovata*
	P	Pine	*Pinus*
	Pm	Monterey pine	*P. radiata*
	Pr	Red pine	*P. resinosa*
	Ps	Sugar pine	*P. lambertiana*
	Q	Oak	*Quercus*
	Qe	English oak	*Q. robur*
	Qw	White oak	*Q. alba*
	S	Spruce	*Picea*
	Sn	Norway spruce	*P. abies*

Table D-2. List of Cover Pattern Codes and Descriptions

Cover Pattern	Description
1	Single to very few (<4) occurrences of limited extent, circular to irregular shape
2	Single to very few (<4) occurrences of limited extent, linear or elongated shape.
3	Several (>3) sporadic occurrences of limited extent, circular to irregular shape.
4	Several (>3) sporadic occurrences of limited extent, linear or elongated shape.
5	Intimately intermixed units, often with gradational transitions from one to the other.
6	Discontinuous but extensive occurrences, parallel to sub-parallel elongated in shape.
7	Limited continuous occurrence with few inclusions.
8	Continuous occurrence with several inclusions.
9	Continuous occurrence with very few inclusions.

Table D-3. List of Data Source Codes and Descriptions

Data Source Code	Description
0	Photo interpretation
1	Air call (air observation without 70 mm photography) species composition
2	Air call from low-level, fixed base (70 mm photography) species comp., height
3	Phase 1 photo sample (pre-1990)
4	Ground call 1 point age, height
5	Standard fixed radius sample (pre-1979) age, height
6	Phase 2 or phase 3 sample (pre-1990) species, age, height, density, basal area
7	Silviculture surveys - stocking, survival, free growing, pre-stand tending species composition, density, SMR, SNR
8	Ground observation with measurement age, height
9	Research plots (e.g. Sx trials, ecological site description) species, age, height
10	Valuation cruise plot(s) basal area, species composition, height
11	Silviculture treatment record - a record that summarizes the modified stand structure following an activity or treatment such as planting, juvenile spacing, brushing and weeding, conifer release, seed tree control, sanitation spacing, rehabilitation or commercial thinning
12	Disturbance - an area recently disturbed by fire, logging, wind throw, or insects that is classified as NSR. Has no source of information other than type and year of disturbance
13	Managed stand sample
14	Ground call, 2 or more points age, height, species composition
15	There is no Data Source 15
16	Vegetation sample age, height, density, basal area, SMR, SNR
17	Vegetation ground call age, height, density, basal area, SMR, SNR
18	Vegetation air call species composition, shrub height, shrub %
19	Natural growth sample species, age, height
20	Volume and depletion sample age, height
21	There is no Data Source 21
22	Photogrammetrically captured information that is determined or captured using photogrammetric means. An example of this is the determination of photo-measured heights using softcopy technology or parallax bars.

Table D-4. List of BCLCS and LCC Codes

Level	BCLCS Code	LCC Code	Title	Description
1	V		Vegetated	A polygon is considered Vegetated when the total cover of trees, shrubs, herbs, and bryoids (other than crustose lichens) covers at least 5% of the total surface area of the polygon. Note: Bodies of water may have vegetation on or under their surface; they are the responsibility of others to evaluate.
	N		Non-Vegetated	A polygon is considered Non-Vegetated when the total cover of trees, shrubs, herbs, and bryoids (other than crustose lichens) covers less than 5% of the total surface area of the polygon. Bodies of water are to be classified as Non-Vegetated.
	U		Unreported	A polygon is classified as Unreported if it is within the map sheet being reported on, but is outside the inventory unit of interest. The Unreported designation is restricted to areas where inventory information is not currently available.
2	T		Treed	A polygon is considered Treed if at least 10% of the polygon area, by crown cover, consists of tree species of any size.
	N		Non-treed	A polygon is considered Non-Treed if less than 10% of the polygon area, by crown cover, consists of tree species of any size.
	L		Land	The portion of the landscape not covered by water (as defined below), based on the percentage area coverage.
	W		Water	A naturally occurring, static body of water, two or more metres deep in some portion, or a watercourse formed when water flows between continuous, definable banks. These flows may be intermittent or perennial; but do not include ephemeral flows where a channel with no definable banks is present. Islands within streams that have definable banks are not part of the stream; gravel bars are part of the stream. Interpretation is based on the percentage area coverage.
3	W		Wetland	Land having the water table near, at, or above the soil surface, or which is saturated for a long enough period to promote wetland or aquatic processes as indicated by poorly drained soils, specialized vegetation, and various kinds of biological activity which are adapted to the wet environment.
	U		Upland	A broad class that includes all non-wetland ecosystems below Alpine that range from very xeric, moss- and lichen-covered rock outcrops to highly productive forest ecosystems on hygric (SMR 6) soils.
	A		Alpine	Treeless by definition (for practical purposes, 1% tree cover or less can be included within the alpine area) with vegetation dominated by shrubs, herbs, graminoids, bryoids, and lichens. Much of the Alpine is non- vegetated, covered primarily by rock, ice, and snow.
4 (Vegetated)	TC	TC	Treed - Coniferous	Defined as those trees found in B.C. within the order Coniferae. These trees are commonly referred to as conifer or softwoods. The polygon is classified as Coniferous when the total basal area (expressed as percentage species composition), of coniferous trees is 75% or more of the total polygon tree basal area, and trees cover 10% or more of the total polygon area, by crown cover.
	TB	TB	Treed - Broadleaf	Defined as those trees classified botanically as Angiospermae in the subclass Dicotyledoneae. These species are commonly referred to as deciduous or hardwoods. The polygon is classified as Broadleaf when the total basal area (expressed as percentage species composition) of broadleaf trees is 75% or more of the total polygon tree basal area, and trees cover a minimum of 10% of the total polygon area, by crown cover.

Table D-4. Continued

Level	BCLCS Code	LCC Code	Title	Description
4 (Vegetated)	TM	TM	Treed - Mixed	The polygon is classified as Mixed when neither coniferous nor broadleaf trees account for 75% or more of the total polygon tree basal area, and trees cover a minimum of 10% of the total polygon area, by crown cover.
	ST	ST	Shrub Tall	A shrub polygon with average shrub height greater than or equal to two metres.
	SL	SL	Shrub Low	A shrub polygon with average shrub height less than two metres.
	HE	HE	Herb	An herb polygon with no distinction between forbs and graminoids.
	HF	HF	Herb - Forbs	An herb polygon with forbs greater than 50% of the herb cover
	HG	HG	Herb - Graminoids	An herb polygon with graminoids greater than 50% of the herb cover.
	BY	BY	Bryoid	A bryoid polygon with no distinction between mosses and lichens.
	BM	BM	Bryoid - Moss	A bryoid polygon with mosses, liverworts and hornworts greater than 50% of the bryoid cover.
	BL	BL	Bryoid - Lichens	A bryoid polygon with lichens (foliose or fruticose; not crustose) greater than 50% of the bryoid cover.
4 (Non-Vegetated)	SI	SI	Snow / Ice	Defined as either glacier, which is considered a mass of perennial snow and ice with definite lateral limits, typically flowing in a particular direction; or other ice and snow cover that is not part of a glacier.
	RO	RO	Rock / Rubble	Defined as bedrock or fragmented rock broken away from bedrock surfaces and moved into its present position by gravity or ice. Extensive deposits are found in and adjacent to alpine areas and are associated with steep rock walls and exposed ridges; canyons and cliff areas also contain these deposits.
	EL	EL	Exposed Land	Contains all other forms of exposed land identified by a range of subclasses.
5 (Vegetated – Non-bryoid)	DE		Dense	Tree, shrub, or herb cover is between 61% and 100% for the polygon.
	OP		Open	Tree, shrub, or herb cover is between 26% and 60% for the polygon.
	SP		Sparse	Cover is between 10% and 25% for treed polygons, or cover is between 20% and 25% for shrub or herb polygons.
5 (Vegetated – Bryoid)	CL		Closed	Cover of bryoids is greater than 50% of the polygon.
	OP		Open	Cover of bryoids is less than or equal to 50% of the polygon.
5 (Non-Vegetated)	AP	AP	Airport	A permanent, paved or gravel area, and associated buildings and parking, used by airplanes.
	BE	BE	Beach	An area with sorted sediments reworked in recent time by wave action, which may be formed at the edge of fresh or salt water bodies.
	BI	BI	Blockfield	Blocks of rock derived from the underlying bedrock by weathering and / or frost heaving. These have not undergone any significant down slope movement as they occur on level or gently sloping areas.
	BR	BR	Bedrock	Unfragmented, consolidated rock, contiguous with the underlying material.
	BU	BU	Burned Area	Land showing evidence of recent burning, either natural or prescribed. Vegetation of less than 5% crown cover is present at the time of polygon description.
	CB	CB	Cutbank	Part of a road corridor created upslope of the road surface, created by excavation into the hillside.
	ES	ES	Exposed Soil	Any exposed soil not covered by the other categories, such as areas of recent disturbance that include mud slides, debris torrents, avalanches, or disturbances such as pipeline rights-of-way or cultivated fields where vegetation cover is less than 5%.

Table D-4. Continued

Level	BCLCS Code	LCC Code	Title	Description
5 (Non-Vegetated) continued	GL	GL	Glacier	A mass of perennial snow and ice with definite lateral limits, typically flowing in a particular direction.
	GP	GP	Gravel Pit	An area exposed through the removal of sand and gravel.
	LA	LA	Lake	A naturally occurring static body of water more than two metres deep in some portion. The boundary for the lake is the natural high water mark.
	LB	LB	Lava Bed	An area where molten rock has flowed from a volcano or fissure and cooled and solidified to form rock.
	LL	LL	Landing	A compacted area adjacent to a road used for sorting and loading logs.
	LS	LS	Pond or Lake Sediments	Exposed sediments related to dried lakes or ponds.
	MI	MI	Open Pit Mine	An exposed area used to extract ore during a mining operation. This may contain associated buildings and any tailing produced by the mining and milling process.
	MN	MN	Moraine	An area of debris transported and deposited by a glacier.
	MU	MU	Mudflat	Flat plane-like areas associated with lakes, ponds, rivers, or streams — dominated by fine-textured sediments. They can be associated with freshwater or estuarine sources.
	MZ	MZ	Rubbly Mine Spoils	Discarded overburden or waste rock, moved to extract ore during mining.
	OC	OC	Ocean	A naturally occurring body of water containing salt or generally considered to be salty.
	OT	OT	Other	A Non-Vegetated polygon where none of the above categories can be reliably chosen.
	PN	PN	Snow Cover	Snow or ice that is not part of a glacier but is found during summer months on the landscape.
	RE	RE	Reservoir	An artificial basin affected by impoundment behind a man made structure such as a dam, berm, dyke, or wall.
	RI	RI	River/Stream	A water course formed when water flows between continuous, definable banks. Flow may be intermittent or perennial but does not include ephemeral flow where a channel with no definable banks is present. Gravel bars are part of a stream, while islands within a stream that have definable banks are not.
	RM	RM	Reservoir Margin	Land exposed by a drained or fluctuating reservoir. It is found above “normal” water levels and may consist of a range of substrates including gravel, cobbles, fine sediments, or bedrock
	RN	RN	Railway Surface	A roadbed with fixed rails, which may contain single or multiple rail lines.
	RS	RS	River Sediments	Silt, gravel, and sand bars associated with former river channels and present river edges.
	RZ	RZ	Road Surface	An area cleared and compacted for transporting goods and services by vehicles. Older roads that are used infrequently or not at all may cease to be classed as Non-Vegetated.
	TA	TA	Talus	Rock fragments of any size accumulated on or at the foot of slopes as a result of successive rock falls. This is a type of colluvium.
	TZ	TZ	Tailings	An area containing the solid waste material produced in the mining and milling of ore.
	UR	UR	Urban	Buildings and associated developments such as roads and parking areas which form an almost continuous covering of the landscape.

Table D-5. List of Inventory Type Groups

ITG Code	ITG Name	First Species	Second Species	Examples
1	Fd	Fd >80%	Any	Fd, FdPw, FdPwC1w
2	FdCw	Fd	Cw or Yc	FdYc, FdCw, FdCwH
3	FdH	Fd	H or B	FdH, FdB, FdHCw
4	FdS	Fd	S	FdS, FdSB, FdSH
5	FdPl	Fd	Pl	FdPl, FdPlH, FdPlPy
6	FdPy	Fd	Py	FdPy, FdPyL, FdPyPl
7	FdL	Fd	L, Pw	FdL, FdLPy, FdPwS
8	FdDecid	Fd	Decid	FdDr, FdMb, FdAc
9	Cw	Cw/Yc >80%	Any	Cw, Yc, CwYc, CwPl
10	CwFd	Cw/Yc	Fd, L, Py	CwFd, CwL, Pw, Pl, YcFd
11	CwH	Cw/Yc	H, B, or S	CwH, CwB, CwS, YcH
12	H	H >80%	Any	H, HPw, HPl, HPlYc
13	HFd	H	Fd, L, Py	HFd, HL, Pw or Pl HFdCw
14	HCw	H	Cw or Yc	HCw, HYc, HCwYc
15	HB	H	B	HB, HBS, HBCw
16	HS	H	S	HS, HSB, HSAc
17	HDecid	H	Decid	HAc, HDr, HAcB
18	B	B >80%	Any	B, BFd, BPw, BPl
19	BH	B	H, Cw, or Yc	BH, BCw, BYc, BHCw
20	BS	B	S, Fd, Pw, Pl	BS, BSPl, L, Py, BSAt
21	S	S >80%	Any	S, SYc, SPw
22	SFd	S	Fd, L, Pw or Py	SFd, SL, SPy, SFdB
23	SH	S	H, Cw or Yc	SH, SCw, SHAc
24	SB	S	B	SB, SBAc, SBH
25	SPl	S	Pl	SPl, SPlB, SPlFd
26	Sdecid	S	Decid	SAt, SAc, SAcB
27	Pw	Pw	Any	Pw, PwFd, PwCwH
28	Pl	Pl/Pa >80%	Any	Pl, Pa, PlPa, PaPl
29	PlFd	Pl	Fd, Pw, L, or Py	PlFd, PlPy, PlL, PlFdH
30	PlS	Pl	S, B, H, Cw, or Yc	PlS, PlB, PlH, PlBS
31	PlDecid	Pl	Decid	PlAt
32	Py	Py	Any	Py, PyFd, PyL, PyPl
33	LFd	L <=80%	Fd	LFd, LFdPy
34	L	L	Any (Fd when L>80%)	L, LPy, LPl, LPyFd
35	AcConif	Ac	Conif	AcS, AcH
36	AcDecid	Ac	Decid	DrFd, DrCwH
38	DrDecid	Dr	Decid	Dr, DrMb
39	Mb	Mb	Any	Mb, MbDr, MbFd
40	E	E	Any	E, EAt, ES
41	AtConif	At	Conif	AtPl, AtS, AtFd
42	AtDecid	At	Decid	At, AtAc, AtE

Table D-6. List of Organization Unit Numbers

Organization Number	Organization Unit Code	Organization Unit Name
63*	n/a	Current default value for all layers with inventory data
1610*	n/a	Current default value for all layers with silviculture data
1833	RNI	*Northern Interior Forest Region*
46	DFN	Fort Nelson Forest District
34	DJA	Fort St. James Forest District
32	DKM	Kalum Forest District
38	DMK	Mackenzie Forest District
1823	DND	Nadina Forest District
1825	DPC	Peace Forest District
18	DPG	Prince George Forest District
1824	DSS	Skeena Stikine Forest District
DVA	DVA	Vanderhoof Forest District
1834	RSI	*Southern Interior Forest Region*
56	DMH	100 Mile House Forest District
1830	DAB	Arrow Boundary Forest District
1828	DCS	Cascades Forest District
1826	DCC	Central Cariboo Forest District
58	DCH	Chilcotin Forest District
1620	DCO	Columbia Forest District
1827	DHW	Headwaters Forest District
21	DKA	Kamloops Forest District
60	DKL	Kootena Lake Forest District
1829	DOS	Okanagan Shuswap Forest District
50	DQU	Quesnel Forest District
1831	DRM	Rocky Mountain Forest District
1835	RCO	*Coast Forest Region*
43	DCR	Campbell River Forest District
15	DCK	Chilliwack Forest District
36	DNC	North Coast Forest District
1832	DIC	North Island - Central Coast Forest District
48	DQC	Queen Charlotte Islands Forest District
1619	DSI	South Island Forest District
23	DSQ	Squamish Forest District
27	DSC	Sunshine Coast Forest District

* 63 and 1610 are currently the only values used in the Organizational Unit ID field.

Table D-7. List of Activity Codes

Attribute Code	Activity Code	Description
DI	A	Animal Damage (general)
DI	B	Wildfire
DI	BE	Escaped Burn
DI	BG	Ground Fire
DI	BR	Range Burn
DI	BW	Wildlife Burn
DI	D	Diseases (general)
DI	F	Flooding
DI	I	Insects (general)
DI	K	Fume Kill
DI	L	Logging
DI	L	Logging (partial disturbance)
DI	N	Non-Biological (abiotic) Injuries
DI	R	Site Rehabilitation
DI	S	Slide or Avalanche
DI	T	Treatment Injuries (general)
DI	U	Damage (cause unknown)
DI	V	Problem Vegetation
DI	W	Windthrow
PL	PL	Artificial (man-made) plantations ONLY
SI	B	Broadcast Burn
SI	BI	Biological Control
SI	C	Chemical
SI	G	Grass Seeded
SI	H	Hand Preparation
SI	M	Mechanical Scarification
SI	MS	Mechanical Scarification and Spot Burn
SI	RB	Range Management Burn
SI	S	Spot Burn
SI	W	Windthrow
ST	BI	Biological Control
ST	F	Fertilization
ST	H	Hack and Squirt
ST	J	Juvenile Spacing
ST	M	Mistletoe Control
ST	P	Pruning
ST	R	Conifer Release
ST	S	Sanitation Spacing
ST	T	Commercial Thinning
ST	W	Brushing and Weeding

Table D-8. List of Activity Sub-Codes

Attribute Code	Activity Code	Activity Sub-Code	Description	Taxonomic Names / Comments
DI	A		Animal Damage (general)	
DI	A	B	Bear	
DI	A	C	Cattle	
DI	A	D	Deer	
DI	A	E	Elk	
DI	A	H	Hare or Rabbit	
DI	A	M	Moose	
DI	A	P	Porcupine	
DI	A	S	Squirrel	
DI	A	V	Vole	
DI	A	X	Birds	
DI	A	Z	Beaver	
DI	B		Wildlife	
DI	BE		Escaped Burn	
DI	BG		Ground Fire	
DI	BR		Range Burn	
DI	BW		Wildlife Burn	
DI	D		Diseases (general)	
DI	D	1	Dwarf Mistletoe	use with discretion after 1993
DI	D	2	Root Rot	use with discretion after 1993
DI	D	3	Foliage Disease	use with discretion after 1993
DI	D	4	Rust	use with discretion after 1993
DI	D	01	Dwarf Mistletoe	use with discretion after 1993
DI	D	02	Root Rot	use with discretion after 1993
DI	D	03	Foliage Disease	use with discretion after 1993
DI	D	04	Rust	use with discretion after 1993
DI	D	A	Foliage Disease (general)	
DI	D	AF	Broom Rust	
DI	D	B	Brooming (non-mistletoe)	
DI	D	BF	Fir Broom Rust	*Melampsorella caryophyllacearum*
DI	D	BS	Spruce Broom Rust	*Chrysomyxa arctostaphyli*
DI	D	D	Stem Rot (general)	Internal (heart) Decay only
DI	D	DA	Armillaria	*Armillaria spp*
DI	D	DC	Laminated (cedar strain only)	*Phellinus weirii*
DI	D	DE	Rust-Red Stringy Rot	*Echinodontium tinctorium*
DI	D	DF	Brown Crumbly Rot	*Fomitopsis pinicola*
DI	D	DI	Tomentosus	
DI	D	DL	Laminated (not cedar strain)	
DI	D	DN	Annosus	
DI	D	DP	Red Ring Rot	*Phellinus pini*
DI	D	DS	Schweinitzii Butt Rot	
DI	D	DT	Aspen Trunk Rot	*Phellinus tremulae*
DI	D	F	Foliage Disease (general)	
DI	D	FB	Larch Needle Blight	*Hypodermella laricis*
DI	D	FD	Douglas Fir Needle Cast	*Rhabdocline pseudotsugae*
DI	D	FE	Elytroderma Needle Cast	*Elytroderma deformans*
DI	D	FL	Lophodermella Needle Cast (pine)	*Lophodermella concolor*
DI	D	FM	Larch Needle Cast	*Meria laricis*
DI	D	FP	Fir Neele Blight (fir-fireweed rust)	*Pucciniastrum epilobi*
DI	D	FR	Red Band Needle Cast (blight)	*Scirrhia pini*
DI	D	L	Leader and Branch Dieback (general)	
DI	D	LD	Derma Canker	*Dermea pseudotsugae*
DI	D	LL	Leader Dieback	
Attribute Code	**Activity Code**	**Activity Sub-Code**	**Description**	**Taxonomic Names / Comments**

Table D-8. Continued

DI	D	LP	Phomopsis Canker	*Phomopsis lokoyae*
DI	D	LR	Branch Dieback	
DI	D	LS	Sydowia Tip Dieback	*Sclerophoma pithyophila*
DI	D	LV	Aspen-Poplar Twig Blight	*Venturia spp.*
DI	D	M	Dwarf Mistletoe (general)	*Arceuthobium spp.*
DI	D	MF	Douglas Fir Dwarf Mistletoe	*Arceuthobium douglasii*
DI	D	MH	Hemlock Dwarf Mistletoe	*Arceuthobium tsugense*
DI	D	ML	Larch Dwarf Mistletoe	*Arceuthobium laricis*
DI	D	MP	Lodgepole Pine Dwarf Mistletoe	*Arceuthobium americanum*
DI	D	P	Bark Disease (general)	Bark only
DI	D	R	Root Disease (general)	
DI	D	RA	Armillaria Root Disease	*Armillarea ostoyae*
DI	D	RB	Black Stain Root Disease	*Leptographium wageneri*
DI	D	RC	Laminated Root Rot (cedar strain only)	*Phellinus weirii var.*
DI	D	RL	Laminated Root Rot (not cedar strain)	*Phellinus weirii*
DI	D	RN	Annosus Root Rot	*Heterobasidium annosum*
DI	D	RR	Rhizina Root Rot	*Rhizina undulata*
DI	D	RS	Schweinitzii	*Phaeolus schweinitzii*
DI	D	RT	Tomentosus Root Rot	*Inonotus tomentosus*
DI	D	S	Stem Diseases (general)	
DI	D	SA	Atropellis Canker (lodgepole pine)	*Atropellis piniphila*
DI	D	SB	White Pine Blister Rust	*Cronartium ribicola*
DI	D	SC	Comandra Blister Rust	*Cronartium comandrae*
DI	D	SG	Western Gall Rust	*Endoconartium harknessii*
DI	D	SN	Aspen Canker (cytospora canker)	*Cytospora chrysosperma*
DI	D	SN	Aspen Canker (hypoxylon canker)	*Hypoxylon mammatum*
DI	D	SN	Aspen Canker (cryptospheria canker)	*Cryptospheria populina*
DI	D	SN	Aspen Canker (target canker)	*Nectrina galligena*
DI	D	SN	Aspen Canker (ceratocystis canker)	*Ceratocystis fimbriata*
DI	D	SN	Aspen Canker (sooty bark canker)	*Encoelia pruinosa*
DI	D	SS	Stalactiform Blister Rust	*Cronartium coleosporioides*
DI	D	SX	Exploding Canker (Doug fir/interior spruces)	
DI	F		Flooding	
DI	I		Insects (general)	
DI	I	1	Western Blackheaded Budworm	use with discretion after 1993
DI	I	2	Black Army Cutworm	use with discretion after 1993
DI	I	3	Douglas Fir Tussock Moth	use with discretion after 1993
DI	I	4	Forest Tent Caterpillar	use with discretion after 1993
DI	I	5	Gypsy Moth	use with discretion after 1993
DI	I	6	Greenstriped Forest Looper	use with discretion after 1993
DI	I	7	Larch Casebearer	use with discretion after 1993
DI	I	8	Larch Sawfly	use with discretion after 1993
DI	I	9	Western False Hemlock Looper	use with discretion after 1993
DI	I	01	Western Blackheaded Budworm	use with discretion after 1993
DI	I	02	Black Army Cutworm	use with discretion after 1993
DI	I	03	Dougals Fir Tussock Moth	use with discretion after 1993
DI	I	04	Forest Tent Caterpillar	use with discretion after 1993
DI	I	05	Gypsy Moth	use with discretion after 1993
DI	I	06	Greenstriped Forest Looper	use with discretion after 1993
DI	I	07	Larch Casebearer	use with discretion after 1993
DI	I	08	Larch Sawfly	use with discretion after 1993
DI	I	09	Western False Hemlock Looper	use with discretion after 1993
DI	I	10	Western Hemlock Looper	use with discretion after 1993
DI	I	11	Western Spruce Budworm	use with discretion after 1993
DI	I	12	Douglas Fir Beetle	use with discretion after 1993
DI	I	13	Mountain Pine Beetle	use with discretion after 1993
DI	I	14	Spruce Beetle	use with discretion after 1993
DI	I	15	Balsam Woolly Aphid	use with discretion after 1993
Attribute Code	**Activity Code**	**Activity Sub-Code**	**Description**	**Taxonomic Names / Comments**
DI	I	16	Cooley Spruce Gall Adelgid	use with discretion after 1993

Table D-8. Continued

DI	I	17	White Pine Weevil	use with discretion after 1993
DI	I	A	Aphids (general)	
DI	I	AB	Balsam Wooly Adelgid	*Adelges piceae*
DI	I	AC	Giant Conifer Aphid	*Cinara spp.*
DI	I	AG	Cooley Spruce Gall Adelgid	*Adelges cooleyi*
DI	I	AS	Green Spruce Aphid	*Elatobium abietinum*
DI	I	B	Bark Beetles (general)	
DI	I	BB	Western Balsam Bark Beetle	*Dryocetes confusus*
DI	I	BD	Dougals Fir Beetle	*Dendroctonus pseudotsugae*
DI	I	BI	Engraver Beetle	*Ips spp.*
DI	I	BM	Mountain Pine Beetle	*Dendroctonus ponderosae*
DI	I	BP	Twig beetle (and others)	*Pityogenes, Pityophthorus spp.*
DI	I	BS	Spruce Beetle	*Dendroctonus rufipennis*
DI	I	BT	Red Turpentine Beetle	*Dentroctonus vales*
DI	I	BW	Western Pine Beetle	*Dendroctonus brevicomis*
DI	I	D	Defoliators (general)	
DI	I	DA	Black Army Cutworm	*Actebia fennica*
DI	I	DB	Two-Year Cycle Budworm	*Choristoneura biennis*
DI	I	DC	Larch Casebearer	*Coleophara laricella*
DI	I	DD	Looper (deciduous)	*Erranis vancouverensis*
DI	I	DE	Eastern Spruce Budworm	*Choristoneura fumiferana*
DI	I	DF	Forest Tent Caterpillar	*Malacosoma disstria*
DI	I	DG	Greenstriped Forest Looper	*Melanolophia imitata*
DI	I	DH	Western Blackheaded Budworm	*Acleris gloverana*
DI	I	DI	Pine Needle Sheath Miner	*Zellaria haimbachi*
DI	I	DL	Western Hemlock Looper	*Lamdina fiscalaria lugubrosa*
DI	I	DM	Gypsy Moth	*Lymantria dispar*
DI	I	DN	Birch Leaf Miner	*Fenusa putilla*
DI	I	DP	Larch Sawfly	*Pristophora erishsoni*
DI	I	DR	Red Alder Sawfly	
DI	I	DS	Conifer Sawfly	*Neodiprion spp.*
DI	I	DT	Douglas Fir Tussock Moth	*Orgyia pseudotsugata*
DI	I	DU	Satin Moth	*Stilpnotia salicis*
DI	I	DV	Variegated Cutworm	
DI	I	DW	Western Spruce Budworm	*Choristoneura occidentalis*
DI	I	DX	Large Aspen Tortrix	*Choristoneura conflictana*
DI	I	DZ	Western False Hemlock Looper	*Nepytia freemani*
DI	I	M	Mite Damage (general)	
DI	I	S	Shoot Insects (general)	
DI	I	SB	Western Cedar Borer	*Trachykele blondeli*
DI	I	SE	European Pine Shoot Moth	*Rhyaconia buoliana*
DI	I	SG	Gouty Pitch Midge	*Cecidomyia piniiopis*
DI	I	SP	Pitch Nodule Moths	*Petrova spp.*
DI	I	SQ	Sequoia Pitch Moth	*Vespamima sequoiae*
DI	I	SS	Western Pine Shoot Borer	*Eucosma sonomana*
DI	I	W	Weevils (general)	
DI	I	WC	Steremnius Root Collar Weevil	*Steremnius carinatus*
DI	I	WM	Magdalis Species	*Magdalis spp.*
DI	I	WP	Lodgepole Pine Terminal Weevil	*Pissodes terminalis*
DI	I	WS	White (Spruce) Pine Weevil	*Pissodes strobi*
DI	I	WW	Warren's Root Collar Weevil	*Hylobius warreni*
DI	I	WY	Cylindrocopturus Weevil	*Cylindrocopturus*
DI	I	WZ	Yosemite Bark Weevil	*Pissodes schwarzii*
DI	K		Fume Kill	
DI	L		Logging	
DI	L		Logging (partial disturbance)	
Attribute Code	**Activity Code**	**Activity Sub-Code**	**Description**	**Taxonomic Names / Comments**
DI	N		Non-Biological (abiotic) Injuries	
DI	N	B	Wildfire	

Table D-8. Continued

DI	N	D	Drought	
DI	N	F	Flooding	
DI	N	G	Frost (general)	
DI	N	GC	Frost Crack	
DI	N	GH	Frost Heaved	
DI	N	GK	Shoot/Bud Frost Kill	
DI	N	H	Hail	
DI	N	K	Fume Kill	
DI	N	L	Lightning	
DI	N	N	Road Salt	
DI	N	R	Redbelt	
DI	N	S	Slide	
DI	N	W	Windthrow	
DI	N	WS	Windthrow (soil failure)	
DI	N	WT	Windthrow (treatment or harvest related)	
DI	N	X	Scarring / Rubbing	
DI	N	Y	Snow or Ice (including snow press)	
DI	N	Z	Sunscald	
DI	R		Site Rehabilitation	
DI	S		Slide or Avalanche	
DI	T		Treatment Injuries (general)	
DI	T	C	Chemical	
DI	T	L	Logging	
DI	T	M	Mechanical	
DI	T	P	Planting	
DI	T	PM	Poor Planting Microsite	
DI	T	R	Pruning	
DI	T	T	Thinning or Spacing	
DI	U		Damage (cause unknown)	
DI	U	A	Atypical Growth	
DI	U	B	Breakage (dead or broken top)	
DI	U	C	Crown Symptoms (chlorotic)	
DI	U	F	Fluted Butt	
DI	U	G	Galls	
DI	U	K	Fork or Pronounced Crook	
DI	U	L	Leaning	
DI	U	M	Multiple Leaders	
DI	U	R	Brooming	
DI	U	S	Basal Sweep	
DI	V		Problem Vegetation	
DI	V	H	Herbaceous Competition	
DI	V	P	Vegetation Press	
DI	V	S	Shrub Competition	
DI	V	T	Tree Competition	
DI	W		Windthrow	

Table D-9. List of Damage Agent Codes

FIELD CODE	DESCRIPTION	FIELD CODES	DESCRIPTION

A	ANIMAL DAMAGE		
AB	Bear	AP	Porcupine
AC	Cattle	AS	Squirrel
AD	Deer	AV	Vole
AE	Elk	AX	Birds
AH	Hare or rabbit	AZ	Beaver
AM	Moose		
N	ABIOTIC INJURIES		
NB	Fire	NN	Road salt
ND	Drought	NR	Redbelt
NF	Flooding	NS	Slide
NG	Frost	NW	Windthrow
NGC	Frost crack	NWS	Windthrow-soil failure
NGH	Frost-heaved	NWT	Windthrow-treatment or harvest related
NGK	Shoot/bud frost kill	NX	Wounding/rubbing
NH	Hail	NY	Snow, ice, snow press
NK	Fume kill	NZ	Sunscald
NL	Lightning		

D	DISEASE	
DB	BROOM RUST	
DBF	fir broomrust	*Melampsorella caryophyllacearum*
DBS	spruce broomrust	*Chrysomyxa arctostaphyli*
DD	STEM DECAYS	
DDB	Birch trunk rot	*Fomes fomentarius*
DDD	Sulfurfungus	*Laetiporus sulphureus*
DDE	Rust-red stringy rot	*Echinodontium tinctorium*
DDF	Brown crumbly rot	*Fomitopsis pinicola*
DDH	Hardwood trunk rot	*Phellinus ignarius*
DDO	Cedar brown pocket rot	*Poria sericeomollis*
DDP	Red ring rot	*Phellinus pini*
DDQ	Quinine conk rot	*Fomitopsis officincalis*
DDS	Schweinitz butt rot	*phaeolus schweinitzii*
DDT	Aspen trunk rot	*Phellinus tremulae*
DF	FOLIAGE DISEASES	
DFA	Western pine aster rust	*Coleosporium asterum*
DFC	Large-spored spruce-labrador tea rust	*Chrysomyxa ledicola*
DFD	Spruce needle cast	*Lirula macrospora*
DFE	Elytroderma disease	*Elytroderma deformans*
DFH	Larch needle cast	*Hypodermella laricis*
DFL	Pine needle cast	*Lophodermella concolor*
DFM	Larch needle blight	*Meria laricis*
DFP	Fir-fireweed rust	*Pucciniastrum epilobii*
DFR	Douglas-fir needle cast	*Rhabdocline pseudotsugae*
DFS	Red band needle blight	*Mycosphaerella(Scirrhia)pini*
PSS	Sirococcus tip blight	*Sirococcus strobilinus*
PDT	Cedar leaf blight	*Didymascella thujina*

Table D-9. Continued

FIELD CODE	DESCRIPTION	
DL	LEADER OR BRANCH DIEBACKS	
DLD	Dermea canker	*Dermea pseudotsugae*
DLF	Red flag disease	*Potebniamyces balsamicola*
DLP	Phomopsis canker	*Phomopsis lokoyae*
DLS	Sydowia tip dieback	*Sclerophoma pithyophila*
DLV	Aspen-poplar twig blight	*Venturia spp.*
DM	DWARF MISTLETOES	
DMF	Douglas-fir dwarf mistletoe	*Arceuthobium douglasii*
DMH	Hemlock dwarf mistletoe	*Arceuthobium tsugense*
DML	Larch dwarf mistletoe	*Arceuthobium laricis*
DMP	Lodgepole pine dwarf mistletoe	*Arceuthobium americanum*
DR	ROOT DISEASES	
DRA	Armillaria root disease	*Armillaria ostoyae*
DRB	Blackstain root disease	*Ceratocystis wageneri*
DRC	Laminated root rot (cedar)	*Phellinus weirii*
DRL	Laminated root rot	*Inonotus sulphurascens(Phellinus weirii)*
DRN	Annosus root disease	*Heterobasidion annosum*
DRR	Rhizina root disease	*Rhizina undulata*
DRS	Schweinitzii butt rot	*Phaeolus schweinitzii*
DRT	Tomentosus root rot	*Inonotus tomentosus*
DS	STEM DISEASE (CANKER OR RUST)	
DSA	Atropellis canker	*Atropellis piniphila*
DSB	White pine blister rust	*Cronartium ribicola*
DSC	Comandra blister rust	*Cronartium comandrae*
DSE	Sooty bark canker	*Encoelia pruinosa*
DSG	Western gall rust	*Endocronartium harknessii*
DSH	Hypoxylon canker	*Hypoxylon mammatum*
DSP	Cryptosphaeria canker	*Cryptosphaeria populina*
DSR	Ceratocystic canker	*Nectria galligena*
DSS	Stalactiform blister rust	*Cronartium coleosporioides*
DST	Target canker	*Nectria galligena*
DSY	Cytospora canker	*Cytospora chrysosperma*
I	INSECTS	
IA	APHIDS *or ADELGIDS*	
IAB	Balsam woolly adelgid	*Adelges piceae*
IAC	Giant conifer aphid	*Cinara spp*
IAG	Cooley spruce gall adelgid	*Adelges cooleyi*
IAL	Larch cone woolly aphid	*Adelges lariciatus*
IAS	Spruce aphid	*Elatobium abietinum*
IB	BARK BEETLES	
IBB	Western balsam bark beetle	*Dryocoetes confuses*
IBD	Douglas-fir beetle	*Dendroctonus pseudotsugae*
IBI	Engraver beetles	*Ips spp.*
IBM	Mountain pine beetle	*Dendroctonus ponderosae*
IBP	Twig beetles	*Pityogenes, Pityophthorus spp*
IBS	Spruce beetle	*Dendroctonus rufipennis*
IBT	Red turpentine beetle	*Dendroctonus valens*
IBW	Western pine beetle	*Dendroctonus brevicomis*

Table D-9. Continued

FIELD CODE	DESCRIPTION	
ID	DEFOLIATING INSECTS	
IDA	Black army cutworm	*Actebia fennica*
IDB	Two-year budworm	*Choristoneura biennis*
IDC	Larch casebearer	*Coleophora laricella*
IDD	Western winter moth	*Erannis vancouverensis*
IDE	Spruce budworm	*Choristoneura fumiferana*
IDF	Forest tent caterpillar	*Malacosoma disstria*
IDG	Greenstriped forest looper	*Melanolphila imatata*
IDH	Western blackheaded budworm	*Acleris gloverana*
IDI	Pine needle sheath miner	*Zelleria haimbachi*
IDL	Western hemlock looper	*Lambdina fiscellaria lugubrosa*
IDM	Gypsy moth	*Lymantria dispar*
IDN	Birch leaf miner	*Fenusa pusilla*
IDP	Larch sawfly	*Pristiphora erichsonii*
IDR	Alder sawfly	*Eriocampa ovata*
IDS	Conifer sawflies	*Neodiprion spp.*
IDT	Douglas-fir tussock moth	*Orgyia pseudotsugata*
IDU	Satin moth	*Leucoma salicis*
IDV	Variegated cutworm	*Peridroma saucia*
IDW	Western spruce budworm	*Choristoneura occidentalis*
IDX	Large aspen tortrix	*Choristoneura conflictana*
IDZ	Western false hemlock looper	*Nepytia freemani*
IS	SHOOT INSECTS	
ISB	Western cedar borer	*Trachykele blondeli*
ISE	European pine shoot moth	*Rhyaconia buoliana*
ISG	Gouty pitch midge	*Cecidomyia piniinopsis*
ISP	Pitch nodule moths	*Petrova spp.*
ISS	Western pine shoot borer	*Eucosma sonomana*
ISQ	Sequoia pitch moth	*Synanthedon sequoiae*
IW	WEEVILS	
IWC	Conifer seedling weevil	*Steremnius carinatus*
IWM	Magdalis	Magdalis sp.
IWP	Lodgepole pine terminal weevil	*Pissodes terminalis*
IWS	White pine weevil (on spruce)	*Pissodes strobe*
IWW	Warren's root collar weevil	*Hylobius warreni*
IWY	Cylindrocopturus weevil	*Cylindrocopturus spp.*
IWZ	Yosemite bark weevil	*Pissodes schwartzii*
M	MITE DAMAGE (*TRISETACUS SPP*)	
T	TREATMENT INJURIES	
TC	Chemical	
TH	Harvested	
TL	Logging	
TM	Other mechanical damage (non-logging)	
TP	Planting	
TPM	Planting — poor microsite	
TR	Pruning	
TT	Thinning or spacing	

Table D-9. Continued

FIELD CODE	DESCRIPTION
V	VEGETATION PROBLEMS
VH	Herbaceous competition
VP	Vegetation press
VS	Shrub competition
VT	Tree competition