Ministry of Forests

Forest Analysis and Inventory Branch

Variable Density Yield Projection

Volume 3 - VDYP7Console Interface Guide

Version 3

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1. Introduction

The VDYP7Console was developed to project the inventory to generate yield tables for timber supply analysis and other uses, using inputs from both adjusted and unadjusted inventories.

This application was originally designed to read eight separate text files, containing comma separated values (CSV). Using this approach, attributes for a single polygon are located across several tables, linked by record identifier fields. In many tables, multiple records may also exist for a polygon. The option of reading a single flat-file, again in CSV format, has now been added. In this case, all information for a polygon is contained on one record only within this one input file.

The current VDYP7Console supports yield table generation using either of these two input alternatives. Further details are provided below.

1.1 Purpose of this Document

This document is Volume 3 of a series of five documents supporting the VDYP system.

- **Volume 1 – VDYP Overview** provides general information about VDYP7 application, and describes how to use this documentation set.
- **Volume 2 – WinVDYP7 User Guide** describes how to use Win**VDYP7**, an easy to use interactive interface, designed to predict yields one stand at a time.
- **Volume 3 – VDYP7Console Interface Guide** is this document that describes in detail how to use **VDYP7Console**, an interface to generate yield tables from text files in CSV format.

The objective of this volume is to describe the structure and function of the single command line used to run the VDYP7Console. To this end, several core VDYP7 programs are referenced here which are further described in Volume 1 – VDYP7 Overview. In addition, SINDEX is referenced. This program is employed to derive site information required for the projection and is supported by the Research Branch, MoF. These programs are included within the script used to install the VDYP7Console.

1.2 How To Use This Document

The information in this guide is organized as follows:

Section 1 – Introduction provides some general background as to why the VDYP7Console application was developed and the purpose of this user guide.

Section 2 – Getting Started references appropriate sections within the VDYP7 Overview guide for installing the VDYP7Console onto your computer.

Section 3 – Structure and Function describes the structure and function of the VDYP7Console command line.

Section 4 – Processing Notes and Recommendations describes some tips to help ensure the successful use of the VDYP7Console.

Section 5 – Sample Yield Table illustrates the yield table generated by VDYP7Console for one polygon.

2. Getting Started

2.1 Installing VDYP Console

The installation follows a sequence of two steps:

- Step 1: Download the installation package from the VDYP7 web site
    - Step 2: Check your computer to ensure the installation package contains all the components required to run the model. The download sets up a directory to which VDYP 7 is saved.

For system requirements, downloading and installation instructions, a description of the configuration and other support files, see Volume 1 – VDYP7Overview (section 4).

2.2 Running the VDYP7Console Interface

The VDYP7Console is run via a single command line. The appropriate syntax is described in Section 3 of this guide. To launch the application save your command line to a file with a .cmd or .bat extension (e.g. LauchConsole.cmd) and then click on the file name from within Windows Explorer. Alternately, you can open DOS box, type the file name and then press the Enter key.

2.3 Error Messages Overview

When you run the model, processing messages are generated, and saved in a message file that is defined in the command line. See Appendix C for some common messages generated by the VDYP7Console, along with interpretation as to cause. Appendix A of the Volume 2 – WinVDYP7 User Guide provides a list of additional messages generated by all of the VDYP7 interfaces.

2.4 Input File Options

2.4.1 Eight Separate Files

This option requires eight text files, in CSV format, as input to the VDYP7Console. Each of these files is summarized below along with an indication of its purpose. In order to successfully launch the application, all eight files must be present in the input directory referenced by the VDYP7 Console command line.

The polygon relationships across the eight CSV files are maintained via several record identification (RCRD_ID) fields. Some files must furthermore contain a record for a polygon in order to generate a yield table. For other files, a record is optional if no information exists. And, in this case, and when no information exists for *any* polygon, a file must still be supplied which contains the variable names only.

The mandatory versus optional record requirement for each file is indicated below, next to its name.

The Schema.ini File

This file provides the Console with the formats of the eight CSV files. It must be supplied in the same folder containing the CSV files in order to generate yield tables.

The purpose of the Schema.ini file is to describe the structure of the CSV files to VDYP7Console. As VDYP7Console starts, it examines the location identified as the input folder (using the –i command line parameter) for a file named "schema.ini".

This file must exist as supplied in the default data set supplied with the application.

An attempt to eliminate the use of the SCHEMA.INI file was not successful in this version of VDYP7

The following is a sample taken from this file:

```
[POLYGON_ID.csv]
ColNameHeader=True
Format=CSVDelimited
MaxScanRows=0
CharacterSet=ANSI
DateFormatString=yyyy-MMM-dd
NumberDigits=3


Col1=POLYGON_RCRD_ID            Long    Width 10
Col2=MAINTAINER                 Char    Width 3
Col3=MAP_ID                     Char    Width 7
Col4=MAP_QUAD                   Char    Width 1
Col5=MAP_SUB_QUAD               Char    Width 1
Col6=POLYGON_ID                 Long    Width 6
```

This pattern is repeated eight times for each of the CSV files that make up an input data set. The only field in each of these definitions that can potentially be changed is the first line within each section:

```
ColNameHeader=True
```

You can set the value for this parameter to either True (the default) or False. This indicates for the corresponding CSV file (POLYGON_ID.csv in this example), whether the first line of the file contains column names or not. If True, the first line is skipped and the remainder of the file (starting with line 2) is used as input data. If False, the first line in the corresponding CSV file is considered data and will be read in as such.

Find additional information regarding the fields within each of these CSV files, appropriate input values and example records in Appendix D. The Schema.ini file is further described in Appendix B. An illustration of the relationships among these CSV files is provided in Figure 1 below.

Examples of these eight CSV files and the Schema.ini file can also be found within the SampleData\Console folder of the VDYP7 install directory.

2.4. 1.1 Polygon_id.csv (Record Mandatory)

This file contains the polygon descriptors such as the map and polygon number that are used to label each yield table generated by the VDYP7Console. A unique numeric polygon identifier (POLYGON_RCRD_ID) also exists in this file. This attribute exists in other files too, and serves to link all the information that is supplied for the polygon

2.4.1.2 Polygon.csv (Record Mandatory)

This file contains the polygon-level attributes that are required by the VDYP7Console to generate a yield table, such as its geographic location (BEC_ZONE), type of inventory (INVENTORY_STANDARD) and the year that all the menserational attributes were assessed (REFERENCE_YEAR). 2.4.1.3 Non_Veg.csv (Record Optional)

This file contains non-vegetated cover percents, if available, such as bedrock. This information is used to gauge what percentage of the polygon area will eventually fill-in over the course of a long-term projection. Most non-vegetated cover percents are assumed to not fill-in over time. Bare earth is one exception.

This information is not recorded for FIP inventories and is not used to project such polygons. Conversely, for VRI polygons this information is used if supplied, and if missing, the non-vegetated cover percent is assumed to be zero. 2.4.1.4 Other_Veg.csv (Record Optional)

This file contains other vegetated (non-tree) cover percents, if available, such as shrub crown closure. This information is used to gauge what percentage of the polygon area will eventually fill-in over the course of a long-term projection. Vegetated cover percents may be assumed to slowly fill-in over time. Bryoid cover is one exception.

This information was not recorded for FIP inventories and this information is therefore not used to project such polygons. Conversely, for VRI polygons this information is used if supplied, and if missing, this cover percent is assumed to be zero.

2.4.1.5 Layer.csv (Record Mandatory)

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This file contains essential layer-level information required by the VDYP7Console at the start of the projection to generate a yield table. For example, layer crown closure values for legacy FIP inventories and basal area for VRI inventories, is included in this file.

2.4.1.6 History.csv (Record Optional)

This file contains stand history information, if available, such as the occurrence of a disturbance event and associated year. This information is used to gauge what percentage of the polygon area will eventually fill-in over the course of a long-term projection A recently disturbed area may be assumed to fill-in more quickly than if not disturbed. If no disturbance record exists, the polygon is assumed to be undisturbed.

2.4.1.7 Species.csv (Record Mandatory)

This file contains essential species-level information that is further required by the VDYP7Console at the start of the projection to generate a yield table. The age and height of leading (FIP inventories) and the a second species (VRI inventories) is provided in this file, and is used to determine site index and height growth trajectories.

2.4.1.8 Vriadjst.csv (Record Optional)

This file contains additional mensurational information that exists at the start of the projection, such as whole stem volume at 12.5+ cm dbh. If values are supplied, they will be matched at the starting age/year in the yield table generated by VDYP7Console. Conversely, if no record is supplied, the VDYP7Console will start the projection at the values it computes for these attributes.

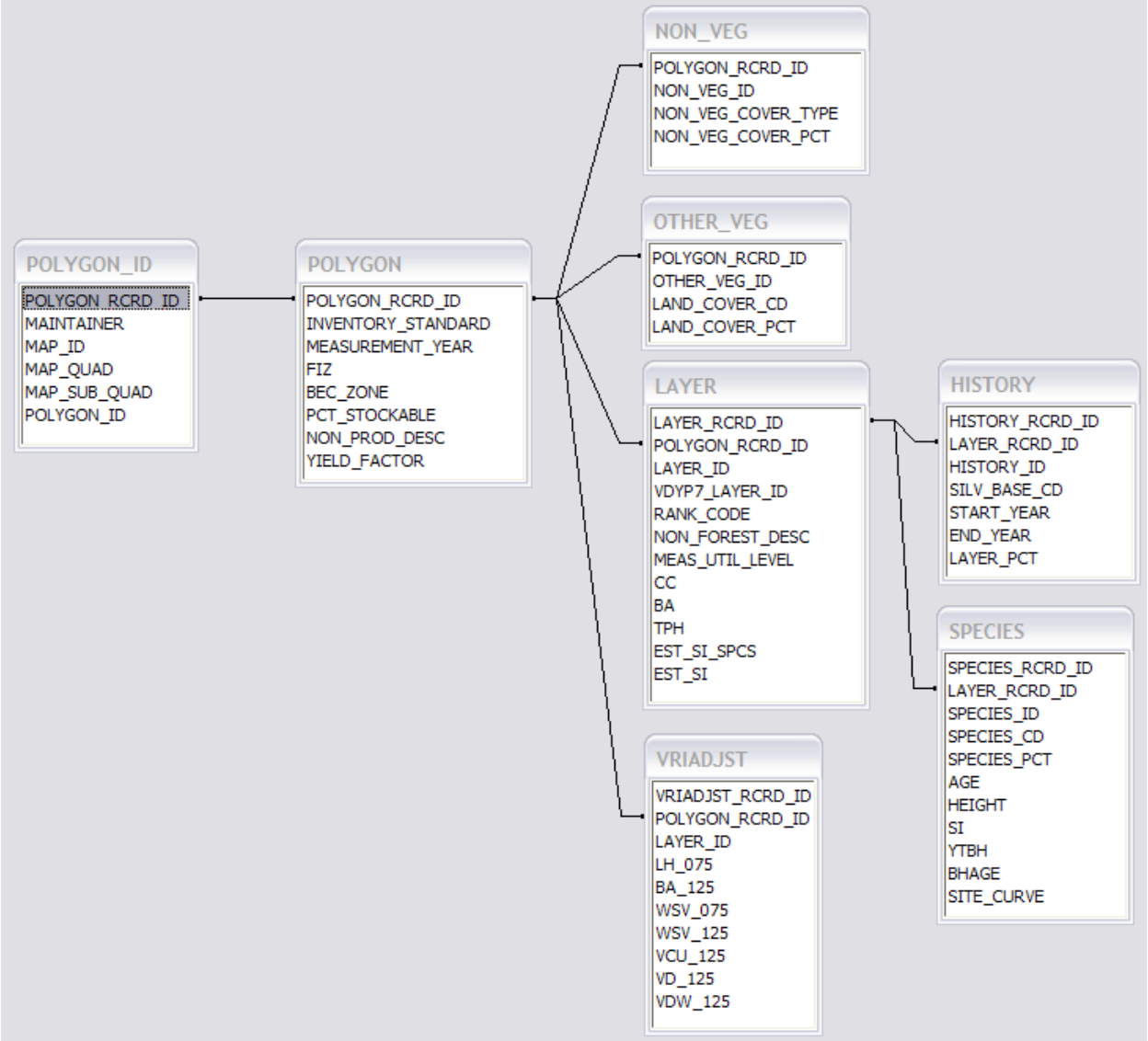
Since these attributes are not photo interpreted, records will normally not exist for a polygon unless it has been statistically adjusted or perhaps measured on the ground.

Further information regarding the input formats of these eight files, appropriate input values and example records can be found in Appendicies B and D. Examples of these eight files can also be found within the SampleData\Console folder of the VDYP7 install directory.

An illustration of the linkage relationships among these files is provided in Figure 1 below.

Figure 1. File relationship diagram.

An attempt to eliminate the use of the SCHEMA.INI file was not successful in this version of VDYP7



2.4.2 Single FlatFile

As an alternative to the above eight separate input files, a single flat file option also exists for input to the VDYP7 Console. It is intended that this file will become a standard export from the Ministries data warehouse, for use be both internal and external clients.

Because all information for a polygon now resides in a single file, and on a single record, several attribute naming conventions have been adopted, for example:

- All attribute names that reference layer information must denote a layer type. In this regard, a 'R1' prefix in the name means the attribute applies to the primary layer (e.g. R1_BASAL_AREA_75); a 'RS' prefix denotes the attributes applies to the veteran layer (e.g. RS_VRI_LIVE_STEMS_PER_HA_75). Thus for a single-layer stand, with a primary layer only, all attributes with a RS prefix would have null values. Section 3. provides some more detail regarding the characteristics of these two layer possibilities, as related to VDYP7 processing.

- All attribute names referencing species information within a layer must additionally reference the species order (e.g. R1_SPECIES_CD_1, R1_SPECIES_CD_2, RS_EST_AGE_SPP1). Thus for a layer with only a single species, attributes values for all other species must be null.

Appendix H provides further details regarding the technical specifications of this single flat-file. Clearly, all attributes required as input by the VDYP7Console must be included, as was the case with the original eight separate input files.

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3. Structure and Function

3.1 Command Line Function

This section describes some aspects of VDYP7Console processing and the content of the yield file generated by this application.

The VDYP7Console processes one polygon at a time in its entirety, from reading the input files to the writing of the yield table information. If a complete yield table is returned to the output file, the following steps will have occurred.

1. A stand description required for the projection will have been successfully returned by FIPSTART or VRISTART.
2. If the input values required by VRIADJST have been supplied, the VRIADJST core program will have been successfully called. VRIADJST adjusts and modifies the stand description in a manner that ensures all attributes in the stand description are fully harmonized prior to projection. If VRIADJST inputs do not exist for a polygon, the program is not called and the stand description generated by FIPSTART or VRISTART is used directly.
3. VDYP7 and VDYP7Back core programs will have generated the future and past yields respectively, in accordance with *includeprojmode* parameter and the age and/or yield ranges supplied on the command line.

The processing is described in further detail.

An attempt is first made to create input records for one of two VDYP7 core programs: FIPSTART or VRISTART from the inventory values supplied on the text files. Sufficient information must exist (e.g. species composition, age and height) or an error message will be written to the log file and the polygon not processed further. Values for other attributes are also 'completed' at this time, if null values have been supplied, e.g.:

- **Stockability**: this is an estimate of percent of a polygon's total area will eventually become stocked.
- **Yield Factor**: this factor impacts the predicted BA075 within the stand description. It is normally set to 1.0; except for cases where inventory standard is 'F' and NonProductiveDescriptor is not null (e.g. 'AF' for alpine forest).

If a stockability value is not supplied, it will be derived during VDYP7Console processing, as follows. The photo-interpreted crown closure is used to gauge what stocking level already exists, at the start of the projection. For VRI inventories, the additional area that may potentially fill-in over the course of a long-term projection is determined from the Shrub/Herb/Bryoid/Non-Veg cover percents. And how much of this additional area actually fills-in is further estimated from supplied

age and disturbance information. For example, this additional area is assumed to fill-in more for polygons with younger stands than older stands; and for polygons with a recent disturbance.

For FIP inventories, the above cover percents have not been assessed and the additional area that may potentially fill-in must therefore be assumed. Age and disturbance information are employed, as above, to estimate how much of this area actually fills in.

The VDYP7 growth models are calibrated using permanent sample plot (PSP) measurements. Prior to projection, stockability is employed to convert the inventory per/ha values (e.g. basal area), which reflect average values across the entire polygon, to a PSP-like stocking condition. After projection, stockability is again employed to convert the grown per/ha values back to their forest inventory equivalents.

It follows that stockability does not influence yields prior to projection, for example those predicted by FIPSTART or any photo interpreted values. Over the course of VDYP7's development other names have also been employed for stockability, i.e. PCTFLAND and PCT_Stockable. These have the same meaning.

Site information required for the projection (e.g. site index, breast height age and site curve number) is also determined at this time via calls to SINDEX.

Projection layer assignments are determined at the time of creating the input records to FIPSTART/VRISTART. A primary projection layer is always required by the VDYP7 core programs and is determined as the rank '1' layer on the photo inventory. An uppermost photo layer may additionally be identified as a veteran projection layer, if it is judged to have veteran-like characteristics and has not already been assigned a primary layer designation. If no photo layer has a Rank = '1' assignment for a polygon, then INCOSADA-based logic is used to judge its identity, and a primary layer assigned accordingly. Conversely, if multiple Rank='1' layers exist for a polygon it will not be processed.

Once assigned, these two projection layers (i.e. primary, veteran) are processed separately by all the VDYP7 core programs. Projected yields are reported back to the yield tables according to the original photo layers. Any photo layers that do not qualify as projection layers will not appear in the yield table produced by the VDYP7Console.

This implementation of projecting layers is referred to as 'layering-lite'. In the future, the option will exist to summarize *all* photo layers into either of the two projection layers recognized by the VDYP7 core programs. Implementing this option will be more difficult. Attributes will need to be combined across photo layers when creating the FIPSTART/VRISTART input files, and the projected values, as generated by the VDYP7 core programs, need to be de-aggregated back to the original photo layers.

Complete yield tables cannot always be generated in accordance with the command line arguments for several reasons. As noted above, sufficient input attributes must be provided for FIPSTART or VRISTART to generate a stand description. Even when this is the case, a stand description may not always be possible; for example, if a nonForestDescriptor value (e.g. NSR) is encountered for legacy FIP polygons. Furthermore, the generation of the per/ha yields across the entire age/year range requested in the command line may not always be possible; for example, if the starting age is

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younger than the age that yields can first be generated. Layers judged to have veteran characteristics will also only be forward-grown after reference age, because the VDYP7Back core program used prior to this point does not support veteran layer processing.

Yield equations may also be employed to determine the starting yields for the projection, even when supplied values exist on the input text files. If, for example, a stand description is not possible at the reference age because the height is too short (i.e. less than 6-8 m) then basal area and stems will be predicted by VRISTART, at the earliest future age possible. In this case, the starting values in the yield table may bear little relationship to the supplied values on the inventory, particularly when the supplied values are inconsistent with the yield relationships predicted by VRISTART. In cases when the site quality is judged too low to generate a future stand description then the per/ha yields will not be generated.

Site height (D hgt) values within the yield tables are generated by calls to SINDEX. If the photo age is greater or equal to 30 years, then site index (SI) is derived, using the supplied age and height as inputs. Projected height in the yield table will then be derived accordingly, using the projected age and SI as inputs to SINDEX. In this case, the supplied and projected heights should always be harmonized since both will be in accordance with SINDEX relationships. When the supplied age is less than 30 years, the supplied SI is employed to determine the site heights. In this case the SINDEX-based link between the supplied height and site height in the yield table may no longer exist, and relationships may appear disconnected. This will be most evident when the supplied age/ht/SI triplet is differs significantly from the relationship predicted by SINDEX.

Finally, species percentages displayed in VDYP7Console yield tables will not always match those on the inventory. This will most commonly be the case when inventory standard = 'F' polygons are processed because the supplied species composition is based on gross whole stem volume; whereas in the values displayed in the yield tables are based on basal area.

To promote legibility, the command line structure and examples in this section are displayed with the parameters starting on a new line. In application you must place these parameters on a single line. The command line parameters are case sensitive and can appear in any order.

Table 1. The command line parameters for VDYP7Console are given along with a description of the options.

Parameter	Description
-p	This parameter references a file that contains any number of arguments for the command line parameters. Each line of the parameter file holds a single command line parameter. This is a handy alternative to supplying parameters to the VDYP7Console. An example is given in Appendix A.
-ini	This parameter identifies the VDYP.INI file and causes an immediate scan of the file and may potentially overwrite some previously specified command line parameters. When identifying the VDYP.INI file, the following entries are extracted out of the INI file (all others are ignored). [PREFERENCES] Debug mode=True/False

Parameter	Description
	DebugDirectory=$(InstallDir)\Debug\ [VDYPCore Configuration] ConfigurationFilePath=$(InstallDir)\VDYP_CFG LogFileName=$(InstallDir)\VDYP_CFG\vdyp7.log SaveIntermediateData=False [Batch Species Report Utilization Levels] For a complete description of the contents of the VDYP.INI file, see section 7.1 of Volume 1 –VDYP7 Overview
-ifmt	This parameter specifies which of the two input file options is being employed. <scsv> the eight separate files are employed as input <dcsv> the single flat-file is employed as input. If this parameter is not supplied, the default is eight separate files.
-i	This parameter specifies the location of the input file(s) **<folder name>** When processing the eight separate files, the path of the folder containing the files **<file name>** When processing the single flatfile, the path of the folder plus the file name.
-e	This parameter specifies the pathname of the processing message file that will be created when the Console is run.
-l	This parameter specifies the pathname of the log file that will be created when the Console is run.
-forward	Yes / No. Enables/disables the forward growth component of VDYP7. The default is ‘Yes’.
-back	Yes / No. Enables/disables the backward interpolation component of VDYP7. The default is ‘No’.
-includeprojmode	Yes / No. The 'Yes' option produces a column at the end of each row by classifying the projection year as one of the following, in order of priority: Ref the reference year; ‘Crnt’ the current year; ‘Spcl’ the special year; ‘Frwd’ forward projection;

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Parameter	Description
	'Back' backward interpolation. The default is 'Yes'.
–allowbatphsub	T or Y / N or F. The 'T' or 'Y' options (true or yes) permits the copy of input basal area and trees per hectare to projected, if available on input and not computed. The 'N' or 'F' arguments (no or false) prevents this copy occurance. The default, if not supplied, is 'T'or 'Y'
-yieldtableincpolyid	Yes/No. The 'Yes' option includes the Polygon_Rcrd_ID in each yield table header; 'No' does not. The default is 'No'.
-v7log	This parameter specifies the pathname of the log file for the VDYP7 core program messages.
-v7save	Yes / No. This parameter allows for the saving of intermediate files. The normal mode is 'No' as this allows for faster processing and avoids the creation of potentially large file sizes. If set to 'Yes' the files will be saved in the VDYP_CFG folder. The default is 'No'.
-c	VDYP7 configuration file folder. This parameter specifies the location of the VDYP_CFG folder. This will reside within the folder that the Console has been installed.
-d	This parameter specifies the pathname of the debug file.
-dbg	Yes / No. This parameter turns on/off the generation of debug output to the folder given after the –d parameter. This should only be turned on when examining processing for a single polygon; otherwise file sizes will become immense. The default is 'No'.
-o	This parameter specifies the pathname of the yield table file, as generated by the Console.
-util	This parameter allows for DBH setting for each of the 16 possible SP0 codes. One of four DBH limits can be supplied for each SP0: 4.0, 7.5, 12.5, 17.5, 22.5. If 'excl' is supplied, the contribution of the SP0 will be excluded altogether. If this parameter is not specified for an SP0 then the default setting in the VDYP.ini file will be applied.
-agestart	Start age for yield tables.
-ageend	End age for yield tables.
-yearstart	Start year for the yield tables.
-yearend	End year for the yield tables.
-inc	Age/Year increment for yield tables.
-forcerefyear	Yes / No. Forces inclusion of the Reference Year in the yield table. The default is 'No'.
-forcecrntyear	Yes / No. Forces inclusion of the Current Year in the yield table. The default is 'No'.

Parameter	Description
-forceyear	Force display of any supplied year.
-includeagerows	Yes/No. Include age rows in the yield tables. The default is 'Yes'.
-includeyearrows	Yes/No. Include year rows in the yield tables. The default is 'Yes'.
-filterformaintainer	This parameter allows for record selection within the VDYP7Console input files . Yield tables will only be generated for polygons matching the supplied Maintainer value in the POLYGON_ID.CSV file, for example DMO. The default is no record filtering for Maintainer.
-filterformapsheet	This parameter allows for record selection within the VDYP7Console input files . Yield tables will only be generated for polygons matching the supplied Map_ID value in the POLYGON_ID CSV file, for example 093K091. The default is no record filtering for Map_ID.
-filterforpolygon	This parameter allows for record selection within the VDYP7Console input files . Yield tables will only be generated for polygons matching the supplied Polygon_ID in the POLYGON_ID.CSV file, for example 505. The default is no record filtering for Polygon_ID.
-progressfrequency	This parameter controls what is displayed as polygons are processed by the VDYP7Console. The valid arguments are. NEVER: no processing information is displayed POLYGON: both MAP_ID and POLYGON_ID are displayed for each polygon processed MAPSHEET: MAP_ID is displayed, whenever it changes <number>: the number of polygons processed is displayed each time the supplied interval is reached, for example every 2500th polygon. The default is POLYGON which has the most impact on processing speed. The other arguments tend to have less impact on performance

3.2 Notes and Recommendations

When VDYP7 is installed on your workstation a file, Schema.ini., will appear in the \SampleData\console folder of your install directory. You must copy this file to the folder that contains the text files with inputs used for yield table generation (as referenced by the –i parameter in your command line).

Blank space will appear in the yield tables for the per hectare yields (e.g. all volumes) whenever the core programs do not return values. This will occur, for example, at low heights (i.e. less than about 6-8meters) and for projections 400 years beyond the reference year.

Several examples showing how these command line parameters function are provided in Appendix F. VDYP7Console users are encouraged to review these examples, particularly if they plan to include both age and year ranges in a single command line. The interaction of these particular parameters can be intricate.

An attempt to eliminate the use of the SCHEMA.INI file was not successful in this version of VDYP7

3.3 Command Line Example

To promote legibility, the command line sample is displayed with each parameter starting on a new line. In application you must place all parameters on a single line. Parameters are case sensitive.

```
C:\VDYP7\vdyp7console
-ini C:\VDYP7\vdyp.ini
- ifmt scsv
-i d:\ips\VDYP7Console\PGDB2Text\
-o d:\ips\vdyp7CONSOLE\tables\tables.dat
-e D:\ips\vdyp7CONSOLE\tables\VDYP7Console.log
-forward Yes
-back No
-includeprojmode Yes
-c C:\VDYP7\VDYP_CFG\
-d C:\VDYP7\DeBug
-dbg No
-v7save Yes
-util AC=12.5 -util AT= 12.5 -util B=12.5 -util C= 12.5 -util D=12.5 -util E= 12.5 -util F=12.5
-util H= 12.5 -util L=12.5 -util MB=12.5 -util PA= 12.5 -util PL= 12.5 -util PW=12.5
-util PY= 12.5 -util S=12.5 -util Y= 12.5
-agestart 10
-ageend 350
-yearstart 1980
-yearend 2200
-inc 10
-forcerefyear Yes
-forcecrntyear  Yes
-forceyear 1953
```

4. Processing Notes and Recommendations

It is important to review the processing messages generated after running the VDYP7Console as contained within the file denoted by the -e parameter. See Appendix C for a summary of common processing messages.

We recommend that you make use of a parameter file via the supplying of a –p parameter file name on the VDYP7Console command line. This facilitates making changes, especially if there are a number of processing scenarios of interest. Editing this text file, with one parameter per line, is far easier than scanning a long, single-line command line for the appropriate parameter. An example of such a parameter file and its use within a command line is provided in Appendix A.

If you add a last line in your file containing the command line, with the text string ‘pause’, the DOS box will remain open after you launch application from Windows Explorer. This will enable you to review processing information which can prove helpful in diagnosing any problems you may have encountered.

5. Sample Yield Table

The VDYP7Console command line will generate yield tables as fixed format text files.

Table 2. An example of a VDYP7Console yield table for one polygon.

```
VDYP7 Console Run Started:          2006-Jan-12 19:51:42
VDYP7 Console Version:              7.2b.13
VDYP7 Extended Core DLL Version:    7.16f.105
VDYP7CORE DLL Version:              7.15n.28
Supporting Calc Library Version:    7.0g 25OCT04  BETA TESTING ONLY
VRIADJST Calc DLL Version:          1.02f
VDYPBACK Calc DLL Version:          1.02e
FIPSTART Calc DLL Version:          1.02e
VDYP7 Calc DLL Version:             1.02e
VRISTART Calc DLL Version:          1.02e
Calc DLL I/O Support Version:       1.01d
VDYP7 Low Level I/O DLL Version:    1.01i
Site Tools Version Number:          7.6a

Batch Parameters:
   Project Age Range:
      Start Age:      10
      End Age:        350
      Start Year:     N/A
      End Year:       N/A
      Increment:      10

   Reported Utilization Levels by SP0 Code:
      AC    --> 12.5 cm+
      AT    --> 12.5 cm+
      B     --> 12.5 cm+
      C     --> 12.5 cm+
      D     --> 12.5 cm+
      E     --> 12.5 cm+
      F     --> 12.5 cm+
      H     --> 12.5 cm+
      L     --> 12.5 cm+
      MB    --> 12.5 cm+
      PA    --> 12.5 cm+
      PL    --> 12.5 cm+
      PW    --> 12.5 cm+
      PY    --> 12.5 cm+
      S     --> 12.5 cm+
      Y     --> 12.5 cm+

vvvvvvvvvv Table Number: 1          District: 001  Map Name: 092I072 Polygon: 988345  Layer: 1
Year  Age                    Stand Composition                     D Hgt  L Hgt   Dia    TPH       BA      Vws    Vcu    Vd     Vdw    Vdwb  I
---- ---- ------------------------------------------------------------ ------ ------ ----- -------- -------- ------ ------ ------ ------ ------
1892   10 F   100.0       0.0       0.0       0.0       0.0       0.0   0.71
1902   20 F   100.0       0.0       0.0       0.0       0.0       0.0   2.57
1912   30 F   100.0       0.0       0.0       0.0       0.0       0.0   4.71
1922   40 F   100.0       0.0       0.0       0.0       0.0       0.0   6.73
1932   50 F   100.0       0.0       0.0       0.0       0.0       0.0   8.55
1942   60 F   100.0       0.0       0.0       0.0       0.0       0.0  10.17   8.14  17.7   283.46   6.9943   19.9   13.2   13.1   13.1   12.8
1952   70 F   100.0       0.0       0.0       0.0       0.0       0.0  11.61   9.95  20.2   302.68   9.6543   31.6   24.2   24.0   23.8   23.3
1962   80 F   100.0       0.0       0.0       0.0       0.0       0.0  12.90  11.60  22.6   288.73  11.6071   42.3   35.0   34.6   34.3   33.5
1972   90 F   100.0       0.0       0.0       0.0       0.0       0.0  14.04  13.10  25.2   262.05  13.0489   52.1   45.1   44.3   43.8   42.9
1982  100 F   100.0       0.0       0.0       0.0       0.0       0.0  15.07  14.46  27.8   233.97  14.1744   61.1   54.3   53.1   52.5   51.4
1992  110 F   100.0       0.0       0.0       0.0       0.0       0.0  15.99  15.69  30.4   208.59  15.1034   69.4   62.8   61.2   60.4   59.1
2002  120 F   100.0       0.0       0.0       0.0       0.0       0.0  16.82  16.81  32.9   186.73  15.9030   77.3   70.8   68.6   67.7   66.1
2012  130 F   100.0       0.0       0.0       0.0       0.0       0.0  17.57  17.32  34.1   195.18  17.8721   89.0   81.8   79.0   77.8   76.1
2022  140 F   100.0       0.0       0.0       0.0       0.0       0.0  18.25  17.68  34.8   207.49  19.7417  100.2   92.4   88.9   87.4   85.4
2032  150 F   100.0       0.0       0.0       0.0       0.0       0.0  18.87  17.91  35.1   220.50  21.2860  109.7  101.2   97.0   95.3   93.1
2042  160 F   100.0       0.0       0.0       0.0       0.0       0.0  19.43  18.05  35.0   234.73  22.5597  117.7  108.6  103.7  101.7   99.3
2052  170 F   100.0       0.0       0.0       0.0       0.0       0.0  19.95  18.09  34.7   248.90  23.5486  123.7  114.1  108.7  106.3  103.8
2062  180 F   100.0       0.0       0.0       0.0       0.0       0.0  20.43  18.10  34.5   260.22  24.3518  128.4  118.4  112.3  109.6  107.1
2072  190 F   100.0       0.0       0.0       0.0       0.0       0.0  20.87  18.10  34.4   268.62  25.0113  132.0  121.7  115.0  112.0  109.3
2082  200 F   100.0       0.0       0.0       0.0       0.0       0.0  21.28  18.09  34.4   274.26  25.5540  134.7  124.2  116.9  113.6  110.9
2092  210 F   100.0       0.0       0.0       0.0       0.0       0.0  21.66  18.03  34.5   277.00  25.9098  135.8  125.2  117.4  113.7  111.0
2102  220 F   100.0       0.0       0.0       0.0       0.0       0.0  22.01  17.98  34.7   277.74  26.2055  136.6  125.9  117.6  113.6  110.8
2112  230 F   100.0       0.0       0.0       0.0       0.0       0.0  22.33  17.95  34.8   278.27  26.4871  137.4  126.7  117.8  113.4  110.7
2122  240 F   100.0       0.0       0.0       0.0       0.0       0.0  22.64  17.92  35.0   278.74  26.7583  138.2  127.5  118.0  113.2  110.5
2132  250 F   100.0       0.0       0.0       0.0       0.0       0.0  22.92  17.90  35.1   279.17  27.0199  139.0  128.2  118.3  113.0  110.2
2142  260 F   100.0       0.0       0.0       0.0       0.0       0.0  23.19  17.88  35.2   279.56  27.2728  139.8  129.0  118.5  112.8  110.0
2152  270 F   100.0       0.0       0.0       0.0       0.0       0.0  23.44  17.86  35.4   279.91  27.5174  140.7  129.8  118.7  112.5  109.7
2162  280 F   100.0       0.0       0.0       0.0       0.0       0.0  23.67  17.85  35.5   280.22  27.7544  141.5  130.6  118.9  112.2  109.4
2172  290 F   100.0       0.0       0.0       0.0       0.0       0.0  23.89  17.84  35.6   280.50  27.9843  142.3  131.3  119.1  111.8  109.0
2182  300 F   100.0       0.0       0.0       0.0       0.0       0.0  24.10  17.83  35.8   280.77  28.2075  143.1  132.1  119.2  111.4  108.5
2192  310 F   100.0       0.0       0.0       0.0       0.0       0.0  24.30  17.82  35.9   281.00  28.4244  143.9  132.8  119.4  110.9  108.0
2202  320 F   100.0       0.0       0.0       0.0       0.0       0.0  24.49  17.82  35.9   281.07  28.4884  144.1  133.0  119.0  110.0  107.0
2212  330 F   100.0       0.0       0.0       0.0       0.0       0.0  24.66  17.81  35.9   281.07  28.4884  144.0  133.0  118.5  108.8  105.9
2222  340 F   100.0       0.0       0.0       0.0       0.0       0.0  24.83  17.81  35.9   281.07  28.4884  144.0  132.9  117.9  107.5  104.6
2232  350 F   100.0       0.0       0.0       0.0       0.0       0.0  24.99  17.81  35.9   281.07  28.4884  144.0  132.9  117.4  106.3  103.4
^^^^^^^^^^ Table Number: 1
```

5.1 Yield Table Label Description

Table 3. Yield Table Label Description

Label	Description	Label	Description
D Hgt	Site height	Vws	Whole Stem Volume
L Hgt	Lorey height	Vcu	Close U volume
Dia	Quadratic mean diameter	Vd	Close U volume net decay
TPH	Stems per hectare	Vdw	Close U volume net decay + waste
BA	Basal area	Vdwb	Close U volume net decay + waste + breakage

6. PGDB2Text Translator

6.1 Overview

A PGDB2Text Translator utility has been prepared to facilitate VDYP7Console processing. Essentially, this Translator automates the creation of the eight separate input files using a Personal GeoDataBases (PGDB) as the source file, which contains the forest inventory information.

A PGDB file was selected for translation by this utility because it is a standard export file from the Vegetation Resources Inventory Database (VRID) and is to be used for analytical purposes, including yield table generation and statistical adjustment. Since PGDB files can also be created following statistical adjustment, the PGDB2Text Translator will further facilitate the creation of yield tables from such inventories. An example of eight separate input files, generated by the PGDB2Text Translator for one polygon, is provided in Appendix D.

The PGDB2Text translator is run from a command line, like the VDYP7Console. Further command line details follow.

6.2 Command Line Structure and Function

The command line syntax for the PGDB2Text Translator is provided below, followed by a command line example. Although each parameter is given starting on a new line in both cases, in application all parameters must be placed on a single line. Parameters are case sensitive.

```
Path\PGDB2Text.cmd
        -load      [LOAD Specification File]
        -srcdb     [PGDB MDB File (PGDB.mdb)]
        -destdb    [Destination Text Folder]
        -rpt       [Output Report File]
        -schema    [Schema INI File]
        -binary    [DTSRun.exe file name]
        -debugfile [Debug File Name]
        -run  or  -norun  or  -singlestep
```

These parameters can be supplied in any order. Each is optional and has defaults, but it is strongly recommended that arguments be supplied for the first five parameters along with a full directory path.

Table 4. The command line parameters for the PGDB2Text Translator are given along with a description of the options.

Parameter	Description
-load	Points to the file that contains the translation instructions.
-srcdb	Points to the source PGDB file.
-destdb	Points to the folder that will to contain the translated text files.
-rpt	Points to the file that will contain information about the translation.
-binary	Points to the location of the DTSRun executable that will be used to create the text files.
-debugfile	Points to the file that will contain diagnostic information. Normally, this command line parameter is not used.
-run or -norun or -singlestep	Specifies how the DTSRun application is run. '-run' is the default and is the normal mode of operation for DTSRun.

Command line example:

```
call "C:\VDYP7\SampleData\PGDB2Text.cmd"
-load C:\VDYP7\SampleData\PGDB2Text.load
-srcdb D:\ips\vdyp7batch\mdb_files\combined\ALL_MAPS\PGDB.mdb
-destdb D:\ips\vdyp7batch\mdb_files\combined\ALL_MAPS\PGDB2Text
-rpt D:\ips\vdyp7batch\mdb_files\combined\ALL_MAPS\PGDB2Text.log
-binary C:\VDYP7\DTSrun.exe
-run
```

The mapping of the eight input file-to-PGDB attributes used by the PGDB2Text Translator is provided in Appendix E, to provide some insight into the processing details. In most cases the attribute translation is straightforward. Note that is some cases, an attribute is translated as null or zero (e.g. FIZ) because no attribute exists in the PGDB file and it is not used by the VDYP7Console. This anomaly reflects the development history of the VDYP7 core programs. In a couple of cases (e.g. MEAS_UTIL_LEVEL) the Translator simply sets the value to a constant always. A mapping to INCOSADA VIFF files in also included in Appendix E for further informational purposes.

Note that PGDB files populated with photo inventory values only will have missing values for those attributes that are filled-in by VDYP7 processing, (e.g. PCT_STOCKABLE and VDYP7_LAYER_ID) and by statistical adjustment (i.e. all attributes in the VRIADJST file). Conversely PGDB files populated with adjusted inventory values will have the full set of attribute

values. These PGDB content differences will also be reflected in the field contents of the eight text files generated by running the PGDB2Text Translator.

6.3 Generating the eight separate Input Files from Non-PGDB Data Sources

Forest inventories destined for VDYP7Console processing may not exist in a PGDB format. In this case a custom translation routine may therefore be required to generate the eight separate input files. To this end, the file formats and required sort orders in Appendix B, the attribute mappings provided in Appendix E and file examples in Appendix D should provide some useful information. In addition, Section 2.4 of this Guide also provides some further details about these files.

Some further points to consider when creating a custom translation are:

1. The POLYGON_RCRD_ID and LAYER_RCRD_ID values can be arbitrary, but need to be unique for each polygon.
2. The NON_VEG_ID, OTHER_VEG_ID, HISTORY_RCRD_ID, SPECIES_RCRD_ID, VRIADJST_RCRD_ID can also be arbitrary, but need be unique for each POLYGON_RCRD_ID or LAYER_RCRD_ID.
3. The PGDB2Text translator employs the following logic when populating the OTHER_VEG.csv file:

```
set LAND_COVER_CD   = 'SH' and
OTHER_VEG_ID    =  1   and
LAND_COVER_PCT  = SHRUB_CROWN_CLOSURE
and output record to file if LAND_COVER_PCT not NULL

then set LAND_COVER_CD   = 'HE' and
OTHER_VEG_ID    =  2   and
LAND_COVER_PCT  = HERB_COVER_PCT
and output record to CSV file if LAND_COVER_PCT not NULL

then set LAND_COVER_CD   = 'BR' and
OTHER_VEG_ID    =  3   and
LAND_COVER_PCT  = BRYOID_COVER_PCT
and output record to CSV file if LAND_COVER_PCT  not NULL
```

This logic is recommended for custom translation routines as well.

Remember to also include the Schema.ini file in the folder containing the CSV files. The VDYP7Console needs this file here to create yield tables.

Appendix A – Parameter File Example

Unlike the command line, the parameter file consists of multiple lines; each holding a single command line parameter.

```
-ini    c:\VDYP7\VDYP.INI
-ifmt scsv
-i D:\TestData\Csv
-o      D:\PGDBText\Output.txt
-e      D:\PGDBText\Errors.txt
-c      c:\VDYP7\VDYP_CFG\
-v7save No
-agestart  50
-ageend    250
-inc    25
```

If this parameter file is named parm.txt, is saved in the same directory as your command line, and contains all of the parameters of interest the command line would simply become

C:\VDYP7\vdyp7console –p parm.txt

Changes are much easier using a parameter file, compared to a command line, because each parameter now occupies its own line. Furthermore, parameter lines within a parameter file line can be commented-out via the insertion of a # symbol at the start of the line. For example, placement of this symbol as follows would nullify the record selection for this particular Polygon_ID within the VDYP7Console input files.

```
#-filterforpolygon    505
```

Appendix B – Input Format of the eight separate files

Name	Attribute	Width
[POLYGON_ID.csv]		
The POLYGON_ID table must be sorted in increasing order of POLYGON_RCRD_ID. It is also recommended that is be further sorted on MAP_ID, POLYGON_ID and MAINTAINER.		
ColNameHeader=True Format=FixedLength Format=CSVDelimited MaxScanRows=0 CharacterSet=ANSI DateFormatString=yyyy-MMM-dd NumberDigits=3		
Col1=POLYGON_RCRD_ID	Long	10
Col2=MAINTAINER	Char	3
Col3=MAP_ID	Char	7
Col4=MAP_QUAD	Char	1
Col5=MAP_SUB_QUAD	Char	1
Col6=POLYGON_ID	Long	6

Name	Attribute	Width
[POLYGON.csv]		
The POLYGON table must be sorted in increasing order of POLYGON_RCRD_ID. Also, there must be a one-to-one matching of records in the POLYGON table with the POLYGON_ID table.		
ColNameHeader=True Format=CSVDelimited MaxScanRows=0 CharacterSet=ANSI DateFormatString=yyyy-MMM-dd NumberDigits=3		
Col1=POLYGON_RCRD_ID	Long	10
Col2=INVENTORY_STANDARD	Char	1
Col3=REFERENCE_YEAR	Short	4
Col4=FIZ	Char	1

Name	Attribute	Width
Col5=BEC_ZONE	Char	4
Col6=PCT_STOCKABLE	Single	7
Col7=NON_PROD_DESC	Char	5
Col8=YIELD_FACTOR	Single	7

Name	Attribute	Width
[NON_VEG.csv]		
NON_VEG records must be sorted in increasing order of POLYGON_RCRD_ID.		
ColNameHeader=True Format=CSVDelimited MaxScanRows=0 CharacterSet=ANSI DateFormatString=yyyy-MMM-dd NumberDigits=3		
Col1=POLYGON_RCRD_ID	Long	10
Col2=NON_VEG_ID	Short	3
Col3=NON_VEG_COVER_TYPE	Char	2
Col4=NON_VEG_COVER_PCT	Single	8

Name	Attribute	Width
[OTHER_VEG.csv]		
OTHER_VEG records must be sorted in increasing order on POLYGON_RCRD_ID then by OTHER_VEG_ID.		
ColNameHeader=True Format=CSVDelimited MaxScanRows=0 CharacterSet=ANSI DateFormatString=yyyy-MMM-dd NumberDigits=3		
Col1=POLYGON_RCRD_ID	Long	10
Col2=OTHER_VEG_ID	Short	5
Col3=LAND_COVER_CD	Char	2
Col4=LAND_COVER_PCT	Single	8

Name	Attribute	Width
[LAYER.csv]		
The LAYER table must be sorted by increasing POLYGON_RCRD_ID then by LAYER_ID.		
ColNameHeader=True Format=CSVDelimited MaxScanRows=0 CharacterSet=ANSI DateFormatString=yyyy-MMM-dd NumberDigits=3		
Col1=LAYER_RCRD_ID	Long	10
Col2=POLYGON_RCRD_ID	Long	10
Col3=LAYER_ID	Char	1
Col4=VDYP7_LAYER_ID	Char	1
Col5=RANK_CODE	Char	1
Col6=NON_FOREST_DESC	Char	5
Col7=MEAS_UTIL_LEVEL	Single	5
Col8=CC	Single	8
Col9=BA	Single	8
Col10=TPH	Single	8
Col11=EST_SI_SPCS	Char	3
Col12=EST_SI	Char	6

Name	Attribute	Width
[HISTORY.csv]		
The HISTORY table must be sorted in increasing order by LAYER_RCRD_ID then by HISTORY_ID		
ColNameHeader=True Format=CSVDelimited MaxScanRows=0 CharacterSet=ANSI DateFormatString=yyyy-MMM-dd NumberDigits=3		
Col1=HISTORY_RCRD_ID	Long	10
Col2=LAYER_RCRD_ID	Long	10

Name	Attribute	Width
Col3=HISTORY_ID	Short	5
Col4=SILV_BASE_CD	Char	2
Col5=START_YEAR	Short	4
Col6=END_YEAR	Short	4
Col7=LAYER_PCT	Single	8

Name	Attribute	Width
[SPECIES.csv]		
The SPECIES table must be sorted in increasing order by LAYER_RCRD_ID then by SPECIES_ID.		
ColNameHeader=True Format=CSVDelimited MaxScanRows=0 CharacterSet=ANSI DateFormatString=yyyy-MMM-dd NumberDigits=3		
Col1=SPECIES_RCRD_ID	Long	10
Col2=LAYER_RCRD_ID	Long	10
Col3=SPECIES_ID	Short	5
Col4=SPECIES_CD	Char	4
Col5=SPECIES_PCT	Single	3
Col6=AGE	Short	4
Col7=HEIGHT	Single	8
Col8=SI	Single	8
Col9=YTBH	Single	8
Col10=BHAGE	Single	8
Col11=SITE_CURVE	Short	5

Name	Attribute	Width
[VRIADJST.csv]		
The VRIADJST table must be sorted in increasing order on POLYGON_RCRD_ID then by LAYER_ID		

Name	Attribute	Width
ColNameHeader=True Format=CSVDelimited MaxScanRows=0 CharacterSet=ANSI DateFormatString=yyyy-MMM-dd NumberDigits=4		
Col1=VRIADJST_RCRD_ID	Long	10
Col2=POLYGON_RCRD_ID	Long	10
Col3=LAYER_ID	Char	1
Col4=LH_075	Single	10
Col5=BA_125	Single	10
Col6=WSV_075	Single	10
Col7=WSV_125	Single	10
Col8=VCU_125	Single	10
Col9=VD_125	Single	10
Col10=VDW_125	Single	10

Notes:
All the text files described above must exist in the folder referenced in your command line and contain at least a header record. Records are required in the POLYGON_ID, POLYGON, LAYER and SPECIES files to process a polygon without issue. Records are not mandatory in the other files.
The schema.ini file, as found in the \SampleData\Console folder of your installation directory, must also be placed in this same directory that contains the text files.
Examples of these files can be found in the \SampleData\Console folder of your installation directory.

Appendix C – Some Console Interface Messages

Some common messages generated by this application, along with interpretation as to cause, are described in this appendix. See Appendix A of the VDYP Overview guide for more messages.

Warnings and Information Notes that Relate to Normal Processing

Message	Cause
DCB 082G007 0 0 0020 1 - I SPECIESNOTFOUND - Projected data for the layer was not generated at stand age 10.0 (Calendar Year: 1783)	Height at this age is too short to generate the stand description required for a yield table record.
DCB 082G007 0 0 0020 1 - I INVALIDSITEINFO - Height 1.5 at Projection Year 1783 is too short to generate yields for species 'PA'	Height at this age is too short to generate the stand description required for a yield table record.
082G007 0 0 0090 - W SUCCESS - Unable to Project Stand backwards over age range: 10.0 to 49.0. VDYPBACK Return Code: -100	The VDYP7 core program VDYP7Back skips this polygon because it cannot regress to a younger age. Thus no yield table records will appear at younger than the reference age.
DWL 092O026 0 0 0264 - W SUCCESS - Primary Layer height was too short to generate a stand description. VDYP7CORE return code: 'Ht L1 too low' (-4)	Inventory Standard 'F' polygons with a non-forest productive code ^= null are routed to FIPSTART always. A stand description cannot be generated and no per/ha yields will be returned to the PIT adjustment table.
DQU 093C080 0 0 0311 - W SUCCESS - Stand description not possible after 80 years of projection. VDYP7CORE return code: 'VRI_YNG +80 yrs nonmerch size' (-14)	A stand description is judged to never be possible, i.e. the core programs projected the stand for 80 years without success. Again, no per/ha attributes will be returned to the PIT adjustment table.
092H025 0 0 0377 1 - I SUCCESS - Estimated SI applied from older species 'BA' to younger species 'HW'	No estimated site index is available and site index for another species is used.

Source Data Related Errors

The VDYP7 core programs require, at a minimum, species, site information (age/height/SI) and BEC zone inputs. The following messages related to inadequate input data, can be avoided by filtering polygons without this information.

Message	Cause
DCB 082G007 0 0 0010 - E INVALIDPARAMETER - Measurement Year (0) is out of range. Must be between 1400 and 2500	No age information exists to determine the year-to-age relationship required for yield table generation.
DCB 082G007 0 0 0010 0 - E SPECIESNOTFOUND - Unable to locate a Leading Species	The VDYP7 core programs require at least one species; if not present a yield table will not be produced.
DCB 082G007 0 0 0010 - E INCONSISTENT_DATA - Unable to define the polygon record to VDYP7. VDYP7 Interface Return Code: INVALIDPARAMETER (-2).	Insufficient attributes are available to generate a yield table.
092G028 0 0 0103 1 - E SPECIESALREADYEXISTS - Species 'HW' duplicates a species already in layer '1'	If a layer has duplicate species codes the polygon will also not be processed.
DCK 092G028 0 0 0103 1 - E INCONSISTENT_DATA - Unable to define the Species record to VDYP7. VDYP7 Interface Return Code: SPECIESALREADYEXISTS (-9)	If a layer has duplicate species codes the polygon will also not be processed.

Appendix D – Example of Output Files Generated by the PGDB2Text Translator for One Polygon

Polygon_ID.csv

POLYGON_RCRD_ID,MAINTAINER,MAP_ID,MAP_QUAD,MAP_SUB_QUAD,POLYGON_ID

2086190,"001","092O020","0","0",1

Polygon.csv

POLYGON_RCRD_ID,INVENTORY_STANDARD,MEASUREMENT_YEAR,FIZ,BEC_ZONE,PCT_STOCKABLE,NON_PROD_DESC,YIELD_FACTOR

2086190,"F",2004,,"ICH",100.000,,1.000

Layer.csv

LAYER_RCRD_ID,POLYGON_RCRD_ID,LAYER_ID,VDYP7_LAYER_ID,RANK_CODE,NON_FOREST_DESC,MEAS_UTIL_LEVEL,CC,BA,TPH,ST_SI_SPCS,

EST_SI

1512488,2086190,"1","P","1",,7.500000,70.00000,34.863620,1427.374,,

Species.csv

SPECIES_RCRD_ID,LAYER_RCRD_ID,SPECIES_ID,SPECIES_CD,SPECIES_PCT,AGE,HEIGHT,SI,YTBH,BHAGE,SITE_CURVE

2170628,1512488,1,"S",65.980,102.000,20.131,,,,

2170629,1512488,2,"PL",34.020,,,,,,

Non_Veg.csv

POLYGON_RCRD_ID,NON_VEG_ID,NON_VEG_COVER_TYPE,NON_VEG_COVER_PCT

2086190,1,"BE",28.000

Other_Veg.csv

POLYGON_RCRD_ID,OTHER_VEG_ID,LAND_COVER_CD,LAND_COVER_PCT

2086190,3,"BR",0.000

History.csv

HISTORY_RCRD_ID,LAYER_RCRD_ID,HISTORY_ID,SILV_BASE_CD,START_YEAR,END_YEAR,LAYER_PCT

2086190,1566190,1,"DI",,,

Vriadjst.csv

VRIADJST_RCRD_ID,POLYGON_RCRD_ID,LAYER_ID,LH_075,BA_125,WSV_075,WSV_125,VCU_125,VD_125,VDW_125

1,2086190,"1",16.59117,30.061020 ,257.35570,238.53820,210.66870,210.66850,210.66830

Appendix E – Mapping of Eight Separate File Attributes to PGDB and INCOSADA (viff) File Attributes

File Name	Attribute Name[1]	PGDB table.NAME[2]	INCOSADA table.NAME[2]
Polygon_ID	POLYGON_RCRD_ID	fco.FOREST_COVER_OBJECT_ID	No attribute exists
	MAINTAINER	No attribute exists (set to as '001' , '002' , etc. by the PGDB2Text Translator for each unique MAP_ID||POLYGON_ID occurrence)	r.FOREST_DISTRICT
	MAP_ID	Substring of fco.POLYGON_NUMBER	p.MAP_ID
	MAP_QUAD	No attribute exists (set to '0' by the PGDB2Text Translator)	p. MAP_QUAD
	MAP_SUB_QUAD	No attribute exists (set to '0' by the PGDB2Text Translator)	p. MAP_SUB_QUAD
	POLYGON_ID	Substring of fco.POLYGON_NUMBER	p.POLYGON_ID
Polygon	POLYGON_RCRD_ID	vcpa.FOREST_COVER_OBJECT_ID	No attribute exists
	INVENTORY_STANDARD	fco.INVENTORY_STANDARD	p. INVENTORY_STANDARD
	REFERENCE_YEAR	vcpa.REFERENCE_YEAR	l. REFERENCE_YEAR
	FIZ	No attribute exists (set to null by the PGDB2Text Translator)	r.FIZ_CODE
	BEC_ZONE	vcps.BEC_ZONE_CODE	r.BGC_ZONE
	PCT_STOCKABLE	vcpa.STOCKABILITY	No attribute exists
	NON_PROD_DESC	vcpa.NON_PRODUCTIVE_DESCRIPTOR_CODE	p.NON_PRODUCTIVE_DESCRIPTOR
	YIELD_FACTOR	vcpa.YIELD_FACTOR	No attribute exists

File Name	Attribute Name[1]	PGDB table.NAME[2]	INCOSADA table.NAME[2]
Non_Veg	POLYGON_RCRD_ID	nvca.FOREST_COVER_OBJECT_ID	No attribute exists
	NON_VEG_ID	nvca.NON_VEGETATIVE_COVER_ADJ_ID	No attribute exists
	NON_VEG_COVER_TYPE	nvca.NON_VEG_COVER_TYPE_CODE	nv. NON_VEG_COVER_TYPE
	NON_VEG_COVER_PCT	nvca.NON_VEG_COVER_PCT	nv. NON_VEG_COVER_PERCENT
Other_Veg	POLYGON_RCRD_ID	fco.FOREST_COVER_OBJECT_ID	No attribute exists
	OTHER_VEG_ID	Set to ‘1’ , ‘2’ or ‘3’ by the PGDB2Text Translator	No attribute exists
	LAND_COVER_CD	Set to 'SH' , 'HE', or 'BR' by the PGDB2Text Translator	Set to 'SH' , 'HE', or 'BR' by the PGDB2Text Translator
	LAND_COVER_PCT	fco.SHRUB_CROWN_CLOSURE or fco.HERB_COVER_PCT or fco.BRYOID_COVER_PCT	nt.SHRUB_CROWN_CLOSURE or nt.HERB_COVER_PCT or nt.BRYOID_COVER_PCT
Layer	LAYER_RCRD_ID	tcla.TREE_COVER_LAYER_ADJUSTED_ID	No attribute exists
	POLYGON_RCRD_ID	tcla.FOREST_COVER_OBJECT_ID	No attribute exists
	LAYER_ID	tcla.LAYER_LEVEL_CODE	l.LAYER_ID
	VDYP7_LAYER_ID	tcla.PROJECTION_LAYER_CODE	No attribute exists
	RANK_CODE	tcla.FOREST_COVER_RANK_CODE	l.FOR_COVER_RANK_CD
	NON_FOREST_DESC	tcla.NON_FOREST_DESCRIPTOR_CODE	l. NON_FOREST_DESCRIPTOR
	MEAS_UTIL_LEVEL	Set to ‘7.5’ by the PGDB2Text Translator	No attribute exists
	CC	tcla.CROWN_CLOSURE_PCT	l. CROWN_CLOSURE
	BA	tcla.BASAL_AREA	l. BASAL_AREA
	TPH	tcla.VRI_LIVE_STEMS_PER_HA	l.VRI_LIVE_STEMS_PER_HA
	EST_SI_SPCS	tcla.TREE_SPECIES_CODE	l.ESTIMATED_SITE_INDEX_SPECIES

File Name	Attribute Name[1]	PGDB table.NAME[2]	INCOSADA table.NAME[2]
	EST_SI	tcla.ESTIMATED_SITE_INDEX	l.ESTIMATED_SITE_INDEX
History	HISTORY_RCRD_ID	fco. FOREST_COVER_OBJECT_ID	No attribute exists
	LAYER_RCRD_ID	tcla.TREE_COVER_LAYER_ADJUSTED_ID	No attribute exists
	HISTORY_ID	Set to '1' by the PGDB2Text Translator	h.HISTORY_ID
	SILV_BASE_CD	fco.DISTURBANCE_CODE	h.SILV_BASE
	START_YEAR	fco.DISTURBANCE_START_YEAR	h.ACTIVITY_START_DATE
	END_YEAR	fco. DISTURBANCE_END_YEAR	h.ACTIVITY_END_DATE
	LAYER_PCT	No attribute exists (set to null by the PGDB2Text Translator)	h.DISTURBANCE_PERCENT
Species	SPECIES_RCRD_ID	tsa.TREE_SPECIES_ADJUSTED_ID	No attribute exists
	LAYER_RCRD_ID	tsa.TREE_COVER_LAYER_ADJUSTED_ID	No attribute exists
	SPECIES_ID	tsa.SPECIES_ORDER	spp.SPECIES_ID
	SPECIES_CD	tsa.TREE_SPECIES_CODE	spp.SPECIES_CD
	SPECIES_PCT	tsa.SPECIES_PCT	spp.SPECIES_PERCENT
	AGE	tsa.AGE	lsp.AGE and ssp.AGE
	HEIGHT	tsa.HEIGHT	lsp.HEIGHT and ssp.HEIGHT
	SI	No attribute exists (set to null by PGDB2Text Translator)	No attribute exists
	YTBH	No attribute exists (set to null by the PGDB2Text Translator)	No attribute exists
	BHAGE	No attribute exists (set to null by the PGDB2Text Translator)	No attribute exists

File Name	Attribute Name[1]	PGDB table.NAME[2]	INCOSADA table.NAME[2]
	SITE_CURVE	No attribute exists (set to null by the PGDB2Text Translator)	No attribute exists
Vriadjst	VRIADJST_RCRD_ID	aia.ADJUSTMENT_INPUT_ADJUSTED_ID	No attribute exists
	POLYGON_RCRD_ID	aia.FOREST_COVER_OBJECT_ID	No attribute exists
	LAYER_ID	aia.LAYER_LEVEL_CODE	No attribute exists
	LH_075	aia.LOREY_HEIGHT	No attribute exists
	BA_125	aia.BASAL_AREA_12_5CM	No attribute exists
	WSV_075	aia.WHOLE_STEM_VOLUME_7_5CM	No attribute exists
	WSV_125	aia.WHOLE_STEM_VOLUME_12_5CM	No attribute exists
	VCU_125	aia.CLOSE_UTIL_VOLUME_12_5CM	No attribute exists
	VD_125	aia.CLOSE_UTIL_NET_DECAY_VOLUME	No attribute exists
	VDW_125	aia.CLOSE_UTIL_NET_WASTE_VOLUME	No attribute exists

Notes:

[1]The VDYP7Console does not use greyed-out attributes.

[2]PGDB table abbreviations:

Fco	=	FOREST_COVER_OBJECT
vcpa	=	VETATION_COVER_POLYGON_ADJ
nvca	=	NON_VEGETATIVE_COVER_ADJ
tcla	=	TREE_COVER_LAYER_ADJUSTED
tsa	=	TREE_SPECIES_ADJUSTED
aia	=	ADJUSTMENT_INPUT_ADJUSTED

[3]INCOSADA table abbreviations:

p	=	POLYGON
l	=	LAYER
s	=	SPECIES
lsp	=	LEADING_SPECIES
ssp	=	SECONDARY_SPECIES
nv	=	NON_VEG
nt	=	NON_TREE
r	=	RESULTANT

Appendix F – Some Examples of Command Line Parameter Function

Five VDYP7Console processing examples are provided in this appendix. The primary intent is to illustrate how some of the command line parameters function. Each example employs the following command line syntax:

```
<path>vdyp7console.exe
-ini <path>\vdyp.ini
-c <path>\VDYP_CFG\
-ifmt scsv
-i <path>\CSVfiles\
-o <path>\mytables.txt
-e <path>\messages.txt
-filterformaintainer DMO
-filterformapsheet   093K091
-filterforpolygon    505
–p path<ParmameterFileName>
-run
```

Thus, the same, single polygon is processed in each example, subject to what is further contained in the Parameter file. As before, each command line parameter is presented on a separate line to improve readability; in application these parameters must appear on a single line.

The parameter file contents, the yield table generated and some interpretive notes are provided below for each example.

Example 1. Age Parameters Supplied

Parameter file:

```
-agestart 50
-ageend  250
-inc      10
```

Yield table:

vvvvvvvvvv Table Number: 1 District: DMO Map Name: 093K091 Polygon: 505 Layer: 1

Year	Age	Stand Composition						D Hgt	L Hgt	Dia	TPH	BA	Vws	Vcu	Vd	Vdw	Vdwb	Mode
1877	50	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	5.95										Back
1887	60	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	7.95										Back
1897	70	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	9.95										Back
1907	80	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	11.88										Back
1917	90	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	13.72										Back
1927	100	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	15.45										Back
1937	110	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	17.07										Back
1947	120	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	18.56										Back
1957	130	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	19.95										Back
1967	140	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	21.22										Back
1977	150	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	22.40										Back
1987	160	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	23.49										Back
1997	170	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	24.49	20.38	26.4	529.77	28.9888	240.1	220.3	210.6	208.0	203.6	Frwd
2007	180	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	25.41	20.35	26.4	520.62	28.5730	236.1	216.5	206.8	204.2	199.8	Crnt
2017	190	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	26.26	20.21	26.4	515.29	28.1711	231.0	211.8	202.1	199.4	195.2	Frwd
2027	200	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	27.04	20.09	26.4	510.93	27.8762	227.2	208.2	198.5	195.8	191.6	Frwd
2037	210	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	27.77	20.00	26.4	507.53	27.6810	224.3	205.6	195.8	193.0	188.9	Frwd
2047	220	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	28.44	19.92	26.4	505.11	27.5813	222.5	203.8	193.9	191.1	187.0	Frwd
2057	230	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	29.07	19.86	26.4	503.19	27.5292	221.1	202.6	192.6	189.7	185.7	Frwd
2067	240	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	29.65	19.81	26.4	501.25	27.4788	220.0	201.6	191.4	188.5	184.5	Frwd
2077	250	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	30.19	19.77	26.4	499.32	27.4299	219.0	200.7	190.4	187.4	183.4	Frwd

^^^^^^^^^^ Table Number: 1

Interpretative notes:

-Age or year parameters are usually required to generate a yield table. In this example three age parameters have been supplied in the parameter file that define which rows appear in the yield table. Note that Year, Age, Composition and height values always exist for each row.

-The per/ha yields are returned for rows that equal or exceed the supplied reference year only (1992 for this polygon). This is the default; if yields prior to reference are of interest this will need to be explicitly requested (see next example). Note also that processing Mode in yield table = 'Frwd' for these rows.

-Composition values at reference year and beyond correspond to VDYP7 predictions of basal area at 7.5+cm dbh; otherwise the composition prior to reference year equals the values supplied within the input values.

-Since no `-util` values are supplied on the command line, or within the parameter file, the default values in the VDYP.ini file are employed.

Example 2. Age Parameters Supplied with Request for Yields Prior to Reference Year

Parameter file:

```
-agestart 50
-ageend  250
-inc      10
-back      Yes
```

Yield table:

vvvvvvvvvv Table Number: 1 District: DMO Map Name: 093K091 Polygon: 505 Layer: 1

Year	Age	Stand Composition						D Hgt	L Hgt	Dia	TPH	BA	Vws	Vcu	Vd	Vdw	Vdwb	Mode
1877	50	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	5.95										Back
1887	60	SW 60.0 B	30.0 SB	10.0	0.0	0.0	0.0	7.95										Back
1897	70	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	9.95	7.92	15.6	152.77	2.9181	11.9	8.5	8.3	8.2	8.0	Back
1907	80	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	11.88	9.65	16.9	326.37	7.2899	34.2	26.2	25.6	25.3	24.8	Back
1917	90	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	13.72	11.33	18.1	474.78	12.1612	64.0	51.5	50.3	49.8	48.8	Back
1927	100	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	15.45	12.92	19.2	569.53	16.5678	96.1	80.3	78.1	77.4	75.8	Back
1937	110	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	17.07	14.43	20.5	612.16	20.1628	127.3	109.3	106.0	105.0	102.8	Back
1947	120	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	18.56	15.85	21.7	619.39	22.9989	156.2	137.0	132.5	131.1	128.3	Back
1957	130	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	19.95	17.17	23.0	606.99	25.2288	182.5	162.7	156.9	155.1	151.9	Back
1967	140	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	21.22	18.40	24.2	585.26	26.9923	206.3	186.2	179.1	177.0	173.3	Back
1977	150	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	22.40	19.40	25.3	562.51	28.2155	224.9	204.8	196.5	194.2	190.0	Back
1987	160	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	23.49	20.11	26.0	543.60	28.9544	237.5	217.4	208.2	205.6	201.3	Back
1997	170	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	24.49	20.38	26.4	529.77	28.9888	240.1	220.3	210.6	208.0	203.6	Frwd
2007	180	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	25.41	20.35	26.4	520.62	28.5730	236.1	216.5	206.8	204.2	199.8	Crnt
2017	190	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	26.26	20.21	26.4	515.29	28.1711	231.0	211.8	202.1	199.4	195.2	Frwd
2027	200	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	27.04	20.09	26.4	510.93	27.8762	227.2	208.2	198.5	195.8	191.6	Frwd
2037	210	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	27.77	20.00	26.4	507.53	27.6810	224.3	205.6	195.8	193.0	188.9	Frwd
2047	220	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	28.44	19.92	26.4	505.11	27.5813	222.5	203.8	193.9	191.1	187.0	Frwd
2057	230	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	29.07	19.86	26.4	503.19	27.5292	221.1	202.6	192.6	189.7	185.7	Frwd
2067	240	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	29.65	19.81	26.4	501.25	27.4788	220.0	201.6	191.4	188.5	184.5	Frwd
2077	250	SW 57.5 B	32.9 SB	9.6	0.0	0.0	0.0	30.19	19.77	26.4	499.32	27.4299	219.0	200.7	190.4	187.4	183.4	Frwd

^^^^^^^^^^ Table Number: 1

Interpretative notes:

-A new parameter has been added which requests per/ha yields be returned prior to reference year also. Correspondingly, per/ha yields now appear when the processing Mode = ‘Back’ too. No stand description is possible at ages 50 or 60 for this polygon and no per/ha yields can therefore be returned at these ages, despite the inclusion of this additional parameter.

-Composition values equate to VDYP7 predictions of basal area at 7.5+cm whenever a stand description can be generated; else composition again equals the input values.

-The year/age rows in the yield table remain the same as the previous example.

-As implied by the previous example, if the -back parameter is not supplied default would be 'No'.

Example 3. Both Age and Year Parameters Supplied

Parameter file:

```
-agestart 50
-ageend  250
-inc      10
-yearstart 2050
-yearend   2100
```

Yield table:

```
vvvvvvvvvv Table Number: 1          District: DMO  Map Name: 093K091 Polygon: 505     Layer: 1
Year  Age                      Stand Composition                       D Hgt  L Hgt   Dia    TPH       BA      Vws    Vcu    Vd     Vdw   Vdwb  Mode
---- ---- ---------------------------------------------------------- ------ ------ ----- -------- -------- ------ ------ ------ ------ ------ ----
2050  223 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  28.64  19.90  26.4   504.54  27.5655  222.0  203.5  193.5  190.7  186.6 Frwd
2057  230 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  29.07  19.86  26.4   503.19  27.5292  221.1  202.6  192.6  189.7  185.7 Frwd
2060  233 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  29.25  19.84  26.4   502.61  27.5139  220.8  202.3  192.2  189.3  185.3 Frwd
2067  240 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  29.65  19.81  26.4   501.25  27.4788  220.0  201.6  191.4  188.5  184.5 Frwd
2070  243 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  29.81  19.80  26.4   500.66  27.4639  219.6  201.3  191.1  188.2  184.1 Frwd
2077  250 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  30.19  19.77  26.4   499.32  27.4299  219.0  200.7  190.4  187.4  183.4 Frwd
^^^^^^^^^^ Table Number: 1
```

Interpretative notes:

-Two new parameters specifying a year range also have been added. Whenever both age and year parameters are supplied, the yield table rows are determined using both intersection and interleaving logic.

-The range of the age/year rows is determined by the intersection of the supplied parameter values (50-250 and 2050-2100 respectively). The single polygon selected in this case has an age of 165 at reference year 1992. The lower year range and upper age range are therefore limiting and we thus see yield table rows generated between year=2050 (age = 223) and year = 2077 (age=250) only.

-The rows displayed within this range are the result of interleaving of intervals that have *either* an age or a year increment equal to the supplied value. Thus for this selected polygon we see rows that correspond to both an age *and* a year increment of 10.

Example 4. Both an Age Range and Year Range Supplied and Age Rows Not Included

Parameter file:

```
-agestart    50
-ageend     250
-inc         10
-yearstart 2050
-yearend   2100
-includeagerows   No
```

Yield table:

```
vvvvvvvvvv Table Number: 1          District: DMO  Map Name: 093K091 Polygon: 505     Layer: 1
Year  Age                      Stand Composition                      D Hgt  L Hgt   Dia    TPH       BA      Vws    Vcu    Vd     Vdw   Vdwb  Mode
---- ---- ------------------------------------------------------------ ------ ------ ----- -------- -------- ------ ------ ------ ------ ------ ----
2050  223 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  28.64  19.90  26.4   504.54  27.5655  222.0  203.5  193.5  190.7  186.6 Frwd
2060  233 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  29.25  19.84  26.4   502.61  27.5139  220.8  202.3  192.2  189.3  185.3 Frwd
2070  243 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  29.81  19.80  26.4   500.66  27.4639  219.6  201.3  191.1  188.2  184.1 Frwd
^^^^^^^^^^ Table Number: 1
```

Interpretative Notes:

-A new parameter has been added that excludes rows generated by incrementing age. We therefore now only see rows that correspond to the year increments of 10.

-Alternately, to see rows with an age-based increment of 10 only we would need to supply:

```
-includeyearrows No
```

in the parameter file.

-The addition of this new parameter also reduces the range of the displayed age/year rows because the last age=250 record has now been excluded.

-This row exclusion capability can therefore be useful when both age and year parameters are required to achieve a desired range but only row increments by age, or by year, are of interest.

-If these include row parameters are not supplied the default is '`Yes`', as implied by the previous example.

Example 5. Both an Age and Year Range Supplied Along with Three Forced Years

Content of the parameter text file for Example 5:

```
-agestart 50
-ageend  250
-inc      10
-yearstart 2050
-yearend   2100
-includeagerows     No
-forcecrntyear     Yes
-forcerefyear      Yes
-forceyear        2055
```

Yield table:

```
vvvvvvvvvv Table Number: 1          District: DMO  Map Name: 093K091 Polygon: 505     Layer: 1
Year  Age                     Stand Composition                      D Hgt  L Hgt   Dia    TPH       BA      Vws    Vcu    Vd     Vdw   Vdwb  Mode
---- ---- ------------------------------------------------------------ ------ ------ ----- -------- -------- ------ ------ ------ ------ ------ ----
1992  165 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  24.00  20.38  26.3   535.63  29.2050  242.1  222.0  212.5  209.8  205.4  Ref
2007  180 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  25.41  20.35  26.4   520.62  28.5730  236.1  216.5  206.8  204.2  199.8 Crnt
2050  223 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  28.64  19.90  26.4   504.54  27.5655  222.0  203.5  193.5  190.7  186.6 Frwd
2055  228 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  28.95  19.87  26.4   503.57  27.5395  221.4  202.8  192.8  190.0  185.9 Spcl
2060  233 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  29.25  19.84  26.4   502.61  27.5139  220.8  202.3  192.2  189.3  185.3 Frwd
2070  243 SW   57.5 B    32.9 SB    9.6       0.0       0.0       0.0  29.81  19.80  26.4   500.66  27.4639  219.6  201.3  191.1  188.2  184.1 Frwd
^^^^^^^^^^ Table Number: 1
```

Interpretative Notes:

-Three additional parameters have been included which forces the generation of a yield table rows at particular years, i.e.:

`forcecrntyear Yes:` row at current year (2007)

`forcerefyear Yes:` row at reference year (1992 or this polygon)

`forceyear <xxxx>:` grow at supplied year (2055).

-These rows will appear, irrespective of any other supplied age/year/inc parameter values. The processing Mode values in the yield table that corresponded to these above three years are 'Crnt', 'Ref', and 'Spcl' respectively.

-Use of Forceyear parameter is one situation where a yield table can be generated, without a supplied age/year range. In this case the resulting yield table will have a single row only that corresponds to the supplied year.

Appendix G – Revision History

Version	Date	Description
1.0	January 15, 2006	Version 1.0 created, reviewed and approved for distribution
1.1	April 2007	Use of default ages from VDYP.ini file disabled; an age and/or year range must usually be supplied to generate a yield table. Input record filtering provisions added, via new command line parameters. Yield tables now report zero volumes as zero (not null). Yield tables now report input species codes (was species groupings), by descending species percent (was alphabetical).
2.0	January 2, 2008	VDYP7 User Guide updated (e.g. new command line parameters added) and augmented (e.g. PGDB2Text Translator described). PGDB2Text Translator added to the VDYP7 install program
3.0	September, 2009	Translate the new BEC Codes ‘BAFA’, ‘CMA’ and ‘IMA’ to BEC ‘AT’ Ensure that projected height does not drop below Reference Height (both forward and backward projection) Apply default CC values, where required, to all primary layers, not just FIP polygons. Implement the Progress Log (-l) command line parameter for VDYP7Console Now route short FIP polygons, with a height less than 10metres, to FIPSTART always; if no stand description possible, only then route to VRISTART Copy Input BA/TPH to projected if it was available on input and not computed Reformat low level routines to support 9-digit polygon numbers Add a command line option to include Polygon_Record_ID in the yield table headers. Change the PGDB2Text Translator to always generate

Version	Date	Description
		primary and foreign keys in ascending order Allow for the optional reporting of POLYGON_RCRD_ID values within the headers of VDYP7Console yield tables Update SINDEX33.dll, to call SINDEX v1.43 Return input species percent. Before, species percents were derived from VDYP7 basal area predictions. Fix made to ensure species codes recognized, even when input values are padded with blank spaces Fix made to recognize the <excl> argument; used with the –util parameter to exclude a species contribution to yield predictions. Schema.ini file is no longer required when running the VDYP7Console or PGDB2Text translator VDYP7Console input mechanism modularized and extended to support the single flatfile format. New copy of input BA/TPH to projected, if not computed, feature made optional Limit Trees per hectare (TPH), if quadratic mean diameter (DQ) is limited Per/ha yields now generated for young stands Installation folder no longer restricted to C: drive Duplicate species codes within a layer now processed, without error

Appendix H – Input Format of the single flat-file

Name	Type	Null	Comments
feature_id	number(38)		provincially unique identifier for an instance of a spatial feature.
map_id	varchar2(16)		the polygon number is a reference number (non unique) assigned to each vegetated or non-vegetated polygon after it is delineated. the polygon number provides a link between the graphic and descriptive files. the business assigned unique identifier for a polygon. typically this has been uniquely assigned within a bcgs 6 x 12 mapsheet.
opening_id	number(10)	y	system generated value uniquely identifying the opening.
opening_number	varchar2(4)	y	a unique number assigned to each opening in the forest caused by a disturbance (e.g. fire, logging, etc.) for which there will be management activities.
inventory_standard_cd	varchar2(10)	y	code indicating under which inventory standard the data was collected. values are: "v:" for vegetation resources inventory (vri), "f" for forest inventory planning (fip) and "i" for incomplete (when a full set of vri attributes is not collected).
polygon_area	number(15,1)	y	the area of a polygon; usually derived from geographic information system processing software. the total area, in hectares, of the forest cover polygon. the total area should be equal to the sum of the areas for all resultants in that polygon.
org_unit_code	varchar2(6)	y	identifies any office within the ministry. first character identifies exec, hq branch, region, or district. next two chars identify the office name; next two the section (hq branch) or program (region or district); last char identifies the subsection.
free_to_grow_ind	varchar2(1)	y	indicates whether or not the polygon represents a free to grow opening.
disturbance_start_date	date	y	starting year of the disturbance event.
disturbance_end_date	date	y	ending year of the disturbance event.
disturbance_method	varchar2(10)	y	describes the particular event that indicates that a disturbance has occurred.
disturbance_type	varchar2(10)	y	the disturbance history described as a list of abbreviations for the techniques along with the years each technique was employed.

vri_dead_stems_per_ha	number(4)	y	the number of standing dead trees visible to the photo interpreter in the dominant, codominant and high intermediate crown positions in each tree layer. snag frequency is expressed as stems 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. codominant 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.
shrub_height	number(4,1)	y	the average height of the shrubs contained in the polygon as interpreted from medium scale photography. note that this attribute only applies to the shrub component. definition source: p. 7-2, pip
shrub_crown_closure	number(3)	y	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.
shrub_cover_pattern	varchar2(10)	y	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 cover
herb_cover_type	varchar2(10)	y	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.
herb_cover_pattern	varchar2(10)	y	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.
herb_cover_pct	number(3)	y	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.
bryoid_cover_pct	number(3)	y	the percent cover of bryoids: includes bryophytes (mosses, liverworts, hornworts) and non-crustose lichens.
stockability	number(4,1)	y	an estimate of the percentage of polygon area that will eventually be stocked by trees. for example, a stockability value of 80% indicates that 20% of the area will never support tree growth.
yield_factor	number(5,3)	y	an input to fipstart or vristart, two vdyp7 programs that generates the stand description that is required to project the polygon.

alpine_designation	varchar2(10)	y	the location of the land unit with respect to location and elevation. an interpretation is applied as to whether the tree unit is above or below the tree line, that is, the upper elevation limit of continuous tree, or potential tree if cut-over, cover. if the land unit is above the the elevation line, a code of 'a' is applied, otherwise 'n', the default. description source: p. 3-11, photo interpretation procedures, phase 1, may 14, 1996. data value source: table 3-5, from description source
bec_zone_cd	varchar2(10)	y	code indicating the polygon's biogeoclimatic zone.
non_productive_cd	varchar2(10)	y	a unique numeric code that references the classes or type of non-productive areas. this is a fip classification based attribute only, and is retained for the purposes of business transition from fip to vegetation inventory. there is no expectation that this attribute would be updated or created under vegetation inventory classification practise.
non_productive_descriptor_cd	varchar2(5)	y	a unique code that references the classes or type of non-productive areas or land that is incapable of supporting commercial forests. this is a fip classification based attribute only, and is retained for the purposes of business transition from fip to vegetation inventory. there is no expectation that this attribute would be updated or created under vegetation inventory classification practise.
layer_sum_code	varchar2(10)	y	indicates combination of layers and tree class to be summarized for volume.
bclcs_level_1	varchar2(10)	y	the code for the land cover classification. the codes are approved by the resource inventory committee, ric. level 1 identifies a vegetated or non-vegetated state, with further dichotomous refinement to level 5, which identifies the vegetation density class related to vegetated land, or specific non-vegetated state cover such as beaches, mudflats etc.
bclcs_level_2	varchar2(10)	y	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.
bclcs_level_3	varchar2(10)	y	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.
bclcs_level_4	varchar2(10)	y	classifies the vegetation types and non-vegetated cover types (as described by the presence of distinct types upon the land base within the polygon).
bclcs_level_5	varchar2(10)	y	classifies the vegetation density classes and non-vegetated categories.
reference_date	date	y	the date of the source data on which the interpretation is based. known as the 'reference year' in the vif file.
non_veg_count	number(3)		the count of non-vegetative records attached to a polygon record.

non_veg_cover_pattern_1	varchar2(10)	y	non-vegetated cover pattern_1 describes the spatial distribution of the most prevalent non-vegetated cover type based on percent area covered within the polygon. definition source: pp.7-4 (fig. 7-2), 8-5 (fig. 8-2), same as pp. 10-7, fig. 10-2, pip
non_veg_cover_pct_1	number(3)	y	the area the predominate non-vegetated portion covers expressed as a percentage of the entire polygons area. definition source: p. 10-5, pip
non_veg_cover_type_1	varchar2(10)	y	non-vegetated cover type_1 is the designation for the predominate observable non-vegetated land cover within the polygon.
non_veg_cover_pattern_2	varchar2(10)	y	non-vegetated cover pattern_2 describes the spatial distribution of the second most prevalent non-vegetated cover type based on percent area covered within the polygon. definition source: pp. 7-4 (fig. 7-2), 8-5 (fig. 8-2), same as pp. 10-7, fig. 10-2, pip
non_veg_cover_pct_2	number(3)	y	the area the second most prevalent non-vegetated portion covers expressed as a percentage of the entire polygons area. definition source: p. 10-5, pip
non_veg_cover_type_2	varchar2(10)	y	non-vegetated cover type_2 is the designation for the second most prevalent observable non-vegetated land cover within the polygon.
non_veg_cover_pattern_3	varchar2(10)	y	non-vegetated cover type_3 is the designation for the third most prevalent observable non-vegetated land cover within the polygon.
non_veg_cover_pct_3	number(3)	y	the area the third most prevalent non-vegetated portion covers expressed as a percentage of the entire polygons area. definition source: p. 10-5, pip
non_veg_cover_type_3	varchar2(10)	y	non-vegetated cover type_3 is the designation for the third most prevalent observable non-vegetated land cover within the polygon.
land_cover_count	number(3)		the number of a land cover component attached to a polygon record.
land_cover_class_cd_1	varchar2(10)	y	the land cover classification code_1 describes the predominate land cover type by percent area occupied within the polygon that contribute to the overall polygon description, but may be too small to be spatially identified. the sub-division of a polygon by a quantified land cover component, allowing non-spatial resolution for modeling of wildlife habitat capability.
land_cover_pct_1	number(3)	y	the amount the polygon occupied by the predominate land cover component. the sub-division of a polygon by a quantified land cover component allows a higher degree spatial resolution for modelling wildlife habitat capability. generally, sizes under 10% would not be estimated. definition source: p. 4-6, pip
land_cover_class_cd_2	varchar2(10)	y	the land cover classification code_2 describes the second most dominate land cover type by percent area occupied within the polygon that contribute to the overall polygon description, but may be too small to be spatially identified. the sub-division of a polygon by a quantified land cover component, allowing non-spatial resolution for modelling of wildlife habitat capability.

land_cover_pct_2	number(3)	y	the amount the polygon occupied by the second most dominate land cover component. the sub-division of a polygon by a quantified land cover component allows a higher degree spatial resolution for modelling wildlife habitat capability. generally, sizes under 10% would not be estimated. definition source: p. 4-6, pip
land_cover_class_cd_3	varchar2(10)	y	the land cover classification code_3 describes the third most dominate land cover type by percent area occupied within the polygon that contribute to the overall polygon description, but may be too small to be spatially identified. the sub-division of a polygon by a quantified land cover component, allowing non-spatial resolution for modelling of wildlife habitat capability.
land_cover_pct_3	number(3)	y	the amount the polygon occupied by the third most dominate land cover component. the sub-division of a polygon by a quantified land cover component allows a higher degree spatial resolution for modelling wildlife habitat capability. generally, sizes under 10% would not be estimated. definition source: p. 4-6, pip
layer_count	number(3)		the count of layers associated with this polygon record.
r1_layer_level_cd	varchar2(10)	y	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 timber 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.
r1_non_forest_descriptor	varchar2(10)	y	non commercial forest vegetation on a polygon that is capable of supporting commercial forests. maps directly to the fip attribute, non forest 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 vegetation inventory.
r1_est_site_index_species_cd	varchar2(10)	y	the species to which the estimated site index applies.
r1_est_site_index	number(5,1)	y	estimated site index is an interpreter estimated site index for tree layers with a leading species age less than 31 years. site index is the mean height of the dominant and codominant trees will attain at a base index age (50 years) used for the purposes 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.
r1_est_site_index_source_cd	varchar2(10)	y	derived site index is an model predicted site index for tree layers with a leading species age greater than 30 years. site index is the mean height of the dominant and codominant trees will attain at a base index age (50 years) used for the purposes 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.

r1_crown_closure	number(3)	y	the percentage of ground area covered by the vertically projected crowns of the tree cover for each tree layer within the polygon.
r1_basal_area_75	number(10,6)	y	basal area is the total cross sectional area (at breast height), of all living trees visible to the photo interpreter. it is measured from the dominant, codominant and high intermediate crown positions, for each tree layer in the polygon. basal area is expressed as square metres per hectare. it is used for the determination of species composition and timber volume. note: dominant trees have well developed crowns that extend above the general level of the trees around them. codominant 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.
r1_vri_live_stems_per_ha_75	number(8)	y	the average number of living trees visible to the photo interpreter in the dominant, codominant and high intermediate crown positions in each tree layer in the polygon. it is expressed as stems per hectare.
r1_tree_cover_pattern	varchar2(10)	y	the spatial distribution of the tree cover within each tree layer in the polygon. definition source: p 6-1, pip data value source; figure 6-1
r1_vertical_complexity	varchar2(10)	y	the 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. 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, codominant, 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, codominant, and high intermediate portion of each tree layer.
r1_species_count	number(1)	y	the count of tree species associated with the rank 1 layer of this polygon record.
r1_species_cd_1	varchar2(10)	y	the code indicating the type of tree species predominate or leading in the tree 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 are described in terms of genus, species and variety.
r1_species_pct_1	number(5,2)	y	percentages of the layer that the leading species occupies. for older stands, tree species percentage is based on percent basal area or, if a very young stand, the relative number of stems per hectare. tree species percentage is estimated to the nearest percent for all living trees above a specified diameter.
r1_est_age_spp1	number(4)	y	the age projected to the adjustment area ground sample date, for species 1.

r1_est_data_source_age_cd	varchar2(10)	y	the source of data used for the interpretation of year of origin (age), for species 1.
r1_est_height_spp1	number(5,1)	y	the height projected to the adjustment area ground sample date, for species 1.
r1_est_data_source_height_cd	varchar2(10)	y	the source of data used for the interpretation of height, for species 1.
r1_species_cd_2	varchar2(10)	y	the code indicating the type of tree species second most dominate in the tree layer. a "second" species is identified in descending order of species percent from the "leading" species. species are described in terms of genus, species and variety.
r1_species_pct_2	number(5,2)	y	percentages of the layer that the second most dominate species occupies. for older stands, tree species percentage is based on percent basal area or, if a very young stand, the relative number of stems per hectare. tree species percentage is estimated to the nearest percent for all living trees above a specified diameter.
r1_est_age_spp2	number(4)	y	the age projected to the adjustment area ground sample date, for species 2.
r1_est_height_spp2	number(5,1)	y	the height projected to the adjustment area ground sample date, for species 2.
r1_species_cd_3	varchar2(10)	y	the code indicating the type of tree species third most dominate in the tree layer. a "third" species is identified in descending order of species percent from the "leading" species. species are described in terms of genus, species and variety.
r1_species_pct_3	number(5,2)	y	percentages of the layer that the third most dominate species occupies. for older stands, tree species percentage is based on percent basal area or, if a very young stand, the relative number of stems per hectare. tree species percentage is estimated to the nearest percent for all living trees above a specified diameter.
r1_species_cd_4	varchar2(10)	y	the code indicating the type of tree species fourth most dominate in the tree layer. the "fourth" species is identified in descending order of species percent from the "leading" species. species are described in terms of genus, species and variety.
r1_species_pct_4	number(5,2)	y	percentages of the layer that the fourth most dominate species occupies. for older stands, tree species percentage is based on percent basal area or, if a very young stand, the relative number of stems per hectare. tree species percentage is estimated to the nearest percent for all living trees above a specified diameter.
r1_species_cd_5	varchar2(10)	y	the code indicating the type of tree species fifth most dominate in the tree layer. the "fifth" species is identified in descending order of species percent from the "leading" species. species are described in terms of genus, species and variety.

r1_species_pct_5	number(5,2)	y	percentages of the layer that the fifth most dominate species occupies. for older stands, tree species percentage is based on percent basal area or, if a very young stand, the relative number of stems per hectare. tree species percentage is estimated to the nearest percent for all living trees above a specified diameter.
r1_species_cd_6	varchar2(10)	y	the code indicating the type of tree species sixth most dominate in the tree layer. the "sixth" species is identified in descending order of species percent from the "leading" species. species are described in terms of genus, species and variety.
r1_species_pct_6	number(5,2)	y	percentages of the layer that the sixth most dominate species occupies. for older stands, tree species percentage is based on percent basal area or, if a very young stand, the relative number of stems per hectare. tree species percentage is estimated to the nearest percent for all living trees above a specified diameter.
r1_adj_input_id	number(10)	y	primary unique numeric identifier for a vri adjusted input.
r1_lorey_height	number(9,5)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description that is required to project the polygon. this is the height in meters of the tree of average basal area.
r1_basal_area_125	number(10,6)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description needed to project the polygon. this basal area is the total cross sectional area, at 1.3 metres height, in square meters per hectare
r1_vol_per_ha_75	number(9,5)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description that is required to project the polygon. this volume is the whole stem volume in cubic metres per hectare for all living trees above 7.5+cm dbh.
r1_vol_per_ha_125	number(9,5)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description that is required to project the polygon. this volume is the whole stem volume in cubic metres per hectare for all living trees above 12.5+cm dbh.
r1_close_util_vol_125	number(9,5)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description that is rquired to project the polygon. this volume is the whole stem volume net stumps and tops in cubic metres per hectare.
r1_close_util_decay_vol_125	number(9,5)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description that is needed to project the polygon. this volume is the whole stem volume net stumps and tops, and decay, in cubic metres per hectare. adjusted close utilization volume net decay at 12.5+ dbh.
r1_close_util_waste_vol_125	number(9,5)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description that is required to project the polygon. this volume is the whole stem volume net for utilization, decay and waste in cubic metres.

rs_layer_level_cd	varchar2(10)	y	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 timber 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.
rs_non_forest_descriptor	varchar2(10)	y	non commercial forest vegetation on a polygon that is capable of supporting commercial forests. maps directly to the fip attribute, non forest 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 vegetation inventory.
rs_est_site_index_species_cd	varchar2(10)	y	the species to which the estimated site index applies.
rs_est_site_index	number(5,1)	y	estimated site index is an interpreter estimated site index for tree layers with a leading species age less than 31 years. site index is the mean height of the dominant and codominant trees will attain at a base index age (50 years) used for the purposes 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.
rs_est_site_index_source_cd	varchar2(10)	y	derived site index is an model predicted site index for tree layers with a leading species age greater than 30 years. site index is the mean height of the dominant and codominant trees will attain at a base index age (50 years) used for the purposes 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.
rs_crown_closure	number(3)	y	the percentage of ground area covered by the vertically projected crowns of the tree cover for each tree layer within the polygon.
rs_basal_area_75	number(10,6)	y	basal area is the total cross sectional area (at breast height), of all living trees visible to the photo interpreter. it is measured from the dominant, codominant and high intermediate crown positions, for each tree layer in the polygon. basal area is expressed as square metres per hectare. it is used for the determination of species composition and timber volume. note: dominant trees have well developed crowns that extend above the general level of the trees around them. codominant 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.
rs_vri_live_stems_per_ha_75	number(8)	y	the average number of living trees visible to the photo interpreter in the dominant, codominant and high intermediate crown positions in each tree layer in the polygon. it is expressed as stems per hectare.
rs_tree_cover_pattern	varchar2(10)	y	the spatial distribution of the tree cover within each tree layer in the polygon. definition source: p 6-1, pip data value source; figure 6-1

rs_vertical_complexity	varchar2(10)	y	the 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. 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, codominant, 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, codominant, and high intermediate portion of each tree layer.
rs_species_count	number(1)	y	the count of tree species associated with the rank 1 layer of this polygon record.
rs_species_cd_1	varchar2(10)	y	the code indicating the type of tree species predominate or leading in the tree 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 are described in terms of genus, species and variety.
rs_species_pct_1	number(5,2)	y	percentages of the layer that the leading species occupies. for older stands, tree species percentage is based on percent basal area or, if a very young stand, the relative number of stems per hectare. tree species percentage is estimated to the nearest percent for all living trees above a specified diameter.
rs_est_age_spp1	number(4)	y	the age projected to the adjustment area ground sample date, for species 1.
rs_est_data_source_age_cd	varchar2(10)	y	the source of data used for the interpretation of year of origin (age), for species 1.
rs_est_height_spp1	number(5,1)	y	the height projected to the adjustment area ground sample date, for species 1.
rs_est_data_source_height_cd	varchar2(10)	y	the source of data used for the interpretation of height, for species 1.
rs_species_cd_2	varchar2(10)	y	the code indicating the type of tree species second most dominate in the tree layer. a "second" species is identified in descending order of species percent from the "leading" species. species are described in terms of genus, species and variety.
rs_species_pct_2	number(5,2)	y	percentages of the layer that the second most dominate species occupies. for older stands, tree species percentage is based on percent basal area or, if a very young stand, the relative number of stems per hectare. tree species percentage is estimated to the nearest percent for all living trees above a specified diameter.
rs_est_age_spp2	number(4)	y	the age projected to the adjustment area ground sample date, for species 2.
rs_est_height_spp2	number(5,1)	y	the height projected to the adjustment area ground sample date, for species 2.

rs_species_cd_3	varchar2(10)	y	the code indicating the type of tree species third most dominate in the tree layer. a "third" species is identified in descending order of species percent from the "leading" species. species are described in terms of genus, species and variety.
rs_species_pct_3	number(5,2)	y	percentages of the layer that the third most dominate species occupies. for older stands, tree species percentage is based on percent basal area or, if a very young stand, the relative number of stems per hectare. tree species percentage is estimated to the nearest percent for all living trees above a specified diameter.
rs_species_cd_4	varchar2(10)	y	the code indicating the type of tree species fourth most dominate in the tree layer. the "fourth" species is identified in descending order of species percent from the "leading" species. species are described in terms of genus, species and variety.
rs_species_pct_4	number(5,2)	y	percentages of the layer that the fourth most dominate species occupies. for older stands, tree species percentage is based on percent basal area or, if a very young stand, the relative number of stems per hectare. tree species percentage is estimated to the nearest percent for all living trees above a specified diameter.
rs_species_cd_5	varchar2(10)	y	the code indicating the type of tree species fifth most dominate in the tree layer. the "fifth" species is identified in descending order of species percent from the "leading" species. species are described in terms of genus, species and variety.
rs_species_pct_5	number(5,2)	y	percentages of the layer that the fifth most dominate species occupies. for older stands, tree species percentage is based on percent basal area or, if a very young stand, the relative number of stems per hectare. tree species percentage is estimated to the nearest percent for all living trees above a specified diameter.
rs_species_cd_6	varchar2(10)	y	the code indicating the type of tree species sixth most dominate in the tree layer. the "sixth" species is identified in descending order of species percent from the "leading" species. species are described in terms of genus, species and variety.
rs_species_pct_6	number(5,2)	y	percentages of the layer that the sixth most dominate species occupies. for older stands, tree species percentage is based on percent basal area or, if a very young stand, the relative number of stems per hectare. tree species percentage is estimated to the nearest percent for all living trees above a specified diameter.
rs_adj_input_id	number(10)	y	primary unique numeric identifier for a vri adjusted input.
rs_lorey_height	number(9,5)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description that is required to project the polygon. this is the height in meters of the tree of average basal area.
rs_basal_area_125	number(10,6)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description needed to project the polygon. this basal area is the total cross sectional area, at 1.3 metres height, in square meters per hectare

rs_vol_per_ha_75	number(9,5)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description that is required to project the polygon. this volume is the whole stem volume in cubic metres per hectare for all living trees above 7.5+cm dbh.
rs_vol_per_ha_125	number(9,5)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description that is required to project the polygon. this volume is the whole stem volume in cubic metres per hectare for all living trees above 12.5+cm dbh.
rs_close_util_vol_125	number(9,5)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description that is rquired to project the polygon. this volume is the whole stem volume net stumps and tops in cubic metres per hectare.
rs_close_util_decay_vol_125	number(9,5)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description that is needed to project the polygon. this volume is the whole stem volume net stumps and tops, and decay, in cubic metres per hectare. adjusted close utilization volume net decay at 12.5+ dbh.
rs_close_util_waste_vol_125	number(9,5)	y	this is a statistically adjusted attribute that is input to vriadjst, a vdyp7 program that modifies the stand description that is required to project the polygon. this volume is the whole stem volume net for utilization, decay and waste in cubic metres.
entry_timestamp	date		entry date/time
entry_userid	varchar2(30)		entry by userid
update_timestamp	date		update date/time
update_userid	varchar2(30)		updated by userid
object_id	number(38)		a unique identifier of the polygon for the spatial index.

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