



**BRITISH  
COLUMBIA**

**Ministry of Forests**

Forest Analysis and Inventory Branch

# **Variable Density Yield Projection**



**Volume 3 - VDYP7Console Interface Guide**

Version 2.0



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# 1. Introduction

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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 works in a single step. It also reads text files, in CSV format, as input with improved processing speed.

## 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 WinVDYP7, 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, SINDEXT 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

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### 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. Check that directory for the following essential components.
  - **PGDB2Text.cmd** - this is a utility that automatically converts Vegetation Resources Inventory Management System (VRIMS) PGDBs to the eight CSV files required to run VDYP 7 (see section 2.4); and
  - **Schema.ini** - this is an essential file that defines the formats in the CSV files.

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 log 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 Overview and Purpose

The VDYP7Console requires eight text files, in CSV format, as input. A ninth Schema.ini file is also required. Each of these files is summarized below along with an indication of its purpose. In order to successfully launch the application, all nine 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. In this case, and when no information exists for *any* polygon, a CSV file must still be supplied which contains the variable names only, given the default setting of the ColNameHeader=True (see Section 2.4.9 below). The mandatory versus optional record requirement for each file is indicated below, next to its name.

### 2.4.1 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.

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:

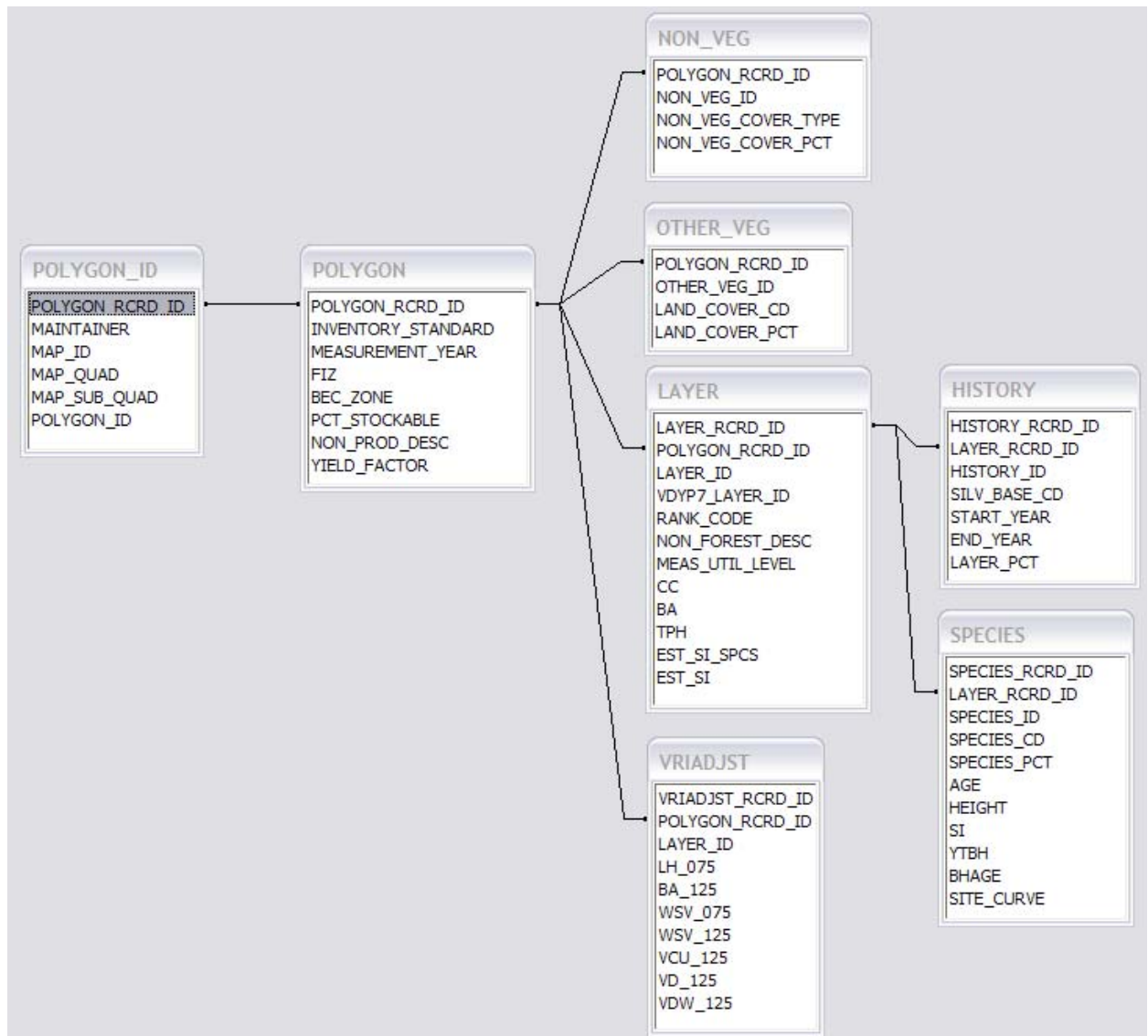
```
ColNameHeader=True
```

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.

Figure 1. CSV file relationship diagram.



### 2.4.2 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.

### 2.4.3 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).

### 2.4.4 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.

### 2.4.5 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.

### 2.4.6 Layer.csv (Record Mandatory)

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.

### **2.4.7 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.

### **2.4.8 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.

### **2.4.9 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.

## 3. Structure and Function

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### 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 SINDEXT.

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 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 SINDEXT. 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 SINDEXT. In this case, the supplied and projected heights should always be harmonized since both will be in accordance with SINDEXT relationships. When the supplied age is less than 30 years, the supplied SI is employed to determine the site heights. In this case the SINDEXT-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 SINDEXT.

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 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
-i	This parameter specifies the location (directory) of the text files, in CSV format, that will be used as input for generating the yield tables. See a description of this format in Appendix B and file examples displayed in

Parameter	Description
	Appendix D. The \sampledata\console folder of your installation directory also contains a set of CSV file examples. The schema.ini file found in this directory must be placed in the same directory as the input text files.
-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; 'Back' backward interpolation. The default is 'Yes'.
-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.

Parameter	Description
-yearstart	Start year for the yield tables.
-yearend	End year for the yield tables.
-inc	Age/Year increment for yield tables.
-forcerefyyear	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'.
-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 2500 <sup>th</sup> 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. basal area, 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.

### 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
-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
-forcerefyyear Yes
-forcecrntyyear Yes
-forceyear 1953
```

## 4. Processing Notes and Recommendations

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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 SPO 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+

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 0.71
1902 20 F 100.0 0.0 0.0 0.0 0.0 2.57
1912 30 F 100.0 0.0 0.0 0.0 0.0 4.71
1922 40 F 100.0 0.0 0.0 0.0 0.0 6.73
1932 50 F 100.0 0.0 0.0 0.0 0.0 8.55
1942 60 F 100.0 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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

<b>Label</b>	<b>Description</b>	<b>Label</b>	<b>Description</b>
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 CSV text files, in accordance with specifications within the schema.ini file, 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 CSV 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 six 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.
-schema	Defaults to the file 'Schema.ini'. This file describes how the translated text files look and is included in the VDYP7 Setup script.
-binary	Points to the location of the DTSSRun 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 DTSSRun application is run. '-run' is the default and is the normal mode of operation for DTSSRun.

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
-schema C:\VDYP7\SampleData\Schema.ini
-binary C:\VDYP7\DTSSrun.exe
-run
```

The mapping of the CSV-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 in 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 is 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 CSV files generated by running the PGDB2Text Translator.

### 6.3 Generating CSV Text 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 CSV files. To this end, the CSV 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 CSV 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
-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 – Generic Input Format (the Schema.ini File)

Name	Attribute	Width
<b>[POLYGON_ID.csv]</b>		
The POLYGON_ID table must be sorted in increasing order of POLYGON_RCRD_ID. It is also recommended that it 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
<b>[POLYGON.csv]</b>		
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
Col5=BEC_ZONE	Char	4
Col6=PCT_STOCKABLE	Single	7
Col7=NON_PROD_DESC	Char	5

Name	Attribute	Width
Col8=YIELD_FACTOR	Single	7

Name	Attribute	Width
<b>[NON_VEG.csv]</b>		
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
<b>[OTHER_VEG.csv]</b>		
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
<b>[LAYER.csv]</b>		
The LAYER table must be sorted by increasing POLYGON_RCRD_ID then by LAYER_ID.		

Name	Attribute	Width
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
<b>[HISTORY.csv]</b>		
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
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
<b>[SPECIES.csv]</b>		
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
<b>[VRIADJST.csv]</b>		
The VRIADJST table must be sorted in increasing order on POLYGON_RCRD_ID then by LAYER_ID		
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

Name	Attribute	Width
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","0920020","0","0",1
```

### Polygon.csv

```
POLYGON_RCRD_ID,INVENTORY_STANDARD,MEASUREMENT_YEAR,FIZ,BEC_ZONE,P
CT_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,HEIGH
T,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 CSV File Attributes to PGDB and INCOSADA (viff) File Attributes

CSV File Name	Attribute Name <sup>1</sup>	PGDB table.NAME <sup>2</sup>	INCOSADA table.NAME <sup>2</sup>
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
Non_Veg	POLYGON_RCRD_ID	nvca.FOREST_COVER_OBJECT_ID	No attribute exists

CSV File Name	Attribute Name <sup>1</sup>	PGDB table.NAME <sup>2</sup>	INCOSADA table.NAME <sup>2</sup>
	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	I.LAYER_ID
	VDYP7_LAYER_ID	tcla.PROJECTION_LAYER_CODE	No attribute exists
	RANK_CODE	tcla.FOREST_COVER_RANK_CODE	I.FOR_COVER_RANK_CD
	NON_FOREST_DESC	tcla.NON_FOREST_DESCRIPTOR_CODE	I. NON_FOREST_DESCRIPTOR
	MEAS_UTIL_LEVEL	Set to '7.5' by the PGDB2Text Translator	No attribute exists
	CC	tcla.CROWN_CLOSURE_PCT	I. CROWN_CLOSURE
	BA	tcla.BASAL_AREA	I. BASAL_AREA
	TPH	tcla.VRI_LIVE_STEMS_PER_HA	I.VRI_LIVE_STEMS_PER_HA
	EST_SI_SPCS	tcla.TREE_SPECIES_CODE	I.ESTIMATED_SITE_INDEX_SPECIES
	EST_SI	tcla.ESTIMATED_SITE_INDEX	I.ESTIMATED_SITE_INDEX

CSV File Name	Attribute Name <sup>1</sup>	PGDB table.NAME <sup>2</sup>	INCOSADA table.NAME <sup>2</sup>
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
	SITE_CURVE	No attribute exists	No attribute exists

CSV File Name	Attribute Name <sup>1</sup>	PGDB table.NAME <sup>2</sup>	INCOSADA table.NAME <sup>2</sup>
		(set to null by the PGDB2Text Translator)	
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:

<sup>1</sup>The VDYP7Console does not use greyed-out CSV file attributes.

<sup>2</sup>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

<sup>3</sup>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\
-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, 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
-----
```

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  5.95          Back
1887  60 SW  60.0 B  30.0 SB  10.0  0.0  0.0  7.95          Back
1897  70 SW  57.5 B  32.9 SB  9.6   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  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  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  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  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  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  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  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  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  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  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  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  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  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  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  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  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  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  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
-forcereftype 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	

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	<p>Use of default ages from VDYP.ini file disabled; an age and/or year range must usually be supplied to generate a yield table.</p> <p>Input record filtering provisions added, via new command line parameters.</p> <p>Yield tables now report zero volumes as zero (not null).</p> <p>Yield tables now report input species codes (was species groupings), by descending species percent (was alphabetical).</p>
2.0	January 2, 2008	<p>VDYP7 User Guide updated (e.g. new command line parameters added) and augmented (e.g. PGDB2Text Translator described).</p> <p>PGDB2Text Translator added to the VDYP7 install program</p>

## **Appendix H – References**

MoF. (2005). Variable Density Yield Prediction. Volume 1 – VDYP Overview.

MoF (2005). Variable Density Yield Prediction. Volume 5 – Computerized Adjustment Process Audit System Guide (SAS / VDYP7).

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