

Minutes from the meeting with the StanForD-group 2008-10-22

Place:	Skogforsk, Uppsala, Sweden
Present	
Manufacturing members:	Mika Talola, John Deere Mikael Eliasson, LogMax Lars-Erik Andersson, Rottne Perttu Isosaari, Parker (former Vansco) Jonas Thorsson, Dasa Per Annemalm, Komatsu Forest Teemu Paldanius, Ponsse
Others:	Jon Rudman, StoraEnso Torleif Carlsson, StoraEnso (§4 -) Per Knutsson, Logica Lars Henriksson, SDC Camilla Rolig-Schölin, Triona Tapio Räsänen, Metsäteho Juha-Antti Sorsa, Metsäteho Jonas Gustafsson, Sveaskog Björn Urbanke, KWF Uli Dietz, KWF Leif Orth, Södra
Skogforsk:	John Arlinger, Secretary Johan J. Möller, Chairman Maria Nordström Andreas Barth

§1 Opening of the meeting

Johan J. Möller opened the meeting. The proposed agenda was accepted.

§2 Clarifications and modifications of variables

PRIORITY OF TAPERCORR (VAR114 & VAR115)

Proposal by Skogforsk, 2008-06-24.

It was discovered that the old var114_t2 and var115_t1 has priority 3 in apt-files when analyzing variables in apt-file as part of the StanForD 2010 project.

Var no	Name	Type	Data type	unit	Description
114	NUMPAR	2	Integer	no	Number of parameters/tree species: 1...var111_t1
115	TAPER-CORR	1	Integer	Mm/ m	Taper correction/parameter: 1...var114_t2/1...var111_t1

These variables were implemented in the first standard version 1988. Skogforsk does not see any need for these variables today. The meeting decided that the variables are to be given priority 4 in all file types.

PRIORITY OF CONTRDATE (VAR18_T4)

Proposal by Skogforsk, 2008-06-26.

CONTRDATE (var18_t4) is described as "*Measuring date for each stem (date when stem was harvested and measured by harvester, M1-measurement)*"

The variable was slightly redefined (2006/07) in order to use it for each stem in stm- and ktr-files.

It has today priority 2 in prd- and pri-files. This is not suitable with it's present definition. The meeting therefore decided that it is changed to priority 0, consequently priority only in stm- and ktr-files.

PRIORITY OF PULP WOOD PROD (VAR224-226)

Proposal by Skogforsk, 2008-10-07.

The old pulpwood variables in the apt-file (var171-var182) all have priority 4. There are some variables in the prd-file that seems to be dependent on these variables.

It was therefore decided that the following variables are given priority 4 in prd-files:

- Var224_t1 (NUMPLPSTMOP) Number of pulpwood stems/operator/tree species (trees comprised entirely of pulpwood).
- The same also applies for the var224_t5 (pulpwood stems), var225_t1 (no of saw logs), var225_t5 (no of saw logs), var226_t1 (no of pulp logs), 226_t5 (no of pulp logs).

PRIORITY OF SITEINFO (VAR23)

Proposal based on questions from Jon Rudman, Storaenso, 2008-10-16.

Var23 is used for describing harvesting method. It was implemented in 2003 and 2004.

It today has priority 3 in prd- and pri-files. It was decided that the variables are given priority 3 also in the drf-file since these variables could be useful when

analyzing monitoring data. It was also decided to implement the following new variables in var328 (identical with var23):

Var no	Name	Type	Data type	unit	Description
328	TOT-WORKTI	27	String	Code/text	Harvesting method, the code is not standardized (identical with var23 t1 in production file) per specified work time and operator: 1...var328 t6 / 1...var328 t5 / 1...var211 t2 The operator normally should not need to input any information related to var23 if this variable is included in apt- or oai-file.
328	TOT-WORKTI	28	String	text	Harvesting method (identical with var23 t2 in production file) per specified work time and operator: 1...var328 t6 / 1...var328 t5 / 1...var211 t2
328	TOT-WORKTI	29	Integer	hectare	Area of the site in hectare (identical with var23 t3 in production file) per specified work time and operator: 1...var328 t6 / 1...var328 t5 / 1...var211 t2

PRIORITY OF KTR VARIABLES

Proposal based on questions from Uli Dietz, KWF, 2008-09-19.

KWF has, during development of a quality certification system, discovered that some relevant variables are sometimes missing from ktr-files. Some of these variables have priority 3 in the StanForD variable lists while it is clearly stated in the document *Demand specification for quality certification of harvester measurements* that these variables should be included in the ktr-file when using the files for a quality certification system.

It was decided that the following variables are given priority 2 instead of 3 in the ktr-file in order to emphasize the fact that these variables are indeed important:

- Var270_t1 (Number of the stem)
- Var270_t2 (Unique number of randomly sampled stem)
- Var290_t1 (Number of logs))
- Var299_t4 (Solid volume of logs on bark based on manual measurements (M2) with caliper)

ERROR: TWO VAR43_T2 EXIST, SECOND IS TO BE VAR43_T3

An error concerning calibration log variables was discovered by Tapio Räsänen.

Two separate var43_t2 exist in the official variable lists, the second variable is to be var43_t3 (in accordance with the minutes from 2006-10-24).

The variable list will thus have the following two variable definitions:

- *Var43_t2: Number of diameter calibrations per tree species*

- *Var43_t3: Number of diameter positions per calibration and tree species*

§3 New variables

TIME VS OBJECT ORIENTED DRF-FILES (VAR315_T4)

Proposal based on questions from Jyrki Partanen, Epec (2008-06-19) regarding drf-files. The main problem is that it is not clearly stated in the file whether it is time oriented or object oriented.

The following text has at least since 2003 been included in the specification document (section "General", page 2):

It must be possible to store the monitoring report (drf-file according to StanForD) for a certain time interval, meaning that it should be possible to send, for example, a daily or weekly report from the machine for analysis at the office. The time interval for reporting must be flexible. It should also be possible to generate a monitoring report per harvesting object. It must, in other words, be possible to generate reports that are both object and time oriented.

The meeting decided that the following new variable is to be added to the standard (priority 1 in drf-files):

Var no	Name	Type	Data type	unit	Prio	Description
<u>315</u>	<u>GTIME</u>	<u>4</u>	<u>integer</u>	<u>code</u>	<u>2</u>	Drf-file is time or object oriented <u>0=time oriented (covers all activities within time interval)</u> <u>1=object oriented (covers all activities within specific harvesting object)</u>

NEW VAR328_T24 (TOTWORKTI) IN DRF-FILE

The proposal was originally from Ponsse and was discussed in the Finnish StanForD meeting on 9th of October 2009.

Var328 was updated 2008-05-06 based on a proposal from Komatsu. They had seen a need of adding new variables to var328 in order to be able to register data per operator, shift and harvesting object. The idea of the proposal was to be able to register data for a long period of time (perhaps up to a couple of months), meaning that if you register individual times and not aggregated times you may very well end up with a very large file.

It was decided to add a new variable 328 (TOTWORKTI) type 24 used for registering compartment identity with priority 3 in drf-files. Var328_t24 is to be identical with var21_t3 in production file. All other site identities in var328 (type 20-23) were added in May 2008.

Var no	Name	Type	Data type	unit	Description
<u>328</u>	<u>TOT-WORKTI</u>	<u>24</u>	<u>String</u>	<u>text</u>	<u>Compartment number (identical with var21_t3 in production file) per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2</u>

BUTT END LENGTH CORRECTION OF LOG (VAR293_T7)

Proposal originally from John Deere and handled twice in Finnish pre-StanForD meetings 2008. The proposal was based on the discussions in the Finnish StanForD meeting on 9th of October 2009.

Length measurement errors occur most often within the first meters of the butt logs. Most obvious reason for errors is the bark and errors are common especially with pine saw logs in certain types of forests. Probably most of the machines have their own kind of system to make a correction to length measurements (e.g. correction factor). It has been noticed now that there is a certain need to know if any length correction has been used for a butt end log and the value of the correction. Today the use of butt end length correction can not be detected from any standard variable.

The meeting decided to implement a new LOGLENGTH variable (var293_t7) with priority 2 in stm, sti and ktr-files. Variable is to be used for registering the correction value of the butt log, if length correction has been used. The value should express how much the length of the log has been corrected in millimeters either downwards or upwards (+/-).

It was also decided with the minutes that the variable should only be used/registered if separate correction function for butt logs is implemented and used.

Var no	Name	Type	Data type	unit	Description
293	LOG- LENGTH	7	Integer	Mm	Value of separate length correction of the butt log, in millimeters. Values can be either positive (+) or negative (-). Used for butt end logs only (one value per stem). Only used/registered if separate correction function for butt logs is implemented and used in harvester.

It was also discussed at the meeting whether a log code should be defined also for var256 (LOGCODE) to be used in pri-file (e.g. new log code 302). However, it was decided by the meeting that it was presently not necessary since this is information typical of ktr-files.

§4 Stem bunches using feller-buncher system

The following proposals was based on suggestions from Teemu Paldanius, Ponsse.

Ponsse had discovered a need for registering production data for stem-bunches (normally bio energy assortments) where no delimbing or cross cutting is carried out.

Var230_t1, var231_t1 and var246_t1 can be used for registering small stems felled for energy purposes. Number of bunches, stems and a "volume" per species can be register in these variables. The variables were created in 1992 and then modified in April 2006. It was not clearly stated in 1992 how these

variables are to be used or for what purpose. We therefore stated in 2006 that they are to be used in a feller buncher system where the stems are not delimbed. The variables are defined per species (many species are probably mixed into one stem bunch) and they only have a priority in prd-files.

It was therefore decided that we specify that the species is dependant on the first stem in the bunch.

An additional issue is whether to use var257_t2 and var267_t2 if we need to registered these non delimbed stem bunches in pri-files. An idea that was discussed at the meeting might be to use these variables also for feller-buncher systems but since no log bunch information is available we might just register "-1" for all data in var257_t2 (log bunches) or no data at all. The meeting decided that this issue is to be postponed.

It was also discussed at the meeting whether there is a need to define an assortment per log bunch when using multi tree handling (MTH) in harvesters, for example using a log bunch code 20 in var256_t3. The meeting decided that this issue is to be postponed.

§5 Updating ghd-file

Proposals based on questions raised by Torleif Carlsson, StoraEnso, 2008-10-01.

It was decided that a new variable for including a descriptive name of each format class is added to the standard into var465_t9.

The basic idea is that this descriptive name may be used in the software interface if operator wants to use format classes as defined in the ghd-file. This would make it possible to improve reporting of data from the forest machines. The forest company may for example send out an empty polygon shape file with a number of predefined format classes like "key habitat", "wet land" and "impediment". The forest company can then instruct the operator to draw these new objects if they don't already exist and the effect harvesting in some way.

Var no	Name	Type	Data type	unit	Prio	Description
465	<u>VISFORM</u>	<u>9</u>	<u>String</u>	<u>text</u>	<u>2</u>	<u>Descriptive name of format class, free text: 1...var465 t1/1...var460 t1</u>

It was also suggested that a variable for specifying that a certain shp-layer should be used for tracking data is added.

It may be an advantage for the forest company if it is possible to define that a certain layer should be used for registering tracking data since it then would be possible to control the structure of the data file (for example dbf or tab). Merging a layer into a company system for GIS-data might no be possible if the structure of the data file is not known.

The following updates (underlined) were decided by the meeting:

Var no	Name	Type	Data type	unit	Prio	Description
464	TRACKING	1	Integer	code	2	Indicates what type of tracking file is to be generated by the forest machine 0=points, 1=lines, 2=polygons, 3=no tracking file needed (default) <u>Observe that this information is set by forest company.</u>
460	GISFILE	7	Integer	code	2	Type of tracking file created in forest machine: 1...var460_t1 0 = points, 1 = lines, 2 = polygons, 3 = not a tracking file (default if variable is missing) <u>Observe that this information is only registered in the machine.</u>
<u>460</u>	<u>GISFILE</u>	<u>12</u>	<u>Integer</u>	<u>code</u>	<u>2</u>	<u>Layer supposed to be used for storing tracking data in machine, only valid if var464_t1 has value 0-2:</u> <u>1...var460_t1</u> <u>0 = true (only one layer per ghd-file)</u> <u>1 = false</u> <u>Observe that this is an instruction sent to the machine from the forest company</u>

Example:

1. Gis-application looks for var464_t1 to determine if forest company needs a tracking layer
2. No tracking layer used if var464_t1 is 3.
3. Gis application looks for layer with code 0 in var460_t12 and uses that layer if it exists.
4. A "default layer" is created by the machine if no layer with code 0 in var460_t12 exists.

It should of course be possible for operator to "manually" create a tracking layer independently of the variables mentioned above.

§6 Bio energy calculations

Proposal by Johan Möller Skogforsk, 2008-04-25.

Skogforsk is carrying out a project where the possibilities of using pri-data för calculating available amounts of bio energy assortments are evaluated. The first practical tests were carried out in May 2008 and the rest of the tests between August and November 2008.

It was decided to implement a new tree code for bio energy, indicating if the logging residues of a tree are suitable for bio energy extraction or not. It was decided to implement a tree code 505 in var266 t1 and t2 (pri-file) with the following description:

Adaption of harvesting for retrieving bio energy assortments, in other words whether extraction of logging residues for bio energy purposes is suitable, 1 if true and 0 if false.

§7 Items for discussion and information

QUALITY CERTIFICATION IN GERMANY (KWF)

Uli Dietz and Björn Urbanke (KWF) presented their work on a web application for analyzing ktr-data.

IMPLEMENTATION OF BARK FUNCTIONS

Some implementations of the bark functions are not in perfect accordance with the intentions of Skogforsk. A document has therefore been written (appendix 1) and briefly described by the secretary. Observe that the main conclusions in the document are that:

- It must be possible to use different types of bark functions for different species (for example the Skogforsk functions for Scots pine and Norway spruce and the older linear VMR-functions for broadleaves). This means that var113_t7 must be implemented both when creating and receiving an apt-file. It must also be used in production files (prd, pri, stm).
- It should be possible to automatically use gps-coordinates (only latitude used) for the Skogforsk pine function instead of variable 113, type 4 in the apt-file. This means that the latitude can be set both in apt and in machine but that a machine setting (automatic through gps or manual) should "over-ride" an apt-setting. The variable must be registered in the production files.
- All relevant variables for all types of functions must be included in all files. This means that both var112_t1, var113_t1, var113_t4 and var113_7 must be included if for example both new and old Swedish (code 1,3 and 4) functions are used, as in table 1 below. Only var113_7 and var113_t4 is not enough. Both var112_t2, var113_t2, var113_t3, var113_t4 and var113_7 must be included if the German functions (code 2) are used together with the new Skogforsk functions.

BUNDLES IN PRI AND PRD-FILES

The issue of production data from bundlers was withdrawn from the agenda due to the fact that it is basically only relevant for one single manufacturer today.

DEFINITION OF A STEM IN STANDARD

The issue was based on the initiative of UPM and discussions in the Finnish StanForD meeting on 9th of October 2009. This issue was presented by Metsäteho.

UPM has found problems with volumes and stem counts in cases where a reject piece has been made of a small stem and no commercial logs have been possible to cut. There are counts for these stems but no volumes of logs in prd. This causes certain problems in harvesting cost calculation. These kinds of stems have to be corrected manually in the database. Cases are from first

thinnings and found only with John Deere's machines. The reason is believed to be the definition of a stem in the standard.

It was discussed whether the problem should be studied more and if needed, the definition of stem in the standard should be changed (underlined) to: "The sum of the length of all COMMERCIAL / MERCHANTABLE logs from one stem ...".

The StanForD secretary described the reasoning behind the present definition of a stem as decided 2004-03. It is important, in cases like above, to also include the un-classified volumes in to get a correct mean stem volume. The meeting decided not to re-write the definition of a stem, but the issue of perhaps adding a variable for counting stems with only unclassified logs can be discussed at the next meeting.

SUMMARY REPORT OF MEASUREMENT ACCURACY

This issue was proposed and presented by Metsäteho.

There is a common need in Finland to get information of the state of harvester's measurement accuracy in a similar form from all machines. The objective is to use the measurements of random sample stems and operator selected stems more effectively in the follow-up of machines' measurement accuracy. There is a risk that the recent changes in control measurement regulations will not be taken in real use and the machines will not be followed as they should be. Forest companies in Finland are now defining the directives for their contractors about how control measurements is to be done. The need for a new type of summary report is mainly for the contractors themselves when they want to follow their own machines' or their sub-contractors' machines' measurement accuracy. The report would also be a good tool for showing the state of the measurement accuracy to a third party (forestry association or forest owner).

It was decided in the Finnish StanForD meeting that there is no need for a new kind of StanForD file and that the ktr-file is not a good solution either. All the necessary variables probably exist already now. There is no need to define a special data exchange file, instead the report could be saved in some general printable and readable form, like pdf. The report of different machines should cover basically the same information and also look alike.

The report would be made for selectable time interval and it could cover these groups of data

- 1) machine, bucking computer and software identification information
- 2) reporting time interval
- 3) information about all control measurements made (date, control measurement data (var38) ...)
- 4) latest calibrations per tree species (date, possibly reasons)
- 5) statistics of measurement accuracy (random and operator selected sample stems separately): volume, diameter and length differences

- a. this is a bit tricky because these should maybe be given per product group
- 6) adjustment values of measurement per tree species (present values and their change values, if changed in calibrations).

A proposal for the report's data structure was presented in the meeting.

No proposals for variable or file changes is needed, unless some problems are found with the use of the variables in further studies of the report's structure and its data content.

Preliminary timetable for the report implementation in Finland (new machines and updates of software) is 05/2009. This means that specifications of the report must be written ASAP.

The proposal as described above was discussed at the meeting. Some participants had doubts about whether this was a good solution based on the idea that it is more efficient to do an analyses of ktr-data in a separate application. Per Annemalm proposed that there could be a common application in the harvesters provided by some third party that would read ktr's and would make the report. Several other participants agreed. Mika Talola and Tapio Räsänen doubted that and stated that it will probably not work. Metsäteho will continue their work with this issue.

§9 StanForD 2010

Johan Möller presented the time table as well as a short summary of the conclusions from the meeting with all manufacturers that had taken place during September and October 2008.

A meeting with all members (manufacturers) will take place on the 27th of November in Helsinki.

§11 Other issues

No other issues were discussed.

§12 Next meeting

Next meeting will take place on Wednesday the 1st of April 2009, at Skogforsk in Uppsala, starting at 10.00 a.m. Proposals for the meeting shall be the secretary by hand preferably not later than March 1st 2009.

§13 End of meeting

Johan J Möller (chairman) closed the meeting.

Secretary

John Arlinger



John Arlinger
Björn Hannrup
Johan J Möller

2008-09-23

Implementing bark functions

Introduction

New bark functions for Scots pine and Norway spruce were developed by Skogforsk during 2004 by Björn Hannrup. The functions were documented in the work report “Funktioner för skattning av barkens tjocklek hos tall och gran vid avverkning med skördare” (Hannrup, B., 2004, Arbetsrapport 575, Skogforsk).

The new bark functions was tested and found to work correctly for both Scots pine and Norway spruce when Skogforsk tested harvesters from all major manufacturers on the Swedish market in 2006. However, it was discovered in September 2008 that some machines and some administrative softwares differs in their implementation of var113 and especially concerning the use of the new variables var113_t4 and var113_t7. There the following documentation was written.

Background

SCOTS PINE

There was a great need for a new bark function for Scots pine since the old Swedish functions (referred to as the Zacco functions) gave systematical errors especially for stems with large DBH. The new function meant a significant improvement compared to the old one.

The only data needed in the new Scots pine functions not existing at the time in the harvester is the approximate latitude where the harvester is operating. This should be possible to set through the apt-file.

SPRUCE

The bark function for spruce does not differ significantly from the Zacco functions. However, it is a clear advantage to do the calculations in the same way as for pine.

BIRCH AND OTHER BROAD LEAVES

No new specific functions for birch or other broadleaves were developed at the time. If the new bark functions are used also for other species it is recommended that the pine bark function is used for birch and other broadleaves. New recommendations might be published after further studies.

StanForD variables

It should be possible to control what bark function to use through the apt-file and to register what function has been used in the prd/pri-file.

The following variables for bark functions exist today in StanForD:

VarNo	Name	Type	Unit	Description
112		1	No	Number of bark parameters/tree species:1...var111_t1. The variable is used together with var113_t1.
		2	no	Number of diameter breaks/tree species: 1...var111_t1.The variable is used together with variable 113, type 2 and type 3. (based on German requirements)
113	BARKPAR	1	0.01 mm 0.1%%	Bark parameters/tree species (first parameter in 100ths of mm; second in 10ths per mille):1...var112_t1/1...var111_t1
		2	mm	Lower diameter limits/tree species: 2...var112_t2/1...var111_t1(based on German requirements)
		3	0.01 mm	Deduction for double bark thickness/tree species: 1...var112_t2/1...var111_t1(based on German requirements)
		4	0.00001 degrees	Latitude used in bark function
		7	code	Type of bark function per species: 1...var111_t1 1= Function according to var113_t1 (Zacco function) 2= Function according to var113_t2 & var113_t3 3=Skogforsk 2004, Scots pine 4=Skogforsk 2004, Norway spruce (more details in appendix)

Description of bark function codes (var113_t7) included in appendix:

- 1) Bark function developed by Zacco (1974).
Linear function: $\text{Double bark thickness} = a + b * \text{top diameter ob}$
where a is stored as the first parameter in var113_t1 and b as the second parameter.
For example: "Bark= 3,28+0,0370*diam" is stored as "113 1 328 370~" in a StanForD file.
- 2) Bark function based on diameter classes with fixed bark deductions (double), based on German requirements. Example:

Bark deduction, mm	Lower diameter ob, mm
30	<=320
20	>320 <=200
10	>200 <=0

is stored as "112 2 3~113 2 320 200 0~113 3 3000 2000 1000~"

- 3) Function developed by Skogforsk (2004) for Scots pine (Pinus Sylvestris)

$$\text{dbh}_b = \min(\text{dbh}, 590) \quad /* \text{DBH maximum 590 mm.} */$$

$$\text{htg} = -\ln(0.12 / (72.1814 + 0.0789 * \text{dbh}_b - 0.9868 * \text{lat})) / (0.0078557 - 0.0000132 * \text{dbh}_b) \quad /* \text{Break point in cm calculated} */$$

$$\text{db} = 3.5808 + 0.0109 * \text{dbh}_b + (72.1814 + 0.0789 * \text{dbh}_b - 0.9868 * \text{lat}) *$$

```

exp(-(0.0078557-0.0000132*dbh_b)*h) /* Double bark thickness
below break point calculated, mm */
if h>htg then db=3.5808+0.0109*dbh_b+0.12-0.005*(h-htg)
/* Double barkthickness above break point calculated, mm */
db=max(db, 2) /* Bark thickness minimum 2 mm */

```

- 4) Function developed by Skogforsk (2004) for Norway spruce (Picea abies)
- ```

db=0.46146+0.01386*dbh+0.03571*dia
/* Double bark thickness calculated, mm */
db=max(db, 2) /* Bark thickness minimum 2 mm */

```

Db = double bark thickness (mm)

H = height from butt end of stem where bark thickness is to be calculated (cm)

Dbh = breast height diameter (mm)

Dia = diameter on bark where bark thickness is to be calculated (mm)

Lat = latitude (decimal degrees).

## Implementation guidelines

It was discovered in September 2008 that the implementation of the bark functions were not in perfect accordance with the intentions of Skogforsk. The following implementation guidelines are therefore suggested:

- It must be possible to use different types of bark functions for different species (for example the Skogforsk functions for Scots pine and Norway spruce and the older linear VMR-functions for broadleaves). This means that var113\_t7 must be implemented both when creating and receiving an apt-file. It must also be used in production files (prd, pri, stm).
- It should be possible to automatically use gps-coordinates (only latitude used) for the Skogforsk pine function instead of variable 113, type 4 in the apt-file. This means that the latitude can be set both in apt and in machine but that a machine setting (automatic through gps or manual) should "over-ride" an apt-setting. The variable must be registered in the production files.
- All relevant variables for all types of functions must be included in all files. This means that both var112\_t1, var113\_t1, var113\_t4 and var113\_7 must be included if for example both new and old Swedish (code 1,3 and 4) functions are used, as in table 1 below. Only var113\_7 and var113\_t4 is not enough. Both var112\_t2, var113\_t2, var113\_t3, var113\_t4 and var113\_7 must be included if the German functions (code 2) are used together with the new Skogforsk functions.

Table 1. Example bark variables, new Skogforsk functions used for Pine and Spruce while the old Zacco-functions are used for Birch (parameters 418 and 343) and Others (parameters 419 and 345). Observe that the parameters for pine and spruce (417, 344, 318, 420) are not used at all for calculating bark thickness.

| Var no | Name         | Type no | Data    |        |       |       |     |     |     |     |
|--------|--------------|---------|---------|--------|-------|-------|-----|-----|-----|-----|
| 111    | NUMTREE-SPCS | 1       | 5       |        |       |       |     |     |     |     |
| 120    | SPCNAME      | 4       | Pine    | Spruce | Birch | Other |     |     |     |     |
| 112    | NUMBARK-PAR  | 1       | 2       | 2      | 2     | 2     |     |     |     |     |
| 113    | BARKPAR      | 1       | 417     | 344    | 318   | 420   | 418 | 343 | 419 | 345 |
| 113    | BARKPAR      | 4       | 5700000 |        |       |       |     |     |     |     |
| 113    | BARKPAR      | 7       | 3       | 4      | 1     | 1     |     |     |     |     |