

Minutes from the meeting with the StanForD-group 2008-05-06

Place:	Skogforsk, Uppsala, Sweden
Present:	Erik Kindlund, John Deere Tapio Räsänen, Metsäteho Juha-Antti Sorsa, Metsäteho Timo Melkas, Metsäteho Patrik Johansson, LogMax Mikael Eliasson, LogMax Mats Johansson, SNS (Danish Forest & Nature Agency) Jonas Gustafsson, Sveaskog Jörgen Eriksson, Dasa Teemu Paldanius, Ponsse Jyrki Partanen, Epec Per Annemalm, Komatsu Forest Joakim Nygren, Haglöf Sakari Suuriniemi, John Deere Leif Orth, Södra
From Skogforsk:	John Arlinger, Secretary Johan J. Möller, Chairman

§1 Opening of the meeting

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

§2 Clarifications and modifications of variables

DATA TYPE FOR LATITUDE (VAR113_T7)

Suggestion by Bengt-Arne Walldén, Komatsu Forest, 2008-02-21.

Latitude used in bark function (var113_t4) is defined as an integer today (max 32767) with the unit 0.0001 degrees. This means that, for example, latitude 60 degrees is to be registered as 600000 (60/0.00001) in this variable. Since 600000 is larger than 32767 it was decided that the data type is changed to a long integer.

It was decided that the data types of var522_t1, var522_t3, var523_t1 and var523_t3 are changed to long integer.

DATA TYPE FOR LOGGING DIAMETER ADJUSTMENTS IN CORRDIA (VAR49)

Suggestion by Daniel Linder, Komatsu Forest, 2008-02-21.

The unit of var49_t2 and t3 is today 1/10 000 and the data type is integer (min -32767 and max 32767).

This is ok for the "b" value in var49_t3 but it do mean a significant limitation on the "a" value. The maximum offset for the regression line with the present data type is +/-3.2 mm.

It was therefore decided that the data types of var49_t2 and var49_t3 are updated to a long integer in order to avoid this limitation.

UPDATING ASSORTMENT CODES IN PRL-FILE

Suggestion by Teemu Kananoja, John Deere and John Arlinger, 2008-03-19.

A new log code 20 (assortment id in var256_t1) for identifying assortments in pri-files was implemented on 2006-10-24. This code replaced the old log code 1 (assortment no). It was suggested that the same way of identifying assortments is also implemented in prl-files.

It was therefore decided that:

- A new load code 20 (identical with log code 20) is added to var446_t1 to be used instead of code 1 in prl-files
- Var121_t6 is added to the prl-file with priority 3.

This means that the computer would give each added assortment a unique ID registered in var121_t6 and load code 20 (var446_t1). If one assortment is removed from the site settings, it's ID will not be given to any other assortment inside the work site.

OTHER FILES IN GHD-FILE

Suggestion by Per Annemalm, Komatsu Forest, 2008-02-18.

Komatsu has seen a need for a clarification of var463 as this variable does not give any indication to machine manufacturers concerning what types of files they should support.

The basic idea when introducing this variable (2004-03-30) was that the party sending the file must make certain that the receiving party can read the file. However, up until today the only file type that is known by the secretary to be used is pdf-files. It was therefore suggested that the description of var463_t1 is updated according to the following table:

Var no	Name	Type	Data type	unit	Prio	Description
463	OTHFILE	1	integer	no	2	Number of other files included with ghd-file (all relevant file types allowed).

Var no	Name	Type	Data type	unit	Prio	Description
						<u>The only file type that the sending party could assume is supported in the machine is a pdf-file.</u>

The meeting decided not to update var463_t1. It was instead decided to add a recommendation that *it should be possible to read pdf-files in the machines* to the general documentation of ghd-files (*Standardization of harvesting directives, A general description*). It was also decided to add to the descriptions of var463 that it can be used also in oai-files.

§3 New variables

ROAD CONDITIONS IN PRL-FILE

Suggestion by Leif Orth, Södra, 2008-03-04

Södra has a need for registering a forest road condition code for each transport object in the prl-file. There is today an SDC code (VIOL) for describing the standard of forest roads. Basically this code consists of values indicating the bearing capacity, time of year, possible length of vehicle, turning possibilities and reloading requirements. The idea was to add a variable which could be used for registering this code. The code is not to be standardized in StanForD, this means that it should be open to use by any user in any way.

It was decided to add a new var441 type 13 with a "free code" (free text) for registering road standard according to the following table (priority 2 in prl-files):

Var no	Name	Type	Data type	Unit	Description
<u>441</u>	<u>TRNSDESC</u>	<u>13</u>	<u>string</u>	<u>text</u>	<u>Non standardised codes (free text) for registering forest road condition for each transport object: 1...var440 t1</u>

UPDATING SHIFTDATA (VAR329) IN DRF-FILE

Original proposal based on suggestions by Peter Assarsson, KomatsuForest. The proposal was updated during as well as after the meeting. A final update was sent out 2008-06-09 with no objections raised by the meeting participants.

Komatsu has 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.

The idea is to make it possible to register and present the following data in a convenient way:

Shifts per operator	Start shift	End shift	E(t)	Down time	<u>Other work outside machine</u>	Meal break	Fuel	No of trees	Volume (harvested / forwarded)	object
Ivar Larsson			13	0,9	6			240	150	
2008-01-27	5.00	11.00	4	0,3	2	0	8	80	48	Carlslid
2008-01-28	5.00	11.00	6	0,3	2	1	8	85	51	Carlshöjd
2008-01-29	5.00	11.00	3	0,3	2	0	8	80	50	Carlshöjd
Eric Lönor			13	3,5	6			240	150	
2008-01-27	11.00	17.00	4	1,2	2	0	8	120	98	Carlshöjd
2008-01-28	11.00	17.00	5	0,3	2	0	8	120	90	Carlslid
2008-01-29	11.00	13.00	3	1,4	1	0	4	60	55	Västerslätt
2008-01-29	13.00	17.00	2	0,6	1	0	4	60	56	Carlslid
Sam Svensson			13	1,3	6			240	150	
2008-01-27	17.00	23.00	5	0,4	2	0	8	89	80	Carlshöjd
2008-01-28	17.00	23.00	6	0,5	2	0	8	89	86	Carlslid
2008-01-29	17.00	23.00	3	0,4	2	0	8	89	79	Carlslid
Total			39	5,7	18			720	450	

The original proposal was based on using var329 as proposed by Ponsse 2005-04-06. It was modified during and after the meeting. It was discovered after the meeting that some of the variables in the original proposal are indeed need such as total produced volume. A volume specified per assortment cannot always be used by a forwarder. Neither is it convenient to have volume per assortment if you want to cover a large number of different sites where different apt-files with different assortments were used. The reason for not using var329 was that this variable is already used for registering individual and not aggregated times.

The following new variables and updates to the standard were decided with the minutes (new variables with priority 3 in drf-files, new text is underlined), observe that some old variables are included even though they are not updated:

Var no	Name	Type	Data type	Unit	Description
328	TOT-WORK TI	1	integer	No	Number of <u>start and end points for working times</u> (normally paid time for employee)
		2	Integer	No	Number of <u>start and end points for working times</u> (normally paid time for employee) per operator: 1...var211_t2
		3	Integer	Code	Type of total working time (normally time paid time for employee), including time away from machine and meal breaks. Overlapping between operators allowed. 1...var328_t2 / 1...var211_t2 1= Start time 2= End timer Should always be registered in pairs with Start time first.
		4	String	Yyyy...	Start / end time (normally time paid time for employee) per operator: 1...var328_t2 / 1...var211_t2
		5	<u>Integer</u>	<u>No</u>	<u>Number of work times per operator: 1...var211_t2</u> <u>(Equal to the number of code 1 in var328_t3)</u>
		6	<u>Integer</u>	<u>No</u>	<u>Number of specified work times per operator: 1...var328_t5/1...var211_t2</u>
		7	<u>Integer</u>	<u>Code</u>	<u>Type of specified work times per operator: 1...var328_t6 / 1...var328_t5 /</u>

Var no	Name	Type	Data type	Unit	Description
					<u>1...var211 t2 t2</u> 31610=Processing, 31611=Terrain travel, 31612 = Other work, 31613=Road travel, 31710=Repair, 31711=Wait. repair, 31712=Maintenance, 31713=Trailer transp., 31714=Disturbance, 31901=Meal break 31603 = Effective work time (E(t)) 31700 = Down time 32800 = Other (normally paid) work outside machine
		<u>8</u>	<u>Long integer</u>	<u>Sec</u>	Specified work times: <u>1...var328 t6/1...var328 t5/1...var211 t2</u>
		<u>10</u>	<u>Integer</u>	<u>M3sob</u>	Total harvested volume over bark per specified work time and operator: <u>1...var328 t6 / 1...var328 t5 / 1...var211 t2</u>
		<u>11</u>	<u>Integer</u>	<u>M3sub</u>	Total harvested volume under bark per specified work time and operator: <u>1...var328 t6 / 1...var328 t5 / 1...var211 t2</u>
		<u>12</u>	<u>Integer</u>	<u>No</u>	Total no of harvested stems per specified work time and operator: <u>1...var328 t6 / 1...var328 t5 / 1...var211 t2</u>
		<u>13</u>	<u>Integer</u>	<u>M3sob</u>	Total forwarded volume over bark per specified work time and operator: <u>1...var328 t6 / 1...var328 t5 / 1...var211 t2</u>
		<u>14</u>	<u>Integer</u>	<u>M3sub</u>	Total forwarded volume under bark per specified work time and operator: <u>1...var328 t6 / 1...var328 t5 / 1...var211 t2</u>
		<u>15</u>	<u>Integer</u>	<u>kg</u>	Total forwarded mass (green) per specified work time and operator: <u>1...var328 t6 / 1...var328 t5 / 1...var211 t2</u>
		<u>20</u>	<u>String</u>	<u>Text</u>	Object identity (identical with var21 t1 in production file) per specified work time and operator: <u>1...var328 t6 / 1...var328 t5 / 1...var211 t2</u>
		<u>21</u>	<u>String</u>	<u>Text</u>	Sub-object identity (identical with var21 t2 in production file) per specified work time and operator: <u>1...var328 t6 / 1...var328 t5 / 1...var211 t2</u>
		<u>22</u>	<u>String</u>	<u>Text</u>	Contract no (identical with var35 t1 in production file) per specified work time and operator: <u>1...var328 t6 / 1...var328 t5 / 1...var211 t2</u>
		<u>23</u>	<u>String</u>	<u>Text</u>	Contract no (identical with var35 t2 in production file) per specified work time and operator: <u>1...var328 t6 / 1...var328 t5 / 1...var211 t2</u>

Example

Shift data covering part of the work of the two first operators in the table above is presented below in order to give a better understanding of how the new variables may be used.

Observe that only part of the data covering part of the two first sub-shifts are included in the example and that the numbers are.

Description	Var no	Type	Data						
No of op	211	2	2						
Operators	212	1	Ivar Larsson	Eric Lonor					
No of shifts	329	1	3	4					
Shift start	329	2	080127 05.00	080127 05.00	080127 05.00	080127 11.00	080128 11.00	080129 11.00	080129 13.00
Shift end	329	3	080127 11.00	080127 11.00	080127 11.00	080127 17.00	080128 17.00	080129 13.00	080129 17.00
Sub shift/operator	329	6	4	4	4	4	4	4	4
Sub shift codes	329	9	31603 (E(t))	31700 (Down)	31800 (Other)	31901 (Meal)	31603 (E(t))	31700 (Down)	
Times / sub shift	329	25	43400	1300	2930	0	21675	1453	
Fuel / sub shift	329	16	81	0	0	0	72	0	
Stems / sub shift	329	20	180	0	0	0	185	0	
Vol / sub shift	329	18	48	0	0	0	51	0	
Object	329	30	Carlslid	Carlslid	Carlslid	Carlslid	Carlslid	Carlhöjd	

Some errors in var329 were discovered during the work on the proposal above.
The following updates to the standard were therefore decided with the minutes:

Var no	Name	Type	Data type	Unit	Description
329	SHIFT-DATA	11	Int	no	Number of harvested stems <u>during</u> per species and sub-shift: $\frac{1 \dots \text{var111_t1}}{1 \dots \text{var329_t6} / 1 \dots \text{var329_t1} / 1 \dots \text{var111_t1} / 1 \dots \text{var211_t2}}$
		12	Integer	M3sob	Produced/ <u>harvested</u> volume over bark <u>during</u> per assortment and sub-shift: $\frac{1 \dots \text{var116_t1} / 1 \dots \text{var111_t1} / 1 \dots \text{var329_t6} / 1 \dots \text{var329_t1} / 1 \dots \text{var111_t1} / 1 \dots \text{var116_t1} / 1 \dots \text{var211_t2}}$
		13	Integer	M3sub	Produced/ <u>harvested</u> volume under bark <u>during</u> per assortment and sub-shift: $\frac{1 \dots \text{var116_t1} / 1 \dots \text{var111_t1} / 1 \dots \text{var329_t6} / 1 \dots \text{var329_t1} / 1 \dots \text{var111_t1} / 1 \dots \text{var116_t1} / 1 \dots \text{var211_t2}}$
		14	Integer	M3	Produced/ <u>harvested</u> volume <u>during</u> per assortment and sub-shift according to price type (var161_t1): $\frac{1 \dots \text{var116_t1} / 1 \dots \text{var111_t1} / 1 \dots \text{var329_t6} / 1 \dots \text{var329_t1} / 1 \dots \text{var111_t1} / 1 \dots \text{var116_t1} / 1 \dots \text{var211_t2}}$
		15	Integer	no	Produced/ <u>harvested</u> number of logs(pcs) <u>during</u> per assortment and sub-shift: $\frac{1 \dots \text{var116_t1} / 1 \dots \text{var111_t1} / 1 \dots \text{var329_t6} / 1 \dots \text{var329_t1} / 1 \dots \text{var111_t1} / 1 \dots \text{var116_t1} / 1 \dots \text{var211_t2}}$

NEW SUB-OBJECTS IN VAR23 TYPE 4 AND 5

Suggestion by Per Annemalm, Komatsu Forest, 2008-04-21.

The main reason for this proposal with two new variables is to make it possible to separate a file saved with total object production from the first sub-object file because they have the same start date and to verify that all sub-objects are reported before closing the object. It would be an advantage to have this possibility on many markets.

A new var23_t4 specify the total numbers of sub-objects in use in the current object. Default value if variable is missing is 1 (or 0) and should also be used if bucking system isn't on the object, is not using sub-objects or supporting sub-objects. If value 0 is used it should indicate that sub-objects is not used and will have the same meaning and effect as 1.

A new tvar23_t5 specify the sub-object in use at object. Default value if variable is missing is 0 and should be also used if bucking system on the object is not using sub-objects or supporting sub-objects. Value 0 indicates if type 4 is larger than 1 then the file is stored with total object production.

Var no	Name	Type	Data type	unit	Prio	Description
23	SITEINFO	1	String	Code/text	3	Harvesting method code
		2	String	Text	3	Harvesting method (harvesting objekt)
		3	Integer	Ha	3	Area of the site in hectare
		<u>4</u>	<u>Integer</u>	<u>No</u>	<u>3</u>	<u>Number of used sub-objects</u>
		<u>5</u>	<u>Integer</u>	<u>Number</u>	<u>3</u>	<u>Sub-object number (0 if total object)</u>

These types are constructed so that if they are missing in the file the production is used if there only is one sub-object or that sub-objects isn't used, that makes the system backwards compatible.

The meeting decided to postpone the issue.

Comments from secretary:

No decisions were taken at the meeting concerning sub-objects. The intention with this proposal was primarily to start a discussion. I major issue is to what extent it should be possible to change the apt-file. Per Annemalm will try to clarify this issue. He will also write a list of production data (prd-data) needed per sub-shift.

One idea that was discussed was to create a new simple variable for registering total volumes, no stems and logs per sub-object. We would then probably need to use var121_t6 in some way. Sub-object would not be identical with var21_t2. However we need to decide on the rules for changing an apt-file first.

§4 Min length criteria (var361_t9)

A new var361_t9 is suggested by Skogforsk, Ponsse and SNS (Danish Forest and Nature Agency)

Long timber in Denmark today is always longer than 8 m. Normally both long timber and normal saw logs are cut at a work object (site). The long timber is paid based on harvester measurements and it is paid based on the mid measured volume and the price per cubic meter is based on the mid measured diameter (true mid point).

Production reporting as a basis for payment between forest owner and sawmill can be handled using a pri-file. The following non compulsory log codes 203 (mid diam), 301 (length) and 405/425 (mid volume) must then be included. Historically different machine manufacturers has handled the production reporting of Danish long logs in different (non-standardized) ways.

Control measurement on long timber is supposed to be carried out for every 25th stem including long timber (also called "long timber stems").

The only update of the standard needed would be to make it possible to do a random selection only of stems which include long timber.

It was therefore decided to implement a new variable 361_t9 (SAMPLE) for a minimum log length criterion according to the following table (priority 3 in ktr-files):

Var	Name	Type	Data type	Unit	Description
<u>361</u>	<u>SAMPLE</u>	<u>9</u>	<u>Integer</u>	<u>Cm</u>	Minimum log length for randomly selected stems. At least <u>one log within a stem must be at least this long if stem is to be selected as a randomly selected control stem.</u> <u>Operator is never notified that it is a control stem until this criterion is met. Criterion in var361_t6 also has to be met before operator is notified.</u> <u>This means that the operator may be notified at a log no higher than set in var361_t6 if var361_t9 is larger than 0.</u>

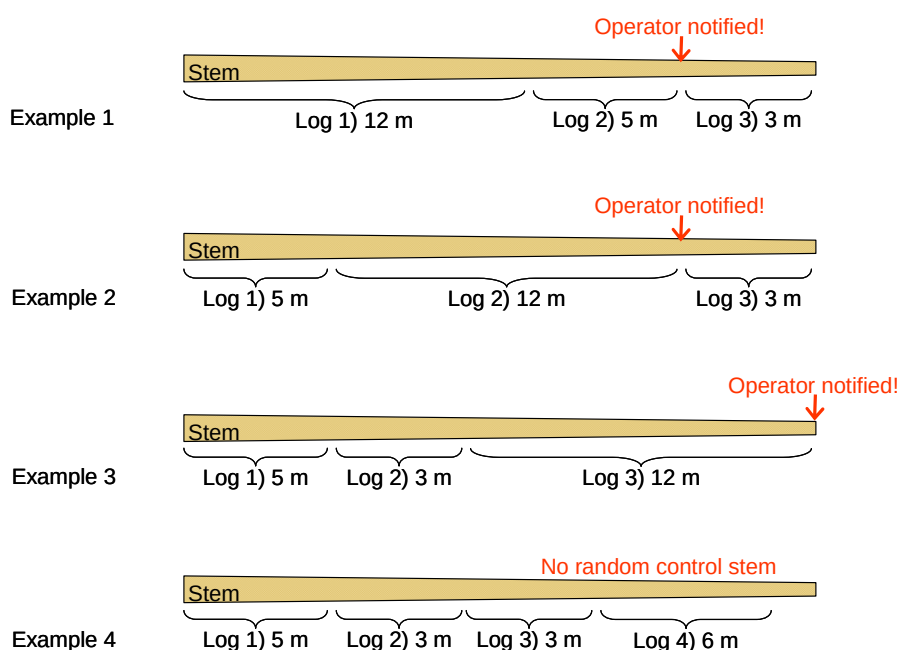
Observe that this new variable should have a functionality identical with var361_t5, the minimum DBH for randomly selected stems.

Examples

Minimum log length (new var361_t9) is set to 8 m.

Log no when operator is notified (var361_t5) is set to 2nd log.

Below is four different bucking alternatives and the consequences of the new variable:



§5 Updating ghd-file

Suggestion by John Arlinger, Skogforsk, 2008-04-04.

It is today not possible to identify which machine or type of machine that has modified a certain gis-layer. This is important if we want to be able to send modified gis-files from a machine to the forest company system.

It is therefore decided that we make it possible to add information about machine no (same as var3_t2) and machine type (same as var3_t3) per layer in the ghd-file if layer has been updated or modified. It was also decided that a new machine type code (var3_t3) for scarifiers is added.

The following table describes the updates (new variables with priority 2 in ghd-files):

Var no	Name	Type	Data type	unit	Description
3	MCHNNO	2	String	Text	Unique machine identity for each company, which is for example used when using a harvester to measure for payment
3	MCHNNO	3	Integer	code	Code describing type of machine: 1=harvester (default if variable is missing) 2=forwarder

Var no	Name	Type	Data type	unit	Description
					3=harwarder, machine which handles both harvesting and forwarding 10 = bundler <u>20 = scarifier</u> 99=other
<u>460</u>	<u>GISFILE</u>	<u>10</u>	<u>String</u>	<u>Text</u>	Unique machine identity for each company used to identify in which machine a certain gis-file was updated/modified per layer: 1...var460 t1 The identity must be identical with var3 t2 in for example prd/prl/pri-files. Gis-files only to be modified in one machine.
<u>460</u>	<u>GISFILE</u>	<u>11</u>	<u>Integer</u>	<u>code</u>	Code describing type of machine to identify in which type of machine a certain gis-file was updated/modified per layer: 1...var460 t1 1=harvester (default if variable is missing) 2=forwarder 3=harwarder, machine which handles both harvesting and forwarding <u>10 = bundler</u> <u>20 = scarifier</u> <u>99=other</u> The code must be identical with var3 t3 in for example prd/prl/pri-files Gis-files only to be modified in one machine.

It is also decided that the following implementation rules are to be added to the documentation of geographical harvesting directives:

- A certain layer is to be modified in one machine only. This means that a modified file sent from harvester to forwarder should not be modified at all in the forwarder.
- The machine identity and machine type must be registered per layer when a gis-layer is modified.
- Tracking data must be stored in "normal" gis-format (as all other layers) in order to make it possible to read the file independently of application.
- An export function should exist in gis-applications in order to facilitate sending of gis-layers. Normally only files modified in the machine should be included. Exported files should be set to "read-only" (var460_t3, code 1) if they have been modified in some way.
- An import function in a receiving machine should exist whereby the operator can select if he wants to add the new files to the "presently" open ghd-package. The function should make certain that a file modified in a different machine is set to "read-only".

§6 Updating multi tree handling and net volumes

BACKGROUND

Proposal based on a suggestion from Lennart Hult, Sveaskog, 2008-01-17.

A number of variables for registering production (pri- or prd-files) from multi tree harvested stems exists as described in the following table (implemented 2006-10-24):

Var	Name	Type	Unit	Description
231	STMSIN-BNCH	2	No	Number of multi tree handled stems (several stems delimbed and cross cut simultaneously)
231	STMSIN-BNCH	3	No	Number of multi tree handled stems (several stems delimbed and cross cut simultaneously) per operator: 1...var211_t2
246	BUNCHED-PROD	2	m3 (ob)	Total volume of multi tree handled stems (several stems delimbed and cross cut simultaneously). The volume is based on the total diameter (diameter measured as if only one stem is processed)
246	BUNCHED-PROD	3	M3sob	Total volume of multi tree handled stems (several stems delimbed and cross cut simultaneously) <u>as calculated in harvester (definition in appendix)</u> .
246	BUNCHED-PROD	4	M3sub	Total volume of multi tree handled stems (several stems delimbed and cross cut simultaneously) <u>as calculated in harvester (definition in appendix)</u> .
246	BUNCHED-PROD	5	m3 (ob)	Total volume of multi tree handled stems (several stems delimbed and cross cut simultaneously) per operator: 1...var211_t2 The volume is based on the total diameter (diameter measured as if only one stem is processed)
246	BUNCHED-PROD	6	m3sob	Total volume of multi tree handled stems (several stems delimbed and cross cut simultaneously) <u>as calculated in harvester (definition in appendix)</u> per operator: 1...var211_t2
246	BUNCHED-PROD	7	m3sub	Total volume of multi tree handled stems (several stems delimbed and cross cut simultaneously) <u>as calculated in harvester (definition in appendix)</u> per operator: 1...var211_t2
246	BUNCHED-PROD	8	No	Estimated number of logs from multi tree handled stems (number of logs = no of stems * no of cut log bunches, it is assumed that the same number of logs are cut from all stems processed together)
246	BUNCHED-PROD	9	No	Total number of log bunches (equal to no of cross-cuts excluding felling cut) from multi tree handled stems on a site after the start date (STARTDATE, var16_t4). Never reset during harvesting at a specific site.
246	BUNCHED-PROD	10	No	Number of log bunches (equal to no of cross-cuts excluding felling cut) from multi tree handled stems All log bunches registered in the current file are to be included.

A number of these variables are today defined in the standard for registering an estimated "net" volume of multi tree harvested stems. However, the calculation method has not been described. There are two categories of variables for registering the net volume in the standard. The first category (variable 246 in prd- and pri-file) is a total volume with no information about individual log bunches. The second category is only registered in pri-files (var256_t3 log code 408, 409, 428, 429). In this case the volume per log bunch is registered.

METHODS

It was discussed at the meeting whether or not the suggestions are acceptable to other markets than the Swedish. The meeting decided that Metsäteho will discuss this proposal with some Finnish users at a meeting at the end of May and that Skogforsk will send an enquiry to Feric, Canada. It was decided that the proposal will be implemented if no objections are raised. Since no objections were raised from either county/organization it was decided with the minutes to implement the following calculation methods.

Below is the proposed methods for calculating net volumes, that is a total multi tree harvested volume. It is based on an assumption that it is possible to estimate the dbh of the first multi tree harvested stem in one bunch. The calculation methods will be added to the StanForD-appendix if accepted.

Estimation method for total net solid stem volume of stem bunches (prd-file)

1. Estimate DBH of first multi tree harvested stem.
2. Calculate the average stem volume of single tree harvested stems with a DBH as close as possible to the DBH of first multi tree harvested stem. This should be done per species. This function may very well be similar to an adaptive stem (taper) prognosis.
3. Estimate the net solid volume for the tree bunch by multiplying the number of stems with the average stem volume.
4. The net volume calculated by the harvester is registered in var246 (type 3-4 and 6-7).

Example

The estimated DBH of the first multi tree harvested stem is 95 mm. A total of three stems are processed simultaneously.

The average measured volume u.b. for single harvested stems per DBH-class and species is:

DBH-class (cm)	Average stem volume , m3sub
8	0,08
9	0,1
10	0,11
11	0,12

Observe that the average stem volume could be based on some kind of interpolation, regression curve or/and adaptive stem volume prognosis rather than a DBH-class table as above. This function may very well be similar to an adaptive stem (taper) prognosis.

*The total net solid volume u.b. for a tree bunch is 0,3 m3sub (0,1 m3sub*3 trees) in this example.*

Estimation method for net volumes of log bunches in pri-file

The net volume of log bunches in pri-files are stored in var256_t3 log code 408, 409, 428, 429.

1. Calculate the gross volume for the stem by summing the gross volumes per log bunch
2. Divide the gross log bunch volume with the total gross stem volume for each log volume in order to calculate the relative log bunch volume
3. Multiply the total net stem volume with the relative log bunch volume

Example

The total net solid volume for a tree bunch is 0,3 m³sub as calculated in previous example.

Three log bunches were cut when processing this stem bunch. The total gross volume of these bunches are:

Log bunch	Gross volume (log code 407 or 427), m ³ sob	Relative log bunch volume
1	0,4	47%
2	0,3	35%
3	0,15	18%
Total	0,85	

The resulting net volumes will be:

Log bunch	Relative log bunch volume	Net volume (log code 409 or 429) , m ³ sob
1	47%	0,141 (0,47 * 0,3)
2	35%	0,106 (0,35 * 0,3)
3	18%	0,053 (0,18 * 0,3)
Total	100%	0,3

The meeting discovered that some variables (var246, type 2-7) has been given a priority in pri-files even though this variables are already covered by data in var257_t2. It was thus decided to change the priority from 2 to 0 in pri-files for var246, type 2-7.

§7 Diameters to register in stm-file

Proposal from Tapio Räsenän, Metsäteho

This issue was discussed at last meeting. It was then decided to postpone the proposal.

Most of the machine manufacturers have today register the new extrapolated spp-values in var273 t1-4 (the old types). It is therefore reasonable to update the definitions of these variables so that they describe the situation as it is now.

Two new types of var273 should be added to the standard when the real measured values below 130 cm are needed in stm-files together with extrapolated values.

The meeting decided to update the standard according to the following table (new variables with priority 3 in stm, new text underlined):

Var	Name	Type	Data type	Unit	Description
273	STEM-DIAM	1	Integer	mm (o.b.)	Diameters at heights defined by variables 269_t2, 271_t2 and 272_t2. Refers to filtered values on bark (representing the actual point of measuring). <u>Extrapolated diameters at butt end are to be registered.</u> <u>Height of first measured diameter must be registered using var271_t3.</u>
273	STEM-DIAM	2	Integer	mm (o.b.)	Diameters at heights defined by variables 269_t2, 271_t2 and 272_t2. Refers to unfiltered values on bark (see above). <u>Extrapolated diameters at butt end are to be registered.</u> <u>Height of first measured diameter must be registered using var271_t3.</u>
273	STEM-DIAM	3	integer	mm (o.b.)	Starting diameter and differences, filtered values on bark (see above). <u>Extrapolated diameters at butt end are to be registered.</u> <u>Height of first measured diameter must be registered using var271_t3.</u>
273	STEM-DIAM	4	integer	mm (o.b.)	Starting diameter and differences, unfiltered values on bark (see above). <u>Extrapolated diameters at butt end are to be registered.</u> <u>Height of first measured diameter must be registered using var271_t3.</u>
<u>273</u>	<u>STEM-DIAM</u>	<u>10</u>	<u>integer</u>	<u>mm (o.b.)</u>	Measured diameters of butt end at heights defined by variables 269_t2 and 271_t3. Refers to filtered values over bark (representing the actual point of measuring). <u>Used only for additional information when extrapolated diameters of butt end are registered in one of types of var273_t1-4. Start at height 0 cm end at var271_t3. Not measured values registered as 0.</u>
<u>273</u>	<u>STEM-DIAM</u>	<u>11</u>	<u>integer</u>	<u>mm (o.b.)</u>	Measured diameters of butt end at heights defined by variables 269_t2 and 271_t3. Refers to unfiltered values over bark (representing the actual point of measuring). <u>Used only for additional information when extrapolated diameters of butt end are registered in var273_t1-4.</u> <u>Start at height 0 cm end at var271_t3. Not measured values registered as 0.</u>

§8 New machine measurements in ktr- and stm-file

Proposal based on a suggestion from Mikael Eliasson, LogMax.

Today we can register both cross measured diameters that are control measured (M2 & M3) with caliper in the ktr-file. However, the M1 measurement is only registered once as a "mean" value for the whole log even though this measurement may be carried out in two separate directions, basically as a cross measurement, in some harvesting heads.

Situation today

Top diameters

	Mean diam	Direction 1	Direction 2
M1	Ktr: var291_5 Stm: var291_5	Missing today	Missing today
M2	Ktr: var291_3	Ktr: var291_7	Ktr: var291_8
M3	Ktr: var291_6	Ktr: var291_9	Ktr: var291_10

Control diameters /diameter vectors

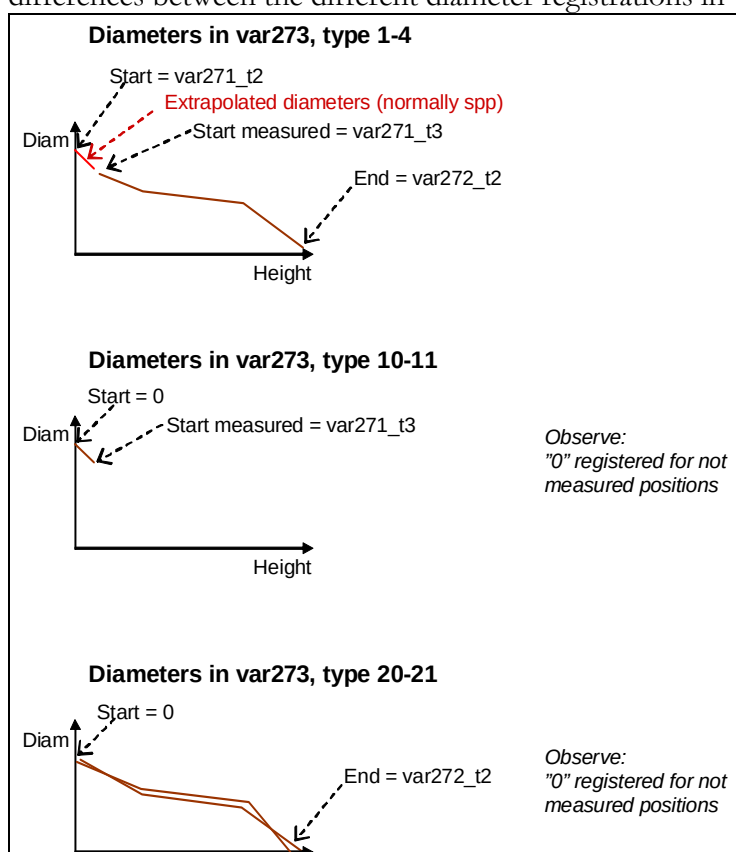
	Mean diam	Direction 1	Direction 2
M1	Ktr: var373_5 Stm: var273_1-4	Missing today	Missing today
M2	Ktr: var373_3	Ktr: var373_8	Ktr: var373_9
M3	Ktr: var373_7	Ktr: var373_10	Ktr: var373_11

It was therefore decided to make it possible to register two separate measuring directions for top diameters, diameter vectors and control diameters (M1) in ktr- and stm-files.

The meeting decided to add the new following variables to the standard (var273 and var291 with priority 3 in stm-files, var291 and var373 with priority 3 in ktr-files) (new text underlined):

Var	Name	Type	Data type	Unit	Description
273	STEM-DIAM	20	Integer	Mm (o.b.)	Measured diameters over bark, first unfiltered diameter value from cross measurement (measured by machine, M1). Diameter at heights defined by variables 269 t2, 271 t2 and 272 t2.
273	STEM-DIAM	21	Integer	Mm (o.b.)	Measured diameters over bark, second unfiltered diameter value from cross measurement (measured by machine, M1). Diameter at heights defined by variables 269 t2, 271 t2 and 272 t2
291	TOP-DIAOB	11	Integer	Mm (o.b.)	Measured top diameters of logs over bark, first unfiltered diameter value from cross measurement (measured by machine, M1): 1...var290 t1
291	TOP-DIAOB	12	Integer	Mm (o.b.)	Measured top diameters of logs over bark, second unfiltered diameter value from cross measurement (measured by machine, M1): 1...var290 t1
373	CONT-DIA	12	Integer	Mm (o.b.)	Measured control diameters over bark, first unfiltered diameter value from cross measurement, (measured by machine, M1): 1...var372 t5/1...var290 t1
373	CONT-DIA	13	Integer	Mm (o.b.)	Measured control diameters over bark, second unfiltered diameter value from cross measurement, (measured by machine, M1): 1...var372 t5/1...var290 t1

The following figure (added after meeting by secretary) illustrates the differences between the different diameter registrations in var273:



General rules added to appendix:

Average values for M1 diameters are the values used for bucking optimisation of stems (var273, type 1-4). They must therefore always be registered independently of measuring technique.

Average value for M2 and M3 should only be calculated and registered in ktr-file if both directions have a value larger than 0 mm

§9 StanForD 2010, questionnaire and time table

Johan J Möller presented the results of the questionnaire concerning the project *StanForD 2010*. The document was distributed by e-mail prior to the meeting.

It was concluded from the questionnaire that both forest companies and manufacturers want a new version of the standard, all forest companies also see a new technical format as an advantage.

A meeting with all StanForD members will be held on the 27th of May at Skogforsk.

§10 Items for discussion and information

MEAN STEM VOLUME

The following definition of a stem was added to StanForD 2004-03-30:

*The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes
and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes,
in order to be registered as a stem.*

Johan J. Möller has discovered that the definition of a stem is still not used by all manufacturers. This definition is for example very important when calculating the mean stem volume of a site.

It is probably of interest to clearly define a number of key figures, like for example mean stem volume, in a new version of StanForD.

BIO ENERGY CALCULATIONS

Johan J Möller presented an ongoing project for developing methods for calculating available bio energy volumes based on harvester data (pri-files).

The only required update to the standard (pri-file) that we can foresee right now is a possibility to register, for each stem, whether or not the harvester operator adapted the harvesting for extraction of bio energy assortment.

§11 Other issues

No other issues were discussed.

§12 Next meeting

Next meeting will take place on Wednesday the 22nd of October 2008, at Skogforsk in Uppsala, starting at 10.00 a.m. Proposals for the meeting shall be the secretary by hand preferably not later than September 15th 2008.

§13 End of meeting

Johan J Möller (chairman) closed the meeting.

Secretary

John Arlinger