Arlinger John 14 November 2024

Minutes StanForD

2024-11-13

Place:	Teams, 2024-11-13, 13:00-17:00 CET
Participants:	John Arlinger, Secretary Johan J. Möller, Chairman Anders Rowell, Skogforsk Henrik Persson, LogMax Timo Melkas, Metsäteho Nicklas Nygård, LogSet Tapio Räsänen, Metsäteho Antti Korkiakoski, JohnDeere Mike O'Shea, Coillte <u>Attending through Teams:</u> Anders Rowell, Skogforsk Asko Leivonmäki, Exertus Magnus Hansson, SP Bobby Szwajkowski, Tigercat Étienne Pilon, Log Max Québec Halvard Olderlund, Komatsu Hans-Ulrich Dietz, Univ. of Freiburg Heikki Komulainen, Ponsse Ian Wilson, Forest PHD Jaakko Mäkinen, Technion Janne Pursiainen, Ponsse Jean-Philippe Gaudreau, FP Innovation Jeremy Gibson, Forest PHD Joshua Hildebrand, Tigercat Jonas Thorsson, Dasa Juha Korhonen, Technion Lars-Erik Andersson, Dasa Lars Henriksson, Biometria Philip Ridderheim, SCA

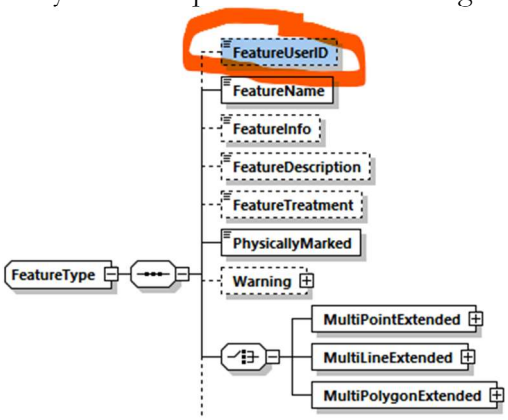
Decision summary

Decided to do the following schema updates:

- **machineCategory.** It was decided to update the description of machineCategory according to the following text (new enumeration values FellerBuncher, Skidder and Yarder):
  Enumeration list describing type of machine: Harvester, Forwarder, FellerBuncher, Harwarder, Bundler, Scarifier, Skidder, Yarder, Other

- **LogisticDistanceDiameterType.** It was decided to update the description of elements a1, a2, a3, b1, b2 and b3 as moving the parentheses in the first equation (a) makes it more clear that the expressions for a and b are identical:
  *a = a3/(1+((a3/a1)-1)*exp(-a2*H))*
  *b = b3/(1+((b3/b1)-1) *exp(-b2*H))*
  *DblBark = a + b*D*

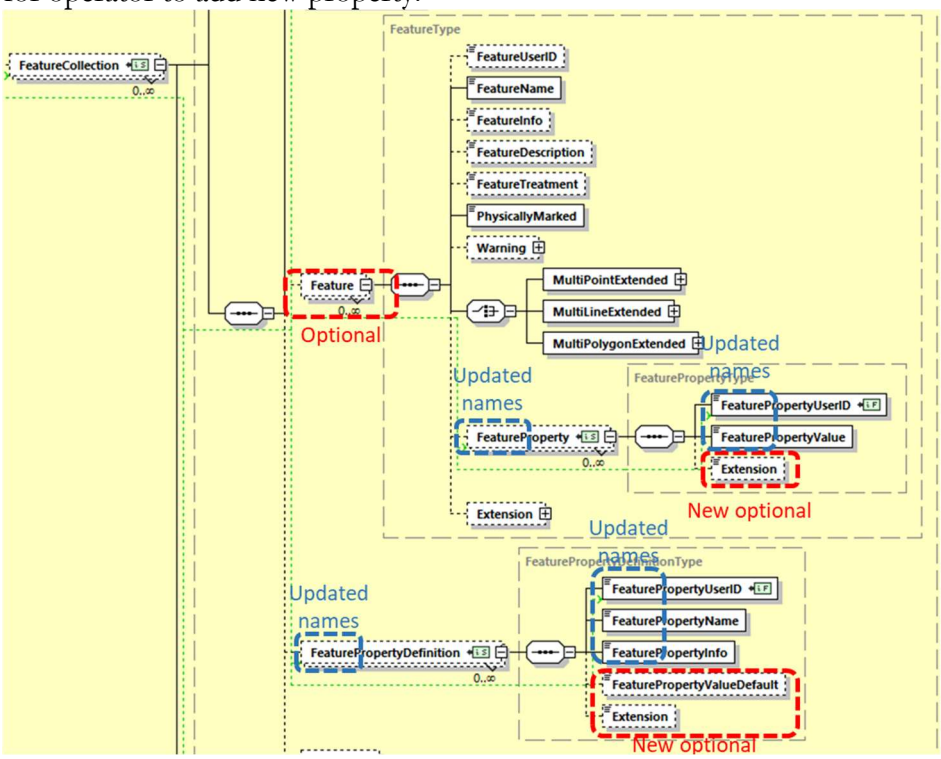
- **FeatureUserID** It was decided to add the new optional id element FeatureUserID under element Feature with a constraint requiring it to always be a unique value within the ogi-file.



Name	Type	Unit	Description
FeatureUserID	string	Free text	Identity per feature defined by user of data. **This identity must be unique within an ogi**. Do not use a single space or null value. Do not begin or end with a space. Do not include any of the following characters: Double space, Linefeed, carriage return,%, ?, lt, gt, :, " (double quote), /, \, |, *.

- **FeatureProperty**. It was decided to:
  - Rename all Property elements into FeatureProperty in case we want to re-use the property structure in other situations.
  - make element Feature optional in order to send out an empty FeatureCollection that can be used by operator to add new features into.

- add a new element FeaturePropertyValueDefault in order to simplify for operator to add new property.



Name	Data type	Description
FeatureProperty-ValueDefault	String	Default value used when property is added by the operator in the machine. Useful when the property always has the same value as when assigning a code to a specific feature.

- **Stem piles in bpr.** It was decided to postpone the proposal to the next meeting.
- **RelativeLimitationMAtrix.** It was decided to postpone the proposal to next meeting.

Conclusions from discussions:

- **Harvester vs Processor reporting of production data.** There is probably only one significant issue with data reported from a processor and that is the fact that a possible StemCoordinate does not represent the position of the tree when felled but the position of the processor at a landing. Another future issue might be if there is a need to specify in an instruction how different products are to be sorted at a landing.
- **Zero DistributionMatrix.** No decision made as this issue was raised due to a bug in a Finnish software. In other words, no need to deal with this issue.

- **Priority bucking.** It was decided to let Skogforsk write a documentation of value bucking and have it published at the web site.
  It was also decided to let the secretary discuss with at least some of the manufacturers to be able to create some basic documentation of how priority bucking works today.
- **Multi-leader stems.** It was decided to let the secretary send out a questioner about how a multi-leader is handled today by different manufacturers.

Action list:

- Recommended that unclassified products are reported per SpeciesGroup.
- Recommended that the diameter vector and DBH is adjusted if a short log (butt-off) is completely excluded from the hpr.
- Recommended that by default all butt-offs from single tree processed stems should be registered independently of length.

§1 Opening of meeting and agenda

Chairman Johan J Möller opened the meeting.

The agenda was accepted.

§2 Presentation of participants

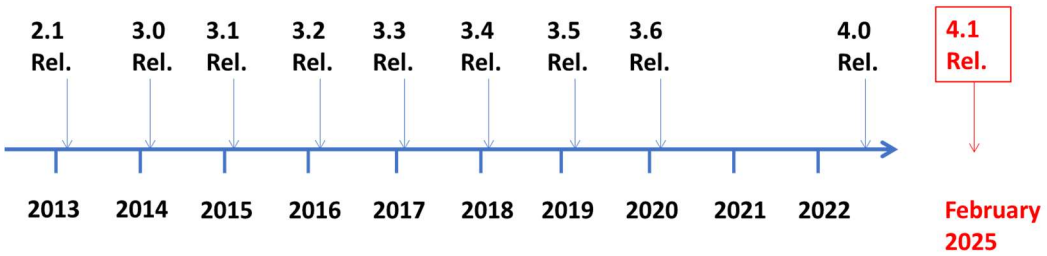
Presentation of meeting participants.

§3 Information about decisions and discussions at previous meeting

- No schema updates.
- **RelativeLimitation matrix.** Proposal postponed.
- New StanForD framework to be further discussed at the next meeting for members.
- New possible method for log measuring control presented and discussed.
- Possible new TreeMap schema presented and discussed.

§4 Future StanForD updates

The figure below illustrates the timeline for publishing all versions since 2.1.



It was decided to publish the new version 4.1. after the next meeting (2025-02-05).

It was decided at the previous meeting to clearly state at the web site that any one today developing support for version 4 should focus on 4.1 and thus avoid 4.0. Basically the 4.0 should be viewed as deprecated as illustrated below.

Significant updates with version 4

Version 4.0 has so far (2024-05-22) not been released on the market. This means that version 4.1, that will be published during the autumn of 2024, will "replace" version 4.0. As a consequence 4.0 should be viewed as deprecated.

The update to major version 4 primarily affects operational monitoring (mom) and geographical instructions and reporting (oig and ogr). Example files and introductory documentation can be downloaded below. Both these zip-files include some default settings that can be used by any one (*.din and *.mcl).

Ogi 4 0 Documentation and Examples 240524

OperationMonitoring version 4 Documentation and Examples

Draft for reporting forest regeneration data

A draft version of schemas as well as a specification for reporting soil preparation and planting can be downloaded below:

Extending StaForD2010 Mechanized forest regeneration 2024-01-16

§5 Reporting of issues related to version 4.0

No issues (questions or comments) reported by the meeting participants.

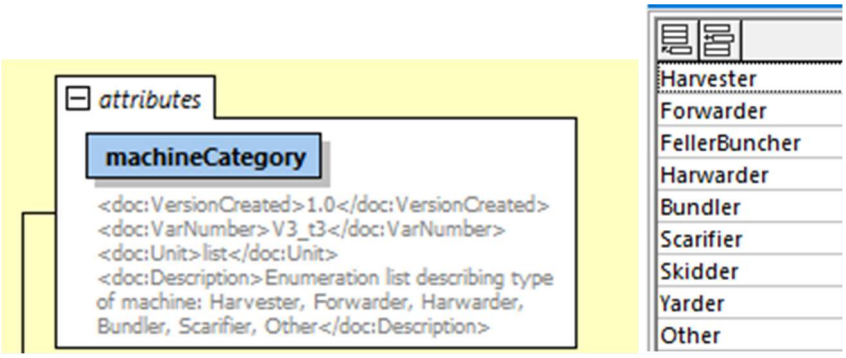
§6 New proposals

Antti Korkiakoski, John Deere 2024-10-04

The following enumeration values are not included in the description of attribute machineCategory:

- FellerBuncher
- Yarder

- Skidder



It was decided to update the description of machineCategory according to the following text:

Enumeration list describing type of machine: Harvester, Forwarder, FellerBuncher, Harwarder, Bundler, Scarifier, Skidder, Yarder, Other

Henrik Persson initiated a discussion regarding processors vs. harvesters. Should these two machine types be handled differently within the standard? Ian Wilson noted that there are very few true processors even if that term is often used for harvesters in North America.

It would not be a problem to add a new category for processors but there is no real need for this if there are no significant differences in what type of data that is reported. A first step would thus be to analyze possible differences in data requirements between a harvester and a processor.

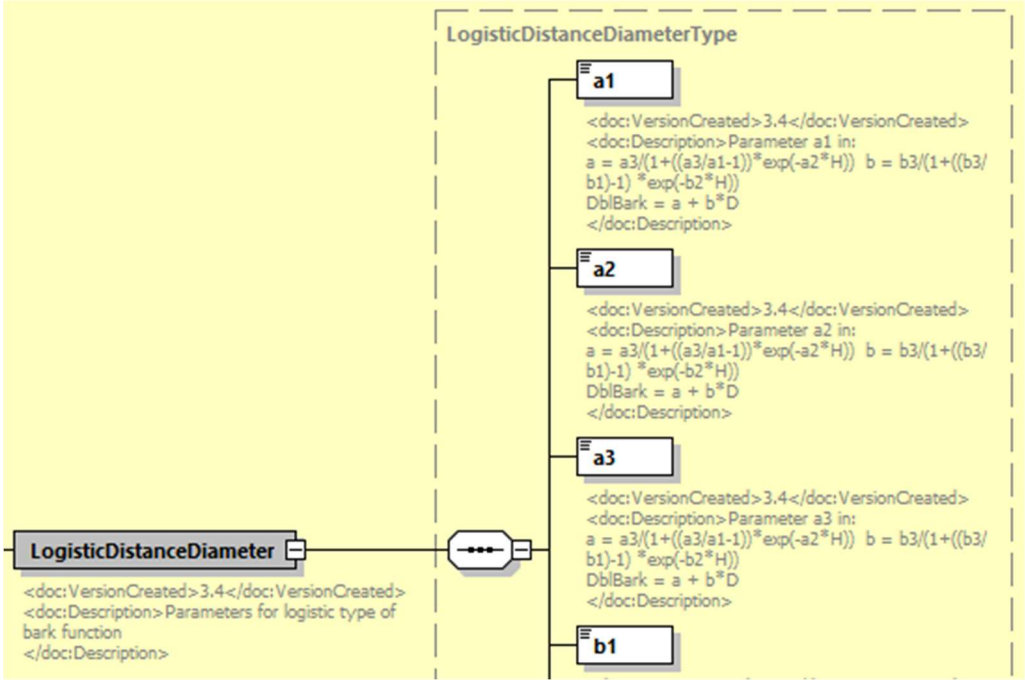
Comment from secretary:

- *There is probably only one significant issue with data reported from a processor and that is the fact that a possible StemCoordinate does not represent the position of the tree when felled but the position of the processor at a landing.A possible solution could be to add an optional boolean element PreFelledStem for each stem in the hpr. This element would be "true" when processing a stem not felled by the harvester/processor.*

- *Another future issue might be if there is a need to specify in an instruction how different products are to be sorted at a landing.*

ELEMENT LOGISTICDISTANCEDIAMETERTYPE

Henrik Persson, LogMax, (2024-09-30) has discovered an inconsistency regarding the parameters in LogisticDistanceDiameterType where the equations for a and b in reality are identical:



It was decided to update the description of elements a1, a2, a3, b1, b2 and b3 as moving the parentheses in the first equation (a) makes it clearer that the expressions for a and b are identical:

Parameter a1 in:

*a = a3/(1+((a3/a1)-1)*exp(-a2*H))*

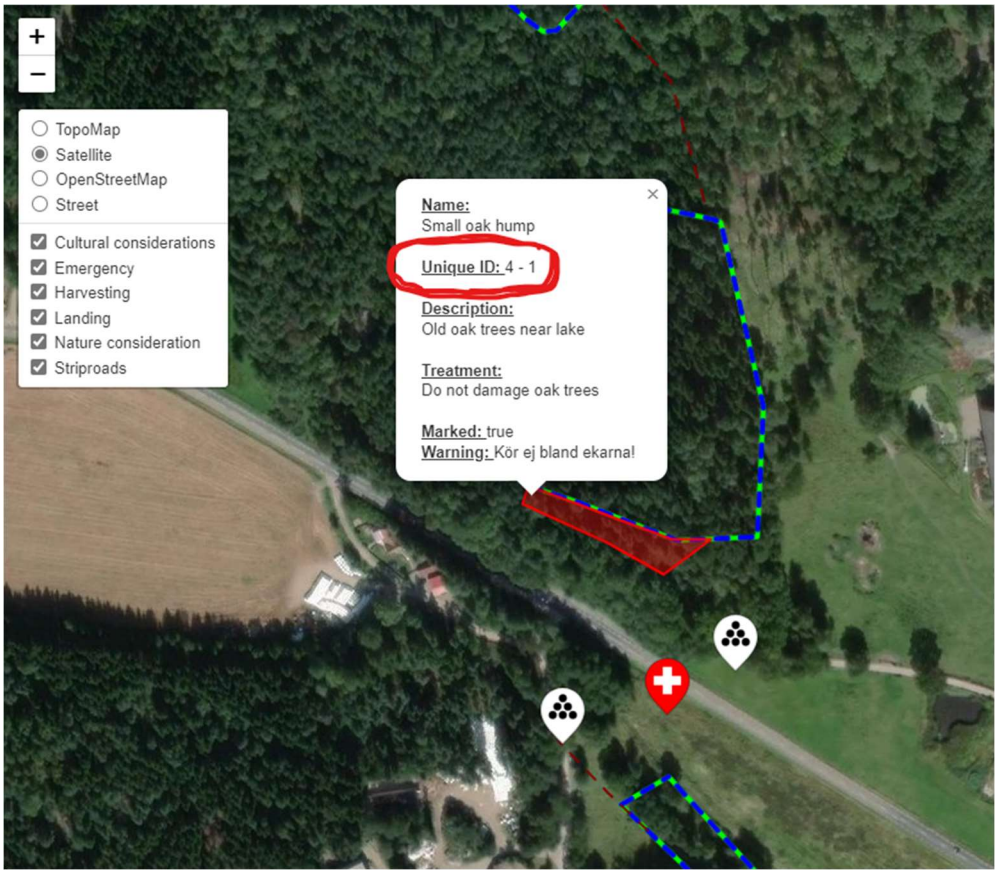
*b = b3/(1+((b3/b1)-1) *exp(-b2*H))*

*DblBark = a + b*D*

ADD FEATUREUSERID

Some actors (e.g. ForestLink and CGI) have started to use ogi version 4. It has been realized that it would be convenient to have a unique identity for each feature to facilitate communication outside the standard. It would e.g. make it possible for the operator to report that a specific individual cultural heritage site (e.g. an old charcoal kiln) has been damaged by communicating the FeatureUserID through a phone call.

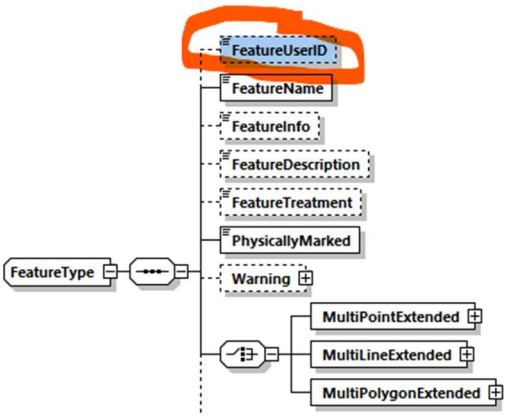
The following figure illustrates how the new element can be used in a GUI:



A more relevant argument for this type of unique ID is when communicating data between different "internal" applications such as in the demo above where a Leaflet Java script is communicating with an exe-file created using Delphi. The Java script could e.g. communicate which feature is selected using a FeatureUserID.

The meeting discussed the relevance of the two different use case. The conclusion was that FeatureInfo is more relevant for presenting in a GUI while FeatureUserID is most suitable for cases where different applications are to communicate. It is therefore important to point out that FeatureUserID can include a GUID.

It was decided that we add the new optional id element FeatureUserID under element Feature with a constraint requiring it to always be a unique value within the ogi-file.



Name	Type	Unit	Description
FeatureUserID	string	Free text	Identity per feature defined by user of data. **This identity must be unique within an ogi-file**. Do not use a single space or null value. Do not begin or end with a space. Do not include any of the following characters: Double space, Linefeed, carriage return,%, ?, lt, gt, :, " (double quote), /, \, |, *.

CODING OF FEATURES IN OGR AND OGI USING PROPERTIES

Tapio Räsänen, Metsäteho (2024-11-07).

Ogi and ogr has not been used in Finland yet.

The new Feature and Property structures in versions 4.0 and 4.1 seem to be very useful for sending GIS data of special features of the objects to the machines and returning information on what has been done to them during the work.

There is an increasing interest and also pressure from outside to manage this kind of information in the map systems better than it is done today. As well, there is some interest to register new features ("points of interest", e.g. location of retention trees) from the object and send them to the company system.

The actual question that was discussed in Finnish meeting was how to manage the codes linked to Features and Properties. In the national Finnish forest data standard there is a huge set of different code types and codes for many purposes and some of them are specified for harvesting.

Below is an example of the current code sets:

Code set number	Code set description	Code	Code desrciption Finnish	Code desrciption Swedish
691	Special feature type	10	Suojelualue	Skyddsområde
691	Special feature type	20	Kaava-alue	Planeområde
691	Special feature type	30	Metsälain tärkeä elinympäristö	Särskilt viktig livsmiljö enligt skogslagen
691	Special feature type	40	Luontokohde	Naturobjekt
691	Special feature type	50	Arvokas elinympäristö, esim. Avainbiotooppi	Värdefull livsmiljö, ex. Nyckelbiotop
691	Special feature type	70	Kulttuuri- tai muinaismuistokohde	Kulturminnes- eller fornminnesobjekt
691	Special feature type	80	Luonnonsuojelulain luontotyyppi	Naturtyp enligt naturskyddslagen
691	Special feature type	100	Muu kohde	Annat objekt

Code set number	Code set description	Code	Code desrciption Finnish	Code desrciption Swedish
760	Habitats	10	Lähde	Källa
760	Habitats	11	Puro	Bäck
760	Habitats	12	Noro	Rännil
760	Habitats	13	Pieni lampi	Liten tjärn
760	Habitats	20	Rehevät korvet	Frodiga kärr
760	Habitats	21	Letot Lapin läänin eteläpuolella	Brunmossar, södra delen av Lappland
760	Habitats	30	Rehevät lehtolaikut	Bördiga mindre lundområden
760	Habitats	31	Jalopuumetsiköt	Bestånd av ädelträd
760	Habitats	40	Metsäsaareke ojittamattomalla suolla	Skogsholme på odikad torvmark
760	Habitats	50	Rotkot, kurut	Klyftor och raviner
760	Habitats	60	Jyrkänteet ja niiden alusmetsät	Stup & skogs vid stupens nedre del
760	Habitats	70	Hietikot	Sandfält
760	Habitats	71	Kalliot	Berg i dagen
760	Habitats	72	Kivikot	Stenbunden mark
760	Habitats	73	Vähäpuustoinen suo	Trädfattig myr
760	Habitats	74	Rantaluhdat	Strandängar
760	Habitats	80	Harjujen avainbiotoopit	Nyckelbiotoper på åsar
760	Habitats	81	Rantametsät	Strandskogar
760	Habitats	82	Vaiheittainen vyöhyke	Övergångszon
760	Habitats	83	Pesä	Bo
760	Habitats	84	Esiintymispaikka	Förekomstställe
760	Habitats	85	Suojeltava kasvi	Skyddad växt
760	Habitats	86	Perinneympäristö	Vårdbiotop
760	Habitats	87	Muinaismuisto	Fornminne
760	Habitats	88	Muu	Övrig livsmiljö

There might also be company or system specific code sets. It was quite uniform understanding in the meeting that the forest data standard should be used as exemplified above.

If the aim, also in Finland, will be to utilize StanForD 2010 ogi and ogr for geographic data, we need to discuss how the different code sets and code values should be handled in the files. The need is to add e.g. code set owner, code set name and code set descriptive information to specify the Feature or Property in question. If there are different codes sets used in the systems (maybe mixed) there might be problems to interpret the code if you don't know to which code set it belongs.

<u>Comments and suggestion from secretary:</u>

Sending out pre-defined lists of codes per FeatureCollection can be done using the FeatureProperty structure in the ogi. This means that the door is open for the operator to defined new features and select one or several different properties for

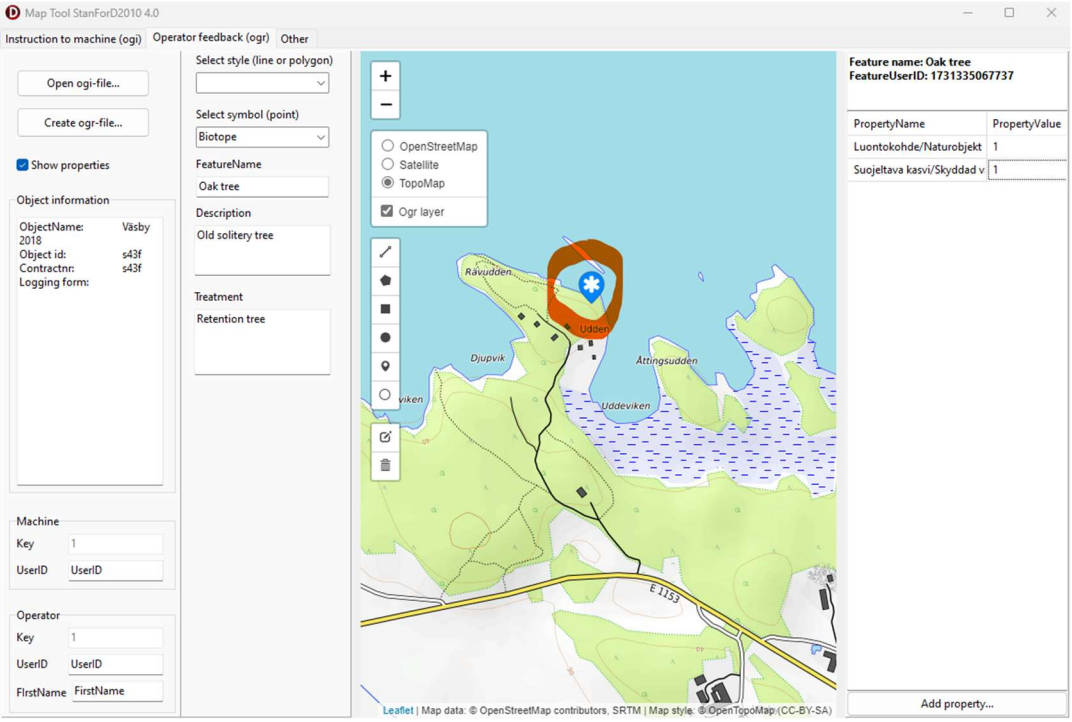
a feature. This information can thus be returned to the forest company using the ogr-format.

FeatureCollection (2)

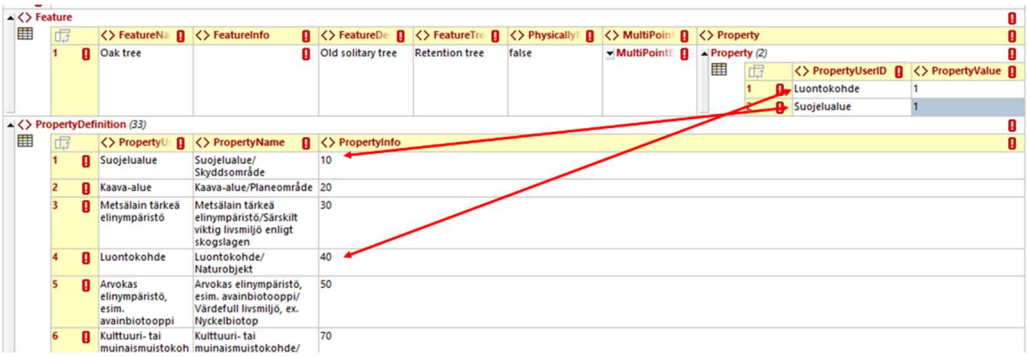
	modificationR	FeatureCollect	FeatureCollect	FeatureCollect	FeatureCollect	Modific	Feature	PropertyDefinition
1	false	HarvArea14328	Harvesting	234	6	2022-06-28T 12:00:00.000 +00:00	Feature (3)	PropertyDefinition (4)
2	true	DefaultOgrFin	Feedback	3245677	1	2022-06-28T 12:00:00.000 +00:00		PropertyDefinition (33)

	PropertyUserID	PropertyName	PropertyInfo
1	Suojelualue	Suojelualue/Skyddsområde	10
2	Kaava-alue	Kaava-alue/Planeområde	20
3	Metsälain tärkeä	Metsälain tärkeä elinympäristö/Särskilt viktig livsmiljö enl lagen	30
4	Luontokohde	Luontokohde/Naturobjekt	40
5	Arvokas_elinympäristö	Arvokas elinympäristö/Värdefull livsmiljö	50
6	Kulttuuri- tai	Kulttuuri- tai muinaismuistokohde/Kulturminnes- eller fornminnesobj	70
7	Luonnonsuojelulain	Luonnonsuojelulain luontotyyppi/Naturtyp enligt naturskyddslagen	80
8	Muu kohde	Muu kohde/Annat objekt	100
9	Lähde	Lähde/Källa	10
10	Puro	Puro/Bäck	11
11	Noro	Noro/Rännil	12
12	Pieni lampi	Pieni lampi/Liten tjärn	13
13	Rehevät korvet	Rehevät korvet/Frodiga kärr	20
14	Letot Lapin läänin	Letot Lapin läänin eteläpuolella/Brunmossar, södra delen av Lappland	21
15	Rehevät lehtolaikut	Rehevät lehtolaikut/Bördiga mindre lundområden	30
16	Jalopuumetsiköt	Jalopuumetsiköt/Bestånd av ädelträd	31
17	Metsäsaareke	Metsäsaareke ojittamattomalla suolla/Skogsholme odikad torvmark	40
18	Rotkot, kurut	Rotkot, kurut/Klyftor och raviner	50
19	Jyrkänteet	Jyrkänteet ja niiden alusmetsät/Stup och skogsbestånd vid stup	60
20	Hietikot	Hietikot/Sandfält	70
21	Kalliot	Kalliot/Berg i dagen	71
22	Kivikot	Kivikot/Stenbunden mark	72
23	Vähäpuustoinen	Vähäpuustoinen suo/Trädfattig myr	73
24	Rantaluhdat	Rantaluhdat/Strandängar	74
25	Harjujen	Harjujen avainbiotoopit/Nyckelbiotoper på åsar	80
26	Rantametsät	Rantametsät/Strandskogar	81
27	Vaiheittainen	Vaiheittainen vyöhyke/Övergångszon	82
28	Pesä	Pesä/Bo	83
29	Esiintymispaikka	Esiintymispaikka/Förekomstställe	84
30	Suojeltava	Suojeltava kasvi/Skyddad växt	85
31	Perinneympäristö	Perinneympäristö/Vårdbiotop	86
32	Muinaismuisto	Muinaismuisto/Fornminne	87
33	Muu	Muu/Övrig livsmiljö	88

Below is an example from a "ogi/ogr-simulator" where a "POI" has been added for an old oak including two properties from the Finnish list above.



The resulting ogr-file could look like the example below:



	FeatureNa	FeatureInfo	FeatureDe	FeatureTre	PhysicallyI	MultiPoin	Property
1	Oak tree		Old solitary tree	Retention tree	false	MultiPointE	Property (2)

	PropertyUserID	PropertyValue
1	Luontokohde	1
2	Suojelualue	1

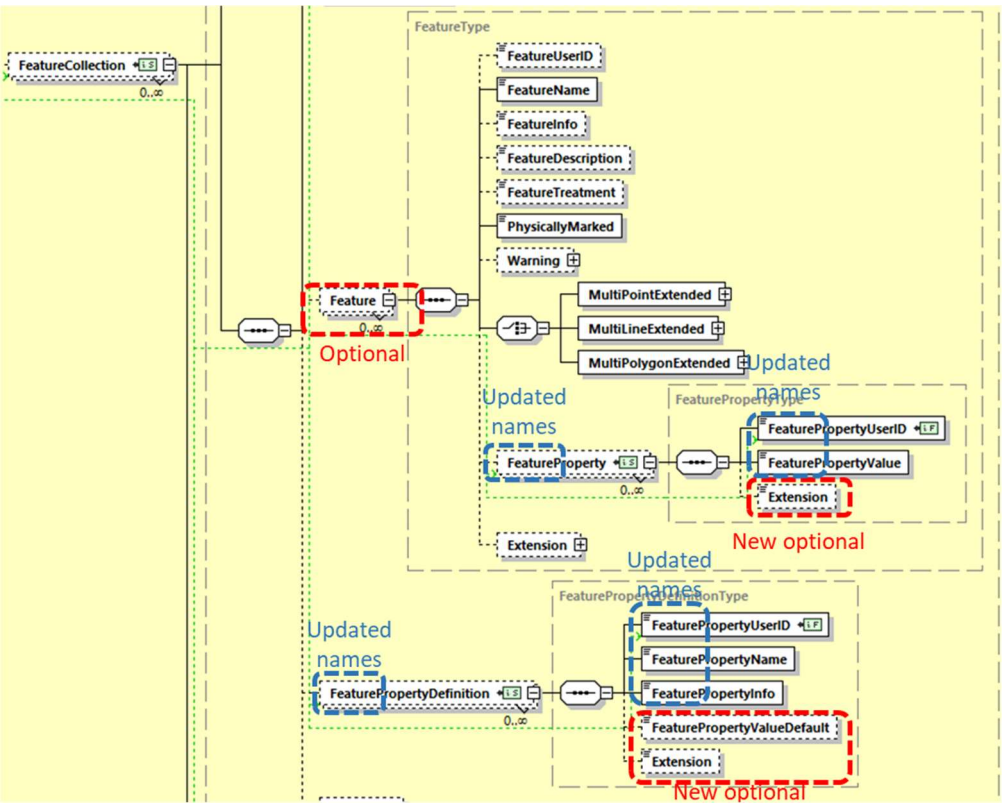
PropertyDefinition (33)

	PropertyU	PropertyName	PropertyInfo
1	Suojelualue	Suojelualue/ Skyddsområde	10
2	Kaava-alue	Kaava-alue/Planeområde	20
3	Metsälain tärkeä elinympäristö	Metsälain tärkeä elinympäristö/Särskilt viktig livsmiljö enligt skogslagen	30
4	Luontokohde	Luontokohde/ Naturobjekt	40
5	Arvokas elinympäristö, esim. avainbiotooppi	Arvokas elinympäristö, esim. avainbiotooppi/ Värdefull livsmiljö, ex. Nyckelbiotop	50
6	Kulttuuri- tai muinaismuistokoh	Kulttuuri- tai muinaismuistokohde/	70

A couple of weaknesses with the present draft for ogi and ogr were noted by the secretary when analyzing the present possibilities using the simulator exemplified above.

It was thus <u>decided</u> that we:

- Rename all Property elements into FeatureProperty in case we want to re-use the property structure in other situations.
- make element Feature optional in order to send out an empty FeatureCollection that can be used by operator to add new features into.
- add a new element FeaturePropertyValueDefault in order to simplify for operator to add new property.



Definition of new element FeatureUserID:

Name	Data type	Description
FeaturePropertyValueDefault	String	Default value used when property is added by the operator in the machine. Useful when the property always has the same value as when assigning a code to a specific feature.

NUMBER OF STEM PILES IN BPR

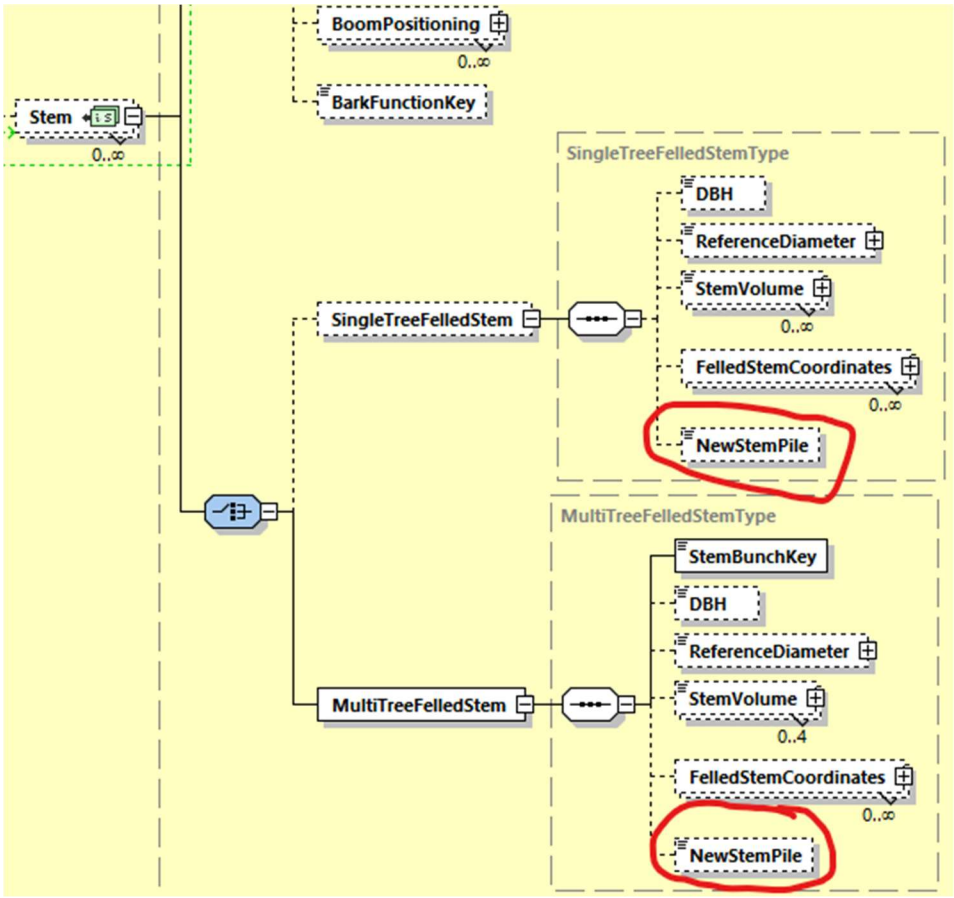
Ian Wilson, PHD Forest (2024-10-07)

Having the possibility to count and position the stem piles created by a feller-buncher has been discussed previously (November 2024). This discussion was focused on using this data for planning and optimizing yarding. The proposal was to add a new element "LastStemToPile" that would make it possible to estimate the position and volume of a stem pile. This proposal was postponed as it is often difficult for the operator to know when a pile is completed, meaning that it is not known if any additional stems are to be added to the pile. Another comment in this discussion was that positioning data from the attachment would probably solve this issue in a better way.

A different and, from an operator perspective, simpler solution could be to add an element for registering when a new pile is started/created. This solution would make it possible to get the number of piles and an approximate position even if the exact position of the attachment has not been implemented. This means that that the objective of the proposal is to make it possible to estimate the number of piles created (e.g. relevant from a productivity perspective) rather than focusing on really high resolution data that could be used for automation of yarder systems. The proposed new element makes it possible to start using simple pile data even if

no positioning of the attachment is available for estimating pile position and pile volume.

It was thus suggested that a new element StemPileCreated is added to felled stems according to the following figure and table.



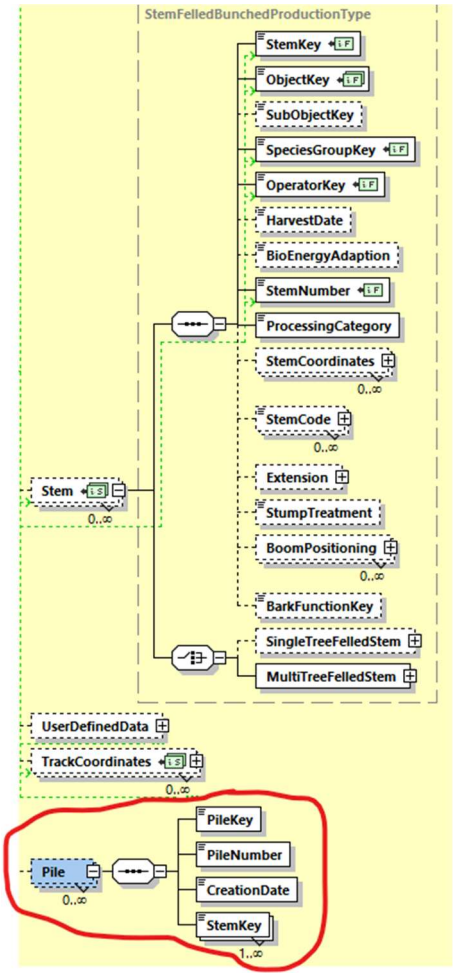
Name	Data type	Description
NewStemPile	Boolean	Manual operator registration of first stem in a new stem-pile. Can be used for estimating number of stem piles created by feller-buncher.

The possibility of creating a new element structure Pile in the bpr was suggested by Henrik Persson as this would mean that we can extend the structure with more detailed data in case feller bunchers with attachment positioning is available in the future.

The meeting decided to let the secretary study this issue further and to discuss this at the next meeting.

Comment from secretary after meeting:

A solution could be to to add a new Pile structure to the bpr schema according to the following illustration:



Name	Data type	Description
Pile	Boolean	A list of piles of felled stems created by a feller-buncher. Can be used for estimating number and position of piles. Only one stem may be included in element StemKey in cases when only the first stem is registered manually simulataniously with placing the first stem in the pile.
PileKey	Unsigned Long	Machine specific identity per pile. Must be totally unique for a certain MachineKey. Reset only when MachineKey is changed. It does not have to be a sequential number always incremented with one for each pile.
PileNumber	Positive-Integer	Pile number. A running / sequential number only to be reset when starting on a new harvesting object.
CreationDate	DateTime	Time and date for for creating a new pile. Time stamp must have the following times registered: local time ±offset from UTC.
StemKey	Unsigned Long	Machine specific identity per stem. Must be totally unique for a certain MachineKey. Reset only when MachineKey is changed. It does not have to be a sequential number always incremented with one for each stem.

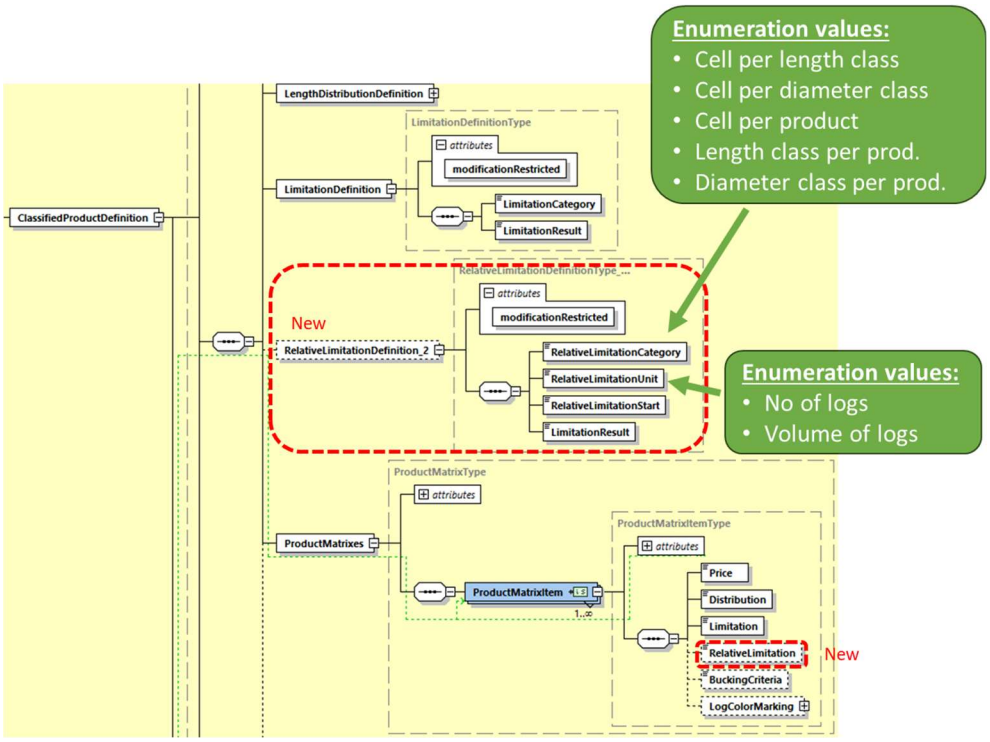
RELATIVELIMITATIONMATRIX

The practical tests of the proposal to update the limitation matrix is to be continued during December 2024 by Ponsse. The proposal has been discussed at a number of previous meetings in 2023 and 2024.

Ponsse has carried out some initial tests where it was discovered that using the old LimitationCategory was difficult as it includes irrelevant values and some relevant categories are missing:

- No limitation
- Total number, quantity per product
- Total volume, m3 per product
- Number per diameter class per product
- Volume per diameter class per product
- Number per length class per product
- Volume per length class per product
- Number per cell (log size class) per product and tree species
- Volume per cell (log size class) per product and tree species

It was suggested by Ponsse that a new optional structure RelativeLimitationDefinition is added as well as a new optional matrix element RelativeLimitation:



The following examples illustrate how the enumeration values of RelativeLimitationCategory is to function.

The examples are based on the following limitation matrix:

Length\Diam	180	200	220	240	260	280	300
340							
370	5%	5%					
400	5%						
430							
460							
490							
520							
550							

Example 1) Cell per length class

RelativeLimitationCategory	Cell per length class
RelativeLimitationUnit	Volume of logs
RelativeLimitationStart	5 m3_price
LimitationResult	Production is stopped, forbidden to buck logs incl. manual bucking

Consequences:

Maximum 5% of length class 370 volume in each of diameter classes 180 and 200

Maximum 5% of length class 400 volume in diameter class 180

A maximum total of 2.5 m3 is allowed in each of the cells 370\180 and 370\200 if the total harvested volume of length class 370 is 50 m3.

A maximum total of 5 m3 is allowed in cels 400\180 if the total harvested volume of length class 400 is 100 m3.

Example 2 Cell per diameter class

RelativeLimitationCategory	Cell per diameter class
RelativeLimitationUnit	Volume of logs
RelativeLimitationStart	5 m3_price
LimitationResult	Production is stopped, forbidden to buck logs incl. manual bucking

Consequences:

Maximum 5% of diameter class 180 volume in each of length classes 370 and 400
Maximum 5% of diameter class 200 volume in length class 370

A maximum total of 2.5 m3 is allowed in each of cells 370\180, 370\200 and 400\180 if the total harvested volume of each diameter class (180 and 200) is 50 m3.

Example 3 Cell per product

RelativeLimitationCategory	Cell per product
RelativeLimitationUnit	Volume of logs
RelativeLimitationStart	5 m3_price
LimitationResult	Production is stopped, forbidden to buck logs incl. manual bucking

Consequences:

Maximum 5% of total product volume in each of cells 370\180, 370\200 and 400\180.

A maximum total of 5 m3 is allowed in each of cells 370\180, 370\200 and 400\180 if the total harvested volume of the product is 100 m3.

Example 4) Length class per product

RelativeLimitationCategory	Length class per product
RelativeLimitationUnit	Volume of logs
RelativeLimitationStart	5 m3_price
LimitationResult	Production is stopped, forbidden to buck logs incl. manual bucking

Consequences:

Maximum 10% of total product volume in length class 370

Maximum 5% of total product volume in length class 400

A maximum total of 10 m3 is allowed in length class 370 if the total harvested volume of the product is 100 m3.

A maximum total of 5 m3 is allowed in length class 400 if the total harvested volume of the product is 100 m3.

Example 5

RelativeLimitationCategory	Diameter class per product
RelativeLimitationUnit	Volume of logs
RelativeLimitationStart	5 m3_price
LimitationResult	Production is stopped, forbidden to buck logs incl. manual bucking

Consequences:

Maximum 10% of total product volume in diameter class 180

Maximum 5% of total product volume in diameter class 200

A maximum total of 10 m3 is allowed in diameter class 180 if the total harvested volume of the product is 100 m3.

A maximum total of 5 m3 is allowed in diameter class 200 if the total harvested volume of the product is 100 m3.

Conclusions

As the tests have not been finalized yet the final decision will be made at the meeting in February. It was thus decided to postpone this issue.

An issue that should be further discussed is the data type for the matrix values in RelativeLimitation. As 0 is not a relevant value it is suggested that element RelativeLimitation has data type PositiveDecimal and that it is not included in cases where there is no limitation for a specific cell.

§7 Items to discuss

INTERPRETING DISTRIBUTIONMATRIX WITH ZERO VALUES

Based on a question from Heikki Komulainen, Ponsse, 2024-10-07

How should we handle a distribution matrix with only zero values?

Should it be interpreted as the same demand for all length classes or does it mean that distribution bucking is de-activated?

Below is an example of a distribution matrix with only zero values but minimum allowed deviation (MAXDeviation) larger than 0.

Price matrixes | Distribution matrix | Limitation matrix | Other

Length\Dia	140	160	180	200	220	240	260	280	300	340	360	380	Tota	%
370	0	0	0	0	0	0	0	0	0	0	0	0	0	0,0
430	0	0	0	0	0	0	0	0	0	0	0	0	0	0,0
490	0	0	0	0	0	0	0	0	0	0	0	0	0	0,0
550	0	0	0	0	0	0	0	0	0	0	0	0	0	0,0
610	0	0	0	0	0	0	0	0	0	0	0	0	0	0,0
Totalt	0	0	0	0	0	0	0	0	0	0	0	0	0	100,
%	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	100,	

Max allowed deviation for distribution bucking, per thousand 70

Below are two different alternative interpretations.

Alternative 1)

Zero values could be interpreted as any other constant value larger than 0, e.g. as below where 20% of the logs are demanded in each length class.

Price matrixes | Distribution matrix | Limitation matrix | Other

Length\Di	140	160	180	200	220	240	260	280	300	340	360	380	Tota	%
370	20	20	20	20	20	20	20	20	20	20	20	20	240	20,0
430	20	20	20	20	20	20	20	20	20	20	20	20	240	20,0
490	20	20	20	20	20	20	20	20	20	20	20	20	240	20,0
550	20	20	20	20	20	20	20	20	20	20	20	20	240	20,0
610	20	20	20	20	20	20	20	20	20	20	20	20	240	20,0
Totalt	100	100	100	100	100	100	100	100	100	100	100	100	120	100,
%	8,3	8,3	8,3	8,3	8,3	8,3	8,3	8,3	8,3	8,3	8,3	8,3	100,	

Max allowed deviation for distribution bucking, per thousand 70

Alternative 2)

Distribution is deactivated by setting maximum allowed deviation to 0 if the matrix only has zero values.

Price matrixes | Distribution matrix | Limitation matrix | Other

Length\Di	140	160	180	200	220	240	260	280	300	340	360	380	Tota	%
370	0	0	0	0	0	0	0	0	0	0	0	0	0	0,0
430	0	0	0	0	0	0	0	0	0	0	0	0	0	0,0
490	0	0	0	0	0	0	0	0	0	0	0	0	0	0,0
550	0	0	0	0	0	0	0	0	0	0	0	0	0	0,0
610	0	0	0	0	0	0	0	0	0	0	0	0	0	0,0
Totalt	0	0	0	0	0	0	0	0	0	0	0	0	0	100,
%	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	100,	

Max allowed deviation for distribution bucking, per thousand 0

Alternative 2 might create further confusion in cases where some length classes only have 0 values while others have a value larger than 0 as illustrated below. Alternative 1 was therefore suggested as it is the most robust solution.

Price matrixes | Distribution matrix | Limitation matrix | Other

Length\Dia	140	160	180	200	220	240	260	280	300	340	360	380	Tota	%
370	0	0	0	0	0	20	20	20	20	20	20	20	140	20,0
430	0	0	0	0	0	20	20	20	20	20	20	20	140	20,0
490	0	0	0	0	0	20	20	20	20	20	20	20	140	20,0
550	0	0	0	0	0	20	20	20	20	20	20	20	140	20,0
610	0	0	0	0	0	20	20	20	20	20	20	20	140	20,0
Totalt	0	0	0	0	0	100	100	100	100	100	100	100	700	100,
%	0,0	0,0	0,0	0,0	0,0	14,3	14,3	14,3	14,3	14,3	14,3	14,3	100,	

Max allowed deviation for distribution bucking, per thousand 70

No decision was made as these zero matrixes were created by mistake in one Finnish software application. The bug should by now have been corrected.

PRIORITY BUCKING

Based on a question from Henrik Persson, LogMax, 2024-10-07

There are a number of markets where some type of priority bucking is used rather than the full scale value optimization controlled through oin/pin/spi. However, the interface for controlling priority bucking as well as the functionality varies to a significant degree between different controllers.

Should the StanForD group therefore look into the issue of clarifying how to implement priority bucking?

The possibility of trying to define how priority bucking is to be implemented has been raised by Henrik Persson in discussions with the secretary. However, it has been pointed out in other discussions that the functionality of priority bucking varies to such a degree that it is a very difficult task.

Another objection is that it would most certainly be beneficial to move as many markets as possible towards value optimization. Standardizing priority bucking would probably mean that we for a foreseeable future must maintain two separate standards.

One idea could be to try to look into the issue of how to make a simple interface for creating and modifying pin-files. Basically, having a simple GUI that looks like some type of "priority bucking interface" but that creates a complete pin-file. This could be viewed as documenting how to create a pin-file based on simple input data like priority bucking. The first step in this type of work would probably be to describe how priority bucking is typically done today. This work could, in the long term, be viewed as facilitating the implementation of value optimization.

It was decided to let Skogforsk write a documentation of value bucking and have it published at the web site.

It was also decided to let the secretary discuss with at least some of the manufacturers to be able to create some basic documentation of how priority bucking today works.

MULTI-LEADER STEMS/STEM-FORKS

This is a complex issue that has been discussed at earlier meetings and that does not need to be solved immediately.

Several cases that might result in "incomplete" stems has been discussed at some previous meetings:

A. Stem forks

B. Breakage (e.g. tree length operations or snow damage)

C. Separate felling and processing by harvester (e.g. in steep terrain).

D. Manual felling and cutting of first log before processing of the remaining stem.

Two possible standard adjustments/clarifications were discussed:

1. Allowing increasing diameters when comparing separate logs. This is already done by at least one manufacturer.

2. Open up the possibility of registering a 0-value (zero) for DBH in cases where the butt-part of the stem is not included. This case would also mean that the ButtEndExtrapolation function is not to be used. This solution has some basic similarities with the suggestion for an element UncompleteStemTop.

The examples and suggestion below are focused only on stem forks (multi-leaders).

Examples stems from harvester test 2016

It would be fairly simple to extract "multi-leaders" if we allow increasing diameters when comparing separate logs!

Standard adjustments/clarifications to discuss:

- Allowing increasing diameters when comparing separate logs. This is already done by at least one manufacturer.

It was <u>decided</u> to let the secretary send out a questioner for how a multi-leader is handled today by different manufacturers.

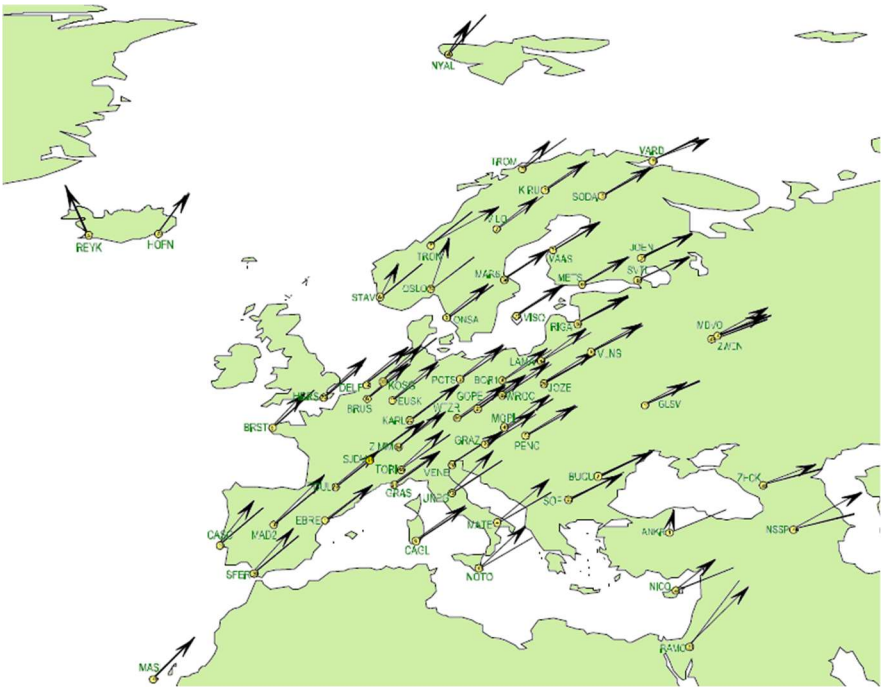
EXTENDING COORDINATEREFERENCESYSTEM

Tapio Räsänen, Metsäteho (2024-11-08).

Tapio raised the question of extending attribute coordinateReferenceSystem with new local reference systems rather than only WGS84.

The reason being that there is a systematical difference between e.g. WGS84 and EUREF-FIN, around 85 cm at the moment.

The following figure illustrates the fact the difference between ETRS89 (geocentric Reference System for Europe as of January 1, 1989) and WGS84 grows with 2.5 centimeters annually due to the European plate moving in north easterly direction. This is a problem if this difference is considered or not in transformations. Previously there has been too much noice to notice!



This issue has, at least once, also been raised by a manufacturer.

Björn Hannrup and Liviu Ene at Skogforsk will this week participate in some webinars that relates to this issue.

Several participants were open to extending the list of allowed reference systems.

The secretary will discuss this further with Björn Hannrup and Liviu Ene.

§8 StanForD2010 projects / implementations

HARVESTER TEST

The chairman presented the plans for a harvester test in October/November 2025.

Aim is to investigate how different bucking computers system work in practice with StanForD 2010 4.X in order to support manufactures in developing their systems and to support users when using and buying systems.

The test will be carried out from the middle of October to the beginning of December 2025. The location will probably be approximately 50 km north of Uppsala.

Time table:

- December 2024: Invitation to manufacturers to participate in the test
- March 2025: A preliminary test plan
- April-May 2025: Possible web-meetings with Skogforsk and to go through the test plan.
- October-December 2025: Practical test starting in mid-October

§9 Other issues

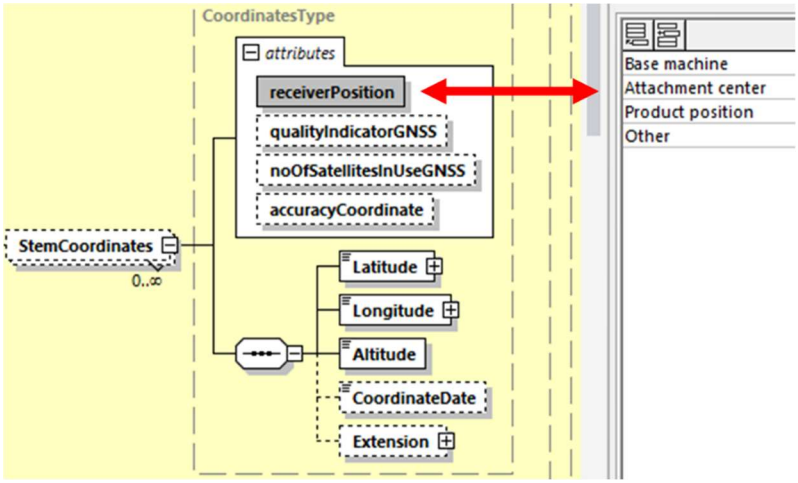
NEW BARK FUNCTIONS PINUS CONTORTA

The secretary informed the meeting about the ongoing work to develop new bark functions for Pinus contorta. In order to make it possible to implement the functions as quickly as possible parameters will be estimated for both the old linear Zacco functions as well as the more recent functions avaible in the new "consolidated functions" (version 4). Final results from the study will be presented in the spring of 2025.

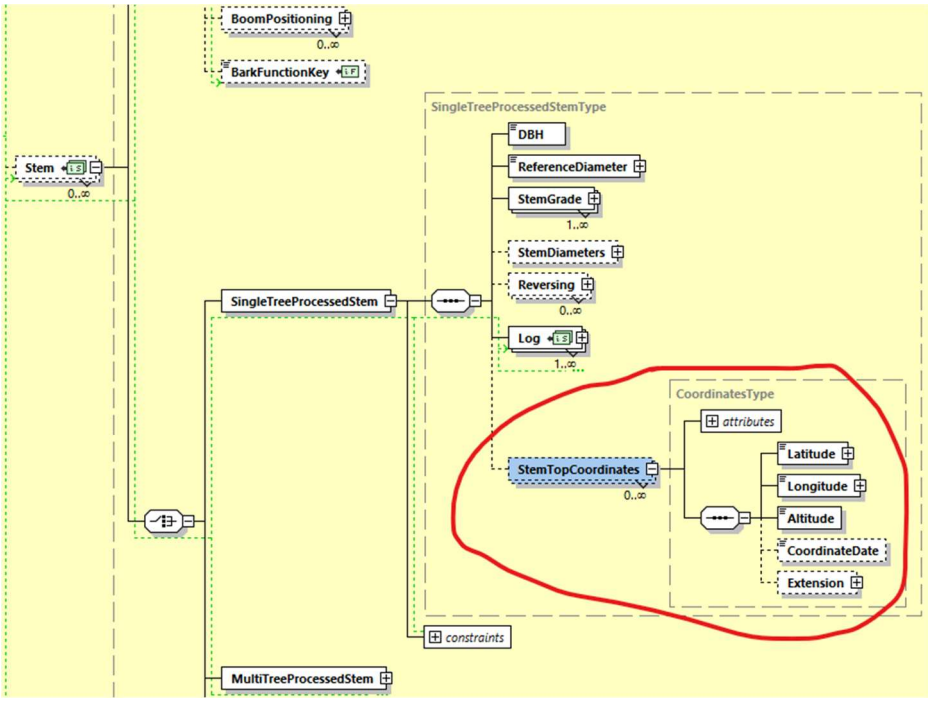
POSITION OF TOP

Johan Möller raised the idea of extending the standard in order to make it possible to register the position of the top of the tree as this is important when estimating the location and volume of residues use for bio fuel purposes.

One way could be to extend the RecieverPosition as illustrated below:



Another, probably better, way could be to add a new StemTopCoordinate element:

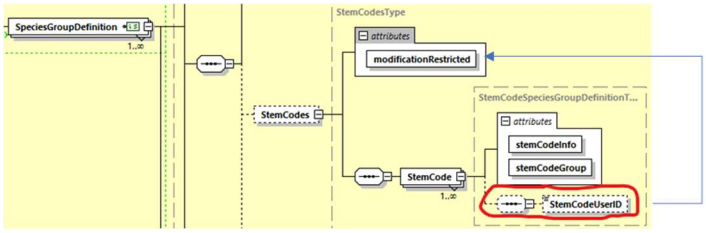


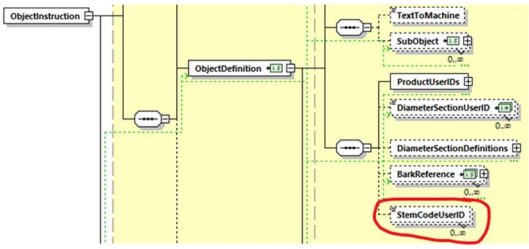
The advantage with the second alternative is that we do not add a new enumeration that is not generally useable in other coordinate situations.

STEM CODES IN OIN

Tapio Räsänen, Metsäteho

Controlling what StemCodes to use through the oin could solved by adding a StemCodeUserID to the spi-file under element StemCode and then update the object definition in oin- and boi-files as illustrated below:





Strong support from the Finnish forest companies for the change so that StemCodes can be given in oin

Issue to be further discussed.

EMISSION REPORTING

Tapio Räsänen, Metsäteho

This issue will be discussed again at the meeting in April. There may be a need to revive the proposal for a new "emission schema" as has been discussed previously.

§10 Next meeting

Workshop, Teams (2025-01-28, 13:00-15:00 CET)
RelLimitationMatrix & FeaturePropertyDefinition to be discussed

StanForD meeting Teams (2025-02-05, 10:00-14:00 CET)
Publishing version 4.1 to be decided. Member meeting.

Ordinary StanForD meeting, Vantaa, Finland (2025-05-06--07, 12:00-14:00 EET)
Public meeting.

By default, all financially contributing members will receive an Outlook invitation to all meetings in advance.

§11 End of meeting

The chairman Johan J Möller thanked everyone for attending the meeting.