



Consultation on proposed Changes to the Field Measurement Approach (FMA) Standard

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Requests for further copies should be directed to:

Publications Logistics Officer
Ministry for Primary Industries
PO Box 2526
WELLINGTON 6140

Email: brand@mpi.govt.nz

Telephone: 0800 00 83 33

Facsimile: 04-894 0300

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1 Background

Analysis of the first round of FMA information collected during 2012 was completed in a routine and well-automated manner for the majority of FMA participants. In a minority of cases manual intervention was required to complete analysis. This caused delays in the generation of participant-specific carbon tables for stakeholders.

MPI aims to improve delivery times for carbon tables in the future. It was assessed that the key processing bottlenecks were caused by:

- the need to seek additional information from stakeholders when there were unusual forest circumstances (most often involving mixtures of forest species);
- too few measured tree heights being available to estimate heights of non-measured trees when the age, species, stocking or growing conditions in a permanent sample plot were not typical of the wider forest.

The supply of additional information in unusual forest circumstances is expected to only affect data collection at a few sample plots for a few participants – and involves collection of small amounts of data that MPI would have had to ask for anyway. It should also be simpler to collect the information needed when in the forest, rather than being asked to provide information later during data processing as is currently the case.

The main change proposed is to increase the number of measured tree heights in each sample plot, from 5 to 10, per Species Group. This is more in line with industry good practice, and is expected to significantly improve the amount of information processed automatically, as well as improving the accuracy of carbon calculations.

MPI proposes to implement these changes by updating the FMA information required to be collected (as specified in the FMA Standard). There will also be some minor consequential changes to the FMA Information Standard. This specifies the form in which FMA information must be supplied to MPI. Several further minor and technical changes to the Standards are proposed that will improve consistency, completeness and the accuracy of carbon calculations as detailed in the following sections.

2 Overview of Proposed Changes

2.1 SIGNIFICANT PROPOSALS

2.1.1 Sampling tree heights

Increase the minimum number of trees to be measured for height in a permanent sample plot from 5 to 10 (with proportionally less in sub-plots).

Reason: More measured tree heights will result in more accurate carbon stock tables, and allow FMA data to be processed in a more automated way with better response times for stakeholders. Having only 5 measured tree heights per plot was found to be less than ideal for accurate, automated height determination in some cases during the first round of FMA data analysis. Measuring more tree heights will however increase the costs of forest inventory by a small amount, estimated by inventory providers as between \$20 – \$40 per permanent sample plot (depending on site conditions).

2.1.2 Predominant species where species and/or ages are mixed

In the relatively uncommon situation in which:

- (i) there are trees of mixed Species Groups and/or age in a sample plot, sub-plot or sub-sample, and;
- (ii) the intended predominant species is not the actual predominant species at the time of measurement

then, record the information on tree species, stocking and age (which was formerly collected only for the intended predominant species) also for the actual predominant species at the time of measurement.

Reason: To allow carbon stocks to be more accurately calculated in the above situation, without having to go back to stakeholders for additional information that may not be readily available after field inventory has been completed.

2.2 MINOR AND TECHNICAL PROPOSALS

2.2.1 Recording the stocking of small trees

When the stocking of trees is determined, restrict the count of small trees of DBH less than 25 mm to those that are live with a height of greater than 300 mm.

Reason: Mortality in small trees under 300 mm is generally high, and if counts of those trees are included in stocking this generally leads to significant overestimates of future carbon stocks. Counts of naturally regenerating small trees may be so high in some cases that existing growth models (adapted from those for plantation forests) may become unstable, requiring time-consuming manual intervention. Restricting tree counts to those over 300 mm when calculating stocking is expected to improve the overall accuracy of participant-specific carbon stock tables, and improve response times to stakeholders.

2.2.2 Reasons that trees may be absent

Change one of the reasons that trees may be absent from a sample plot or sub-plots from “Trees below stem diameter threshold” to “Trees below stem diameter or height thresholds”.

Reason: To be consistent with the proposed changes to determination of stocking for small trees (i.e. to include only those taller than 300 mm).

2.2.3 Information only required for live shrubs or small trees

Clarify that when collecting FMA information for shrubs, or for small trees with DBH less than 25 mm, information is only required for live shrubs or trees.

Reason: There is no need to include data on dead shrubs or dead small trees as part of FMA information, as these comprise small-diameter woody material which decays quickly – and for the purposes of carbon stock estimation is already assumed to be instantaneously oxidised (and thus is not included) during carbon calculations.

2.2.4 Estimating the age of shrubs when no trees are present

If shrubs are present in a sample plot or sub-plot but there are no trees, provide an estimate of the date of first regeneration (i.e. the oldest age) of the shrubs.

Reason: This avoids having to go back to an FMA participant to obtain this information in order to correctly calculate values for participant-specific carbon stock tables. It would impose only a very minor additional data collection requirement on FMA participants.

2.2.5 Estimating the age of shrubs when it is significantly different to the tree age

If the shrubs in a sample plot or sub-plot established significantly before or after any trees present, provide an estimate of the date of first regeneration (i.e. oldest age) of the shrubs.

Reason: This avoids having to go back to an FMA participant to obtain this information in order to correctly calculate values for participant-specific carbon stock tables. It would impose only a very minor additional data collection requirement on FMA participants.

2.2.6 Collecting information for shrubs and small trees

For consistency, if collecting FMA information for shrubs, information for small trees must also be collected.

Reason: In a very few cases, FMA participants have elected to collect information for shrubs but not for small trees (with stem diameters under 25 mm DBH). On investigation this generally appeared to be an oversight or misunderstanding. There is little point in collecting shrub information if small trees are then omitted. Since FMA information for small trees can be simply estimated, including them carries little additional cost and will affect very few FMA participants. The change will also more precisely implement the intent established during the original consultation on the FMA that participants be able to choose that small trees and shrubs be both omitted or measured, or that small trees but not shrubs be measured.

2.2.7 Cabbage trees and nikau palms

If cabbage trees or nikau palms are present, their height must always be measured.

Reason: As the diameter and height of these species are not well related, it is difficult to predict height from diameter. Requiring that heights are always measured will solve this

issue. This change will affect few FMA participants, as cabbage trees and nikau palms are seldom encountered.

2.2.8 Plot relocation if old regenerating trees are present

Introduce a new plot relocation reason in Part 3 of the FMA Standard entitled “Old trees present”, that allows plots to be relocated to exclude any regenerating trees within the plot perimeter that were likely to have been present before the change in land management that initiated the conversion of the area to forest land from land that was not forest land. The existing plot relocation rules/procedure will apply.

Reason: To allow carbon stocks to be more accurately forecasted without being biased by the presence of old trees, and avoiding having to go back to stakeholders for additional information that may not be readily available after field inventory has been completed. This is expected to affect few FMA participants, as the presence of older regenerated trees is uncommon – but if present, can result in substantial over-estimation of carbon stock values.

2.2.9 Recording the Species Group when trees are absent

If trees are absent from a sample plot or sub-plot, record the Species Group of the trees expected to be present in the future (if any), or in the surrounding area if the plot or sub-plot falls within a gap in the forest.

Reason: In most cases, carbon stock estimates must account for the absence of trees. This requires knowledge of which set of carbon stock tables (which are issued by Species Group) this absence is to be associated with. Obtaining this information up front would avoid having to go back to an FMA participant when calculating values for their participant-specific carbon stock tables.

2.2.10 Where the intended predominant species is not the actual predominant species

In the relatively uncommon situation in which the intended predominant species is not the actual predominant species at the time of measurement, and the trees that are the intended predominant species have been planted during more than a single year – clarify that FMA information is collected for the oldest planted trees only, including for silvicultural and adverse event information.

Reason: There is no change in intent – this was omitted from the FMA Standard, although FMA participants have been advised of this requirement in guidance material and data collection templates from the outset.

2.2.11 Minor editorial changes

Reason: To improve clarity and consistency, and for avoidance of doubt, in relation to collecting FMA information for trees and shrubs. This will include introducing formal definitions for ‘intermingled trees’ and ‘intended predominant species’ – these terms are presently used, but only defined through context.

3 How to make a submission

MPI would like to hear your views on the proposed changes to the FMA listed below, particularly if you are a current FMA participant, a participant who completed the FMA process for the first commitment period, or a registered ETS participant who may be subject to the FMA in the future. For each proposed change, MPI would especially like feedback on:

- a. Whether the proposed changes will significantly affect your collection of field data (including time/cost)?
- b. Whether you consider the changes to be beneficial or not?
- c. The proposed changes are intended to make MPI processing times faster, and carbon calculation more accurate. Are processing times and/or carbon calculation accuracy a concern for you?

All other comments on the proposed changes are also welcome.

If you would like to submit feedback please email comments to climatechange@mpi.govt.nz by 5pm Monday 11 May using the attached form.

3.1 RELEASE OF SUBMISSIONS

All submissions on this document will be subject to the Official Information Act 1982. Therefore, if you consider that all or any part of your submission is commercially sensitive or should be treated as confidential, please state this clearly along with your reasons when making your submission.