

Foliar and Litterfall Expert Meeting 15-16 January 2009

FutMon Project Action D2: Nutrient Cycling & Critical Loads

Minutes

24 participants from 18 countries attended the meeting (Annex 1).

First meeting day (Jan 15th 2009)

1. Chairman (A. Fürst) opened the meeting
2. **Item 1:** The meeting adopted the attached agenda (Annex 2).
3. **Item 2:** Chairman introduced briefly the Expert panels last year activity:
 - 10th needle/leaf interlaboratory comparison test was finalised and published
 - FutMon was accepted → efforts for the quality improvement have some financial support during 2009-2010
4. **Item 3 and 4:** New information needs due to FutMon and manual updates.

The Chairman inform about the status of the manual updates. The normal update based on the guidelines from the QA Group (Marco Ferretti) is ongoing. No special changes are planned here only the analytical part should be moved to a separate laboratory manual. This updates should be finalized in the manual revision in 2010.

To react on the needs of the FutMon project (D2 “nutrient cycle”) same changes are urgent especially for the new survey ground vegetation. We had to start with this survey 2009 to have real data end of 2010 and we need it then because of the needs of the D2 action.

These changes should be made in so called “FutMon field protocols”. The following timetable was given from VTI to the chairs of the Expert Panel:

- First draft end of January 2009
- Circulated 2th February 2009
- Comments should be given till 13th February 2009
- Second draft (including data forms) should be send to VTI till 27th February 2009
- Final editing until 20th March 2009
- Final Manual should be adopted in the Task Force Meeting 2010

Changes in the sub manual 4 (**Sampling and analysis of needles and leaves**) were adopted:

- Not only needle set 1 and 2 should be analyzed also older needle sets should be analyzed
- Each D2 partner can choose to pool the sample of the older needle sets or analysed them separately (only update in the field protokoll for FutMon not needed in the ICP-Manual)

- Some smaller updates of the submission forms needed (drop out ringtest number, labcode) – they are not longer needed, because of the new QA/QC forms. Add code for the “leave_type” of the “pooled sample”.

For the “**Field protocol Sampling of ground vegetation**” the Draft which was send from Pasi Rautio mid of December 2008 was discussed.

The following comments were made by the participants:

Switzerland (Waldner): Different height between litterfall samplers and ground vegetation sampling height. Could be a problem? Maybe harmonisation needed?

Italy (Matteucci, Petriccione): Because of the costs the sampling should be reduced to one or maximum two visits to the plot (Panel agree with this). Take care sampling close to established features (e.g. litterfall traps); sampling personnel could have disturbed the ground vegetation.

Belgium (Roskams): For information on nutrient cycling processes we should separate woody parts from leaves for the analyses.

Germany (Dietrich): Exclude woody tree species higher than 0.5m from analysis

Germany (Dietrich): Will send information on a model for nutrient cycling and biomass calculation to Foliar EP group

Germany (Dietrich): Sampling design - Germany open to both random sampling and fixed sampling?

Italy (Petriccione): Only random sampling should be used (8 frames of 0.25m² or 4 frames of 0.5 m²).

Panel agree with this: Random sampling should be done outside of the IM plot area, should be ten to twenty meters from the ground vegetation sample plot but as close as possible. The ground vegetation selected for the sample area should be similar to the plot.

Estonia (Laas): In case of not enough biomass could it possible to set a lower limit were we need no special analysis?

Panel agree with this: If there is not enough sample material for analysing after pooling → no significant ground vegetation community.

Pooling, if required, should be done for those groups where the weight is not enough for chemical analyses, the other groups should be analysed separately.

Italy (Petriccione): Functional Group Grasses (sedges and rush), should be expanded to include the Graminae family and others.

Panel agree with this: Exclude wooden tree species above 0.5m from nutrient analyses

Austria (Fürst): a maximum 70°C, for at least 48 hours harmonized to a maximum 80°C and 24 hours - Element concentrations and biomass should be reported as dry matter (105°C) for foliage, ground vegetation and litterfall.

Austria (Fürst): Ground vegetation and Litterfall will be included in the Foliage Ringtest - Who is willing to produce a Ringtest sample? Email details to: alfred.fuerst@bfw.gv.at

The Foliar Expert Panel agreed to supply the Expert Panel on Ground Vegetation and Forest Biodiversity with a draft copy of the ground vegetation field sampling protocol for comments respecting the deadlines outlined.

Sampling and analysis of litterfall

Decomposition studies were made in Finland, Belgium and Switzerland. The panel agree to discuss the addendum to the litterfall manual in more detail till 2010 in the litterfall group. Priority is the creation of a field protocol and/or a manual update for sampling of litterfall in FutMon.

For this the following adaptation of the existing manual is needed:

Panel agree with this: Different litterfall collection traps are used in the countries. It is not possible to change this because each type has advantages and disadvantages. What is needed is information about the sampler type, sampler height and sample surface in m² and the number of samplers/plot. This information has to be included in the forms.

The manual point “Frequency of sampling” the following change should be made (Germany-Dietrich): “It is recommended to collect litterfall bi-weekly or at least monthly.”

Panel agree with this: A more frequent sampling (maybe needed for Phenology purpose) is not practical because of additional costs.

Panel agree with this: To fulfil the necessity of the D1 action litterfall on beech and oak plots will be separated, weighted and analyzed in different fractions:

- foliage
- wood (bark, branches, twigs)
- seeds & fruit,
- capsules,
- others

Separations in more fractions e.g. leaves of different tree species are possible.

The point why seeds & fruits should be separated from capsules for D1 should be discussed in the plenary session.

On all other plots the separation and analyse of pooled samples for foliage and non-foliage litter is enough.

For the Leaf Area measurement a camera system with fisheye could be used. It was discussed in the pre meeting with the chairs to buy an instrument and share it between the FutMon partners (R. Fischer) if the method is used. There will be a meeting Mai 2009 (Slovenia) about LAI measurements and methods. It was planned to set up a separate manual about LAI measurement and method(s). In this case the part for LAI measurement should be moved from the litterfall manual to this new manual.

Leaf area index calculation from litterfall samples were made in the past only from France (only for broadleaves) from Swiss and from Italy.

Panel agree with this: For the harmonization between the manual for sampling of needles and leaves and the litterfall manual the following points had to be changed:

- Na and Al will be deleted from the optional list
- Cd will be added in the optional list
- The units for Carbon will be changed to g/100g in the form
- The units for Fe, Mn, Zn, Cu, Pb, B will be changed to µg/g
- The unit for Cd is ng/g

One missing compartment for the D2 action is litterfall from ground vegetation. Swiss (Waldner) has experience with it, but the study was not published yet. They extrapolate the results of ground vegetation sampling from deciduous species.

5. **Item 5:** Quality issues.

The chairman gave an overview about the activities in the QA/QC-WG for labs. Harmonisations between the ringtests in the different analytical groups were done.

- The same Webinterface (hosted by FFCC/BFW) will be used in all tests
- Use of tolerable limits (for low/high concentration) for the test evaluation
- Including QA/QC information as a separate table in the database
- In future there will be no feedback to the laboratories about wrong units in ringtests before ending the deadline
- Participants/NFCs/FutMon beneficiaries get a qualification report
- NFCs are responsible for data quality of the lab
- All labcodes will be opened for participants, ICP-Forests, EP, WG-QA/QC

The proposal for tolerable limits for low concentrations (e.g. non foliage litter) was adopted from the Expert Panel.

The first results of the 11th Needle and Leaf Interlaboratory comparison were presented (Download from the FFCC webpage www.ffcc.at will available on the 19th of January 2009).

One non foliar litterfall sample (pine branches) and three foliage samples (Pine, Maple, Spruce) were analysed. The results for nitrogen and carbon compared with the last test are getting worse (e.g. calibration problems with element analysers). Iron and Copper were also not so good. Better results - compared with the last test - for zinc, lead and cadmium were achieved.

For future ringtests FFCC needs test samples especially for ground vegetation and non foliage litterfall.

For (two) FutMon foliage laboratories a laboratory helping programme is possible – contact person for this programme is Nils König.

The WG QA-QC for labs set up a Manual about Quality assurance and control in Laboratories (available on the ICP-Forests web page). In this manual are plausible ranges for foliage of different tree species (calculated from the level II database) available. Also for foliar litter there are some plausible ranges given (www.icp-forests.org webpage for WG QA/QC in labs).

Second meeting day (Jan 16th 2009)

6. **Item 6:** Any other business:

List of the Foliage and Litterfall experts was updated.

Negotiations for a common scientific workshop with IUFRO (Turkey 2009) it was decided not to have a common meeting at this point. Nenad Potocic was a contact person between ICP EPs and IUFRO and gave here a short overview.

The panel agree to have: Back to back sessions in the next FutMon/ICP-Forests Combined Expert Meeting.

The minutes of the meeting were adopted.

Chairman A. Fürst closed the meeting

Expert Panel wants to warmly thank the organisers of the meeting, Martin Lorenz, Richard Fischer and Astrid Khalil in vTI.

Annex 1 (List of participants)

Annex 2 (Agenda of the meeting)

Annex 1 (List of participants)

Fürst Alfred (Austria)
Dietrich Hans-Peter (Germany)
Jonard Mathieu (Belgium)
Roskams Peter (Belgium)
Potocic Nenard (Croatia)
Lomsky Bohumir (Czech Republic)
Sverrild Karen (Denmark)
Ingerslev Morton (Denmark)
Laas Indrek (Estonia)
Ukonmaanaho Liisa (Finland)
Merilä Päivi (Finland)
Croisé Luc (France)
Neville Pat (Ireland)
Matteucci Giorgio (Italy)
Fabbio Gianfranco (Italy)
Bertini Giada (Italy)
Petriccione Bruno (Italy)
Timmermann Volkmar (Norway)
Oneata Marian (Romania)
Priwitzer Tibor (Slovakia)
Simoncic Primoz (Slovenia)
Garcia Paloma (Spain)
Waldner Peter (Switzerland)
Barsoum Nadia (UK)

Annex 2 (Agenda of the meeting)

- 1) Opening, welcome and acceptance of the agenda
- 2) New information needs due to FutMon and corresponding demands for the EP and manuals. Other manual updates (Sampling from Needle and Leaves/Sampling of ground vegetation).
- 3) Discussion about the possible litterfall projects and manual amendments
- 4) Quality issues including ring-test results and coming ring-test
- 5) Any other business
- 6) Closing of the meeting