

COST ACTION E43
**Harmonisation of National Inventories in Europe:
Techniques for Common Reporting**

Draft Minutes of the 4th Steering Committee Meeting

Swiss Federal Institute for Forest, Snow and Landscape Research (WSL/FNP)
Birmensdorf, Switzerland

17 March 2005, 11:00 – 18 March 2005, 17:00

Participants: Erkki Tomppo (Chair, FI), Klemens Schadauer (Secretary, AT), Claude Vidal (FR), Adrian Lanz (Secretary, CH), Emil Cienciala (CZ), Annemarie Bastrup-Birk (DK), Marco Marchetti (IT), Jesús San-Miguel (JRC, Ispra), Robert Flies (DG Environment, Brussels).

1. Welcome and opening the meeting

The head of the Research Department Landscape at WSL, Otto Wildi, welcomes the participants and emphasizes the importance of the work done in action E43 for a small country like Switzerland.

The chairman of the action, Erkki Tomppo, welcomes the members of the steering committee and explains that Robert Flies (EC, DG Environment) has been invited to the meeting after having expressed interest to follow the work of the action. He will participate at the second day of the meeting.

2. Adoption of Agenda

The SC adapts the draft agenda to make room for the exchange of ideas and information with the guest from EC DG Environment, Robert Flies, on Friday.

Presentations from E43 to Robert Flies 10:30 - 12:30

RF is most likely interested to know more about time schedule

follow-up of work plans and time plans

a short ENFIN presentation should be given

3. Minutes of last meeting

The maximum number of participants at the joint WG and MC meetings in Vienna and Germany this year is corrected from 55 to 60, and those at the TF Wg2 meeting in Graz from 5-10 to 5. The maximum number of reimbursed participants at the training course in Prague is 12; the total number of participants is around 24. The SC accepts the minutes with these changes.

4. State of the art reports

Working group 1

Since the last meeting the questionnaire has been finished and distributed to WG1 members. It has been returned by 19 countries until today. Three scientists from the Austrian, French and Italian NFI are evaluating and analysing these questionnaires at the moment in Birmensdorf (STSM). A first review of the questionnaires shows that completions, corrections and enhancements are needed. A preliminary report comparing European NFI systems will be available at the Vienna meeting. The questionnaire should also be sent to countries not represented in WG1 and to some countries not represented in the action. For this, the SC asks to gain to establish the missing contacts as agreed in the Nogent-sur-Vernisson meeting.

Working group 2

19 countries did reply to the questionnaire of this working group. In a STSM held at Umea the questionnaires have been analysed and the scientific report has been sent to the MC chair and the COST-Office Science Officer. The results will be presented at the task force meeting in Graz and at the Vienna meeting. In most countries the final decision on the reporting system has not been taken yet. Therefore, a questionnaire update is planned for the beginning of 2006, and presentations from 6 advanced countries will be given at the Vienna meeting (CH, DE, FI, IT, SE, UK). The common reference may then be based on the comparison of these countries only. In the discussion it is mentioned that some details are not covered by the questionnaire, which might be needed for later recommendations. The SC agrees with the WG2 deputy leader that a firm collaboration with JRC is very welcomed. The action Chair will invite Zoltan Somogyi to participate at the Vienna meeting. In future, Jesús San-Miguel, as a member of the SC, will be responsible for the distribution of invitations within the JRC.

Working group 3

The print version of the questionnaire table is available on the private web pages of the action. It has been finalised and reviewed by email exchange and discussions between Annemarie Bastrup-Birk (DK), Pat Neville (IE), Gherardo Chirici (IT), Jan-Erik Nilsen (NO) and Anna-Lena Axelsson (SE). The online version of the questionnaire will be made available by Gherardo Chirici and countries will then be asked to fill in results online. First results are expected to be available at the Vienna meeting. A forest type classification sub-group has been launched (Anna Barbati IT, Anna-Lena Axelsson SE and Iciar Alberdi Asensio ES). The Chair of COST action E27 (PROFOR), Georg Frank, will participate at the upcoming meeting in Vienna.

Action

Since the last meeting the annual report has been compiled. There has been a demand from the COST-Office to provide a brochure, folder and posters. The final print layout of all these documents will be done in Bruxelles. The brochure material has already been sent to the COST-Office. For the folder, additional text proposals have to be sent to Erkki Tomppo and images to Klemens Schadauer (deadline: 23 March 2005). Klemens Schadauer together with Erkki Tomppo will make a poster proposal by the end of this month (31 March 2005). Erkki Tomppo informs that he has received an invitation as the Chair of COST action E43 to participate at a meeting on evaluation of the previous ForestFocus scheme to be held on 29 April in Bruxelles. For this meeting he will need the opinion from all SC members. Enhancements to the action's web pages are still very welcome and should be sent to Erkki Tomppo and the webmaster, Kai Makisara. Lists of different members are kept by the Chairman of the action. Changes should go to him and the lists should be regularly checked at meetings.

5. Presentations from Swiss NFI

WSL scientists present methods and results from five ongoing research activities linked with the Swiss NFI. The SC is impressed by the enhanced methods developed and applied in the projects, and ask the lecturers to provide links and abstracts for the minutes of the meeting.

Stefan Leyk: Computing the past

<http://www.wsl.ch/staff/stefan.leyk/>

Historical maps such as the Siegfried map from the 19th century are not only fascinating witnesses over the past of our landscape; they also hold useful information for scientific evaluation of changes over time within this landscape.

To incorporate the historical information into Geographical Information Systems (GIS) the needed information has to be extracted. Therefore, pattern recognition methods are applied.

In using geographic data from historical map for subsequent target applications different sources of uncertainty occur. The nature of uncertainty has to be understood in its entire complexity to realize a systematic investigation.

Uncertainty arises in different stages of map production and field survey, during transformation, digitization, processing and preprocessing of the data and due to the intended application. The latter requires a historical investigation by using different sources of information such as literature, historical photos, local reference maps and knowledge of influences from politics, science and society onto the topographic work.

Jacqueline Gehrig-Fasel: Modelling the Alpine tree line

http://www.wsl.ch/staff/jacqueline.gehrig/baumgrenze/welcome_phd_e.htm

Until today, little knowledge exists for an explanation of the position of the tree line in Switzerland although extensive research about this topic has been done since the beginning of the 20th century. Most authors investigating the potential tree line found temperature to be the most dominant factor.

The aim of this project is to describe the position of both the potential and actual tree line more flexibly. To achieve this, we propose a hierarchical approach on different spatial scales. On a regional scale we consider climate to be the driving force whereas on a local scale, factors such as topography (natural hazards) and human impacts are believed to influence the position of today's tree line. To test the combined and/or relative importance of these different factors, a multi-variable model based on GLM, GAM and CART methods will be developed. The local tree line as the response variable to calibrate the model will be derived from the 1:25'000 pixel map of Switzerland. To investigate the influence of the scale on the significance of the variables describing the tree line, calibrations on different resolutions and spatial scales will be performed.

The model is expected to react sensitively to climate change, natural hazards and land use intensity. Consequently, various climate and land use change scenarios will be calculated and the locations with high potential of filling in reforestation will be identified by using spatial GIS analyses.

Zuyuan Wang: Automatic forest boundary delineation on aerial images

Aerial images covering whole Switzerland will be used for extending the current sampling design of the Swiss NFI. Automatic image processing methods will provide spatially contiguous and reproducible results. The aim of the project is Gap detection for the forest areas with pattern recognition methods. Therefore, it is the first research step to realize the forest boundary delineation using automatic computer based image processing methods.

The proposed method performs an automatic forest boundary delineation based on image segmentation. First we applied the JSEG image segmentation algorithm to get the initial image segmentation results. Later on, wavelet transform is introduced to extract the texture features of the aerial images in CIELAB color space and leads to an improved region merging approach to obtain forest boundary delineation. First experimental results are encouraging, especially reducing problems with varying illumination. Future research is focused on additional use of digital terrain and surface data and evaluating other texture features to achieve more accurate forest delineation.

Lukas Mathys: From a forest to a landscape resource inventory

<http://www.wsl.ch/staff/lukas.mathys/>

Forest, and landscape in general, is usually mapped by discrete land units. The discrete forest mapping approach depicts a predefined range of data based on a specific target function and therefore definition. Forest characteristics and the ecological functions of forest ecosystems, however, are continuously distributed in space and time, and not limited by discrete land type classes. Hence, for the sustainable management of forest ecosystems it is essential to assess the natural potential of forest ecosystems in a general landscape framework, independent of a predefined function.

The goal of the project is to depict forest ecosystems continuously and area covering. Based on the resulting ecosystem property maps, spatial and temporal patterns of specific ecological functions are evaluated for different forest function and development regimes.

Marcel Frehner: Spatial data processing in a distributed environment

http://www.enviroinfo2004.org/cdrom/Datas/theVirtualDatabase_frehner_braendli_schenker.htm

Traditional desktop GIS are expensive to buy and require much experience and know-how in order to be used reasonably. Web mapping systems have become a cheap and easy to use alternative recently but offer only restricted access to existing spatial data and limited spatial data handling capabilities. This paper presents an architecture called Virtual Database which makes available spatial environmental information as well as advanced geoprocessing functionality to any user who has access to the Internet. A particular feature of the Virtual Database is that it serves as a platform for the integration of distributed data repositories consisting of environmental data. Data access and integration conform to the OpenGIS specifications for Web Feature Services (WFS) and the Geography Markup Language (GML). Analysis functionality, in particular methods of spatial overlay are provided by a spatial analysis engine software component. First experiences with the Virtual Database show its high flexibility concerning the integration of heterogeneous data repositories. High scalability of the system is achieved by a caching mechanism based on data replication. The potential of the use of the Virtual Database is illustrated by sketching an application scenario from the field of environmental data handling.

6. Follow up of work plans and time plans for WGs

Members of the WG1 STSM, Lucio Di Cosmo (ISAF, IT), Thomas Gschwantner (BFW, AT) and Nicolas Robert (IFN, FR), present first results from their analysis of the questionnaire, and Emil Cienciala those from the WG2 STSM working on the questionnaire of WG2. Annemarie Bastrup-Birk and Marco Marchetti comment on the questionnaire of WG3 and the forest type classification work in WG3. The SC takes note of the comprehensive information being collected in the WGs, and agrees that a check and adjustment of WG tasks is needed after having finished the first round of overview and analysis of European NFI systems (gap and overlap detection).

7. Detailed activity plans and time plans for WGs and Action for 2005

Working group 1

Work should proceed as stated in the working plan. A second STSM may be useful to refine the comparison and analysis of the NFI system and the preparation of the final report. The members of the first STSM may be asked to continue their work, possibly in France or Finland between the two WG meetings in 2005. The work of the WG should as soon as possible be extended to other wooded land (OWL) and volume increment and drain. A report should be provided until the end of the year.

Working group 2

WG2 plans to refine the questionnaire in the second round at the beginning of 2006. Notably details about land use classification will be included. In a first step, the work on harmonised tables may have to be concentrated on 5-6 pilot countries with available data. They will have a presentation during the upcoming Vienna meeting. Parts of the work should be done by a core group (harmonisation options, six land-use classes and sensitivity analyses). The idea to have a STSM at the beginning of 2006 was expressed.

Working group 3

A new version of the work plan will be provided with added weight to forest type classification. Marco Marchetti will take the lead of this sub-group which may organise a STSM in 2005. In line with the work plan, the report is planned by the end of the year.

Action

No comments. Work plan is ok.

8. Preparing the joint WG and MC meeting in Vienna

The draft agenda of the MC meeting is ok. WG leaders should send small changes of the draft agenda for the WG meeting to Klemens Schadauer (for instance presentations).

Due to budget restrictions, around 60 (max 65) participants can get reimbursed. Klemens Schadauer will keep WG leaders and the Chair informed on the number of people on the reimbursement list, so that an equitable decision on possible cuts can be taken.

Ron McRoberts from the USDA Forest Service will attend the Vienna meeting, and Erkki Tomppo in return is invited as invited speaker at the FIA annual meeting in Portland, 3-6 October 2005. Therefore, the date of our joint WG and MC meeting in autumn has to be changed (postponed). Klemens Schadauer will contact Gerald Kändler for other dates available for a meeting in Germany.

9. Linkage to ENFIN

Klemens Schadauer informs that he originally planned a full ENFIN meeting in Vienna this spring, and that it was, however, not possible to arrange things within the short time. The joint ENFIN steering group and COST E43 steering committee meeting will now take place on Wednesday, 13 April 2005, 16:00 in Vienna.

A call for expression of interest for the participation of Spatial Data Interest Communities (SDICs) with their expertise to the establishment of draft INSPIRE (Infrastructure for spatial information in Europe, <http://www.ec-gis.org/inspire>) implementation rules as well as to the readiness to participate in the review process (INSPIRE preparatory phase) has been opened on the 11 March 2005. ENFIN or COST E43 should apply for forest data. Jesús San-Miguel will check and inform which body is better suited to apply.

10. Miscellaneous

STSM has been found that STSMs are adequate means to help on the progress of the work of the action. Further applications are expected in this year. Available funds have to be discussed with the COST-Office Science Officer at the Vienna meeting.

11. Place and date of next meeting

The following dates have been noted for the next SC meeting: 4-5 July 2005 or 29-30 August 2005.

12. Closing the meeting

The chairman of the action closes the meeting with thanks to the local organiser for the excellent preparation and organisation of the meeting as well as to the SC members for their excellent work during the meeting.

Appendix: Exchange of ideas and information with Robert Flies

Mr. Robert Flies thanked for invitation to discuss latest policy issues. He explained during a short presentation the state of the art concerning future developments especially Life+. Klemens Schadauer presented main objectives and the structure of ENFIN. Erkki Tomppo presented background, aims and goals and work plan of Cost E43. After these general presentations the work of the tree WGs of Cost E43 was presented.

WG1 (Claude Vidal):

Main objective: Harmonised definitions and measuring practices of NFIs.

- Collection of information on sampling methods
- Establish bridges to European database
- Harmonising definitions in the long time run

Preliminary results from the STSM in Birmensdorf were presented by the three young scientists (Lucio Di-Cosmo, Thomas Gschwantner and Nicolas Robert). The work was split into three parts:

- Forest definition
- Volume estimation
- Inventory methods

20 countries responded to the questionnaire. Main conclusions:

- Methods are different, but tend to be closer
- Statistical error is low, results are precise at the National level
- Bridges between results have to be established

WG2 (Emil Cienciala):

Main objective: Harmonised estimation procedures for carbon pools and carbon pool changes

- Assessment of the state of the art
- Identifying main harmonisation options
- Selecting references
- Building bridges
- Providing recommendations

Presentation of the results of the STSM of WG2 "State of the art of reporting systems for LULUCF in European countries and use of the National Forest Inventories":

- Basis for the report was a questionnaire developed within WG2 where 19 countries responded.
- Questions and answers were split into the 5 pools (above ground biomass, below ground biomass, dead wood, litter and soil organic matter)
- Main conclusions:
 - NFI importance increases
 - EU countries are far from being harmonised in reporting carbon stock change
 - Many decisions yet to be made especially on Kyoto Protocol issues
 - Collaboration important for setting up new reporting systems

WG3 (Annemarie Bastrup-Birk):

Main objective: Harmonised indicators and estimation procedures for assessing components of biodiversity with NFI data

- Two Starting points: CBD and MCPFE
- Identification on relevant variables
- Focus on variables already assessed in the NFIs
- Building bridges
- Forest type approach: To take into account the variability of forest conditions. (EEA/EUNIS)

Links to other Projects: Cost E27, ForestBiota, Biosoil, ENFIN I

During the discussion it was decided that within Cost E43 recommendations concerning the future forest coordination structure within LIFE+ will be developed and sent to Brussels. The need to create a science/policy interface for Cost E43 was discussed. As one possible solution a 4th WG was proposed.