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ChangeHabitats2

Newsletter October 2011

News from the European Natura 2000 front
International IAPP cooperation

Dear Colleagues, Friends and Readers:

Welcome to our October Newsletter. During the summer we implemented the project and were mapping FFH Sites in Uckermark Germany and Sopron Hungary.

This is detailed in the next page of our newsletter.

In each newsletter we will introduce two consortium partners and their work in detail. For this edition, we have selected as the first expert **Institute of Photogrammetry and Remote Sensing Vienna,** conducting research in geometric reconstruction, physical interpretation and 3D data management of laser scanning data.

The second expert is **YGGDRASIL 2, Berlin**, SME expert in FFH Management monitoring and field work.

Both partners have had intensive exchange of staff during the summer and the TOK was evaluated very useful for the work.

Line of events in summer

Secondments were undertaken:

WHO	OBJECTIVES
• TU BAF to YGGDRASIL 1 Berlin	set up PMO and rules
• 2 secondments TUW IPF to YGGDRASIL 2 Berlin	FFH Directive implementation
• TUW EUFS to YGGDRASIL 1 Berlin	financial framework setup
• TUW IPF to Atmoterm, Opole	work platform design
• TUW IPF to Vituki, Budapest	Field work in Hungarian sites
• UODEB to Vituki, Budapest	Water Management topics
• UODEB to Atmoterm, Opole	project management server
• YGGDRASIL 1 to TU Vienna, Vienna	airborne data evaluation
• YGGDRASIL 1 to UODEB, Debrecen	data quality and requirements
• YGGDRASIL 2 to TU BAF, Freiberg	Field work in consortium areas
• Atmoterm to TU BAF, Freiberg	interactive PM server
• Atmoterm to TUW IPF, Vienna	airborne data evaluation
• 2 secondments VITUKI to TU BAF, Freiberg	field work techniques

Flights were undertaken by Riegl:

1. Uckermark Area, Germany in spring
2. Sopron Area, Hungary in summer

Correspondent field work was undertaken in:

1. Uckermark Area
2. Sopron Area

Transfer of Knowledge took place for:

1. GIS and Photogrammetry experts to field work
2. Field works experts to Airborne photo and GIS evaluation techniques
3. Software experts to field work principles
4. FFH experts to water management and specific sub-topics
5. PMO setup and dissemination to field and GIS experts

Dissemination in conferences:

21-23.6. 2011: N. Rahner: 17th Annual Conference EARMA European Association of Researchers Managers and Administrators, Braganca, Portugal: Poster and Film: "International IAPP Project Management put to Life".

25.-29.9.2011: H. Heilmeier: 12th EEF Congress (European Ecological Federation), Avila, Spain: Flash Presentation "Changehabitats2 - Habitat Monitoring by Airborne Laser Scanning and Hyperspectral Imaging Supported Field Work".

6.-8.10.2011: Steppe Oak Woods and Pannonic Sand Steppes Conference, Kecskemét, Hungary: **N., Szőllősi**, T., Fórián, A., Nagy, J., Fehér, S., Rahner, H., Heilmeier, G., Nagy, T., Jancsó, P., Riczu, J., Tamás (2011): Advanced monitoring technology development in NATURA 2000 forest sites of Pannonian Biogeographic Region. Duna-Ipoly National Park Directorate and WWF Hungary. Budapest. pp. 85-86. ISBN:978-963-8470-22-5.

J., Tamás, P., Riczu, G., Nagy, A., Nagy, T., Fórián, **N., Szőllősi**, J., Fehér, S., Rahner, H., Heilmeier, G., Hunyadi, T., Jancsó (2011): Integrated hyperspectral and LIDAR technology to evaluate the condition of the 'Debrecen-hajdúböszörményi tölgyesek' (Debrecen-hajdúböszörményi oak forests) Natura 2000 site. Steppe Oak Woods and Pannonic Sand Steppes Conference 6-8 October 2011, Kecskemét, Hungary. Duna-Ipoly National Park Directorate and WWF Hungary. Budapest. pp. 77-78. ISBN:978-963-8470-22-5.

Do not miss !!

Workshop in Budapest 7th December 2011

Advanced Remote Sensing Methodology Development to support Natura 2000 Management Actions across Europe

Venue:
VITUKI Environmental and Water Management Research Institute
H-1095 Budapest, Kvassay Jenö út 1, Hungary

9:00 until 16:00

Workshop admission is free of charge

Registration via: www.changehabitats.eu or www.Vituki.hu
or email to: feher.janos@vituki.hu

VIENNA UNIVERSITY OF TECHNOLOGY
INSTITUTE OF PHOTOGRAMMETRY AND REMOTE SENSING

The Institute of Photogrammetry and Remote Sensing (IPF) belongs to the Faculty for Mathematics and Geoinformation and has a staff of almost 50 people. It provides education in photogrammetry, remote sensing and laser scanning. The working group in airborne laser scanning relating to vegetation, forestry and habitats comprises 1 professor, 5 postdocs and 2 PhD students. Research is conducted in geometric reconstruction, physical interpretation and 3D data management. The fields are tightly coupled in order to fully utilise technological capabilities offered by photogrammetry and remote sensing. The IPF thus provides essential geo-spatial data for environmental and societal applications, e.g. flood warning and urban development. It seeks close cooperation with the private sector. A number of comercially available software packages are developed at the institute. The software's functionality ranges from geo-spatial data management, interpolation, application and visualisation of digital terrain data (SCOP++, OPALS), to rigorous adjustments of photogrammetric and laser scanning point and patch measurements (ORIENT), as well as automated processing of satellite radar (ERS, ENVISAT) data for retrieval of soil moisture and vegetation. The IPF currently participates in international research projects funded by the EU and the ESA, national projects from Austrian Science Fund, Austrian Space Agency, governmental agencies and private companies. Within the ChangeHabitats 2 project the IPF is in charge of research concerning the retrieval of Natura 2000 habitat parameters using correlations of airborne laser scanning data and conventional ecological field mapping.

VIENNA UNIVERSITY OF TECHNOLOGY
INSTITUTE OF PHOTOGRAMMETRY AND REMOTE SENSING

Werner Mücke: Secondment from TU Vienna Institute of Photogrammetry to YGGDRASIL-2 FFH Management Field work and Monitoring, Berlin

In May 2011 the airborne laser scanning (ALS) acquisition of the selected ChangeHabitats2 test area in the Uckermark north of Berlin was successfully undertaken. Within two days of flight, which were kindly provided by project partner RIEGL Laser Measurement Systems, a total of 33 flight lines were recorded covering an area of approximately 250 km^2. A point density of 14 pts / m^2 was achieved in the overlapping parts of the strips, in areas covered by vegetation sometimes 25 pts / m^2 and more. This amount of points makes a highly valuable data set for vegetation analysis relevant for Natura 2000 mapping. Quality checking of the relative strip differences was performed with quite satisfying results and the data were used for further computations of digital surface models (DSM) and digital terrain models (DTM) (see figure 1). Future work will concentrate on the derivation of layer structure and amounts of dead wood from the ALS data. First glances on the data set reveal promising details in the high density point cloud. Figure 2(a) shows a 3D point cloud sample of a live tree, (b) of a standing dead tree. Differences in vertical point distribution and point density are clearly visible.

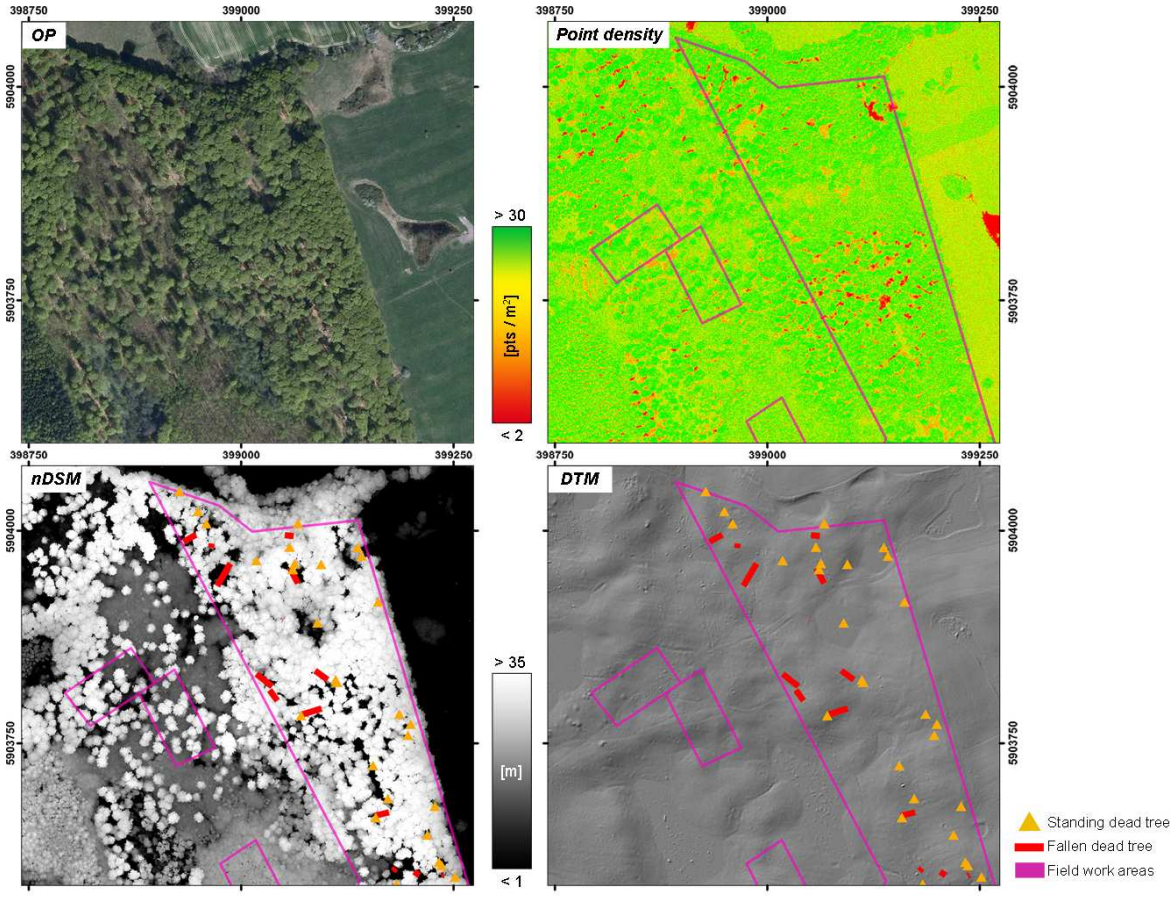

Figure 1: Upper left: *true color orthophoto*. Upper right: *ALS point density map*. Lower left: *nDSM*. Lower right: *DTM*.

This Project is supported under the FP7 Framework Programme, Marie Curie, IAPP Industry Academia Partnership and Pathways which is gratefully acknowledged.

Figure 2: (a) 3D point cloud sample of a live tree, (b) 3D point cloud of a standing dead tree. Differences in vertical point distribution and point density are clearly visible.

Field work impressions

Anke Schroiff and Werner Mücke surveying an old fallen dead wood

Grassland with dead wood

Luzulo-Fagetum Forest Habitat Code 9100

This Project is supported under The FP7 Framework Programme, Marie Curie, IAPP Industry Academia Partnership and Pathways, which is gratefully acknowledged

YGGDRASIL 2 (YGGDRASILDiemer) is a small company with a permanent staff of 4 people. Its interdisciplinary team of experienced and qualified experts is supplemented by specialists, most of whom are long term partners.

YGGDRASILDiemer offers planning and expertise in the area of nature protection, ecology and landscape planning and has gathered extensive experience in these areas over the last 15 years.

Services offered are:

- Management plans in accordance with the EU Habitats Directive and Bird Directive
- Landscape conservation and development plans
- Nature conservation expertise
- Biotope and habitat mapping
- Water body ecology expertise
- Environmental impact assessments
- FFH preliminary surveys
- FFH compatibility studies
- Landscape conservation support plans
- Landscape and green structures plans
- Faunistic surveys
- Services in GIS
- Surveying services

Following staff members are involved in the ChangeHabitats2 Project: Biologist Susanne Diemer, Engineer in Landscape Planning and Engineer in CAD/GIS Petra Wirth and Engineer in Horticultural Science and Engineer in Environmental Protection & Regional Planning Anke Schroiff. Anke Schroiff is responsible for data and organisation of the project.

Within the project YGGDRASILDiemer (part of WP2 and WP5) is responsible for terrestrial mapping and field work. This year's research focused on two test areas. The first area is located in Brandenburg, Germany, in the "Uckermärkische Seengebiet" north of Berlin. The second area is located near Sopron in Hungary. YGGDRASILDiemer is responsible for habitat mapping including vegetation assessments, specific habitat structure elements, and terrestrial surveying of boundary surfaces. In connection with the field work the creation of a data base predicted on standard field mapping protocols is required.

Two fieldwork periods took Anke Schroiff to TU Bergakademie Freiberg, Germany, where she was able to give deeper understanding in field work to the partners. During the secondment of Werner Mücke (TU Vienna, Institute of Photogrammetry and Remote Sensing) to YGGDRASILDiemer, Anke Schroiff and the staff of YGGDRASILDiemer could acquire a better understanding in data of laser measurement systems.