Expected results

We expect that annual costs between 0.9 Billion and 3.4 Billion Euros could be saved, by implementing **ChangeHabitats2** results in the habitat assessment procedures. From a *scientific point of view*, **ChangeHabitats2** will result in new inputs on rapidly developing data capturing and interpretation technologies – airborne laser scanning and hyperspectral imagery – for complex land cover. It will create new digital land surface models from airborne data such as digital canopy height models for vegetation under the canopy structure in forests, semi-automated object oriented classification procedures for habitats, and a new combined mapping method which can be followed by research and industry to reliably and inexpensively map habitats across Europe.

ChangeHabitats2 – Who we are

Coordination:

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Project Partners:

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ChangeHabitats2

Network for Habitat Monitoring by airborne-supported field work – An innovative and effective process in implementation of the Habitat Directive

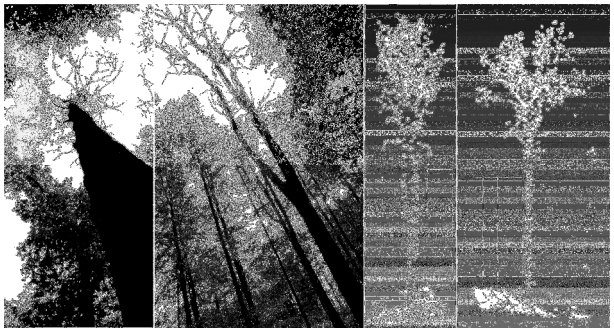
MARIE CURIE ACTIONS

http://www.changehabitats.eu

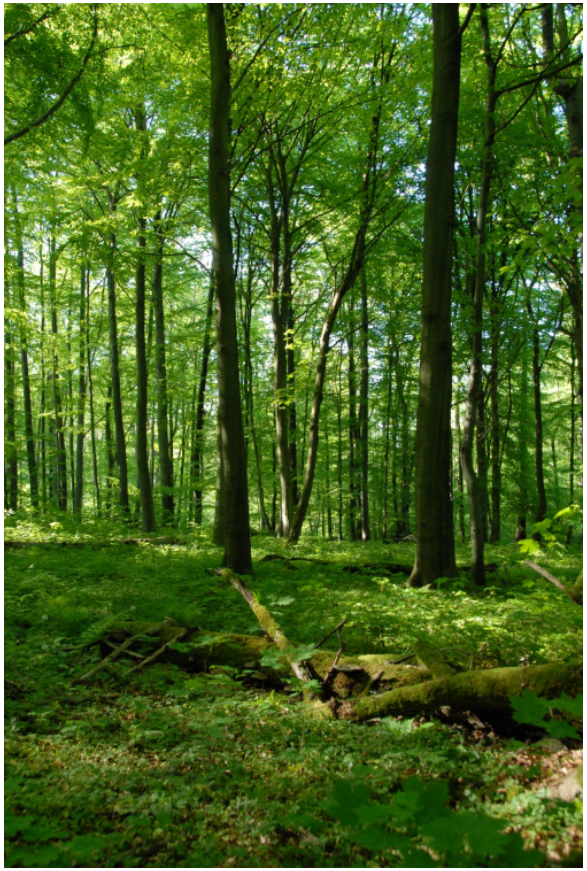
Motivation

Habitat survey and monitoring are compulsory for all EU Member States due to the **Habitat Directive (NATURA2000)**. Present state of the art in EU habitat monitoring is time-consuming field work, involving many specialists working at a very detailed mapping scale, often in rather inaccessible or dangerous terrain. Working all the Sites of Community Interests would take more than 10 years in all EU Member States. However, the Directive foresees 6-year reporting periods.

Presently, field work is supported by aerial photos. Orthophotos in CIR quality enable scientists to allocate habitat types to photographic features; however, the procedure is still a very rough interpretation and does not replace field work at all. Satellite images are used as well, but they are less detailed than aerial photos.



Left: Photographs of a dead tree. *Right:* Airborne Laser Scanning point clouds of the same tree.



Project objectives

ChangeHabitats2 will develop a *cost- and time-efficient, airborne-supported habitat assessment approach* using innovative image and effective field work techniques. Habitat indicators from airborne data will be used to preselect field sites of interest, to focus the field work and to reduce field work time.

Project strategies and methodology

Methodical steps are:

- airborne data acquisition and automatic processing
- field survey in parallel
- deduction of habitat codes/parameters by comparing airborne and field data and correlation analysis of habitat features and structural parameters from aerial survey including error analysis/quality estimation
- definition and evaluation of interpretation keys
- testing the method on specific scientific problems in complex terrain
- cost-time-quality estimations.

Technological development is expected in the application of Full Waveform Airborne Laser Scanning and Hyperspectral Imagery for automatic derivation of detailed habitat features at a very fine scale (< 1m).

Habitat mapping of a beech forest, supported by GPS