Projects

Just starting

DEFORSCEN - UNDERSTANDING CANOPY DEFOLIATION OF EUROPEAN FORESTS UNDER RECENT CLIMATE CHANGES TO PREDICT FUTURE ADAPTATION SCENARIOS

There is increasing interest to identify patterns of current plastic and evolutionary response of plants to climate change. Since plasticity can be reflected by tree health, one possible investigation approach is the analysis of tree health (canopy defoliation) data collected on ca. 6000 plots across Europe since the 1980s and for which a fully convincing evaluation is still missing.

We will investigate if changes and trends in defoliation permit to identify species-specific response to climate change, also in view of future adaptation scenarios. We will do it according to novel methods, including Fast Fourier Transforms, selection of candidate variables, grouping of sites, optimal spectra (time window) and offset (time lag) for each variable, and response in relation to predictors within moving windows.

Ongoing

Quantifying, understanding and predicting forest growth in Switzerland

Our aim is to estimate Swiss forest net ecosystem productivity (NEP) at seasonal resolution for each individual year in order to link biomass changes over seasons and decades with global drivers (cli- mate, soils, landscapes, global changes like N deposition). We hypothesize that a combination of available high-quality long-term data sets from WSL and its partners over Switzerland provides an ex- cellent data basis for a data-model-fusion approach within SwissForestLab. This activity is expected (a) to merge data with different temporal and spatial resolution in a away that they can be used more easily by SwissForestLab members, and (b) to provide a first visible result within two years that will foster many research projects focusing on very different aspects of forest growth and development.

PRO$_3$FILE

Tropospheric ozone (O3) is considered to be more damaging to vegetation than any other air pollutant. Public concerns, evidence from research, and increasing scientific knowledge are all driving widespread discussions on ozone risk assessment and dose-response relationships for European forests. The ICP Forests network includes over 200 long-term monitoring plots where ozone concentrations have been measured since 2000, in parallel to forest and vegetation variables such as tree growth. This study aims to determine ozone fluxes for assessing ozone related effects on selected endpoints and deriving and validating ozone critical levels for forests by (i) coupling the DO3SE model with the forest succession (“gap”) model ForClim and by (ii) developing an “Ozone-version” of CASTANEA that can simulate various impacts of ozone on tree functions by implementing new functions from DO3SE. Data sources from various networks will be explored and applied for model calibration, application and validation. The expected results will be an important contribution the objectives of the UNECE WG on Effects.

LIFE FutureForCoppiceS, “Shaping future forestry for sustainable coppices in southern europe: the legacy of past management trials” (LIFE14 ENV/IT/000514)

FutureForCoppiceS will improve the knowledge base for the development of future, sustainable forest management (SFM) of coppice in southern Europe. Coppice covers ca. 23 million ha in the Mediterranean (ca. 3.7 millions ha. in Italy) and are barely considered in SFM scenarios, which are mostly based on modeling exercises. FutureForCoppiceS adopts a different concept: on the basis of a network of management trials installed 10-45 yrs. ago, it will demonstrate, post-hoc and by real data on SFM indicators, how different management approaches have actually favoured/limited the sustainability and efficiency of coppice forests. Given that concurrent, substantial changes (e.g. green house gases, temperature, precipitation) have occurred over the past 45 yrs. both locally and globally, the results will improve the knowledge base for SFM in view of anticipated future changes in key environmental drivers.

LIFE SMART4Action, "Sustainable Monitoring And Reporting To Inform Forest and Environmental Awareness and Protection" (LIFE13 ENV/IT/000813).

SMART4Action intends to re-shape the forest monitoring in Italy and its information and reporting system in a way that, while keeping scientifically sound, they can be financially sustainable even under budget restriction. The existing national monitoring infrastructures (the large-scale and intensive forest condition monitoring networks) and the Italian National Forest Inventory are managed by the same agency, the Italian Forest Service (Corpo Forestale dello Stato). This offers the opportunity for a fully consistent approach in revising the present monitoring networks, making them fit for providing results at reduced costs and enhancing formal and practical links with the NFI. Improved communication and dissemination strategy will better inform policy makers, increase awareness and involvement of citizens, and allow tailored reporting for different stakeholders. This re-designed system will enhance the visibility of forest monitoring, its closeness to the society, its acceptance and ability to attract new supporters and resources. The new system should be seen as a minimum core set-up, sustainable in the long-term, and that can be augmented when and where resources will be available.

Recent

LIFE ManFor C.BD, "Managing forests for multiple purposes: carbon, biodiversity and socio-economic wellbeing" (LIFE09ENV/IT/000078). Contract with: CNR – Istituto di Biologia Agroambientale e Forestale (IBAF) del CNR.

http://www.manfor.eu/new/

FP7 EU-BON - Building the European Biodiversity Observation Network. Consortium member.

FOREST EUROPE.

http://www.eubon.eu/

Forest Europe. Sustainable Forest Management, assistance in the revision of SFM Criteria and Indicators. Contract with Liason Unit Madrid at Tragsatec, Madrid.

http://foresteurope.org/

Ozone Effects on FORests in Trentino (EFFORT), a 5-year project carried out over the period 2007–2011 to estimate the potential and actual ozone effect on forests in Trentino, Northern Italy.

https://www.researchgate.net/project/Ozone-EFFORT-Ozone-EFfects-on-FORests-in-Trentino