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BOTTOMS-UP: Biodiversity of Temperate Forest Taxa to Orient Management Sustainability by Unifying Perspectives

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Forests provide essential economic, social, cultural and environmental services. To be able to maintain the provision of these services, sustainable forest management (SFM) is a vital obligation. The maintenance of biodiversity, ranging from gene to ecosystem levels, is essential for functions and associated services, and it is one of the most important criterion for assessing sustainability in the Pan-European region.

Currently, the majority of SFM Criteria and Indicators focuses on attributes relative to tree species or to the whole forest. With reference to biodiversity conservation, this means that the collected information cannot fully assess whether forests are being managed sustainably. To understand the drivers of forest biodiversity and drive sustainable management, several taxonomic groups should be investigated, since they may respond differently to the same environmental pressures. However, up to now, broad multi-taxonomic analyses were mainly performed through reviews and meta-analyses which limit our holistic understanding on the effects of forest management on different facets of biodiversity. Recently, several research institutions took up the challenge of multi-taxonomic field sampling. These local efforts, however, have limited extrapolation power to infer trends at the European scale. It is high time to share, standardize and use existing multi-taxon data through a common platform to inform sound management and political decisions. Biodiversity indicators have also some potential to be used in evaluation of impact of forest management on soils and surface waters in terms of naturalness, degradation and reclamation.

We present the COST Action CA18207 “Biodiversity of Temperate forest Taxa Orienting Management Sustainability by Unifying Perspectives” (Bottoms-Up). It will gather the most comprehensive knowledge of European multitaxonomic forest biodiversity through the synergy of research groups that collected data locally in more than 2200 sampling units across approximately 300 sites covering nine different European forest types. For each sampling unit, information will be

available on at least three taxonomic groups (vascular plants, fungi, lichens, birds and saproxylic beetles being the most represented) and on live stand structure and deadwood. Multi-taxon biodiversity will be associated with: (i) information on forest management based on observational studies at the coarse scale, and (ii) structural data deriving from forest manipulation experiments at the fine scale.

Specific objectives are:

- Developing a standardized platform of multi-taxon data;
- Establishing a network of forest sites with baseline information for future monitoring;
- Designing shared protocols for multi-taxon sampling;
- Assessing the relationships between multi-taxon biodiversity, structure and management;
- Creating a coordinated network of forest manipulation experiments;
- Evaluating indicators and thresholds of sustainability directly tested on biodiversity;
- Developing management guidelines defining sustainable management to be applied in forest certification and within protected areas.

The Action involves about 80 researchers and stakeholders from 29 countries and represents an outstanding opportunity to develop a strong network of collaboration for standardized broad-scale multitaxon studies in Europe.

Keywords: Multi-taxon, Pan-European region, Sustainable Forest Management.

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