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SESSION 3

Results and perspectives of forest health monitoring in Trentino

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Climate change, which is predicted to be stronger in the alpine area, is going to impact heavily on forest ecosystems because of the long life cycle of forest plants and complexity of the forest ecosystem. Alpine forests deliver much more than wood, from erosion and flood prevention, to improvement of water quality and storage, from nature and biodiversity conservation to climate and air quality protection, to recreation, scenary and well-being. To deliver continuously these ecosystem services forests need to be in balance. The forest health monitoring is very important for prevention, control and response to biotic and abiotic damages.

In 1990 the Forest Unit of E. Mach Foundation developed a method for the monitoring of known damages in Trentino woods: since then monitoring was carried out in collaboration with the personnel of the Forest and Wildlife Service of the Autonomous Province of Trento.

In the last decades, we collected a long series of data on the main types of damages; all the data are georeferred and recorded through the WebGIS system. The processing of datasets allows the evaluation of the pests and diseases diffusion and their impact on forest functionality. The comparison of this information with the dendrological and environmental data from Forest Management Plans enabled us to identify some factors which can predispose to the outbreaks. The analysis of the structural and ecological characteristics of affected woods permit to draw risk maps for the main phytosanitary problem. Furthermore, the extensive forest monitoring proved to be an essential tool in the early detection of biological invasions.

Data from the monitoring have been used in forest planning to define potential risk areas related to the main damages and influence silvicultural choices on structure and composition of target forest and forest measures. Some data on abiotic and biotic damages to forests in the municipalities of the district Valsugana and Tesino are presented.