



FREIE UNIVERSITÄT BOZEN  
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Fakultät für Naturwissenschaften  
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Facoltà di Scienze  
e Tecnologie

Faculty of Science  
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## IX Congresso Nazionale SISEF

# Multifunzionalità degli Ecosistemi Forestali Montani: Sfide e Opportunità per la Ricerca e lo Sviluppo

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## Posters - Riassunti



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## **RECOVERING HISTORICAL VEGETATIONAL DATABASE TO STUDY THE FOREST BIODIVERSITY IN TRENTO**

The biodiversity data of a forest ecosystem can be applied to provide useful information about a territory. The presence and distribution of living organisms to interpret and synthesize the characteristics of a territory has been used for a long time and in various contexts. In past years, considerable investigations have been carried out to describe of biodiversity richness and vegetation dynamics in forest ecosystems of Trentino, in particular, the database used for the construction of “Schmid’s vegetational belts”, owned by the Fondazione Edmund Mach. The archive had been thought in order to determine the main vegetational belts in the province of Trento and was made along 20 years, since the beginning of the 70s until the early 90s. The database was not designed to be consulted and accessible since developed by obsolete tools and technologies no longer exploitable. In the framework of the FORCING project, a comprehensive process of database recovering has been carried out: an analysis of the data structure has been performed in order to reverse engineering the database structure, missing data were digitized from historical maps, still preserving paper-based maps and documents. This work aimed to bringing together and homogenizing the datasets of 16 forest districts representing the whole archive, restoring and modernizing the architecture of the original database and removing any redundancy. Also, all the maps and the related 8000 detected transect have been georeferenced, in order to geographically enable the whole database and to evaluate the possibility to perform comparative samplings on up-to-date datasets. At the same time, it has been pursuing the aim of achieving fully accessible data and metadata, to provide the greatest number of project-related information. Despite the fact that over the years the scientific community has established the obsolescence of the “Schmid’s vegetational belts” system, the floristic data the raw data used at that time still retain an important and irreplaceable information value useful not only as a historical memory, but for many other applications. The amount and structure of the archive is as follows: (1) More than 600 serial lines are evenly distributed across the Trentino. (2) More than 8000 surveys of the transects running along the 600 series lines, placed every 50 m of altitude, presents on average ca. 25 plant species, including trees, shrubs and herbaceous. (3) About 8 ha of land under survey. (4) More than 15 detectors that have taken place along the 20 years of investigation. Five detectors were stable throughout the period of the project. (5) About 1300 different species identified only in the forest ranges (out of ca. 2.300 spp. estimated by Dalla Fior in Trentino). (6) About 200000 specific identification, for each of them are present frequency indices. (7) Thousands of color slides that illustrate the identified species. The data recovery may be useful for following accomplishments: (a) to have a database freely accessible to the scientific community with a web-oriented interface accessible to other stakeholders for consultation and information processing; (b) recovering and ordering of the data and the geo-localization of the transects it is possible to run new survey on the same areas with modern methodologies, using the presence and frequency of over 1300 plant species such as bioindicators, to assess potential impacts due to climate change and/or anthropogenic pressure on forests of Trentino; (c) evaluation of the introgression of invasive and alien species in Trentino; (d) evaluating of care and protection system for species placed in the red list; (e) assess the land use changes in the last twenty years in Trentino.

**Parole Chiave:** Geographic Information System (GIS), Vascular Plants, Botanical Survey, Geodatabase Reconstructing

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