

## **A modern approach for improving biodiversity protection: All Taxa Biodiversity Inventory and Monitoring (ATBI+M) approach**

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The biogeographic uniqueness of the Alpi Marittime Mercantour region together with the lack of comprehensive and accurate data about its biodiversity makes it an ideal place for experimenting modern study methodologies. In 2006, the Mercantour National Park (PNM), France, and the Alpi Marittime Natural Park (PNAM), Italy, joined a partnership with the European Distributed Institute of Taxonomy (EDIT) through collaboration with the National Museum of Natural History in Paris. EDIT is a consortium of 28 leading scientific institutions supported by the European Commission (6<sup>th</sup> Framework Program), and promoted by CETAF (Consortium of European Taxonomic Facilities). The ambitious objective that EDIT intends to pursue during its 5-year lifespan is integrating the taxonomic community through institutional collaboration and joint programme of activities, also contributing to the “Countdown 2010” activities for biodiversity protection. EDIT has developed a wide range of activities, all with specific objectives and structure but strictly integrated and oriented towards the same idea of improving society's capacity for biodiversity conservation. Among these actions, EDIT established the first European “All Taxa Biodiversity Inventory + Monitoring” (ATBI+M) pilot site at PNM/PNAM in 2007.

The idea of an All Taxa Biodiversity Inventory was conceived with the aim of developing an approach for completing comprehensive inventories in a short amount of time (Janzen & Hallwachs, 1994). The need of such an inventory, in fact, originates when the enormous lack of knowledge on the biodiversity of areas like the Alpi Marittime Mercantour is considered, that are also regarded as biodiversity hotspots compared to other territories.

The project is not only a list of all existing species in a given area, but is also an important source of information on habitats, species distribution and abundance, and where possible life history information. All these data can be extremely useful for local authorities, because they can contribute in improving land management and protecting threatened wildlife. In particular, both Mercantour National Park and Alpi Marittime Natural Park suffer from a poor quality level in cattle management that threatens wetland areas and may damage severely the ecosystem. An essential part of the whole project is the monitoring activity that needs to be planned and pursued following predetermined protocols.

Together with data collecting and management, the ATBI+M represents an opportunity to establish durable integration among European institutions taxonomists, outreaching and involving in the protection process the wider public. This is especially true for protected areas that have their roots in inhabited lands and their own existence depends on the people's interest and education. The Alpi Marittime Mercantour area, which is partly protected within the two parks, is characterised by a long common history that keeps strongly united people living on both sides of the mountains. The cultural link between the French and Italian local population, together with the shared concern for the protection of these diverse ecosystems, are the “motive power” that stimulated a ten-year collaboration between the two transboundary parks.

EDIT and the two park's staff identified 11 sites for a total of 10 km<sup>2</sup>, equally distributed between the two parks. The selection was made in order to have collecting sites representative of the habitat diversity that characterises the Alpi Marittime Mercantour territory, thus comprising a high level of species variety.

Since the summer of 2007, PNM/PNAM ATBI+M research activities gathered almost 100 researchers from European institutions: they visited the two Parks to record, collect, and inventory different taxa in designated focal areas in the two parks.

More than 3000 species have already been recorded, and more than 8000 individual geo-referenced records have been generated. As expected, the class Insecta is the most numerous group studied, with a total of 1044 species. As for the kingdom Plantae, data delivered to date include members of the phyla Bryophyta and Marchantiophyta (408 and 82 species, respectively). Together with pure scientific activities, EDIT organised a two week "EDIT Summer School", with the aim of training students in "Best Practice" of field sampling and various aspects of taxonomic research to be applied in biodiversity and conservation biology research. 20 students were selected from European Universities or Research Institutes, and spent one week in PNAM and one week in PNM, attending theory lectures (and practical sessions) to give an in-depth understanding of the current state of taxonomic research and its broad applicability in other scientific disciplines and non-scientific initiatives. Outreach actions also include the preparation of a Manual on Field Recording Techniques and Protocols for All Taxa Biodiversity Inventories + Monitoring that will provide a basic know-how on field techniques useful to professional taxonomists, students and in general all parties wishing to pursue research on ATBI+M sites.

In order to better organise the collecting activities and to maximise use of energy and resources for the future, taxonomic and thematic fieldwork groups will be arranged within the PNM/PNAM ATBI+M. The groups will conduct specific surveys and inventories on topics that are relevant to the park conservation services. These topics will be identified by the park staff together with a scientific committee that will have the role in identifying underrepresented taxa, determining crucial management and conservation issues, supporting groups in planning surveys, defining appropriate collecting techniques and classification methods. The scientific committee will also need a strong integration and communication with all the researchers who visit the parks, in order to respond to their necessities and give useful guidelines for their activities. All these activities, together with the preparation of public events and didactic activities, will be possible thanks to the collaboration with the Paris and Torino Natural History Museums, and through the financial contribution of the Prince Albert II of Monaco Foundation and the French Ministry for the Environment, together with EDIT and MEDDAT (Ministère de l'Ecologie, du Développement durable et de l'Aménagement du territoire). Indeed the close collaboration between the two museums and their connection to land protection institutions, such as PNM and PNAM, will hopefully represent a good opportunity to transform pure taxonomic research into applied scientific approaches for biodiversity management issues.

The EDIT ATBI+M activities will continue, at least, for two more years, and are expected to significantly enhance our knowledge on European biodiversity and contribute to its protection, also through future monitoring activities.

#### **References:**

Janzen D. H. & W. Hallwachs (1994): All Taxa Biodiversity Inventory (ATBI) of Terrestrial Systems. A generic protocol for preparing wildland biodiversity for non-damaging use. – The National Science Foundation (NSF), 132pp.