

## **Alpine Habitat Diversity - HABITALP Towards an integrated spatial development in the Alpine Space**

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### **Abstract**

The preservation of natural and cultural landscape diversity is an essential demand of the Alpine Convention. The protected areas of the Alpine Space are the preservation centres for the most precious habitats and an important part of the European NATURA 2000 network. The preservation tasks for these habitats (e.g. European Habitat Directive) require transnational strategies and applications integrating the different national approaches on the basis of a common landscape dataset.

Based on colour infrared aerial images HABITALP will contribute to the integrated spatial development in the Alpine Space by developing standardized methods for the census and analysis of landscape diversity.

Under the leadership of Berchtesgaden National Park these methods will be applied to 11 protected areas of the Alpine Space and allow for a common vision on surveillance and management questions. The resulting comparable landscape datasets and their accessibility through a common alpine database will create a considerable potential for further transnational activities. The standardization of methods will enable both repeated application for monitoring purposes and transfer to further alpine areas.

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### **Keywords**

Alpine Space; Alpine Convention; landscape structure; habitat diversity; European Habitat Directive; NATURA 2000; habitat monitoring; transnational database; landscape management; sustainable spatial development

### **Project aims and duration**

The major HABITALP objective is to develop and to apply within the same project repeatable methods for the standardized census and analysis of landscape datasets in 11 alpine protected areas. Both methods and results are aimed to contribute to the Alpine Convention and the European Habitat Directive. They will set an important basis for further transnational activities in the Alpine Space or other high mountain areas. The project has been scheduled for four years and will end in October 2006.

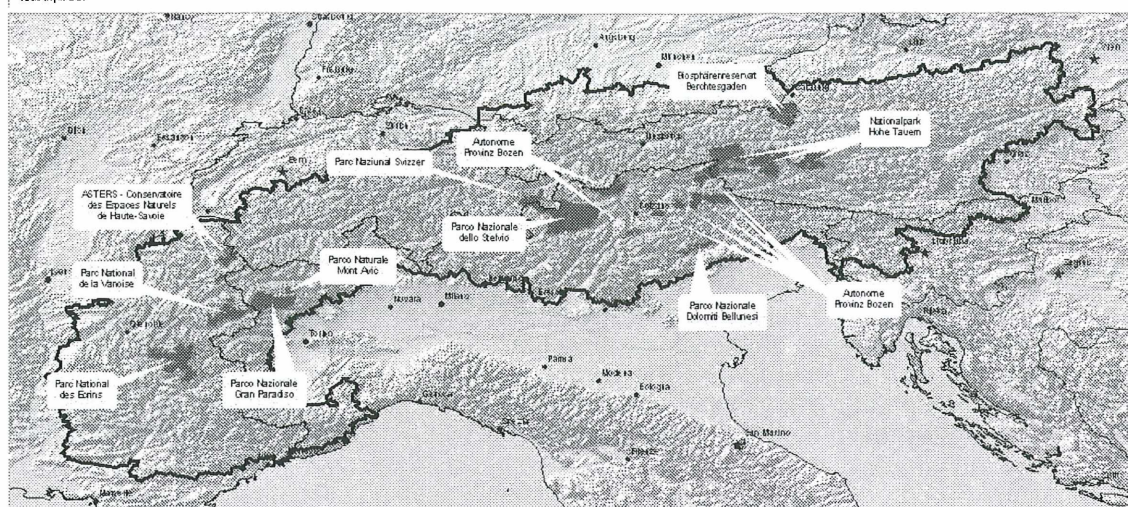
### **Area of study**

The study area comprises 11 protected areas situated in five different countries throughout the Alpine Space: in France Parc National des Écrins – Parc National de la Vanoise – ASTERS Conservatoire des Espaces Naturels de Haute-Savoie, in Italy Autonome Provinz Bozen – Parco Nazionale dello Stelvio – Parco Nazionale Gran Paradiso – Parco Naturale Mont Avic – Parco Nazionale Dolomiti Bellunesi, in Switzerland Parc National Suisse, in Austria Nationalpark Hohe Tauern and in Germany Biosphärenreservat Berchtesgaden.



## INTERREG III B ALPINE SPACE PROGRAMME "HABITALP"

### Geographic distribution of the participating protected areas within the Alpine Space



#### LEGEND

- HABITALP project partner
- national borderline
- Alpine Convention
- capital
- > 500,000
- > 100,000



Elaboration: Annette Lotz, Berchtesgaden National Park, August 2005  
GIS Data Source: Alpine Network of Protected Areas, ESRI Data & Maps

Fig. 1: Distribution of HABITALP partner areas throughout the Alpine Space

## Methods

Technical project activities started with the organisation of flights for the participating protected areas and the census of their surface by colour infrared aerial photographs. Landscape structure is presently determined by the interpretation of the available digital aerial images.

The interpretation is done by a hierarchical habitat classification code which has been developed for this kind of aerial images by specialized authorities in Germany. This code has already been successfully applied to Berchtesgaden and Hohe Tauern National Parks within an INTERREG II A project. HABITALP will now achieve a considerable enhancement of the previous method as well as the transfer from the eastern Alps to further protected areas in the central and western Alps. Due to the high diversity of alpine habitats in the project area numerous extensions of the present habitat key were expected.

Based on the interpretation data common methods for defining the relationship between HABITALP and NATURA 2000 habitats, the possibilities of their surveillance (long term monitoring) and the diversity of the landscape are presently developed. All data will be compiled in an extendable transnational spatial database which can be accessed by internet.

An ambitious objective of HABITALP is to achieve a high degree of standardization for the 11 alpine landscape datasets. From the very beginning this objective implies a most thorough collaboration on technical details within the entire project group. The benefit of standardization is the comparability of the datasets. This is an indispensable prerequisite for comparative studies and common transnational strategies.

A specific characteristic of the HABITALP project is that all project partners contribute to all work packages and that the subsequent work packages are based upon the results of the preceding ones. Furthermore the heterogeneity of project partners with regard to their different languages and states of previous experiences is comparatively high. Due to this complex project structure special emphasis had to be put on precise communication of technical issues and exchange of available know how. The Alpine Network of Protected Areas as an integrative part of the project community provided intense support.



The first step towards alpine standardization was the set up of technical tender specifications in three project languages for the flight parameters and the production of digital ortho-photos. It was followed by the development of a common interpretation key which can describe all habitats occurring in the partner areas (see also publication DEMEL & KIAS in this volume). The harmonized application of the delimitation and interpretation methods by all project partners is ensured by the common training of the local interpreters and the production of alpine reference documents in the three project languages (interpretation key and guidelines for its application).

Another innovative result of the HABITALP project will be the transnational spatial database. Compared to other existing databases the HABITALP database does not compile the mere references to available datasets but the data itself. This is a question of appropriate treatment of huge data amounts and their accessibility by internet. Set up and installation of the database were realized through a cooperation between the University of Applied Sciences in Weihenstephan (confer publication DEMEL & KIAS) and the Swiss National Park.

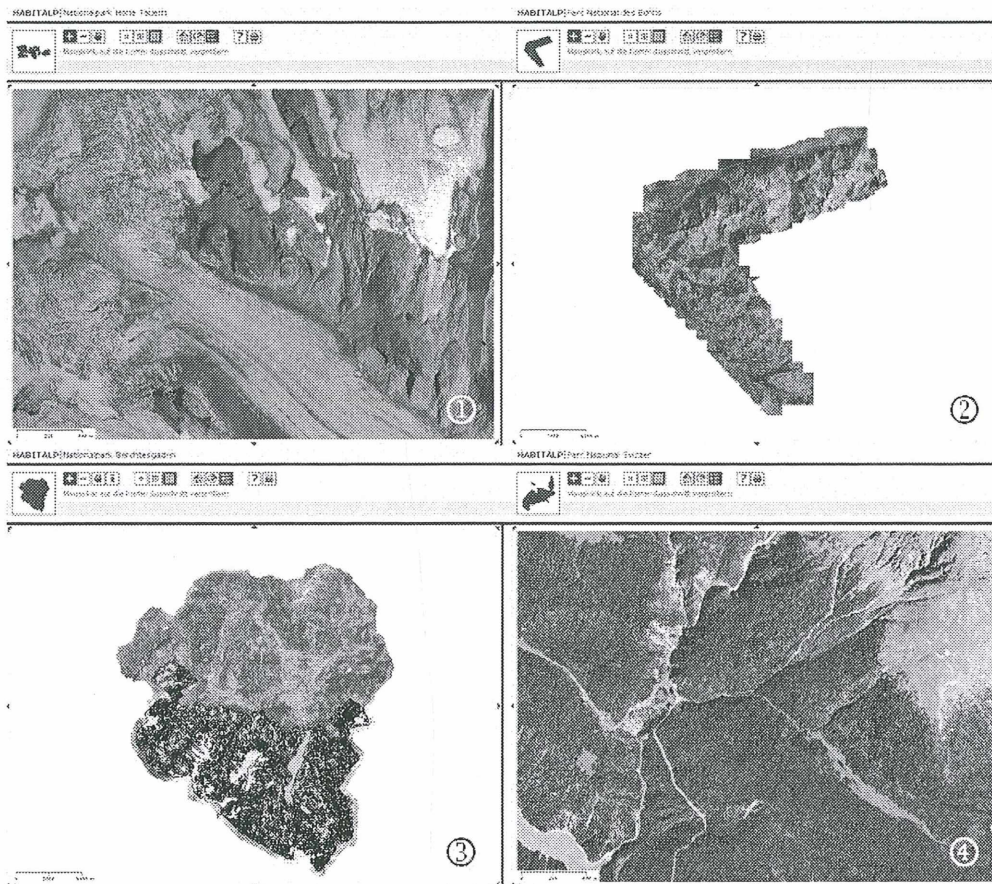


Fig. 2: Screenshots of HABITALP transnational spatial database. Digital orthophotos of Nationalpark Hohe Tauern 1:10.000 (1), Parc National des Écrins 1:150.000 (2), Nationalpark Berchtesgaden 1:150.000 with interpretation data (3), Parc Naziunal Svizzer 1:10.000 (4).

Project implementation showed that the terminology of many technical fields is too specific to be well understood in the English language. Therefore the highly ambitious technical project aims require a considerable oral and written translation effort. All major technical references are translated into the project languages and major conferences are supported by professional oral translators. This communication structure could only be realized thanks to the support of the Alpine Network of Protected Areas.

In order to treat the huge amount of data and documents created in four languages a specific management and scientific coordination system was established on alpine, regional and local project levels. The regional level allows for the aggregation of scientific questions and supports the alpine integration of local characteristics. Major emphasis is put on vertical and horizontal exchange between and within these project levels.

Some difficulties were encountered to realize flights because of weather conditions. Based on the temporal constraint to accomplish data census, evaluation and sophisticated analyses in the same project these difficulties will affect the maximum of achievable results within the available project duration. However the approach itself is not put into question (see publication Demel & Kias).

From the present point of view the integration of the extremely heterogeneous local specifics into one common transnational and multi-lingual result is considered the most demanding objective of the project both on technical and administrative level. Considerable time was needed to establish a well working management and coordination system which can cope with the development of sophisticated methods and their subsequent application within the temporal project constraints. The permanent revision of the alpine reference documents in the course of integration and their simultaneous application impose a special complexity on the implementation. Furthermore the achievable degree of standardization is subject to many influences and deserves a more detailed discussion.

But it is exactly this kind of difficulties that explain why the HABITALP database represents an enormous added value for the accessibility of high precision landscape data and an essential and innovative step towards an integrated and sustainable spatial development of the Alpine Space.

The availability of standardized and transnational landscape data allows for manifold thematic analysis far beyond the simple identification of habitats and numerous further applications beyond the project. Spatial and statistic analysis are equally possible and allow for various cartographic products.

The HABITALP landscape diversity and NATURA 2000 studies represent just two fields of application that will provide an interesting outlook on the potential that HABITALP habitat data can offer both to local and alpine applications in landscape management. This classifies HABITALP a pilot project in this field.

As an effect of a strengthened network of alpine partners and a more profound awareness of alpine identity the project's long term impacts can be a gradual upgrading of transnational land use management and innovative strategies for transnational planning and control instruments.

### **Special discussion in the light of the ALPENCOM symposium**

Scientific research in protected areas has to keep pace with the global development which demands a more and more intense exchange between disciplines and countries.

Alpine protected areas are even more intensely unified by belonging to the same biogeographical region. The implementation of transnational obligations like the Alpine Convention causes a flood of heterogeneous data to be evaluated for common strategies.

It needs highly ambitious projects like HABITALP to tackle the question of standardization, the integration of local data and its aggregation to a level that can serve as basis for political decisions. This requires a close and interdisciplinary cooperation of managers and researchers to find out about the practical demands of the protected areas and to deliver the appropriate results. HABITALP tackles this objective by modelling landscape diversity and finding out about the use of aerial image habitat data to NATURA 2000 identification and monitoring.

HABITALP in the present state is still a highly technical project and difficult to explain to the non-scientific public. However once publicly relevant management decisions have been taken on the basis of HABITALP data a more general public can be expected to take notice of the importance of high precision digital habitat data. As the HABITALP approach supports not only the preservation of natural but also of cultural landscape diversity socially relevant impacts of management decisions are imaginable as well.

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