

The Beigua Regional Park use case (Italy, Liguria region)

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Rationale:

Various levels of planning and management are present in Regional Parks, where a local actor (the Park management and staff) has to produce and manage geo-information that is complementary to other geo information produced at different level. That implies a continuous exchange of data and information (be it maps or other geo-related information) that from the producer who has originated it must be delivered to other bodies both as reference for other information to be produced and for check and validation/approval of plans. The flow of geo-information is then bi-directional.

"Parco del Beigua" is one of the parks created by Liguria Region, classified as Natural Regional Park in 1995. It spans over 8715 ha in the territory of 10 Communes. It is mainly a vast highland facing the sea in the point where the Apennines run closest to the Liguria coast; the highest summits are from 1100 to about 1300 m above sea level. It comprises two different environments: rocky cliffs in the Southern part (with a flora adapted to a severe rock soil rich of Mg), large and smooth woods in the Northern part. It holds both natural and cultural sites and is one the most important areas for bird migration in the Northern Mediterranean coast.

The Parco del Beigua (PdB) Regional Park is in charge both for planning and for promoting the area and its environmental assets. To do that it has to exchange information with the various other bodies ruling on the area that are:

- the Liguria Region Government (general territorial plan and laws, landscape plan)
- the Province of Genova (territorial co-ordination plan, management of fauna and birds protection areas)
- the various Communes, for the (rural) municipal plans, as well as to access thematic coverages from the Italian and from the European level.

In this framework the use case refers mainly to the production of geo-databases and cartography for the Park Plan and for the several running projects that require use of geo-Information, like mapping for hiking and grand-randonnée routes.

Aims:

As overall the perspective is to embed the geo-information managed by PdB in a seamless flow that gathers various information from all available sources and exploits it for planning, management and promotion.

More specifically the pursued aims are:

- Management (use of geo-information by planners and officers)
- Promotion (access to geo-information by citizens)

Addressed users:

- Professional users (officers) of the of the different levels, mutually exchanging information
- Final users (citizens, tourists) looking for browsing tourism information

Geographic Area:

Liguria Region (Provinces of Genova and Savona): geographic bounding box in LAT/LON coordinates = **minLON="8.5709" minLAT="44.2147" maxLON="9.5743" maxLAT="44.6753"**

Data, Feature Types and web services:

Base data:

- Administrative boundaries;
- Morphology map;
- Hydrography;
- Land-use map;
- Human settlement and infrastructure;
- Planning maps:
 - Regione Liguria – PTCP (Provincial Territorial Coordination Plan)

Thematic data:

- Protected areas, Communitarian Interest sites (SIC), faunistic plan.

Specific data:

- footpaths, bird migration corridors, points of interest, camping, historical buildings

Format of the data

- Non structured Intergraph .dgn
- Non structured .dxf exchange format
- GeoMedia database
- Shapefile
- GeoTIFF
- Jpeg + world file

Only graphic data is available; no attribute data (currently) are loaded, also for the case of structured data. This reduces the possibility to create complete metadata documents.

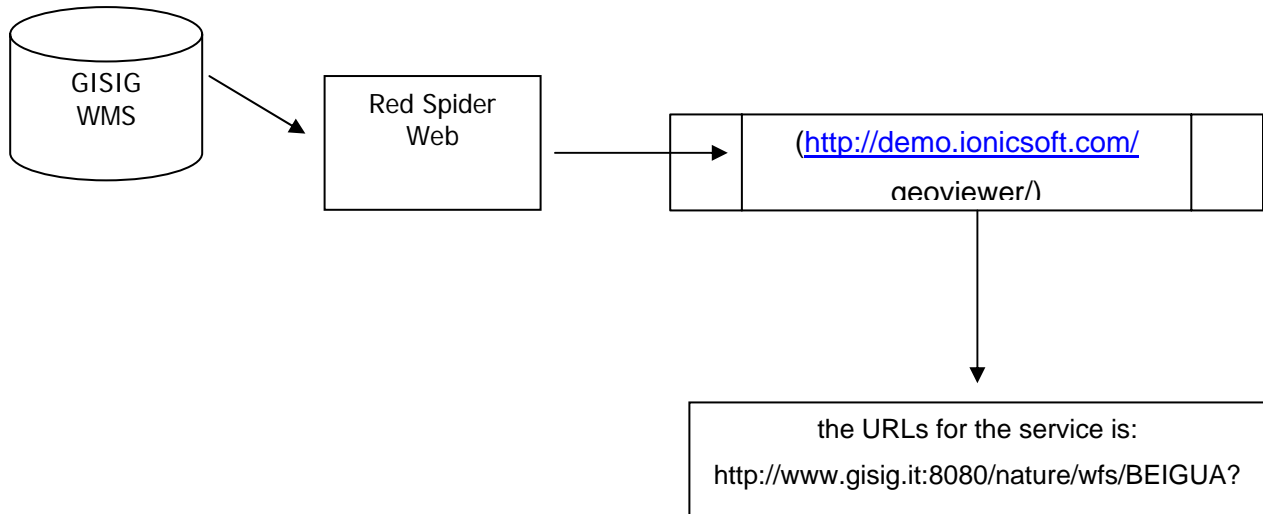
Involved data sets and feature types

Two different web-services are available, covering the area of the Beigua Park:

- GISIG mapserver
 - Protected areas borders
 - Communal boundaries
 - 1x1 km grid indicating the presence of following species:
 - boar
 - hare
 - pheasant
 - deer
 - wolf
 - partridge...
 - natural oasis
 - migrating routes
 - land use at 1:50000 scale
 - border crossing areas
 - catching areas
- Datasiel mapserver
 - Regional topographic raster map at 1:25000 scale
 - Communal administrative boundaries at 1:5000 scale
 - PTCP (Regional territorial coordinative plan)
 - Urban areas
 - Urban areas ME-SME types at 1:25000 scale
 - Urban points ME-SME types at 1:25000 scale
 - Types of urban areas
 - Carsic areas
 - Proposed indications
 - Land use
 - Burnt areas
 - Terraces
 - Spare houses
 - Protected areas
 - Plans for protected areas
 - Communitarian interest sites

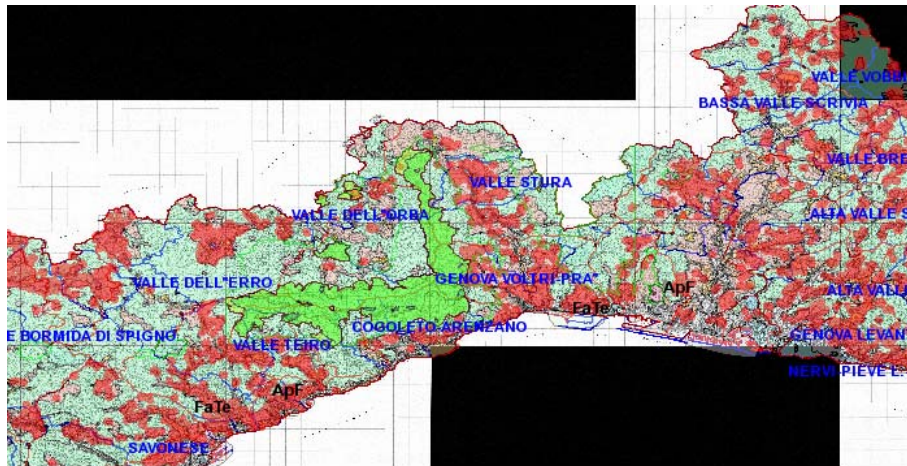
Architecture:

The flow-chart below describes how the datasets relative to the Beigua Park have been published through the GISIG WMS server using the software IONIC Red Spider Web:



Screenshots:

A composite map created with the layers available from the two WMS services is displayed below. The green shape in the middle of the screenshot is the Beigua Park.



Functions

The main uses for this case are:

1. To create the park plan on the base of the existing plan zonings (task T1 in the workflow);
2. To produce maps for tourism use, to exploit at the best the park and enjoy its "offer of nature" (Task T2 in the workflow)

The main functions available through the web-portal are mainly about data discovering and basic analysis. Potential users of the web-portal may be interested in a fast and easy solution for accessing and displaying many datasets relative to the Beigua Park, without necessarily dealing with different format, projection systems and data retrieving. By simply selecting the Liguria Region on the geographic search pane of the web-

portal, they can easily access a list of layers and create a composite map and customized to their needs. Other advanced view analyses are possible at the moment, and future works on the portal will allow more functions, typical of many GIS desktop software.

For the two cases the tasks are listed in the following.

1. To create the park plan on the base of the existing plan zonings:
 - Selection of the more appropriate base maps of the park territory and administrative boundaries;
 - Analysis of all the locals plans (PTR - Regional Territorial Plan; PTCP - Provincial Territorial Coordination Plan; Municipal plans) and of the existing park projects plans;
 - Analysis of possible landscape constraints, previewed development actions, or others limitation;
 - Elaboration of the above mentioned data using GIS technology to:
 - map the park boundary;
 - zone the park territories on the base of the limitation and the development action previewed in the different plans;
 - Selection of the most significant and useful GIS-views and render them available for the public access and consultation.
2. To produce maps for tourism use:
 - Selection of the appropriate base maps of the park territory;
 - Selection of the needed information from the regional and locals database regarding the park territory and the related information having a tourism and naturalistic interest, and, in this way, creation of a park own database;
 - Elaboration of the above mentioned data using GIS technology to:
 - map the park, the footpath, the points of naturalistic interest (monumental trees, flora and fauna species,....), the information and restoration points, etc;
 - map the better route to arrive at the park;
 - insert photos and cultural information regarding the local communes to promote them;
 - Selection of the most significant and useful GIS-views and render them available for the public access and consultation

URLs:

Web services:

The WMS service have been developed for the Beigua Park use case hosted at GISIG:
<http://www.gisig.it:8080/nature/wfs/BEIGUA?>

Web application:

No specific web applications have been created for the Beigua Park use case. The web-portal (www.naturegis.net) was used for most of the demonstrations and other typical WMS clients or viewers were utilized time to time to test the effective interoperability of such services created.

Problems:

The difficulties encountered during the process of creating a Nature-GIS network node were mainly related to accessibility of relevant datasets. Involving stakeholders and agencies in this newest process of publishing their geographic information trough the Internet and make it available for a European wide project, was the hardest task in the primary phase. Several meetings have been organized to introduce concepts of "interoperability", "SDI", "OGC standards" and the Nature-GIS objectives and only after signing detailed agreement documents, these dataset were obtained and made available for WMS publishing.

Recommendations:

The following recommendations refers to the deployment of the Nature-GIS node:

- Always organize the datasets and furnish with metadata before the publishing phase;
- Security issues and access limitation policies may affect the quality of the services and the final results: consider enough time to extensively revise any possible obstacle;
- If not familiar with web-GIS techniques and OGC specifications, even the most experienced GIS

technicians may require long time to actively publishing;

- A collaboration of a web designer is advised (but non essential);
- Make extensive use of any of the communication channel such email, mailing lists, discussion groups, user support services and fora. This is not yet a widely popular field and its hard to get hold of useful literature and references;
- Start “playing” with simple map-serving software freely available on the Internet, before buying a more complete suite from commercial companies;
- Explore the OGC and ISOTC211 websites and of course the Nature-GIS web portal;
- Delineate clearly the aims of the use case and establish possible connections with relevant stakeholders or local and national agencies that might be interested in participating. A share of efforts is usually leading to better results.