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Project acronym: EDIT

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C5.039 Report on the application of geoplatform software to map inventory completeness

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Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

This report describes application to map inventory completeness. It has been compiled by Marcin Gasior and Dominik Mikiewicz of MIIZPAN with a generous input from Pere Roca Ristol (CSIC), Patricia Mergen (RMCA) and the colleagues from the EDIT developer mailing list.

Introduction

The main conclusions raised by report C5.35 & C5.38 are that:

1. current species distribution information is biased and insufficient for most taxonomic groups
2. modelling methods can not provide reliable and useful distribution predictions if they are based in these biased of data.”

For that reason key tools to implement were identified which allow to:

1. examine the degree of completeness of distributional information,
2. discriminate well surveyed localities from those that do not have reliable inventories,
3. identify sets of areas where to carry out additional surveys, in order to increase the level of coverage of the environmental and spatial variation of a given region.

More info can be found in: ([http://wp5.e-taxonomy.eu/blog/files_edit_wp5/2007-07-26_D5.35 & D5.38.doc](http://wp5.e-taxonomy.eu/blog/files_edit_wp5/2007-07-26_D5.35_%20D5.38.doc))

Developed tools

Spatial analysis tool can be enabled in the *Add/Remove modules* section after uploading user data. This data should be in simple .csv (comma separated values) format and have at least latitude and longitude in WGS84 datum and a field (genus, species) for future inventory completeness analysis.

Spatial analysis can be performed for different selectable GIS layers of surface units (UTM grids or degree quadrangles) after clicking “run analysis” button. The analysis is performed creating a maximum of 10 interval classes, each one with a color in order to be visually identified on the map. The corresponding legend (of these 10 or minus intervals) is also created.

For now 3 area statistics can be generated. They are visualized as choropleth maps (**thematic maps** based on predefined aerial units, in our case the polygonal layer selected by the user). Screenshots of the maps are shown in annex:

The steps to follow are as follow :

1. Map of sampling efforts: (Map 1)

Number of records in each spatial unit – gives an idea of the collecting efforts

2. Map of taxonomic richness: (Map 2)

Number of genera in each spatial unit – gives some idea of the biodiversity

3. Map of inventory uncertainty. (Map 3)

Ratio richness/effort (number of genera/number of records) per spatial unit – gives a more accurate idea of the biodiversity than number of genera in spatial unit (e.g. one may have 4 genera in two polygons, but the ratio will be different if you have collected more records in the first than in the second); a high ratio genera/records means a higher possibility to find new genera if we continue collecting. A low ratio indicates low biodiversity (for example where the collecting effort has been high but only a few different genus have been found).

The maps of inventory uncertainty indicates the “red” surface units where it is necessary to carry on additional surveys in order to recover the spatial variation of the area, or where data on absences should be recorded.

For each map a statistical graphic with distribution in grid squares can be displayed. Figure 1 in annex shows an example at Genus level.

4. Map with “Interactive Analysing tool “ (Map 4) :

When performing the analysis, the *Interactive analysis tools* section is activated. It enables the display of all area statistics after highlighting some square of the grid:

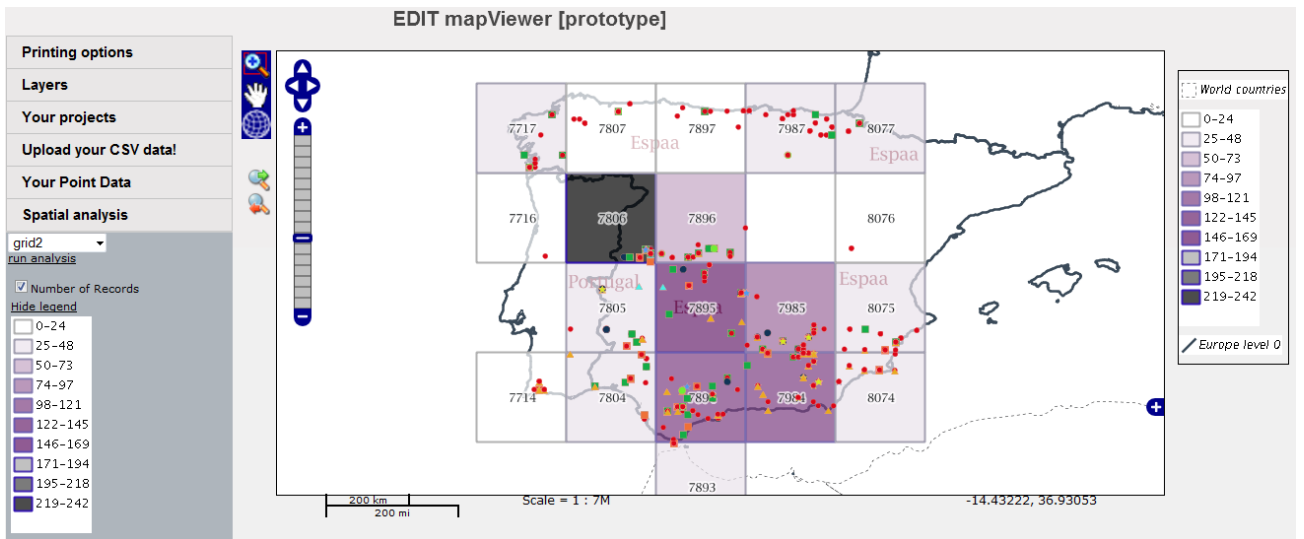
Conclusions

These additional functions enable to tackle the issues raised in the introduction, as the displayed maps and graphs allow to the end-user to assess rapidly the available data per taxa.

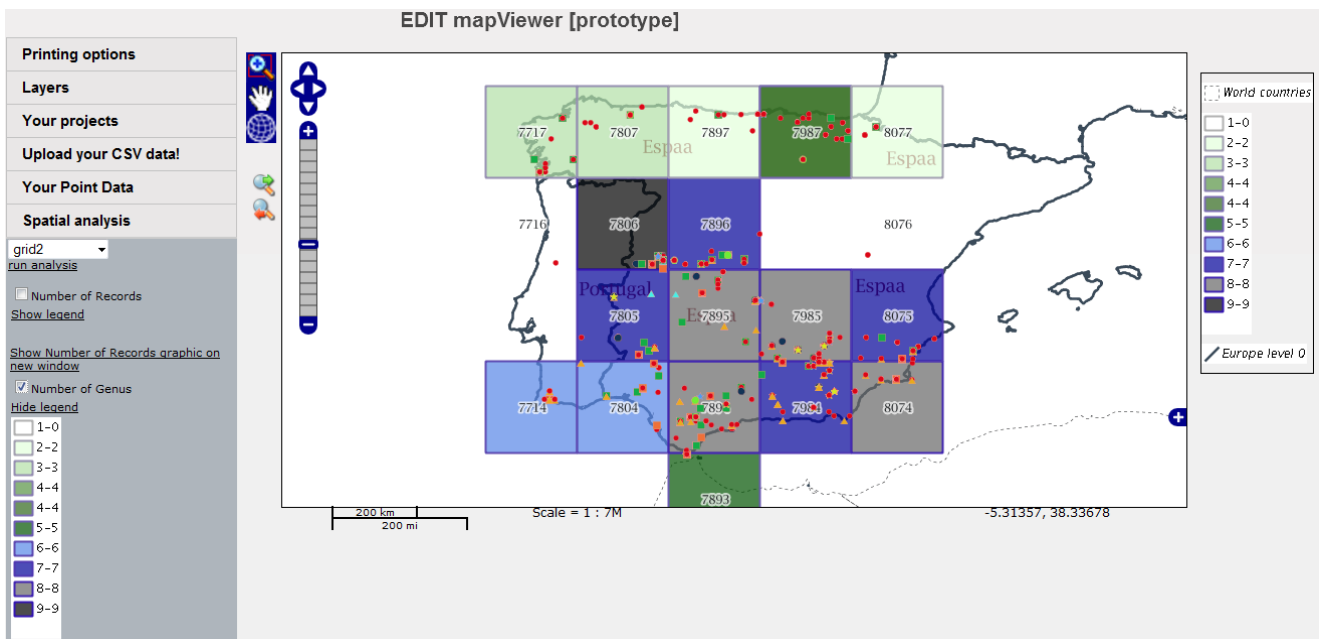
With this information users

- can then in a targeted way find out if more data are existing in digital form and should be made accessible in priority by either contacting potential data providers in order to convince them to submit their data by showing the generated maps as argument for their contribution.
- can together with colleagues decide on priority areas to conduct surveys to complete the inventories for the studied taxa.

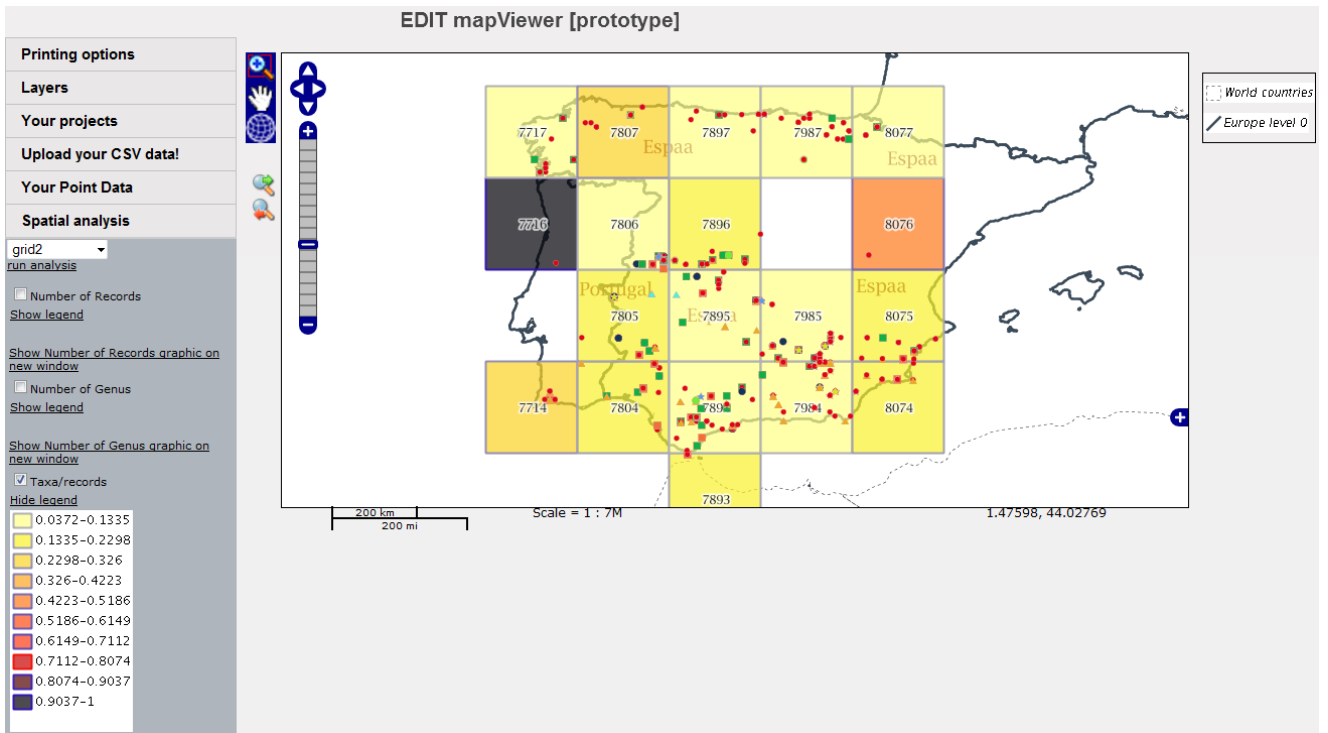
Annex: Maps and Figures.



Map 1: Map of sampling efforts



Map 2: Map of taxonomic richness



Map 3 : Map of inventory uncertainty.

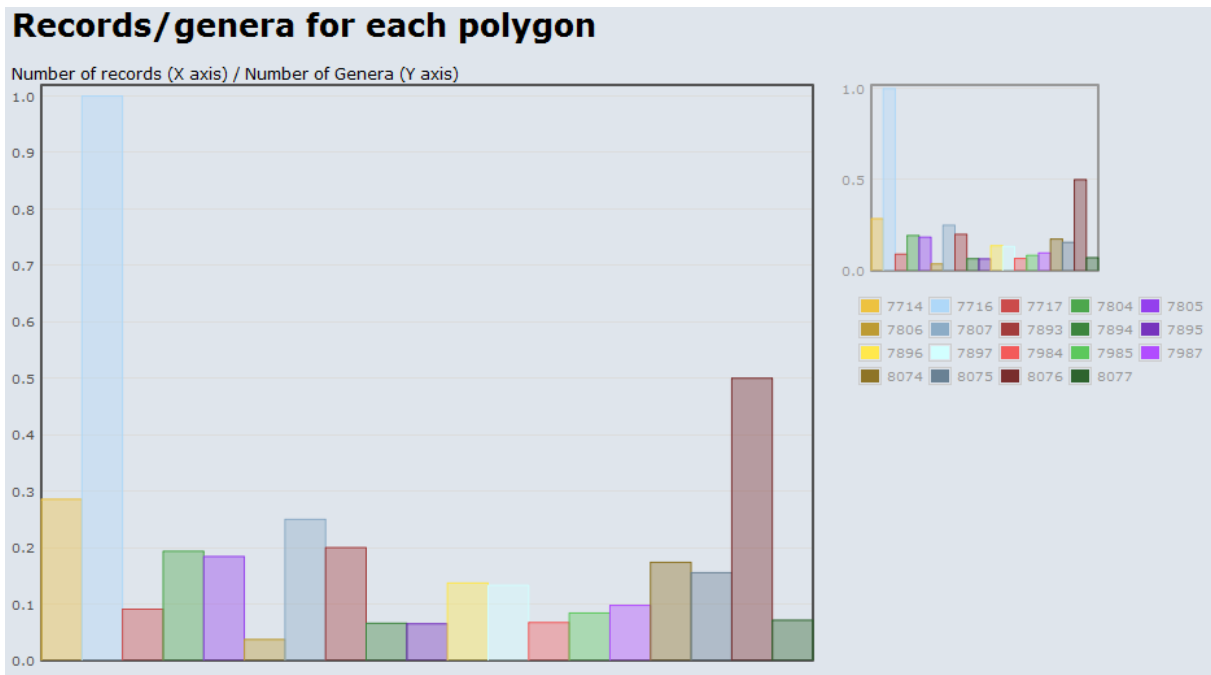
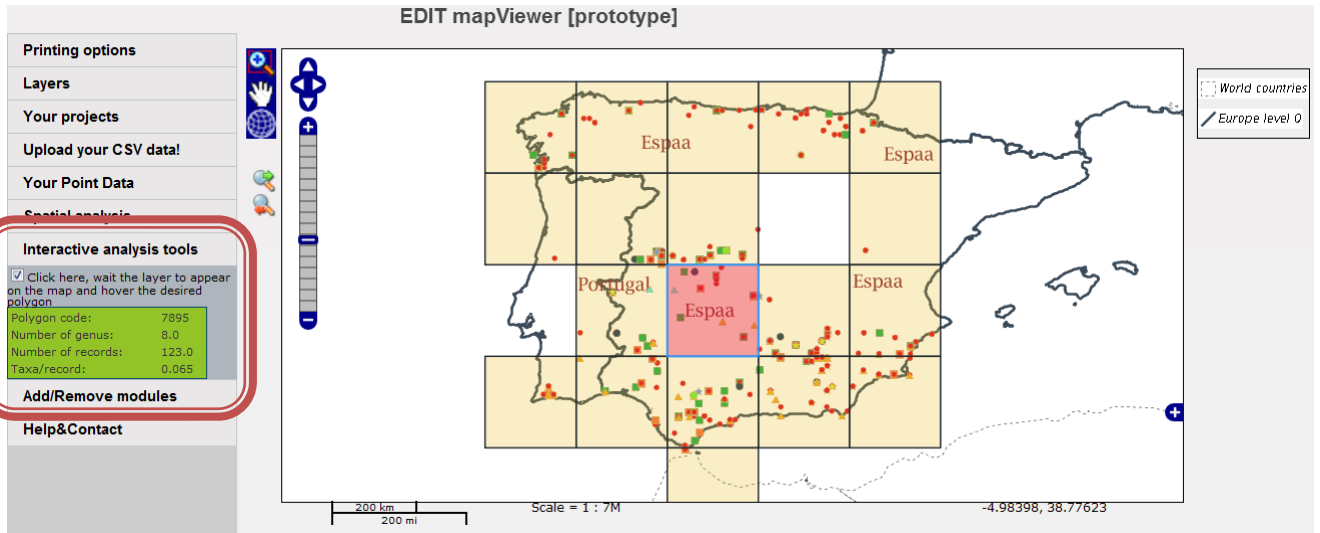


Figure 1 Example of generated graphs showing the number of Genera per record for each polygon



Map 4: Map with Interactive analysis tools activated