

NATLAN2 (Lot 3)

1. BACKGROUND

In the European Environment Agency (EEA) and its European Topic Centres (ETCs), large amounts of data are being collected, analysed and used in reports. This is part of EEA's mandate of supporting policy makers and the public with timely, targeted and reliable information. However, most of these data can not be displayed and made accessible through reports or statistical compendia and it has been difficult for EEA and the ETCs to satisfy the many requests for access.

The emphasis so far has been on the compilation of the natural resources databases, the development of methodologies and cartographic presentation through reports

The aim of NATLAN (NATure /LANd Cover) is therefore to bring to public use significant parts of the wide range of data and information, which is being produced by EEA and its ETCs and to do so in an informative and comprehensive way, which will add value to the data and allow the users to construct their own views and selections. NATLAN is a brand name for several products, which will be widely distributed by EEA. The first of these products, NATLAN1, is a data carrier containing basic NATLAN data, to be produced by the end of 1999. It will be available on cd-rom and as a web application.

The product to be developed in this project is named NATLAN2. It will consist of a cd-rom and a web application. It is a primary tool for the dissemination of the methodologies used for the compilation of the databases and the information derived from them, as well as for providing access and query possibilities to the actual databases themselves. The product also provides an excellent platform for the raising of general awareness on environmental problems. Most of the analyses which will be included in NATLAN were carried out for EEA's reports 'Europe's Second Assessment, 1998' and 'Environment in the European Union at the turn of the century, 1999'

2. OBJECTIVES

The NATLAN2 CD-ROM and Web application aim at disseminating available geo-referenced natural resources data and associated methodologies and analyses with:

- emphasis on the geo-referenced analyses used for 'EEA Second Assessment report 1998' and 'Environment in the EU at the turn of the century 1999'.
- a solution that fits EEA's policy of open and easy access to data and information
- the necessary and relevant background information to enable a scientific, sound use of the data and understanding of the applied spatial analysis.

3. MAIN REQUIREMENTS

Based on these objectives for information dissemination, three major components are to be included in the NATLAN2 CD-ROM and web applications:

- 1) *Visualisation module* : An awareness raising visualisation module to enable the non-professional user to familiarise with the geo-referenced data, and analyses without the need to have access to GIS or database software.
- 2) *Documentation Access tool* : A tool to provide access to the documented methodologies, intermediate results of spatial analysis and meta information

provided in published reports and user's guides. This offers a reference framework which will assist interested users in combining and managing their own geographic information.

- 3) *Data Download tool*: This provides a downloading facility limited to selected documents and datasets for users, who have the interest or capacity for further processing, analysis, presentation or data packaging in their own environment. All data sets owned by EEA will be downloadable. Further datasets will be downloadable when the data owners have granted explicit permission to EEA for this type of dissemination.

4. PRODUCT DESCRIPTION

4.1. The Data

The data for NATLAN were derived from many sources and were brought together, aggregated or analysed by the EEA and its Topic Centres on Nature Conservation (ETC/NC) and Land Cover (ETC/LC), who have also developed most of the analytical methods.

Data were derived from or have been produced in collaboration with among others:

- EEA Member Countries, including some data from Phare countries
- EUROSTAT
- FAO
- International organisations such as Council of Europe, World Conservation Monitoring Centre (WCMC), Bird Life International, Atlas Associations for Mammals, Reptiles and Amphibians
- Secretariats of International Conventions (Ramsar, Helsinki, Barcelona, Bern)
- ETC/Inland Waters

The comprehensive list of datasets and documentation is provided in Annex 1. An overview of the datasets is listed below.

4.1.1. Datasets

NATLAN2 will provide the user with three categories of data:

- Basic data, which gives the geographical context to the topic data.
- Reference data on the environmental units used by EEA for reporting on the state of Europe's environment.
- Information and analysis data, which presents the analytical work done by ETC/NC and ETC/LC

The basic maps will contain :

- a general map of Europe
- administrative boundaries
- settlements
- major infrastructure
- water pattern
- elevation model and slope map

The reference maps will contain :

- bio-geographic regions, the large regions of Europe agreed as references for the EU Habitats Directive and for the Bern Convention.
- limno-faunal regions, the large regions of Europe agreed as references for fauna in rivers and lakes
- marine and river catchment areas
- soil information
- prototype European zones being used by EEA: urban, rural, mountain, coastal

The information and analysis maps will contain :

- CORINE land cover, land cover data collected according to the co-ordination of information on the environment (CORINE) methodology
- European Nature Information System (EUNIS) Habitat Classification
- 4 EUNIS habitat perspectives : wetlands and water bodies, grassland and sparsely vegetated areas, woody species, agriculture)
- forest maps with FAO FRA2000 data (forest, forest and other wooded land, forest and people, forests on slope)
- designated areas (international, European Community and national)
- Corine biotopes, biotopes data collected according to the CORINE methodology
- species atlases (vertebrates)
- centres of endemism
- maps of critical loads (ozone, S, N, pH)
- water monitoring stations
- pressure/fragmentation (on nature, on designated areas, on forest)
- vegetation map of Europe
- digitised map of the European ecological reference regions (DMEER)
- maps from the MIRABEL ecosystems analysis

4.1.2. Documentation

The information documents will contain :

- documentation, methodologies and stories for all datasets and analyses
- pre-prepared statistics from Land cover and EUNIS Habitats for different regions
- pre-prepared statistics on species and habitats
- extracts from the MIRABEL ecosystems analysis
- tables with information on the area and population of countries.

4.2. Functionality

CD-ROMs and web application:

The CD-ROM and Web application must have the same content and functionality. The description below is based on a CD-ROM version,

The functionality of NATLAN2 is based on the following types of data :

geo-referenced data:

- raster
- vectorial

other data

- non geo-referenced images
- texts
- statistical data
-

Using the visualisation and documentation modules, of NATLAN2, the user will be able to move directly from the geo-referenced data to tabular data and documentation and vice versa. The user will be able to view and get information at European, country, region or other levels (zooming/roaming) on land cover and nature and to see this information on a background of the pressures from urbanisation, infrastructure and agriculture (multiple layer selection).

In particular the user shall be able to:

- select and remove geo-referenced datasets in order to build a map interactively on screen
 - select, if required, one of the raster datasets as a background. The default selection, when the user first enters, will be CORINE land cover.
 - select one or more vectorial datasets to be presented on the background dataset. The default selection, when the user first enters, will be administrative boundaries (national level) and settlements (national capitals).
- choose to visualize a legend for each selected dataset showing the symbols used to draw the features and a brief text.
- browse/pan/zoom on the pre-selected set of spatial data. The features visualized should be appropriate to the scale. The default scale, when the user first enters, should allow the whole of Europe to be seen on screen.
- point and click on an individual feature in order to visualize the associated tabular data for the feature.
- browse/query by free texts or from pick-lists across all data files. This function should be compatible with the standards of EEA's Environmental Reference Centre (E2RC).
- go directly to query datasets, select and view resulting spatial data in more detail or go to the document texts
- base queries on one or more datasets
- print formatted reports with the results of tabular queries for data . The same conditions as for .downloading data will apply to this function.
- print, to hardcopy or to file, a simple standard format map showing the geo-referenced data currently on screen. Maximum resolution used should be equal to that of a standard PC screen.
- hyper-link from spatial datasets to the relevant documentation (legends, documents, manuals, stories) and tabular and statistical data
- hyper-link between all texts and datasets
- download data and documentation in formats suitable for common use. Only data and documentation owned by EEA or where the owners have given explicit permission to EEA for this type of dissemination should be made available.

Examples of the types of queries that users should be able to formulate in an easy way are provided in Annex 2.

An example of the user interface from first EEA CD-ROM on natural resources is provided in Annex 3

Schematic views of the required functionality are provided in Annex 4

4.3. User Environment

The NATLAN CD-ROM will run on MS-Windows and Windows NT environment. The CD ROM should be able to run on a medium size personal computer without problems of space. The time constraints should be 3-4 seconds per frame.

4.4. Data Preparation

4.4.1. Data preparation for the cd-rom and web applications

- Data and document file formats should be converted if necessary to obtain acceptable user response times.
- Pre-prepared copies of geo-referenced and other datasets should be made if necessary to obtain acceptable user response times.
- Symbols and legends suitable for viewing should be developed based as closely as possible on existing legends. Where suitable electronic legends exist for the datasets EEA will make them available.
- Images of geo-referenced datasets should be prepared to allow "quick look" at the data available.
- Pre-prepared statistics for selected datasets should be generated according to EEA's instructions.
- Complex datasets like Corine Biotopes should be prepared so that the user can query them as on the first EEA CD-ROM on natural resources
- Extensive hyperlinking should be developed.

For a selection of datasets more preparation such as edge matching is necessary:

- Vegetation map of Europe
- DMEER map of Ecological Reference Regions

4.4.2. Data preparation of files for NATLAN2 Posters

NATLAN2 is to be accompanied by 2 sets of posters :

- 1 general information poster
- 4 posters built on forest related data

The general poster will be produced with examples of types of queries and visualisations of maps with explaining text. The base will be Land Cover of Europe. The text will be delivered by EEA.

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The 4 forest posters will be produced based on forest and other data of NATLAN2 (updates of forest data from FAO) as an update of the existing posters produced for the Lisbon Conference on sustainable Forestry in 1998.

The lay-out principles will be delivered by EEA in agreement with FAO/Timber (Geneva) as improvement of the existing lay-out.

5. MATERIAL TO BE SUPPLIED BY EEA

EEA should make the following material available as soon as possible after the signing of the contract for the development of NATLAN2.

1. first EEA CD-ROM on natural resources
2. NATLAN 1
3. E2RC guidelines
4. hard copies of 4 existing posters produced for the Lisbon Conference on sustainable Forestry in 1998
5. hard copies of legends for symbols
6. cd rom containing:
 - a) datasets and documentation listed in Annex 1
 - b) instructions for the preparation of statistics
 - c) digital files for symbol legends
 - d) text for general NATLAN poster
 - e) input for NATLAN Forest posters
 - Layouts for 4 existing posters produced for the Lisbon Conference on sustainable Forestry in 1998.
 - The modifications to be applied to the above layouts

6. DELIVERABLES

6.1. Deliverables for the cd rom and web applications

No.	Application Deliverables	Comment	Timetable for deliverables
1.	Inception report	The report should contain: the workplan; the final list of datasets, reports and functionality; the first. draft of query- and visualisation forms; the first. draft for report and print lay-outs; the proposed acceptance procedures for both the cd rom and the web applications. see Note 1	1 month after delivery of material by EEA
2.	Demonstration material	The material should demonstrate how the functionality of the visualization module and the documentation modules will appear to a user . see Note 2	3 months after delivery of material by EEA
3.	NATLAN cd-rom application software test version	CD-ROM containing cd rom application ready for production see Note 3	5 months after delivery of material by EEA
4.	NATLAN web application software test version	CD-ROM containing web application ready for installation in E2RC see Note 3	5 months after delivery of material by EEA
5. 9	NATLAN cd-rom application leaflet draft text	Text file with NATLAN product description, to be used for the CD-ROM leaflet.; See Note 4	5 months after delivery of material by EEA
6.	NATLAN cd-rom application software final version	The formal acceptance procedures will be applied to this version	7 months after delivery of material by EEA
7.	NATLAN web	The formal acceptance procedures will be applied to this	7 months after delivery of material by EEA

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	application software final version	version	
8.	NATLAN cd-rom application leaflet proof copy		7 months after delivery of material by EEA
9.	Final report,.	including technical description of products	2 weeks after acceptance of both applications by EEA
10.	350 copies of cd-rom application	product , including leaflet , ready to be distributed	2 weeks after acceptance of both applications by EEA
11.	Help desk service	provide advice to users and correct software errors	to last for 6 months after acceptance of both applications
12.	650 copies of cd-rom application	product , including leaflet , ready to be distributed. Any software changes that have been made should be incorporated in this product.	At the end of the help desk period

Note 1: A progress meeting is required 1 week after the delivery of item 1, the inception report, EEA will make written comments on Deliverable 1 The inception report. Written agreement between EEA and the contractors on the implementation of those comments is a requirement before further work is carried out.

Note 2: A progress meeting is required one week after the delivery of item 2, the demonstration material, EEA will make written comments on Deliverable 2, the demonstration material. Written agreement between EEA and the contractors on the implementation of those comments is a requirement before further work is carried out.

Note 3. EEA will carry out extensive testing on item3 and item 4 the test versions of the applications and provide a written list of any incomplete functionality or software errors encountered. These must be corrected in the final versions of the applications.

Note 4. EEA will be responsible for the layouting of the cd-rom leaflet and will provide the print-ready file to the contractor who will be responsible for the printing of the leaflet..

6.2.

Deliverables for the NATLAN2 posters

No.	Poster Deliverables	Comment	Timetable for deliverables
1.	NATLAN general poster draft copy		2 months after delivery of material by EEA
2.	Four NATLAN forest posters draft copy		2 months after delivery of material by EEA
3.	NATLAN general poster proof copy		2,5 months after delivery of material by EEA
4.	Four NATLAN forest posters proof copy		2.5 months after delivery of material by EEA
6	NATLAN general poster	CD-ROM with print ready files for production of poster	3 months after delivery of material by EEA
7	Four NATLAN forest posters	CD-ROM with print ready files for production of 4 posters	3 months after delivery of material by EEA

ANNEX 1

Preliminary list of NATLAN2 datasets – see separate Excel file

ANNEX 2

Examples of the types of queries and more complex operations that users should be able to formulate in an easy way.

Queries

1. Show country borders and capital names
2. Show bio-geographic regions and limno-faunal regions, give area statistics for regions and country parts of regions
3. Which EU designations exist in country X and country XX
4. Which EU designations contain > 50 % LC agriculture (in the 5 km a circle around the inner circle of the site, based on centre co-ordinate and area)
5. Where (map, country, bio-geographic region) are the 25 largest EU designated areas
6. Which country has designated most SPAs (EC Bird Directive areas), show and list them according to size
7. Which Corine Biotopes exist in country X, what is the date of entry to database
8. How many Corine Biotopes are there in EU countries versus in Phare countries
9. Which Corine Biotopes in bio-geographic region X contain information on Invertebrates and Amphibians
10. Which Corine Biotopes do not contain information on species or habitats
11. Where are the sites which contain information on Somateria molissima as a wintering as well as nesting bird
12. Show nationally designated areas, EU designations (SPAs) and Ramsar sites.
13. Which EUNIS habitats types exist in bio-geographic region X, show statistics
14. Which LC grassland types exist in catchment Z, show statistics
15. Which nationally designated areas are close to Ramsar areas (centres < 10 km apart).
16. Which species exist within country X, show according to number per grid cell
17. Where are the Atlas grids in limno-faunal region Y with most amphibians (top class only)
18. Which Corine Biotopes were entered into the database before 1988 or after 1997
19. Which country contains most forest and other wooded land compared to country size
20. Which European Vegetation types exist within DMEER eco-ref region R
21. Which countries have the highest forest area and the highest critical loads
22. Forest and large cities, give statistics for circles
23. Forest and people, give country statistics on settlement classes
24. Show slopes and EUNIS habitats, forests
25. Show definition and description of "garrique habitats" (Corine Biotopes)
26. What is the story about the map on fragmentation
27. What is the Corine Biotopes project
28. Whom to contact on further information on the EEA Land Cover
29. How was the limno-faunal region map developed
30. Whom to contact on the catchment map
31. Whom to contact on the EU designated areas

More complex operations:

1.view region, country, settlements in groups according to size and major infrastructure.

2.view country or selected area with land cover, major settlements and infrastructure and designated areas;

- go to tables with statistics for the country;
- go to information on the land cover classes displayed;
- go to information on the designated areas;

3.view distribution of a species group such as mammals in an area together with selected major EUNIS habitats and Corine biotopes.

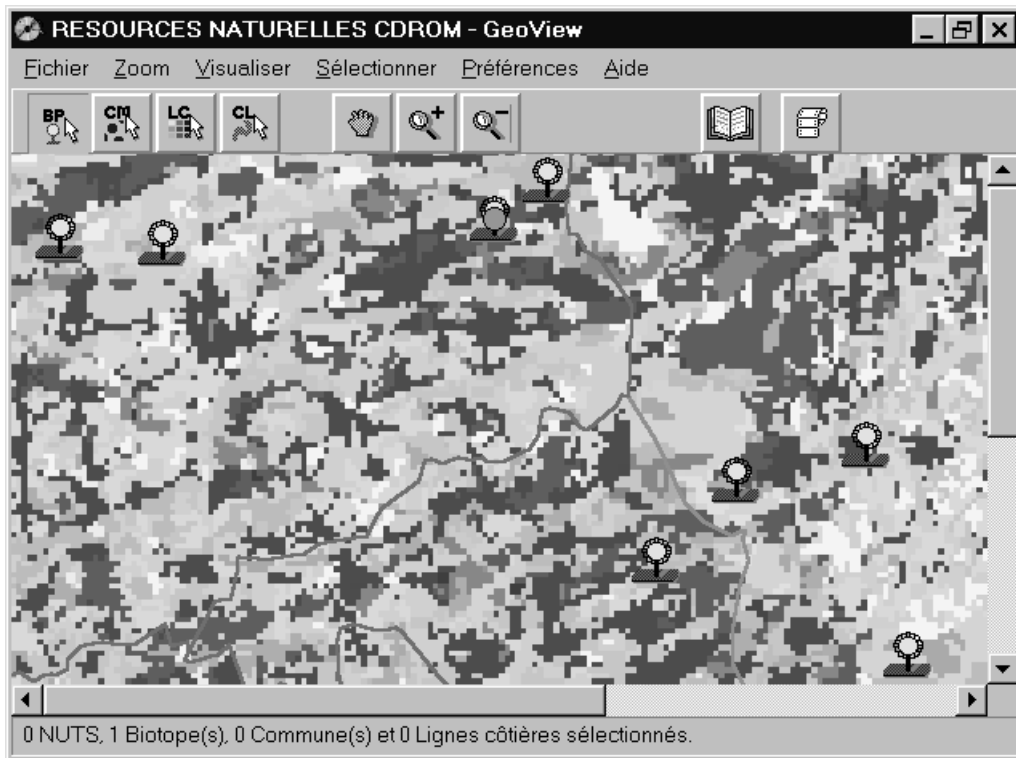
- to go to habitat statistics for that area;
- to go to information on selected biotopes;
- to go to information from the EUNIS Habitat Classification;
- to go to information in the MIRABEL ecosystems analysis;

4.view areas with low pressure from agriculture, infrastructure and urban pressure and show designated areas;

ANNEX 3

Example of user interface from first EEA CD-ROM on natural resources

Selection of topic (Biotope) and link to point information data



Reporting facility

Link to documents

Selection of biotope on land cover map

Map visualisation allowing overlay of vector and raster data

Identification du Biotope

Identification

Code du site: 500111100 Sous Sites... Date: 198511 Mise à jour: *

Nom du site: BUITENGOOR-MEERGOOR

Respondent(s): IRSNB; 29, rue Vautier, 1040 Bruxelles; Belgium

Complexe: *:

Location

Région: 5113 (ANTWERPEN);

District:

Superficie: 75 ha Long/lat: E 5,10, / N 51,13,

Altitude: 30 m Max: -99 Min: -99

Aide ? Complexe Imprimer Imp. tous Information... OK

BUITENGOOR-MEERGOOR : Information sur le Biotope

Habitats Couverture des habitats Désignation Motivation Activité humaine

22.12	Mesotrophic waterbodies
22.3	Amphibious communities
22.4	Euhydrophyte communities
31.1	European wet heaths
31.22	Sub-Atlantic [Calluna]-[Genista] heaths
44.91	Alder swamp woods
44.93	Swamp bog-myrtle scrub
53.1	Reed beds
54.2	Rich fens
54.4	Acidic fens

Information Ecologique Information Espèces Information Descriptive

Aide ? Notation Plus... Fermer

notation des Habitats

<code générique>. <code détaillé> <nom> </code significatif>

codes significatifs:

- ** un des seuls 100 ou moins sites de l'UE
- * un des seuls 5 ou moins sites de la région
- \$\$ un des 100 sites les plus importants ou représentatifs de ce type de l'UE
- \$ un des 5 sites les plus importants ou représentatifs de ce type de la région
- + l'habitat est rapporté dans ce site mais pas récemment

Fermer

ANNEX 4

Schematic views of the required NATLAN functionalities

Figure 1.

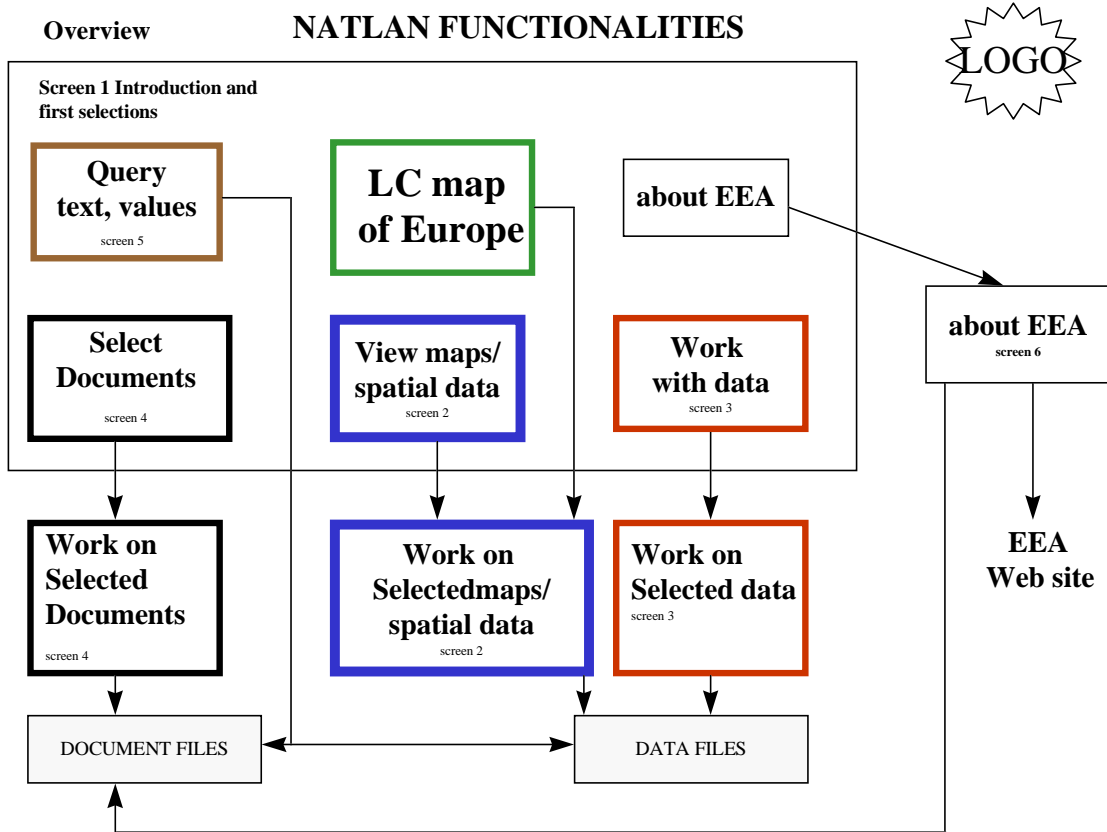


Figure 2

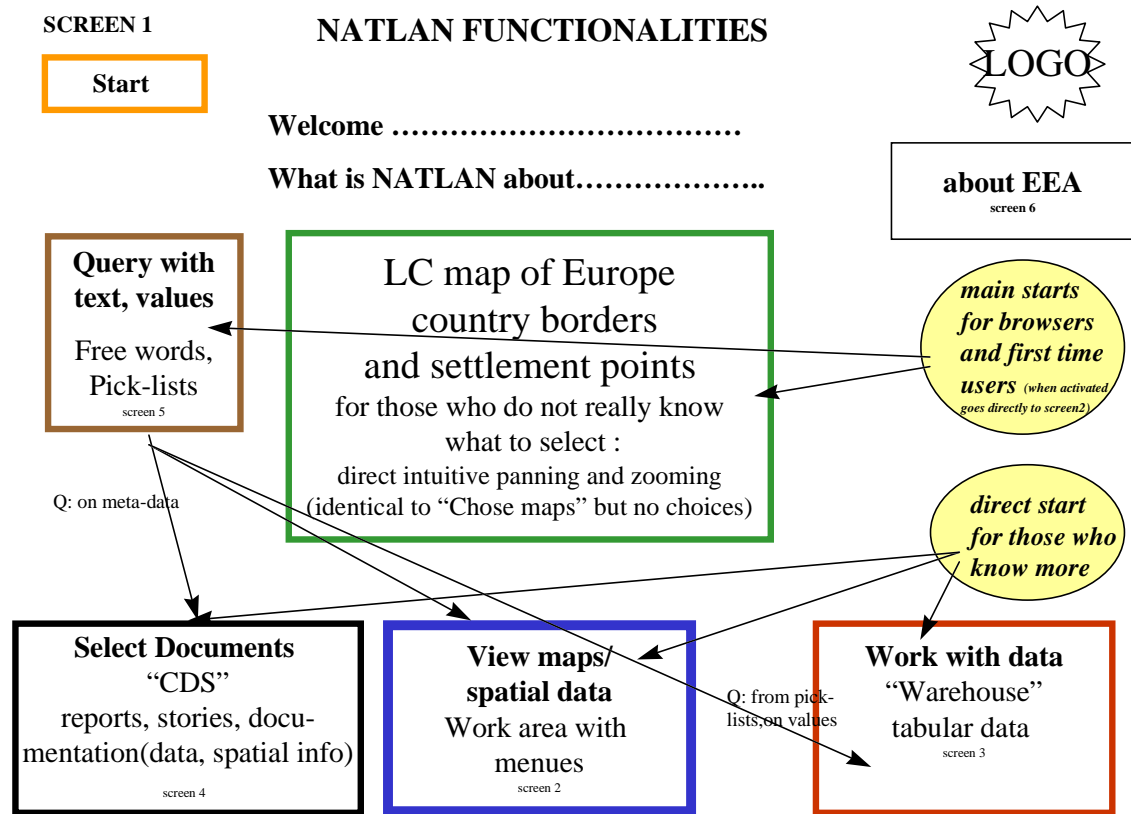


Figure 3

SCREEN 2 NATLAN FUNCTIONALITIES


View maps/
spatial data

Step 1: select scale : or zoom

Step 2: select : country area/ region coordinates

Pick List

Pick List



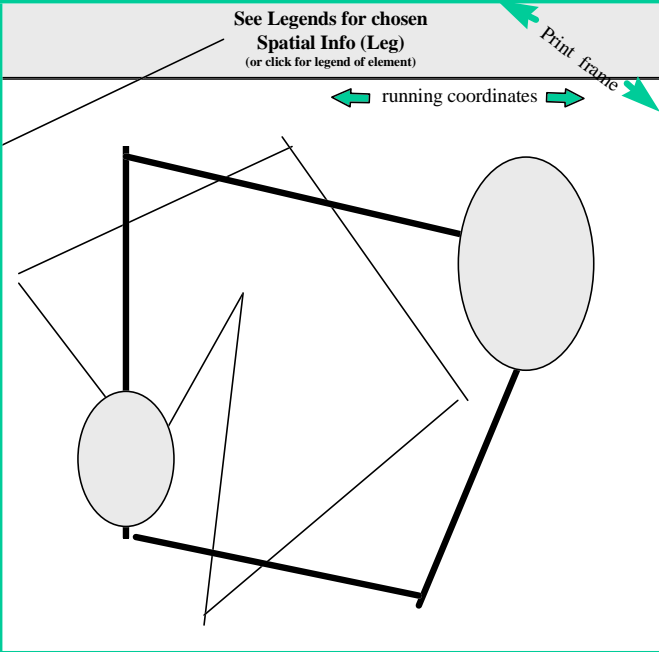
Step 3: Select maps/spatial data

Step 4: Existing links

See Legends for chosen
Spatial Info (Leg)
(or click for legend of element)

Print frame

← running coordinates →



Spatial Info		Links to			
Name **	Type	Leg	Data	Story	Docum
Countries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bio-geo R	<input type="checkbox"/>	<input type="checkbox"/>			
Big Seas	<input type="checkbox"/>	<input type="checkbox"/>			
Limno-f. R		<input type="checkbox"/>			
Catchm A					
LC					
Habitats					
Species					
Vegetation					
-					
-					
-					

** the info sets already available on screen 1 browser map to be displayed, can be clicked off . If relevant links exist, a click box is shown P = point PA = Point with related area B=boundaries etc

Figure 4

SCREEN 3

NATLAN FUNCTIONALITIES

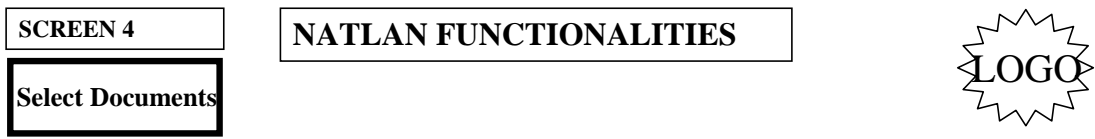


**Work with
Data**

find :
sort : down : up :

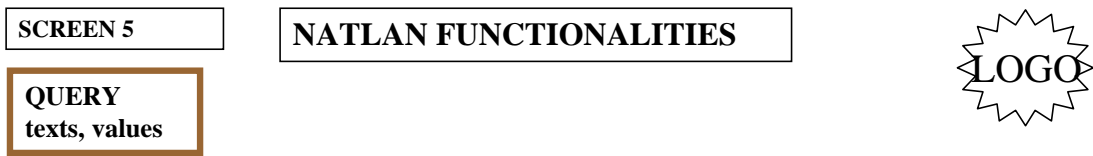
Data set				Links to	
Name /Title	Type	Original scale	Legend	Story	Documentation (incl references)
<input type="checkbox"/> Land Cover					
<input type="checkbox"/> EUNIS Habitat types					

Figure 5.



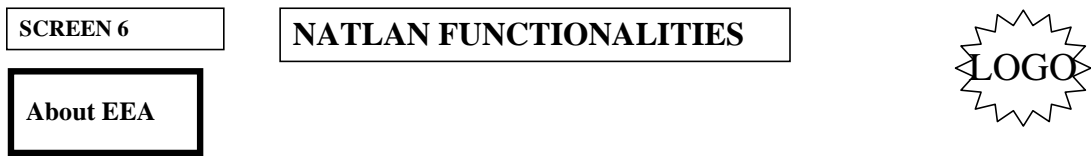
includes documentation of data sets
stories
other documents

Figure 6.



- **Pick-Lists (legends, codes, species, habitats, LC classes etc)**
- **Free texts**

Figure 7.



Short Information on EEA

link to EEA Web Site

other links to EIONET