

Ecolynx is a website for information on biodiversity issues. It was developed to provide both professionals and the general public with comprehensive, “one-stop-shop” information on biological conservation. **Ecolynx** was created by a consortium of not-for-profit organisations (see below) and received co-funding from the European Commission’s INFO2000 programme and other supporting international organizations (IUCN, UNEP, CITES and Birdlife International).

The design brief for the **Ecolynx** project was to develop **multimedia** techniques for management of knowledge about biodiversity, including the novel application of software for integrated web delivery, interactive information searches and retrieval, multilingual access and translation, visualisation and mapping.

The web product integrates **content** from two previously unrelated information clearinghouses (UIA and WCMC) and provides online access to data that were previously difficult or expensive to access. It is internally **hyperlinked** to a high degree and has thousands of linkages to other online sources. The project has sought and incorporated user feedback through external consultations, workshops, online interactions and product testing. Special features are **user interactivity** (through query and feedback links and new data capture) and various forms of **data mapping**.

Scope and objectives

The challenge of biodiversity conservation touches virtually every human activity. The purpose of this project was to build an integrated knowledge base that could (1) hold the subject area across its full global scope and (2) cross freely the boundaries of sectors, disciplines, geography and cultures, science and non-science, fact and perception. **Ecolynx** was intended to be different from existing information services. More than just an information repository, it helps those with a strategic focus on biodiversity conservation comprehend the **systemic interlinkages**: notably interlinkages between the threats to biodiversity and between these and the responses society is making to counter loss of species and ecosystems.

Open responsive information structure

The prime purpose of the project was to offer users new ways of interacting with the complex information networks relevant to environment policy and biodiversity concerns. The challenge was to provide an information tool that adapts, through its comprehensive scope, to narrower or broader needs as

required—thus providing an **information context** for each biodiversity issue or environmental concern. This is achieved through use of hierarchical tree structures, “hard” and “soft” hyperlinkages and visual mapping techniques that enable the user to zoom in on issues or change the focus. Where the user has a need for detail greater than that contained within the **Ecolynx** site, it points on to more specialised sources, within and outside the Web environment. The objective is to produce an information domain with multiple entry points and “journey” options in order to suit different user needs, styles and enquiries.

Ecolynx has templates that allow **user modification** and annotation of data supplied, both within their own system and by returning information to the data custodians and owners. It fosters the **active involvement of users** in the further development of both the information available and the functionality of the information services.

Information integration and display

Knowledge organisation and management demand a contextual cross-disciplinary and multi-sectoral approach. This project, therefore, put emphasis on **facilitative tools** for showing relationships between data and information, such as:

- cross-sectoral data integration
- flexible data structures and user interfaces
- data display and mapping on-the-fly
- visualisation of complex patterns of relationships, and
- sophisticated interrelationship of information normally considered incommensurate, of data across different platforms and data formats and between different datasets and objects.
- “soft links” enabling query-searches directly into external datasets, list serves, or the entire Web.

Specifically emphasised are:

- hyperlinkages
- hierarchies of issues
- horizontal associations
- chains of causation and response
- open boundaries
- keyword and subject area searches
- “intelligent” query searches
- visualisation tools for complex patterns and processes
- graphical indexes and clickable maps, and
- 3D zoom/magnify and perspective-shifting tools.

Contextual planning tool

Ecolynx is designed as a knowledge management tool for the **vast amounts** of information relevant to realistic programme and project planning. It features hierarchical structures, lateral linkages (related issues, “cause and effect” pathways), cross-sectoral and inter-disciplinary approaches, and displays of complex patterns of relationship between issues (“vicious cycles” and “serendipitous cycles”). This is an important development in the practical application of context



planning methodology for biodiversity conservation and sustainable development needs.

Product-Process-Service

Ecolynx was framed as a public service. Unlike most public services, however, it is delivered within a **small-enterprise philosophy** that is a hybrid of the “non-profit”/ “for-profit” approach of the project partners. Business-wise it occupies the boundary between the traditional NGO and commercial worlds.

Given the integral nature of user/contributor participation in this project, the **Ecolynx** website is a hybrid “product/service”. It combines attributes of:

- a tangible **product**, in the form of a website
- an **ongoing service**, in the form of a continuously updated Web databases and services, and
- an **interactive process** evoking continuing communication between information providers, passive users of that information, and active users concerned to improve, query and debate that information in an interactive mode.

Process orientation

Aside from ensuring the quality of content and its aesthetic and functional design, the future viability of the website will be highly dependent on the integration of several *processes* involving its information providers and users. These process factors are mutually supportive and can be summarised as:

- **Information-gathering** by those motivated to provide the information. This covers the free exchange of information and, to an increasing extent, interactive updating. The relationship with information providers is a sensitive one. As a future development, it is intended to offer contributing users recognition of “mutual support” through a non-monetary system of information credits and debits.
- **Information-processing** of received materials into standard formats and quality is demanding of expert resources. **Ecolynx** uses automated electronic techniques to the greatest degree possible to streamline editorial and data management work, notably by reducing “double-handling” of information in tasks such as storing, locating, reformatting and re-entry of information. A future focus will be the design of interfaces between the non-automated, conventional communications and automated (Internet and email) users.
- **Information delivery** of processed information through interfaces of varying complexity, according to user needs. **Ecolynx** interface tools assist in the location and application of information and facilitate further location by the user of other information sources.
- **Marketing** through web facilities and hyperlink integration with other websites. Flexibility and experimentation are needed to strike a balance between presentation of information at zero cost (both to satisfy minimal needs of a particular class of users and to attract new users) and implementation of a system of charges in consideration of

long-term project financing. Account must also be taken of the differing needs of the content providers and any special contractual relationships the principal partners may have with collaborators who provide information.

- **Updating and participative development** of the information is a direct consequence of the interactive nature of the product/service and vital to its sustainability. The website stresses an interactive role for users as “user-partners”. Continuing development of **Ecolynx** would seek to develop future user needs, for example through web tutorials and training. It would also seek to convert the user of information into a user/provider of information, which then feeds back into the information-gathering process.

- **Integration with core business** of the principal project partners. Fulfilling this objective means that **Ecolynx** is less subject to the political and commercial whims that govern the production cycles, content, coverage and updating of other web information sources.

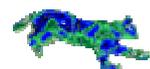
Preference for available technology

A primary objective was not to develop new software, but rather to adapt available packages, which would tend to be easily accessible to potential users. Few of the software features used in the development and delivery of the information product and its services are new. What *is* new is the application of these techniques to the integrated management of information of this kind.

The **project partners** are four European non-governmental organisations (NGOs):

- [Union of International Associations](#) (UIA), Brussels, Belgium
- [UNEP-World Conservation Monitoring Centre](#) (UNEP-WCMC) Cambridge, UK
- [Norwegian School of Management](#) (Handelshøyskolen BI), Oslo, Norway
- [AIDEnvironment](#), Amsterdam, Netherlands
- [Institute of European Environmental Policy](#) (IIEP), Arnhem, Netherlands (involved in the Definition Phase only)

UIA and WCMC provide the information content and knowledge management capability. NMS, IIEP and AIDEnvironment have been advisors in their specialist areas of expertise. All partners have contributed significantly to developing an understanding of the product, its market and users.



Ecolynx incorporates elements from the following databases and products developed and managed by the project partners [Union of International Associations](#) (UIA) and [UNEP-World Conservation Monitoring Centre](#) (UNEP-WCMC). These databases are unique in the world and regarded as "industry-standards" for their category of information content. The clearing-house functions of both organisations are of long-standing and include well-established procedures for the management of their datasets.

It must be acknowledged, however, that the work of both organisations relies on extensive links with other organisations working in their respective fields. The information is largely compiled using expert networks or from official sources; in many cases it is managed using methods advised by those experts. Through the collaborative networks of UIA and UNEP-WCMC, thousands of organisations and individuals are effective partners and beneficiaries of the project; a number of these were drawn into the project, both as contributors and to test and evaluate the product.

- UIA databases on **World Problems** (ca 15,000 profiles), **Strategies, Actions and Solutions** (ca 32,000 profiles), **Human Values** (ca 3,250 profiles), and **Human Development** (ca 5,000 profiles). These databases have been developed over the past 25 years, as resources have permitted, under the umbrella project called [Encyclopedia of World Problems and Human Potential](#). Prior to this project, these resources were not online.
- UIA database on **International Organizations** (ca 40,000 profiles), maintained on a continuing basis and published annually as the [Yearbook of International Organizations](#) (now in its 37th edition) in both hardcopy and CD-ROM forms. Prior to this project, this resource was not online.
- UNEP-WCMC manages the **Red List of Threatened Animals** (ca 5,000 profiles) and the **Red List of Threatened Plants** (ca 40,000 profiles) on behalf of a range of organisations. Both datasets are regularly reviewed, published and made available as interactive databases on the Web.

- UNEP-WCMC manages the **United Nations List of National Parks and Protected Areas** (ca 10,000 profiles) in collaboration with the World Commission on Protected Areas. The UN List is regularly reviewed, published and made available as an interactive database on the Web.
- UNEP-WCMC's computer-based **Biodiversity Map Library** and Internet Map Server, which supports the development of a range of products including maps and atlases of **tropical forests**, a range of products and services on coral reefs and **mangroves** and other resources (several developed under this project) and various other publications and Web information service.
- Other UNEP-WCMC databases on (for example) **Species Protected by CITES** (millions of records of trade transactions), **Descriptions of Natural World Heritage Properties** and other datasets which UNEP-WCMC manages to provide information services that support the implementation of several international conventions and programmes (some of which were developed under this project).
- Other UNEP-WCMC Web-based information services, ranging from the UNESCO sponsored **World Heritage Information Network** to the **Protected Areas Virtual Library** developed in collaboration with the World Commission on Protected Areas.
- **Bibliographic references** held by the UIA and UNEP-WCMC, which together exceed 25,000 profiles. Prior to this project, neither resource was online.

