

TITLE:

"The WILDPro Electronic Encyclopaedia: a novel and flexible method of linking, referencing and accessing cross-disciplinary data."

AUTHORS:

Suzanne I Boardman*, F Joshua Dein** & Debra Bourne*

* Wildlife Information Network, The Royal Veterinary College, London NW1 OTU - UK

**National Wildlife Health Center, USGS, 6006 Schroeder Road, Madison, Wisconsin 53711 - USA

The WILDPro Electronic Encyclopaedia and Library provides information on the health and management of captive and free-ranging wild animals in the form of a large Website. It is developed by the Wildlife Information Network (WIN), an independent UK Registered Charity (not-for-profit organisation) with offices located at The Royal Veterinary College, London, and the first programmes were released in 1996. The underlying structure of the data linkages was designed in partnership with the National Wildlife Health Center, USGS.

WILDPro is built to meet the needs of wildlife professionals and decision-makers worldwide, including students, lecturers, veterinarians, zoo staff, zoologists, veterinary nurses, etc. It is written by wildlife veterinarians with knowledge and experience of the range of information which is required in the field.

WILDPro uses a novel metadata structure to link information on species (including identification, range and habitat, and natural history), management of animals in care (short and long term), diseases, disease agents (physical factors as well as micro-organisms and larger parasites) and veterinary treatment. Abundant hyperlinks within the text allow the user to follow a wide variety of logical thought processes through the information, while page header hierarchies, colour coding of pages and constant access to the initial pages for different data types assist the user in navigation.

WILDPro is being built as series of interlinked modules, each one covering a given area or topic (e.g. "Waterfowl: Health and Management", "Foot-and-Mouth Disease", UK Wildlife: First Aid and Care"). Each module contains a thorough scientific review of the chosen topic: in effect WILDPro could be viewed as a series of linked review articles.

All information in WILDPro is fully referenced, allowing the user to follow up for more detailed information if required. The coding system for references clearly distinguishes between the different data sources: published books, papers from refereed journals, conference proceedings, miscellaneous documents (usually internal documents of organisations), national or international legislation, personal communications, Websites etc. An extensive Organisations Directory assists the user to contact relevant expert organisations for advice and assistance if required.

An additional and growing facet is the inclusion, in full, of a number of papers, documents and books in the associated "Electronic Library". These have been made available to WIN by the relevant copyright holders.

This Encyclopaedia is being developed in modules, which are available via subscription on the WIN Website (<http://www.wildlifeinformation.org>), and are also distributed on CD-ROM for off-line access.

WILDPro offers several advantages over more traditional information resources:

1) Cross-disciplinary data

- WILDPro offers a variety of routes towards information; this increases the likelihood that a route will be available for a given end-user, fitting the way in which they think and approach information.
- There is no practical limit on space within the system. The removal of this limitation, a severe constraint on many paper-based publications, allows WILDPro to hold detailed information on a wide range of topics. There is no need to narrow the field of information contained within the system in order to allow in-depth information to be provided. Instead detailed information can be provided on a multitude of topics.
- Glossary items are used extensively, hyperlinked into the text. This makes it easier for the end-user to utilize and understand information which is outside their normal field of expertise/discipline and which may include many unfamiliar terms which are taken for granted by those within each discipline.
- WILDPro contains information at different levels, from overview pages containing summaries for those needing basic information, to detailed data in referenced literature reports for the end-users who require this depth of information. Both the summary and the detailed data are available in each discipline, thereby fitting the requirements of the different end-users.

2) Referencing

- The lack of a size limitation frees the editors of WILDPro to include as many references as are needed. This contrasts with many printed publications in which editorial constraints are placed on the writers to keep to a given number of references or to keep to a page or word limit (in which case each added reference removes space for original text, and vice versa).
- The system has the ability to hyperlink to full details of the references and from there, where appropriate on to other websites containing the references in full.
- Where permission is given by the copyright holder, texts can be added in full within WILDPro's Electronic Encyclopaedia, giving the end-user immediate access to documents which may not be readily available to them elsewhere.
- The coding system used provides an immediate indication of the different reference types allowing the user to differentiate immediately between data which comes from peer-reviewed journals versus data from the "grey literature", original articles from reference books, websites etc.
- The numerical coding system additionally is easily correlated with a hard-copy filing system. This makes it simple to check the details of original texts at a later date.

3) Relevance and Timeliness

- Each completed WILDPro Module is immediately available on the Web and shortly thereafter (two to three weeks) on CD-ROM. The dual system provides flexibility of access, combining the speed of access to data on CD-ROM (compared with a slow telephone connection) with access to the latest information from any internet-connected computer.
- WILDPro modules are current at the time of production. There is minimal delay between completion of the product and availability to the end-user in comparison with paper-based media in which weeks, months or even years may pass between a text being written and the journal volume being published or the textbook reaching the shelves of a bookshop.
- WILDPro is designed to be a "living document" and it is easily and rapidly updatable, particularly on the Website. Even for the CD-ROM reduced production costs

compared with printed volumes means that no WILDPro Module need ever be "out-of-print" and it allows a new edition to be produced more easily if required.

- WILDPro is peer-reviewed prior to final publication of each module. Review also continues after production of a module: comments from end-users, including corrections and suggestions for additional material, are encouraged.

4) The WILDPro format

- WILDPro's colour-coding system (blue pages for species, yellow for chemicals, red for diseases etc.) provides the end-user with a conscious and subconscious key to different data types. This helps the end-user when navigating around the system, gives a visual cue when moving between data types and may assist the user in building a mental picture of the system.
- The page header hierarchy at the top left of each page explains where in the system a given page is found. This provides an additional way of navigating around the system. It may be of particular use in demonstrating taxonomic relationships.
- A highly standardized page format is used, with bookmarks at the top of long pages, making it as easy as possible for the user to navigate rapidly to the desired information. This standardization also assists the user to see whether data is unavailable, thereby pointing out areas in which scientific research is required.
- The system provides simple ways for the user to move between similar pages (e.g. up and down arrows to link between different journals, or related species of ducks), and between pages containing related data (e.g. from a disease to the agent or agents causing that disease, and vice versa).
- The boxes on the pages are easily expandable to fit the amount of data available to fill them. There is no stylistic publishing constraint to make the same section on two different pages look the same if the amount of data available is very different.
- The WILDPro system has the ability to incorporate different types and formats of data. Text can be accompanied by images, video clips and flowcharts. The Electronic Library, which is expanding rapidly, gives the user immediate access to texts which may otherwise not be easily available to them.
- The multilayered format of the system allows the provision of large amounts of information in the detailed literature reports without the quantity of data becoming overwhelming for the casual browser or busy clinician.

WILDPro is a living document with new data being added and updated continually. It is already very large, covering a wide range of topics, and is expected to become much larger. The system has been designed to ensure that as expansion continues it remains easy for the end-user to access the information they require, in the depth each user needs.