WILDLIFE *INFORMATION* NETWORK

Interspill 2000

Brighton UK, 28-30 November 2000

TITLE:

Linking interdisciplinary information: "WILD*Pro*® a novel data management system and extensive fully referenced electronic information source."

AUTHORS:

Suzanne I Boardman BVMS MRCVS[1], Debra Bourne[1] and F Joshua Dein[2]

[1] Wildlife *Information* Network
The Royal Veterinary College
Royal College Street
LONDON, United Kingdom NW1 0TU
Tel: +44 (0) 2071 388 7003
Fax +44 (0) 2071 388 7110
Email **sboardman@wildlifeinformation.org**
Website **www.wildlifeinformation.org**

[2] National Wildlife Health Center
Biological Resources Division
United States Geological Survey
United States Department of the Interior
6005 Schroeder Road
Madison
Wisconsin WI 53711

ABSTRACT:

Oil spills regularly affect a wide variety of animal species and habitats. Pollution events, by their unpredictable nature, present many challenges to oil spill responders who may be faced with a wide spectrum of species of animals about which they know very little. Although the general principles of response and treatment are similar, the biological requirements and therefore husbandry and rehabilitation procedures for various species of animals may be very different. Regions of the world which have no experience of previous oil spills, or those without contingency plans, are often faced with crisis situations with little access to information such as current protocols for clean-up procedures, deterrents and rehabilitation.

WILD*Pro*® Multimedia is the data management system of the Wildlife *Information* Network. This computerised system provides information needed for the health, welfare and management of captive and free-ranging wild animals. It currently holds detailed information on waterfowl (ducks, geese and swans) and incorporates a number of

protocols and techniques relevant to dealing with oiled birds. WILD*Pro* is available on both CD-ROM and through the Internet (www.wildlifeinformation.org). This paper explores the potential of this novel interdisciplinary data management system to address the information requirements of oil spill response teams.

FULL TEXT:

Oil spills come in all shapes and sizes, from thoughtless dumping of used car engine oil into ground-water drainage systems by members of the general public, to headline-making major spills resulting from ships running aground. All spills, of whatever size, are likely to affect adversely the habitat into which they occur and the species within that habitat. In the event of an oil spill, a wide variety of different wildlife species may be affected, in varying numbers. Cleaning and rehabilitating oiled animals is sometimes important from a conservation viewpoint (as with the African penguins *Spheniscus demersus* in the June-July 2000 *Treasure* oil spill off the coast of South Africa), as well as the concerns from an animal welfare perspective.

Depending on the area affected and the size of the spill, the number of animals directly affected and in need of cleaning and rehabilitation may range from a handful of individuals (e.g. a few Mute swans *Cygnus olor* on a small river in the UK) to tens of thousands of birds (e.g. approximately 20,000 African penguins *Spheniscus demersus* oiled when the *Treasure* sank off the coast of South Africa in June 2000).

Pollution events, by their unpredictable nature, present many challenges to oil spill responders who may be faced with a wide spectrum of species of animals about which they know very little. When faced with an oil spill involving, or potentially involving, wild animals, a variety of types of information may be important in reducing the chances of animals being oiled, maximising the chance of oiled wildlife being successfully treated and released, and minimising the risk of danger to those dealing with oiled animals, as well as ensuring that efforts aimed at reducing wildlife casualties and rescuing those which are oiled are targeted effectively.

Some aspects of dealing with oiled animals are standard across a wide range of species, for example the necessity to remove the oil from the animal and to reduce ingestion of oil and associated absorption of toxins. The general principles of response and treatment are similar whatever the species or numbers involved: the animals must be caught, transported to a site at which they can be treated and maintained, given initial stabilising treatment, housed and fed prior to cleaning, cleaned, housed and fed while waterproofing and body condition are restored, and released.

However, the requirements for housing, feeding and handling, as well as the general response to a stressful situation and the likelihood of the development of additional disease problems secondary to the oiling and confinement, may be very different for different species of animals. There is a need for species-specific information at all levels from catching and transportation to housing, feeding and release; species variations even impact on the way in which cleaning may be carried out:

- **Restraint** - catching different animals safely requires a knowledge of the temperament of the species concerned and the ways they are likely to a) try to

escape and b) attack the person catching them; For example, the risk to personnel catching a heron may be decreased if they are aware that this species is likely to stab at the face and eyes, and take appropriate precautions.

- **Transportation - a** box which may be suitable for carrying three African penguins will only take one gannet, and would be totally unsuitable for transporting an otter.

- **Housing** - Temporary accommodation suitable for dabbling ducks such as mallards will rapidly cause severe medical problems for alcid birds such as auks, while the feed required is also very different.

- **Oil Removal** - Cleaning a swan for an hour is accepted as safe, while the same treatment given to a guillemot may result in an unacceptable fatality rate.

Knowledge of the natural history of different species is vital also in recognising which animals are likely to be affected by a given oil spill, or by oil spills of different types, and the numbers of animals which may be involved. Obviously, only species which are found in the polluted area are going to be affected by a particular oil spill, although which species this may include may vary considerably over the course of a year, as animals migrate and use different areas for feeding, breeding etc. Animals found in breeding colonies on islands, or in large 'rafts' at sea, may be affected in large numbers by a local oil spill (e.g. seaducks are vulnerable while roosting in large aggregations at sea).

Even information on deterrents likely to be effective in keeping animals away from a polluted area, and thereby preventing individuals from becoming oiled, has to be considered on a species-by-species basis. Different species respond in very different ways to deterrents such as boats, aircraft, scarecrows and noise-makers.

In some areas of the world there is considerable experience of what to do in the event of an oil spill, and contingency plans which can be brought into action if required. However, regions of the world which have no experience of previous oil spills, or those without contingency plans, are often faced with crisis situations with little access to information such as current protocols for clean-up procedures, deterrents and rehabilitation.

WILD*Pro*® Multimedia is a novel interdisciplinary data management system developed by the Wildlife *Information* Network (WIN), a veterinary science based Registered Charity (non-profit organisation). This computerised system is an "electronic encyclopaedia" providing information on the health, welfare and management of captive and free-ranging wild animals.

WILDPro contains information in several interlocking sections:

- **Species** - information on individual species, including identification (alternative names, written description and illustrations), natural history (food and feeding, breeding season etc.) and species-specific aviculture/husbandry notes.

- **Agents** - information on non-living agents which cause disease, such as environmental pollutants and nutritional factors. (Living agents, including viruses, are included in the "Species" section).

- **Physical Factors** - information on how physical factors such as high or low temperatures, ice formation and high winds may directly affect species. The management of **Habitats** is also addressed.

- **Diseases** - information on different diseases, including a brief summary, detailed description of clinical signs and pathological findings, treatment and prevention of the disease, and which species are affected by the disease.

- **"How to"** - information on different aspects of animal management (such as housing, feeding, handling, breeding etc.), veterinary care (disease investigation, prevention, control and treatment) and environmental management.

- **Supporting documents** - relevant documents, reproduced in full or in part (with the permission of the copyright holder) and linked into the various sections as appropriate.

- **Glossary and References** - an extensive glossary of terms used within the text of WILD*Pro* and details of all the references from which data has been acquired.

At present, WILD*Pro* holds detailed information on waterfowl (ducks, geese and swans) and incorporates a number of protocols and techniques relevant to dealing with oiled birds. Further information is being added constantly.

WILD*Pro* is available on both CD-ROM and through the Internet (www.wildlifeinformation.org). This website may be consulted for further information on the Wildlife Information Network and to see what information is already included in WILD*Pro*.

Worldwide, many more people have access to computers and, increasingly, the Internet, than have access to large reference libraries. The Internet is the ultimate tool for allowing expansion of the WILD*Pro* system; pages can be modified as new information becomes available and new pages (e.g. on different species) may be added at any time. There is no real limit to the size of the complete system on the Internet.

At the same time, making modules (such as *Waterfowl: Health and Management* (completed) and *UK Wildlife: First Aid & Legislation* (under construction) available on CD-ROM allows access to the information off-line, including in places where Internet access may not be available, or may not be reliable. Obviously, access to a computer is required, however individual "pages" may be printed out to be read and used away from a computer.

WILD*Pro* has the structure and capacity to address the information requirements of oil spill response teams:

- Being based on the Internet, there is no limit to the amount of information which may be included within WILD*Pro*.

- Even within a single module on CD-ROM a vast amount of information can be included.
- The unique structure of WILD*Pro* makes finding the required information very simple.
- The unique system of linkages between different types of data makes it easy to see how different pieces of information are related to one another.
- The close referencing of information (not found on most Internet sites) enables the user to seek out further details on any topic if required, and to make their own judgements where different authorities hold differing views.
- WILD*Pro*'s capacity to include whole documents from other sources allows the user to compare and contrast information (e.g. initial care protocols produced by different wildlife rehabilitation groups).
- The ability to print out pages from WILD*Pro* allows easy distribution of particular pieces of information to the people dealing with a problem "on the ground".

As an indication of the amount of data which can be held within WILD*Pro*, within a single completed module - Waterfowl: *Health and Management*, information can be found on:

- 172 bird species (ducks, geese, swans, and some species which are similar in appearance);
- 260 species of bacteria, plants etc. which cause disease in waterfowl;
- 73 Chemical agents causing disease in waterfowl;
- 40 Physical factors known to cause disease in waterfowl;

Within the "How to" section, three flowcharts give access to 83 individual techniques on Bird Husbandry and Management, Disease Investigation and Management and Industries Managing Wetlands for Wildlife.

Supporting documents reproduced in whole or in part include, among others:

- *Secretary of State's Standards for Modern Zoos* (Department of Transport the Environment and the Regions)
- *Field Manual of Wildlife Diseases* (National Wildlife Health Center, USA)
- *Wetlands, Industry and Wildlife - a manual of principles and practice* (The Wildfowl and Wetlands Trust)
- *Proceedings of the Waterfowl Information Network Conference 1999* (Wildlife *Information* Network).

CONCLUSION:

WILD*Pro*, with its unique structure, ability to link interdisciplinary information from a wide variety of sources, and extensive referencing, is ideally placed to address the information requirements of oil spill response teams.

REFERENCES:

BEHELER-AMASS, K. and D. BRUNSON (1998a): ACAD (1.0): The Animal Capture and Anesthesia Database. 47th Annual Wildlife Disease Association Conference, 9-13 August 1998, Madison, Wisconsin, USA. 37.

BEHELER-AMASS and D. BRUNSON (1998b): (ACAD 1.0): The Animal Capture and Anesthesia Database. American Association of Zoo Veterinarians & American Association of Wildlife Veterinarians Joint Conference 17-22 October 1998, Omaha, Nebraska, USA. 100-106.

BENNETT, P.M., GASCOYNE, S.C., HART, M.G., KIRKWOOD, J.K. and C.M. HAWKEY (1991) Development of LYNX: a computer application for disease diagnosis and health monitoring in wild mammals, birds and reptiles. Vet. Rec. 128, 496-499.

BOARDMAN, S.I. (1995): Are welfare and conservation compatible? BVA Congress 1995, 28 September 1995, Winchester, UK.

BOARDMAN, S.I. (1997): WILD*Pro*™ Multimedia: a database management system for the health, welfare and conservation of wild animals. Association of Veterinary Teachers and Research Workers Annual Conference, April 1997, Scarborough, UK. 12.

BOARDMAN, S.I. (2000) WILD*Pro*® Waterfowl Health and Management - an extensive fully referenced electronic information source. The Effects of Oil on Wildlife. Sixth International Conference, Myrtle Beach, South Carolina, 30-31 March 2000.

BOARDMAN, S.I. and F.J. DEIN (1998): WILD*Pro* Multimedia: An electronic manual on the health, management and natural history of captive and free-ranging animals. American Association of Zoo Veterinarians & American Association of Wildlife Veterinarians Joint Conference 17-22 October 1998, Omaha, Nebraska, USA. 107-108.

BOURNE, D., BOARDMAN, S.I. and F.J. DEIN (1998): The London Waterfowl Project: information, communication and expert assistance. European Wildlife Disease Association Third International Conference, 16-20 September 1998, Edinburgh, UK. 20.

BOURNE, D., BOARDMAN, S.I. and F. J. DEIN (1998): London Waterfowl Project. 47th Annual Wildlife Disease Association Conference, 9-13 August 1998, Madison, Wisconsin, USA. 38.

JACKSON, S.I., ANDREW, R. and D. HOUTZAGER (1994): The Future use of Information Technology techniques in Wildlife Veterinary Science and Animal

Husbandry. International Bear Conference, Bursa, Turkey.

JACKSON, S.I. (1994): Wildlife Veterinary Education Programme – Computer Interfaces and the Domestic Animal Model. The Fourth Conference of the South-East Asian Zoological Parks Association, Hong Kong.

STOSKOPF, M.K. (1998): Expert systems, boon or pitfall? American Association of Zoo Veterinarians & American Association of Wildlife Veterinarians Joint Conference 17-22 October 1998, Omaha, Nebraska, USA. 95-96.

WESENBERG, K. and F.J. DEIN (1998): Citation databases for zoo and wildlife veterinarians. American Association of Zoo Veterinarians & American Association of Wildlife Veterinarians Joint Conference 17-22 October 1998, Omaha, Nebraska, USA. 97-99.