

Milestone Review
of the
Australian Wildlife
Health Network

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INTRODUCTION

A series of disease events, mass mortalities and emerging diseases in wildlife in Australia served to highlight the significance of wildlife disease as threats to biodiversity, human health, agriculture, aquaculture and trade. A national workshop in 1999 proposed establishing a wildlife health network to coordinate preparedness and response to wildlife disease issues. A steering committee to review wildlife disease preparedness in Australia and develop the business plan for the Australian Wildlife Health Network (the Network) was approved by the major stakeholders.

An agreement was made by the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) with the Zoological Parks Board of New South Wales (ZPB), supported by NSW Agriculture, to host the Network, with the Coordinator's office located at Taronga Park Zoo from 1 July 2002 until 30 June 2005. A Coordinator, Dr Rupert Woods, commenced duty in August 2002 with one dedicated part-time Administrative Assistant.

The DAFF Wildlife and Exotic Disease Preparedness Program (WEDPP) largely funded the investigations and consultations for the establishment of the Network and is providing the seed funding for the Network for the first three years 2002-2005, subject to annual review. The host agency, the States, Territories and Australian government agencies provide matching funding, largely through in-kind contributions.

This milestone review of performance is an integral part of the Network's strategic plan.

TERMS OF REFERENCE AND BROAD TASKS:

1. Review the AWHN strategic plan and related documentation to assess progress to date against the strategic goals and objectives of the AWHN Strategic Plan;
2. Conduct interviews with DAFF staff and other Canberra-based people to clarify list key stakeholders to interview;
3. Conduct interviews with key people at Taronga Zoo and with people from NSW Agriculture at their Camden location;
4. Conduct follow-up discussions with DAFF project manager on progress to date, and finalise list of stakeholders to contact for telephone interviews;
5. Undertake telephone interviews with key stakeholders;
6. Draft initial conclusions and submit to DAFF project manager for discussion;
7. Finalise draft report and submit to DAFF;
8. Conduct telephone conference with management group to discuss the draft report. Clarify any matters arising from these discussions and submit a final report.

CONCLUSIONS AND RECOMMENDATIONS

The Network has made exceptional progress in a short time. It is recognised as a national source of information on wildlife health, has established communications systems to provide early alerts on emerging wildlife health issues, created official reporting arrangements for national and international organisations on the health status of Australian wildlife and provided a national network of contacts of workers on wildlife health that provides flow-on benefits to human and animal health, occupational safety and wildlife conservation.

The completion of the database and website are urgent and critical requirements for the Network to progress to the next phase of developing its surveillance and investigation systems necessary to improve the quality of the information that is generated.

Recommendation 1:

Members NOTE the excellent progress that has been achieved in establishing the Network, and recognise the outstanding performance of the Coordinator and his Administrative Assistant in making this possible.

Recommendation 2:

That the strategic plan and the action plans be written to clearly define responsibilities of the Coordination Unit and for the Network as a whole, and/or of specific groups within the Network. In this process, the members of the Network who will undertake an activity should be specified.

Recommendation 3:

That organisations with an interest in wildlife and wildlife health that are not members of the Network be identified and they be invited and encouraged to become Network members and contribute information and expertise to the Network.

Recommendation 4:

That the Australian Wildlife Health Network be fully integrated into the enhanced animal health surveillance system and the National Animal Health Information System that is being developed from the Frawley Report recommendations. The network should be the wildlife surveillance arm of the national animal health surveillance system.

Recommendation 5:

That each State/Territory establish a local Network cell (or regional cells) to coordinate information collection and exchange and collaborate and coordinate investigations resulting in improved quality of wildlife health surveillance information.

Recommendation 6:

That each State/Territory (or regional) Network cell develop and promote procedures and protocols for reporting and exchange of information and collaboration and coordination of investigation of significant incidents.

Recommendation 7:

That one or more pilot cells be established to develop the processes and provide a model for later adoption by other States/Territories.

Recommendation 8:

That the Network investigate developing and funding an active disease surveillance program for one or a small number of diseases of significance to public health, trade in animals or animal products or threatening to biodiversity.

Recommendation 9:

That a multidisciplinary panel be established to review research proposals against the research priorities identified by the Network and prepare advice to researchers and funding bodies.

Recommendation 10:

That guidelines for investigating wildlife incidents and training course outlines and materials should be developed and endorsed by the Network as a basis for the conduct of training and investigations in each jurisdiction.

Recommendation 11:

That a new campaign to promote the Network, its vision, mission and achievements to date that targets stakeholders, decision makers and the community be developed and implemented when the database and website come on line.

Recommendation 12:

That plans and performance targets address promotion separately from the communication activities related to information exchange about wildlife health and investigations of incidents.

Recommendation 13:

That the Management Committee develop a proposal for the core funding of the Network that recognises the need for secure medium to long term funding for the Coordination Unit and delivery of in kind commitments from core stakeholders.

Recommendation 14:

That shorter term funding targets be set that specify both the expected source of the funding, the form of the contribution and the purpose for which the funding will be used.

Recommendation 15:

That donations and sponsorship be sought and directed to particular research and education projects.

Recommendation 16:

That the Management Committee take account of the strengths and weaknesses of the alternative models when the hosting arrangements for the Network are reviewed.

BACKGROUND

The need for a national approach to wildlife health has been identified by many over the years. This need gained impetus due to the appearance of a series of diseases and mass mortalities in wild fauna, and emerging diseases in wildlife that affect humans and production animals, such as *Hendra virus*, *Kangaroo blindness*, *Australian bat lyssavirus* and *Menangle virus*. These events made it apparent that a national, coordinated approach and an information centre for wildlife health would better enable these and other wildlife health issues to be identified and to initiate appropriate responses.

In the past, various aspects of wildlife health were picked up by disparate groups of Commonwealth and state government departments in agriculture, environment and health; researchers; conservation agencies and wildlife carers but the effort and communication was inefficient and uncoordinated.

The interest across Australia from diverse groups and individuals in emerging wildlife health issues generated the impetus for a national workshop in Canberra in 1999, to consider how better to coordinate wildlife health issues through development of a national wildlife health centre/network. This workshop was funded by the Wildlife Exotic Disease Preparedness Program (WEDPP), a program within the Australian Government Department of Agriculture, Fisheries and Forestry Australia (DAFF).

Over 60 representatives from federal and state conservation, agriculture and health departments, universities, zoos, animal harvesting and hunting industries, diagnostic pathology services and others, attended the workshop. Information about existing national and regional wildlife health organisations including centres in the US, Canada, India, New Zealand, the European Union and France was discussed. Case studies were used to highlight recent significant wildlife diseases and to identify benefits and gaps in the existing 'systems'.

The main outcomes of the workshop included unanimous agreement for an Australian wildlife health network, as well as a clear set of founding principles, aims, objectives and operational targets. A steering committee was formed and state representatives appointed to further assess the feasibility of the project.

A feasibility study funded by the WEDPP was undertaken in 2000/2001 to:

- review wildlife disease preparedness across Australia; that is, to determine the need for a national wildlife health network or centre
- determine scope and priority of activities required to improve preparedness
- develop possible organisational models for an Australian Wildlife Health Centre/Network and provide recommendations for the most appropriate structure and functions through a business plan

This wide consultation with the above diverse range of stakeholders identified a lack of wildlife disease preparedness and the need for national coordination of surveillance and diagnostic information. Wild and feral animal surveillance was seen as uncoordinated, mostly passive or opportunistic.

While many informal networks exist and much is done and known about wildlife disease, there are many limitations to using this information. Importantly, limited funding for investigation of wildlife disease incidents and diagnostic testing of pathological samples were identified as key limiting factors. The conservation value of wildlife and the increasing commercial value of wildlife also highlighted the need for national coordination of wildlife health surveillance and information management systems.

There was extensive support for the development of a national wildlife health network, to be known as the Australian Wildlife Health Network. This national network was highly desired by groups capable of providing current and future support across Australia as no comparable alternative service existed.

For the Network's purposes, "wildlife" is defined as "managed and unmanaged populations of native and feral animals, including amphibians, reptiles, birds and mammals." Free-living fish are also included but are considered of lower priority. Emerging, exotic, zoonotic, and agriculturally significant diseases are emphasised in the operations of the network.

The Aim of the Network is:

To promote and facilitate collaborative links in the investigation and management of wildlife health in support of human and animal health, and biodiversity.

The core stakeholders of the Network are State and Commonwealth

- agriculture or primary industries departments and veterinary laboratories including the CSIRO Australian Animal Health Laboratories;
- wildlife, conservation and environmental protection agencies; and
- public health departments and agencies.

Other important parts of the Network include:

- Animal Health Australia
- Wildlife Disease Association – Australasian Section
- Vertebrate Pest Committee
- Australian Quarantine Inspection Service
- Australian Veterinary Association, including Australian Association of Veterinary Conservation Biologists and private veterinarians
- Universities (veterinary and zoology schools)
- Zoos within Australia and the Australasian Regional Association of Zoological Parks and Aquaria
- CSIRO Sustainable Ecosystems
- Native fauna and wildlife conservation organisations
- Research Centres
- Animal welfare organisations and wildlife carer groups and networks
- Rural Lands Protection Boards, NSW and Queensland
- Hunting sports associations
- Commercial industry associations
- Wildlife health centres in Canada, USA, New Zealand, India and Europe.

The Zoological Parks Board of NSW and NSW Agriculture co-host the Network, on behalf of the Australian Government Department of Agriculture, Fisheries, and Forestry (DAFF). The current Network Hosting Agency Agreement was established after an independently-managed tender process which was completed in early 2002. The current agreement expires in June 2005. The roles and responsibilities of each participating organisation are outlined within a Network Host Agency Memorandum of Understanding (MOU). The Zoological Parks Board of New South Wales (ZPB) provides operational and infrastructure support to the Network with the Coordinator's office located at Taronga Park Zoo.

The Network is an unincorporated non-profit organisation that comprises a network of government and private stakeholders across Australia. The Network has a three-tiered structure:

- The *management group* consists of representatives from State/Territory and Commonwealth agriculture departments and pest animal management agencies, and the host agency. The management group is chaired by a nominee from DAFF.
- The *advisory group* consists of representatives from State/Territory and Commonwealth conservation and public health departments, meat inspection services and organisations including zoological and wildlife parks, Universities, the Australian Veterinary Association, the Wildlife Disease Association (Australasian branch), wildlife carer groups and game meat industries. The Australian Registry of Wildlife Pathology, Taronga Zoo also has an integral role.
- An *operations committee* from the host agencies and the management group oversees the day-to-day activities of the Coordinator. It takes strategic planning advice from the management committee and develops and implements the Network's business activities. The Operations Committee is responsible to DAFF, through the chair of the Management Committee, to fulfil the terms of the hosting arrangements.

Links to State and Commonwealth public health and animal health organisations are maintained through the Communicable Diseases Network, Animal Health Committee and state networks.

The Network has had funding approved from the DAFF Wildlife and Exotic Disease Preparedness Program for the three years 2002-2005 to provide core funding for the Coordination Unit. This will be matched by the host agency, the States, Territories and Commonwealth and the members, largely through in-kind inputs.

The management committee developed a Strategic Plan to guide the Network's activities from 2002-2005 (Annex 1). An annual Operating Plan is developed each year to ensure that actions will be undertaken that will accomplish the goals and objectives of the organisation.

The thirty nine people with whom interviews have been conducted in undertaking the Review are listed in Annex 2.

PERFORMANCE AGAINST THE STRATEGIC PLAN 2002-2005

Overview

The Network has made exceptional progress in a short time. It is now recognised as a national source of information on wildlife health, has established communications systems to provide early alerts to its diverse range of participants on emerging wildlife health issues, created official reporting arrangements for national and international organisations on the health status of Australian wildlife and provided a national network of contacts of workers on wildlife health that provides flow-on benefits to human and animal health, occupational safety and wildlife conservation.

The achievements of the Network in such a relatively short timeframe can largely be attributed to the outstanding competence and enthusiasm of the Coordinator, Dr Rupert Woods. He has a broad knowledge of wildlife health and conservation science, and a good appreciation of the importance of high quality and timely information to managers and decision makers. His highly developed communications skills and personality that enables him to achieve a good empathy with people at all levels of knowledge and skills. He is also an astute manager, who has husbanded the limited resources carefully for the maximum long-term outcomes. He is clearly very highly regarded in all segments of the Network.

Rupert has been well supported by Ms Amy Jones, his Administrative Assistant. The members of the Management Group and the State/Territory Co-ordinators have also been critical to the success of the Network and have made significant contributions.

The hosting arrangements appear to be very satisfactory. The major inputs have been by the ZPB Taronga Park Zoo. The arrangements seem to be mutually satisfactory, although not without some conflict in priorities for allocation of resources on occasions. The involvement of NSW Agriculture is also considered important but has been small, due to the limited supervision or guidance to the Coordination Unit that has been necessary.

The strategic plan envisages a large and broad ranging list of targeted activities. Each of the five elements is discussed below. The primary function of the Network is to improve the timely exchange of information about wildlife health and disease events between the ranges of interested groups and to coordinate direction and priority setting nationally in emergency preparedness and response, research, education and training, and marketing and promotion. In doing this, the Network is not to replace or duplicate the efforts of established groups, but to leverage value from those efforts.

Priorities have had to be set to achieve the core functions of the Network in the longer term. Members firmly support the emphasis given to establishing the systems to enhance the surveillance and investigation elements. There is unanimous agreement that this is the core element of the Network, and strong support for the emphasis that has been given to the establishment of the Wildlife Health Information System (WHIS) database, the website and interface between them. However, the other elements have not been neglected and significant improvements have been made in the coordination of effort by various participants with these activities also.

Recommendation 1:

Members NOTE the excellent progress that has been achieved in establishing the Network, and recognise the outstanding performance of the Coordinator and his Administrative Assistant in making this possible.

Division of Responsibilities

The model for the Australian Wildlife Health Network is a coordinated national network of organisations and individuals with an interest in wildlife health that is supported by the national Coordinator, a website and list server, comprised principally of a national database of surveillance and diagnostic information and wildlife expertise. Other functions include development of protocols, coordination of information in an emergency, advancing education and training, and prioritising and promoting surveillance and research activities.

This model envisages that the “Network” is the whole system and the Network’s activities relate to the activities of all of the members and of local networks (“cells”). Combined, these make up the Network. In this model, the role of the Coordination Unit is to provide the systems for collecting, collating and exchanging information and for facilitating decisions on priorities and coordination of activities between the members and cells.

In some cases, it appears that the Coordination Unit is seen to be the Network, with occasional frustration that more has not been done. It is very unlikely that the Coordination Unit will ever have the resources to be able to undertake a substantial amount of hands-on activities for Network members. This is also contrary to the vision of the Network. The Coordination Unit will also be more effective if it can effectively mobilise the resources of the whole Network. It is important that the strategy and operational plans clearly separate the outcomes that are expected to be achieved by the Coordination Unit and those to be achieved by the Network members, individually or in groups.

Recommendation 2:

That the strategic plan and the action plans be written to clearly define responsibilities of the Coordination Unit and for the Network as a whole, and/or of specific groups within the Network. In this process, the members of the Network who will undertake an activity should be specified.

The Network has a long list of core stakeholders and participating member organisations (refer Background). However, to fulfil its vision and objectives, it is important that the Network be inclusive of all groups with an interest in wildlife and wildlife health in Australia. Efforts should be made to identify organisations that are not currently members of the Network and invite them to participate.

Recommendation 3:

That organisations with an interest in wildlife and wildlife health that are not members of the Network be identified and they be encouraged to become Network members and contribute information and expertise to the Network.

Surveillance and Investigation

People interviewed generally agree that the primary purpose of the Network is to improve the knowledge of all stakeholders of the health status of wildlife in Australia. “Intelligence” is a term used to describe the collection, collation and analysis, and dissemination of information about a subject. The Surveillance and Investigation theme in the strategic plan essentially relates to intelligence about wildlife health. The strategic plan sets out two targets for this key performance indicator:

- Accurate, concise quarterly reports to stakeholders on disease occurrences notified to the Network by the State/Territories
- Yearly reporting to the international community (OIE).

These have clearly been fully achieved.

Much more than this has also been achieved. Two coordinators, one from animal health and one for wildlife interests, have now been established in each State/Territory. The coordinators have a major role to play in the Network. In fact, they are the key to success of the Network. It is important that the coordinators are formal appointments in every State/Territory with responsibility and authority to act in developing and promoting the Network. As well as collecting information about events occurring in their jurisdiction and submitting them to the database, they must act as moderators and screen information received, assess any trends that may be emerging and, when trends emerge, encourage follow up action.

Information is being captured and reported through these State/Territory coordinators and collated nationally by the Coordination Unit and disseminated regularly to stakeholders. This information is appropriately categorised into:

1. OIE List diseases
2. Salmonella cases
3. Arbovirus cases
4. bat viral disease
5. mass mortality events
6. unusual, “new” or interesting cases.

During the three months from 8 September 2004 to 8 December 2004 twenty three significant cases were entered into the database through the State/Territory Coordinators. These came from all States/Territories except Western Australia and the ACT.

Reports are provided from the Network to a range of national bodies and networks, such as the National Animal Health Information System (NAHIS) quarterly reports, and to through DAFF to bodies overseas to fulfil Australia’s international obligations.

The Frawley Report into Rural Veterinary Services (2003)¹ highlighted the need for enhanced animal health surveillance systems, including better wildlife disease surveillance. Wildlife disease is increasingly being viewed in international fora as an integral part of the national animal health status. Wildlife health cannot be ignored or isolated when addressing the health of commercial livestock industries and human health threats. Substantial work has been done in implementation of the Frawley recommendations. It is essential that the Network be fully integrated into the national animal health surveillance system and NAHIS and not be duplicated by Frawley outcomes.

Recommendation 4:

That the Australian Wildlife Health Network be fully integrated into the enhanced animal health surveillance system and the National Animal Health Information System that is being developed from the Frawley Report recommendations. The Network should be the wildlife surveillance arm of the national animal health surveillance system.

While the collection, collation and dissemination of information have been greatly improved by the Network, the quality of the information is not significantly better. This is largely due to the limited ability in most jurisdictions to undertake early, in depth investigations of emerging disease syndromes apparently due to a lack of resources and/or funds for wildlife disease investigation or coordination, and in particular laboratory tests and pathology.

Two cases demonstrate some of the difficulties. A new species of *Leishmania* was diagnosed in a wildlife park near Darwin. The diagnosis was made by the Australian Wildlife Pathology Register at Taronga Park Zoo in Sydney from samples sent directly from the park because of a lack of local wildlife disease investigation resources. The second case relates to facial tumours of Tasmanian Devils, for which the aetiology is yet to be determined. Sporadic cases have been seen over several years but it was only relatively recently that it was recognised to be so widespread and spreading, and is now considered a serious threat to the species. Exchange of information about earlier cases and a more extensive, coordinated investigation using Tasmanian and national resources may have enabled the cause to be determined and control measures to be implemented while it was still relatively localised. It is understood that both cases are now being addressed.

In all States/Territories, it seems that many people, particularly “front line” field operatives (including wildlife carers, private veterinarians as well as wildlife and parks officers), are uncertain about who to contact and the procedures to follow when mass mortality events or unusual, new or interesting cases arise. The Network State/Territory coordinators recognize this as probably the major constraint to their, and the Network’s, effectiveness.

¹ Frawley (2003). Report into Rural Veterinary Services. Australian Government Department of Agriculture, Fisheries and Forests, Canberra.

The State/Territory coordinators are key people in the Network and it is important that the people appointed to this role are in a position to work with all classes of stakeholders, particularly the diverse range of field operatives.

Investigation of wildlife disease events has long been a significant issue. Many of the investigations that have been done have been the result of the personal interest of an individual or as a spin-off of a research project. The formal priority given to wildlife disease by officials and agencies in governments has been limited. Generally, wildlife conservation agencies have seen disease as a minor threatening process, and the role of the state veterinary services which have been in the agriculture/primary industries portfolio. The agriculture/primary industries Department veterinary services have been primarily concerned with commercial livestock diseases and, until a wildlife disease actually affected people, the health agencies have focussed on existing problems rather than any potential disease of wildlife, again leaving them to the marginally involved veterinary authorities.

All these positions have historically been defensible, especially while under increasing budgetary constraints that these services have been for many years.

However, over the last decade, a series of disease events have highlighted that the disease status of wildlife cannot be ignored. The emergence of the Hendra virus from flying foxes caused the death of several horses at a stables in the Brisbane suburb of Hendra in 1994 and sporadic cases since, two people have died of a rabies-like syndrome subsequently shown to be a new genotype of lyssavirus from Australian bats, Menangle virus originating from flying foxes caused a serious episode of mummification and deformity of pig foetuses, an orbivirus caused a widespread outbreak of blindness in kangaroos in New South Wales, and to a lesser extent in some other states, a new, potentially zoonotic infection, Leishmania, was diagnosed in captive kangaroos in Darwin, the first natural infection of Leishmania in Australia.

Similar occurrences overseas have also heightened the importance of wildlife disease; Sudden Acute Respiratory Syndrome (SARS) emerged from wildlife captured for human consumption in China, a major epidemic of a new strain of avian influenza occurred in Asia causing the death of over thirty people, and West Nile virus spread into and across North America causing disease, and some deaths, in birds, humans and horses. This has resulted in other countries and international organisations such as the Office International des Epizooties (OIE), the world organisation for animal health, and the World Health Organisation (WHO) requiring more evidence of the wildlife health situation in countries in assessing the biosecurity arrangements.

To address these problems, the Network (in its broader sense) needs to build strong, suitably resourced semi-formal State/Territory or regional networks ("cells"). The local cells should bring together all of the stakeholder interests, including wildlife carers, private veterinarians, field officers of wildlife, conservation and National Parks services, agriculture/primary industry animal health services, public health services, zoos and wildlife parks, research organisations and any other interest groups. The vision of the Network that arose from the Gungahlin workshop in 1999 was clearly for a web of interested groups and individuals collaborating and exchanging information with a small unit to coordinate and provide systems. This will leverage

the most value from the limited resources that are available. Such informal networks exist already to a greater or lesser extent in most if not all States/Territories. However, it appears that in many cases not all interested individuals or groups are involved at the local level, probably because the networks have evolved from personal contacts made in the course of particular projects or events or prior personal connections. The State/Territory coordinators would need to be the driving force behind the cells but need the overt support of the senior managers of the agencies responsible for wildlife and conservation, livestock health and public health.

The local cells would need to develop protocols and arrangements to enable review of events and proper investigation of significant incidents. Adequate laboratory resources will be required to support the field activities. The local cell should draw upon the expertise of the national Network and provide information from the local investigations to the Network database. More detailed information should be made available through links on the Network website to a local site where the details are recorded.

Obviously, a full, detailed investigation will not be possible for every mass mortality or unusual event. A multidisciplinary assessment panel may need to be established by each cell to review cases and prioritise investigations.

With the increasing importance of wildlife health issues in assessments of national animal health status, it is critical that information that is generated during investigations of disease incidents is handled with discretion. Public reporting of early suspicions of a disease agent, or results of unvalidated test results, could have serious consequences to the national interest. This does not imply that such information should be ignored, just that the evidence is fully peer reviewed by appropriate experts and the responsible authorities consulted before announcements are made. Further investigations may be necessary to validate or otherwise the initial diagnosis or conclusion.

Recommendation 5:

That each State/Territory establish a local Network cell (or regional cells) to coordinate information collection and exchange and collaborate and coordinate investigations resulting in improved quality of wildlife health surveillance information.

Recommendation 6:

That each State/Territory (or regional) Network cell develop and promote procedures and protocols for reporting and exchange of information and collaboration and coordination of investigation of significant incidents.

Some State/Territory Coordinators are already working towards establishing a semi-formal network in their jurisdiction. Establishing pilot cells in one or a few States/Territories may be a good mechanism to assess the value of this approach, to develop processes and to provide a model over time for other States/Territories to establish similar cells.

Recommendation 7:

That one or more pilot cells be established to develop the processes and provide a model for later adoption by other States/Territories.

As well as the passive surveillance generated by field reporting of significant wildlife health events, consideration should be given to an active surveillance program for one or a few specific diseases or syndromes. A particular disease or species could be selected that has public health, trade or biodiversity threatening significance. A structured program could be developed with criteria for selecting animals for examination, targets for number of samples collected and standards of sample submission, including case history, etc. A reasonable budget would be provided to participating laboratories and incentive payments might be provided to submitters who provide samples that meet the criteria. This would provide solid data about the disease, or its absence, but just as importantly would generate publicity and awareness and ownership in the Network of a diverse range of people. A particular project may operate for say one to three years during which time a sufficient number of samples should be collected to provide scientifically valid data about the disease/s. Then, a new problem could be targeted with a similar project. An example may be a Chronic wasting disease of deer surveillance program, modelled on the Transmissible spongiform encephalopathy surveillance program currently operating in the sheep and cattle industries. Another may be a national serological survey of feral pigs that could be tested at a designated laboratory or laboratories for a battery of diseases of importance. Sera may also be banked for future testing if a new pig disease should emerge.

Recommendation 8:

That the Network investigate developing and funding active disease surveillance programs for a small number of diseases of significance to public health, trade in animals or animal products or threatening to biodiversity.

Emergency Disease Preparedness and Response

Emergency Disease Preparedness and Response (ADP&R) has had lesser emphasis than Surveillance and Investigations, particularly establishing the information flow, the database and the website. The target of at least one desktop emergency disease preparedness and response training course per year has not been achieved. This is appropriate considering that the basic framework for EDP&R exists and has been enhanced by the improved information exchange, communication and coordination arising from the Network's other activities.

Progress has been made in EDP&R through the in-principal agreements with Animal Health Australia to include wildlife health in its animal health EAD programs. However, this is not a major role of the Network but it should ensure that it has a strong network that will ensure an early recognition and diagnosis and provide support to the responsible response agency.

Research

The strategic plan performance targets for research are:

- A minimum of three research projects facilitated per year.
- Facilitation of a minimum of one peer reviewed publication per project facilitated.
- Paper presentation at a minimum of one conference per year.
- Poster presentation at a minimum of one conference per year.
- Run, or assist with running a minimum of one conference, or conference session, biannually.

Across the Network as a whole, these would all have been easily achieved. However, three research projects have not been facilitated, at least in terms of major proportion of the arranging, by the Coordination Unit itself.

It is questionable if these targets are appropriate as currently expressed. It is not clear whether they are the responsibility of the Coordinator or of the global Network. The Coordinator has been very active and has promoted the Network well in these activities so most of the targets have been achieved, but this was as much due to his personal expertise and interest as a responsibility in his role of coordinator.

The Network was intended to provide expert advice and priorities for wildlife health research activities. It was not envisaged that the Network would undertake projects or obtain funds for projects. Since the Network began, the Cooperative Research Centre (CRC) on Biosecurity has been established. This CRC is now a major contributor to the national wildlife health research effort. In future, other CRCs may be established that will be involved aspects of wildlife health. The Network needs to work closely with such bodies.

The Network developed a research plan through its Wildlife Research Working Group that identified priorities that has reportedly provided useful guidance to research organisations, including the Biosecurity CRC. These research priorities will need to be regularly reviewed and updated.

Individuals and organisations also submit research proposals for review and, in some cases, funding. It may be a sound strategy by a researcher to get the imprimatur of the Network for a project proposal to support funding submissions, but this has been a significant workload for the Coordinator.

The Network has a legitimate interest to coordinate and facilitate research and promote projects but a better system for spreading the work in reviewing project proposals and advising on priorities is needed.

A panel of people with expertise across the spectrum of disciplines based on the Research Working Group would enable proposals to be evaluated promptly and for advice to be provided without overburdening the Coordinator personally.

It is unrealistic at this time to create expectations of the Network as a source of funding for research.

Recommendation 9:

That a multidisciplinary panel be established to review research proposals against the research priorities identified by the Network and prepare advice to researchers and funding bodies.

Education and training

The goals of the Education and Training element of the strategic plan are:

- Increased awareness of the role of wildlife health
- A well trained network
- An enlarged network
- A sustained network
- Resources/ funding to achieve objectives.

The performance target is to have a minimum of one training course in wildlife health per State or Territory per year.

These are all laudable and desirable. However, as with Research, it is not clear whether these targets are the responsibility of the Coordinator or of the global Network.

State and Territory wildlife health networks apparently indicated their willingness to participate during the establishment of the Network. At most the Coordinator should collaborate with Animal Health Australia and State/Territory departments and education and training organisations to ensure an effective, integrated training program is delivered. The Network, through the Education and Training Working Group, should identify training needs but implementation must necessarily be the responsibility of the whole Network and relevant core stakeholders.

Guidelines for investigating wildlife incidents and training course outlines and materials should be developed for people in the field. These may be developed by an appropriate organisation or group and then reviewed by other members for subsequent adoption by the Network as national guidelines.

The specific agencies or individuals which are responsible to deliver various outcomes need to be clearly expounded. The Coordinator should have a coordination role with a member with relevant expertise, rather than be the primary preparer of this material.

Again, funding will need to be primarily sourced from within the individual organisations.

Recommendation 10:

That guidelines for investigating wildlife incidents and training course outlines and materials should be developed and endorsed by the Network as a basis for the conduct of training and investigations in each jurisdiction.

Promotion/ marketing

The Network needs a strong promotion and marketing program to establish an awareness amongst potential participants, politicians and the community about its vision and mission.

Good publicity was achieved at the time of the launch of the Network and a high level of awareness created. However, some people are wondering what has been happening since then.

The strategy has been to take a low profile until the “product” is ready to deliver; that is, until the database and website and the other linkages are functional. This has been a reasonable strategy, as it is very undesirable to not be able to deliver the services promoted.

When the database and websites are operational, expected to be in March 2005, a new promotional effort should be undertaken. It is important that emphasis is given to the fact that the Network is spread across Australia, and is not just the Coordination Unit based in Sydney. This promotion needs to be more than media events orchestrated from Taronga Park Zoo. State/Territory coordinators should be given a profile and make presentations to interested groups. Key decision makers should also be identified and members used to sell the Network to these people. It is not sufficient to have a sound, logical case. It is essential that all avenues available to the Network through its members and their officers are taken to influence key decision makers. For example, consideration should be given to having the Australian Chief Veterinary Officer convene a meeting of senior officials of the Network’s stakeholders, especially of the responsible executives of the core stakeholders.

A well argued editorial about the need for effective wildlife surveillance and the role of the Network in a major scientific journal, such as the Australian Veterinary Journal, would also be a useful tool in influencing the opinions of decision makers.

Recommendation 11:

That a new campaign promote the Network, its vision, mission and achievements to date that targets stakeholders, decision makers and the community be developed and implemented when the database and website come on line.

The performance targets in the strategic plan are

- A minimum of \$300,000 secured per year to year 2010.
- 10% annual growth on funds secured in year 1 of the project.
- A minimum of 20 people per State or Territory contributing to the network with strategic international links.
- 50 notices of communication including print and electronic media stories involving the Network, 1000 external web hits on the Network's website and presentations by Network personnel.

Communication is an integral part of the intelligence system discussed under Surveillance and Investigation and well as of a Promotion and Marketing strategy. Reports appear to mix the promotional activity, such as media stories and presentations about the Network, as indicated above, with the information exchange about wildlife health and investigations. It may help with planning and assessing progress to separate targets for the promotional activities from the communications relating to information exchange within the Network.

Recommendation 12:

That plans and performance targets address promotion separately from the communication activities related to information exchange about wildlife health and investigations of incidents.

Future Funding

The Network is promoted as a national initiative that demonstrates Australia's commitment to maintaining and improving high standards of animal health. The core funding and support of the Coordination Unit comes from the Wildlife and Exotic Disease Preparedness Program (WEDPP) administered by the Australian Government Department of Agriculture, Fisheries, and Forestry. The Zoological Parks Board of NSW (ZPB) and NSW Agriculture host the national Network, providing in-kind contributions. The other core stakeholders of the Network in the Commonwealth and State departments/agencies (wildlife/conservation/biodiversity/environmental protection, agriculture/primary industries and public health) and the numerous other member organisations, groups and individuals contribute in kind to varying degrees to the Network activities.

The fund raising targets are ambitious, long term and ill-defined. A brochure has been prepared and distributed seeking donations from the public. Some funding, minimal at this stage, is obtained by public donations and sponsorship. This is not unexpected given to the low level of promotion that has been undertaken pending the website, etc becoming fully functional.

Even to maintain the status quo with the Network, and not to build on its potential, it will be critical to obtain a firm, medium term funding base. The sums involved are quite modest; in the order of \$200,000 per year (current values). Most of this is to support the Coordination Unit and its essential operations.

There is unanimous agreement that the Network would not survive without a strong, full time Coordination Unit. The Coordination Unit provides the focus for all stakeholders and the links for the information exchange as well as managing day to day activities.

Public donations and sponsorship would not be a sound method of underpinning the long term future of the Network. Opinions differ widely about the potential of private funding, but it is more success could be expected for support for specific well defined projects. It would be unrealistic, at least at this time and for the foreseeable future, to expect the Network to obtain sufficient funds from public donations and sponsorship to support the Coordination Unit and core activities of the Network. This suggests that donations and sponsorship efforts would be better sought and directed to particular research and education projects.

It is unlikely that this core funding for the Coordination Unit will come from any source other than the Australian Government, probably the Department of Agriculture Fisheries and Forestry. The Australian Government human health and environment agencies consider wildlife health issues low in their priorities. Similarly, State/Territory governments seem unlikely to contribute money to another agency to support the Coordination Unit.

However, the Network must be sensitive to the imperatives of the core stakeholders; i.e. public health, livestock production and trade and conservation and biodiversity of native wildlife. The Network must address the needs of the core stakeholders and base the arguments for funding on the contribution the Network can make to address these needs. The Network must also deliver the outcomes that satisfy the core stakeholders.

The case for Australian Government core funding has been strengthened since the original decision to support the Network by wildlife-related events in Australia and overseas that have impacted on human health, commercial livestock and biodiversity. Although all core stakeholders committed to support the Network, the contribution appear to be quite limited in some cases. A favourable decision from the Australian Government may be more likely if other core stakeholders can demonstrate a stronger commitment to the Network's activities. State/Territory government in-kind contributions need to be better defined and individuals must be responsible for delivering the agreed services.

At present all the State/Territory Coordinators have this Network role in addition to other roles. This sometimes limits their ability to seek out information and to initiate activities within their jurisdictions. In some cases, the Coordinator is not even actively involved in mainstream animal health or wildlife related duties. Field operatives often find it difficult to get any laboratory support for even significant investigations, or do not know where to seek diagnostic support (refer previous discussion of State/Territory local cells). The State/Territory Coordinators need to be involved with the everyday flow of diagnostic material and be available as a resource person for the people who see wildlife disease incidents and need advice on what to do.

State/Territory governments should formally appoint their respective State/Territory Coordinator and provide sufficient time and resources to enable them to perform this role effectively as a major in-kind contribution.

State/Territory government may also be favourably inclined towards surveillance programs targeted at specific diseases or problems for which strong arguments can be advanced about the benefits that will arise or the threats that could be avoided.

An early start to development of a new funding proposal for the next three to five year period is desirable. This should build on the achievements so far, the recent events that emphasis the importance of wildlife health to biodiversity, public health and commercial livestock production and trade. The commitment of stakeholders needs to be specified, whether in dollars or in-kind contributions. Emphasis could be given to the founding principles that aim to leverage the most value from the Network without duplication or replacement of established mechanisms.

Recommendation 13:

That the Management Committee develop a proposal for the core funding of the Network that recognises the need for secure medium to long term funding for the Coordination Unit and delivery of in kind commitments from core stakeholders.

Recommendation 14:

That shorter term funding targets be set that specify both the expect source of the funding, the form of the contribution and the purpose for which the funding will be used.

Recommendation 15:

That donations and sponsorship be sought and directed to particular research and education projects.

Future Hosting of the Network

The requirements specified were that the host organisation must:

- Be doing something with animals – preferably wild animals, and preferably in the field of wildlife health
- Have an existing national profile and a demonstrated ability to collaborate with a broad range of other institutions, organisations and individuals
- Have scientific integrity and be capable of providing intellectual stimulation to the coordinator and other members
- Have knowledge, understanding and experience in veterinary disease investigation
- Provide infrastructure appropriate to the support required – IT, communication (telephone, postal, e-mail), financial management, legal, library, office, access to pool vehicles

Although usually referred to as hosting of the Network, in fact it relates only to the Coordination Unit of the Network. These criteria were used for the tender process that resulted in the present hosting arrangements that have proved quite satisfactory.

In considering the issue of the ideal hosting agency, three general models have been examined for hosting the Coordination Unit, the website and providing support to the Network:

- a unit within a government department
- a unit hosted by a semi-government public body
- an independent organisation.

A unit within a government department is not favoured by most people. If it was to be a government unit, most considered it should be within a Federal government since it is a national Network. There are concerns that that the Network would be susceptible to the whims and influences of the political process and may suffer from short term budgetary and staffing pressures that may arise within the Department. It may also suffer from negative perceptions and distrust within the community of government bureaucracy and possible power plays between departments. There may also be concerns of some stakeholders at providing information about disease events to the government.

On the other hand, some considered there may be advantages from a more stable funding base and a larger support network.

A unit within a semi-government public organisation is widely favoured. There are a number of such bodies in addition to the Taronga Park Zoo that would fit under this model, including universities and CSIRO. Although the strengths vary between organisations, they are generally are

- public organisations but relatively independent of the political processes and government bureaucracy
- closely identified with wildlife without any regulatory functions
- recognised centres of scientific expertise
- substantial organisations well able to provide the accommodation, administrative, financial, IT, communications, educational and scientific support.

However, there can be competing demands for the support and accommodation and differing priorities. The host agency may also wish to promote a slightly different image to the Network, to avoid publicising certain events or may be in competition for sponsors or donations.

The third model, of a completely independent organisation, is seen to be superficially attractive but not without dangers and impractical in the foreseeable future. A familiar example for many is the Australian Animal Health Council Ltd, trading as Animal Health Australia (AHA). AHA is a company limited by guarantee owned by its members - the Commonwealth, State and Territory government, and the major peak national livestock industry organisations. It is managed by an independent board

of directors and operates under corporations law. There may be other legal structures each with advantages and disadvantages in terms of relationships and receiving funding from government and other organisations.

If the founding principles are to remain intact, in this model, the Coordination Unit would be a service provider to the Network, which may cause some confusion about roles.

The major problem for an independent body would be the high cost of providing the accommodation, staff and resources to support a stand alone organisation, its operations and its corporate governance.

Another potential threat is the possibility of the Network becoming captive of a particular interest group, especially if that group was a large financial contributor. This could result in particular issues being favoured or specific agendas being promoted.

Recommendation 16:

That the Management Committee take account of the strengths and weaknesses of the alternative models when the hosting arrangements for the Network are due for review.

ACKNOWLEDGEMENTS

The comprehensive range of material about the Network, its activities and achievements provided by the Coordination Unit, Rupert Woods and Amy Jones, and the demonstration of the database is gratefully acknowledged.

The patience and cooperation of all the people interviewed to discuss the progress and achievements of the Network and their readiness to provide constructive comment is very much appreciated.

Annex 1: Australian Wildlife Health Network Strategic Plan; 2002-2005

Founding principles

The founding principles of the AWHN guide the development, operation and management of the network. The founding principles are for an organisation that:

- has a major focus on human and animal health issues associated with free-ranging populations of wild animals;
- is based on scientific endeavour and scientific objectivity;
- encourages multi-organisational collaboration amongst federal, state, local government and non-government agencies;
- is based on complementarity rather than redundancy or competition with current organisations, researchers, conservationists;
- is non-regulatory;
- is financially responsible and efficient;
- encourages, seeks and secures funds from stakeholders, funding agencies and sponsors;

Vision

A nationally integrated wildlife health system for Australia.

Mission

To promote and facilitate collaborative links across Australia in the investigation and management of wildlife health in support of human and animal health, biodiversity and trade.

Table 1. Themes, strategic goals, strategic objectives and outputs of the Australian Wildlife Health Network.

THEMES	STRATEGIC GOALS	STRATEGIC OBJECTIVES	OUTPUTS
Surveillance and investigation	Improved, effective and efficient wildlife disease surveillance and investigation in Australia that also satisfy international reporting requirements.	<ul style="list-style-type: none"> • Develop a State/ Territory coordination system for wildlife disease surveillance and reporting, which can also facilitate and monitor field investigations of disease incidents. • Provide and operate a national database of wildlife health information, which includes historical disease incident reports. • Identify wildlife health surveillance needs and priorities and facilitate funding and action. • Provide and operate an interactive Website, which can be used for reporting and accessing Australian wildlife health information. • Facilitate funding and action. 	<p>Written reports to:</p> <p style="text-align: center;">OIE NAHIS Commonwealth/ State Departments of Agriculture Donors/ stakeholders Network/ internet sites Similar overseas networks</p> <p>Resources/ funding to achieve objectives</p>
Emergency disease preparedness and response	Improved, effective and efficient emergency wildlife disease preparedness and response in Australia.	<ul style="list-style-type: none"> • Enhance and promote a series of regional and national wildlife health emergency preparedness and response strategies, which are integrated with current strategies and operational procedures or manuals (e.g. those contained in AUSVETPLAN and others developed by AHA, AFFA, local and State governments). • Facilitate funding and action. 	<p>Clear response protocols</p> <p>Awareness of, and training in requirements</p> <p>Participation of key stakeholder groups</p> <p>Resources/ funding to achieve objectives</p>
Research	Improved knowledge of priority questions of diseases and infections of wildlife as identified by stakeholders.	<ul style="list-style-type: none"> • Identify wildlife health research needs and priorities, which are integrated with current strategies and operating procedures or manuals (as above) and facilitate funding and action.. • Ensure that research is reported upon and disseminated, with an emphasis on scientific integrity and peer review. • Facilitate funding and action. 	<ul style="list-style-type: none"> • Funding for research • Identification of opportunities • Documentation of data • Peer reviewed publications • Provision of information to policy makers and funding agencies • Resources and funding to achieve objectives

THEMES	STRATEGIC GOALS	STRATEGIC OBJECTIVES	OUTPUTS
Education and training	Improved awareness and understanding of the importance of wildlife health and best management practice as it relates to human health, biodiversity, animal health, agro-economy and trade.	<ul style="list-style-type: none"> • Improve education and training in wildlife health. • Increase the capacity and opportunities for Australia by training postgraduate and graduate students in wildlife health and ecology relevant to human health, biodiversity, animal health, agro-economy and trade. • Provide information about wildlife health to the community. • Provide protocols for translocation/ relocation of wildlife, which are understood and implemented by those involved with these activities. • Facilitate funding and action. 	<p>Increased awareness of the role of wildlife health</p> <p>A well trained network</p> <p>An enlarged network</p> <p>A sustained network</p> <p>Resources/ funding to achieve objectives</p>
Promotion/ marketing	<ul style="list-style-type: none"> • An aware, informed community that recognizes the importance of wildlife health to human health, biodiversity, animal health and trade. • Recognition and commitment of resources to enhance wildlife health in Australia. 	<ul style="list-style-type: none"> • Secure resources to achieve the objectives listed above. • Enhance communication within and amongst stakeholders. • Promote research/ priority projects to funding agencies/ bodies. • Develop and implement a marketing and promotional plan, which includes promotional material, branding and position statements. • Facilitate funding and action. 	<ul style="list-style-type: none"> • Knowledge of product (what it is, what it does) and how to use it • A product that is of benefit to Australia • Be identified as peak body for wildlife health in Australia • Timely, efficient and appropriate transmission of information • Resources/ funding to achieve network objectives.

Driving performance

To monitor the performance of the Australian Wildlife Health Network to achieve its goals, six key performance indicators have been selected and targets established for each. These are:

Table 2. Key performance indicators and targets established to monitor the performance of the Australian Wildlife Health Network.

INDICATOR	TARGET
Surveillance and disease investigation index	<ul style="list-style-type: none">• Accurate, concise quarterly reports on disease occurrence from States to stakeholders.• Yearly reporting to the international community (OIE).
Emergency disease preparedness and response index	A minimum of one desktop emergency disease preparedness and response training course per year.
Research index	<ul style="list-style-type: none">• A minimum of three research projects facilitated per year.• Facilitation of a minimum of one peer reviewed publication per project facilitated.• Paper presentation at a minimum of one conference per year.• Poster presentation at a minimum of one conference per year.• Run, or assist with running a minimum of one conference, or conference session, biannually.
Education and training index	A minimum of one training course in wildlife health per State or Territory per year.

Promotion and marketing index	<ul style="list-style-type: none">• A minimum of 300K secured per year to year 2010.• 10% annual growth on funds secured in year 1 of the project.• A minimum of 20 people per State or Territory contributing to the network with strategic international links.• 50 notices of communication including print and electronic media stories involving the Network, 1000 external web hits on the Network's website and presentations by Network personnel.
Major milestone review	Accomplish major milestones review after 18 months of operation at which strategy for future funding should be tabled.

The Charter of the Australian Wildlife Health Network

- To improve ecological, economic and social benefits to Australia by limiting the deleterious impact of wildlife disease on primary industries, natural ecosystems and human health.
- To provide value to stakeholders by delivering ecologically beneficial information, products and services, which will enhance their management and provide a superior return on capital invested.

About this plan

This strategic plan 2002 – 2005 is intended to be the key guiding document for the Australian Wildlife Health Network to the end of the current funding period. The Network was established in 2002 following a national workshop in 1999 and an Australia-wide feasibility study in 2000, which concluded that the establishment of a National Wildlife Health Network was vital to coordinate preparedness and response to wildlife and feral disease issues, surveillance and diagnostic information across Australia. It is complemented by:

- A business plan approved by the management group;
- A work plan for the coordinator of the network.
- An annual operating plan.

These plans will be available from the Network's website.

Annex 2: List of people interviewed

Sue Bigwood	Monarto Zoo (SA)
Chris Bunn	Department of Agriculture, Fisheries and Forestry (Commonwealth)
Graeme Eggleston	Vertebrate Pest Committee (NSW)
Tony English	University of Sydney, Faculty of Veterinary Science
Ian Denney	NSW Department of Primary Industries
Hume Field,	Queensland Department of Primary Industries
George Grossek	Department of Sustainability and Environment, Victoria
Mark Hill	Australian Veterinary Association
Peter Holz	Healesville Sanctuary (Vic)
Martyn Jeggo	CSIRO Livestock Industries
Scott Jennings	Department of the Environment and Heritage, SA
Cameron Kerr	Zoological Parks Board of NSW
Peter Kirkland	NSW Department of Primary Industries
Glenis Lloyd	Environmental Health Council of the National Public Health Partnership (NSW)
Ian Lugton	NSW Department of Primary Industries
Cleve Main	Agriculture Western Australia
Will Meikle	Zoological Parks Board of NSW
Moira McKinnon	Communicable Health Network of Australasia (Commonwealth)
David Middleton	Healesville Sanctuary (Vic)
Jill Millan	Biosecurity Australia (Commonwealth)
Tristan Jubb	Department of Primary Industries, Victoria
John Mumford	GameCon Australia (NSW)
Michael Mulligan	Kangaroo Industries Association of Australia (NSW)
Gardner Murray	Department of Agriculture, Fisheries and Forestry (Commonwealth)
Stephen Pyecroft	Department of Primary Industries, Water and Environment, Tasmania
Michael Pyne	Currumbin Sanctuary (Qld)
Shane Raidel	Murdoch University, Division of Veterinary and Biomedical Sciences (WA)
Marilyn Renfree	University of Melbourne, Department of Zoology
Steven Roberts	Australian Quarantine and Inspection Service (Commonwealth)
Tony Robinson	CSIRO Sustainable Ecosystems
Karrie Rose	Zoological Parks Board of NSW; Curator, Australian Registry of Wildlife Pathology
Glenn Saunders	Australian Wildlife Management Society (NSW)
Cathy Shilton	Department of Business, Industry and Resource Development (NT)
Mick Trimmer	Department of the Environment and Heritage (Commonwealth)
Keith Walker	NSW Department of Primary Industries
Pam Whitely	Wildlife Diseases Association (Vic)
Richard Whittington	University of Sydney, Faculty of Veterinary Science
Simon Winter	Animal Health Australia (ACT)
Rupert Wood	Zoological Parks Board of NSW (Network Coordinator)