

Managing and controlling mammalian pests in New Zealand – an update on progress

Introduction

In early May 1993 approximately 250 people involved with pest management and control gathered in Taupo to attend "The Great Lake Pest Summit" – a three-day conference on the management and control of mammalian pests in New Zealand. Sponsored and organised by Environment Waikato, the Summit was truly an interagency and interdisciplinary meeting which drew together people with different backgrounds and philosophies but with a common goal to deal more effectively with the country's most serious environmental problem. The conference was well timed. The introduction of new resource material and biosecurity legislation, combined with recent local body restructuring and imminent changes in the allocation of responsibilities for managing and controlling pests, heralds the dawn of a new era in animal pest control. The Summit provided an opportunity for reviewing the current situation and discussing the directions for the future. This article summarises the main outcomes of the pest conference.

Legislation

There was consensus at the Summit that new legislation was urgently required to replace the rather uncoordinated and inadequate existing legislation relevant to pest management. The new Biosecurity Bill which is expected to become an Act before the end of 1993, is the central piece of legislation which will upgrade and consolidate existing legislation. The Bill provides for the exclusion, eradication and effective management of pests and unwanted organisms. At a more detailed level, the Bill covers the management of risks associated with the importation of goods that may lead to the introduction of harmful organisms, the development of national and regional pest management strategies, the funding of strategy implementation and the way in which biosecurity emergencies will be dealt with.

At a special conference session on legislation, attendees generally agreed that the Biosecurity Bill addressed most of the inadequacies in existing legislation but there remained some "fine tuning" to attend to. It was concluded that the Bill required amendments to provide for:

- a clearer definition of the roles, responsibilities and powers of Government

Departments, Regional Councils, NGOs and private organisations/individuals;

- more flexibility in the mechanisms available for funding pest management and control;
- binding of the Crown to ensure that the Crown meets its responsibilities as New Zealand's largest land owner.

Although the new Biosecurity legislation will become the central piece of legislation relating to the management of pests in New Zealand, other previous legislation including the Conservation Act 1987, Wild Animal Control Act 1977, Wildlife Act 1953 and the Resource Management Act 1991, will remain relevant to the management of mammalian pests. Other proposed legislation in the form of Hazardous Substances and New Organisms legislation and Agricultural Compounds legislation, which will probably become law in 1994, will also be important in the future management of pests.

"There will be a great need for improved coordination and cooperation ..."

The RMA and the new Biosecurity legislation provides Regional Authorities with additional responsibilities and authority for pest management and control. The new legislation also places legislative policy a long way ahead of the policies of agencies and their capability to implement sustainable management and develop and implement effective strategies for pest control. The implication is that there will be a great need for improved coordination and cooperation between Government Departments, Regional Councils, researchers and other organisations such as the Animal Health Board and Federated Farmers, in the designing of pest management strategies and their implementation.

Strategies for pest management and control

A significant part of the Biosecurity Bill is concerned with the development of regional and national strategies for pest management and control. As the pest problems in New Zealand intensify,

particularly the environmental problems caused by burgeoning possum populations and the related problem of spread of bovine Tb in farmed animals as well as in possums and other wild animals, it is crucial that a strategic approach is adopted to manage and control pests. Non-strategic approaches in the past have not achieved long-term control of possum, rabbit and goat populations, nor led to long-term solutions to the spread of bovine Tb.

The great complexity of the pest problem combined with its growing seriousness and the lack of adequate resources to manage and control pests, makes the setting of priorities and the development of robust strategies key priorities in themselves. The development of sound strategies for control operations, allocation of resources, research and development and increasing public awareness about pest problems, must go hand in hand with a process which enables identification of the priority pest problems based on their location, costs to the nation, likelihood of successful control with existing technology, availability of resources, public attitudes and perceptions and a number of other factors.

At the Summit, Ministry for the Environment Chief Executive, Roger Blakeley, pointed out that the management and control of pests should be viewed as an integral part of managing land in a sustainable manner for production or protection and that an integrated approach should be a key underlying theme in strategy development. Economists Katie Bicknell and Anton Meister also highlighted the need for the application of economic analyses in strategy development. This need is covered in the Biosecurity Bill. The new approaches being developed in the applied environmental economics area offer powerful tools for evaluating the costs and benefits of control operations, providing a theoretical framework for priority setting and allocating resources, and determining if funds are being used in a cost-effective manner.

Values at risk

The values at risk from mammalian pests received attention at the conference. Paul Livingston from MAF emphasised the vulnerability of New Zealand's \$5 billion per year beef, dairy and venison export industry and the sensitivity of the overseas

markets to a large range of social, ethical, health, environmental and political factors. Preserving or enhancing New Zealand's "clean green" image and the way in which the country reacts to and deals with animal health and environmental problems are important in this respect.

The intrinsic environmental and conservation values at risk were also discussed by Phil Cowan and John Holloway from the Department of Conservation and Guy Salmon. Preserving the quality and/or viability of natural ecosystems, rare and endangered species, scenic natural landscapes, soil and water resources, human health and enjoyment and Maori culture and traditions is vitally important to New Zealand's future well being. Pests such as possums, rabbits and goats threaten these intrinsic values. For instance, it was pointed out that possums, which number about 65 to 70 million in New Zealand, annually consume about 30 million tonnes of leaves, berries and other vegetative matter. In addition they are a major vector of bovine Tb and are an important influence in the spread of giardia in natural water systems.

Funding for pest management and control

Currently about \$33 million is spent annually on animal pest management and control and the control of bovine Tb. Central Government provides about \$17 million and the remaining funds are provided from rates, levies and grants. Although these sums seem substantial it was made clear at the Summit that current funding levels are not commensurate with the seriousness of the pest/bovine Tb problem. The most serious deficiency appears to occur in the funding available for the control of pests on the conservation estate. The Department of Conservation's \$3.1 million annual allocation for the control of possums only enables the department to undertake control operations on less than 1 per cent of the total conservation estate in any one year.

One of the important outcomes of the Summit was a recommendation for a higher funding priority for pest control, for both the Crown estate and a more equitable reflection of the national interests in rabbit, possum and Tb control. On May 25, 1993, just three weeks after the Summit, Government announced that it would allocate an extra \$11 million per year toward possum/Tb control. An extra \$6 million per year is to be spent on controlling possums on the Crown estate, pasture and bush margins as part of the effort to control the spread of bovine Tb, \$3 million will go to DOC for general possum control and \$2 million will be allocated to the National Science Strategy Committee



Possums annually consume about 30 million tonnes of leaves, berries and other vegetative matter and are a major vector of bovine Tb. Photo: Tasman Forestry

for possum/Tb control to boost the research effort.

Research

The conference sessions on research concentrated on the search for new toxins, biological control and integrated approaches to pest management and control. The main emphasis, as was the case for the Summit generally, was on possum and Tb control but rabbits and the Rabbit and Land Management Programme and the opportunities for multi-species control were also covered in presentations and discussions.

The future availability of 1080 for large-scale pest control is an issue which has stimulated research into alternative toxins. Landcare are evaluating a number of anticoagulant and non-anticoagulant toxins and determining the fate of 1080 in the environment. Public concerns about the use of 1080 have raised the importance of this research.

Increasingly, biological control is being heralded as the approach most likely to solve the rabbit and possum problems. At the Summit Simon Jolly from Landcare indicated that the greatest potential for bio-control will probably be as a component of an integrated pest control package. Research on bio-control for possums is concentrating on vaccines that interfere with possum reproduction and possible vectors to distribute the vaccines. Since the conference the Government has

announced that myxomatosis will not be introduced to combat rabbits. A joint New Zealand-Australian research effort of the Rabbit Haemorrhagic Virus Disease is underway and there is a good deal of optimism that this research will lead to an effective control option.

Although bio-control offers many advantages over conventional control methods, it is expected that lead times will be long and a number of ethical issues will have to be dealt with before bio-control technologies are actually used for control.

A boost for bio-control research was provided at the Summit with the announcement of a new partnership between Tasman Forestry and Landcare to enhance research into possum bio-control.

In general, the Summit presentations and discussions suggested that the establishment of a National Science Strategy for possums/Tb, the Rabbit and Land Management Programme, improved cooperation between researchers and control agencies, a better appreciation of the benefits of research by the public and control agencies and an increased research funding level, should ensure that future pest control efforts are more effective than in the past and provided with improved technological weaponry.

Other matters

The need for strengthened inter-organisational linkages and improved levels of

coordination and cooperation was a recurring theme at the Summit. Proposals were made for the establishment of a "Network of Participants" to ensure that continuing coordination and cooperation occurred between DOC, Regional Councils, researchers, environmental organisations, Federated Farmers, MAF, Animal Health Board and other major players in pest management.

The importance of public perceptions about pest problems and their control and the possibilities for enabling communities to become more involved in pest management, received some attention. Recurring instances of strong public opposition to the use of 1080 despite scientific evidence that this compound rapidly bio-degrades and has low persistence in the environment, suggest that the dissemination of information about pest problems and their control has not been carried out effectively. Morgan Williams from MAF emphasised that public perceptions can be very influential in determining which

options will be viable in managing land and environmental problems. The Summit discussions indicated that not only should the level of community awareness about pest problems and their management be raised but also the pest managers need to properly understand community perceptions about pests and their control. The best mechanisms for improving awareness and understanding have yet to be determined.

Very little information appears to be available on the total extent of animal pest damage to New Zealand's production forest estate and its cost. However, the information that was presented at the Summit and the views of a number of forest managers suggest that possums alone cause damage to seedlings and young trees amounting to millions of dollars per year. It appears that a comprehensive evaluation of pest damage to nursery seedlings and plantation forests and the costs to the forest industry of this damage is required to assist the development of control strate-

gies and setting of priorities for future control actions.

The Great Lake Pest Summit was a successful multi-disciplinary conference where participants were encouraged to air their views and concerns. Probably the most valuable outcome was a consolidation of ideas about the way forward. Although, there remain some differences between organisations and individuals in views about the details of future pest management and control, there was a strong indication that there is a growing willingness to cooperate and work together. The successful way forward depends on creating a pest management and control working environment which is underpinned by cooperation and coordination of effort rather than competition and organisational and individual prejudices. The Pest Summit certainly provided a kick start to the creation of a cooperative working environment.

Colin O'Loughlin

Overcutting and the rotation age

The debate on overcutting has got a bit out of hand. Some foresters are saying that without definition there is no such thing. Others, including a group of senior members of the NZ Institute of Forestry, believe that in some instances it is happening. Surely in its simplest form overcutting merely means continuously taking more of the annual harvest than can be permanently sustained. Overcutting has a time factor; one can overcut without disaster for a year or two or for a few years, but not for so long that the productive potential of the forest is permanently lowered or even extinguished. I had this concept firmly in mind when I first suggested that the Institute should investigate whether or not overcutting of NZ's radiata forests was taking place. Other commentators, and they include a group equally as important as the senior members, somehow managed to miss it.

My hope is that the Institute will still adopt a policy line on commercial or institutional or local or regional overcutting. The purpose of this note though is not to stress this. It is rather to stress that some apologists for overcutting cite a reduction of the rotation age almost as an excuse or a justification. This is a worrying matter. Surely the annual cut can be increased for many years perhaps even permanently if the rotation age is reduced. But even if the rotation age is lowered for a period, short

or long, the economic and financial consequences can be disturbing. Every forester knows that the success of marketing increasing quantities of radiata timber overseas depends on an improvement in timber quality, and every forester should know that this is not to be achieved with a lower rotation age. In his report in the August 1992 issue of NZ Forestry A.W.Grayburn said: There is an increasing tendency for ... the average age of clearfell to come down below 30 years for radiata pine in many forests over the next five years. This removes many harvesting options and lowers the yield quality and size of logs."

"On the ideal rotation age FRI does not have a position."

Grayburn's report, if anything, understates the position. There is a big difference in the quality of wood between a tree of 25 and 27 years and a 30-year-old or plus tree, as he instanced; in the former case the density is lower, the fibre length is shorter, there is a lesser proportion of wide boards and of most importance there is much less clear wood. And quite apart from wood quality there is a difference in

the economics of handling. The older tree is larger and the logging costs should be smaller, the transport and handling costs lower, and the conversion more efficient.

I have asked FRI for its views on the effects of a lower rotation age on wood quality. FRI stated: "On the ideal rotation age FRI does not have a position. The harvest decision is one for the owner taking into account financial, technical and other criteria. FRI's role is to provide technical information." Fair enough! FRI also stated: "The difficulties with lowering rotation ages have to be traded off against other considerations such as required rates of return. While wood properties for solid wood are not as favourable at 27 years as at 30 years, the industry is able to utilise the younger stands. Indeed the demand for logs over the last few years suggests that the industry world wide can accept harvest ages lower than 30 years."

FRI has done a lot of good work on the wood properties of younger stands but it has done less in analysing the economic benefits of a lower rotation age compared with the economic losses of lower wood quality. This latter work does indicate much higher internal rates of return for lower rotations and maybe individual forest owners will consider this the most important criterion and act on it ... but maybe some won't. The new editor of NZ Forestry after all stresses that internal rate