

SUBMISSION

Inquiry into the Impact of Pest Animals on Agriculture

(House of Representatives Standing Committee on Agriculture, Fisheries
and Forestry)

Nocturnal Wildlife Research Pty Ltd

June 2005



SUBMISSION AUTHOR:

Nocturnal Wildlife Research Pty Ltd is a business committed to innovative research, development and education in the field of vertebrate pest control and wildlife management. The presenter (Clive A Marks) is the director of Nocturnal Wildlife Research Pty Ltd. He is the former head of Vertebrate Pest Research at the Victorian Institute of Animal Science (Australia). He has worked for 17 years on a range of innovative research, development and education (RD+E) projects with industry, government and universities. During this time he has published some 60 scientific papers and has contributed many popular articles on issues of vertebrate pest and wildlife management. He holds patents for new inventions in this area.

AIMS AND OBJECTIVES:

This submission and presentation aims to emphasise the need to foster a culture of innovation that will lead to a new generation of target-specific and humane vertebrate pest control techniques. It is increasingly apparent that the acceptability of Australian agriculture exports will be dependent upon the quality of our welfare practices during production. This document will report on innovative ways to address animal welfare concerns of 1080 for predator control and the development of a replacement for chloropicrin. I shall attempt to:

1. Give context to the issue of humaneness in vertebrate pest control.
2. Briefly demonstrate some of the welfare impacts produced by two common control agents.
3. Describe currently available techniques to address these concerns.

I hope that this submission prompts reflection on our currently poor culture of innovation in the area of pest control humaneness and the risks associated with maintaining a culture that embraces *status quo* rather than innovation.

BACKGROUND:

Why address issues of humaneness and target-specificity of control?

There is great potential for some of the current vertebrate pest control practices to cause international embarrassment and boycotts of our markets and subsequent economic hardship to Australian agriculture. Most of our technologies in current use have not changed fundamentally for many decades and a lack of innovation and progress leaves us exposed to criticism. A failure to openly identify and address such deficiencies has become a hallmark of the vertebrate pest control community.

The adoption of *best practice* use of available technologies is a sensible management strategy, yet it must be undertaken with a parallel driver that ensures the continuous improvement of these techniques. What has been *best practice* in the past will not necessarily remain so in the future. In the absence of a tangible strategy to foster and adopt improvements, control techniques will inevitably fall behind community expectations. There is absolutely no doubt that many of the techniques used in vertebrate pest control have fallen behind the expectations of the wider community.

Historically the development of destructive control of vertebrate pests has usually focused primarily upon their lethality to the pest and cost-effectiveness. Until comparatively recently, the humaneness of control techniques used for vertebrate pests has received little attention in Australia.

There are many precedents world-wide that demonstrate that community demands for better welfare outcomes in vertebrate pest control will continue to gather pace. It is unrealistic to assume that the use of any one vertebrate pest control technology can be quarantined from increasing scrutiny; despite the desirability of much vertebrate pest control. Importantly, a concern for the welfare of pests and non-target species should not be confused with an attack upon the need for vertebrate pest control.



The fundamental role of science and scientists in the development of better welfare outcomes in vertebrate pest control needs to be carefully considered, especially since animal welfare has not been a traditional province of vertebrate pest research in Australia. Some wildlife scientists and many policy makers still regard a focus upon improving humaneness as irreconcilable with efforts to address problems caused by vertebrate pests; sometimes welfare concerns are regarded as the antithesis of conservation objectives. Often this promotes an unproductive polarisation of the issue as “welfare” versus “conservation”. This is seldom justifiable and frequently makes the unfounded assumption of mutual exclusivity; that one concern must always be traded for the other. An alternative approach is to accept that members and groups in the community will have different expectations and needs of vertebrate pest control. Combined, these expectations may be demanding and require scientists to produce techniques that are efficacious, cost-effective, safe, target-specific and humane.

Scientists should accept the challenge of providing innovative approaches and solutions that accommodate this diversity of needs. In general, I believe that scientists have to this point failed in this task, primarily as this task has never been a priority nor have the policy and cultural changes been fostered to allow this to happen.

Example 1. 1080: Sodium fluoroacetic acid for dog and fox control

Members will be shown a short video presentation outlining 1080 poisoning in dogs

I believe that 1080 baiting for fox and wild dog control is presently a necessary wildlife management tool in Australia - and there are no immediately available alternatives – largely because we have never aggressively looked for them and in some cases discouraged investigation of alternatives.

The symptoms of 1080 poisoning in dogs can be extremely distressing to an observer, and behaviours such as manic running, yelping and shrieking, and convulsing are readily interpreted as being indicative of pain and distress.

Many government documents presently mention some of the symptomology of 1080 poisoning in foxes and dogs but fail to address conclusions in other published studies (Marks *et al.* 2000: Wildlife Research 27: 483-94) that retching, running and vocalisation are most likely signs of distress that happen before collapse and CNS disruption. The issue is complex and while it is reasonable to make a case that the welfare of some species are far less affected, given the nature of the toxicosis (eg. there appears to be no major welfare issue for rabbit control and this is supported by scientific evidence (eg. Williams 1996: Humaneness and Vertebrate Pest Control (Ed. P.M. Fisher and C. A. Marks)), it is highly misleading and lacking in due diligence to ignore evidence that 1080 causes some suffering in some species before collapse and convulsions.

The selective use of a reference in some recently produced documents concerning 1080, maintain that humans do not report pain/distress during poisoning with 1080 ignores others that do (eg. epigastric pain, retching and headache etc). This is unacceptable as these papers are freely available.

Scientific assessments need to be objective, however inconvenient, or they cease to be scientific assessments. I suggest that it is difficult for staff that work in a government policy environments, that seeks to support and protect the use of 1080 (for many valid reasons), to report objectively concerning this matter. This section raises important questions about the misuse of science by selective citation and the divide between government science and policy.

It is individual impacts (domestic dogs and wildlife species etc) that has driven much of the antipathy or opposition towards 1080 and this has been largely ignored. Domestic dog deaths, largely because of the distressing nature of the toxicosis, drives the opposition to 1080 by many in the farming community. Without practical advances to limit and mitigate such impacts, the acceptability of 1080 will continue to wain. In this respect, limiting impacts upon individual animals is the key to fostering public acceptance and tolerance of 1080 for agricultural and ecological outcomes.



Some solutions:

- The use of analgesic, sedative or anxiety reducing agents combined with 1080 was proposed as a means to limit any potential suffering that may be associated with 1080 poisoning. This approach was suggested in recognition of the difficulties involved in assessing pain or distress states in foxes poisoned with 1080. A range of drugs were investigated as potential candidates for inclusion within predator baits (Marks *et al.* 2000).
- There has been ongoing work on this approach and recent results have revealed a specific drug agent that is practical and efficacious. This agent addresses the likely symptoms of suffering seen in canids at the onset of 1080 poisoning.
- Nocturnal WR Pty Ltd has developed technologies for the manufacture and delivery of drug/1080 formulations. It is inappropriate to openly provide details of this approach given commercial considerations. The primary commercial entity has expressed a wish not to be associated with the “politics of 1080” and it is important that these wishes are respected.
- The response of a range of animal welfare organisations to this work has been extremely positive. Both animal welfare stakeholders and farmers have indicated that incorporation of analgesic agents into 1080 predator baits is a positive and forward step that improves this practice.

RECOMMENDATION 1:

That the committee supports this approach as a practical means to improve welfare outcomes in predator baiting. The proponent is prepared to provide further information to the committee in camera that stipulates how this approach can be best supported.

RECOMMENDATION 2:

That the practical benefits and limitations of this approach be well understood and accurately reported and that the persons who have pursued and developed these technologies be fully engaged and consulted. The welfare impacts of 1080 should be accurately reported and objective science should be demanded from agencies that provide information to the wider community.

Example 2: Chloropicrin fumigation of rabbit warrens

Members will be shown a short video presentation of the action of chloropicrin

Chloropicrin was used as a gas warfare agent in World War One and is one of two registered fumigants commonly used against rabbits in Australia. Chloropicrin is a strong sensory irritant that causes profuse lacrimation and intense irritation of the respiratory tract. Death is commonly caused by pulmonary oedema and bronchopneumonia (ie. they drown in their own lung secretions). Rabbits that escape the warren after sub-lethal exposures may die from the debilitating effects of the fumigant, some weeks after acute sub-lethal exposures.

Recent studies (Marks *et al.* in preparation) investigated the behaviour of rabbits within a warren when exposed to chloropicrin using a power fumigator. Immediate agitation, attempted flight upon exposure, profuse lacrimation, rapid and shallow breathing, audible obstruction of respiration by lung secretions and convulsions associated and distress vocalisation were clear indications of extreme suffering. These symptoms were observed to persist for more than one hour prior to death. Chloropicrin is clearly not a humane method of rabbit destruction and recent research has confirmed that it is associated with intense and prolonged suffering of rabbits. It is appropriate that the use of chloropicrin is subject to review and replacement.

The fumigation of burrowing mammals with chloropicrin has been discontinued in many countries. In publications by the Bureau of Rural Sciences, chloropicrin is not considered to be a humane method of



fox den or rabbit warren fumigation. Chloropicrin has been rejected as an inhumane means of rabbit control in the United Kingdom.

Recent scientific literature suggests that human health impacts can be associated with accidental exposure to chloropicrin. Chronic exposures, at levels undetectable to humans, may be associated with disease. Chloropicrin is a designated hazardous substance under the Occupational Health and Safety (Hazardous Substances) Regulations 1999.

Some solutions:

- Fumigant that produces a humane death should ideally be non-irritating and quickly produce an initial depressive action on the central nervous system and rapid death, as has long been the objective for humane animal euthanasia. Pure carbon monoxide (CO) is widely considered to be an acceptably humane means of euthanasia for a range of laboratory and farm animals. Mammals typically lose consciousness after exposure to > 2% of pure CO and the failure of the respiratory centre is followed by death resulting from cardiac arrest.
- In comparative trials CO has proven to be a much more humane fumigant than chloropicrin and appears to be more reliable and faster in action than phosphine (the other rabbit fumigant).
- A power fumigation technique that produces sufficient CO has been developed and proven successful in small-scale trials at PIRVic (DPI Victoria). This project has not yet received funding for the 2005/06 financial year and its great promise does not appear to be recognised.

RECOMMENDATION 3:

That the replacement of chloropicrin by CO fumigation should be accorded a high priority and the final production of CO fumigation technologies be supported.

RECOMMENDATION 4:

That the committee use the chloropicrin issue as a case study to demonstrate the failure of government to identify needs and to adequately support innovative and practical approaches to the replacement of inhumane and hazardous vertebrate pest control techniques. The poor opportunities for funding, administrative complexity and lack of adoption strategies for research outcomes are of particular interest. A study of how a 90 year old warfare agent (probably banned by the Geneva Convention) that presents a significant occupational hazard to farmers can still be used in Australia in 2005 will reveal much about the failures of policy, judgement and priority in this area.

GENERAL CONCLUSIONS:

A culture of innovation has been difficult to foster in vertebrate pest control in Australia where the needs of a range of stakeholders need to be addressed. We have many areas where the need for innovation and replacement is glaringly obvious. It is important to examine the failings of a primarily government determined culture that has allowed the *status quo* to be to be maintained rather than developing a proactive strategy of innovation and problem solving.



RECOMMENDATION 5:

A policy that embraces the need to continuously review and improve vertebrate pest control techniques and strategies be established. The committee should review how funding and policies surrounding best practice use of techniques have reinforced status quo and removed funding, incentive and ability to pursue innovative approaches.

So far the policies that have driven science and a lack of vision in vertebrate pest control have not served Australian agriculture and the environment well. It is important not to permit the currently narrow vision of vertebrate pest control technologies and possibilities to be maintained. There are competing needs in the community for different outcomes and no one group, however valid their concerns, has a monopoly on the issue. This is not a debate about agriculture versus animal welfare as this is fruitless debate that can only distract further from progress.

It is increasingly apparent that the acceptability of Australian agriculture exports will be dependent upon the quality of our animal welfare practices – and this includes the way in which we control pests. It is not exaggeration to suggest that there is great potential for some of the current practices to cause embarrassment, boycotts and economic hardship to Australian agriculture. It is the primary role of government to recognise this and adopt pro-active, lasting and sustained strategies and to encourage cultural changes that address a glaring deficiency.

All incremental steps towards better pest control strategies and techniques enhance our ethical credibility and help us to meet legislative obligations and community expectations. This is a major scientific challenge where the need for an ongoing commitment should not be underrated.

RECOMMENDATION 6:

The committee recognises that moves to increase the welfare outcomes of vertebrate pest control are necessary to ensure community acceptability and to protect market access for Australian agriculture in international markets. As concerns for animal welfare are likely to greatly increase in the foreseeable future, this will require a forward looking strategy that encourages innovative approaches and provides farmers with the tools to cost effectively, specifically and humanely control vertebrate pests that threaten their viability and profitability.

RECOMMENDATION 7:

As the terms of reference for the Australian Pesticides and Veterinary Medicines Authority (APVMA) do not include consideration of animal welfare and humaneness, patently inhumane agents, such as chloropicrin, cannot be deregistered or adversely reviewed. This is an oversight as it does not provide the needed impetus to seek replacements. The APVMA terms of reference should be reviewed and extended.

RECOMMENDATION 8:

Government needs to provide commercial incentive to encourage a greater diversity of private industry participation and competition in the development of innovative vertebrate pest control options. Presently, government policies and funding priorities direct investment to status quo (“best practice”) technologies and their application. This enhances a monopoly of very few private industry stakeholders who produce undemanding technologies in a protected environment that reduces incentives and opportunities for competition. Pest control is heavily regulated by government and the cost of registration and negotiation with multiple layers of government from research through to product commercialisation is a major barrier..