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**HOUSE OF
REPRESENTATIVES**

STANDING COMMITTEE ON AGRICULTURE, FISHERIES AND
FORESTRY

Reference: Impact on agriculture of pest animals

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CANBERRA

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HOUSE OF REPRESENTATIVES
STANDING COMMITTEE ON AGRICULTURE, FISHERIES AND FORESTRY
Wednesday, 15 June 2005

Members: Mr Schultz (*Chair*), Mr Adams (*Deputy Chair*), Mr Martin Ferguson, Mr Michael Ferguson, Mr Forrest, Mr Lindsay, Mr Gavan O'Connor, Mr Secker, Mr Tuckey and Mr Windsor

Members in attendance: Mr Adams, Mr Martin Ferguson, Mr Gavan O'Connor, Mr Secker, Mr Schultz, Mr Tuckey and Mr Windsor

Terms of reference for the inquiry:

To inquire into and report on:

The impact on agriculture of pest animals particularly:

To identify nationally significant pest animal issues and consider how existing Australian and State government processes can be better linked for more coordinated management of these issues across State boundaries.

To consider the approaches to pest animal issues across all relevant jurisdictions, including

- (i) prevention of new pest animals becoming established;
- (ii) detection and reporting systems for new and established pest animals;
- (iii) eradication of infestations (particularly newly established species or 'sleeper' populations of species which are considered to be high risk) where feasible and appropriate; and
- (iv) reduction of the impact of established pest animal populations.

Consider the adequacy of State Government expenditure on pest animal control in the context of other conservation and natural resource management priorities, with particular reference to National Parks.

Consider the scope for industry groups and R & D Corporations to improve their response to landholder concerns about pest animals.

Consider ways to promote community understanding of and involvement in pest animals and their management.

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CHAIR (Mr Schultz)—I declare open this public hearing of the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry inquiry into the impact on agriculture of pest animals. Today's hearing is the latest in a series of public hearings taking place in Canberra. Today we are hearing from the Cattle Council of Australia, the Australian Veterinary Association, Animal Control Technologies and Nocturnal Wildlife Research. The committee will conclude its taking of evidence in relation to this inquiry with a visit to Perth and Broome in July prior to drafting its report.

I call the representatives of the Cattle Council of Australia and the Australian Veterinary Association. Although the committee does not require you to give evidence under oath, I should advise you that these hearings are formal proceedings of the parliament. Consequently, they warrant the same respect as proceedings of the parliament itself. It is customary to remind witnesses that giving false or misleading evidence is a serious matter and may be regarded as contempt of parliament. Do either of you wish to make a brief statement in relation to your joint submission or make some introductory remarks?

Mr Hartmann—Yes, please. I would like to begin if that is okay. Thank you for inviting the Cattle Council and the AVA to address this committee on what is an important issue for us. To give you some background, the Cattle Council is the peak body that represents the producers of grass-fed beef in this country. It is also important to note that for this hearing the Cattle Council is also representing the interests of the National Farmers Federation.

The Cattle Council and the Veterinary Association have been working together to increase public and political awareness of the impact of pest animals on the agricultural industry and in particular our belief that a national strategy is required if any inroads are to be made into reducing this problem. I would like to briefly present now the reasons why the Cattle Council view pest animals as a serious issue and then pass on to Dr Doyle, who will reiterate the need for a national strategy, particularly for feral pigs, and why such a strategy will only ever be as strong as its weakest link.

The Cattle Council see five major impacts caused to agriculture by pest animals. The first is the impact on animal welfare, and here I refer to the welfare of our livestock in particular. Despite the diatribe of animal liberationists, the fact is that farmers love and respect their animals and hate to see them suffer. Livestock carry more than mere monetary value: they are a fundamental component of a grazier's way of life. We gain job satisfaction from knowing that our animals are happy and healthy. We do not preach animal welfare; we just do it. Nothing is more disheartening than to find animals suffering due to the effects of pest animals. You only have to experience a paddock of dead and dying lambs with their noses and tails chewed off by a fox to understand what I am talking about.

The second impact is on biodiversity. Farmers are custodians of the land, and hence we are responsible for its maintenance and sustainability. Pest animals have a tremendous effect on the

natural Australian environment and ecology through both the predation of native species and the damage caused to the land through rooting, burrowing and so forth.

The third impact is the disease risk. Pest animals can harbour and act as vectors for exotic animal diseases such as foot-and-mouth, tuberculosis, Japanese encephalitis and avian influenza. It is a risk that should not be taken lightly. Diseases such as FMD would devastate agriculture in Australia and the economy as a whole, and zoonosis diseases such as avian influenza and screw worm fly can be transmitted to humans.

Fourthly, there is the social impact. You would be well acquainted with the rigours faced by farmers in maintaining their enterprises. Their businesses and livelihoods are continually accosted by factors outside their control, and drought, of course, is the topical issue at the moment. Along with the decline in the terms of trade, the costs, the price squeeze, the exchange rate and so forth, even the best farmers wonder why they bother.

In many cases, pest animals are the straw that breaks the camel's back. The Cattle Council is aware that many good farmers who have managed their gross margins, conserved their fodder and retained their best breeding stock have given up, succumbed to depression and even contemplated suicide because their best stock are being slaughtered by wild dogs or pigs.

Fifthly, there is the economic impact. The impact on a farmer's hip pocket cannot go unrecognised. The cost of control and the cost of the losses have a negative impact on a farmer's bank balance, often to the point where farmers are forced to ask themselves why they bother at all.

We see these five points as the main reasons why action is vital. For over 200 years we have been trying to control pest animals in this country and we have very little to show for it. Ad hoc approaches simply do not work. We believe that a paradigm shift is required. The only way the impact of pest animals on agriculture will ever be substantially reduced is through a national approach where all stakeholders work together rather than the current state-by-state approach.

Dr Doyle—The AVA is the national body representing the veterinary profession. I will not go over all the detail we have put in our previous submission; I will just give you an update on that. Veterinary science is an extraordinarily diverse profession, witnessed by the fact that the AVA has 23 special interest groups, ranging from those with an interest in cattle to those with an interest in embryo transfer and even those with an interest in holistic medicine. We have three special interest groups that are relevant to this inquiry: an association of pig veterinarians, one of our special interest groups; a veterinary conservation and biology group, which is interested in wildlife, zoos and so on; and a group that is interested in animal welfare and ethics. In addressing these issues, we are relying on the expertise of these groups. And we make their expertise available in the public interest. That is part of our public policy.

Our concern regarding feral animals came to a height with the increasing number of feral pigs and an outbreak of foot-and-mouth disease in the United Kingdom in 2001, which we all know about. This led to a resolution at our annual general meeting in Adelaide that the AVA should seek to eradicate feral pigs. Although we recognise that the technology to do that is not available at this time, we believe we should at the very least be moving towards trying to remove the threat of feral pigs. This gave us a particular interest in feral pigs. Perforce of that, we made a

joint submission with the Cattle Council of Australia. Where possible, we seek to work hand in glove with the people we serve. If it is small animals, we work with urban animal management. They could be companion animals, animal threat, animal abuse or human abuse issues. If it is farm animals, we seek to work with the National Farmers Federation and the other farm groups.

We sat down with the CCA and nussed out our submission to this committee last May. We also made a joint submission to the Senate Environment, Communications, Information Technology and the Arts Committee, to which Michael referred. In its report late last year it recommended that the Natural Resource Management Ministerial Council should put on the agenda a national strategy for vertebrate pests. That is something that we sought in our submission to that committee.

We work together on pest animals because of these common interests. We, together with the cooperative research centre for pest animals and the tropical rainforest CRC jointly sponsored the workshop at Cairns in May 2003, out of which came the notion of an action plan. This was to move forward the wonderful ongoing research that has been done in this area in recognition of the damage that has been done and that the gains that are made are being lost by recolonisation or by other means. We recognise that in some cases it is not possible to totally eradicate, even regionally, but in most of these programs we learn that the things that we are good at depend on population dynamics. What we are looking at is to push the population dynamics on our side.

For example, a reduced population of animals is less recipient and less able to spread diseases. I could speak at some length about feral pigs and foot-and-mouth disease, for example. It is extremely curious—it is important to us as a country, for a number of reasons that I will come back to—that feral pigs have rarely, if ever, been able to sustain an outbreak of foot-and-mouth disease. They need other factors because of the way the pig behaves when it gets sore feet and gets a temperature. It crawls away on its own and the piglets tend to die, the milk dries up and so on. It is very important in the way Australia faces the world if people perceive that it is in the feral pigs.

So what are we good at? We are good at only part of the game, especially with our friends from the National Farmers Federation. What we are good at is the biology of the pig. We know a lot about how pigs breed, what they do and how they behave—not as much as some of our other colleagues who are biologists but we know a bit about the biology of the pig. We know a fair bit about the diseases of pigs, their reproduction and so on, and animal welfare. The profession is also very good at disease control programs. Australia has nothing to be ashamed of in this area.

We are one of the few countries in the world that have eradicated, for example—I know we cite this a lot—brucellosis and tuberculosis, which is an extraordinary feat. The small pocket handkerchief sized countries in Europe have not been able to do it; the Americans have been trying to do it since 1935 or thereabouts. There have been all sorts of efforts but they have been unable to do it. We have done it in the most extraordinary pastoral circumstances because we have adapted to the nature of the game by working together with industry better than in any other country I know. Also, our state system, by working through state laws using common plans, standard definitions and rules, has enabled us to fairly administer costs with the beneficiaries playing their part, and adapting to the nature of the terrain, the industry and other circumstances in different regions. I lived in America for quite a long time and it was quite

fascinating to see how a federal system is able to do this, especially when it is sided by a national ministerial council and with due consultation with agriculture.

We are also good at quarantine, which is my background. I was involved in quarantine at the federal level for a long time. Again, we apply this to feral pigs. Our concern is not to try to teach anybody any more about how to research feral pigs or whatever, but we still believe that what we are doing now is not capitalising on the gains. We saw major efforts made in 2002 to take advantage of drought when pigs were accumulating around waterholes, but we gave those gains back over a short period of time because we did not capitalise on them. We always call on farmers to put a lot of effort into these things and it is very disappointing for them—it is heartbreaking—when the efforts that they have made are lost.

I will concentrate on a few issues: recent events, impacts, diseases, animal welfare and trade and just a little about operations. Each will be very brief. We seek to make our expertise publicly available. We gave evidence to the various committees, as we said earlier. We joined the formation of the Australasian invasive animals CRC because we think we have something to offer and we feel an obligation to make that available. We attended the national pest animal strategy workshop in Brisbane which established a strategic scope for vertebrate pest species, both exotic and native, that threaten economic, environmental and social values.

That national strategy came up with three goals. One was to prevent new vertebrate pest problems. We have had a history of bringing things to this country, but we have also had a damn good history of keeping them out. So we need to give attention to that. One is to reduce the impact of the established and widespread pest animals, which is something which interests us greatly today. The last one is extremely interesting to us: leadership and coordination for pest animal management in Australia. This we see as the next step after the Cairns workshop, which brought all the players together. This idea has been picked up by the Department of the Environment and Heritage, who, as you would know, are calling for submissions into this sort of work to address the recommendation from the Senate committee to put a national strategy on the agenda. We recognise the excellent threat abatement plans which have been developed by that department. I will not go over in detail the impacts.

We are interested in studies by Ross McLeod that were released by the Minister for Science, Mr McGauran, in May last year. They estimated that 23 million feral pigs occupy 38 per cent of the mainland. Unfortunately, this came out just after we made our submission. The impact of predation, crop damage and infrastructure damage—fences and the like—is of the order of \$200 million to \$300 million per annum. That is an estimate because the most recent sound figure that we can find is \$100 million per annum, which was established 20 years ago. Management costs in the order of \$5 million per annum, according to McLeod, and research costs about \$1.5 million.

The invasive animal CRC—that is an Australasian one—expects to improve these things by reducing the threat of feral pigs by 15 per cent, which is estimated to save Australia \$16 million a year through reduced disease transfer, growth in invasive pest control industries and so on. That is a tangible benefit to the country (a) to control this continuing problem because the technology is advantageous to prevent spread across other species, and (b) to protect exports. I am sure you know how innovative Australia has been in these biological areas in producing diagnostic vaccines and other sorts of things. This sort of technology has very strong potential in

countries of similar interests. They will raise professional skills and they will establish national and local benchmarks, which I will come back to. In an operational plan you must have benchmarks if you are going to work out where you are going.

I will not go over all the diseases in detail, but it is worth mentioning just one as an example. Way back in the mid-1800s a fellow called Wallace, a biologist, developed the Wallace line, which goes north-west of Papua New Guinea, slopes down in toward the Indian Ocean and slices through Indonesia. It was always believed that murray valley encephalitis, which is a flavivirus circulated through birds and vertebrates—like humans, animals and pigs—and spread by insects among these species, occupied the realm on our side of the Wallace line, Australia. It killed people. We all know the work Macfarlane Burnet, who won a Nobel Prize, and others did in this area.

On the other side of the Wallace line is japanese encephalitis. It is a similar virus but is different—it also kills people. That virus invaded the Torres Strait and has invaded areas in the Cape York Peninsula. It is sustained by populations of feral pigs. Vaccination programs are being carried out for people and for feral pigs. The Northern Australian Quarantine Strategy, which I am sure you are aware of, to detect these early entrants, found it. Once it establishes in a realm like that it is very difficult to control. It is costly because it visits on certain occasions on others, depending upon the population dynamics of the insects, pigs and birds, and a whole lot of other factors—and humans fit into that in the same part of the cycle as pigs. I just mention that for what it is worth. I made a comment about foot-and-mouth disease, but this is going a bit long, so I will not go on further about that.

We are very interested in animal welfare. That is our prime purpose in life. We are worried about lamb predation by pigs and attacks on other animals—even destroying the pigs themselves. The RSPCA last year had an excellent seminar on destroying these animals, which we all see as reprehensible. Some of us believe, ‘Well, we can kill them’—and some of us have had to do it. But sometimes the way we kill them can be pretty nasty. 1080 is not so good. We can talk about how that works in the body. Baits based on phosphorous are not good. They erode the gut. Some of our colleagues who are here tonight can speak about that far better than I can. It becomes really interesting when you look at wedge-tailed eagles diving in and disembowelling these animals—because that is where they take their nutrients—and picking up some of those baits as well.

Excellent work is being done on delivering baits and the mechanisms of delivery, and excellent work is being done on new baits. Excellent work is being done on aerial transmission of baits, on reducing the target species. Some of our colleagues will speak about this far better than I can, but we are very enthused by this—that is, minimisation of the non-target species kill. I will not go into the details about what some of these things do, but I can if you ask.

There are two other issues. One is trade. There are quite a number of diseases of animals in which a perfectly wholesome piece of meat or a milk product or something can transmit disease internationally because many of the biological agents stay in that meat when it is frozen. One of the parts of the risk analysis on imported pig meat, for example, which is going through the courts right now, deals with the probability and the means by which certain diseases might come through pig meat and get to feral pigs, even if the cuts are discarded at home or by a restaurant or whatever. Viruses survive beautifully in those: african swine fever, classical swine fever, foot-

and-mouth disease. Where this becomes an issue is that we have wonderful advantages in these species right now in terms of exports because we are free of these diseases. If they get into feral pigs, even if we can keep the domestic pig population separate by biosecurity methods which we have, which are very important in these days of bioterrorism, it is very difficult to declare yourself free and to know to what extent the ferals are dealing with domestic pigs. Again, we can talk a lot more about that.

The final question is the one that Michael referred to. We believe there has to be some sort of operational element. This national strategic plan has to be operational in some way, so that we make gains and we keep gains. We know that there will not necessarily be total eradication, although there may be in some areas. We believe that is important. We must maintain those gains. They have to be coordinated—everybody with an interest has to play a part—and we have to think about weak links. Regrettably, sometimes these are in national parks, because they are not particularly well funded and they are also concerned about native species so they sometimes find it hard to take action.

We are totally open minded and happy to play our part. We believe we have to capitalise on the enthusiasm and willingness of farmers to operate, and we do need to believe that there have to be national action plans with standard definitions and rules, targets, benchmarks and operational plans. I am sorry if that was a bit too long, Chair.

CHAIR—That is fine; that is very useful information for the committee. I thank you, Dr Doyle, for your contribution. We would like to ask you some questions so that we can evolve down the path of your views on feral animals, particularly the feral pigs which you are here to talk about. How many feral pigs did you say there were?

Dr Doyle—Estimates suggest 23 million, or of that order.

Mr TUCKEY—Twenty-three million over 38 per cent of Australia.

Dr Doyle—That is right, yes. I know that estimates will vary a bit, but we have taken that from the CRC.

CHAIR—It is a pretty significant population of a feral animal to wipe out, isn't it?

Dr Doyle—It is many multiples of the domestic pig, too.

CHAIR—I know, but they in the main are under control; they are within four walls or four fences. The reason I am making that point is that we have heard evidence around Australia about the use of that resource as an export commodity. We have seen it in relation to wallabies, where wallaby explosions occur, and we have seen it where possum explosions occur. It has been suggested to us that we could do that with emus when the emu population explodes. We have even suggested that it might be appropriate for the exporting of galahs and native birds, which cuts out an illegal trade in them. What are your views in relation to the use of feral pigs as an export resource, given that Europe, particularly Germany, is very much aligned to using feral pigs as a food resource? That is the first question. The second question is: is there any work being done through your organisation on the issue of viscera inspection of pigs to see exactly

what disease they carry? If so, were any diseases found? What were they, and would they have an impact on any attempt to harvest this resource as an export commodity?

Dr Doyle—We have no problem at all with the use of either native or wild animals, provided they are sustainable and provided it is consistent with conservation plans, with the sole proviso that they are killed humanely. That would address many of the native species and feral species. With particular reference to feral pigs, we have no problem with that at all. As with most disease control programs, you have to make a start somewhere. It is very difficult to go into an eradication program right from the start. Usually, there has to be some reason—a disease or a population of animals—to tamp them right down to a point where you can make a final thrust to eradicate them. Incidentally, the final thrust is always the hardest.

When it comes to feral pigs, it is perfectly legitimate to harvest them and to use that harvesting to reduce the numbers. Depending on how successful the tamping down of the numbers is, it might be a means of keeping the numbers down but, at the end of the day, possibly not a reason to sustain them. Interestingly, at the Cairns workshop, even the people representing the shooters suggested the same thing. They did not believe that their trade, of itself, was enough, but they believed they could play a part and economically benefit from it.

Several diseases are found in feral pigs. One of them is a parasite called sparganosis, which wanders under the skin of the pig. There is a type of brucellosis which is different from cattle brucellosis. There is a type of tuberculosis which is not quite the same as bovine tuberculosis.

CHAIR—Two members of the committee are aware of the tuberculosis and brucellosis problem. We both came out of the meat processing industry. I was a victim of brucellosis when I was younger.

Mr GAVAN O'CONNOR—So was I.

Dr Doyle—I think I was too.

CHAIR—It is a terrible thing to have.

Dr Doyle—There are certainly diseases there, but they are readily controlled. You can harvest animals from the wild. You can harvest feral pigs in the same way as kangaroos. You can eviscerate and keep the viscera for inspection. You can keep them cool. Those of us who have home-killed an animal would remember—and people sneer a bit at this—that you tend to kill at dusk and hang them in a fly-proof safe overnight. In the morning, they are set fairly hard, and that is the time to put them in the chiller. They also taste the best, because there has been a bit of post-mortem autolysis. Recent studies have shown that they are virtually sterile—we mostly did sheep—because the outside tissues have dried. You need moisture and warmth for bacteria to multiply. It depends on the method of processing. With high-pressure sprays and humidity and going into a chiller with 100 per cent humidity, you notice the sweat marks the carcasses get on them if they touch. It is very interesting. There is a place for that kind of meat production—absolutely.

Mr ADAMS—With a chaff bag over them.

Dr Doyle—So long as it is a clean chaff bag.

Mr GAVAN O'CONNOR—In your submission you say that a national mapping and monitoring system for pig populations is the order of the day. How far down the line are we on achieving that? Obviously, some research is being done in some institutions.

Dr Doyle—The Bureau of Rural Sciences have produced a population map. They have very good technology to do this. This is not my field, so I find it quite difficult to answer in detail. There are means of doing it, but I could not tell you how accurate they are. I do know that you can map broad trends by aerial grids and satellite technology. It is very difficult to get the pigs out of the wilga or other scrub to count them. In periods of drought it is very much easier. So I think you can get an estimate.

Mr GAVAN O'CONNOR—You also say that your efforts would focus on areas with low populations and then move to the others, contrary to what would conventionally be regarded as the strategy to deal with it, which is to do it the other way round. What is your rationale?

Mr Hartmann—There is an awful lot of the country that does have pigs and there is still an awful lot of the country that does not have pigs. Our preferred approach would be to first focus on the areas that do not have pigs and try to keep them clean and then move the front into those areas where the pigs are. The current approach is on a state-by-state basis. The states have limited resources and say, 'We have to use these dollars so we get the biggest bang for the buck,' as it were. They will dive in where the largest populations of pigs or pest animals are and do a big shooting and baiting program. They will get rid of a lot of animals and totally disrupt the social harmony of that population. When they leave, the pigs say, 'Heck, we are in trouble here with our population so let's breed like crazy and get back to where we were before.' You end up with more than you started with. Another problem with a state-by-state approach is that no-one has taught the pigs to read state boundary lines so they like to cross the lines. That is a problem.

We are suggesting that we need a paradigm shift. We need to stop thinking about it on a state-by-state basis. We need to think of ourselves as a country, focusing, firstly, on the areas where there are not many pigs, putting in baiting programs and the like and using surveillance to ensure the pigs are not repopulating, and then focusing into the really hot spots.

Mr ADAMS—There is the issue of the education of the public; it is all right for those of us who are involved in these areas. We have wild animals that are endangered; animals like wallabies, paddymelons and possums in my state which reach plague proportions and cause problems—and kangaroos in other areas; and now we have the pest pig population problem. We have people who want to save wildlife and that gets mixed up with the whole issue of what we call pest animals. There is a need for education in that area. What does the Cattle Council think about that?

Mr Hartmann—Definitely. Farmers are custodians of the land and all the things I said before apply. You actually enjoy seeing kangaroos hopping across your paddock. You do not mind seeing the odd fox or dingo. It is nice. It is just when the populations get out of control and start causing problems. Education across the rural scene and the metropolitan scene are vital. A really good example I can give is with wild dogs, which are an enormous problem for us. One of the issues we have is with domestic dogs that go walkabout at night time. They have savaged a

whole bunch of sheep and the next day they have gone back to the front porch and nobody would believe that little fluffy would have done that. In our area I know of a sausage dog that was the leader of the pack. He was not killing any sheep; he was getting all his mates and they were all going and doing the killing. Once we got rid of the sausage dog we solved the sheep killing problem. As you say, it comes down to education. We need to have a balance.

Mr TUCKEY—Following on from your comment about dogs, we have had other evidence about that. Does the Cattle Council see them as achieving limited damage to cattle? We know what they do to sheep. We have been to Leonora where they have wiped out entire properties. My first question is about the extent to which you think the dog is a problem across the entire spectrum. The second question comes down to the proposal to get rid of these animals. You mentioned a CRC. I assume that is doing significant research. This committee does not need convincing of the problems of these invasive species, be they indigenous or feral. We need a lot of advice as to practical measures to get rid of them.

I have a note here—we had a thing in Western Australia called the APB, the Agriculture Protection Board. It was a very active organisation. You mentioned that state governments are short of funds. I disagree with you on that. They just spend them unwisely. In fact, 50 per cent of every dollar they spend now comes from the Australian taxpayer. It is not a case of available money; it is priorities. I think that is an issue that has to be a part of the national approach. But I take your point about the national approach. What I am really coming at is this: what are the practical measures you would recommend to us to achieve annihilation of, for instance, feral pigs? The immediate thought that comes to mind is myxomatosis—then you think about how you protect the domestic product. Admittedly you could inoculate them or something, but it gets very dangerous in terms of consumption of the meat. They are my two questions—one about the dogs and the other about the time frame you give the CRC to make some positive recommendations to do something serious about the problem and the sorts of dollar values that that might represent.

Mr Hartmann—I will take your first question and then hand over to Kevin for the second. Firstly, it is important to recognise that I am speaking on behalf of the National Farmers Federation as well, so it is not just the Cattle Council talking about dogs, pigs, rabbits and whatnot. As far as cattle are concerned, the wild dog problem is an enormous problem. It is not so much that calves and cows are getting pulled down and mauled by dogs. The bigger issue is a bacteria called neospora caninum. This is a bacteria which is spread by dog faeces. They do their business in water and the cattle drink that water and take in the bacteria and it causes abortion. In Queensland, research has shown enormous calf losses because of abortions as a result of this bacteria. It has been mapped. It is an incredible map of Queensland with a great spread of colour all the way down to the dog fence. It shows on one side lots of neospora and on the other side hardly any. It shows just how devastating that is to the cattle industry in Queensland.

Dr Doyle—I do not think there is a magic bullet. There was a proposal in the late 1980s when someone suggested we put classical swine fever, a serious disease of pigs, into these animals and control that by using a vaccine in the domestic population. The vaccine is a complex one. It is a pestivirus, a particular type of virus which is complicated to vaccinate against. There are questions also of differentiating between vaccinants and real infections. There is also the question of Australia's animal health status. We are at a point now where we are getting quite good pig exports and we are free from a number of diseases. We are getting a balance between

these imports. We could talk a little about their place in the scheme of things but there actually is a place at some point. So that really has to go to one side.

The only type of magic bullet that I believe is considered might be a really good approach is the notion of fertility control. The problem is vectoring it. It was almost given up on by the old CRC. But the CRC headed by Dr Tony Peacock, whom I am sure you would have heard from, is a most impressive group. We joined their application because their plans were so good. They managed to get up yet again. They even had an Australasian dimension. Even having been renewed before, they got up again against incredible competition because their plans were so well devised. They are having another look at that technology. Whether that is commercially or practically a goer as distinct from success in trials is perhaps an open question.

Regarding other techniques, it seems from what we can see—and bear in mind it is not really our area of expertise, except peripherally to see humaneness, population dynamics and a few other issues considered—that maybe the answers in the short term would be more targeted baiting programs. When I say ‘targeted’ I mean more species targeted as well as regionally targeted, and good estimates of response to those programs. That appears to be the technology in the shorter term. If they can be delivered more cheaply, be more species specific and more humane on the target species it seems that that is the way to go in the short term.

As I said, we accept that eradication at this point of the technology is not possible, but we firmly believe that it is all about population dynamics. We might be wrong on this notion of going into the smaller areas first. We have to get together as a country and work out which is the better of these strategies. There are other people smarter than we are. The other issue in all this is the resource at the end of it. As we saw at the Cairns meeting, the effects they have on rainforests is absolutely unbelievable. We look at land predation and so on, and we have all had to put sheep back together again after dogs and other things, but what they do in small, tropical, ground-dwelling areas and even to little orchids and things like that is really quite extraordinary.

Mr TUCKEY—They do a pretty good job on frogs too.

Dr Doyle—They do a pretty good job on frogs too—and they are a good monitor of how the environment is. To answer Mr Tuckey’s question, I do not think there is a magic bullet at this point, but some incredible advances have been made. If it is a magic bullet, it will probably have restrictions in the same way that myxomatosis and rabbit calicivirus do, but both of these technologies are very lucky to have a niche somewhere in this bigger game. The real issue is to get all the players into the game.

CHAIR—We could ask you to keep talking but, unfortunately, we have time constraints and I am aware that Mr Windsor wants to ask some questions.

Mr WINDSOR—I think, in answering Mr Tuckey’s questions, you have answered mine. I have one point though. With regard to biological control, is an inoculant for domestic pigs something the CRC should be working on?

Dr Doyle—Unless you are up with the current literature, it is very hard to know just where that falls in the scheme of things. I am sure that they are interested. I am sure that Tony Peacock

and his team are scanning the literature, as are the other players among the states—it is not a one-team thing. I cannot answer that in any specific way, but it is certainly always—

Mr WINDSOR—If you had one recommendation for this committee to come out with, what would it be?

Dr Doyle—From where we sit, we have done a lot of wonderful things with imperfect tools. The test for Johnne's disease, for example, is imperfect right now. The tests for bovine tuberculosis are imperfect and the tests for brucellosis are imperfect. You can do wonderful things with imperfect tools. My answer to that would be to get the best players together and develop this strategy. Hopefully, what the Natural Resource Management Ministerial Council is seeking to do is just that.

Mr WINDSOR—Is the CRC the vehicle?

Dr Doyle—The CRC is the vehicle to pull together the research players and the way they can be applied, as well as to look at issues like the commercialisation of these various instruments, because you need commercialisation to fire it.

Mr ADAMS— What about operationally?

Dr Doyle—Operationally, the current coordinating mechanism is the Vertebrate Pests Committee. We are not being critical in any way but, in the sorts of discussions we had—and I am sure Michael would like to speak on this—it has not been operational in the operational sense that we are talking about—namely, a defined plan with standard definitions and rules, noted objectives and everybody working together. We have seen eradication plans in western New South Wales in the last few years and in southern Queensland but no link between the two. I am sorry if that was lengthy.

CHAIR—Thank you very much for your evidence. It has been very interesting. It is a subject that we as a committee find very interesting indeed. Unfortunately, there are not enough hours in the day for us to listen to the wealth of knowledge that is out there on the issue, but we are getting good input from people like you. I thank you for allowing us the opportunity to hear what you have to say about feral pigs and, more importantly, the views that you have on other aspects of feral animal control.

Dr Doyle—Thank you for the opportunity.

[5.59 pm]

STAPLES, Dr Linton, Managing Director, Animal Control Technologies Australia Pty Ltd

CHAIR—Welcome. Although the committee does not require you to give evidence under oath, I should advise you that these hearings are formal proceedings of the parliament and consequently warrant the same respect as proceedings of the House itself. It is customary to remind witnesses that the giving of false or misleading evidence is a serious matter and may be regarded as contempt of parliament. Do you wish to make some brief introductory remarks or a brief statement in relation to your submission?

Dr Staples—In view of the time and the long agenda tonight, I will try to be as brief as possible, but I would like to make some opening remarks. Firstly, thank you for allowing a member of industry to make a contribution to the panel. No doubt, you have all suffered somewhat from the submission we made some time ago, when this committee convened before the last election. Animal Control Technologies is a group that you may not have heard of. It is an Australian company and we regard ourselves as the leading private sector developer and supplier of pest animal management technology. After having heard the previous speakers from industry and the Veterinary Association, I must say that we are very firmly focused on nuts and bolts solutions to pest animal problems. That is the role we play.

We have developed products such as FOXOFF for fox control, RABBAIT for rabbit control, DOGGONE for wild dogs and MOUSEOFF for plague mice. Those names might sound funny, but they are now household words throughout large parts of Australia and those products generally form the backbone of a number of very important pest control programs. Some time ago we were asked to estimate the value to farmers of the work that we have done in terms of the benefits from the use of these products over the last 10 or 15 years, and the best figure we could come up with was somewhere between \$1 billion and \$2 billion worth of direct benefits. For a small company of now 12 staff—but for most of its life it was quite a bit smaller than that—without external support, that is not a bad outcome.

Along the way, we were called in as consultants in our scientific reviewing capacity to write the regulatory submission for rabbit calicivirus after it had escaped from Wardang Island. We also prepared the proponent case for the New Zealand regional governments for rabbit calicivirus. We do many smaller projects—for example, with what was the Victorian department of agriculture at that time, we developed humane fumigation techniques for foxes with a product known as DEN-CO-FUME, which is a technique borrowed from America. We are currently at an advanced stage with the development of a feral pig bait. Our involvement in that arose from the Cairns workshop, where we were brought in as an industry representative and encouraged to bring something about. We are approaching registration of a product called RATTOFF, which has been of significant benefit to the sugarcane industry where one of the main pest problems was plague rats.

Along the way—and you would not have heard about this—we have provided the technology for the control of yellow crazy ants in Australia and the Pacific islands. That technology is responsible for saving the red crab population on Christmas Island, so we are quite proud of that.

Although we had a backroom role in it, it was our product that was used to solve the problem. That product has quite a lot of potential locally and internationally. We are now the principal commercial partner of the new Invasive Animals Cooperative Research Centre and have been actively supporting that bid proposal.

With all of that, we have had the opportunity and privilege to work with all levels of what I call the pest animal continuum. By that, I mean that we talk individually to land-holders. In fact, tomorrow night I will be talking to a group of land-holders in Geelong. We work very closely with local organisations at the state level and with federal effector agencies such as the BRS and others. We also have to work through, around, over and with myriad regulatory agencies that have an involvement one way or another in the development, registration and approval of these techniques.

Through all that, our focus is to deliver improved and practical technology and advice to address our important pest problems; it is very much a nuts and bolts focus. I have here examples of the advice, which I have given already to the committee with our original submission. In addition, we have very strong technical backup and education programs around all these technologies.

You might think that we are cruising along on top of the problem but I am sorry to report, ladies and gentlemen, that we think we are still losing the battle against pest animals. Initially we wondered about the value of a pest animal inquiry. Then, when we stopped and thought about it and wrote our submission, we thought perhaps there is an opportunity here to make a real difference and that is why we are here.

Why are we perhaps losing the battle? I stand back and think we are not overly deficient in the technology. That is not to say we do not need new technology; we certainly do and we should be mindful of improvements where they can be made. However, I believe that one of the main reasons for our not having forward progress at the moment is that we have not engaged the broad community fully at all levels. Even worse, in recent years I think we have probably put more administrative barriers in the way of land-holders taking effective action than we have encouraged them to do so.

We have covered many points in our lengthy submission, and now is not the right time to repeat all of those; it would take me a long time to read 60 pages or so. However, I made some quick notes for an introduction this evening and will list the key points. We believe there should be a strengthening of the national coordination very much along the lines of what you heard from the previous presenters. We believe that can be done through the existing Vertebrate Pests Committee, under the Standing Committee on Agriculture, Fisheries and Forestry. We do not see the need for a new federal authority—or, for that matter, a new state authority—but we do not believe that the current committee works as well as it might. That is not a criticism of the individuals; it is just that I think it needs to be supported better and then it could work better. It is trying to do a big job on a shoestring and I think it could be made to work better. In addition, there could be some better representation on the committee and it could be broadened out just a little—but not be made too big.

We could improve the priority setting of our research. There has been some wasteful research in the past and some strong strength and weakness analysis and clear decision making should be

done. Having said that, when we wrote our submission, the Australasian Invasive Animals CRC was not supported; it had not come up for review. I have to say that the new breath of fresh air proposed by all the players and the huge team involved in it is a phenomenal step forward for this country and a very big strategic asset. I think the federal government, or whoever runs these things, has made an absolutely correct and visionary decision in supporting that CRC. Full congratulations to the people who put this enormous bid together.

It is very important for us to increase support for effector agencies and to increase support directly to land-holders and the Landcare movement. They are the people on the ground; we work with them every day of the week and see them struggling quite a bit. There is a lot of top-down pest management in this country, and bringing solutions along is a bottom-up issue. So we need to resource the people on the ground because they are the troops doing the daily battle.

From our point of view, we could probably streamline some of the regulatory view on emerging technologies. But, in that regard, I think there has been an improvement in recent times, with the APVMA and other agencies realising the difficulty of our task in getting properly registered technology up. We have had good support with the award of experimental permits or emergency use permits for some products, which enable a lot of research data to be collected while the problem is being solved. We are very much 'learning by doing' type people. We do not throw things out; we like to learn all the time while they are being used.

Certainly, we need to increase direct action and application of existing technologies, and that applies also to Crown lands. We need to have complementary action to support actions by private land-holders. We do not see any demarcations on fence lines or property title boundaries with these pests; they are everywhere. I get very tired at meetings when one side—for example, farmers—says that all the pests come off Crown lands, and I then go to an environment meeting where all the Crown lands people say that all the pests come off farms. Neither is correct. These pests are on both sides of the fence and we all have to work together to fix them, which was a theme of the previous speakers.

I would hope that, from our presentation and our submission, you would also see a role to support industry. I guess we are a major part of that, but we also have many links to the rural merchant system and so on. For example, with mouse management in this country, we have been trying to enlist the thousand or so rural merchant agronomists who now provide day-to-day advice on farms—a hitherto unrecognised resource in vertebrate pest management but, in our view, a thousand troops is another thousand troops. I would not ignore the role of the private sector. As you will see in my submission, we have said it is not just the government's problem and the government should not be expected to fix everything.

Finally, there is an opportunity here for your committee to come out of this whole process with some very big political vision, which clearly should be bipartisan. I would like to see it arrive at a greater plan not just for the immediate future but also looking forward five, 10 or 100 years. We have 200 years of damage, and you have heard about that others who have made representations as well as us. For the first 100 years of settlement, we introduced pests to the country; for the next 100 years, we looked at them; and for the next 100 years, I think we should be trying to turn back the balance wherever it is practically feasible. That is a very quick thumbnail sketch of my submission. I am happy to take questions.

CHAIR—Thank you very much for that very interesting precursor. You will probably be able to expand on that when answering our questions. You understand, as do other people, that this situation will not be easy for a variety of reasons, including the ad hoc way in which pest animals are addressed on a state-by-state basis and on a Commonwealth basis. There is no coordination anywhere; hence the need for control by a national body. What impact has the banning of animal skins or the furs that come from the skins of animals, such as foxes, had on the increase in population of that animal? I ask that question as someone who lives in rural New South Wales. I also ask it because I know many people who have stopped shooting foxes because there is no money in it. At the moment, the only people who are shooting or baiting foxes are those who tend to lose economically from their existence.

Dr Staples—We have looked at that over the years. In the early 1980s, when the market in skins was at its peak, some half a million or slightly more fox skins were being processed and exported from Australia each year and overall the fox numbers, as far as I am aware, were not falling; so there was a harvesting exercise. From my perspective, every utilisation of a pest animal is worthwhile and its removal from the environment is a plus, so we certainly encourage shooting. It is not just the price of furs that has decreased people's ability to shoot; it is a combination of liability issues, restraints on gun ownership, the time available to farmers to spend on shooting and so on. We would support the control of feral animals by their harvesting, where it is appropriate. Like the previous speakers, we do not think we should develop a sustainable industry around it, but it is a useful tool on the way out. At the end of the day, shooting does not control something as widespread as the rabbit or the fox; it samples the population.

CHAIR—The CRC was very complimentary about the work you are doing on the new off-shelf pig bait, and it is pleasing to hear that you are in the process of perfecting another bait for rats. In your submission, you appear to be opposed to bounties; why is that? Is it because you think bounty scalps can be manipulated?

Dr Staples—It is well known that most bounty schemes fall down in their implementation and they can be defrauded. In principle, they also send the wrong message because they start to put a value on a pest, which leads to a harvesting and sustainable management situation. The pest is then turned into an asset rather than a problem. I think that is the wrong message. However, having said that, as I said before, on the way out you can utilise them. For example, with feral pigs, we would encourage people to shoot, harvest and export their meat, if that were the first stage in an area wide eradication program.

I am not the greatest expert in bounties. I have never been involved in them personally, although I have heard great stories about the number of times a set of ears can be handed in for gain in previous bounty schemes. However, the Bureau of Resource Sciences or one of the universities in Canberra has done a very good review, which I would encourage the committee to read. It looked not only at fox bounties and so on in Australia but also at bounty schemes for virtually all pests around the world. The introductory comments to that review, which was done two or three years ago, comprise one of the most damning assessments of bounties that I have ever seen. The bounty scheme in Victoria that was brought out a little while ago for controlling foxes certainly brought attention to the fox problem, but it ran into all the same problems that were pretty predictable from the start and it was discontinued.

CHAIR—Finally, in your submission—and from what you said today—you believe that the Vertebrate Pests Committee, which could provide effective national coordination with extra resources, needs those extra resources. What additional representation would you like to see on that committee? What kinds of actions in relation to pest animal control should be taken at the national level?

Dr Staples—Talking about the representation first: because of my role dealing with a lot of different levels, I think we as a company—or people like us—could make a contribution. However, that is easy to say, but, equally, it may be better for us to stand one step distant from that process because it may well be better coordinated by others. But we could certainly be brought in in a consultative sense. There are ways of getting our input without us necessarily being on the committee.

CHAIR—You are being very diplomatic and modest, but the reality is that this committee needs to know those things. If a company such as yours can make a significant contribution to a committee such as that, to the extent where it has better management and better ways of dealing with a very serious problem then we need to have people tell us that so we can take it on board and our final report may be improved.

Dr Staples—Maybe others would judge that better than me. I am a bit close to it.

CHAIR—No, I appreciate that. The point I am making to you is that it might be difficult for you to answer the question but it is very important to us.

Dr Staples—I think there is also an opportunity for industry groups like the Cattle Council and very clear-thinking organisations who can have input. When I say ‘industry’, I happen to be in the product development and delivery side of it, but there are other components to the agricultural industries that have a role to play. Wherever there is a constructive contribution needed, they could be brought in.

The vertebrate pest group has been run, from time to time, with some very talented and experienced people. But, over time, they tire or retire and so on and so succession planning is an issue. There is a tendency sometimes for large committees and groups to then become dominated by really good committee people who actually do not own the problem and do not want to do something. I would be cautious about how it is restructured to make sure that we keep a focus on delivery and practical outcomes. That is why I am more in favour of running the Vertebrate Pests Committee with its across-state representation because it is a route by which we can overcome state boundary differences. It is also a bit more practical than a government department of pest management, or something like that, which would add another layer of bureaucracy without necessarily getting more effective actions on the ground.

CHAIR—They are the comments I wanted.

Mr ADAMS—I want to deal with two points. One is that you talked about bounties with pests—pigs, foxes, kangaroos and other native wildlife. What is your opinion, financially, about using them to help bring down game management programs et cetera?

Dr Staples—I do not have a difficulty with sensible harvesting of native species. I heard before a representation that we could export parrots or something. I am not quite sure whether it would go that far. There might be other constraints on that sort of harvesting and some of that probably is not appropriate. But, in the case of overabundant species with localised pest issues, they could be harvested as a way of reducing the population.

Mr ADAMS—Under management and process regimes?

Dr Staples—Yes, appropriately. Not a free-for-all, certainly.

Mr ADAMS—Thank you. The other point is that we have had evidence that companies like your own can run into difficulties with regulators in the time span that it takes to get a product through a regulatory body's registration process. Would you like to comment on that—whether it takes a lot of time?

Dr Staples—It certainly does. The typical time for most of our products—in fact I did have a slide on this for another meeting I had to present—is about four years from concept to regulatory submission, then possibly another year, two years or three years, depending on the product, of regulatory review.

CHAIR—From the time of concept, how long is it before the product is ready? What is the time frame from the time of—

Dr Staples—The quickest would be three years. The longest would be seven years. That is the sort of time frame you are looking at.

CHAIR—For approval?

Mr TUCKEY—After invention.

Dr Staples—For approval.

CHAIR—No, the question I am asking is: how much time on a particular product do you require to have the product ready for commercial use before you get—

Dr Staples—It depends on the research path for the product.

CHAIR—Can you give an example?

Dr Staples—Most of our products have taken usually three to four years of research before we have been in a position to make a submission. Particularly with these kinds of products, we first of all have to review the field and try to make an educated choice as to which way to go. We try not to chase too many blind alleys because we do not have the resources to do that, frankly. But we target clear solutions and we tend, as a company, to have to pick off the easy things because they are the only things we can achieve. The more complicated research needs to be done within the high risk profile of a CRC. But we choose simple ones and then we have to focus on the efficacy of the product—does it do what we intend it to do—and we have to prove that in a variety of situations. Because we are dealing with products that have the potential to

affect other animals or other systems along the way we have to look at the non-target impact, and that can be as big a job as looking at the target efficacy. In fact, nowadays it is probably the bigger half of the problem.

We then have to look at the environmental consequences: if it is used then what is the environmental burden if we use chemicals, can we do it better, can we use less chemicals—which is our company philosophy. We try to look at any harm minimisation work we can do and finetune that, and then we have to get the stability. Only when we have finally chosen the product can we start to do the stability work to show that it is stable in its packaging and it is suitable for use. Then it has to go through a very extensive review, which is managed by the APVMA. From there, it is subbed out to various state agencies and also to WorkSafe and a number of other federal bodies—Environment Australia and so on.

It is a big process; it takes a lot of time for those interactions and feedback to come back. In theory it should only take a year or a year and a half to get a product registered once you have made a good submission, assuming the submission is complete and perfect, but in our experience it has taken longer than that and there are usually a few iterations along the way where the clock stopped and so official time stops for a moment while the ball is served over the other side of the net somewhere.

An example would be the pig bait. The Cairns meeting was the start of that project, although we certainly thought about it before that. In fact, we had even made prototypes before that meeting, but that was the real impetus for us to say, ‘Let’s give it a go’. It was an excellent meeting and it was a very robust meeting because we had a lot of points of view aired very strongly but in a very constructive way. We were very fortunate to be paired up with new players within the existing CRC who have really coordinated the field testing, which has been an enormous effort. We are doing trials on hundreds of square kilometres. This is not something a little company can do lightly; we really needed the support. Through that, the state agencies have all come on board. It is actually a showcase project of a cooperative approach to a big problem. I am not saying we have solved it all yet, and no single control technique will control the feral pig—I am a great advocate of integrated control—but we did need a more professional approach than the backyard bits of meat and bits of grain.

Mr ADAMS—The dead horses.

Dr Staples—Yes, and there certainly have been some non-target issues with some of those products or techniques. They have been the best of what has been available at the time, which is fine, and they have been used reasonably wisely, but at the end of the day we have the chance to do a bit better and I think we have. That one is a good news story.

Mr TUCKEY—That was exactly my question, but I want to following up on something. Are you saying there is evidence that, with appropriate cooperation of the parties, the time can be shortened?

Dr Staples—Yes, I think so.

Mr TUCKEY—What would be your ambition?

Dr Staples—I would be surprised if we could get even a fairly simple new product off the ground from start of work to registration in less than three years. That is the time line we are looking at for the pig bait at the moment.

Mr TUCKEY—That is a bit better than seven, isn't it?

Dr Staples—Yes; seven is bad. A simple product was our work on rat control for the sugar industry. We actually solved most of the technical hurdles of that in the first year. We had to because the industry needed to be saved. We often get brought in during those emergency situations to pull—to use a poor pun in this environment—a rabbit out of a hat. We managed to solve most of the technical issues in 2000. We are still waiting for registration in 2005. That gives you an idea of some of the hurdles, and that is a fairly straightforward one.

Mr MARTIN FERGUSON—Have you seen any real change in the management of pests on government land as a result of the decision in *Stockwell v the Victorian government of 2001*?

Dr Staples—When we read that ruling we were amused to see the way that it had been very carefully constructed. I think it is a real landmark ruling in the way we go about pest management across land tenures. I think there are a lot of lessons there and I am sure the eminent judge was well aware of the way he constructed that ruling when he did. The answer to your question, though, is I have not really seen major changes but I think maybe it takes a little time for the facts of the matter to sink in. No-one has really run another precedent case to follow up on either side of the fence. Really I think that case was a landmark decision and it should be read by lots of people.

Mr MARTIN FERGUSON—Why hasn't another farming organisation followed it up with a test of the decision?

Dr Staples—I could not answer that.

CHAIR—Dr Staples, thank you very much for your time; it is very much appreciated. As I have said to other witnesses as we have moved along, it has been very important to hear from people such as you. It is particularly important to hear from you from time to time where needed on the sensitive issues that people sometimes are a little bit reticent to talk about. We thank you for your contribution.

Dr Staples—We are at your disposal for further information, if you need it.

CHAIR—We are all facing the same objective. Thank you.

[6.26 pm]

MARKS, Mr Clive Alexander, Director, Nocturnal Wildlife Research Pty Ltd.

CHAIR—Welcome. Mr Marks, we have to go through some preliminary things for the record. Although the committee does not require you to give evidence under oath, I should advise you that these hearings are formal proceedings of the parliament. Consequently, they warrant the same respect as proceedings of the House itself. It is customary to remind witnesses that the giving false or misleading evidence is a serious matter and may be regarded as contempt of the parliament. The committee has received a paper from you outlining the issues you wish to address today. Would you like to make a statement in relation to that paper or to make any other opening remarks or present any other means of communication?

Mr Marks—Yes, I would. Thank you very much for the opportunity to present at this meeting and for accepting my rather late submission. Nocturnal Wildlife Research Ltd. is a new company. We have only been going for two years. We are firmly in the business of innovation and development of target specific and humane vertebrate pest control technologies. To give you an idea about my own background, I have been involved in the vertebrate pest control area for 17 years and I have killed thousands of animals experimentally as part of the research and development agenda. So it seemed somewhat contradictory that I am going to talk to you about animal welfare issues. It is certainly not an attack on the need for vertebrate pest control; otherwise, I would be an absolute hypocrite. It is a plea to recognise the urgent need for innovation, particularly for a new approach to how we address humaneness in vertebrate pest control.

I believe that there is what I would call a tsunami of concern about individual animal welfare not just in Australia but in the Western world generally. This is not going to go away; it is something we have to contend with. Presently in the area of pest control especially, it is almost like our planning to address this major social change and paradigm shift is happening in a tin shed on a beach rather exposed to a tsunami.

I would like to advise the committee that there is great potential for some of the vertebrate pest control practices to cause immediate international embarrassment and boycotts of our markets and economic hardship to Australian agriculture. What has happened with live sheep exports and mulesing is just a taste of what could become a common lobbying technique, which would be quite damaging. We need to protect our rural industries by being proactive and not retreating to the status quo, which I believe has been the tendency in the past.

I am not so glowing about vertebrate pest control technologies at the moment. Most of our technologies that are currently in use—and I can supply further information—have not changed fundamentally for many decades. We are still using the same toxicants. Broadly speaking, we are still using the same delivery methods. This lack of innovation and progress leaves us exposed to domestic and international criticism. A failure to openly identify such deficiencies—and there are some really glaring ones—or deny that they exist has become almost a hallmark of some players in the vertebrate pest community.

Some scientists and many policy makers still regard a focus on improving humaneness is irreconcilable with the efforts to address problems caused by vertebrate pests. Sometimes welfare concerns are regarded as the absolute antithesis of pest management objectives, but I believe this is folly and it is rooted in the past with the belief that we cannot do better. I think we can on many levels.

I am going to present two visual presentations, because I think it is important to see what we are talking about. I might add, to begin with, that I support the appropriate use of 1080 as a poison for control of pests for agriculture or conservation, because it is presently the only available technique. The other technique I would look at, though, is chloropicrin, which is a rabbit warren fumigant. I will try to make this *Hansard* friendly as I will talk you through the visual presentations.

A PowerPoint presentation was then given—

Mr Marks—I am talking about 1080 poison only for predator control for foxes. The issues to do with rabbits and other species are completely different, and the welfare impacts are quite different in different species. The way that this toxicant works is that there is generally a latent period where we do not see anything after ingestion for about three hours. In the second phase, we have manic running, retching and distressed vocalisation in some animals, which occurs for a comparatively short period of time. Thereafter there is collapse, convulsion and other behaviours which may go on for about an hour. The third process is what most people focus on. This is some of the footage of a fox succumbing to 1080 poisoning in that final stage of convulsions. We get what we call tetanic stretching. There is a lot of paddling and random movement, very similar to epilepsy, as has been identified before. If this happens to your dog, you do not have a very good attitude towards 1080. It is easy to see why people consider 1080 to be inhumane.

However, on the strength of the evidence that I have reviewed and the research that I have done since the mid-1990s, I would say that there is very little indication that there is pain and distress in those final stages. It is actually leading up to the onset of those symptoms—where we have the manic running, retching and other behaviours indicative of pain and distress—that we should be concerned about. I will get back to that in a minute.

Chloropicrin is a rabbit warren fumigant. This is a World War I warfare agent that is still registered in Australia. It is blown down rabbit warrens. It causes immediate irritation to mucus membranes on contact. It is a tear gas. The animal effectively drowns in its lung secretions. It does cause extreme distress for a prolonged period before death. Here is some not very good video footage. This is some research footage of actual fumigation of a rabbit in a warren system with a chamber attached. The chloropicrin and smoke mixture hits the animal. There is immediate distress. There is flight behaviour. The rabbit attempts to escape.

The footage now shows a few minutes into the fumigation. There is mucus dropping from the eyes and the nose. There are other behaviours indicative of distress. This occurs for approximately an hour. There is more distressed behaviour towards the end of that hour. There are convulsion, kicking and then finally death from bronchopneumonia.

The alternative agent that we have been looking at is the development of carbon monoxide fumigation technology. The footage shows it being introduced. After about 20 minutes, the

animal effectively falls asleep. There is no distress. There is no indication of distress from the time that the gas enters the chamber system. There is what we call some agonal kicking, which is quite normal, but we do not find that there are indications of significant pain and stress. These are the two alternatives. These are the two competing types of agents: one we are using and one we might like to use—and I think we have to.

In my final summation of what I have shown you and what I have said, I am convinced about 1080. However, there are some problems in the manner in which 1080 is reported in the media and also in the scientific literature and literature which has been produced by government. There is little doubt that some suffering occurs in predators—dogs, foxes and cats; not necessarily rabbits, which are a completely different kettle of fish—and many contemporary government documents have failed to, I believe, provide an objective analysis or cite available literature that supports that. I can provide the evidence to the contrary, as I have in my submission. The major concern is not associated with most of the distressing symptoms and behaviours that we have seen that most people pin their anxiety to 1080 on but in the onset of the symptoms.

The good news is that since 1996 we have been looking at drug agents to add to 1080 in predator baits. We have looked at quite a number of agents. We now believe that we have an agent that we have proven will mitigate, greatly reduce, symptoms associated with distress in that initial onset of 1080 poisoning. This is a practical technology and something that would lend itself to incorporation into current baiting techniques or current baits.

My summation about chloropicrin is that it is an absolute disgrace. A study of how a 90-year-old warfare agent which has been banned by the Geneva convention, I believe, that is patently inhumane and presents a hazard to farmers can still be used Australia in 2005 I think would reveal much about the failures of policy, judgment and priority in this area over quite a number of decades. This stuff has been used for rabbit control since the fifties. What I have shown you is no surprise and no shock. Recent scientific literature suggests that there are human health impacts associated with accidental exposure to chloropicrin. Chronic exposure at levels which are not detectable—in other words, with a tear gas which will not cause your eyes to water—may be associated with disease.

The good news here is that there is a power fumigation technique that produces sufficient carbon monoxide from LPG, readily available liquid petroleum gas. That has been developed; it has been proven. It has used the talents of engineers at Melbourne university and it has been done as part of Primary Industries Research Victoria. It was initiated when I was employed there. However, disturbingly, this project has not received funding for next year. This is an available technology. It is there. It has been tested. It works. You have seen the alternative.

Mr TUCKEY—Why does it need more funding if it works? What does it need the extra funding for?

Mr Marks—I believe that there has often been a huge gap between research outcomes and product development and commercialisation in this area. This is where we have fallen down. Quite often it is not the failure of research to come up with answers but the failure that we mostly find in state governments, for many of the reasons that Linton and others have pointed to, about coordination and appropriate use of funds, so that we have no adoption strategies, generally, to follow. We have governments that have attempted to privatise areas of research like

this when really there are not very many people that are willing to pick up and pay for things which are going to be in the public interest or to develop techniques for animal welfare reasons. There are a whole multitude of reasons.

Mr ADAMS—So this needs to still go on and become a product, as such.

Mr Marks—This would be dead in the water, like a number of other things that I will not bore you with at the moment, unless there is an adoption strategy in which there is a commercial focus. Nocturnal have contributed to this and have contributed to the science and the R&D, but it is not a product that we wish to pick up and run with.

I urge the committee to recognise the need to improve the welfare outcomes of vertebrate pest control. This is a necessary strategy to ensure community acceptability, to bring the community along with us and also to protect market access for Australian agriculture in international markets. I cannot stress that too much. I wonder how many people would be very pleased to see the sort of footage I have just shown you with regards to rabbits and chloropicrin.

As concerns for animal welfare are likely to greatly increase in the foreseeable future—they are not going to go backwards; they are going to increase—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. So far, I believe we have failed to deliver such techniques to farmers. It is not the farmers' fault that they are using antiquated technologies. They are forced to use techniques that represent the status quo because our vision is rooted in the status quo. I thank the committee once again.

CHAIR—Thank you very much.

Mr ADAMS—Do you think the CRC will pick up any of that research that you talked about?

Mr Marks—The analgesic 1080 technology is something Nocturnal is running with, and I can provide more information in camera about that. There are commercial partners that are concerned about being involved in 1080 politics, so I have minimised discussion about that. I hope the CRC takes an interest in the monoxide fumigation technology. However, I think that this example is, in a way, similar to many other types of projects which are stillborn—or have been in the past—because of a lack of coordination of funding and a lack of a peak body which has the ability to coordinate and to set research and development agendas.

But, what is more, we are lacking private industry involvement and that nexus between research outcomes being picked up by private industry, especially in the area of private industry failure, where it will not be possible to make huge amounts of money out of these products. When we have state governments trying to commercialise something which should never be commercialised, because if it is private industry sitting around waiting for someone to come and pick this up commercially, run with it, make a loss and go bust, it is a little bit ridiculous. So we need to have a reality check on what we are doing with all of these technologies, why we are doing it, what we are doing in the interest of the public and what we are doing that can be picked up by private industry. We need to follow that with sensible adoption strategies and reality checks.

Mr ADAMS—At a national level?

Mr Marks—At a national level. Alfred Deakin did wonderful things about getting the railway gauges to be consistent on Federation, but I think Federation has been an absolute disaster for wildlife management on a state-by-state basis. I can tell you that pest animals do not respect state boundaries, as you know, and there is the dilution of research effort. There is a good research effort in each of the states. It is still largely a state government party. It is very difficult to coordinate that on a state-by-state ad hoc basis.

Mr ADAMS—Deakin never got the railways right.

Mr Marks—Didn't he?

Mr ADAMS—It took a lot longer.

Mr TUCKEY—Nevertheless, that may be a solution to the 1080 problem. Have you got a time scale for when you think that product might be available?

Mr Marks—I have the same problems that you heard of from Linton Staples just before: it is the nightmare of the registration process, it is the lack of clarity of the registration process, it is the lack of marriage of need and outcome with assistance and the extended time lines and the cost of trying to service those. It is difficult enough to do the research and development and bring a product to the market, but when you cannot really predict what you need, where the review process is a bit murky and where the goalposts keep moving, it is a tough ask.

Mr TUCKEY—That is something we are going to pursue.

CHAIR—That has been excellent. The latter part of what you are saying is of deep interest to the committee because there is a move to phase out 1080, as you are probably aware, in different sections of the community across the country, and there has to be an alternative. If you are involved with a group of people who are in the process of perfecting something which is an alternative to 1080—

Mr TUCKEY—Well it will be 1080 but it will not have the side-effects.

CHAIR—If you are altering 1080 so that it does not have the side-effects, then you should be encouraged to do so. It is of concern to all members of the committee that we are hearing the same complaints about the registration process being a restriction on getting that out into the community and out there operating in the field.

Mr ADAMS—I take it that you do not have any problems with the issue that there needs to be a proper going-through in the regulatory process on the effect that it is going to have environmentally—on other animals and so on.

Mr Marks—Absolutely not. In fact, you will have seen in the submission I have even said that I think the terms of reference for the APVMA should be changed to include the assessment of the humaneness of agents, because at the present time this is not part of the terms of reference of the authority. What that means is that they can review agents such as chloropicrin all they like

but they cannot give it an adverse review because the humaneness of the agent or welfare issues are not part of their terms of reference. That is a nonsense, because it fragments the responsibilities for these agents when they should be centralised.

Mr ADAMS—So we do not have the drivers or anything to give it a whack, or say ‘this is not’—

Mr Marks—I do not think you will get too many people who will disagree that chloropicrin is awful stuff. You will also commonly find people shaking their heads about why we still have the stuff. But we have not had alternatives. So there are two things there: (1) we cannot address the issues when there is a problem identified, when people know about it; and (2) we have real problems in doing the appropriate R&D, the innovation, to address welfare issues especially. As I suggested, it would be an excellent case study, if you wanted to look at it carefully, to investigate how it is that a World War I warfare agent, probably banned by the Geneva convention, can still be used in Australia where there are potential impacts on farmers and when we have known about these problems for many decades. How does that happen?

CHAIR—Thank you very much. That was very much appreciated. We are, as we said, very much interested in the realities of the comments that you make where you say that sections of the community are asking, ‘Where are the alternatives?’ We have got alternatives being prepared in the pipeline but they are being restricted from being used by a delaying process caused by the bureaucratic nonsense that the people producing the article are required to go through.

Resolved (on motion by **Mr Adams**):

That this committee authorises publication of the transcript of the evidence given before it at public hearing this day.

Committee adjourned at 6.48 pm