

# ENVIRONMENT, NATURAL RESOURCES AND REGIONAL DEVELOPMENT COMMITTEE

## Inquiry into the control of invasive animals on Crown land

Melbourne — 10 October 2016

### Members

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Mr Tim McCurdy — Deputy Chair

Mr Simon Ramsay

Mr Tim Richardson

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### Witness

Dr Clare Veltman, principal science adviser, New Zealand Department of Conservation (*via videoconference*).

**The CHAIR** — Thank you, Dr Clare Veltman, for agreeing to talk to us today as part of our public hearings on our inquiry into invasive animals. I have obviously got a few formalities to go through, so I will do that and then we will talk about how we do this. First of all, welcome and thank you for agreeing to talk to us today. This hearing is being recorded, and the transcript will be sent to you in proof form so that you can check for any inaccuracies prior to it becoming public. Also this hearing is the subject of parliamentary privilege; however, after or outside the public hearing, anything that is discussed or said does not attract parliamentary privilege. That is the formality.

Would you like to give some sort of presentation to us first based on what the secretariat here spoke to you about, or would you like us to just go straight into questions?

**Dr VELTMAN** — I think it is probably best if you go straight to your questions, and I will help you as I can.

**The CHAIR** — Sure. Just to start, for the record could you just provide us with your title and a bit of background.

**Dr VELTMAN** — My name is Clare Veltman. I am a principal science adviser with the Department of Conservation in New Zealand. My work involves understanding the effects of animal pests and the management of those effects. Usually I work with deer and brush-tailed possums. I have also worked on goats, tahr and wild horses. These days I have a project running on helping dogs teach themselves not to chase prey of certain sorts. I am a behavioural ecologist by training. I had a 20-year career in one of the New Zealand universities, Massey University, and then I joined the Department of Conservation in 1997 for a full-time research position.

**Mr McCURDY** — Thanks, Clare. My electorate covers Bright, Mount Hotham and up through the region where deer, both sambar and fallow, are in extremely high numbers. We do not know exactly how many. I would be interested to know whether any research has been done by you or your teams in terms of measuring numbers. But more to the point, I am interested in eradication methods. We know we cannot eradicate them completely, but how can we reduce numbers? What have been the most effective ways that you have used to reduce numbers of deer when they are in high numbers in different regions?

**Dr VELTMAN** — Let us take measuring animal abundance first of all. We concentrate on measuring something called the relative abundance of deer. We use their faecal pellets, which we measure in small plots on transects located randomly in the forests where we work. We take that data on an annual basis, and we look at how it changes over time — so relative to the last time we measured faecal pellets on these lines, what is it today? That is how we track rises and falls in the abundance of the animals. We do not count them directly, because to do so would break the budget. Using faecal pellets is a highly repeatable method. We do know that it is related to the actual abundance of deer, because that step has been worked through. We are happy with our procedure, which involves repeatedly measuring faecal pellets left by deer.

The question of what is the most effective method to control deer depends of course on the habitat that you are working in and on the type of deer that you are talking about. If we are talking about thick forest and animals that are only ever nocturnal, the methods you have to use in that situation are quite different from savannah or some mixture of forest and montane grassland, where the animals are in the open at least for some time around dawn or around dusk. In New Zealand by far the majority of deer control is done from helicopters. It is aerial control. That might be supplemented with ground hunting by contract professionals, but that is not very commonly done because here the landscape lends itself to helicopter work most of the time.

I do not understand your situation in northern Victoria. I do not know the landscape, whether it is fully forested or whether you have fallow deer on the edge and sambar deer in the riparian zones. Therefore I do not know if helicopter hunting would work there, but that would always be my first choice.

**Mr McCURDY** — Can I just follow up on your measuring of faecal pellets? Over what time frame is that? Is it a one-year, two-year or five-year program to get a better understanding?

**Dr VELTMAN** — In five years you have a good understanding. We introduced the Kaweka mountain beech protection project, and after five or six years the time series was completely interpretable. We had blocks where deer were being culled by helicopter shooting and blocks where they were not. We could show a reduction in relative abundance of deer in the culling blocks.

**Ms WARD** — Hi, Clare. We seem to have a fair few differences between the way that Victoria manages recreational hunters and the way New Zealand does. What role do you see or have you seen recreational hunters play in trying to help control invasive animal populations?

**Dr VELTMAN** — Actually, in New Zealand the greatest contribution that recreational hunters make to pest control is when they are doing stoat control for protecting our native birds. Groups of hunters put their hands up to volunteer for running trap lines, and the beneficiaries of that are some native birds, like kiwi or blue ducks. The control of deer by recreational hunters is considered not effective here. It would be too difficult to expect recreational hunters to achieve suppression of deer. Instead we have good relationships with hunters and hunter groups and we encourage recreational hunting, but we have not burdened them with an obligation to do the deer control that is necessary.

**Ms WARD** — Do you see them as part of a partnership with other controlled hunts for deer?

**Dr VELTMAN** — The department would say that we really value our partnership with recreational hunters, but we do not see the recreational hunting as having a large effect on deer abundance.

**Ms WARD** — Does it help?

**Dr VELTMAN** — I am trying to think of data that might suggest that it does. I think if you can suppress deer to very low densities, any recreational hunting at that point can help a lot because it can keep the animals in some sort of a predator pit. But to take animals from relatively high densities to a low value using recreational hunting — which means ground shooting — is simply inefficient and ineffective.

**Ms WARD** — Going on, you were talking about ground shooting, so with helicopter shooting how does that work? Do you employ it in high-density forests? How does that work?

**Dr VELTMAN** — First of all, most of the helicopter shooting that is done in New Zealand is done by commercial venison harvesters, and depending on the price of aviation fuel, the price of deer, all of the costs that go into whether to hunt or not, they will target their hunting at places on the landscape where they can see the animals, where the animals are vulnerable. Where the department might have to do deer control and where it contracts air-based work, depending on the layout of the landscape we may or may not have open country to hunt the animals in, in which case then the helicopter works usually from lower slope to upper slope until animal movement is sighted and then the animals are tracked and shot. But 20 000 to 30 000 carcasses are exported a year from the commercial venison recovery off public conservation land.

**Ms WARD** — That is pretty impressive. That is a good number.

**Dr VELTMAN** — There was a time when it was 100 000 carcasses a year.

**Ms WARD** — That is amazing, thank you.

**Mr YOUNG** — Thank you for being available for us to talk to from all the way over in New Zealand. It has been interesting the comparisons that have been brought up throughout this inquiry between what Australia has and what New Zealand has as far as hunting arrangements. You said just before that you would not want to burden hunters with the responsibility, if you will, of controlling deer numbers. Why is that and what would be the issue with that?

**Dr VELTMAN** — The scale of the problem is enormous, the access for hunting areas is limited and the number of hunters in the end that could take more than one animal per two or three hunter days is not so very great. So considering the level of reduction we need in places like the Murchison Mountains,

where we have a flightless bird called the takahē, which competes for tussock with deer, we simply cannot rely on recreational hunting. The scale of the problem is too big for people to do in their spare time.

**Mr YOUNG** — Australia, and particularly Victoria, has quite different geographical content, and recreational hunting here has been shown to take quite large numbers for little effort, especially with the use of hounds, in our dense bush. We have numbers showing that recreational hunters can take up to 50 000 or 60 000 deer out of just this state alone, so when you are taking deer in those bigger numbers is that something that would be sought after or would it be a hindrance to other control methods?

**Dr VELTMAN** — If you are asking is there competition between commercial harvesters and recreational harvesters, the answer is yes, because recreational harvesters feel that the helicopter work is taking game away from them. That then becomes the role of the Game Animal Council and the New Zealand Deerstalkers Association to help with relationships amongst all the players, but in the end the commercial harvesters have access to the whole of the public conservation lands except for a period around Christmas and New Year and a period in autumn when the stags are in rut. That may not have answered your question, but if the general question was about the relationship between ground hunting and air-based hunting, then what we have in New Zealand is a conflict between recreational hunters working in their spare time and commercial hunters with helicopters who are making a living from this. That conflict is managed at the table, if you like, rather than at a site.

**Mr YOUNG** — Just one other thing as far as hunting in Victoria has gone, there has been a lot of opposition, much of it possibly from people who are just opposed to hunting in general. But one of the main concerns with opening up more land to hunting in Victoria is the safety aspect. You might not be able to answer this, but are you aware of any safety factors that have been a really serious problem in New Zealand? Is there a high rate of incidences where accidents happen or is it something that there is a lot of fear about with not much justification?

**Dr VELTMAN** — Each year there are hunting accidents, and in the vast majority of cases one hunter in a hunting party has shot another hunter in a hunting party, having failed to identify the target. The only time really when the department has an interest in the problem — well, there are two times. One is that we do not like having our own staff doing the fieldwork in the autumn rut when hunters are out there. Everybody wears hi-vis anyway. The other time is that when we are hunting sambar deer specifically, they are at two very small localities in the North Island, one not far from here west of Palmerston North city and the other a little bit east of Rotorua city. Now the reserves that the animals are in are quite small, and so even though hunting is not prohibited, the permitting system is regulated a little to try and minimise the prospect of anybody being in the way of a projectile at the time. There have been no incidences ever of problems for hunter safety in either of those sambar deer ranges.

**Mr RAMSAY** — I have a couple of questions, Clare, if you do not mind.

**Dr VELTMAN** — Fire away.

**Mr RAMSAY** — We were given advice that the New Zealand government commits about \$7 million per year for additional control methods in addition to the \$70 million that is already spent each year on predator control. Is that \$7 million pretty well divided between paying for professional shooters and the cost of the helicopters? That seems to be your primary tool for control.

**Dr VELTMAN** — It is effectively our only tool for control, and we certainly do not spend \$7 million on deer control. I do not know the origin of your figure. We do between 300 000 and 400 000 hectares of deer control. The extent of the public conservation lands in New Zealand is about 8 million hectares, and our control of deer covers about 400 000 hectares, maybe one-sixteenth of all of the public conservation land. We would be doing that control, if we are using helicopters, at not much more than \$4 or \$5 a hectare, so no way can I get it up to \$7 million on the back of an envelope. So you will have to explain the origin of that data.

**Mr RAMSAY** — That was for total predator control. I made a pretty wide assumption and obviously a wrong one that the sambar deer might well have been your major predator for control. But it is only a small part, obviously, given the figures you have given me.

**Dr VELTMAN** — Yes.

**Mr RAMSAY** — The other part I am interested in is the venison recovery process, because in Australia even today we have been told that because of the classification of game deer it precludes us under an act — we have a meat act — to be able to either render or process for human consumption. Can you explain to me how you process the meat, particularly if it is shot from a helicopter, to refrigeration and then process it to meet your own meat standard guidelines for human consumption?

**Dr VELTMAN** — Well, the starting point is that the game-packing house has to have a contract for the sale of the venison. They do not even send a helicopter up until they have a contract. The next thing is that not being a food safety expert I do not know exactly the time, but there is a limited time in which to get the carcass from the hill to the chiller. The chiller may be a mobile refrigerated unit or it may be a chilling facility at the helicopter base. It depends which company you are talking about and which island. But the animals are gutted on the hill and taken straight to a chiller with the head intact because there is investigation of the thoracic glands for tuberculosis and indeed any other animal health issues that have to be inspected for before the carcass then goes to the packing plant. So it is covered by some pretty heavy regulations.

**Mr RAMSAY** — How much of that meat is for domestic consumption and how much is for export? Would you have any idea?

**Dr VELTMAN** — I would say the majority of it is for export. There are maybe some boutique operators. There is one I can think of who might harvest 2000 or 3000 animals in a year to supply the local market, but in general, especially in the South Island, the animals are being harvested for export.

**Mr RAMSAY** — My last question, if I may: the Predator Free New Zealand 2050 goal, which aims to get rid of invasive pests in New Zealand — is that an achievable goal? Just taking the sambar deer, for example: is there a realistic expectation that you will be able to totally eradicate the sambar deer in New Zealand as one predator of that larger group?

**Dr VELTMAN** — The New Zealand predator-free objective is focused on brushtail possums, rats and mustelids, meaning stoats. It is not focused on any other animals at all. Those animals are predatory. Even brushtail possums degrade birds' eggs and bird nesting. So it is utterly focused on controlling predators. Sambar deer are herbivores, and there is absolutely no plan to head for the eradication of sambar deer or any other deer. They are controlled when their effects on native vegetation, ecosystem processes or, for that matter, native animals becomes a problem. We do the control for specific ecological objectives, but there is nothing on the table about eradicating deer. And given that they are farm animals in New Zealand, it would not be a sensible objective because they could always re-invade from farm properties. Predator Free 2050 is focused on possums, rats and stoats.

**Mr RAMSAY** — Thank you.

**Dr VELTMAN** — Can I maybe make a point of my own: in reading the information that Annemarie Burt sent me, I realise that members of the committee might think that in New Zealand we poison deer with 1080. If we do, it is unintentional. Compound 1080, or sodium fluoroacetate, is not registered for deer control in the baits that we distribute for predator control. It is only registered for deer control when it is used as a gel pasted on the leaves of the plants they will eat, and nobody is doing any of that sort of work at all. So we have a repellent that we can include on our regular 1080 baits if negotiations with deer hunting interests mean that we are working in an area where the predator control is putting somebody's hunting resource at risk. I just wanted to clarify: we do not target deer with poison in New Zealand.

**Mr RAMSAY** — Annemarie is listening. She wants to know if you use sodium nitrate instead?

**Dr VELTMAN** — No, unless you eat sausages.

**The CHAIR** — Dr Veltman, in Victoria I think the concern is that deer are becoming rampant and they are destroying ecosystems as well as destroying farmers' livelihoods, so it is not really a matter of trying to keep enough of them for commercial or recreational pursuits. If you are talking about poisons or gels on leaves, is that something that you believe works but is not necessary in New Zealand or is it just something that you would not use? I suppose we are looking at all sorts of alternatives and ways of reducing deer numbers.

**Dr VELTMAN** — We take our approach for all of our pest control from the perspective of any particular site. So if we are trying to eradicate deer from Secretary Island in Fiordland, which we now have done, it opens up the possibility of using 1080 gel on leaves if the shooting did not work, or you could design a program that begins with poisoning and ends with shooting. We have not had to use poisoning to achieve our objective, and the thing about Secretary Island is that the animals are not swimming out there from the mainland. So with deer removed, the island is now deer free.

Conversely in the Murchison Mountains, where we want to reduce deer to improve the habitat quality for the takahē, we can effectively reduce deer numbers by shooting, and so we do. I am trying to show you that the method is evaluated once the site is identified. So we first of all ask ourselves whether deer control is needed to preserve aspects of a particular site. If you have got a statewide colonisation and invasion by deer, I imagine that some sites are more urgent than others and that some sites may have higher value to recreational hunters than others. So you do a triage, identifying where you have to urgently get your deer control going and where some relationship with recreational hunters could be mutually beneficial.

So I would not be wanting, in your shoes, to make statewide statements. I think you will want to take a spatially intelligent approach to this, where some sites are being disturbed and you want to reduce that disturbance. Conversely, other sites might be overwhelmed by drought or fire every so often and maybe that is what really sets them.

**The CHAIR** — Just another question, which is a little bit different. Excuse my ignorance, but I understand that in New Zealand gun laws and hunting in various areas is a little bit different to here in that it is a bit more restricted.

**Ms WARD** — Less restricted.

**The CHAIR** — Yes, New Zealand is less restricted than Victoria. So because of this maybe, rather than the real thing, there is a bit of community concern about the idea of expanding, say, national park areas for hunting. I know that you were talking about before some of the safety issues, but on the whole would you say that the way New Zealand is people should not feel so concerned or worried about the community safety aspect? Bushwalkers, for example, farmers — do you think there is no need for concern if there is going to be hunting in national parks?

**Dr VELTMAN** — Generally speaking national parks are large, and generally speaking hikers are using well-defined trails in national parks, which means generally speaking there is enough room for hunters to get well away from the areas that are being used by visitors without firearms. So most of the time in New Zealand there is a good separation between people with firearms for hunting and people with a backpack who are trekking. Hunters are off trail, using their GPS units to go to the nooks and crannies where the deer are hiding, whereas hikers are on main trails. So you could say that training and convention mean that hunters do not consider shooting around the trails. That is why I said before that people who do get caught up in hunting accidents are other hunters, so they are a great risk to each other. I see you tapping your clock, so I will stop there.

**Ms WARD** — No.

**Dr VELTMAN** — Were you not tapping your watch?

**Ms WARD** — No.

**Dr VELTMAN** — So would I have concerns?

**The CHAIR** — Maybe I am playing with my pencil.

**Dr VELTMAN** — First of all this is not some gun-toting paradise. There are a quarter of a million people with a firearms licence in New Zealand. To hunt on public conservation land you have to have a permit, which you can get online and which is free. It is never very clear quite how many people have got these permits, but the estimate is 10 000 to 15 000. Roughly 10 000 to 15 000 hunters are using public conservation land. And remember: I said there are 8 million hectares of public conservation land, so hunters are thin on the ground really. There are also private forests for which you can get permits to hunt, and private forest managers tend to have a block system — hunters can only occupy a block with a permit. They cannot go outside of a defined area. I think if you take all that, it means that the risk is low to non-hunting users of an area. If you had to, you would spatially define hunting areas and non-hunting areas, and you would use hunting as a control tool and the non-hunting methods when you have closed it for walkers. If you absolutely had to do deer control in an area that is popular with walkers, you would close it for walkers for a short duration while you did the work. It is perfectly manageable.

**Mr McCURDY** — Clare, if we were to do a case study on any particular New Zealand geographical location that had had extremely high numbers and had done an effective job at reducing numbers of deer — taking, I suppose, terrain out of it — can you give us some examples, whether it is South Island or North Island?

**Dr VELTMAN** — I reckon you could learn a lot from something called the Kaweka Mountain Beech Project. If you have a minute, I can give you a potted history.

**The CHAIR** — Yes, thank you.

**Dr VELTMAN** — In about 1998 concerns were raised that nothofagus forest, what we call beech forest, was failing to replace itself in the Kaweka Forest Park. It is an area of North Island, it is inland from Napier and it is prone to being dry. The cause of mature tree deaths was not known, but the fact that young trees were not recruiting into the openings was known and was eventually sheeted home to sika deer, the small Asian deer. This was about the time I joined the department, and initially the department proposed to use 1080 in there.

Hunters objected, and what emerged from this was a negotiated agreement to divide the part of the park that had mountain beech forest into blocks and to begin with deer control in one of the blocks. The deer control was done using helicopters, and a liaison group of recreational hunters worked with the department to understand what was happening and to look at the results for both the hunting and the vegetation measurements.

Over time, over 15 — nearly 20 — years now, the hunting has moved from block to block and when the faecal pellet indexing has shown that the deer numbers are down, the department has left that block to the recreational hunters. So the temperature has gone down all round. Recreational hunters understand that they cannot achieve the reduction in densities that are needed and that are being achieved with helicopters, but they are happy that when the density reduction has been achieved, the helicopters move out and hunters know that their hunting will not be disturbed or made disappointing by a helicopter arriving just as they are closing in on an animal.

I regard that as a 15-year process of the department and hunter representatives working together, which you might find valuable to learn from.

**Mr McCURDY** — Thank you.

**Ms WARD** — Yes, that is useful. That is good. Thank you.

**The CHAIR** — I have got one more question, and that is in reference to another question about the export of deer for commercial purposes. I think the question was about how much, and you said it had

dropped significantly. Is that because of demand? Is that a demand issue because there is less deer exported now?

**Dr VELTMAN** — Yes. All deer hunting is an equation to do with economics. When the New Zealand dollar is strong, fewer carcasses are harvested. When the New Zealand dollar falls, if that coincides with a time when oil prices are low, then lots of deer are harvested and exported because the margins are there to justify it. So it is entirely about margins. Nowadays helicopter operators have many more aspects to their business. They are doing tourism; they are doing forestry work. They have many other angles of their business, and they do the deer hunting when they can see a return on that investment. And that explains the variation in carcass recovery.

**The CHAIR** — If they are not interesting in selling it, then the carcasses are just left — or how are they disposed of?

**Dr VELTMAN** — When the department is purchasing deer control by helicopters, we leave the carcasses. We shoot the animals and fly to the next one.

**The CHAIR** — Thank you.

**Mr McCURDY** — Do you have a wild dog population?

**Dr VELTMAN** — Not the way that you do. So in one area, Te Urewera, again in the North Island, there have been feral dogs. We work to control those. They are animals that move away from traditional communities, really. We do not have that kind of feral dog problem anywhere else in New Zealand.

**Ms WARD** — You are lucky.

**Mr McCURDY** — A last question from me: just on the numbers, you said before 20 000 but it has been as high as 100 000.

**Dr VELTMAN** — That was a long time ago.

**Mr McCURDY** — Has it been higher than that or was that for a long, sustained period of time?

**Dr VELTMAN** — That was in the early 1980s. We also had a blip when the mad cow disease problem emerged in Great Britain and another blip when foot and mouth disease was a problem. So when beef consumption raises question marks with people they move to venison consumption, and we see that effect on demand at our end here.

After the very high rates of export of carcasses in New Zealand, which was around about 1972 or so, the law changed to allow for deer farming, and so the big demand then was hinds, female deer, to populate deer farms. That had an immediate effect on the abundance of deer in our native grassland and forests because the helicopters were capturing the animals live and moving them out to farms, so you are taking the capital stock. If you are taking breeding females out you have an enormous effect on reducing deer densities.

I might say that in the Kawekas all our work now when we do do a control is shooting females. So that again is a negotiated point for hunters, who are interested in having male trophy stag heads as their trophies. If we shoot only females, that means there are males there for them to hunt for. It is good for us because it means it winds the population down more strongly than you can do if you shoot males and females.

**Mr McCURDY** — Thank you.

**The CHAIR** — Thank you so much for your time. I think you have answered many of the questions that we had really well, so thank you so much.

**Ms WARD** — Thank you for your knowledge.

**Dr VELTMAN** — No trouble. Bye bye.

**Witness withdrew.**