Australian Government

Tasmania
Explore the possibilities

TASMANIAN COMMUNITY FOREST AGREEMENT
RESEARCH INTO ALTERNATIVES TO 1080

NEWSLETTER 16 September 2009

PROJECT MANAGER'S INSIGHTS.....1
FIELD DAY AT FOSTERVILLE.....1
WALLABY GRIDS 2
PASTURE LOSSES TO WILDLIFE 2
HOME RANGE MOVEMENTS.....3
FERATOX UPDATE 4
WALLABY BROWSING IN PLANTATIONS.....4
FIREARM SILENCER TRIALS.....5
THE SCARECROW.....6

PROJECT MANAGER'S INSIGHTS

Not every project goes as you plan it. We recently set up a small deer repellent trial to see if we could prevent deer browsing seedlings protected by stockings.

After a day of spraying and painting the repellent onto the field seedlings for the trial, the skies opened and it rained solidly for the next three days. All our work looked to be washed away.

This isn't the first time trials haven't gone quite as I'd envisaged: We had the GPS collar trial project where all the wallabies that were collared were caught in the areas where control was taking place (which negated the purpose of the trial which was to monitor immigration into the control areas), and then there's the long term pasture monitoring work being done by TIAR where trials were set up across 6 properties in the NE and NW and then it was found that none of them had any significant numbers of Bennett's Wallabies on them, limiting our results.

I could go on, however what I really want to say is that what I've learnt from this Program is that not all changes are catastrophes. We visited our deer repellent trial four days after setting it up only to find that the repellent had survived some of the worst weather conditions we could have thrown at it which is the best outcome we could have hope for.

With our GPS collar trial we were able to modify the project to compare the effects of wallaby fencing vs. shooting on local populations of wallabies already on site which has been a brilliant outcome, and the Tasmanian Institute Agricultural Research (TIAR) monitoring has still given us some amazing insights into the browsing impacts of pademelons, and yes we're busy filling the knowledge gap about Bennett's browsing.

This Program has by nature been exploratory. If there was an obvious alternative to 1080 then we'd have adopted it years ago, and sometimes it's from the missteps that we've learnt the most, and as mentioned in the last newsletter overall it's hard not to be happy with the breadth and depth of the Program and its findings to date.

FIELD DAY AT FOSTERVILLE

Figure 1 Enclosures varying distances from the bush edge at Fosterville (Bloomfield), Ross.

Over the last 12 months 'Bloomfield', near Ross, has been intensively studied to monitor the browsing of wildlife occurring on the property, see Figure 1.

Studies have looked at the impact of browsing at different distances from bush edges, the ecological implications of differential browsing for pasture species composition; impacts on pasture production and soil health; and the impact of browsing during pasture establishment.

Any questions or comments about the program should be directed to John Dawson, Project Manager 1080 Alternatives on 03 6233 6728 or john.dawson@dpipwe.tas.gov.au

An assessment of the relative abundance of both the native and introduced species on the property is also being conducted.

A field day to discuss the findings of this ongoing study, as well as studies into pasture varieties on the property will be held on Friday, 9th October 2009 and all are welcome. Bookings are essential. Contact Kate Gill on 03 6336 5196 for more information.

WALLABY GRIDS

Public and farm roads provide an easy entrance point for native animals into fenced pasture areas, and often these can't be gated to keep animals out.

As part of TIAR's work into effective wallaby fencing, Nick Johannsohn has been studying the effectiveness of a 'wallaby grid' in preventing Bennett's wallabies entering pasture areas.

A wallaby grid is essentially a modified cattle grid 2.3 metres wide and 3 metres long, see Figure 2. The grate been installed within a section of wallaby fencing on a property on King Island.

Figure 2 Installed wallaby grid on King Island.

Both still and motion detecting video cameras were installed to monitor animal behaviour around the grid, and it was trialled with and without 'wings' along the side which prevented animals just getting around the corners of the fence, see Figure 3.

Although a wallaby can easily clear the 3 metre gap in one leap, video monitoring is showing that very few animals are crossing in this way instead preferring to crawl across after lengthy consideration sitting on the edge. After 4 months of monitoring around 50% of animals observed are now successfully crossing the obstacle, which also means that 50% of the animals are being kept out.

Whilst it is not possible to stop all animals, a design that prevents a large proportion of crossings could significantly value add sections of wallaby fencing intersected by public roads where installing a gate is not a practical option, especially when used in conjunction with a shooting program to control those that do learn to cross the grate.

Figure 3 Bennett's wallabies studying the wallaby grid on King Island.

It is hoped that in the coming months, modifications such as widening the gaps between bars and increasing the overall width of the grid will further reduce the number of animals getting across.

PASTURE LOSSES TO WILDLIFE

Prof. Tony Norton of TIAR has been leading a long term project to develop a decision support system for predicting pasture loss impacts from our main native browsers.

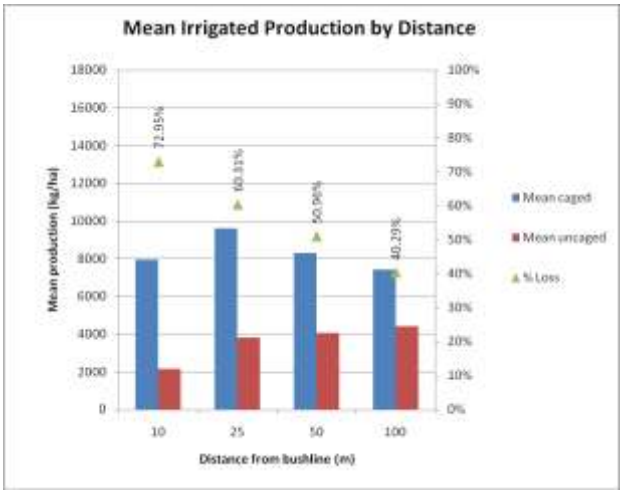

Figure 4 Showss the mean irrigated production of pasture at varying distances from the bushline.

A core part of this project is measuring pasture losses across sites in Tasmania, and after 20 months the

trends in pasture production (irrigated and non-irrigated sites) and loss as a result of browsing by wildlife have remained consistent with previously reported findings. Figure 4 reflects findings on irrigated pasture and Figure 5 for dryland (non-irrigated) pasture. The previously reported findings are:

- Browsing damage severity is associated with distance from a remnant bush boundary
- Large variations of botanical composition within a pasture can lead to areas being preferentially browsed by wildlife
- Current population estimates and browsing impact assessments have indicated that up to 50% or more pasture production is lost to browsing.

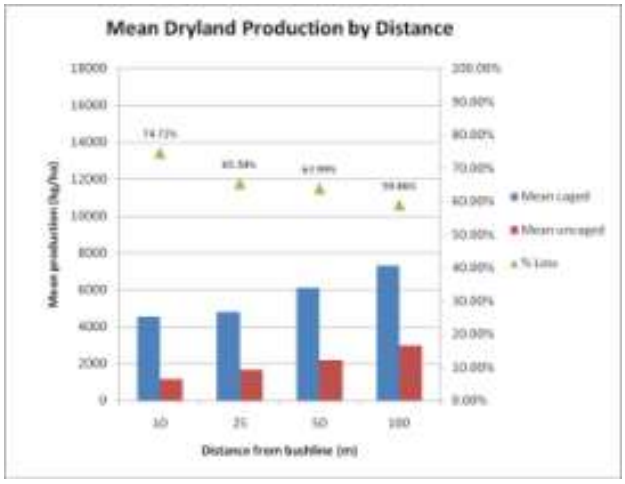

Figure 5 Shows the mean dryland production of pasture at varying distances from the bushline.

Indeed, often the pasture loss resulting from browsing is (statistically) higher than first reported, as is the estimated financial cost.

A consistent pattern of degradation in the level of browsing is observed away from the 'bushline'. These patterns are consistent across NW and NE Tasmania, and are expected to be similar for the Midlands and King Island, although the specific response will vary with the wildlife species. The temporal changes are in the process of being modelled, and their potential significance for food availability for livestock etc.

For those interested, this research will be discussed at the October 9th field day near Ross.

HOME RANGE MOVEMENTS

Tracking of GPS collared wallabies has now been completed and over 6 months of movement data from January until June has been analysed, specifically looking at animal movement patterns in response to 1.) a lethal control event and 2.) a barrier control event.

As expected, the research showed that pademelons had smaller home range areas than Bennett's wallabies. Pademelons spent a greater proportion of their time on agricultural land than Bennett's wallabies during the times of 2 am, 6 am and 9 pm.

Following a lethal control event, the GPS collared individuals (i) increased their home range area, (ii) increased their use of agricultural habitat and (iii) demonstrated a small shift from their core home range area compared with the pre-control period. This result indicates that the remaining individuals in the population underwent home range adjustments in areas of reduced density, most likely in response to less competition and thus more resource (food) availability. Previous research has shown that Brushtail possums, badgers and white-tailed deer respond to lethal control in a similar way. We suspect that remaining individuals have redistributed themselves uniformly at a lower density, at least in the short term (4 weeks post-lethal control).

Figure 6 Individual plots of a GPS collared macropod pre- and post-lethal control intervention.

Figure 7 Implemented barrier control in the form of a fence.

Following the barrier control (See Figure 7) - the GPS collared individuals (i) decreased their home range area, (ii) pademelons increased and Bennett's wallabies decreased their use of agricultural habitat and (iii) animals demonstrated a large shift from their core home range area compared with the pre-control period. These results suggest that animals are responding to decreased resource (food) availability, see Figure 8.

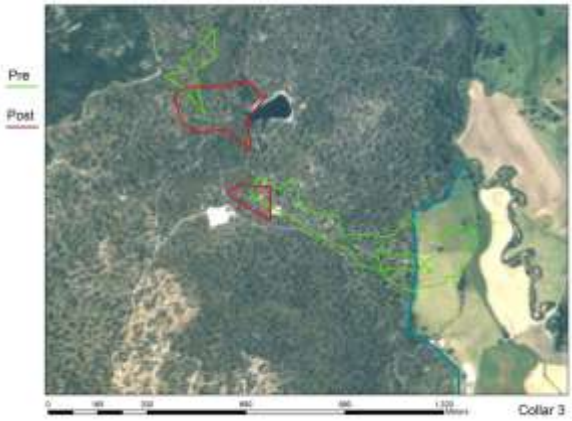

Figure 8 Individual plots of a GPS collared macropod pre- and post-barrier control intervention. Barrier is highlighted in blue.

While we cannot separate differences between pademelons and Bennett's wallabies, it is likely that surrounding vegetation influenced their responses to the barrier control: pademelons had a closer available, alternate food source than did Bennett's wallabies.

Animals at the unfenced site showed no change in home range size but made small adjustments to their agricultural land use and core home range area.

Based on the observed responses, lethal control is predicted to create gaps in population distribution in the short term. How quickly these gaps fill is likely to depend on the longer-term movement patterns and breeding biology of the animals. Barrier control intervention appears to induce whole-scale population movements to areas of available food. Finding the right mix of shooting and fencing is clearly context specific and should be tailored to the wildlife management strategy.

FERATOX UPDATE

As regular readers will be aware, Feratox™, an encapsulated form of cyanide specially developed to target Brushtail possums in New Zealand, is being examined as one of the possible Alternatives to 1080 poison.

Feratox™ has many advantages over 1080 poison with animals becoming unconscious within just a few minutes of breaking a Feratox™ capsule. It also has the advantage in that once an animal has had a dose of cyanide it breaks down very quickly and the chances of secondary poison, particularly of dogs, which eat a poison carcass are almost nonexistent.

Feratox has just been registered for use with dama wallabies in New Zealand demonstrating its acceptance as a humane and effective control tool for wallabies.

This registration is a positive indicator for the Alternatives to 1080 Program about Feratox's efficacy, humaneness and safety for use on wallabies and will be helpful should the decision be made to register the product in Australia through the Australian Pesticides and Veterinary Medicines Authority (APVMA).

Animal Ethics Approval (AEC) has been received for further field trials here in Tasmania, and these will take place in the coming weeks and months using the bait stations in Figure 9.

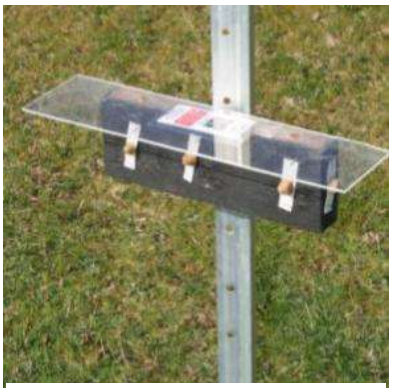

Figure 9 Feratox bait station developed for trials in Tasmania.

WALLABY BROWSING IN PLANTATIONS

Possums are known preferential browsers of plantation seedlings, but there has been much discussion within the Program on the actual impact of wallabies. Although present in large numbers in many plantations, wallabies prefer to graze grasses than browse seedlings, and there was not much field data to actually show how often and how heavily wallabies actually browsed seedlings.

In fact, trials were carried out early in the Program by Forestry Tasmania to see if they could just selectively

target possums, leaving wallabies in the coupe, and still achieve their browsing management objectives. These trials were unsuccessful with browsing still occurring in the coupes selectively culled indicating that wallabies were still a significant browser.

Mick Statham's team at TIAR, was provided with some additional funds last year to look, in part, at browsing behaviour in coupes. They placed cameras around a coupe at Exeter and were able to capture footage of rufous but not Bennett's wallabies browsing seedlings, see Figure 10.

Figure 10 Footage of Rufous wallaby browsing seedling

Browsing looked to be almost incidental as wallabies tended to lightly browse individual seedlings whilst grazing or moving through the area. This contrasts with the possum browsing behaviour observed elsewhere of often devouring one seedling after another. To confirm the video footage, the TIAR team made a cursory examination of gut contents from several Rufous and Bennett's wallabies shot from the plantation. Leaf fragments of eucalypt seedlings were identified in gut subsamples from one of three of the rufous wallabies and one of the three Bennett's wallabies examined.

Next, some calculations were made combining estimated dietary intake and measured dry matter content of recently planted seedlings. From this, Mick's team estimated that if an average Bennett's wallaby ate only eucalypt seedlings it could theoretically eat 685 seedlings in a single day and for a Rufous wallaby it was still a rather large 333 seedlings.

However, as we know that both species tend to be only opportunistic / incidental browsers, we could assume a much more realistic intake of 5% of their food coming from seedlings when present in a plantation. This still amounts to 34 seedlings a day for a Bennett's wallaby and 17 seedlings a day for a Rufous wallaby, or let's say 25 seedlings for an average "wallaby".

Now if there are 1000 stems per hectare planted, and we said the average "wallaby" browsed 25 seedlings a day or 75 seedlings a week (this assumes that each wallaby browses seedlings every second night), then even under this scenario it would only take one or two wallabies per hectare to cause significant and unacceptable losses in a plantation.

This then is the dilemma faced by plantation managers: to achieve low browsing impacts they need to lower the number of browsing animals present to very low numbers for the key 24 to 48 week period it takes for the seedlings to grow above the browsing height of these animals. Traditionally 1080 has achieved that objective, but what we need to do is to find other tools which will serve in its place.

The Alternatives to 1080 Program has been conducting trials over the last few months to see if using combinations of the specialised shooting techniques such as night vision scopes, silencers combined with trapping may be able to achieve the same result in a cost effective way, and over the next 6 months the Program will also be conducting a trial comparing (1) fencing + shooting, vs. (2) shooting alone in controlling browsing damage to see if it is worth revisiting fencing as a control option in plantations given the need to achieve very low levels of animal presence.

Due to its high initial costs, the additional difficulty of terrain in plantation areas, the numerous breach points due to rivers, rocky ground and tracks, and finally the high problem of theft and vandalism to fences and gates in remote forested areas fencing is unlikely to be a solution for every coupe, but if we can develop cost effective, adaptable approaches to fencing then it may be another tool in the toolkit which plantation managers can call upon.

FIREARM SILENCER TRIALS

A draft report was recently circulated to key stakeholders and technical panel members outlining our preliminary findings into the effectiveness of firearm sound suppressors ("silencers") as a control tool.

The report finds that there are circumstances where firearm sound suppressors increase the effectiveness

of acute crop control activities for Rufous wallabies, and that firearm noise suppressors can be appropriate as a tool of first resort so long as the operator is sufficiently competent in its use, and there is sufficient justification for the need for acute shooting control for the crop or property.

Because of the constraints on firearm sound suppressors and subsonic ammunition, it is probably a tool more suited to professional crop protection controllers on properties with an appropriate wildlife crop protection management strategy, but we can see circumstances where it could be appropriate for a landowner who is willing to demonstrate a sufficient level of competency with the use of firearm sound suppressors and who has a demonstrable crop protection need to also be issued an exemption to use a firearm sound suppressor for use with a crop protection permit.

The basis of this conclusion stems from the findings that the more a controller varies their approach, whether it be using red spotlight's, different vehicles, dogging, trapping or the use of firearm sound suppressors the longer and more effective will be their overall effort, especially when applying acute (intense) control efforts where animals quickly learn to adopt avoidance behaviour.

Practical experience from our trials has shown that there are circumstances where neighbour constraints preclude the use of normal firearms due to noise and nuisance factors at night and that in these circumstances, permitting the use of a firearm sound suppressor may allow a landholder to undertake shooting control where otherwise they may not be able to shoot. However, the trials conducted all indicated that other fear cues such as vehicle noise, spotlights, footsteps, human smells or the sound of a bullet hitting an animal may all cause a flight response, so the use of a firearm sound suppressor alone is unlikely in practice to increase shooting efficiency over a long period of time (even if the shooter may perceive that it does). To get the most out of firearm noise suppressors they need to be used as part of an integrated and changing control strategy. Furthermore, our extension and demonstration work across the State is showing us that unless a firearm operator is already operating at best practice standards, then the argument for the use of firearm sound suppressors should be secondary to that of improving the basics of shooting effectively (that is good equipment, good shooter, good practices).

Our trials have shown that a competent operator shooting within the range of their firearm (for a 22 with a firearm noise suppressor, this is up to 50 metres) they can consistently achieve a reliable, quick and humane kill for Rufous wallabies.

THE SCARECROW

Our investigations recently drew out attention to a product called the "Scarecrow".

The Scarecrow is a motion-based sprinkler system that detects movement and then shots out a 2-3 second burst of water from an integrated sprinkler. The combined noise, movement and water spray is supposed to startle the animal and scare it away. The range is only about 10 metres, but the concept is novel and appeared to be pretty exciting.

From: http://www.contech-inc.com/products/scarecrow/

The Program purchased one of these to see if it might be effective with our target species.

Initial results from a brief trial (including some short videos) are available for viewing at http://1080alternatives.blogspot.com/.

Unfortunately, it took only hours for wallabies in the trial area to learn that the Scarecrow wasn't in fact a threat, and they were soon eating in front of it enjoying the cool shower it provided.

Further trials in a peri-urban environment to see if it might have some more success there with a truly wild population had slightly more positive results but only at protecting a very small area, such as a rose bush.