FOX ERADICATION PROGRAM REVIEW PANEL REPORT

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INTRODUCTION

In September 2012, a four-person panel was commissioned by the Resource Management and Conservation Division of the Tasmanian Department of Primary Industries, Parks, Water and Environment to undertake a review of the Fox Eradication Program (FEP).

The Fox Eradication Review Panel comprised,

- Max Kitchell (Chair) – retired public servant and Chair of NRM South
- Mike Braysher – Braysher Consulting and University of Canberra
- Andrew Woolnough – Principal Policy Officer Invasive Animals, Biosecurity Victoria, Department of Primary Industries
- Elissa Cameron – Professor of Zoology at the University of Tasmania.

Terms of reference

The basis for the Panel's assessment and review was to be the FEP's Stage 2 Program Plan (the Plan). Accordingly, the Panel's terms of reference were,

1. Assess the appropriateness of the FEP in addressing the Plan's objective to eradicate foxes from Tasmania, paying particular attention to the Plan's six identified outputs
2. Consider the need for any changes to the Plan
3. Assess the effectiveness and efficiency of implementation of the Plan's six outputs in contributing to the eradication of foxes from Tasmania
4. Consider the need for any changes to implementation of the Plan.

A copy of the Stage 2 Program Plan is at Appendix 1.

Methodology

In conducting the review the Panel has interviewed 63 people who are either directly involved in, associated with or vitally interested in the FEP. These included most of the staff working within the FEP, all members of the FEP Steering Committee, all but one members of the Technical Advisory Panel, a number of members of the Stakeholder Reference Committee and some stakeholders with a key interest in the Program. A full list of those interviewed is at Appendix 2.

An advanced draft of this report was provided to the Technical Advisory Panel and members of the Review Panel met with the TAP to discuss any suggestions for amendments to the report. The penultimate draft was made available to FEP management for their comment.

Almost all interviews were conducted face-to-face, the majority by the full Panel with some others done by individual Panel members. Chatham House rules applied to all interviews, ie, the Panel was free to use information received but not to cite the source of that information. This ensured that discussions were free and open in the knowledge that confidentiality would be ensured.

In addition to these interviews the Panel studied a number of previous reviews of the FEP, most particularly the more recent ones,

- 2012 community attitudes survey by Myriad Research
- 2011 review of community engagement in the FEP by Sefton and Associates
- 2009 review of the FEP by J.Parkes and D.Anderson from LandCare Research New Zealand
- 2008 import risk analysis of fox entry pathways into Tasmania by D.Phillips (DPIW)
- 2009 report on the inquiry into the efficiency and effectiveness of the FEP conducted by the Tasmanian Parliamentary Standing Committee of Public Accounts (a number of submissions to this inquiry were also examined).

The management team of the FEP also provided the Panel with much information and data that was critical to our understanding of the Program.

Significance of the FEP

It is not the intention of the Panel to outline here the background to or the evolution of the FEP. That is documented well elsewhere and, in any case, this report is being provided to the DPIPWE which does not need to be told what it already knows. It is, however, worth briefly reflecting on the significance of the FEP and the difficulty involved in bringing it to a successful conclusion.

It is universally accepted that the establishment of foxes in Tasmania would be a catastrophe. In environmental terms foxes could be expected to devastate significant components of the Tasmanian fauna, particularly small and medium sized marsupials, in the same way they have decimated wildlife on mainland Australia. An example is the Eastern Barred Bandicoot which is functionally extinct in the wild on the mainland, with predation by foxes being a major cause. In Tasmania Eastern Barred Bandicoots are widespread and reasonably common because there is no similar pressure from predators. This would all change were foxes to become established here and, over time, Tasmania's wildlife would suffer the same fate as their mainland counterparts.

Retaining a fox-free Tasmania is not just important from a statewide perspective but is of national and international significance given that Tasmania is the refuge for many species now endangered in their mainland habitats. It could be argued that the FEP is one of the most important conservation projects currently being undertaken in Australia.

In addition to the environmental impacts there would be significant detrimental affects to agriculture, especially sheep farming where predation on lambs and on-going control represents a large cost to graziers on the mainland. The Tasmanian midlands with its large and world-renowned sheep flocks would be especially vulnerable in this regard.

Exit surveys of tourists leaving Tasmania have, in the past, indicated that one of the reasons people come to the State is to view its wildlife. The establishment of foxes would, over time, reduce this competitive strength that our tourism industry currently enjoys. Even the keeping of domestic chooks will be come very difficult in many parts of the State without the construction of substantial and expensive poultry enclosures.

It has been estimated that the annual cost of foxes to Australia is in the order of $255 million. The cost to Tasmania could be expected to be proportionately commensurate with this figure.

Preventing the establishment of foxes in Tasmania is, therefore, of vital importance to the environment, to the economy and to the social values of Tasmania and Australia.

Not only is the FEP important it is also enormously ambitious. An eradication program of this scale is unique in Australia and the Panel is not aware of any comparable program having been attempted anywhere else in the world. To try to completely eradicate a cryptic, intelligent, high-order predator over a land mass in excess of 60,000 sq kms, populated by half a million people, over farmland, forested areas, and cities and towns, is a huge and complex task.

This task has been made even more difficult by the recent steep decline in the numbers of Tasmanian Devils. The facial tumour disease has reduced Devil numbers to less than 15% of their pre-disease abundance. This, in turn, has reduced the pressure on any foxes that are in the landscape. Devils could have been expected to compete with foxes for food and to have predated on juvenile foxes in dens. In the absence of the natural control that Devils could have provided there will probably be much reduced predation pressure and an abundance of food sources for foxes.

The coincidence of fox incursion into Tasmania with the decimation of Devil numbers makes the State particularly vulnerable to fox establishment.

Presence of foxes

The terms of reference don't require the Panel to comment on whether or not foxes are, in fact, present in Tasmania. It is not intended, therefore, to address this issue in any detail. We are, however, aware of the public scepticism surrounding this issue and the effect it is having on the FEP.

This scepticism, in the face of considerable physical evidence of fox presence (scats, carcasses, blood, skull, footprints) along with thousands of sightings, seems to be based on either a belief that the scientific analysis is somehow defective and/or that a comprehensive

hoax is being perpetrated. Of course, either is theoretically possible, however, both are highly improbable. The Panel has seen no evidence that either hoaxing or faulty science are involved and, in the absence of any such evidence, it is essential that a precautionary approach be adopted and for fox eradication efforts to proceed. To do otherwise would be irresponsible given the catastrophic implications of foxes becoming established in the State.

ASSESSMENT OF STAGE 2 PROGRAM PLAN OUTPUTS

To paraphrase the terms of reference for this review, the Panel was asked to assess whether the FEP Stage 2 Plan and its implementation are adequate to ensure the eradication of foxes from Tasmania and what, if any, improvements could be made. Accordingly, the Panel has structured its commentary and recommendations around the Plan's six outputs,

- strategic baiting
- post-bait monitoring, detection and destruction
- community engagement
- research and development
- biosecurity, and
- program management,

and the targets specified for each output.

Before dealing with each of these six outputs in turn, the Panel wants to make comment on the most fundamental design features of the FEP, around which its success will either stand or fall.

Program design

The current design of the FEP is based largely on the LandCare Research NZ report of 2009. This report recommended that the Program move away from the previous reactive approach to one that involved broadscale baiting across defined habitat deemed to be suitable for foxes, followed by post-baiting monitoring to detect any presence of foxes behind the baiting front.

There were a number of assumptions underpinning this recommended approach, the most important of which were,

- access to all identified land for 1080 baiting would be generally available
- any foxes would be able to be located and killed in urban and peri-urban areas
- the program could be completed quickly (in approximately five years or by 2014).

Notwithstanding the best efforts of the FEP staff, it is apparent to the Panel that none of these assumptions are currently being met.

Access to land for baiting is not being gained at a level that would give confidence that foxes would intercept laid baits. This conclusion is base on data provided by the FEP, detailed maps of some areas along the baiting lines, broader plans indicating baiting densities within individual baiting units and the observations of FEP staff within both the north and south baiting teams and within the leadership group.

Large holes in baiting coverage appear to have been experienced in both the northern and southern baiting lines. The Panel was shown maps of recent baiting coverage in the north-west between Rocky Cape and Wynyard where around half of the private land was unable to be baited for one reason or another. In the south the Panel was told by baiting team members that there were significant gaps in their lines south of Hobart. Similar observations were made to the Panel by members of the FEP leadership group.

Examination of baiting density plans revealed a high percentage of baiting units well below the targeted 10 baits per square kilometre. For example, in the southern midlands, of 1766 baiting units mapped,

1086 (61.5%) had been baited at densities between one and six baits per square kilometre.

Data supplied to the Panel from the FEP indicates that average baiting density achieved since 2010-11 has been 6.2 baits per square kilometre.

Significant resistance to baiting has developed in urban and peri-urban areas that has led to denial of access for baiting and to a slowing of the baiting program. During the course of its investigation the Panel noted the high level of complaints in the media relating to baiting at South Arm, in the northern suburbs of Hobart and along areas on the western shore of the Derwent. Baiting coverage on the northern and western approaches to Wynyard is extremely patchy and all relevant field staff within the FEP reported great difficulty in obtaining agreement for access to bait in and around built-up areas.

In such areas where 1080 baiting or shooting is not possible, either for legal or social acceptance reasons, the FEP proposes to deal with any foxes detected by flushing them out of those areas to where a firearm can be used. The Panel considers this approach to be problematic and has little confidence that it could be practically or successfully applied.

Given that urban areas and their surrounds on mainland Australia have been demonstrated to be favoured by foxes and contain very high fox densities, this inability of the FEP to demonstrate a reliable way of killing foxes in such areas in Tasmania is a key failing of the current approach.

The Program has not rolled out at the pace envisaged by the LandCare Research NZ report with estimates from within the FEP of anywhere between another eight and 20 years being required to bring it to completion. It is important for a number of reasons that the initial Program is brought to a conclusion well within these timelines. The longer the baiting program takes, the more likely it is that foxes will become established ahead of the baiting front. This point was recently emphasised in a paper by Sarre *et al* that commented on the slow pace of baiting and indicated that this was likely to result in failure of the Program. Furthemore, it cannot be reasonably expected that government investment (either State or

Commonwealth) will be able to be maintained in the Program over an extended period.

The LandCare Research NZ report estimated around three million hectares of Tasmania was likely to contain fox habitat. Of that around one million hectares had already been baited at the time they reported and subsequently another 400,000 hectares has been baited leaving 1.6 million hectares of what LandCare Research NZ characterised as "risk" areas.

Since 2009, the area within which foxes are most likely to be found has been further refined by the FEP with the assistance of the Technical Advisory Panel. It is this core fox habitat upon which the baiting program has been focussed. The FEP has advised the Panel that it estimates 821,000 ha of core fox habitat is yet to be baited. When the 500 m buffer surrounding core fox habitat is included, the total area still to be baited is likely to be between 900,000 and a million hectares. The average annual coverage over the last three years is about 200,000 ha, which is the targeted amount specified in the Stage 2 Plan. If this rate were to be maintained into the future, the Program would not be completed until 2018. In the view of the Panel, this is too long.

The authors of the LandCare Research NZ report always envisaged that there would be ongoing assessment of the success in implementing their recommended strategic, precautionary baiting program. This was to include an assessment of whether the underpinning assumptions upon which the strategy was based were being met. One of the authors commented to the Panel,
An explicit part of our report was that ongoing assessment of the program (preferably quantitative) was essential to inform decision making.

The inability of the FEP to meet these basic assumptions upon which the strategic baiting approach was predicated has led the Panel to believe that the current program design requires amendment. The fundamental framework of the current approach (ie, broadscale, strategic and preventative) should be retained, however, it is suggested that the program design be changed to one that focuses, in the first instance, on broadscale strategic monitoring using scat-detector dogs, that would then be followed by an immediate reactionary response in the event that fox sign was detected. The

response should involve baiting in the identified area followed by rapid follow-up DNA scat testing to confirm fox presence. In other words, changing from the current approach of baiting first and monitoring second, to a monitoring first and baiting second strategy.

The Panel believes such an approach would have significant benefits. Firstly, it is almost certain to vastly increase the likelihood of access being afforded to properties as monitoring is much more acceptable and less threatening to landholders than is baiting. As one member of the FEP staff said,
If people accepted baiting like they accepted monitoring we would be home free.

Secondly, it would significantly increase the rate at which the Program could be rolled out as it would overcome the major bottleneck in the current process of negotiating access agreements. Not only does this process cause much of the delays associated with the Program, but it can also be a harrowing experience for those FEP staff that have to deal with sometimes upset and antagonistic property owners.

While there is an element of speculation about how much this suggested new approach would reduce the roll-out time, the Panel believes (based on the assumption that current funding levels are maintained) it would at least halve it, giving a finish date sometime in 2015.
The third advantage of the suggested approach would be to reduce public opposition to the FEP. Much of the current opposition is based around the widespread use of 1080, notwithstanding that the way 1080 is used in the FEP is highly unlikely to cause any adverse effects to non-target wildlife or to domestic pets. The new approach would involve a massive reduction in the amount of 1080 used and, therefore, one would expect a commensurate reduction in community concern.

The cost of the suggested new approach is expected to be significantly lower than that required for continuation of the current strategic baiting program. There are two main reasons for this,

- reducing the time needed to complete the Program
- much reduced use of 1080 and the labour-intensive laying and recovering of baits

Based on reducing the roll-out time by around 2.5 years, this measure alone could result in savings of as much as $12.5 mill. over the course of the Program.

While one could interpret the suggested new approach as a fundamental change (and in one sense it is), in reality it uses no new techniques nor does it require any major additional infrastructure. It is really an adaptation of the current approach. The main changes involve the sequence in which things are done and consequential changes to the volume of work in certain areas. The Panel believes that the necessary ramping up of monitoring effort coincidental with the reduction in baiting effort, could be readily achieved by the first six months of 2013.

It has been suggested to the Panel that its modified approach could be supplemented by some targeted precautionary baiting of areas identified at a high threshold of fox habitat suitability. The Panel would support this as long as the proposed areas for baiting were not too large and that access was reasonably assured such that the capacity to switch to the strategic monitoring approach was not prejudiced.

It is often suggested that the best way of ensuring access to land for baiting purposes is to legislate to allow compulsory access even in the face of landholder objection. The Panel does not support the use of such coercive powers in a widespread manner, mainly because it would be likely to turn the public even further against the FEP and the long-term battle against foxes can only be achieved with a supportive community. It is also recognised that there is no political appetite to legislate for such a purpose.

The Panel does believe, however, that under certain very specific circumstances access to land should be able to be required for baiting purposes. In the event that there is resistance to baiting from landholders in the vicinity of identified evidence of fox presence and that resistance would jeopardise the integrity of the whole localised baiting effort, then it is reasonable to expect that the FEP should have access to a statutory power to enter and bait on such properties. Otherwise one or two recalcitrant landowners could foil eradication efforts, not where foxes might be, but where foxes are known to be.

The Tasmanian *Vermin Control Act 2000,* allows for a notice to be issued to landowners requiring that pests be eradicated on their land. It does not, however, provide the authority for an officer to enter the land to undertake the eradication in the timely way that would be necessary. The processes in the *Act* that permit such action, which include the right of the landholder to appeal to the Magistrates Court, could take months to be finalised, by which time any foxes may be long gone.

The Panel believes the *Act* should be amended to provide government officials with the authority to enter properties in a timely manner for the purposes of eradication, given the specific and restricted circumstances described above. Such legislative powers are afforded for the control of infectious diseases in livestock. The implications of fox establishment are just as dire as many of these diseases and it seems, therefore, that similar statutory control tools should be available.

Recommendations
1. The basic design of the FEP should be modified such that it focuses first on strategic monitoring across broad fronts using scat detector dogs. Any positive dog detection should trigger an immediate reactionary response involving baiting in the identified area followed by rapid follow-up DNA scat testing to confirm fox presence.
2. The Vermin Control Act should be amended to allow government officials to enter land for the purposes of baiting in the vicinity of identified evidence of fox presence.

Output 1 – Strategic baiting
This output involves the delivery of a statewide baiting program based on a precautionary strategy targeting areas of modelled core fox habitat with a view to placing all existing foxes at risk. Baiting is undertaken using 1080 Probaits in a staged approach across defined fronts. This involves obtaining access agreements from property owners, followed by baiting and, after a period of between 14 and 28 days, retrieval of untaken baits. Data on bait location and "bait fate" is provided centrally after the retrieval effort and recorded in a GIS to generate progress reports and to support decision-making.

The Plan outlines three performance targets for this output,

i. 200,000 ha of core fox habitat baited in accordance with standard operating procedures annually.
Data provided by the FEP indicates that in,

- 2009-10, the area covered was 52,700 ha
- 2010-11, the area covered was 101,180 ha
- 2011-12, the area covered was 198,445 ha
- 2012-13 (to December 2012), the area covered was 91,049 ha

The FEP anticipates that over 200,000 ha is likely to be covered by the end of 2012-13.

It would seem, therefore, that the average baiting coverage for the three years over which the Plan applies (April 2010 to June 2012) is likely to be in the order of the targeted 200,000 ha per annum. The Panel considers this to be a considerable achievement given the major difficulties encountered by the FEP over that period. It remains concerned nonetheless about the completeness of the baiting program in the light of the reported large holes in the baiting fronts referred to above in the section on Program Design. It is also concerned that the year-round nature of the baiting program does not allow for optimum timing for targeting foxes.

ii. Baiting density of 10 baits per sq km is maintained.
Data supplied by the FEP indicates that since the start of 2010-11, the average baiting density achieved has been 6.2 baits per sq km. Baiting density has, therefore, been 38% below target, further emphasising the Panel's concern in relation to the completeness of the baiting program.

iii. Baiting strategy developed and implemented
A baiting strategy is in place and is being implemented.

Extensive experience in managing pests has shown that rarely will one technique work for every individual pest. Various cohorts may behave differently, for example, older foxes are often more wary than younger ones, and animals with young behave differently to those without, while dispersers such as sub-adults often behave differently again. These variations are not so critical where the aim is to reduce the damage to an acceptable level by reducing overall fox density. For Tasmania, however, each and every fox needs to be targeted.

In this context, the Panel is concerned that the FEP is using just one bait type containing just one toxin, 1080. It believes that a greater

variety of techniques be explored, especially additional toxins to supplement 1080. In this regard, the Panel suggests that approval for PAPP to be used in the FEP be sought as soon as practicable. Advice provided to the Panel leads us to be confident that the Australian Pesticides and Veterinary Medicines Authority (APVMA) would view such a request positively.

The use of PAPP, a toxin with an antidote, is likely to overcome many of the concerns about losses of working dogs and domestic pets. It would be of particular benefit in urban areas where considerable resistance to 1080 baiting is currently being experienced and is likely to reduce community opposition to the FEP more generally.

Additional bait delivery mechanisms that are being explored include M44 ejectors and spitfires (tunnel traps). In relation to spitfires, Connovation NZ would need to be consulted to determine whether the current traps are suitable or whether they would need to be modified to target foxes alone. M44 ejectors are currently used in NSW for fox and wild dog control under a research permit. A request to the APVMA for their use should be progressed as soon as practicable.

Ideally foxes should be targeted at those times when they are most likely to take baits, for example, leading up to and during the breeding season when demand for food is highest. However, given the need to cover all fox habitat in a limited time, baiting is currently conducted throughout the year under all conditions. The degree to which this limits the opportunity for foxes to detect and consume a lethal bait is not known. It is of concern to the Panel that the current strategic baiting program requires baiting to be undertaken in wet conditions, which we know will cause baits and toxin to degrade relatively quickly leading to the potential for baits to rapidly become sub-lethal. Should a fox consume a sub-lethal dose, it is likely to become bait shy and no longer susceptible to 1080 Probaits. Other bait substrates, such as dried meat baits, could be pursued.

The requirement for continuous baiting has led to difficulties with saturated soil conditions that has prevented access, hindered progress and affected bait longevity. To overcome this problem the FEP has skipped over many of these saturated areas on the assumption that foxes would be unlikely to occupy them and would be more likely to move to higher areas or areas with sandy soils that

would be amenable to baiting. This assumption might be correct but it is another cause of holes in the baiting front that further reduces the efficacy of strategic baiting.

Because the movement patterns and ranges of a relatively few number of foxes across Tasmania and their likelihood of encountering and consuming a lethal bait is not known, it is difficult to be sure where baits should be placed and at what rate. Hence it is not known whether the current target rate of 10 baits per sq km is appropriate. This would not be an issue were the Panel's recommended program design to be adopted as the foxes general location would be known and baiting density could be determined for that particular location.

A consistent complaint encountered from FEP field staff was the bureaucratic and impersonal nature of the letters sent to landowners seeking access. The Panel agrees that considerable improvements could be made by personalising (use the name of the intended recipient, not "Dear Landowner" as is currently the case) them and writing them at the appropriate reading level of the target audience. We note that this was a recommendation of the 2011 Community Engagement Review and is being implemented.

Recommendations
3. Approval be sought from the Australian Pesticides and Veterinary Medicines Authority for the use of PAPP in the FEP
4. The use of alternative toxin delivery mechanisms, such as M44 injectors and spitfires, be explored
5. Continue to review access letters with a view to making them less bureaucratic and impersonal

Output 2 - Post-bait monitoring, detection and destruction
The primary tool for post-bait monitoring is the deployment of scat detector dog teams undertaking planned searches of allocated 3x3 km survey units within areas previously baited.

To assist detection a 24 hour/7 day hotline for public reporting is maintained. Reports are prioritised according to location relative to the baiting front with the highest priority given to reports behind the baiting front or outside the designated core fox habitat. For such reports there is a target response time of 12 hours.

The Plan outlines five performance targets for this output,
i. Monitoring Strategy developed.
A Monitoring Strategy has been developed

ii. Incursion or Tactical Response Strategy developed.
An Incursion Response Strategy has been developed

iii. 75% of baited areas searched in accordance with standard operating procedures for evidence of foxes.
Data provided by the FEP indicates that in,

- 2010-11, post-bait monitoring occurred over 16,000 ha (16% of baited area)
- 2011-12, post-bait monitoring occurred over 122,830 ha (62%)
- 2012-13 (first two months), post-bait monitoring occurred over 38,700 ha (109%)

The average over the two years and two months is 53% of baited areas searched. While this is well below the targeted 75%, clearly the effort has ramped up over time such that it is currently exceeding the target.

iv. Foxes do not establish in previously baited areas.
Advice from the FEP is that no foxes have been positively detected behind the baiting fronts.

v. 100% of credible sightings in previously baited areas and areas not identified as core fox habitat are investigated.
Advice from the FEP is that all such reports have been investigated.

Effective monitoring by scat detector dogs is critical to the success of the Panel's recommended program design. It is very important, therefore, that its effectiveness is demonstrable and that every effort is made to maintain it at a high level with an optimisation of effort. At the moment it is not clear to the Panel that the dog monitoring teams can search at sufficient intensity to ensure that the required probability of detection (fox sign) can be met. There are both technical and human sides to this issue.

On the human side, the monitoring teams report low morale. They are required to search one nine square kilometre area per day, week in week out, in all weather and with extended absences from home and family. Given that they have found no fox scats in the time since the strategic baiting program commenced, they report severe search fatigue both of themselves and the sniffer dogs who are influenced by the attitude of their handlers. Dogs and handlers in this condition are unlikely to be operating at optimal efficiency.

The Panel notes the "freshening up" effect that training trips to Phillip Island to detect known fox scats has on both dogs and handlers. These reinvigoration sessions are highly regarded by the dog handlers and it is suggested that they be continued at no lesser frequency than is currently the case.

The FEP recognises that it needs more detector dogs and handlers to support the current strategic baiting program. If the Panel's recommended program design is accepted there will be requirement for a significant and rapid increase in numbers alongside the need for increased capacity for training and validation of detector dogs and their handlers.

There has been some concern expressed about the accuracy of the DNA scat analysis and about the time taken by the University of Canberra to analyse scats. Currently the incursion response team does not wait for DNA confirmation of scats but rather responds to a scat as a fox scat if the sniffer dogs identify it as such. In order to confirm or otherwise the robustness of the current scat collection and testing processes it is recommended that an independent forensic laboratory be commissioned to review the efficacy of the University of Canberra's DNA analysis and field practices in collecting, handling and storing scats.

The Panel's suggested program design relies, in part, on rapid confirmation of the origin of scats detected by dogs. Currently the turnaround time for scat analysis is inadequate for this purpose. To speed up scat analysis it is recommended that scats identified by dogs as fox scats should be swabbed in the field and immediately dispatched to the laboratory. A private company, working in concert with the University of Canberra's molecular laboratory, have

developed a process that could reduce the time for analysis to one or two days.

The effectiveness of the monitoring teams should be continually assessed and the Panel recognises the good work currently being done by the FEP in this area. It is imperative that this be maintained and enhanced where possible. For instance, a series of trials could be undertaken to quantify the detection probability by scat detector dogs by fitting a GPS collar and accurately tracking the dog's path though a 3x3 km surveillance block. This would be followed by determining the width of the detection path, ie, the distance from the line that a dog can detect a scat, to infer the probability of detection. See Appendix 3 for more detail.

The detection of foxes requires a multi-technique approach, particularly in urban and peri-urban areas. While the concentration on scat detection dogs is warranted, alternative techniques should be used as part of field monitoring to identify areas of potential fox presence. Current methods that could be adopted include looking for fox tracks and the use of camera traps with lures. Any newly-developed techniques should be explored as they are developed.

Good quality assurance is essential to the FEP and this requires testing protocols and processes from the field through to reporting. Regular blind tests should continue to be conducted that test all elements of the program.

Recommendations
6. The number of scat detector dogs and dog handlers be significantly increased in order to manage the recommended greatly increased emphasis on strategic monitoring.
7. "Freshening up" trips to Phillip Island for detector dogs and their handlers be maintained at a frequency no less than is currently the case and increased if resources allow.
8. An independent forensic laboratory be commissioned to review DNA scat results.
9. DNA analysis of high priority scats be completed in no more than two days after having been received in the laboratory.
10. The efficacy of dog scat monitoring should continue to be continually tested using GPS-collared dogs to track their movement and search effectiveness coupled with blind tests on

the ability of the dog and handler to detect planted scats. The teams should aim to optimize effort by calculating and modelling detection probability per unit effort.
11. Continue to use alternative existing monitoring techniques (such as track detection and camera surveys using lures) as indicators of fox presence, and explore new techniques as they emerge.

Output 3 – Community engagement
This output relates to developing community awareness of the threats posed by foxes and the current eradication effort . Activities include,

- maintenance of an on-line presence with FEP web pages on the DPIPWE web site and a general Invasive Species Facebook
- printed information sheets
- public information sessions and targeted community group briefings ahead of the baiting front
- quarterly bulletin
- regional show displays
- media interviews
- Stakeholder Reference Committee
- stakeholder briefings.

The Plan identifies three performance targets for this output,
i. Community Engagement Strategy developed.
A FEP Community Engagement Strategy is in place and the Panel notes that a 2011 review by Sefton and Associates commented favourably on the Strategy and the approach of the FEP overall.

ii. All applicable landowners contacted in relation to baiting and monitoring activities.
The FEP advises that this target is being met.

iii. Stakeholder Reference Committee established and meets quarterly.
A Stakeholder Reference Committee has been in place for some years with ten meetings having been held over the last four years.

The Panel has examined the Sefton report and concurs with its fundamental conclusion that the existing approach to community

engagement has most of the elements that should ensure success. The recommendations of the Sefton report are supported by the Panel and it is noted that the FEP has endorsed most of them for implementation.

Given that the Sefton review was undertaken less than 12 months ago there is little to be gained by the Panel revisiting the issues it has discussed and documented. There are, however, some matters that we want to emphasise and some others that we want to expand on. These principally revolve around the low level of community support for the FEP which is a matter of considerable concern to the Panel.

Reading the newspapers, watching the television news and listening to radio talkback it is evident that there is a high degree of scepticism and a substantial lack of support for the FEP in the Tasmanian community. That is not to say that the media is unrelentingly negative towards the FEP, from time to time there are supportive items published but the overall trend clearly leans towards the opponents and sceptics. Neither should it be assumed that the opinions of those who write letters to the editor or who ring radio stations are necessarily representative of the population as a whole.

There is no doubt that the public discourse about the FEP is overwhelmingly negative and there is equally no doubt that this is testing the resolve of those who provide the resources that allow the Program to proceed. For instance, a senior member of the Tasmanian government commented to a member of the Panel,
I am a supporter of the fox work but all I ever get is negative public feedback.
Another prominent Tasmanian member of the Commonwealth parliament indicated that he had never heard the case in favour of the FEP and what little he did hear about it was generally negative.

While it is recognised that the FEP currently enjoys support from peak agricultural and conservation groups and has cross party support at both State and federal levels, it would be dangerous to assume that either the Australian or Tasmanian governments would be immune to consistent public opposition for much longer. It is important to ensuring continued investment in the Program that public perception about the Program is turned around in the media.

The negative media is also having an adverse operational impact on the program. In the interviews the Panel conducted with FEP staff, every group, without exception, raised the issue with us.
The media is killing us
was the typical sentiment expressed to the Panel. They relate the adverse media directly to some of the hostile phone calls received on the hotline, to aggressive interactions in the field and to the chiacking they get from friends and colleagues about their work. This is clearly having a demotivating effect on many staff and a demotivated staff will not be operating at maximum effectiveness. Some staff also reported a direct correlation between negative media stories and the willingness of landowners to provide access for baiting. For instance, the northern team identified a sharp downturn in landowner cooperation immediately following the recent media stories about opposition to baiting at South Arm.

The difficulties the FEP is having in terms of community support is not just measured anecdotally through media coverage but has recently been assessed quantitatively through a community attitudes survey undertaken by Myriad Research. Myriad's telephone survey of 600 Tasmanians conducted in March 2012, found that just 18% of respondents were positive in their rating of FEP performance. Furthermore they found that only 32% believe there are foxes in Tasmania, down from 61% in 2002. Myriad identified that the majority of respondents gained their awareness of the Program through media sources of one form or another (51% from television, 51% from newspapers, 19% from radio and 13% from other media). It is reasonable to conclude, therefore, that the negative media is having a profound effect on the community's views about the Program.

The Panel is acutely aware that none of its members are experts in media affairs, and in discussions with some who are it has been suggested that to take too high a media profile for the FEP could have the unintended consequence of providing another platform for the sceptics and opponents and "giving oxygen" to their arguments. While we respect this advice, it is clear to the Panel that the current approach of a "light touch" in the media is not working and should be revised.

There would appear to be three main reasons for the lack of broad community support,

- a general antipathy across Tasmania towards the use of 1080
- scepticism that foxes exist in Tasmania
- a view that the Program is too expensive and that the monies could be better spent elsewhere.

The Panel believes that each of these issues should be tackled head-on in the public arena.

On the issue of 1080, the Panel fully appreciates the difficulty in combating a deeply ingrained, and with some people, a visceral opposition to this toxin. The Panel's suggested program design would involve vastly less 1080 being laid in the landscape along with the availability of alternative poisons, that have an antidote, which could be used in particularly sensitive circumstances. It is expected that this would result in considerably less opposition to the FEP on the basis of 1080.

The Panel is also of the view that a greater effort could be made in the media to explain the very low dosages of 1080 that are used and the consequent very low likelihood of harming non-target native wildlife or domestic pets. Using PAPP, with the availability of an antidote, in areas where working dogs or pets are thought to be at risk will also assist in reducing public opposition.

Scepticism about the presence of foxes in Tasmania is, in the opinion of the Panel, perhaps the most significant reason for community indifference about or opposition to the FEP. What is very encouraging, however, is the Myriad finding that 84% of respondents answered yes to the question "do you think measures should be taken to eradicate any foxes that may be in the State". In other words, the vast majority of the population would support a fox eradication program if they were convinced that foxes were present. This finding is supported by the Panel's own *vox pop* where 29 individuals, all of whom were either indifferent or opposed to the FEP, were advised of the physical evidence of fox presence that has been collected over the last decade, ie, 61 DNA-positive scats, four carcasses (one whose stomach contents contained endemic Tasmania fauna) and fox blood at Old Beach. None of the 29 had ever heard about this evidence before and all, without exception, indicated that it had changed their view about the presence of foxes and, therefore, about the need for the FEP.

It surprised the Panel how little real understanding there was about the FEP amongst a number of the community leaders that we interviewed. Prominent individuals in politics, in the science community and within the agriculture industry, people we expected to be well informed were not. There is considerable scope for the FEP to advance its cause by personal briefings of community leaders.

Notwithstanding the efforts of the FEP to publicise the existence of this physical evidence, it is clear that the message is not getting out. The fact that the media had not picked up sufficiently on the longstanding presence of such evidence was apparent when on 5 December 2012, the Mercury, in a front page article about Stephen Sarre's DNA analyses of fox scats, was able to say that this "scientific research has thrown new light on the controversial fox taskforce". This information is not new, it has been around for years. In a follow-up letter to the editor of the Mercury on 10 December, a correspondent said,
The Invasive Species Branch must do more to eradicate the public scepticism about foxes……The public needs to know the scientific evidence that points to the presence of these weapons of mass environmental destruction.
The Panel wholeheartedly supports the sentiments expressed in this letter. The compelling and potentially extremely influential nature of the physical evidence of fox presence should play a prominent part in any future community education or media campaign.

Any attempt to combat the notion that resources invested in the FEP would be better spent elsewhere is doomed to fail and should not be attempted. However, the contention that too much money is being put to the Program can and should be contested. A greater effort should be made to publicise the $255 mill annual costs of foxes on the mainland and the estimate that annual costs to Tasmania ,were foxes to become established, would be in the order of four times the cost of the FEP and those costs would go on in-perpetuity.

One of the mechanisms of garnering public support is by the use of third-party endorsement of the FEP. The use of respected people or organisations to help promulgate positive messages rather than the burden always falling on FEP spokespeople is likely to have significant impact. The Panel notes that this approach was recommended on a number of occasions by the Stakeholder

Reference Committee and by the Sefton report. It was also something suggested by many of the FEP staff and by some from outside the Program. One person external to the Program said,
The only people I ever hear talking about foxes in the media are either lunatics or government scientists. You need someone independent.
Apparently the use of outside champions was used in the early days of the Fox Task Force to some effect.

The Panel was disappointed to note that the FEP rejected Sefton's recommendation for the use of third party champions on the basis that "a suitable celebrity endorsement has not been identified". This is surprising as a number of number of suitably respected individuals (not necessarily celebrities) have been offered to the Panel willing to provide some level of endorsement to the Program. Some examples of those that might be considered are Dr Harry (for dog owners), Tim Flannery (for impacts on wildlife) and respected midlands sheep farmers (for impact on livestock). Other groups that could be engaged in support of the Program are the three NRM Regional Bodies, Women in Agriculture and the science community from institutions such as University of Tasmania, the Invasive Animals CRC and the Wentworth Group of Concerned Scientists.

Another mechanism that could be utilised to increase community engagement with the FEP is the development of a citizen science program. This need not be resource intensive and could involve something as simple as distributing a number of cameras to suitable groups such as schools and Landcare groups and instructing them on how they could be used to detect fox activity and species that might be at risk of foxes. Even if foxes are not detected, such involvement with the Program is likely to develop another constituency in favour of fox eradication and, hopefully, increase the interest in wildlife conservation more generally.

Finally, the Panel would like to indicate its strong support for the Sefton recommendation concerning the number and style of FEP information resources. While these resources are generally very good, there are a lot of them and it is not clear that they are being successful in large parts of the Tasmanian community. For example, low literacy rates might be affecting the uptake of some of the detailed information and could be the cause of some of the issues with access agreements. It may be that fewer information resources and simpler messaging would provide better results.

While the Stakeholder Reference Committee (SRC) is a longstanding element of the FEP's governance an examination of its minutes since January 2009, throw into doubt its utility. Attendance at meetings was generally poor with often only around half the members turning up. Indeed, at the last two meetings just four and five respectively attended. Meetings have become less frequent with ten being held since January 2009, but only two of those since August 2011. The Committee was very well briefed by the FEP but there seemed rarely to be any advice of consequence coming back from SRC members. With a couple of notable exceptions, there was no evidence of Committee members promoting FEP messages to their constituency or within the broader community.

These observations were largely supported by those SRC members interviewed by the Panel and by FEP staff who had dealings with the Committee. In its current configuration the SRC adds very little value, indeed the effort required to service it probably exceeds the benefit derived from it. Accordingly it is suggested that the SRC be reformed with new terms of reference that focus on the Committee's key role of promoting the FEP within the community and with significantly enhanced membership. The Panel notes and supports the intention of DPIWE to fold the functions of the SRC into a broader Invasive Species Advisory Committee.

Recommendations

12. Significantly enhance the Program's profile in the media, particularly be emphasising the physical evidence of fox presence and by using third-party, non-government champions

13. Provide individual briefings for key community leaders

14. Rationalise the number of information resources and provide simpler messages

15. Develop a citizen science program to assist monitoring efforts

16. Create a new Invasive Species Advisory Committee with terms of reference that emphasise the role of supporting the FEP within the Tasmanian community and membership with a focus on individuals with standing and influence within the community and within their respective organisations.

Output 4 – Research and development
This output relates to developing information and knowledge to support operational aspects of the FEP and, more recently, to using social sciences to improve efforts in community engagement.

The Plan identifies three performance targets for this output,
i. Technical Advisory Panel (TAP) established and meets quarterly.
The TAP has long been established and its meeting frequency has been in line with the quarterly target.

ii. All R&D projects are assessed and endorsed by the TAP.
Advice from the FEP indicates that this target has been met.

iii. All R&D projects conducted under a project plan and align with the Research and Development Plan or address emerging issues.
Advice from the FEP is that this target is being met.

During the course of this review the Panel interviewed all bar one of the TAP members. These interviews revealed some differences within the TAP with respect to how the Panel was operating. Some indicated they were happy with the way the Panel was served by the FEP staff insofar as they were kept well informed about Program progress and that advice was sought and well received on appropriate matters. Many others, however, feel disillusioned with processes within the TAP and evidenced a sense of disempowerment. These members don't believe their advice is being sought on critical elements of the Program and, therefore, that their potential value to the FEP is not being maximised. In short, many believe the TAP is not exercising the degree of influence over the Program that it could or should.

The Panel notes the increased emphasis on the social sciences in the more recent R&D projects associated with the FEP. It has also noted in the previous section of this report the fundamental importance of successful community engagement to the Program. With this in mind, it is suggested that membership of the TAP be supplemented with someone from the social sciences with particular expertise in community engagement.

During the course of the review it became apparent that the TAP had no formal terms of reference. This might explain in part the unease within the TAP about whether it is performing its role. There is an

obvious need to develop terms of reference that clearly outline the role and expectations of the TAP.

The FEP has developed a Research and Development Strategy that has four objectives.
1. Processes and information to improve and measure Program activities
2. Rigorous baseline ecological data on "at-risk" native species from which changes can be measured
3. Information to assist in decision-making within, and in relation to, the Program and its activities
4. Information to better inform the community on fox-related issues.

Seven projects are being or have been conducted under this Strategy, all of which support the ongoing operational aspects of the FEP. Another seven projects are listed for future consideration. Of this latter group, the Panel considers three to be of high priority,
i. Detection probability of foxes at low densities - critical to a model that relies heavily on monitoring fox presence
ii. Alternative control techniques - very important for fox control in built-up areas
iii. Transition strategy - an exit strategy is particularly important in the event of funding withdrawal or to provide direction at Program completion. Any such strategy should include provision for fox control to be a normal part of core business in Tasmania.

The Panel notes that the Invasive Animals CRC has been funded to undertake three FEP-related research projects that coincide with the above priorities,
i. Fox detection probabilities at low densities
ii. Risk assessment for new fox control techniques
iii. Long-term response strategy for the Tasmanian FEP
These projects should be progressed quickly.

The Panel also recommends that an increased emphasis should be placed on social research aimed at improving public support for fox eradication and long-term management measures. It notes that this is being advanced with support to the University of Canberra and involvement in the Invasive Animals CRC's community engagement research program.

Recommendations
17. Terms of reference should be developed for the TAP that clearly spell out the role it is expected to play
18. Make the Chair of the TAP an ex officio member of the Steering Committee
19. Appoint a social scientist with particular expertise in community engagement to the TAP.
20. Progress key priority research projects focussing on detection probabilities at low densities, alternative methods for killing foxes and transition strategy that includes provision for fox management to become core business.

Output 5 – Biosecurity
This output focuses on the prevention of future immigration of foxes into Tasmania.

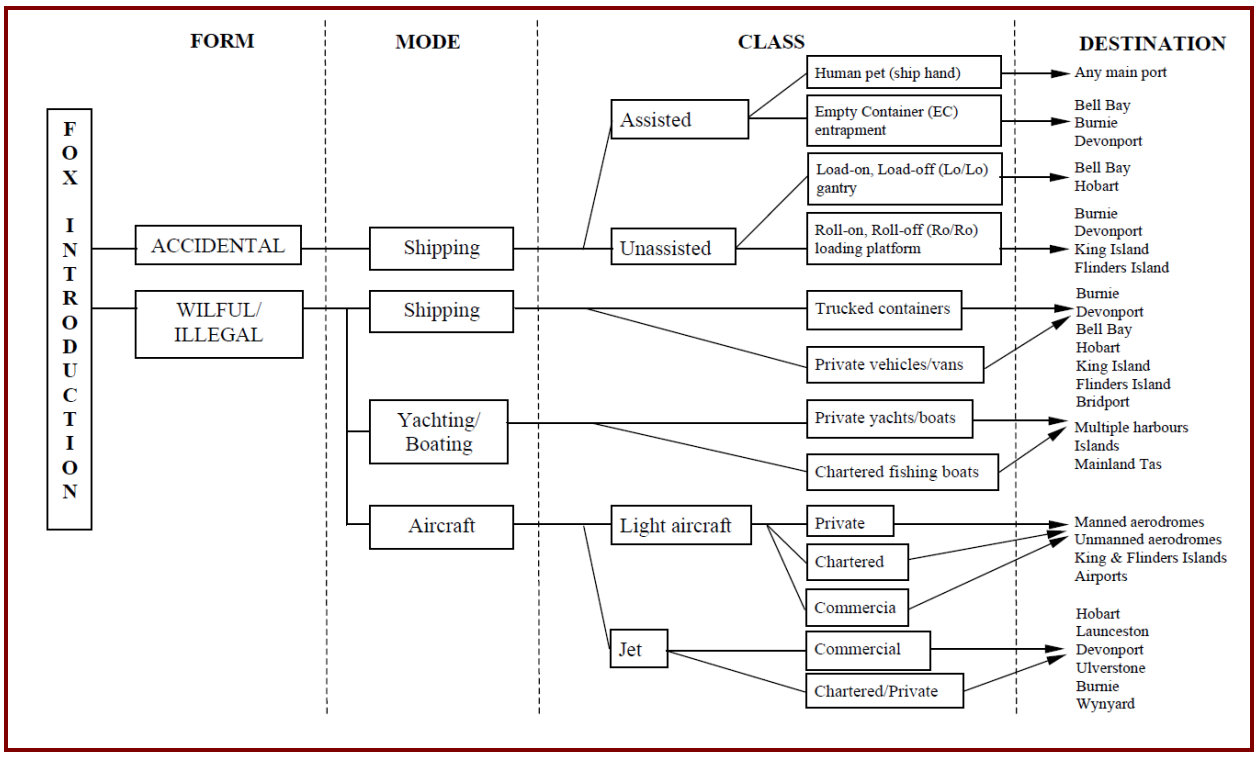
The Plan identifies two performance targets for this output,
i. No incursions of foxes into the State.
No known incursions have occurred but it is recognised that this is a difficult target to quantify. In fact this could be more accurately characterised as a goal rather than a target. In the 12 months up until September 2012, Quarantine Services detected at the barrier two separate attempts to import "green" fox skins.

ii. 85% of the community (from a representative sample) would report fox activity, including information about possible importation of foxes, to the FOX OUT hotline or to another government agency.
No data was provided to the Panel that would have allowed performance against this target to be assessed.

A number of actions designed to minimise the possibility of new fox incursions have been undertaken by the FEP. Firstly, and very importantly, an import risk analysis of fox entry pathways was undertaken in 2008 by the then Department of Primary Industries and Water. The pathways identified in this report are demonstrated in Figure 1. Recommendations from the report and the implementation status of those recommendations are summarised in Appendix 3.

Currently the Program is operating on the assumption that all entry pathways are known. To test this assumption the Panel believes a forensic analysis of the genetic data should continue to be undertaken to inform pathway analysis; that is, where have the foxes come from, what are their likely routes of arrival and can these pathways be closed.

Figure 1. Fox Risk Entry Pathways of Concern (Phillips 2008)



Signs are in place at the State border and along internal road networks. This is an important communication tool that has been used to good effect in eradication programs elsewhere, for example, in Western Australia with the European House Borer. The FEP is in the process of improving the way signs are used but apparently some permission issues have been encountered in relation to new or upgraded signs with other government agencies and this has delayed completion. These issues need to be resolved.

It is suggested that, as part of the Invasive Animals CRC stakeholder engagement project, the effectiveness of signs should be quantified to act as a benchmark. The role of signage at selected mainland ports as part of an overall communication package could be tested for its effectiveness.

Effective quarantine processes are key to preventing new fox incursions. The FEP currently provides $71,000 annually to Quarantine Tasmania to assist in the Program. The Panel is not aware of any reporting by Quarantine Tasmania that outlines just how this investment is being used in support of the Program. Such reporting

should be made in order that judgements can be made about the appropriateness and effectiveness of this investment.

The Panel notes that quarantine dogs have detected untanned fox skins at the barrier which suggests that the dogs are an effective detection measure. In order to maintain their effectiveness it is suggested that regular blind and scenario tests be undertaken.

Recently the Australian Parliament passed new national biosecurity legislation. While this is enabling legislation which by itself might not be useful for fox eradication in Tasmania, its subordinate tools of policy, regulation and other mechanisms could be helpful. The legislation is not restricted to pre-border activities and allows for State agency staff to be authorised. Opportunities that the new legislation could provide to the FEP should be explored.

A Fox Incursion Emergency Response Plan was being developed to focus on port areas. This has since been replaced by a more comprehensive Fox Incursion Strategy that covers all lands. A key part of this planning is working with the Biosecurity and Product Integrity Division of DPIPWE to ensure that common biosecurity response training and incident management systems are consistent at State and national levels. The Panel supports and compliments this approach.

The FEP needs to consider post-border biosecurity, beyond just foxes, particularly on-farm biosecurity. The relatively large number of staff travelling on and between farms can present unforseen risks through the inadvertent carriage and spread of pests and pathogens. There needs to be a concerted effort to identify what the risks are, what strategies are needed to mitigate the risks and then to implement those strategies. There are a number existing resources the FEP can draw on to assist this process, most notably within the Western Australian Department of Agriculture and Food. At a minimum, Program staff should carry biosecurity kits when working in the field.

Recommendations

21. Continue to conduct a forensic analysis of the genetic data in order to inform pathway analysis

22. The effectiveness of signs should be quantified as past of the Invasive Animals CRC stakeholder engagement project
23. Review new Australian Government biosecurity legislation and its potential subordinate instruments to determine whether and how it might assist fox biosecurity measures for Tasmania
24. Greater efforts need to be made to identify and ameliorate any on-farm biosecurity risks resulting from FEP activity

Output 6 – Program management
This output provides for key elements of Program governance and the broader management of resources. It incorporates activities such as the development of business plans, support to the Steering Committee and Program reporting.

The Plan identifies five performance targets for this output.
i. Stage 2 Program Plan approved by the Steering Committee
The Plan is in place and has been operational as from April 2010.

ii. Steering Committee established and meets quarterly.
A six-person Steering Committee has been established and has met on nine occasions over the last three years. While this meeting frequency is less than quarterly there is no indication that this has had an adverse impact on good program management.

An analysis of the minutes of these nine meetings demonstrate an active group that is addressing the type of strategic issues one would expect of a steering committee. All members of the Steering Committee were interviewed by the Panel and all expressed satisfaction with the manner in which the Committee operated and the support it received from the FEP staff. It was noted, however, that meeting attendance could be improved with just two of the last nine meetings having 100% of members present, and five meetings having four or less members in attendance. This is surprising given the significance of the Program and it is considered that Committee members should prioritise attendance at Steering Committee meetings.

Membership of the Committee is at a senior level, as it should be, and it has been reasonably stable over the last three years which is helpful for the running of the Program. The minutes indicate that verbal reports from the SRC are provided and that for the last two meetings the Chair of the TAP has attended meetings. This demonstrates an encouraging degree of interaction between the three key elements of Program governance.

While the membership of the Steering Committee might have been appropriate for the initial stages of the Stage 2 Program, the Panel considers it could usefully be supplemented going into the next phase. Given the heavy reliance of the FEP, going forward, on good science and a firm base of community support, it is suggested that the Chair of the TAP and an experienced community engagement practitioner be added to the Steering Committee.

iii. Reporting to funding bodies completed in accordance with funding arrangements.
Advice from the Department of Agriculture Forestry and Fisheries, the major external investor in the FEP, is that reporting has been generally acceptable. While there have been some issues these have largely been of an administrative nature with the content of the operational reports being
essentially what has been required by DAFF.

iv. Staff Training Strategy developed and implemented.
A training strategy was developed in October 2011 and approved by the Steering Committee. The Strategy is comprehensive and adequate and the Panel has just one matter on which it wishes to comment and this relates to the appendix to the Strategy that outlines the specific training priorities. It was noted that the "Working with Challenging Customers" course was deemed "highly desirable" but not "essential" for staff in the Program to complete. Given the comments we heard from field staff having to deal with cranky property owners and from the hotline operators having to deal with aggressive calls, the Panel believes that all staff who have contact with the public should be provided with conflict management/working with challenging customers training as a matter of course. It should be noted, however, that training will not equip staff to manage the most difficult of circumstances and for these specialist negotiators could be needed.

It should be noted that most FEP staff were satisfied with the type and amount of training they had been provided.

v. Budget managed within a 10% tolerance.
The Panel has been provided with the budget figures for the last three years and expenditure has never varied from allocation by more than 8%, with most variance being between 1% and 2% - an impressive performance.

Much has been made of the expense attached to the FEP, especially in the media from opponents of the Program. Currently the Program operates with an annual budget of around $5 mill which is a considerable investment. As an insurance policy against the establishment of an alien predator that would wreak havoc on Tasmania's unique wildlife and cost the State tens of millions of dollars in lost agricultural production and control costs in perpetuity, it is money well spent. It is a prudent investment that yields both strong financial returns and enormous environmental benefits.

The Panel acknowledges the resilience of both the major investors in the Program, the State and Australian governments, in continuing to provide the funding they have in a difficult fiscal environment. We encourage them to stay the course and see the Program to completion and recommend that annual funding be maintained at no less than current levels.

In terms of Program governance, the Panel would like to comment favourably on the clear annual operating plans the FEP develops and on the very good risk management plan maintained by the Program.

Folding the FEP into the broader Invasive Species Branch brings with it some risks but also some opportunities. The risk is that it could diminish the effort on fox control by diverting all or part of some staff's time onto other invasive species issues. For instance, the leader of the FEP is now the Branch Manager and will necessarily have to spread his time across more issues than foxes. On the other hand, incorporation within a larger branch has the potential to enhance the capacity of the FEP by providing it access to skills in areas such as project management and strategy development where its current capacity is limited. The Panel has no intention to involve itself in the detail of the structures within the new Invasive Species

Branch other than to recommend that whatever is decided it should not be allowed to diminish the fox eradication effort.

During the course of this review the Panel interviewed the majority of staff that work within the FEP. As well as providing helpful advice and suggestions on many Program-related matters, they also raised a number of issues concerning their workplace. What might be generally called human resource management issues. These included such things as,

- working conditions
- type of equipment provided
- internal communication
- recruitment procedures
- operating procedures across teams
- short-term contracts.

The types of issues raised are common to many large public and private sector organisations.

While the Panel is not in a position to deal with the detail of all these matters, it is concerned that in aggregate they can and are impacting on the operational effectiveness of the FEP. For instance, all the teams reported that they felt isolated, that there was a silo mentality in the FEP. The consequence is regional and task disunity and, in some cases, active disagreement between and within teams. Whatever the merits of the different approaches, the issues need to be discussed openly within the Program and resolved.

Several staff reported that they did not feel like valued members of the team, that their role and efforts were not fully appreciated. A common theme was fragmentation of effort where staff were often unaware of what happened to information they provided or the outcome of their work once it had passed to other parts of the FEP. *We're just little cogs in a big wheel.*

These issues are symptomatic of poor internal communication, something that was commented on repeatedly in the staff interviews. If a system exists to promote information flow across the Program it is clearly deficient. A better process for sharing information across the Program is needed to assist people to better do their job and to ensure staff see themselves as part of a coherent organisation. Relatively simple things could make a large difference like providing information on,

- current status of the field teams, eg, where they are baiting, where the monitoring teams are operating, etc
- staff movements, leave, sickness, resignations, etc
- a yearly calendar of events
- notification of workshops, community forums, media releases, etc.

The use of a web-based, live and current system to provide this sort of information should be investigated.

Physical isolation of the teams within the FEP seemed to be complicating factor in achieving a clear sense of common purpose and a culture of teamwork. It appeared to the Panel that the teams did not take the opportunities provided to meet together to openly thrash out issues like those raised with us. It seemed that even within some teams there was a lack of cohesion brought about, at least in part, by the fact they rarely got together as a group. Regular team and Branch meetings are essential both to ensure operational coherence (everyone's on the same page) and to infuse a sense of camaraderie.

To assist staff feel valued it would help to acknowledge and reward them for their efforts. This can involve low-key, simple measures such as FEP officer of the month or rewarding special efforts with additional training or attendance at a relevant conference.

One matter that many staff were most concerned about was the short-term nature of employment contracts. On a personal level to worry about your job security is understandable and natural. For many it is plainly destabilising and unsettling. At the organisational level it can be equally destabilising and the FEP has experienced in the past the adverse impacts of high staff turnover, losing well-trained staff only to have to go through the difficult and lengthy process of recruitment and retraining. While the Panel understands it is not possible to make all staff permanent on a non-ongoing program like the FEP, nonetheless it is vital that staff be offered the maximum certainty of employment possible within the constraints of forward budget allocations. It is noted that more recently the Program has been employing temporary staff on longer-term contracts, the length of which relates to the level of budget certainty. In other words, if three years funding is guaranteed, then three-year contracts are offered. This approach should be continued.

For the most part staff thought that the equipment and resources they are provided are sufficient for the task. Some, however, did indicate that a few equipment purchases were ill-conceived and made their job more difficult than it needed to be.
If only they had asked us we could have given them an option which was better for us and cheaper for them.
It is important that staff have the opportunity to influence decisions that directly affect their work environment.

Recommendations
25. Steering Committee members should prioritise attendance at Committee meetings
26. The Steering Committee's membership should be expanded to include the Chair of the TAP and an experienced community engagement practitioner
27. Funding for the FEP should be continued at least at its current level
28.The impact of incorporating the FEP into the Invasive Species Branch should not be to diminish the fox control effort
29. Put in place processes to significantly improve internal communication within the FEP
30. Create a clear sense of "Team FEP" and develop a common sense of purpose
31. Within funding constraints, continue to provide the maximum certainty of employment for contracted staff
32. Provide staff the opportunity to influence decisions that directly affect their work environment.

APPENDIX 1

Eradication of Foxes from Tasmania

Stage 2 Program Plan

April 2010 – June 2013

Version: 2.0 (August 2011)

PREPARED:_____DATE:___/___/___

(for acceptance) Craig Elliott - Program Manager

ACCEPTED:_____DATE:___/___/___

(for release) Alistair Scott - General Manager (RMC) / Chair, Steering Committee

Tasmania
Explore the possibilities

Fox Eradication Program

Department of Primary Industries, Parks, Water and Environment

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Acknowledgements

This document has been derived from a template prepared by the Department of Premier and Cabinet, Tasmania. The structure is based on a number of methodologies as described in the *Tasmanian Government Project Management Guidelines.*

For further details, refer to www.egovernment.tas.gov.au

1 PROGRAM SCOPE

1.1 PROGRAM TITLE

Eradication of Foxes from Tasmania: Stage 2. (April 2010 – June 2013).

1.2 PROGRAM BACKGROUND

In 2006, in response to growing evidence of the presence of foxes in Tasmania, the Tasmanian Government announced a commitment to a 10-year program to eradicate foxes from the State. Evidence, including fox carcasses, scats and other biological samples, indicates a widespread distribution across the State with ongoing surveillance suggesting a low-density fox population in the State. Eradication is deemed feasible.

The Program is jointly funded by the Tasmanian and Australian Governments. The Invasive Animals Cooperative Research Centre has also committed funding to complete a monitoring project.

The overarching objective of the 10 year program is to eradicate foxes from Tasmania by developing and implementing a strategic response to protect biodiversity, agriculture, human health and the Tasmanian brand. The 10 year Program will be delivered as a series of Stages – *Stage 1: July 2007 to June 2009, Stage 2: April 2010 to June 2013*, and *Stage 3: July 2014 to June 2017.*

The Program supports Tasmania Together Goal 23 (Benchmark 23.4.2); as well as DPIPWE Corporate Plan priorities "Minimising the impact of pests, weeds and diseases", and "Supporting our natural diversity".

This Program also aligns with the Australian Government's Threat Abatement Plan for Predation by the European Red Fox[1]. It also aligns with the Five-year Outcomes from the Australian Government's Caring for Our Country grant program, in the area of Biodiversity and Natural Icons, which aims to reduce the impact of invasive species in priority areas by 2013.

[1] Objective 1: Prevent foxes occupying new areas in Australia and eradicate foxes from high conservation value 'islands'

Failure to eradicate can be expected to result in a significant loss of biodiversity in Tasmania; with the likely listing of additional threatened species, potential extinction of others as well as having a significant impact on agricultural industries and wildlife tourism. Over seventy species have been identified as being at risk if foxes establish, with the most vulnerable being the eastern barred bandicoot, Tasmanian bettong, eastern quoll and Tasmanian native hen.

1.3 PROGRAM OBJECTIVE

The overarching objective of the 10 year Program is:

To eradicate foxes from Tasmania by developing and implementing a coordinated strategic response

1.4 STAGE 1 OVERVIEW

During Stage 1 considerable progress has been made towards enhancing the capability to achieve the objectives of the program.

- A greater emphasis on planned monitoring and baiting was developed and implemented
- Broad scale baiting with 1080 baits was implemented in priority areas
- Scat detector dogs were introduced to the program and protocols for their use were developed
- An enhanced capacity to undertake investigation of new evidence was developed
- Community engagement raised public awareness, and developed an acceptance that foxes are present in the State and that this is not acceptable
- Phases 1 and 2 of the strategic scat collection survey were completed and planning for Phase 3 commenced.
- Risk assessment completed for Eastern quoll, Tasmanian bettong, Eastern Barred Bandicoot and Tasmanian Native hen
- Planning for monitoring selected at-risk species developed and work commenced
- Field work commenced on assessing bait take using remote video cameras
- An Import Risk Analysis was completed and actions taken to minimise the risk of incursions of foxes into the state.
- A governance structure including a Steering Committee, Technical Advisory Panel and Stakeholder Reference Committee was introduced.

In August 2009 a review of the Program was completed by Landcare Research New Zealand[2]. The recommendations from that review were accepted by the Steering Committee as the basis for planning the future direction of the program. Stage 2 incorporates the recommendations of this review and builds on the work of Stage 1.

In December 2009 the Parliamentary Standing Committee of Public Accounts Report on an Inquiry into the Efficiency and Effectiveness of the Fox Eradication Program in Tasmania was released[3] and provided additional guidance to the effort.

The recommendations of these two reviews have been incorporated in the development of this Program Plan.

Stage 2 will build on the base established in Stage 1 with full implementation of all components of the eradication plan.

2 STAGE 2 OBJECTIVES

The Program Objective will be achieved by realising four outcomes developed for Stage 2, namely:

1. To sustain a coordinated baiting program based on the precautionary approach, supported by effective post control monitoring, detection and destruction programs.
2. To prevent incursions of foxes into Tasmania.
3. To gain broad community cooperation and support and to develop a community attitude that is intolerant of the presence of foxes in Tasmania.
4. To implement research and development projects that are directly aligned with the eradication effort

[2] Appendix I outlines the recommendations from the Landcare Research Review

[3] Appendix II outlines the recommendations from the Parliamentary Standing Committee

3 STAGE 2 OUTPUTS AND PERFORMANCE INDICATORS

The Eradication of Foxes from Tasmania Project: Stage 2 will be delivered through a series of integrated Sub-Programs. Each Sub-Program contributes to the realisation of the Program's outcomes.

3.1 STRATEGIC BAITING

DESCRIPTOR:

Precautionary baiting is coordinated and implemented in all areas deemed to be core fox habitat. Supports Outcome 1.

PRODUCTS:

- Statewide Baiting Strategy developed based on the precautionary strategy and implemented:

TARGETS:

1. 200 000ha of core fox habitat baited in accordance with SOPs per annum[4]
2. Baiting density of 1 bait per 10 hectares maintained
3. Baiting Strategy developed and implemented

3.2 MONITORING, DETECTION AND DESTRUCTION

DESCRIPTOR:

A range of monitoring techniques are adopted post-baiting to enable an area to be deemed fox free (with a specified degree of confidence) or to enable detection of survivors or re-invaders leading to a lethal control response. Supports Outcome 1.

PRODUCTS:

- Post-baiting Monitoring Strategy developed and implemented
- Incursion or Tactical Response Strategy developed and implemented
- "Fox Out" Hotline maintained to facilitate reporting of fox activity
- Investigations of reported fox activity prioritised and carried out in accordance with standard operating procedures
- Records of all evidence maintained and all evidence appropriately curated
- Scat detector dogs and scent tracking dogs used in accordance with SOPs

[4] To be reviewed annually on the basis of initial lessons learnt, and exposure to a range of factors such as climate, peri-urban properties and populations, when undertaking strategic baiting

- Scat survey project completed

TARGETS:

1. Monitoring Strategy Developed
2. Incursion or Tactical Response Strategy Developed
3. 75% of baited areas searched in accordance with SOPs for evidence of foxes
4. Foxes do not establish in previously baited areas
5. 100% of credible sightings in previously baited areas and areas not identified as core fox habitat are investigated

3.3 COMMUNITY ENGAGEMENT

DESCRIPTOR:

Raising awareness and understanding of the Program and developing and maintaining cooperation and support from key stakeholders. Supports Outcomes 1, 2, and 3.

PRODUCTS:

- Community Engagement Strategy and Communications Plan developed and implemented including:
    - Community information sessions and targeted displays at public events
    - Maintenance of website
    - Survey of community attitudes
    - Fact sheets, brochures, updates, advertising, articles
    - Stakeholder Reference Committee
    - Staff briefings
    - Quarterly newsletter ("Eradicate")
    - Media releases

TARGETS:

1. Community Engagement Strategy Developed
2. All 'applicable'[5] landowners contacted in relation to baiting and monitoring activities
3. Stakeholder Reference Committee established and meets quarterly

[5] A 'applicable' landowners are those owners of land in an area of planned baiting or monitoring those land is identified as suitable for those activities in the planning of those activities

3.4 RESEARCH AND DEVELOPMENT

DESCRIPTOR:

Research and development projects developed and completed that inform and support the eradication effort. Supports Outcomes 1 and 4.

PRODUCTS:

- Research and Development Plan developed and implemented that delivers projects to address knowledge gaps and inform Program decision-makers in relation to:
    - Eradication techniques, including achieving effective baiting and other lethal control outcomes,
    - Monitoring techniques, especially for low-density fox populations,
    - Understanding fox behaviours, and
    - Existing and potential future impacts from foxes.
- Technical Advisory Panel

TARGETS:

1. Technical Advisory Panel established and meets quarterly
2. All R&D projects assessed and endorsed by the Technical Advisory Panel
3. All R&D projects conducted under a project plan and align with Research and Development Plan or address emerging issues

3.5 BIOSECURITY

DESCRIPTOR:

Actions to minimise the possibility of new incursions. Supports Outcome 2.

PRODUCTS:

- Signage at State border (e.g. ports) and internally (e.g. road networks)
- Ongoing improvement of quarantine procedures, and supporting legislation, to minimise the risk of fox incursions.
- Ongoing liaison with Port and Transport staff and Quarantine staff.
- Incursion Response Plan developed and implemented if required
- Training of quarantine dogs on fox scent

TARGETS:

1. No incursions of foxes into the State
2. 85% of community (from a representative sample) would report fox activity, including information about possible importation of foxes, to FOX OUT hotline or other government agency

3.6 PROGRAM MANAGEMENT

DESCRIPTOR:

Management of the Program and component projects in accordance with Tasmanian Government's Project Management Guidelines[6]. Supports all Outputs.

OUTPUTS:

- Stage 2 Project Plan
- Steering Committee
- External review of project in 2012
- Program managed within allocated budget
- Staff recruitment and training
- Reporting to State, Commonwealth and IACRC in accordance with agreements

Targets:

1. Stage 2 Program Plan approved by the Steering Committee
2. Steering Committee established and meets quarterly
3. Reporting to funding bodies completed in accordance with funding arrangements
4. Staff Training Strategy developed and implemented
5. Budget managed within a tolerance of ±10%

4 BUDGET

4.1 SOURCES

Anticipated Annual Budget during Stage 2:

State Government	$3 130 000
Australian Government	$2 300 000

Additional funds have been provided by the IACRC ($75 000 per year over the period March 2009 to February 2011) for a Scat Survey Project.

[6] Available at http://www.egovernment.tas.gov.au/project_management/tasmanian_government_project_management_guidelines

4.2 PLANNED EXPENDITURE BY OUTPUT

Strategic Baiting	**37%**
• *Salaries (Operations Manager, Coordinators , Field Officers)* • *Baits, vehicles, equipment, training, operating costs*	
Monitoring, Detection and Destruction	**35%**
• *Salaries (Coordinators, Investigation Officers, Dog Handlers)* • *Vehicles, equipment, operating costs, detector and tracking dog costs* • *Professional advice and analysis including scat analysis*	
Research and Development	**8%**
• *Salaries (Section Leader, Scientific Officers, Technical Officers)* • *Equipment and operating costs* • *Professional/technical advice and support*	
Community Engagement	**7%**
• *Salaries (Section Leader, Community Liaison Officers)* • *Vehicle, equipment, operating costs* • *Education and community engagement materials* • *Community attitude survey*	
Program Management	**13%**
• *Salaries (Program Manager, Program Support)* • *Project governance (Steering Committee, Technical Advisory Panel, Stakeholder Committee)* • *Meetings, workshops, professional advice* • *Recruitment, training, office supplies* • *Administrative overheads (Finance, HR, IT)* • *Biosecurity*	

Planned expenditure by vary year to year, or within a specific year, to address specific issues that emerge or to implement other short-term initiatives.

5 ASSUMPTIONS AND CONSTRAINTS

Assumptions:

- Funding commitments maintained over the Program Plan period

- Continued support from all levels of Government
- Continued access to 1080 as a control tool
- Ongoing assessment and development of detection and eradication methods
- The public continue to consider the costs involved in fox eradication worthwhile when considered against other issues of public importance
- Foxes do not establish in non-core habitat areas and the core fox habitat modelling remains valid

Constraints:

- Scepticism of the need and value of the Program by some individuals limits activities
- Limited use of statutory powers to achieve Program objectives
- Control methods limited for urban and peri-urban areas
- Climatic conditions may limit progress at times

6 RELEVANT LEGISLATION

The program's activities are guided by a number of pieces of Tasmanian legislation, including:

- *Animal Health Act 1995*
- *Nature Conservation Act 2002*
- *Vermin Control Act 2000*
- *Agricultural & Veterinary Chemicals (Control of Use) Act 1995*

7 GOVERNANCE

7.1 CORPORATE CLIENT

The Minister, represented by the DPIPWE Secretary, is the corporate client of the Program and champion of the project with ultimate authority over the Program. They promote the benefits of the project to the community and other areas of government.

7.2 PROJECT SPONSOR

The Project Sponsor is the General Manager (Resource Management and Conservation) and has line accountability and responsibility for the project. The Sponsor oversees the

business and project management issues that arise outside the formal business of the Management Committee. The Sponsor ensures that the necessary resources are available to the project. The Business Owner is responsible for managing the project outputs for utilisation.

7.3 PROGRAM MANAGER

The Program Manager is a DPIPWE officer responsible for managing the delivery of the Program outputs.

7.4 STEERING COMMITTEE

The Steering Committee is responsible for providing advice and oversight of the Program and its delivery, including ensuring that the Program's scope is controlled and remains aligned to the funding bodies requirements.

7.5 TECHNICAL ADVISORY PANEL (TAP)

The TAP is a committee of external advisors to the Program with a part time Chair and the authority to bring in expertise as required. A key function of the TAP is to provide additional external scrutiny of the Program and its activities and methodologies by individuals recognised as possessing significant relevant expertise with a particular focus on monitoring and eradication methods and research. The TAP is also responsible for providing advice and support to the Steering Committee

7.6 STAKEHOLDER REFERENCE COMMITTEE (SRC)

The SRC will include representative of key stakeholder groups who have an interest in the eradication effort, including those groups likely to be affected by the establishment of foxes in Tasmania. The SRC will provide advice on community engagement strategies and activities as well as act as a conduit for the dissemination of information on the Program.

7.7 REPORTING REQUIREMENTS

The Program Manager will report to the Steering Committee at its quarterly meetings and verbally to the Project Sponsor on a fortnightly or as needed basis. The Project Manager's Report will include:

- Status of the project

- A report on budget
- An issues report
- A risk management report

Reports will be provided to the Australian Government in accordance with the Australian Government/State Government Funding Agreement.

Reports will be provided to the IACRC in accordance with the Funding Agreement.

7.8 RISK MANAGEMENT

A Risk Management Plan will be developed and endorsed by the Steering Committee.

7.9 QUALITY MANAGEMENT

The project will be managed according to the Tasmanian Government's Project Management Guidelines V6.0.

Operational activities will be governed by the suite of planning documents and standard operating procedures to ensure those activities meet required standards.

7.10 PROJECT CLOSURE & OUTCOME REALISATION

As recommended by the Landcare Research NZ Review, a fully documented 'exit' strategy is required for the Program. This will cover all contingencies and scenarios from full establishment of foxes in Tasmania and appropriate actions to protect 'at risk' species and biodiversity and agricultural interests more generally to the development of a long-term monitoring strategy in the event of successful eradication.

It will also contain clear triggers agreed to by the Technical Advisory Panel (see IACRC Review Recommendation 5, Landcare Research NZ Review Recommendation 1, PAC Report Recommendation 12) based on evidence or lack thereof to upgrade or downgrade the response.

Regular reviews, including Stage Closure Reports, will be completed to ensure that the Program maintains the necessary rigour and relevance to achieve the desired outcomes.

8 STRATEGIC FRAMEWORK

The Program will be guided by a suite of strategies, approved by the Steering Committee, encompassing the policy and approach to:

- Precautionary Baiting
- Post-bait Monitoring
- Incursion Responses
- Community Engagement
- Research and Development

The Steering Committee may seek the advice of the Technical Advisory Panel in regard to these strategies. The Program may develop additional strategies and implementation plans to support the delivery of the Program.

9 EXISTING AND COMPLEMENTARY PROJECTS

The Australian Government (DEWHA / SEWPaC) funded the Program with $3.4 m in 2007/08, $980 000 in 2008/09 and $1m in 2010/11 (Fox Free Tasmania Stages 4, Additional 4, 5 and 6). These funds were allocated to a range of activities including monitoring, community engagement, research, and baiting.

The Invasive Animals Cooperative Research Centre is providing $75 000 per year for four years from February 2007 to February 2011 to support research to provide the link between fox presence and control by undertaking a comprehensive survey of predator scats in Tasmania and developing a robust and accurate test.

The Fox Eradication Program will actively seek partner agencies and organisations to develop and conduct collaborative research and operational activities.

10 APPENDICES

10.1 APPENDIX I - RECOMMENDATIONS FROM LANDCARE RESEARCH NZ REVIEW 2009:

- The key need is to be able to interpret the result 'no fox scats found' in places where a search has occurred, and to assess the risk that no foxes are present in places where no one has looked.
- We recommend changing to the precautionary strategy with consequent reallocation of resources within the program. This is largely because there are such large uncertainties, irresolvable in the urgent time frame required to achieve success, in managers' abilities to delimit fox range in Tasmania, and to locate individual foxes within that range.
- Refocusing efforts away from pre-control monitoring towards control and post-control monitoring allows time frames to be set for the main initial control actions, although the uncertainties around locating and dealing with survivors remain.
- We recommend that the efforts of the monitoring team and the dog team be focused on this post-control work to detect survivors. We are not convinced that the monitoring team or the dogs are being utilised optimally under the current strategy.
- Dealing with any survivors is not simple and we are not confident that merely repeating 1080 baiting will kill these animals. We recommend investing research funding (initially) and then operational funding to develop dog teams that can find foxes in their daytime locations or dens so that immediate follow-up lethal action can be taken.
- Dealing with urban foxes is a critical weakness in the current program. We recommend that finding control tools that will work in urban and peri-urban areas is urgent, and that most of the community engagement budget be allocated to supporting this issue.

10.2 APPENDIX II - RECOMMENDATIONS OF THE PARLIAMENTARY ACCOUNTS COMMITTEE

- The Government needs to proceed on the basis that the fox has established a presence in Tasmania. Public policy must reflect that position and therefore the Government must do all that is reasonably possible to ensure the eradication of foxes and prevent any further foxes entering Tasmania.
- The primary focus of the Fox Eradication Program must be to locate, bait and eradicate foxes. The precautionary principle should apply and as such this primary focus should not be unreasonably distracted by an on-going need to substantiate the presence of foxes.
- The Commonwealth Government be urged to commit funding to enable the Taskforce to concentrate on the eradication of foxes already in Tasmania.
- Regular peer review of the work and activities must continue and be supported.
- The Government consider the need to develop a legal requirement for the public and the Taskforce to report to Tasmania Police for investigation, any evidence of fraud, misconduct, illegal activity and/or any other activity designed to hamper the work of the Taskforce in relation to the presence of foxes.
- The appropriate allocation of funding be provided for the continuation of research and investigation into other forms of an effective poison for baiting purposes.
- The current program for the monitoring of at-risk, vulnerable and endangered species should be strengthened.
- The Taskforce focus more effort on informing and engaging the media to assist them with their work particularly for the dissemination of information and public education.
- The Management Committee enlist the cooperation and assistance of members of the public through organisations such as the Tasmanian Farmers and Graziers Association, the Tasmanian Landcare Association, The Tasmanian Field and Game Association, The Understorey Network and walking clubs throughout the State.
- Steps be taken to ensure that appropriate statutory powers relating to access to all land, be enacted to allow the Taskforce to carry out the activities of the Fox Eradication Program.
- The Taskforce continue to question, examine and review all the available data to inform and improve the eradication effort.
- The Management Committee develop a clear strategy for making decisions about moving to scale back the Program if success is determined or to move to containment, if the evidence points to successful colonisation of foxes in Tasmania.

- The Government move to establish an on-going unit or single body to respond to the threat of all or any invasive species.
- Barrier security be reviewed and strategies devised with the intent of preventing foxes entering Tasmania at the identified potential points of entry.

APPENDIX 2

Those interviewed by the Panel during the course of the review

Anderson, Dean - LandCare Research NZ
Aylmer, Robyn - Program Support Team, FEP
Baker, Jeanine - Director Weeds and Pest Animals, DAFF (Steering Committee)
Barclay, Candice - Program Leadership Team, FEP
Barnard, Olivia - Dog Handlers Team, FEP
Beneke, Bertie - ABARES, Technical Advisory Panel
Bester, Craig - Program Leadership Team, FEP
Blackman, Deb - University of Canberra
Brennan, Warwick - Manager Corporate Communications, DPIPWE
Brooks, Shaun - Senior Field Officer, FEP
Broos, David - North West Baiting Team, FEP
Bryce, Mark - Operations Manager, Parks and Wildlife Service (Steering Committee)
Byrom, Andrea - Research Portfolio Leader, Weeds, Pests and Diseases, Landcare NZ
Caldwell, Peter - Southern Baiting Team, FEP
Cosier, Peter - Wentworth Group of Concerned Scientists
Cremasco, Peter - Program Leadership Team, FEP
Cunningham, David - Dog Handlers Team, FEP
Davis, Jan - CEO Tasmanian Farmers and Graziers Association
Doran, Brad - Southern Baiting Team, FEP
Douce, Steve - North West Baiting Team, FEP
Dowde, Joe - Senior Field Officer, FEP
Draper, Wendy - Program Leadership Team, FEP
Elliott, Craig - Manager Invasive Species Branch, DPIPWE
Elmer, Jodie - Program Support Team, FEP
Fearn, Simon - Senior Field Officer, FEP
Fenner, Brendan - North West Baiting Team, FEP
Glanznig, Andreas - CEO Invasive Animals CRC (Steering Committee)
Gleeson, Dianne - University of Canberra
Grieg, Steve - North West Baiting Team, FEP
Hardwick, Barry - NRM South (Stakeholder Reference Committee)
Harrison, Peter - Senior Field Officer, FEP
Howe, Kerrie - Community Liaison Officer, FEP

Klumpp, Lloyd - General Manager Biosecurity and Product Integrity, DPIPWE (Steering Committee)
Kuchel, Matt - North West Baiting Team, FEP
Liu, Ling - Data Team, FEP
Locke, Steve - Senior Field Officer, FEP
Mackay, Mark - Program Leadership Team, FEP
Marrison, Matt - Program Leadership Team, FEP
McGlone, Peter - Director Tasmanian Conservation Trust (Stakeholder Reference Panel)
Mooney, Nick - independent consultant (Stakeholder Reference Committee and Technical Advisory Panel)
Neal, Geoff - Southern Baiting Team, FEP
Ostberg, Anton - Southern Baiting Team, FEP
Parkes, John - LandCare Research NZ
Pickering, Matt – Southern Baiting Team, FEP
Priestly, Tom - Data Team, FEP
Ramsay, Dave - Arthur Rylah Institute (Technical Advisory Panel)
Reid, Garry - Dog Handlers Team, FEP
Ridgway, Sally - North West Baiting Team, FEP
Robely, Alan - Arthur Rylah Institute (Technical Advisory Panel)
Sarre, Stephen - University of Canberra (Technical Advisory Panel)
Saunders, Glen – NSW Department of Primary Industries (Technical Advisory Panel)
Scott, Alistair - General Manager Resource Management and Conservation, DPIPWE (Steering Committee)
Smith, Adam - Southern Baiting Team, FEP
Smith, Sally - Program Support Team, FEP
Springer, Keith - Manager Macquarie Island Pest Eradication Program, DPIPWE (Technical Advisory Panel)
Tomlin, Richard - Community Liaison Officer, FEP
Volker, Peter – Manager Field Services, Forestry Tasmania (Steering Committee)
West, Ken - Program Leadership Team, FEP
Wilkie, Andrew - Federal Member for Denison
Williams, Angela - Community Liaison Officer, FEP
Withers, Kristy - Program Support Team, FEP
Woodruff, Brett - Dog Handlers Team, FEP
Woodruff, Glen - recent member Southern Baiting Team, FEP

APPENDIX 3

Detcction testing

GPS collars and surveillance dogs
A series of trials should be undertaken to quantify the detection probability by surveillance dogs.

By fitting a GPS collar to a detector dog, you can begin to quantify the track of the dog. This may need to be stratified by habitat (eg, forest, pasture, sloping, etc.) as you can assume that the dog has greater coverage in some habitats than in others. This may also be influenced by handlers and how they operate in particular habitats.

The next step is trying to determine the width of the detection path, ie, the distance from the line that the dog can detect the scat. Again this may need to be stratified by habitat and other variables (eg, weather and age of scat). Once this is quantified (within robust confidence limits), an estimate of the detection probability can be made.

Whilst simplistic in nature, it needs to be a well-designed trial to generate statistically robust results and to maintain integrity of robustness.

It is suggested that this would make an excellent honours project at the University of Tasmania because it will allow the student to explore things like search theory and make extrapolations to other surveillance activities where dogs are used.

Ground truthing
Good quality assurance is essential to the FEP. This means testing protocols and processes from the field through to reporting. Regular blind tests need to be undertaken that test all elements of the Program. These tests need to be well planned with appropriate controls in place.

For example, the following scenario might be used:

- a fresh fox scat is imported from Victoria [it is detected at the border; who do they call; what is the follow-up action]
- the fox scat is deployed in a location behind the monitoring/baiting front and an anonymous caller makes a report of a fox sighting [what is the follow-up; how long does it take]
- the investigation team do or do not detect the scat. If they do, how is the response protocol implemented and what is the evidence control?
- the scat is identified as potentially being a fox. How long does it take to get through the process from field to lab and then reporting on the lab results as a high-priority sample?
- based on the results, what is the direct action that occurs?

In this example there needs to be very few people with knowledge that it is a test. However, the people that do know need to be able to intervene to prevent unintended adverse outcomes such as bad media coverage.

Issues relating to the human handling of fox scats are a minor issue in the process testing and should not be used as an argument to stop such an approach.