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200 Draft

OPERATION FOXGLOVE

Operation Foxglove is a CALM initiative to step up fauna conservation through fox control and to educate the public about the benefits of fox control.

This paper outlines the project and steps to be taken within CALM to get it under way.

Feral cats are also a problem, especially on some islands, and their control will be integrated into this strategy. For example, CALM is committed to eradicating feral cats and rats on the Monte Bello Islands once they are reserved, and federal funds have been promised for this work. CALM also plans to control feral cats on Dirk Hartog Island once it is included in the Shark Bay National park. Research on feral cats has lagged well behind studies on foxes and plans are being prepared to remedy this situation.

RESPONSIBILITY FOR FOX CONTROL WITHIN CALM

Overall responsibility is not clearly established. Work is going on in various Regions and Districts. Environmental Protection Branch hands out some money for fox work and is currently preparing guide-lines for fox baiting. Research Division now has three permanent staff and two full time externally-funded staff, plus several other staff who are involved part-time in relevant research. Overall priorities for areas for control were established by an *ad hoc* group organised by Roger Underwood about three years ago, but these have not been reviewed.

AREAS CURRENTLY BEING BAITED FOR FOXES

By Regional/District staff using operations funds

Wheatbelt	Dryandra Boyagin Tutanning Mt Stirling? Langdon's property (rock-wallabies)? Sales Rock ?
Greenough	Cape Range (part)
Central Forest:	Batalling block (woylies) Leschenault Peninsula (ringtails)
Southern Forest	Perup (low frequency, small area, mainly for dogs, some being done by APB) Kirup (community & APB involvement)
Pilbara	Dolphin Island + northern Burrup (only once per year, should be twice per year)

Swan

Ellen Brook (limited baiting required now that fence completed)

South Coast

some non-targetted baiting at Stirlings, some at Two Peoples Bay

Present fox baiting operations are costed below (data are incomplete, but give an overall idea of the scale of current expenditure). Except for South Coast region, the number of projects will only increase if research projects mentioned below get handed on to operations. South Coast region indicated that they wish to increase their fox baiting operations, particularly in cooperation with the APB and farmers. Baiting that is not targeted to threatened species and the results of which are not monitored properly should be of low priority for CALM.

Location	Cost/year	Funds source
<u>Wheatbelt Region</u>	\$19500 baits \$10400 laying	EP Branch Region
<u>Greenough Region</u> Cape Range	\$4000 baits/flying	EP Branch
<u>Pilbara Region</u> Burrup/Dolphin Is.	\$2000 baits/flying	EP Branch?
<u>South Coast Region</u> Two Peoples Bay/Stirlings	\$2300	Region
<u>Southern Forest Region</u> Perup	\$2000	Region
<u>Central Forest Region</u> Kirup	\$ 500	Region
Collie	\$ 500 baits \$ 500 laying	EP Branch APB?
<u>TOTAL</u>	\$41700	

By Research Division using research funds, including external funds

Wheatbelt:	Karroun Hill Dragon Rocks (part) Nangeen Hill Mt Caroline
South Coast	Fitzgerald (half)
Greenough	Kalbarri Watheroo
Goldfields	Gibson Desert (part)

Research Expenditure (not including salaries) is roughly as follows:

<u>Location</u>	<u>Cost/year</u>	<u>Funds source</u>
Dragon Rocks NR	\$ 1300	NCNP Trust Account/research
Mt Caroline/Nangeen Hill	\$ 1500	EPB/research
Karroun Hill	\$ 6000	research
Fitzgerald River NP	\$10000	research/ext funds
Gibson Desert NR	\$15000	WAPET/research (to commence Mar 92)
Watheroo etc.(Algar trials)	\$15000	research/ext funds
<u>TOTAL</u>	\$48800	

Most of the above projects presently have adequate support from external funds. However the Western Mouse project at Dragon Rocks and the Numbat study at Karroun Hill rely mainly on research CRF. These projects require additional support to be viable.

The Western Mouse project has support until June 1992 from WWFA and CALM, but needs to be extended for another 12 months to realistically determine the effect of foxes on threatened native rodents. An additional \$27000 (salary) plus \$5000 (baits, vehicle running) is required. Tony Friend has indicated that there is a need to double the area of Karroun Hill that is baited, since the current level of baiting is insufficient to provide enough protection for the translocated numbat population from fox predation. Another \$6000 is required for this.

It should be noted that Jack Kinnear is proposing an externally funded project to examine the effects of fox baiting on the rare fauna in the Fitzgerald River NP. Only the cost for the supply and laying of baits is shown above.

AREAS WHERE NEW BAITING IS BEING OR SHOULD BE CONSIDERED

Central Forest:	Yalgorup (Ringtail release site)
Swan:	Find somewhere where chuditch, quokkas, brush wallabies, bandicoots and possums all occur (e.g. Lane-Poole, Jarrahdale)
Wheatbelt	Dongolocking - W.A.M.B.G. East Yornaning - W.A.M.B.G.
Pilbara	Monte Bello Islands (cat) to be funded by Commonwealth

CURRENT PROBLEMS

There is currently not enough money in regional budgets to properly bait some of the areas already being baited.

Current recommendations concerning baiting are:

Large areas (e.g. Watheroo NP): aerial baiting, twice per year, 6 baits/km².

Small areas (e.g. Nangeen Hill NR): ground baiting, monthly, baits every 100 m along tracks.

1080 concentration: 4.5 mg in meat baits, except in areas where chuditch occur; there use 2.5 mg.

Detailed research into baiting regimes is underway, but not yet finalised. Also there are still unanswered questions about 1080 potency and longevity in baits and 1080 analysis techniques need to be refined. The use of enteric coating of 1080 needs investigation and we still don't have enough data on 1080 and chuditch to be confident in prescribing fox control strategies in chuditch areas.

FAUNA RECONSTRUCTION SITES AND FAUNA RECOVERY SITES

Tony Start has circulated a paper suggesting that we adopt new terminology for fox control areas.

Predator exclusion sites would be areas where threatened species occur now and there are no exotic predators; these are mostly island nature reserves such as Bernier, Dorre and Barrow Islands. CALM will monitor these places and take immediate action to control exotics if they were introduced.

Fauna reconstruction sites would be areas where CALM is proposing to reconstruct the vertebrate fauna as far as is possible through predator control, habitat management and translocations. These would be relatively few in number.

Fauna recovery sites would be areas where particular species of threatened fauna would be managed via fox control and habitat management. A possible list is:

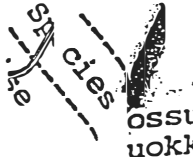
Region	Reconstruct Site	Recovery Site	Recov. Site Species
Swan	Lane Poole?	Ellen Brook Twin Swamps	W Swamp Tortoise W Swamp Tortoise
Central Forest	Batalling	Yalgorup Leschenault Peninsula	W Ringtail W Ringtail
Southern Forest	Perup		
South Coast	Fitzgerald	Two Peoples B Manypeaks Stirling Range	Quokka, Quenda Noisy Scrub-bird ?
Wheat- belt	Dryandra Karroun Hill Dragon Rocks	Tutanning Boyagin Nangeen Hill Mt Stirling Mt Caroline Sales Rock	Numbat Numbat BF Rock-wallaby BF Rock-wallaby BF Rock-wallaby BF Rock-wallaby
Greenough	Kalbarri	Cape Range Heirrisson Pr	BF Rock-wallaby, Tammar? Boodie
Gold- fields	Gibson Desert		
Pilbara	Dolphin Island Monte Bello Is	Depuch Island	BF Rock-wallaby
Kimberley -		Purnululu ??	??

FAUNA MANAGEMENT AT DISTRICT LEVEL AND ON MULTIPLE USE STATE FOREST.

All the areas mentioned so far are being managed for wildlife conservation. CALM is often criticised because commercial and other forest operations are perceived as injurious to wildlife, if not directly responsible the demise of species over large areas.

The District Manager, Collie District, has submitted a proposal for Endangered Species Program funding (attached). It is not really suited for high priority listing under that Program. However, it has considerable merit as part of Operation Foxglove because it will be conducted at a District level over all areas of Nature Reserve, Conservation Park and State Forest, including large areas of multiple use forests.

The first step would be to determine the distribution and abundance of rare and threatened fauna. (There are several species in the District including Chuditch, Ring-tailed



possums, Quendas (Brown Bandicoots) and Woylies, and possibly quokkas and Numbats.) Subsequent to the surveys, fauna management prescriptions, including predator control where needed, will be developed and implemented across the District.

The proposal suggests that the survey phase would be completed by December 1992. This timing marries well with Research Division's plans to investigate the effects of fox baiting on Chuditch. Some of this work will also be in Collie District.

RELATIONSHIPS WITH OTHER AGENCIES

CALM currently has working relationships with four other agencies concerning fox control.

The APB is the State vertebrate pest control agency. Its interest in foxes has, until recently, been minor because foxes have not been considered a major agricultural pest.

The BRR, through pressure from the Vertebrate Pest Control Committee (State vertebrate pest agencies and DPIE), is also now taking an interest in foxes. They wish to develop national plans for several vertebrate pests including foxes and Jack Kinnear has been invited to join a working group (expenses paid, consultant's fee negotiable) to draft this plan. Money may be forthcoming to assist the States from this plan.

ANPWS, through the Endangered Species Program, is funding research into foxes and may fund research into cats in the future. CALM is receiving funds for field-based fox research and CSIRO Division of Wildlife and Ecology is receiving funds for research into biological control of foxes.

CSIRO Division of Wildlife and Ecology is conducting additional research into fox ecology and biology in the south east of Australia.

Some research into foxes is underway in New South Wales, Victoria and Queensland.

PUBLICITY

CALM has been at the forefront in providing publicity about the need for and benefits of fox control. We have been successful in raising foxes from a minor local issue to a major national issue.

We have always been concerned that there might be a public backlash on CALM for killing animals if publicity is not

handled well. Because of possible problems with the animal liberation movement, CALM has been careful not to provide too high a profile for individuals involved in fox research or control programs.

IMMEDIATE PROPOSALS

1. Allocate extra funds to regions/districts or change priorities for existing funds so that they can do current jobs properly. Get regions to supply data.
2. Allocate extra funds to complete 1080 potency research.
3. Allocate person from Research Division for 3-6 months (Research to meet overheads) to prepare:
 - i) list of all current and proposed fox baiting areas
 - ii) a baiting manual for CALM (developed from Kinnear's national manual prepared for WWFA)
 - iii) procedures for basic data collection to ensure that we are able to prove that operations are efficient and have had the desired result.
 - iv) detailed costs of baiting
4. Set up experiment(s) in jarrah forest to test current baiting methodology and research effects on CWR prey species and on chuditch. We must ensure that baiting methods developed in semi-arid areas will work in forested areas and that we do not harm chuditch populations in the process. Possible experimental areas are (i) Batalling Block and adjacent areas in Collie District of CFR, and (ii) an area in Swan Region near Dwellingup or Jarrahdale. Experiments should ideally be duplicated in conservation reserves and in areas of forest used for timber supply.
5. Fund Collie District to undertake a survey of rare and threatened species and to develop a fauna management program. The program will be structured to provide scientifically valid data that will enable evaluation of the effectiveness of the program. Research Division will provide technical advice.
6. Appoint a person in Nature Conservation Division (Environmental Protection Branch or Wildlife Branch) to be fox control coordinator. Research Division can train this person.
7. Set up a Task Force involving CALM, the APB, the WA Farmers' Federation and other relevant bodies (the Conservation Council?) to coordinate fox control in Western Australia.
8. Prepare a Communications Plan (Corporate Relations Division).

BUDGET

1. 1080 potency and bait quality control

Without further data on 1080 potency and the fate of 1080 in baits it will not be possible to accurately design baits that kill the target species but do not harm animals such as chuditch. Jack Kinnear has been working with Dr Dee Wong of Curtin University on this and two papers have already been produced. Research needs \$8 000 now to complete this work, otherwise the trained technician will leave at the end of November.

2. Extra funds for Regions already carrying out fox baiting

Immediate needs are for increased work in Pilbara (Burrup / Dolphin I) and, possibly in South Coast Region (work there needs to be more directed, possibly towards Stirling Range).

3. Jarrah forest - chuditch experiment

Research is proposed to be undertaken at Batalling block, east of Collie to answer the following questions:

1. Do Chuditch take dried meat fox baits?
2. If so, do they kill them?
3. Is the fox suppressing Chuditch numbers in the forest as it does with CWR herbivores?

The first two questions will be answered by February 1992 following a program where baits are marked and radio-collared Chuditch and foxes tracked to determine their fate following baiting. Baiting has been in progress at Batalling since January 1991 at a frequency of once every 3 months, but the area baited needs enlarging. Question three will be answered in the longer term by monitoring Chuditch (and Woylies and Possums) numbers in baited and un-baited areas for the next 2 years.

Costs are estimated as:

Baits (400 extra baits / baiting session)	10 x \$160	\$1600
Vehicle running	Research 12000 km (over 2 years)	\$3000
	Operations 5000km	\$1250
Radio-collars	20 @ \$130	\$2600
T/A (Research staff only):	70 days/2 persons	\$4200
Consumables, contingencies		\$ 500
TOTAL		\$12150

A program involving only baiting and monitoring of CWR species could also be undertaken simultaneously elsewhere in the Swan Region (Lane-Poole? Monadocks? Jarrahdale?). This would cover the effect of foxes on other species such as Bandicoot and Quokka, as well as the Chuditch. This would also fit in with the proposed work by Tony Start on the Quokka.

This program, including site selection and 3 years of baiting and monitoring would cost approximately \$11 000.

4. Collie District - development of fauna management program.

Identify all areas managed by the District which contain populations of rare or threatened fauna, regardless of tenure type. Develop a fauna management program, including predator control, for these areas.

The survey could be completed by the end December 1992 and the results of the Chuditch/bait experiments taken into account in planning the program. (The program could not be implemented before the Chuditch work is complete).

Costs are estimated as:

Salaries and wages including wages overheads	\$ 17200
Vehicle running	\$ 1700
Materials	\$ 3000
Other overheads at 20%	\$ 4400

TOTAL	\$ 26300

Of this \$12300 would be required for 1991/92 and \$14000 in 1992/93

SUMMARY

The following additional funds are required:

1991/92

1.	1080 potency	\$ 8000
2.	Research into effect of fox on forest fauna:	
	CFR Batalling block	\$ 6290
	Swan Region	\$ 4000
3.	Preparatory work for fauna management program; Collie District.	\$12300
4.	Numbat translocation Karroun Hill	\$ 6000
5.	Fox baiting operations South Coast	\$ 2000
	Fox baiting operations Burrup/Dolphin I	\$ 3000

TOTAL		\$41590

1992/93

1.	Research into effect of fox on forest fauna:	
	CFR Batalling block	\$ 5840
	Swan	\$ 4000
2.	Preparatory work for fauna management program; Collie District.	\$14000
3.	Research into effect of fox on rodents	\$32000
4.	Numbat translocation Karroun Hill	\$ 6000
5.	Fox baiting operations South Coast	\$ 2000
	Total	\$63840

Because of the high cost, Research Division will try to raise some or all of the salary component of the rodent project externally.