FOX
CONTROL PROGRAM

FOR

GNARALOO STATION

Turtle Predation Minimisation Project

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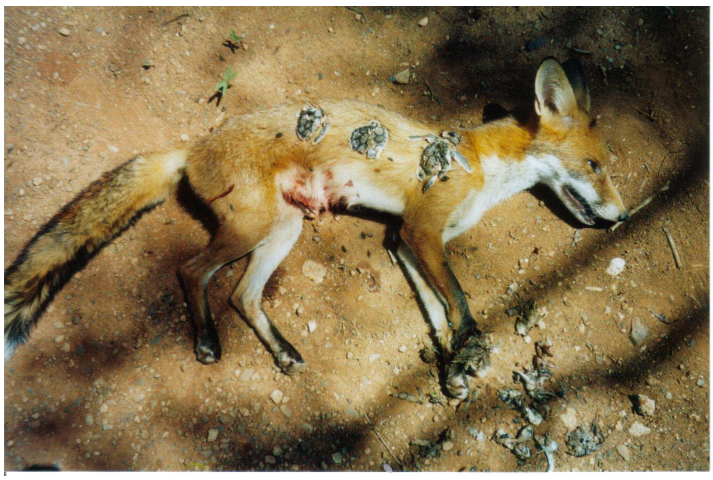
1 Program Objectives

Marine Turtles nest on beaches along the coast of Gnaraloo Station. The presence of foxes within the area results in predation of the turtle nests during the egg laying and incubation period, through to hatching of the young turtles.



Foxes predate on young turtles as they leave the nest

In some areas, fox predation of turtle nests can be greater than 88% (Pretty Pool Beach, Port Hedland 2006/07). Removal of foxes has been demonstrated at this and other sites as being highly feasible, often reducing predation to zero.

Monitoring of nests by marine biologists indicated that foxes began predation of turtle eggs immediately after nesting occurred. The approximate average number of nests attacked by foxes during the early stages of the nesting season was 5.

Fox control was undertaken to aim to minimise fox predation to zero. The program consisted of utilising 1080 baits across the area of turtle nesting sites, as well as a buffer zone to control at least 80% of foxes.

2 Program Methodology

Baiting was undertaken using a three-pronged strategy in primary locations to immediately control foxes in the turtle beach areas and to control foxes in a buffer zone adjacent.

The three areas consisted of the beach area where the turtle nests were located, the area immediately behind the beach and primary dunes, and the surrounding hinterland up to 3 km from the turtle nesting areas.

Fox baiting was undertaken utilising a variety of fox baits. These consisted of standard Dried Meat Baits (DMB's), Dried Meat Sausage Baits (DSB's), Foxoff Econobaits and 1080 egg baits. A total of 648 baits were used.

Baits were strategically placed to maximise uptake based on the fox activity seen and where foxes were expected to be active at the commencement of the program to achieve a rapid knockdown using the minimum number of baits. Where these baits were taken by foxes, they replaced daily.

Baits were also laid at the standard rate of 5 baits/km^2 across the whole baiting zone, after the strategic baiting was first conducted.

The area baited extended from the Gnaraloo homestead north to Farquhar bay, from the beach area through to approximately 2 km inland.

Bait take was not monitored (such as by way of bait stations) as the objective of the program was not determine bait take per se, but to reduce fox predation.

The fox control program was undertaken over a period of five days.

3 Results

Baits were replaced in some areas up to 4 times until no fox activity or bait uptake was found.

The baiting program resulted in a significant reduction of fox activity across the entire area. Fox numbers went from very high on day one, with virtually no area without fox tracks over the entire 40 sq km assessed, through to low numbers.

There appeared to be a reduction in turtle nest predation of 70-80% in the first 3 days of the fox control program.

At the conclusion of the 5 day program, only three (3) foxes were known to exist between 6 mile and Farquhar. These were at 10 Mile, where the fox was coming down to the beach from the hinterland, at 9 Mile where a fox was passing through to the beach from the hinterland east of the windmill, and at 7 Mile, where a fox was accessing the beach from the east. This result was confirmed from fox tracks on the beach as well as fox tracks along the main access track.

It is anticipated that the remaining foxes will succumb to the baits still remaining in these areas during the next week or so.

Bait uptake varied considerably depending on the type of bait used. Foxoff baits were effective for a rapid knockdown effect on the fox population and were readily consumed by foxes. Dried meat baits were also readily taken by foxes. Dried Meat Sausage baits were often found to be ignored by foxes, and on some occasions, foxes would walk directly pass a DSB and take a DMB if it was available. 1080 egg baits were effective at controlling foxes on the beach, but were often ignored if placed elsewhere.

The removal of baits by non-target species was highest with Foxoff baits, followed by egg baits in the inland areas.

Strategic baiting appeared to be the most effective method of rapidly reducing fox numbers with fewer baits needed and a reduced incidence of multiple bait take by individual foxes.

4 Discussion

The drastic reduction in fox numbers that occurred over the 5 day period indicated that fox baiting was having a significant effect on the overall numbers of foxes. Fox activity (tracks and predation of turtle nests) significantly reduced during the program.

The strategic baiting program was fundamental to achieving a quick and highly effective reduction in fox numbers. This was assisted by the standard practice method of fox baiting at 200 m intervals.

Factory produced dried sausage baits were ineffective at controlling foxes to the desired level. While these baits may appear to be as effective as DMB's in research trials, their efficacy in the field at this site was lower than other baits. They may be more effective on foxes during times of low food availability, but when it is crucial to have a high success rate when there is a readily available food source (turtle eggs), it is apparent from this program that they are not readily taken by foxes compared to alternative 1080 baits. It is the authors opinion that the use of dried sausage baits was detrimental to the overall fox control effort, and these baits cannot be recommended for this type of program in the future if more effective fox baits are available during the turtle nesting period.

Foxes which are either bait shy, or are not interested in baits for other reasons, could be controlled using traps where these foxes are continuing to predate on turtle nests. Trapping should be considered a complimentary control method to the use of poison baits in these circumstances.

The impact of foxes was determined by monitoring the number of turtle nests predated by foxes each night. The effectiveness of the fox control program is better assessed by continuing this monitoring, rather than assessing bait take. Bait take monitoring is largely affected by the type of bait used, the population of foxes present, the level of bait caching by foxes, and the location of bait stations. As the objective of the fox control program is to reduce the impact on turtle nests and survival rates, the effectiveness of the fox control program is better assessed by measuring the rate of predation pre and post fox control.

There were anecdotal reports of fox numbers increasing over the past 3 years. This appears to have occurred after rabbit numbers crashed in the area from unknown causes (probably RHD). It is highly unlikely that fox numbers have increased to the extent suggested, with more plausible reasons being either increased fox activity in response to less food, reduced numbers of rabbit tracks making fox tracks more obvious, and/or increased awareness of foxes in response to environmental work on the station.

Fox predation should continue to be monitored and a where there is a significant increase in turtle nest predation, or turtles commence to hatch, a further fox control program should be undertaken.