Assessment of Feral Cat Abundance and Control Options at Two Peoples Bay Nature Reserve
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Abstract

Recently, concerns have been raised regarding the abundance and potential impact of feral cats on native fauna (both extant and reintroductions) in the south west of Western Australia. Of particular concern is the potential threat to the conservation of Gilbert's potoroo, which is likely to be Australia's most endangered mammal with fewer than 40 individuals left. A survey for feral cats was undertaken in April 2002 to assess cat numbers and distribution in Two Peoples Bay Nature Reserve, which has the last known wild population of Gilbert's potoroo. Densities of feral cats were low but evidence of cat activity was found in the middle of the highest known density of Gilbert's potoroo.

Introduction

Gilbert's potoroo (*Potorous gilbertii*) had thought to be extinct for 115 years until its rediscovery at Two Peoples Bay Nature Reserve (TPBNR) in November 1994 (Start *et al.* 1995). It is the most endangered Australian mammal with fewer than 30 individuals in the wild and 7 individuals in captivity (J.A. Friend pers. comm.) The species is listed as Critically Endangered (Courtenay and Friend 2002). Recent survey work has also indicated that the only known wild surviving population is restricted to the eastern end of TPBNR; around Mt. Gardner (J.A. Friend pers. comm.).

Concern has been raised that any predation of Gilbert's potoroo, could have a significant detrimental impact on the population (Courtenay and Friend 2002.). TPBNR has been baited for foxes, using 1080 meat baits, since 1988 to protect noisy scrub-bird (*Atrichornis clamosus*) populations. In addition to the conservation benefits to the noisy scrub-bird populations, the fox baiting program has resulted in a significant increase in numbers of quenda (*Isoodon obesulus*) (Start and Burbidge 1995). The potoroo population however, since its rediscovery, has not expanded outside of its current known area (J.A. Friend pers comm.).

Feral cats, or signs of activity, have been regularly observed in and adjacent to the Reserve since 1999 (S. Comer, J.A. Friend and L. Reinhold pers. comm.). Several cats have been shot on the main road into the Reserve and one animal was trapped at the Ranger's residence (N. Scott pers.comm.). Several cats were also found dead, after a wildfire that burnt through the central part of TPBNR south of Gardner Lake in December 2000 (N. Scott pers. comm.). In 1995 a radio-collared Gilbert's potoroo appeared to be the victim of a feral cat predation (Courtenay and Friend 2002). The capture of a cat on Mt. Gardner last November during a potoroo trapping program raised further concerns regarding the threat of cat predation on the potoroo population. The trapped cat was a lactating female and analysis of its stomach contents indicated the presence of quenda hair and noisy scrub bird feathers (J.A. Friend pers. comm.). The impact of cats on native species is not only by predation but also potentially

through disease transmission (Dickman 1996). Cats are hosts and reservoirs of a number of diseases and parasites that can affect native species.

This recent capture of a cat where potoroos are resident prompted this survey of feral cats. The objectives of the survey were to determine the density and distribution of feral cats within the reserve and to make recommendations for their control.

Methods

Three techniques were used to assess the presence of cats on the reserve: observation of track activity from the vehicle *en route* to the attractant stations, assessment of cat activity at attractant stations and on-foot searches conducted along areas of exposed sand for evidence of cat activity.

Evidence of cat activity along the tracks around Mt. Gardner (see Figure 1) was assessed daily from a 4WD vehicle, driven at a speed of less than 10 km/h. The track network provided 7.8 km of access, but inspection for cat activity was limited to sandy areas along these tracks.

The attractant stations comprised Felid Attracting Phonics (FAPs) used in combination with Pongo (mixture of cat faeces and urine). This lure has been used successfully to attract cats to traps and assess cat abundance (Algar *et al.* 1999; Algar *et al.* in prep.). The attractants were placed at approximately 500 m intervals adjacent to the tracks and at the various water tanks. A total of 14 attractant stations were positioned along the track network and their locations, recorded using a Garmin GPS 12XL are shown in Figure 1. At each attractant station, the FAP was hidden within the foliage of a shrub, the pongo placed in a slight depression and the earth raked to enable cat tracks to be observed. Regular periods of rainfall during the course of this survey necessitated shelters to be used to protect sign of visitation to the stations. Where possible existing structures were employed; for example, water tanks with roofs were used with the FAP/pongo lure being placed in the lee of the tank. Elsewhere it was necessary to build shelters of corrugated tin (90 x120 cm) raised 50 to 60 cm off the ground on four dropper posts.

An on-foot search for sign of cat activity was conducted, between the high tide line and through the dune system along the beach, from the boat ramp north to the boundary of the nature reserve. Other on-foot searches were conducted in areas of exposed sand within the survey area.

Results

Due to rain, the survey for cats was restricted to three nights (from the 19 -21 April, 2002). A single series of fresh cat tracks was the only evidence of cat activity around Mt. Gardner. The on-track distance travelled by this animal was less than 50 m and was located midway between two attractant stations (see Table 1 and Figure 1). There was no evidence of cats visiting any of the attractant stations. The on-foot searches resulted in no further evidence of cat activity being located.

During the course of searching for cat activity on the reserve, evidence of fox presence was also recorded. Fox tracks were found at three separate sites; one set of tracks was found on the beach, and two separate tracks at water tank # 5 near the "Wave Sign" and along Sinker Reef Track (see Figure 1).

Table 1. The location of cat and fox activity on the reserve

Attractant Station #	Shelter Type	Distance (km)	Date		
			19/4	20/4	21/4
1	Tin	0.0	-	-	-
2	Tin	0.5	-	-	-
3	Tank #8	0.9	-	-	-
4	Tin	1.5	-	-	-
5	Tin	1.9	-	-	-
6	Tank #7	2.6	-	Cat @ 2.2km	-
7	Tin	0.6 a	-	-	-
8	Tank #6	1.2	-	-	-
9	Tin	1.8	-	-	-
10	Tank #4	2.7	-	-	-
11	Tank #5	3.3	-	Fox	-
12	Tank #3	1.1 b	-		-
13	Tin	1.7	-		-
14	Tin	1.9	-	Fox	-

a: from site #5 b: from site #9

Discussion and Recommendations

Evidence of only one cat was found during this rain-shortened survey, despite reports of a number of cats likely to be present in the area. It is possible that other cats may have been present but were inactive during this period because of the heavy rainfall. It is unlikely, however, that cat density at TPBNR is high. The relatively dense vegetation around Mt. Gardner is not favoured habitat by feral cats, as they prefer to hunt in more open country. The density of vegetation would also afford the potoroo population a degree of protection from predation.

Even though cat density at TPBNR appears to be low, the presence of feral cats on the reserve is of concern. It is unlikely that predation by feral cats poses the most serious threat to the potoroo population: however, any predation event on a population of animals persisting at such a low density is detrimental. The conservation strategy for the potoroo population should therefore take into consideration control of feral cats as one of its management objectives.

An effective control program for both introduced predators (cats and foxes) needs to be implemented at TPBNR. The presence of a number of fresh fox tracks on the reserve during the survey, despite an on-going baiting program, suggests a more intensive and regular application of fox baits is warranted. Recommendations for both cat and fox control at TPBNR are listed below

- An accurate record of cat and fox sightings and/or evidence of their activity be maintained. These records should include the date, location and name of observer.

- An annual cat trapping campaign to be conducted around Mt. Gardner, including a buffer zone. An intensive trapping program across such a small area would provide an effective control measure for resident cats and those animals dispersing into the reserve from adjacent farmland. It is suggested that a trapping program be conducted this spring to put in place an initial control measure for this year. It is then recommended that this trapping

program be conducted in autumn each year thereafter. All trapping programs should be conducted by trained staff. Traps will need to be placed in exclosures that provide a physical barrier to non-target species (Algar and Angus 2002). The exclosures need to be permanent structures that are in place several months prior to the trapping program.

- Baiting the reserve with cat baits is also a potential strategy for effective cat control, however trials would need to be conducted to eliminate the risk to non-target species (see Algar *et al.* in press). These trials could be conducted at the same time as the trapping program.

- Whether trapping and/or baiting programs are implemented to control cats, road access in the buffer zone needs to be up-graded (see Figure 1).

- The presence of foxes on the reserve suggests that a more intensive and regular application of fox baits is warranted. It is recommended that the on-track baiting be conducted on a monthly basis along all tracks in the reserve, rather than the existing situation of laying baits where and when tracks are observed.

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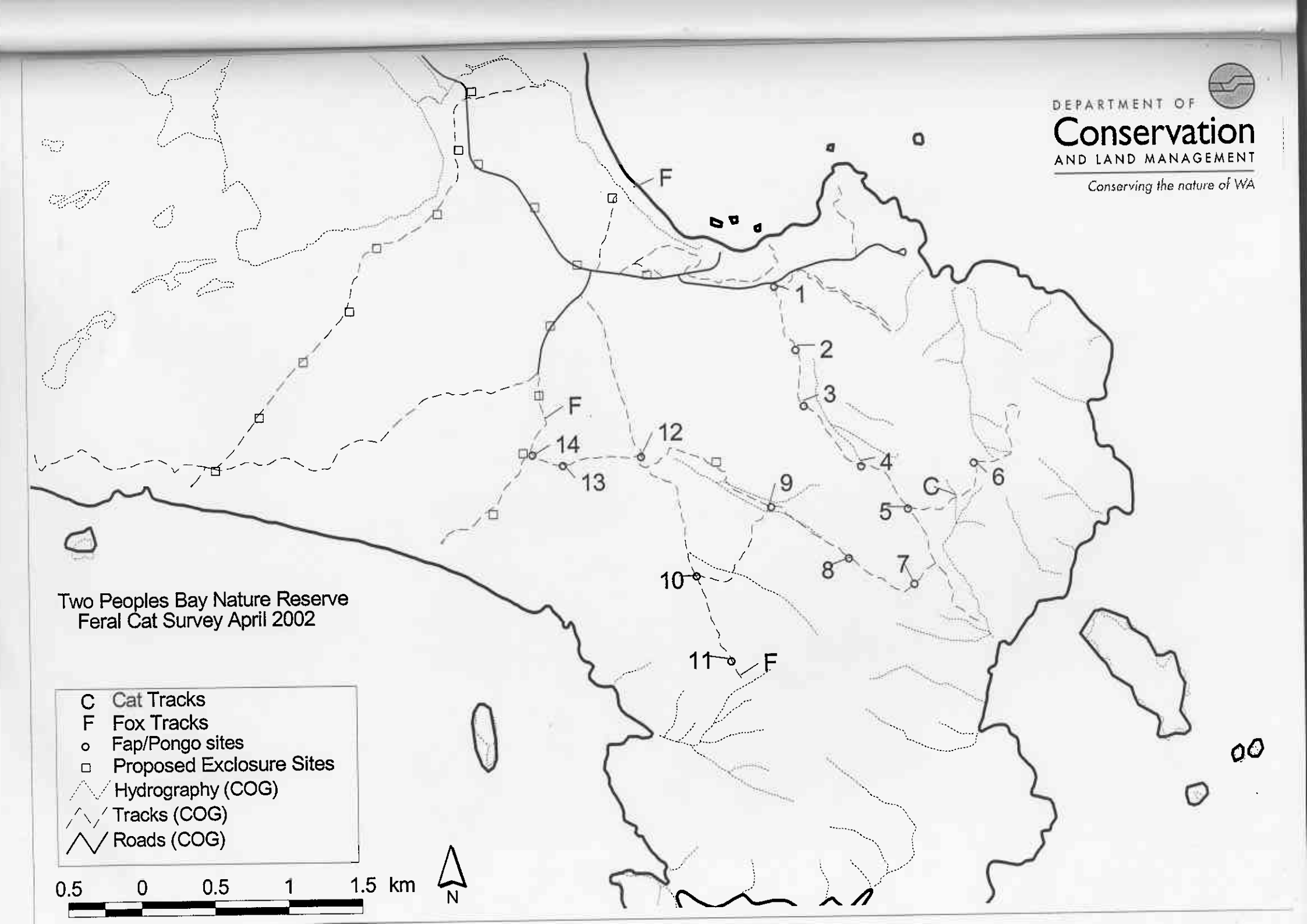
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Conservation
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Conserving the nature of WA
Two Peoples Bay Nature Reserve
Feral Cat Survey April 2002
C Cat Tracks
F Fox Tracks
Fap/Pongo sites
Proposed Exclosure Sites
Hydrography (COG)
Tracks (COG)
Roads (COG)
0.5 0 0.5 1 1.5 km
N
F
1
2
3
F
14
12
13
4
9
C
6
5
10
8
7
11
F