Feral Goat Control Program

Exmouth District

2006-07

Department of
Environment and Conservation

SAVING OUR SPECIES

Biodiversity
Conservation
Initiative 2006–07

RANGELANDS
NRM Co-ordinating Group

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Acknowledgements

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Disclaimer:

1. Overview

Goats (*Capra hircus*) have been identified as a significant feral animal within Cape Range National Park and are common and widespread throughout the Cape Range peninsula (CALM, 2005). The impact of feral goats through habitat destruction and displacement; competition for food, water and shelter with native fauna (such as the threatened black-flanked rock-wallaby); overgrazing; and the spread of weeds have been identified as key threats in Cape Range National Park (CALM, 2005). Goat control measures in the park prior to 2007 have comprised of ad hoc shooting by Department of Environment and Conservation (DEC) staff and authorised Western Australian Field and Game Association (WAFGA) shooters that undertake an annual shoot around Yardie Creek. The capacity of the Exmouth District's goat control program increased significantly in 2006 when it received $86,000 funding for the 2006/07 and 2008/09 financial years for feral goat control in Cape Range Nation Park as part of the Western Australian Government's 'Biodiversity Conservation Initiative' (BCI).

The initial proposal for the project was to install almost 60 kilometres of fencing along the Cape Range National Park boundary followed by an intensive mustering program. However the large size of the boundary, rugged topography and unresolved boundary issues (due to the timing of the Department of Planning and Infrastructure's 2015 pastoral exclusion process) made the proposal too expensive and too difficult to implement and manage, especially considering the ongoing maintenance that would be required. The final proposal for the Exmouth District program focused on the mass removal of goats from Cape Range via an intensive aerial shooting program (Attachment 1). This was aligned with aerial shooting operations in other DEC Districts also undergoing feral goat control.

In addition to the aerial shoot, a component of the program was to monitor the abundance and distribution of goats utilising Cape Range. This was achieved by means of aerial surveys conducted before and after the control operations (shooting and trapping). Information gained from the aerial surveys also assisted in identifying habitat utilised by goats in Cape Range, therefore assisting in determining target areas for control operations. Comparison between aerial surveys conducted before and after the completion of control operations also provided a measure of the effectiveness of the control program. Future surveys will reveal the recovery rate of the Cape Range goat population.

In addition to the BCI funding, the Australian and State governments contributed further funding to DEC's Exmouth District, through the Rangelands Natural Resource Management (NRM) Group, to establish a goat removal program working with local landholders. After liaison with several local pastoralists, an opportunity arose at Yardie Homestead Caravan Park, north of Cape Range National Park, where hundreds of goats were regularly observed visiting a water source. Owner James Roscic offered to allow his land and water source to be used as a trapping site and requested that the profits from all goats trapped and sold be donated to the local St Johns ambulance service. The NRM funding contributed to the purchase of mobile trapyards and transport of the goats. This project was aligned with the DEC's Good Neighbour Policy which works with adjacent landholders to achieve conservation outcomes affecting DEC managed lands.

This report documents the Exmouth District's 2006/2007 feral goat control program. Recommendations for future operations to complement the intensive program are also provided.

Summary of achievements

- 629 goats removed from Cape Range National Park through aerial shooting.
- 232 goats removed from Yardie Homestead though trapping program.
- Almost $7,000 donated to St Johns Ambulance from the sale of trapped goats.
- 318 goats removed around Yardie Creek through WAFGA ground shoot.
- 433 goats removed from Cape Range National Park through opportunistic shooting by DEC staff between July 2006 and June 2007.
- Reduction of goats observed in Cape Range by 86%.

2. Aerial Surveys - February-March 2007

Aim

To record the abundance and distribution of goats utilising Cape Range before and after control operations and monitor the effectiveness of the control program.

Methods

Three aerial flights were conducted by two DEC staff prior to the commencement of goat control operations from February 1-3 2007 (inclusive). Another three flights were conducted by the same staff members at the conclusion of the control operations from March 28-30 (inclusive). A flight path was designed using OziExplorer (GPS mapping software) which was followed by the pilot using a GPS on all six flights (Figure 1). Flights commenced at approximately 0730 hours for the February flights and 0700 hours for the March flights. This was based on approximate sunrise times (taking into consideration daylight savings). All goats observed and GPS locations were recorded on a data sheet. Staff conducted the survey in accordance with the Standard Operating Procedures (SOP) for Goat Aerial Surveys (Attachment 2).

Figure 1: Flight path for aerial goat surveys February – March 2007.

Results and Discussion

Significantly more goats were observed in the February surveys prior to control operations (2.19 goats per $km^2 \pm 0.08$) than were observed in the March surveys after the control operations (0.3 goats per $km^2 \pm 0.04$) ($t = 21.04$, $df = 4$; $P = <0.001$) (Figures 2, 3 and 4; Appendix 1 and 2). This equates to an 86 percent reduction in the number of goats observed on the surveys after goat control operations.

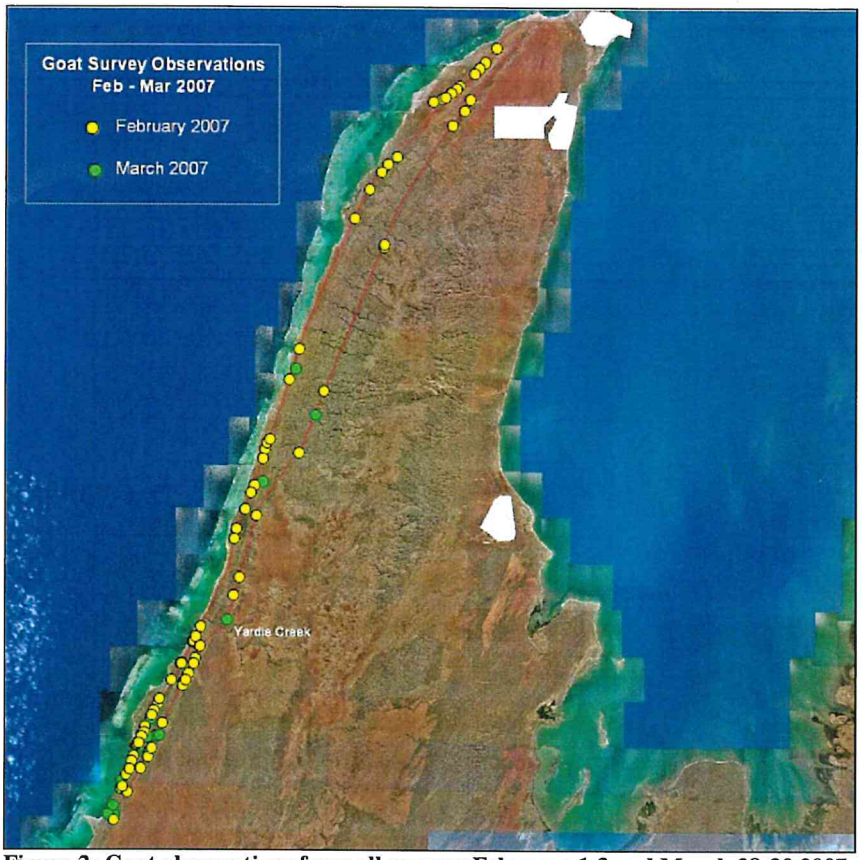


Figure 2: Goat observations from all surveys February 1-3 and March 28-30 2007.

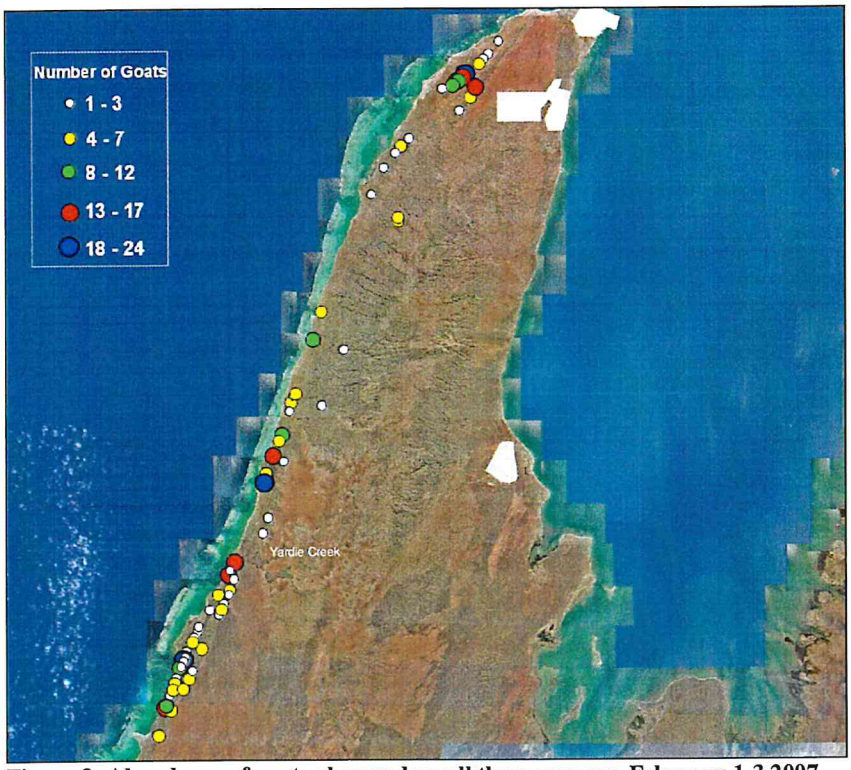


Figure 3: Abundance of goats observed on all three surveys, February 1-3 2007.

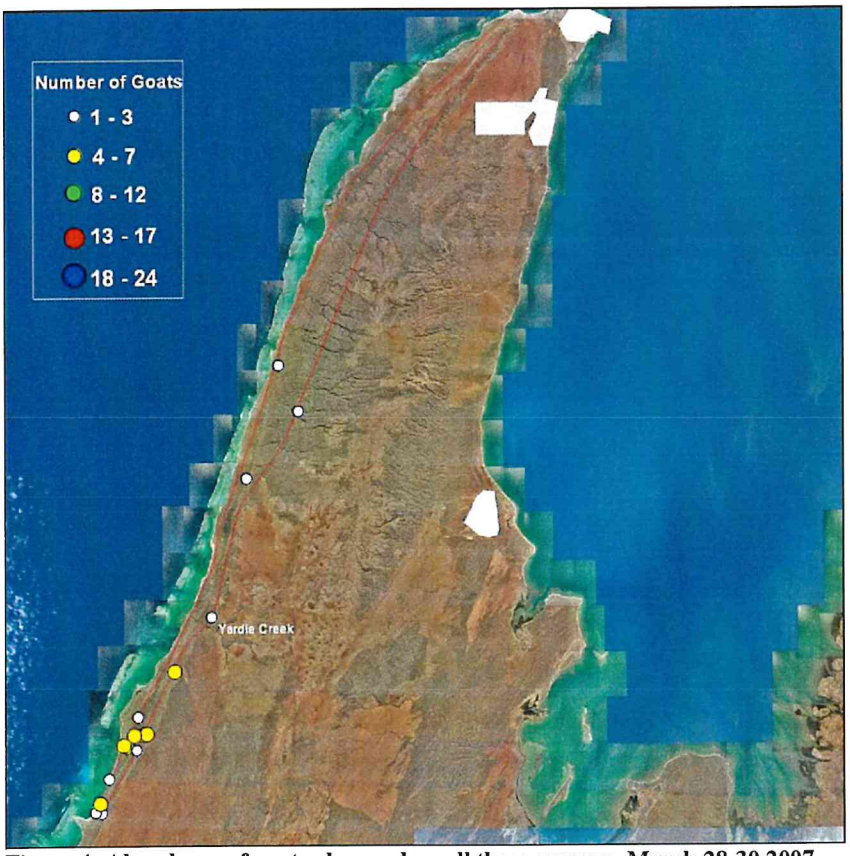


Figure 4: Abundance of goats observed on all three surveys, March 28-30 2007.

The February surveys found the mean number of goats per km^2 to be significantly higher on the coastal plain (3.36 ± 0.14) than on the range (1.07 ± 0.22) (t = 7.00, df = 2; P = 0.02) (Figure 5). There was no significant difference in the number of goats between the coast (0.31 per km^2 ± 0.19) and the range (0.29 per km^2 ± 0.14) from the March surveys (t = 0.08, df = 2; P = 0.95).

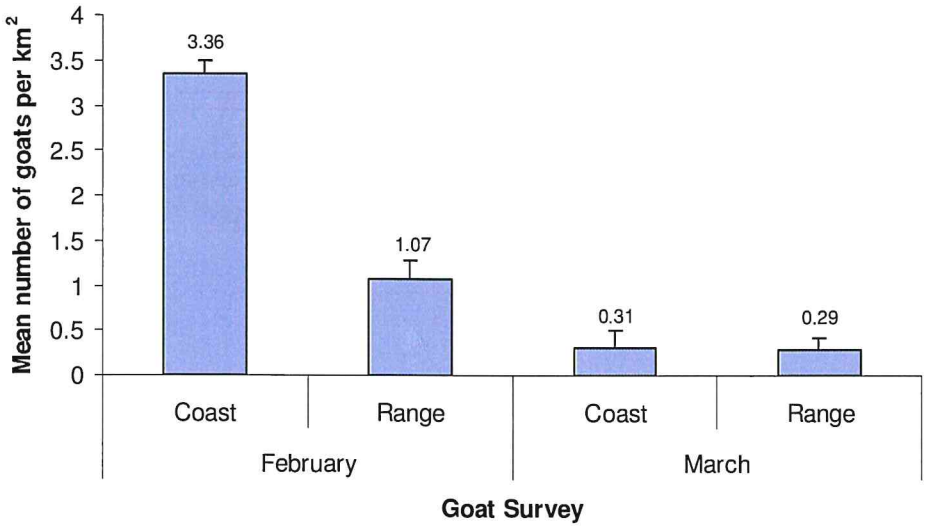


Figure 5: Mean number of goats per square kilometre for all surveys February-March 2007.

Smaller goat mob sizes were observed in the March surveys (up to seven goats) compared with mob sizes of up to 24 goats observed in the February surveys (Figure 6).

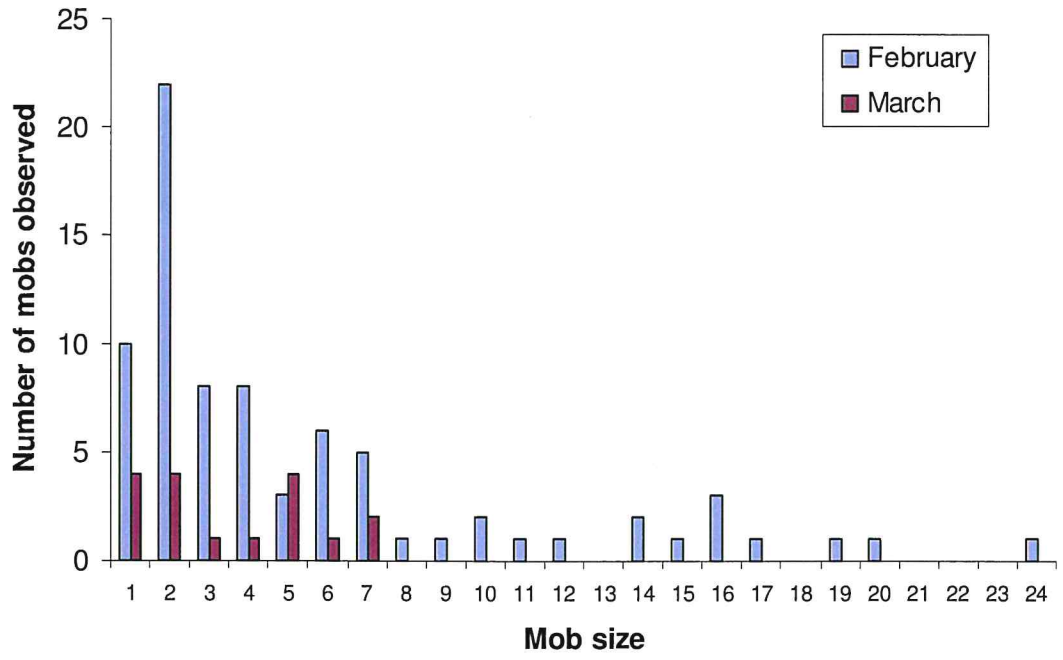


Figure 6: Number of sightings of goat mobs of various sizes for all surveys, February-March 2007.

Of the total number of goats observed throughout the surveys, 28 % of the goats observed were on Defence land in February prior to the shoot, increasing to 75% in March after the shoot (Figure 7). As Defence land

was not targeted in the aerial goat shoot, this comparison reveals the effectiveness of the program within Cape Range National Park.

Goat control efforts in Cape Range National Park are significantly impeded as goats are valued as stock on adjacent pastoral stations. There is no boundary fencing to prevent the movement of stock, therefore it is likely that goats from Bundera and Ningaloo Station will penetrate into the southern end of the park and further goat control action will be required.

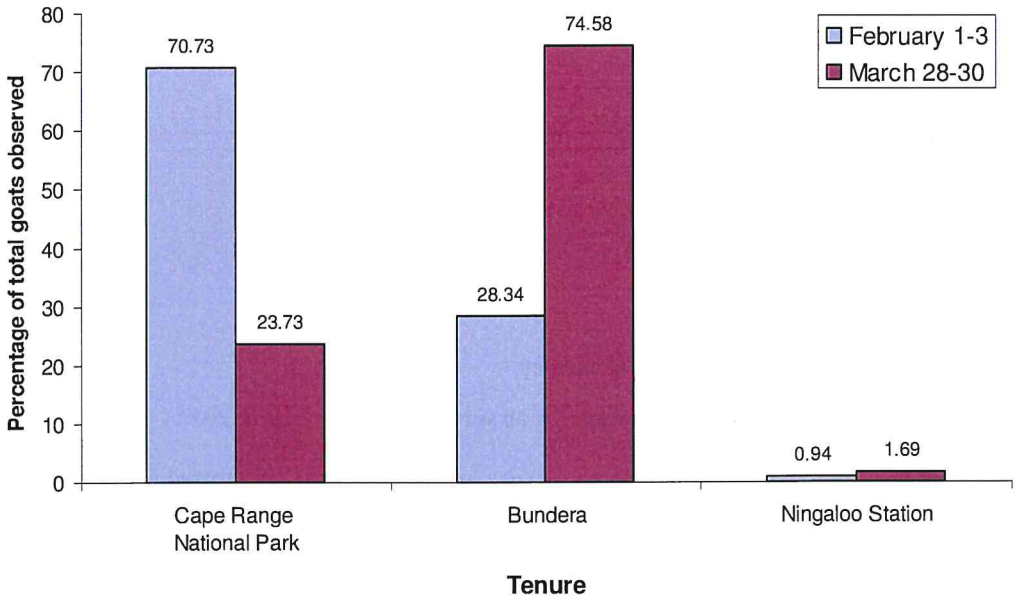


Figure 7: Percentage of total goats observed per survey period for each different tenure.

Aerial surveys are the best method to estimate goat population sizes over large areas. The bias due to unsighted goats, as they are well camouflaged in the landscape and hide under trees and in crevices, has only been estimated a limited number of times and varies considerably (Figure 8). Research is needed on aerial surveys for large-scale monitoring and on cheap and robust methods of estimating densities or indices of smaller-scale operations (Parkes *et al*, 1996).

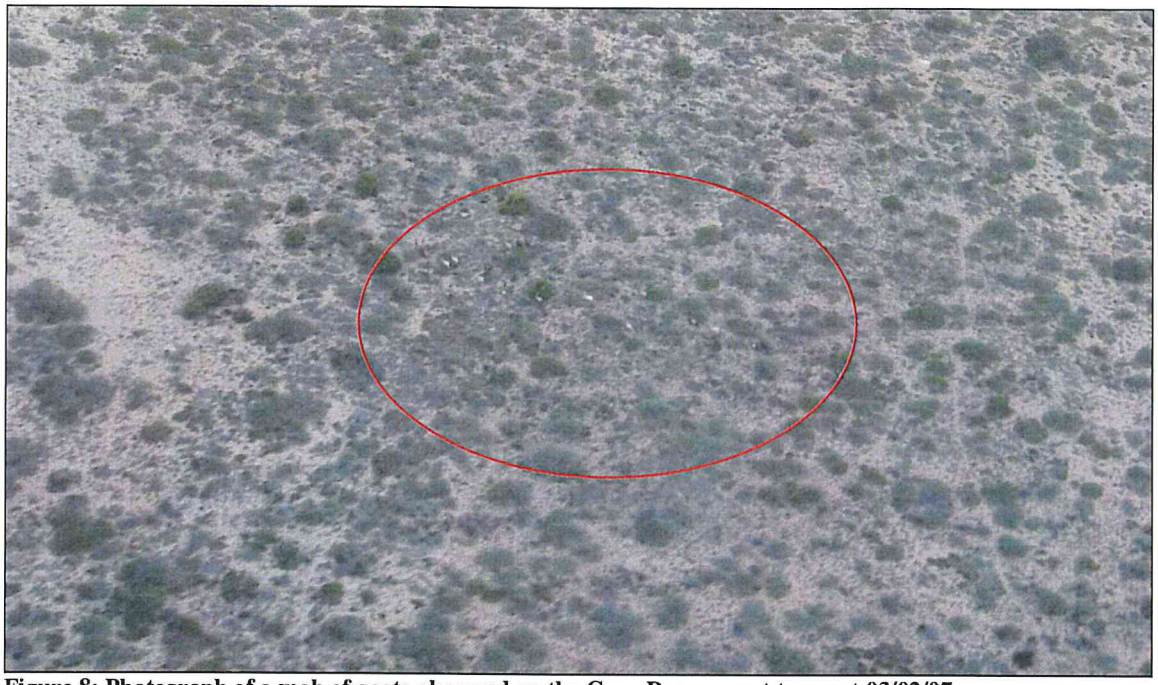


Figure 8: Photograph of a mob of goats observed on the Cape Range coast transect 03/02/07.

Overall, the results of the aerial surveys revealed that control operations in Cape Range National Park were effective. However, goats observed at the parks southern boundary indicates that further control operations will be required, preferably incorporating Department of Defence land to create a greater area of protection from goats for Cape Range.

3. Aerial Shoot – March 2007

Aim

To significantly reduce the number of goats in Cape Range National Park via intensive aerial shooting.

Methods

An aerial shoot plan was developed prior to shoot operations (Attachment 3). This involved a risk assessment, park closure approvals, safety and emergency procedures and detailed maps illustrating no shoot zones. The shoot plan formed a critical component of the operational planning for the shoot. Logistical arrangements, such as the delivery of ammunition and helicopter fuel to Exmouth, were also made prior to the arrival of the shooting team.

Professional shooters contracted from the Department of Agriculture and Food Western Australia (DAFWA) conducted the shooting operations from a helicopter using SLR L1A17.62 (308) calibre firearms. A spotter plane from Exmouth was also used with a DEC staff passenger to locate goats and ensure the shoot zone was safe.

Shooting commenced at first light and continued for much of the day until dusk. After several days, shooting was not carried out in the middle of the day as there were few goats visible.

Goats sighted by the spotter aircraft were relayed to the helicopter via UHF radio. The number of goats shot and a GPS waypoint reading were recorded. The waypoints were downloaded onto a laptop at the end of the operation.

Logistical arrangements, such as food orders and transport, were co-ordinated daily by Exmouth district staff.

Results

A total of 629 goats were shot within Cape Range National Park between March 3-7 2007. Large concentrations of goats were removed from the Yardie Creek vicinity, the coastal plain and eastern boundary of the park (Figures 9 and 10; Appendix 3).

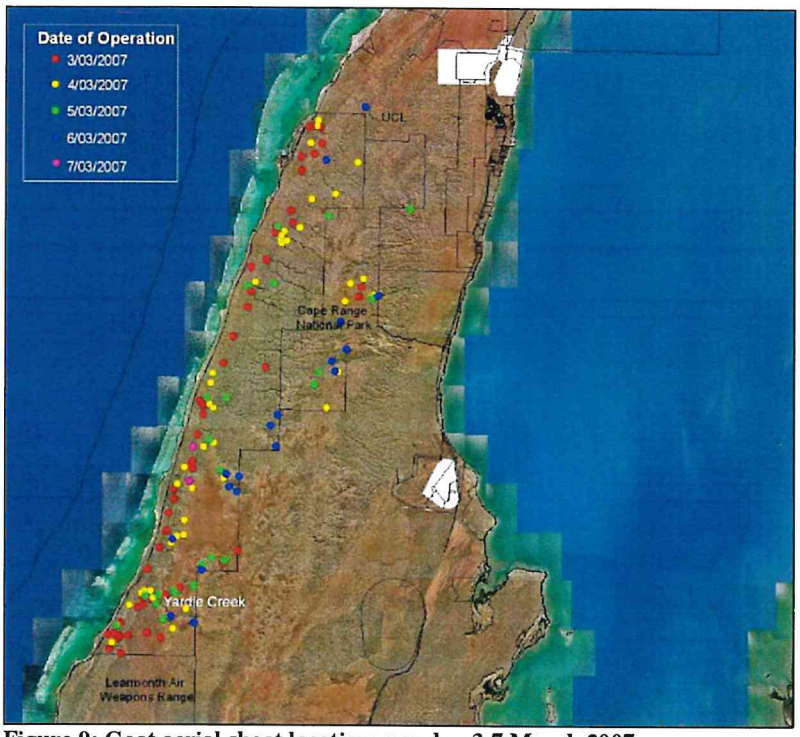


Figure 9: Goat aerial shoot locations per day 3-7 March 2007.

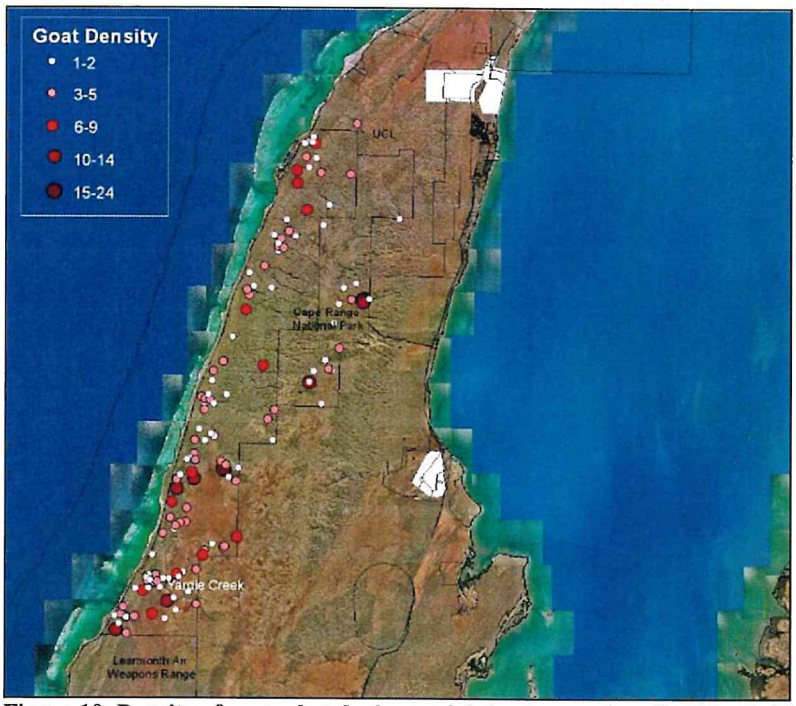


Figure 10: Density of goats shot during aerial shoot operations 3-7 March 2007.

Most shooting occurred during the morning time period (up to 10am) (Figures 11 and 12). Less time was spent flying during the midday time period as fewer goats were visible due to their retreating to avoid the high temperatures.

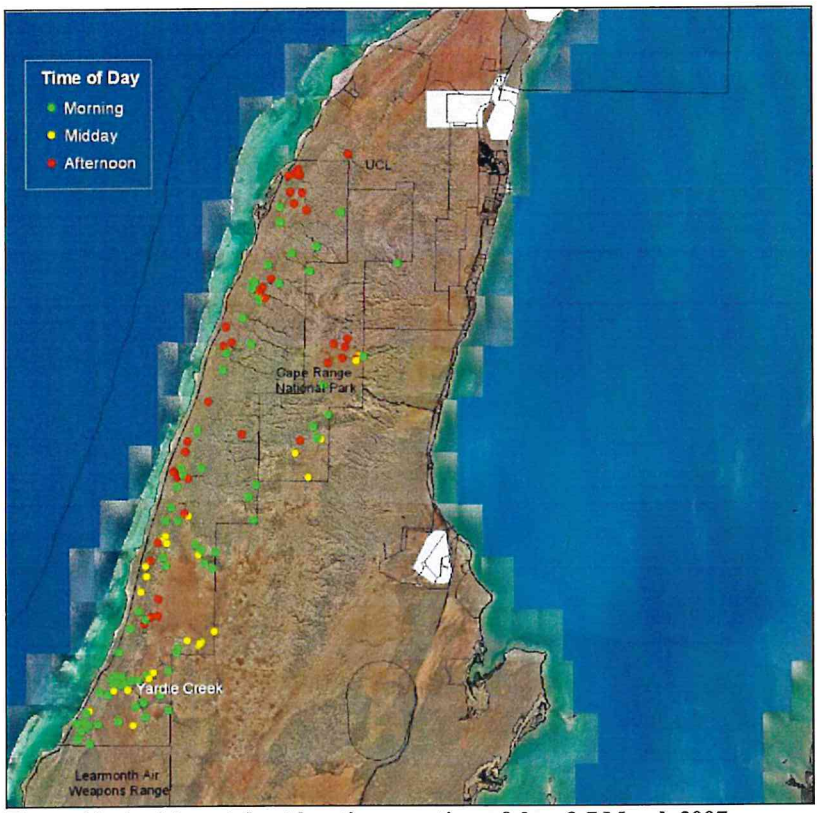


Figure 11: Aerial goat shoot locations per time of day, 3-7 March 2007.

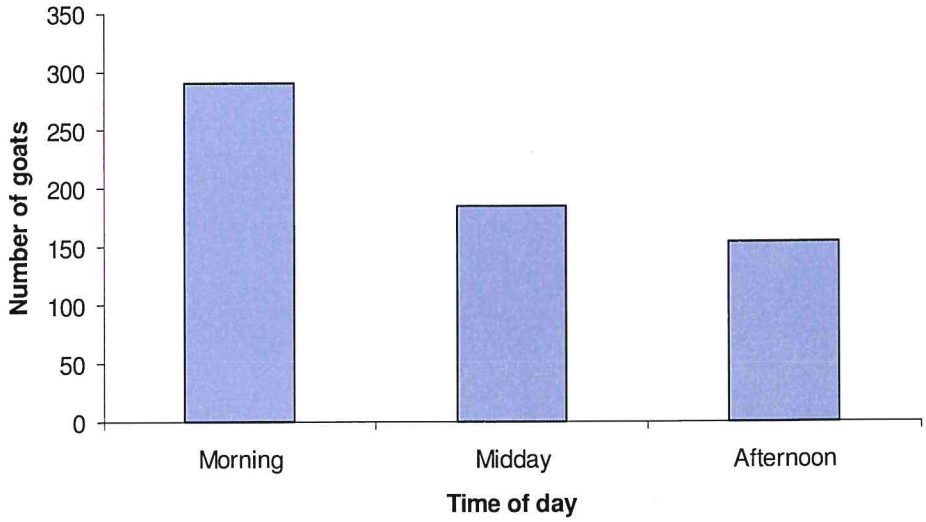


Figure 12: Number of goats shot during each time period, 3-7 March 2007.
Note: Flying effort was greatest during the morning period.

Most goats were removed on the first two days of the program (Figure 13). Note that the first two days also had the greatest effort, with the aircraft and shooters being in the air for most of the day (flying time per day was not recorded).

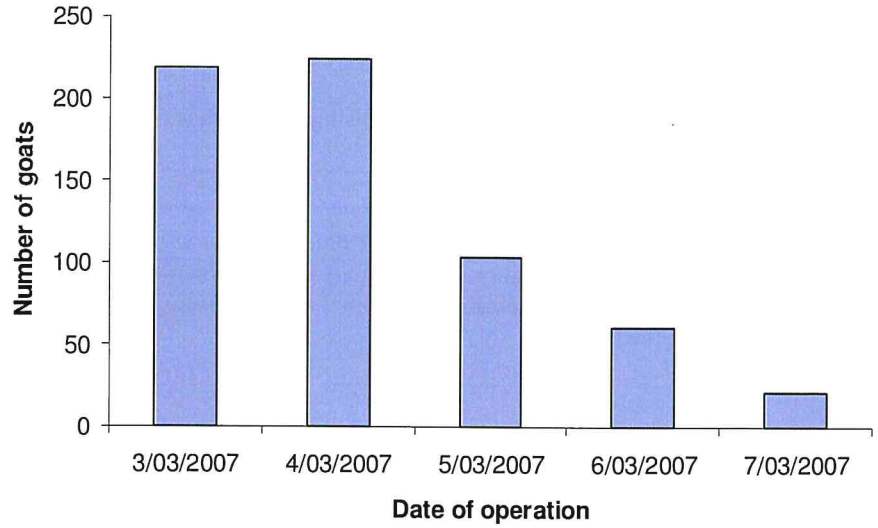


Figure 13: Number of goats shot for each day of the aerial shoot program, 3-7 March 2007.

Most goats shot were in aggregations of four or less, with most observed in pairs (Figure 14). The largest aggregations were those found within caves (Stephen Owen, pers. comm.).

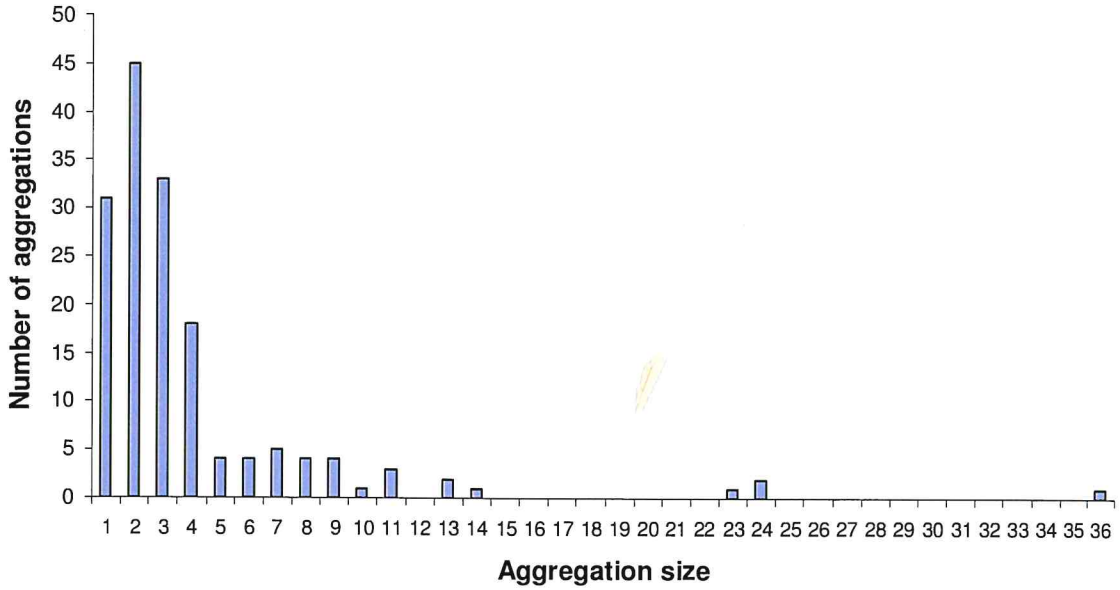


Figure 14: Goat aggregation sizes observed during aerial shoot program, 3-7 March 2007.

Overall, a large number of goats were removed from Cape Range National Park throughout the five day aerial shoot program, deeming it a success. Operations were best targeted around the early morning and early evening time periods.

4. Yardie Homestead Trapping Project – February 2007

Aim

To trap and remove goats visiting Yardie Homestead Caravan Park and utilising Cape Range.

Methods

A mobile trapyard was purchased and constructed around a well at Yardie Homestead that was frequented by large aggregations of goats. The traps were installed on Tuesday 20th February and remained open for 4 days until Friday 23rd February when they were loaded onto a truck and transported away for sale. The goats were supplied with large quantities of feed whilst in the trap.

Results and Discussion

232 goats were trapped and removed from Yardie Homestead (Figure 15). The goats were sold for $36 each, more than the regular rate due to the particularly large size of the goats (Andrew Griffiths, pers. comm.). Funds raised from the sale of the goats totalled $6774.88. This amount was donated to the St Johns Ambulance Exmouth sub-centre. Funds contributed to improving the centre, including the purchase of a defibrillator, projector and manakins for first aid training.

No goats were observed at Yardie Homestead for at least two months after the trapping operation (Leah Roscic, pers. comm.), indicating that the four days of trapping was sufficient to capture all of the goats that visited the water source.

The trapyards are now available for future use in Cape Range National Park and for loan to other DEC Districts and organisations.

*Special acknowledgement to James Roscic for assisting with the project concept and providing assistance and permission to operate on his land. Acknowledgement also to Andrew Griffiths for developing the project concept and driving the successful operation.

a.

b.

c.

d.

Figure 15: Photographs from Yardie Homestead trapping project February 2007.

a. **Mobile trapyard.**
b. **DEC staff Roland Mau, Andrew Griffiths and Jennie Cary observing the trapping system.**
c. **Goats in the trapyard.**
d. **Isabella, James and Leah Roscic (Yardie Homestead) and Andrew Griffiths (DEC) handing St Johns Ambulance a cheque for almost $7000.**

5. Annual WAFGA Ground Shoot – February 2007.

Aim

To reduce the number of goats in the vicinity of Yardie Creek.

Methods

WAFGA shooters conduct a shoot around Yardie Creek annually. The group is co-ordinated by Barry Carson, who initiates the administration process for the shoot in December/January of each year by sending a request letter to the DEC Exmouth office requesting permission to conduct the shoot. A shoot plan is developed, incorporating relevant firearm and closure approvals and safety and emergency procedures.

Participating WAFGA shooters utilise the Bungelup campsite in Cape Range National Park throughout the operation free of charge. A generator and water are also supplied by the Department.

Signage indicating closures to walk trails and tracks are developed and installed by DEC staff. The media and other stakeholders were also advised of the operations.

Results and discussion

A total of 318 goats were removed from the Yardie Creek area in February 2007. This was considerably more than the 169 shot in 2006.

157 goats were removed from in and around Yardie Creek where goats were seeking water in small groups. Goats were also removed from the area between Osprey Bay and Sandy Bay, the Sandy Bay track, Goat Hill and Pilgramunna. All areas were east of the main Yardie Creek Road running through Cape Range National Park.

A total of 586 man hours were spent on the 2007 shoot – this included 273 man hours (seven shooters) spent in the field shooting goats.

Feedback from the WAFGA noted that signage and overall communication with the public about the program was effective as contact with the public was minimal and had no effect on the program.

*DEC acknowledges the long unpaid hours dedicated to the project from WAFGA volunteers, particularly Barry Carson for co-ordinating the successful and professional operation.

6. DEC Opportunistic Ground Shooting

Aim

To opportunistically shoot goats observed within Cape Range National Park.

Methods

Authorised DEC staff opportunistically shoot goats observed in Cape Range National Park. All shooting is in accordance with Departmental procedures with no shooting occurring in recreation areas or in view of the public.

A log was kept of all goats shot since November 2006 which recorded the location, composition and number of goats shot (Appendix 4).

Results and Discussion

A total of 433 goats were removed from Cape Range Nation Park via opportunistic ground shooting by DEC staff between July 2006 and June 2007. Goats were removed from throughout the length of the Park, mostly from the coastal plain and escarpment, with few removed from the range (Figure 16). Goats were most often removed in small groups of less than five animals.

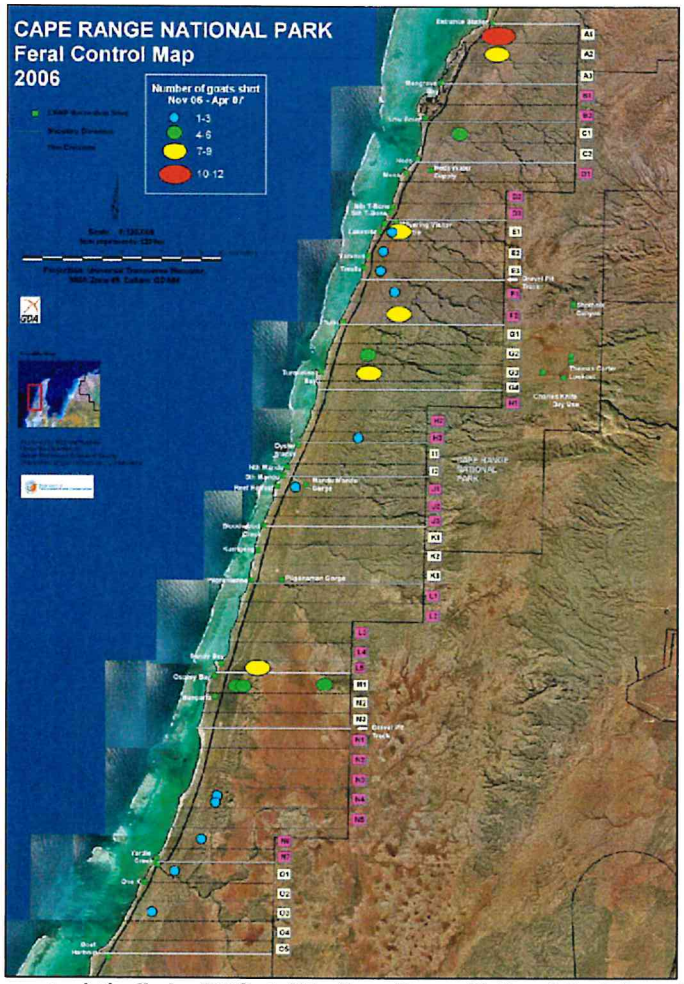


Figure 16: Goats shot opportunistically by DEC staff in Cape Range National Park from November 2006 to April 2007.

7. Recommendations

Based on the findings of the 2006/07 goat control program, the following recommendations are made for future operations.

- Control operations should be extended to Learmonth Air Weapons Range to protect a larger proportion of southern Cape Range from the impacts of feral goats. This will require early liaison with the Department of Defence so they have ample time to undertake their extensive approval process.

- Aerial surveys continue throughout the year to monitor the re-establishment of goats into Cape Range National Park.

- DEC to continue to support and co-ordinate the annual WAFGA ground shoot.

- DEC to continue to opportunistically remove goats throughout Cape Range National Park.

- DEC to work in collaboration with adjacent pastoralists and the Pastoral Lands Board of WA to encourage strategies to prevent movement of stock into Cape Range National Park.

7. References

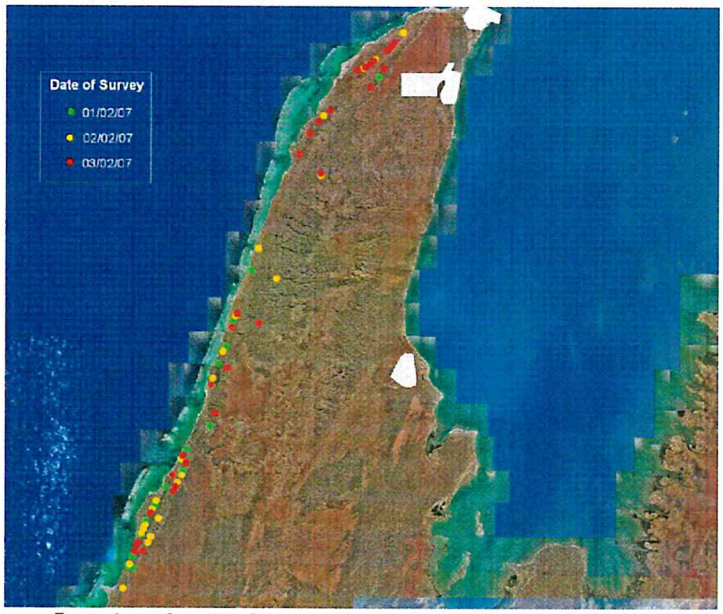
CALM (2005) *Cape Range National Park Draft Management Plan 2005-2015.* Department of Conservation and Land Management, Perth.

Parkes, J., Henzell, R. and Pickles, G. (1996) *Managing Vertebrate Pests: Feral Goats.* Australian Government Publishing Service, Canberra.

Appendix 1: Data collected from goat aerial surveys February 1-3, 2007.

Date	Time	Transect	ID	Position		Port/Starboard	Observer	No. goats	Photo No.
				Lat	Long				
1/02/2007	7:30	Coast	Start T1						
1/02/2007	7:42	Coast	001	-22.12127	113.88878	Port	Lindsay Steer	12	
1/02/2007	7:45	Coast	002	-22.18129	113.86749	Port	Lindsay Steer	5	
1/02/2007	7:46	Coast	003	-22.21195	113.85861	Port	Lindsay Steer	10	
1/02/2007	7:48	Coast	004	-22.23213	113.85018	Port	Lindsay Steer	14	
1/02/2007	7:50	Coast	005	-22.25791	113.84168	Port	Lindsay Steer	2	
1/02/2007	7:53	Coast	006	-22.33304	113.81186	Port	Lindsay Steer	16	
1/02/2007	7:54	Coast	007	-22.34598	113.80456	Port	Lindsay Steer	3	
1/02/2007	7:55	Coast	008	-22.36442	113.79424	Starboard	Kim Onton	2	
1/02/2007	7:55	Coast	009	-22.37879	113.78614	Port	Lindsay Steer	3	
1/02/2007	7:56	Coast	010	-22.39979	113.77352	Starboard	Kim Onton	2	
1/02/2007	7:57	Coast	011	-22.41934	113.76227	Starboard	Kim Onton	2	
1/02/2007	7:57	Coast	012	-22.42650	113.75930	Port	Lindsay Steer	19	
1/02/2007	7:58	Coast	013	-22.43465	113.75556	Port	Lindsay Steer	8	
1/02/2007	7:59	Coast	014	-22.46055	113.74564	Port	Lindsay Steer	2	
1/02/2007	8:00	Coast	015	-22.47235	113.74122	Starboard	Kim Onton	15	
1/02/2007	8:01	Coast	End T1						
1/02/2007	8:02	Range	Start T2						
1/02/2007	8:03	Range	016	-22.47492	113.74726	Port	Lindsay Steer	7	
1/02/2007	8:05	Range	017	-22.41607	113.77864	Starboard	Kim Onton	1	
1/02/2007	8:06	Range	018	-22.38099	113.79746	Starboard	Kim Onton	2	
1/02/2007	8:07	Range	019	-22.35987	113.80714	Port	Lindsay Steer	4	
1/02/2007	8:09	Range	020	-22.30600	113.84119	Port	Lindsay Steer	2	
1/02/2007	8:24	Range	021	-21.88945	114.04505	Port	Lindsay Steer	7	
1/02/2007	8:30	Range	End T2						
1/02/2007							TOTAL	138	
2/02/2007	7:22	Coast	Start T1						
2/02/2007	7:23	Coast	022	-21.83618	114.07361	Starboard	Kim Onton	1	
2/02/2007	7:24	Coast	023	-21.86803	114.04005	Port	Lindsay Steer	24	
2/02/2007	7:25	Coast	024	-21.8745	114.03183	Port	Lindsay Steer	16	
2/02/2007	7:25	Coast	025	-21.87955	114.02514	Port	Lindsay Steer	2	
2/02/2007	7:30	Coast	026	-21.93662	113.97579	Port	Lindsay Steer	4	
2/02/2007	7:37	Coast	027	-22.09511	113.8972	Port	Lindsay Steer	4	
2/02/2007	7:40	Coast	028	-22.17526	113.86969	Port	Lindsay Steer	1	
2/02/2007	7:42	Coast	029	-22.21791	113.8555	Port	Lindsay Steer	7	
2/02/2007	7:43	Coast	030	-22.24925	113.84297	Port	Lindsay Steer	6	
2/02/2007	7:48	Coast	031	-22.34532	113.80528	Port	Lindsay Steer	14	
2/02/2007	7:48	Coast	032	-22.36426	113.79514	Starboard	Kim Onton	1	
2/02/2007	7:50	Coast	033	-22.39526	113.77492	Port	Lindsay Steer	2	
2/02/2007	7:50	Coast	034	-22.4051	113.76993	Port	Lindsay Steer	2	
2/02/2007	7:51	Coast	035	-22.42447	113.76113	Starboard	Kim Onton	2	
2/02/2007	7:51	Coast	036	-22.42831	113.75922	Starboard	Kim Onton	3	
2/02/2007	7:52	Coast	037	-22.43331	113.75688	Starboard	Kim Onton	1	
2/02/2007	7:53	Coast	038	-22.47042	113.7426	Starboard	Kim Onton	10	
2/02/2007	7:53	Coast	End T1						
2/02/2007	7:56	Range	Start T2						
2/02/2007	7:56	Range	039	-22.49905	113.73485	Port	Lindsay Steer	4	
2/02/2007	7:59	Range	040	-22.4448	113.76553	Starboard	Kim Onton	6	
2/02/2007	7:59	Range	041	-22.43732	113.76888	Starboard	Kim Onton	3	
2/02/2007	8:00	Range	042	-22.41606	113.77814	Port	Lindsay Steer	6	
2/02/2007	8:01	Range	043	-22.38026	113.79718	Port	Lindsay Steer	7	
2/02/2007	8:01	Range	044	-22.37316	113.80116	Starboard	Kim Onton	3	
2/02/2007	8:02	Range	045	-22.36427	113.80616	Starboard	Kim Onton	1	
2/02/2007	8:13	Range	046	-22.13045	113.92088	Starboard	Kim Onton	2	
2/02/2007	8:18	Range	047	-22.00714	113.97415	Port	Lindsay Steer	4	
2/02/2007	8:26	Range	End T2						
2/02/2007							TOTAL	136	

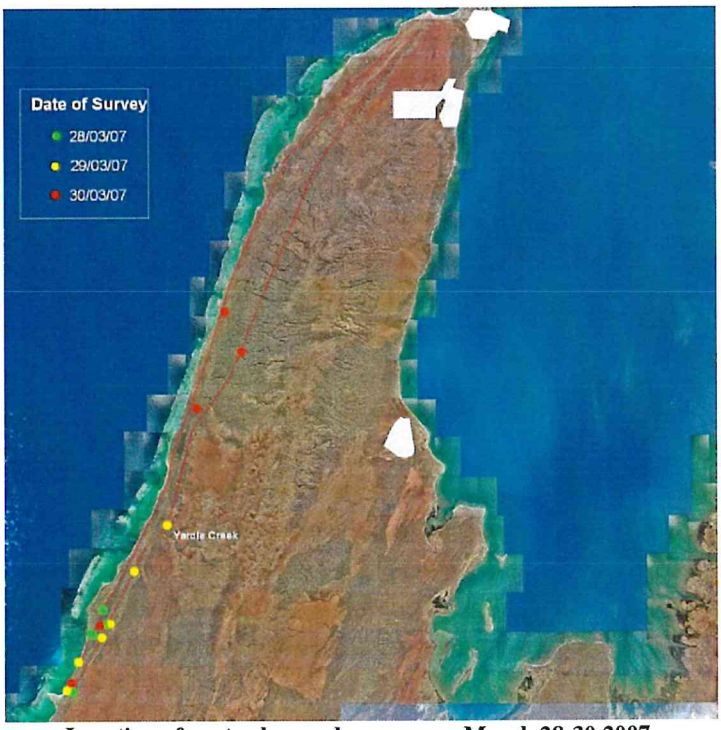
Date	Time	Transect	ID	Position		Port/Starboard	Observer	No. goats	Photo No.
				Lat	Long				
3/02/2007	7:27	Coast	Start T1						
3/02/2007	7:29	Coast	048	-21.84856	114.06314	Starboard	Kim Onton	1	
3/02/2007	7:29	Coast	049	-21.85309	114.05854	Starboard	Kim Onton	1	
3/02/2007	7:29	Coast	050	-21.85791	114.05385	Port	Lindsay Steer	7	
3/02/2007	7:30	Coast	051	-21.87081	114.03775	Port	Lindsay Steer	17	
3/02/2007	7:30	Coast	052	-21.87461	114.03282	Port	Lindsay Steer	9	
3/02/2007	7:31	Coast	053	-21.87836	114.02745	Port	Lindsay Steer	11	
3/02/2007	7:31	Coast	054	-21.88219	114.01669	Port	Lindsay Steer	3	
3/02/2007	734	Coast	055	-21.93001	113.98395	Port	Lindsay Steer	2	
3/02/2007	7:35	Coast	056	-21.94358	113.96991	Starboard	Kim Onton	1	
3/02/2007	7:36	Coast	057	-21.95791	113.95904	Starboard	Kim Onton	1	
3/02/2007	7:37	Coast	058	-21.98303	113.94631	Starboard	Kim Onton	2	
3/02/2007	7:46	Coast	059	-22.17246	113.87208	Port	Lindsay Steer	5	
3/02/2007	7:47	Coast	060	-22.18923	113.86616	Port	Lindsay Steer	2	
3/02/2007	7:50	Coast	061	-22.25771	113.84117	Starboard	Kim Onton	20	1
3/02/2007	7:56	Coast	062	-22.34157	113.80725	Port	Lindsay Steer	2	
3/02/2007	7:57	Coast	063	-22.36441	113.79474	Port	Lindsay Steer	6	
3/02/2007	7:59	Coast	064	-22.40979	113.76815	Starboard	Kim Onton	4	
3/02/2007	8:01	Coast	065	-22.44441	113.75225	Port	Lindsay Steer	2	
3/02/2007	8:01	Coast	066	-22.44912	113.75064	Port	Lindsay Steer	5	
3/02/2007	8:02	Coast	067	-22.45541	113.74863	Port	Lindsay Steer	4	
3/02/2007	8:03	Coast	End T1						
3/02/2007	8:04	Range	Start T2						
3/02/2007	8:06	Range	068	-22.45454	113.7595	Port	Lindsay Steer	4	
3/02/2007	8:09	Range	069	-22.38331	113.79624	Port	Lindsay Steer	2	
3/02/2007	8:09	Range	070	-22.37845	113.79888	Port	Lindsay Steer	6	
3/02/2007	8:10	Range	071	-22.35	113.81132	Starboard	Kim Onton	2	
3/02/2007	8:10	Range	072	-22.35	113.81132	Port	Lindsay Steer	3	
3/02/2007	8:14	Range	073	-22.29079	113.84603	Port	Lindsay Steer	2	
3/02/2007	8:16	Range	074	-22.23712	113.86119	Starboard	Kim Onton	2	
3/02/2007	8:18	Range	075	-22.18369	113.89931	Starboard	Kim Onton	3	
3/02/2007	8:25	Range	076	-22.00467	113.97399	Port	Lindsay Steer	6	
3/02/2007	8:29	Range	077	-21.90233	114.03432	Port	Lindsay Steer	2	
3/02/2007	8:30	Range	078	-21.8797	114.05068	Port	Lindsay Steer	16	2
3/02/2007	8:34	Range	End T2						
3/02/2007							TOTAL	153	



Location of goats observed per survey February 1 – 3 2007.

Appendix 2: Data collected from goat aerial surveys March 28-30, 2007.

Date	Time	Transect	ID	Position		Port/Starboard	Observer	No. goats	Photo No.
				Lat	Long				
28/03/2007	7:00	Coast	Start T1						
28/03/2007	7:26	Coast	10	-22.41271	113.76759	Port	Lindsay Steer	3	
28/03/2007	7:41	Coast	End T1						
28/03/2007	7:43	Range	Start T2						
28/03/2007	7:43	Range	11	-22.49524	113.73591	Port	Lindsay Steer	2	
28/03/2007	7:46	Range	12	-22.43807	113.75702	Port	Lindsay Steer	5	
28/03/2007	7:47	Range	13	-22.42738	113.77314	Starboard	Kim Onton	5	
28/03/2007	8:14	Range	End T2						
28/03/2007							TOTAL	15	
29/03/2007	7:05	Coast	Start T1						
29/03/2007	7:30	Coast	14	-22.43645	113.75479	Port	Lindsay Steer	4	
29/03/2007	7:32	Coast	15	-22.49456	113.72994	Starboard	Kim Onton	1	
29/03/2007	7:33	Coast	End T1						
29/03/2007	7:34	Range	Start T2						
29/03/2007	7:36	Range	16	-22.46565	113.74174	Port	Lindsay Steer	1	
29/03/2007	7:38	Range	17	-22.44053	113.76683	Port	Lindsay Steer	1	
29/03/2007	7:40	Range	18	-22.42641	113.77574	Port	Lindsay Steer	5	
29/03/2007	7:43	Range	19	-22.37363	113.80105	Starboard	Kim Onton	7	
29/03/2007	7:46	Range	20	-22.32671	113.83581	Port	Lindsay Steer	2	
29/03/2007	8:13	Range	End T2						
29/03/2007							TOTAL	21	
30/03/2007	7:00	Coast	Start T1						
30/03/2007	7:20	Coast	21	-22.11181	113.8944	Starboard	Tony Howard	2	
30/03/2007	7:25	Coast	22	-22.20869	113.86641	Port	Lindsay Steer	2	
30/03/2007	7:37	Coast	23	-22.42833	113.76426	Port	Lindsay Steer	5	
30/03/2007	7:40	Coast	24	-22.48667	113.73398	Port	Lindsay Steer	6	
30/03/2007	7:40	Coast	24	-22.48667	113.73398	Starboard	Kim Onton	7	
30/03/2007	8:18	Coast	End T1						
30/03/2007	8:19	Range	Start T2						
30/03/2007	8:20	Range	25	-22.15121	113.91356	Starboard	Kim Onton	1	
30/03/2007	9:05	Range	End T2						
30/03/2007							TOTAL	23	



Location of goats observed per survey March 28-30 2007.

Appendix 3: Data collected from aerial goat shoot March 3-7, 2007.

DATE	TIME	TIME CATEGORY	LATITUDE	LONGITUDE	WAYPOINT	NO. GOATS
3/03/2007	7:30	Morning	-21.97310	113.95443	368	8
3/03/2007	7:36	Morning	-21.98444	113.95491	369	8
3/03/2007	7:40	Morning	-22.01661	113.94593	370	1
3/03/2007	7:42	Morning	-22.02952	113.93382	371	2
3/03/2007	7:43	Morning	-22.03479	113.93308	372	
3/03/2007	7:45	Morning	-22.05712	113.92605	373	3
3/03/2007	7:48	Morning	-22.08319	113.91286	374	3
3/03/2007	7:51	Morning	-22.09566	113.91003	375	9
3/03/2007	7:55	Morning	-22.14160	113.89002	376	3
3/03/2007	7:59	Morning	-22.18379	113.87348	377	3
3/03/2007	8:01	Morning	-22.20015	113.86872	378	2
3/03/2007	8:06	Morning	-22.27806	113.84328	379	3
3/03/2007	8:08	Morning	-22.29146	113.83707	380	4
3/03/2007	8:11	Morning	-22.30938	113.82774	381	1
3/03/2007	8:12	Morning	-22.32890	113.82348	382	3
3/03/2007	8:14	Morning	-22.33284	113.82349	383	4
3/03/2007	8:16	Morning	-22.33404	113.83035	384	3
3/03/2007	8:22	Morning	-22.33029	113.84370	385	2
3/03/2007	8:27	Morning	-22.36223	113.79970	386	3
3/03/2007	8:28	Morning	-22.36330	113.79397	387	2
3/03/2007	8:33	Morning	-22.37536	113.79540	388	14
3/03/2007	8:37	Morning	-22.36649	113.80227	389	
3/03/2007	8:38	Morning	-22.36516	113.80467	390	4
3/03/2007	8:40	Morning	-22.36457	113.80425	391	1
3/03/2007	8:43	Morning	-22.36388	113.81193	392	3
3/03/2007	8:46	Morning	-22.37852	113.80520	393	4
3/03/2007	8:51	Morning	-22.38720	113.79588	394	7
3/03/2007	9:08	Morning	-22.36140	113.82848	395	9
3/03/2007	9:14	Morning	-22.34110	113.81956	396	6
3/03/2007	10:49	Midday	-22.25209	113.84946	397	11
3/03/2007	10:59	Midday	-22.33130	113.82696	398	1
3/03/2007	11:06	Midday	-22.32404	113.85618	399	1
3/03/2007	11:18	Midday	-22.33983	113.90975	400	8
3/03/2007	11:20	Midday	-22.33481	113.91373	401	2
3/03/2007	11:25	Midday	-22.35288	113.90353	402	1
3/03/2007	11:33	Midday	-22.36467	113.84044	403	2
3/03/2007	11:46	Midday	-22.35414	113.80411	404	2
3/03/2007	12:03	Midday	-22.33839	113.82432	405	1
3/03/2007	12:12	Midday	-22.26341	113.84500	406	7
3/03/2007	12:27	Midday	-22.30332	113.89373	407	4
3/03/2007	12:37	Midday	-22.29261	113.90627	408	7
3/03/2007	13:02	Midday	-22.20597	113.88296	409	3
3/03/2007	13:19	Midday	-22.22150	113.86465	410	5
3/03/2007	13:23	Midday	-22.22530	113.86162	411	1
3/03/2007	13:27	Midday	-22.22717	113.86571	412	3
3/03/2007	13:39	Midday	-22.24443	113.84888	413	3
3/03/2007	17:26	Afternoon	-21.97051	113.96587	414	2
3/03/2007	17:28	Afternoon	-21.94821	113.96525	415	1
3/03/2007	17:46	Afternoon	-21.94913	113.97055	416	8
3/03/2007	17:49	Afternoon	-21.94947	113.96103	417	1
3/03/2007	17:53	Afternoon	-21.96212	113.97233	418	2
3/03/2007	18:29	Afternoon	-22.02712	113.94839	419	5
3/03/2007	18:46	Afternoon	-22.06348	113.91226	420	2

DATE	TIME	TIME CATEGORY	LATITUDE	LONGITUDE	WAYPOINT	NO. GOATS
3/03/2007	19:00	Afternoon	-22.11957	113.89804	421	2
3/03/2007	19:18	Afternoon	-22.17277	113.87029	422	3
3/03/2007	19:21	Afternoon	-22.17702	113.87326	423	2
3/03/2007	19:22	Afternoon	-22.17460	113.87371	424	4
3/03/2007	19:35	Afternoon	-22.14368	113.92685	425	6
3/03/2007	19:40	Afternoon	-22.08526	114.00777	426	4
3/03/2007	19:42	Afternoon	-22.07729	114.00968	427	
4/03/2007	7:24	Morning	-21.97645	114.00449	428	4
4/03/2007	7:35	Morning	-22.00252	113.98537	429	1
4/03/2007	7:45	Morning	-22.00729	113.96463	430	6
4/03/2007	7:54	Morning	-22.03059	113.95461	431	2
4/03/2007	8:02	Morning	-22.04331	113.93894	432	2
4/03/2007	8:04	Morning	-22.04012	113.93863	433	3
4/03/2007	8:19	Morning	-22.17491	113.87826	434	3
4/03/2007	8:23	Morning	-22.20995	113.87455	435	2
4/03/2007	8:29	Morning	-22.24344	113.86521	436	11
4/03/2007	8:44	Morning	-22.32753	113.83083	437	3
4/03/2007	8:45	Morning	-22.32732	113.82496	438	2
4/03/2007	8:48	Morning	-22.33302	113.83276	439	4
4/03/2007	8:53	Morning	-22.32953	113.82257	440	1
4/03/2007	8:59	Morning	-22.33936	113.81238	441	2
4/03/2007	9:14	Morning	-22.36981	113.79784	442	2
4/03/2007	9:20	Morning	-22.35742	113.85082	443	2
4/03/2007	9:23	Morning	-22.34111	113.86217	444	1
4/03/2007	9:29	Morning	-22.25692	113.95306	445	
4/03/2007	10:36	Midday	-22.08550	114.01898	446	4
4/03/2007	10:44	Midday	-22.08367	114.02058	447	13
4/03/2007	11:01	Midday	-22.14636	113.99132	448	2
4/03/2007	11:05	Midday	-22.15779	113.97026	449	13
4/03/2007	11:17	Midday	-22.15755	113.97022	450	
4/03/2007	11:22	Midday	-22.17582	113.98171	451	2
4/03/2007	11:33	Midday	-22.20637	113.88315	452	1
4/03/2007	11:50	Midday	-22.23478	113.89244	453	24
4/03/2007	12:00	Midday	-22.22532	113.91602	454	2
4/03/2007	12:25	Midday	-22.23031	113.94946	455	36
4/03/2007	17:58	Afternoon	-22.08570	114.01904	456	23
4/03/2007	18:09	Afternoon	-21.96188	113.96273	457	3
4/03/2007	18:12	Afternoon	-21.94416	113.96923	458	2
4/03/2007	18:13	Afternoon	-21.94817	113.96813	459	1
4/03/2007	18:32	Afternoon	-22.03356	113.94125	460	3
4/03/2007	18:40	Afternoon	-22.04169	113.94371	461	3
4/03/2007	18:43	Afternoon	-22.03714	113.93883	462	1
4/03/2007	18:47	Afternoon	-22.07507	113.91676	463	2
4/03/2007	19:00	Afternoon	-22.14979	113.88087	464	3
4/03/2007	19:05	Afternoon	-22.15790	113.87988	465	2
4/03/2007	19:12	Afternoon	-22.17804	113.88205	466	2
4/03/2007	19:20	Afternoon	-22.22669	113.85831	467	2
4/03/2007	19:23	Afternoon	-22.23999	113.85221	468	1
4/03/2007	19:31	Afternoon	-22.26876	113.85897	469	4
4/03/2007	19:33	Afternoon	-22.28099	113.85876	470	3
4/03/2007	19:35	Afternoon	-22.28222	113.85316	471	4
4/03/2007	19:37	Afternoon	-22.28775	113.84802	472	2
4/03/2007	19:46	Afternoon	-22.23341	113.92253	473	9
4/03/2007	19:53	Afternoon	-22.08906	113.99595	474	2

DATE	TIME	TIME CATEGORY	LATITUDE	LONGITUDE	WAYPOINT	NO. GOATS
4/03/2007	19:55	Afternoon	-22.07484	114.00033	475	2
4/03/2007	19:57	Afternoon	-22.07086	114.01178	476	2
5/03/2007	7:24	Morning	-22.01344	114.05121	477	2
5/03/2007	7:28	Morning	-22.02070	113.98010	478	1
5/03/2007	7:56	Morning	-22.03025	113.93509	479	1
5/03/2007	8:01	Morning	-22.07596	113.93305	480	2
5/03/2007	8:11	Morning	-22.17034	113.87641	481	1
5/03/2007	8:13	Morning	-22.16989	113.89359	482	2
5/03/2007	8:19	Morning	-22.22771	113.88958	483	3
5/03/2007	8:29	Morning	-22.26012	113.90928	484	1
5/03/2007	8:32	Morning	-22.28000	113.91132	485	2
5/03/2007	8:42	Morning	-22.32247	113.86865	486	3
5/03/2007	8:45	Morning	-22.32619	113.85076	487	9
5/03/2007	8:47	Morning	-22.33038	113.83816	488	1
5/03/2007	8:49	Morning	-22.33197	113.82611	489	2
5/03/2007	8:53	Morning	-22.35014	113.84220	490	11
5/03/2007	9:08	Morning	-22.35576	113.80172	491	4
5/03/2007	9:19	Morning	-22.30563	113.87606	492	4
5/03/2007	10:50	Midday	-22.08706	114.01915	493	10
5/03/2007	11:03	Midday	-22.30068	113.89606	494	2
5/03/2007	11:11	Midday	-22.30174	113.89471	495	3
5/03/2007	11:25	Midday	-22.32863	113.85276	496	2
5/03/2007	11:44	Midday	-22.33772	113.83564	497	1
5/03/2007	12:00	Midday	-22.29948	113.88365	498	2
5/03/2007	12:16	Midday	-22.23057	113.94961	499	5
5/03/2007	12:37	Midday	-22.15751	113.97019	500	1
5/03/2007	18:22	Afternoon	-22.41237	113.76524	501	24
5/03/2007	18:33	Afternoon	-22.20385	113.87973	502	1
5/03/2007	18:57	Afternoon	-22.07823	113.91028	503	3
5/03/2007	19:16	Afternoon	-22.14773	113.97422	504	1
6/03/2007	7:27	Morning	-22.08395	114.02466	505	1
6/03/2007	7:33	Morning	-22.10592	113.99215	506	1
6/03/2007	7:41	Morning	-22.12791	113.99751	507	4
6/03/2007	7:43	Morning	-22.13759	113.98489	508	2
6/03/2007	7:46	Morning	-22.14580	113.98821	509	4
6/03/2007	7:57	Morning	-22.18243	113.93862	510	3
6/03/2007	8:01	Morning	-22.19113	113.93272	511	3
6/03/2007	8:03	Morning	-22.20818	113.93755	512	2
6/03/2007	8:05	Morning	-22.21187	113.94074	513	1
6/03/2007	8:09	Morning	-22.23408	113.92229	514	2
6/03/2007	8:11	Morning	-22.23119	113.89457	515	3
6/03/2007	8:15	Morning	-22.24118	113.89743	516	2
6/03/2007	8:17	Morning	-22.24554	113.90710	517	2
6/03/2007	8:18	Morning	-22.24443	113.90863	518	4
6/03/2007	8:20	Morning	-22.23280	113.90592	519	2
6/03/2007	8:23	Morning	-22.24507	113.90424	520	4
6/03/2007	8:53	Morning	-22.34709	113.84864	521	1
6/03/2007	8:55	Morning	-22.35233	113.86924	522	3
6/03/2007	9:14	Morning	-22.30907	113.87479	523	7
6/03/2007	9:18	Morning	-22.28450	113.84907	524	3
6/03/2007	17:49	Afternoon	-21.93229	114.00939	525	3
6/03/2007	18:24	Afternoon	-21.97517	113.97651	526	3
6/03/2007	19:06	Afternoon	-22.12357	114.00367	527	1
7/03/2007	7:57	Morning	-22.21003	113.86495	528	5
7/03/2007	8:02	Morning	-22.23735	113.86273	529	7
7/03/2007	8:20	Morning	-22.40452	113.78051	530	3
7/03/2007	8:20	Morning	-22.41237	113.76524	501	6

Appendix 4 Opportunistic Goat Shoot Log Sheet

Recorder:

Date	Time	Location		Shot			Escapees			Time Taken
	(hour)	Alpha Code	Coastal Plain (CP) Escarpment (E) Top of Range (R)	Male	Female	Juvenile	Male	Female	Juvenile	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	
				A/E	A/E	A/E	A/E	A/E	A/E	

For location codes, refer to CRNP Feral Control Map 2006

Indicate whether the goat numbers recorded are Actual (A) or Estimates (E)

BIODIVERSITY CONSERVATION INITIATIVE

PROJECT OUTLINE

1. PROJECT TITLE:

Effective management of feral goats in Cape Range National Park

2. GOAL/OBJECTIVE:

This project aims to manage the extent, spread and impact on biodiversity conservation by feral goats on Cape Range National Park through the implementation of an effective and sustainable goat control program. The following objectives will be met to achieve the goal:

1. Establish the abundance and distribution of feral goats along the coastal plain of Cape Range National Park.
2. Determine key accessible feral goat control areas for implementation of an effective future control program.
3. Significantly reduce the abundance of feral goats through direct control.
4. Monitor the impact of goat control measures on key Rock Wallaby populations.
5. Monitor the impact of grazing by goats, using archived satellite imagery to assess vegetation density changes over time.
6. Establish acceptable limits of feral goat abundance.

3. PROJECT DESCRIPTION AND BIODIVERSITY CONSERVATION OUTCOME:

The impact of feral goats through habitat destruction and displacement, competition for food and the spread of weeds is a key threatening process in Cape Range National Park. Reducing their numbers should have a significant biodiversity conservation outcome in enhancing the threatened Black-footed Rock-wallaby. The outcome of the project will also have good neighbour benefits for unallocated crown land adjacent to the park in undertaking a cooperative control program.

The previous intention to fence the southern boundaries of Cape Range NP is no longer feasible. The project has been revised to address the strategic management of the impacts of goats in Cape Range NP through operational planning, monitoring and a range of control measures.

The operational stages will include surveys of goat distribution, watering points, and topography of the areas to direct areas for control operations. A combination of control techniques including mobile muster yards, and targeted aerial and ground shooting operations will be undertaken to reduce existing numbers of feral goats. The utilisation of self mustering yards at watering points has shown to be a feasible control method and is known to greatly increase the effectiveness and efficiency of control operations in large semi- arid and arid areas.

This project will undertake an audit of water points in the Range and will include desktop mapping using GIS, field assessments and ground-truthing, and identification of areas for the periodic placement of mobile mustering yards. The yards will provide options of sale of feral animals, return of stray stock or euthanasia as appropriate. The project will also implement monitoring of effectiveness and efficiency of the control operations in reducing the impact of feral goats on biodiversity values of Cape Range National Park.

Project activities:

1. Aerial and ground surveys for goat abundance and distributions before and after control operations are implemented

2. Mapping of significant natural watering points, lush vegetation areas and remnant bores for planning of strategic control for muster and also for trapping at watering points.
3. Collaborative mustering with adjoining landholders.
4. Aerial and ground shoot of goats will be undertaken.
5. Deployment of mobile mustering trap yards at suitable watering points
6. Vegetation density monitoring from sequences of satellite imagery before and after implementation of goat control.
7. Monitoring of rock wallaby populations before and after goat control programs are implemented.

4. OTHER OUTCOMES

The project will assist in building corporate knowledge and skills in the effective management of feral animals in the rangelands. The monitoring component of the project will fit into other programs on the rangelands and GMS stations and is based on an Adaptive Management approach. This project links to a similar project at Kalbarri, which will assist in the establishment of monitoring system for the rangelands.

5. PROJECT DURATION / DURATION OF FUNDING REQUIRED

Funding in the 06/07 financial year will have a significant impact on goat densities in the Cape Range National Park. Ongoing funding after year one will ensure that they are sustained at low levels, despite immigration from neighbouring pastoral lease.

The project will require 2 years to complete, requires 2 years funding. **YES**

The project will require a commitment beyond 2 years, requires funding beyond year 2. **YES**

Comment:
There will be an ongoing requirement to monitor pest animal numbers and implement control as needed. Control measures will be required until strategies are in place to significantly reduce immigration of goats into the national park from adjacent lands. Some funding for casual staff to offset committed time of permanent DEC District staff will be required in the 2006/07 financial year and likely in 2007/08.

6. PROPOSED COMMENCEMENT AND COMPLETION DATES

Project – commence August 2006, complete June 2008

7. REGION(S)/LOCATIONS OF WORKS

Pilbara Region – Exmouth District:

1. Cape Range National Park
2. Cape Range Unallocated Crown Land

8. CRITICAL PROJECT MILESTONES

Pre-control program aerial survey for goat abundance and distribution	Jan 07
First muster completed	Feb 07
Commence ground shoot	Feb 07
Second mustering	Feb07
Commence aerial shoot (linked to Kalbarrie and Kennedy Range shoots)	Feb 07
Post-control program aerial and ground survey for goat abundance	Apr07
Assessment of watering points for mobile yards	Jul 07

9. BUDGET

Development and implementation of this project will be undertaken by Exmouth District staff with Pilbara Regional staff support. Some contract operational staff may be required to meet routine park operational demands while experienced staff is taken offline to assist. Costs for aerial shooting are based on ~$11,000 a day and will be undertaken over four days.

Budget Summary

	2006/07 BCI	2006/07 Other	2007/08 BCI*	2007/08* Other
Salary		$10,000		
Wages	$ 6,000			
Materials/Consumables	$ 4,000[1] $ 10,000[2]			
Travel and Allowances				
Contracts	$ 46,000[3] $ 5,000[4]	$ 5,000		
SubTotals	$ 71,000			
Totals	**$86,000**			

*The development of an effective goat control program is being finalised and funding requirements for 2007/08 will be provided in February/March 2007

[1] New Firearms and ammunition
[2] Mobile trap yard
[3] Helicopter shoot
[4] Pre- and post-control program aerial survey

8. PROJECT SUPERVISOR (ACCOUNTABLE OFFICER)

Roland Mau – Exmouth District Nature Conservation Coordinator

9. PROJECT DELIVERY

- **DEC contract staff and contractor to carry out control work.**

Number of Staff (FTE/Person Days)
2 x DEC officers (20 days)
1 x DEC Ranger (10 days)
2 x Shooters

Skill Requirements
Shooting Plan/Nature Cons
Mobile trap yard construction
Aerial shooting expertise

Number of Conservation Employees (FTE/Person Days) **Skill Requirements**

- **Contractor**
  (Aspects of project suitable for contract delivery, skill, machine, accreditation requirements etc)

DAFWA to undertake aerial shoot, providing shooters and helicopter pilot

- **Partnership**
  (Partnership opportunities, role of partner/s etc),
- Adjacent pastoralists to muster
- Yardie Creek Homestead – experience and support with muster
- Rangelands NRM group provide some funding support

10. RISKS TO 'ON TIME' AND 'WITHIN BUDGET' PROJECT COMPLETION

(Identify and discuss likelihood of occurrence)

- Unable to obtain agreement from adjoining landholders to muster (medium risk) and shoot (high risk)
- Regional fire incidents reducing operational capacity

11. ANNOUNCEMENT OPPORTUNITIES (Details and dates)

(Key project milestones that can be made public)

- Agreement to muster and shoot obtained from neighbouring landholders — Feb 07
- Shooting program completed. — Feb 07
- Muster completed — Apr 07

12. PARTNER ORGANISATIONS/COMMUNITY GROUPS

(Identify and outline relative contributions)
Adjoining pastoralist
Department of Defence
WA Field and Game Association
Rangelands NRM group

13. APPROVALS REQUIRED

- **Necessary Operations Approval** — **Yes**
- **Native Title (Notification of Public Works)** — **?**
- **Heritage Sites Clearance** — **No**
- **Approval to Take (DRF etc)** — **No**
- **Ethics Committee** — **No**
- **Landholder/Neighbour Agreement** — **Yes**

Comment:
(Discuss any anticipated or possible time constraints or other impediments to approval)
Direction to Close Area under Regulation 44(1) required from Executive Director or his/her delegate (Regional or District Manager).
Authorization from District Manager for marksmen to carry and discharge firearms in Cape Range National Park – required under Regulation 12(1) and 18.
Advance notifications to neighbours, CTO's and general public a strict requirement.

14. ANY ONGOING CALM OBLIGATIONS AFTER PROJECT COMPLETION

Follow-up. Ongoing mustering and shooting of goats, as numbers dictate. Deployment of mobile trap yards around watering points as required.

- **Monitoring.** Fences and trap yards around watering points to be inspected and maintained as required.

- **Partnership Commitments.** Partnerships will be sought with Dept of Defence and adjoining pastoralists. Partnership with NRM grant for mustering component.

15. SIGN-OFF

Proposed by

_____
(officer)

Supported by

_____
(Branch/Regional Manager)

Submitted by

_____
(BCI Manager)

APPROVED/NOT APPROVED

_____
(EXECUTIVE DIRECTOR or DELEGATE)

Department of Environment and Conservation

EXMOUTH DISTRICT

STANDARD OPERATING PROCEDURES

CAPE RANGE GOAT AERIAL SURVEY

NOTE: These methods were developed specifically for the 2006/07 Cape Range feral goat control program as part of the Western Australian Government's 'Biodiversity Conservation Initiative'. The methods however can be applied for other Cape Range goat aerial surveys.

OBJECTIVE:

To record the abundance and distribution of goats in Cape Range National Park.

SCHEDULE:

Minimum of three flights to be conducted at approximately 0700 - 0730 (sunrise) prior to and after goat control operations (early February and late March).

EQUIPMENT:

2 x GPS
Data sheet (Appendix 2)
Pens
Digital camera (large zoom preferable)
Voice recorder (if preferred)

METHODS:

Pre-flight Preparation

- Design a flight path using GIS software such as OziExplorer (Appendix 1). Upload this flight plan onto a GPS that can be used by the aircraft's pilot to follow.

Flight Procedures

- Flight Parameters
  Height – 500ft (max)
  Speed – 100 knots
  Search width – 400m (200m each side of aircraft)
  Time - Aerial survey to commence on transect 1 (Coast transect running North→South) at no more than half an hour after sunrise (aim to arrive at airstrip just before sunrise and aircraft taxi at sunrise) (Appendix 1).

- Two spotters are required – one each at the rear port and starboard sides of the aircraft.

- Transect 1 surveys the coastal strip and travels from north to south. Upon completion of transect 1, commence transect two which surveys the range and travels south to north. Upon completion of the transects, return to the airstrip.

- Spotters are to observe and record the position and number of goats along the transect. Other interesting observations may also be recorded.

  NOTE: Observations can be recorded directly onto the data sheet or via a voice recorder. If using a datasheet significantly distracts from observing, a voice recorder is the preferred method.

- Upon observation of a goat, mark a waypoint and record the following on the data sheet or state clearly if using a voice recorder:
  1. Species observed (common name)
  2. Waypoint ID
  3. Number of animals observed
  4. Observer's initials (to discern whether sighted on the port or starboard transect)
  5. Photo number (if taken)

- Record the start and finish times of each transect.

- Complete a separate data sheet for each transect (Coast and Range) (Appendix 2).

- If a large mob of goats is observed, interrupt the transect and circle the goats. Attempt to count the number of goats and take a photo. Once a photo has been taken, recommence the transect from where it was interrupted.

Post-flight Data Storage

- Upon return from the flight, download all waypoints from the GPS using OziExplorer. Rename waypoints as desired (select waypoint list) and include any relevant description (eg date, time and number of goats observed). Save the waypoints to file.

- In Microsoft Excel, open the waypoint file (select Data-Tools-Import External Data-Delimited-Commas-Finish). Use the date, time, and position data along with information on the data sheet and enter all corresponding data into an excel database (e.g. T:\422-Operations (District)\Shared Data\11 NATURE CONS\1101 Vermin\110102 FAC Goats\2006-07\BCI Project\Aerial Surveys\ Goat aerial survey data Feb07.xls.

- On a separate excel document, copy the waypoint ID, Latitude, Longitude and Description (if desired) columns. Include the relevant headings. Ensure the latitude and longitude have five decimal places. Delete all other worksheets and save as a dbaseIV file (.dbf).

- In ArcView, open a relevant map showing the survey area. Add the .dbf file as a table, then in the View window, add it as the Event theme. This will show the positions of the waypoints on the map. Save the project.

➢ If a more detailed position of the goats is required, an inclinometer can be used to create vertical zones. See the aerial survey methods for monitoring whale sharks for further information. (T:\422-Operations (District)\Shared Data\11 NATURE CONS\1114 Whale Shark Research and Monitoring\2006\Aerial surveys\Hodgson&MarshWHALE SHARK AERIAL SURVEYS_draft1Apr06.doc). Note that the zone angles may be different for different flight heights.

  The following equipment will be required if this method is used:
  - Inclinometer
  - Plastic sheet
  - Permanent marker

Appendix 1: Cape Range Goat Aerial Survey transect design and location 2006/07.

Appendix 2: Cape Range goat aerial survey data sheets.

Cape Range Goat Aerial Survey

TRANSECT 1: Coast (North→ South)

Date:_____ Time Start: _____ Time End: _____

Observers Port: _____ Starboard: _____

Wapoint ID	Species observed	Number	Observer	Zone	Photo number

General comments: (Shadow, vegetation density, etc)

Cape Range Goat Aerial Survey

TRANSECT 2: Range (South→ North)

Date:_____ Time Start: _____ Time End: _____

Observers Port: _____ Starboard: _____

Wapoint ID	Species observed	Number	Observer	Zone	Photo number

General comments: (Shadow, vegetation density, etc)

This report may be cited as:
Onton, K. (2007) *Standard Operating Procedures: Cape Range Aerial Goat Survey.* Department of Environment and Conservation, Exmouth.

Department of Environment and Conservation

Biodiversity Conservation Initiative

AERIAL SHOOTING PLAN

FERAL GOAT CONTROL PROGRAM

CAPE RANGE NATIONAL PARK 27288↑

EXMOUTH DISTRICT

2nd to 6th March 2007

Program Coordinator	Roland Mau Nature Conservation Coordinator Ph: 9947 8000 Mob: 0427 171121
Project Coordinator	Kim Onton Nature Conservation Officer Ph: 9947 8000
District PVS leader	Jeanette Kirby Mob: 0428112783
Shoot Planners & Coordinators	Stephen Owen Ph: 9947 8007 Andrew Griffiths Ph: 9949 2528
DAFWA & Shoot Detail Coordinator	Andrew Longbottom Ph: 9144 2065
Target Species	Feral Goats *Capra hircus*
Secondary Target Species	Fox *Vulpes vulpes* Camel *Camelus dromedarius*

Approved by:

Exmouth District Manager:..... **Date:**.....

Pilbara Regional Manager: ..... **Date:** .....

Table of Contents

1.0 Program summary

The program is primarily orientated in assisting with the control of feral goats within Cape Range National Park (CRNP) by reducing the population. The need to control feral goats has been recognised in the Draft CRNP Management Plan (MP) of 2005.

CRNP is dominated by broken limestone country and is heavily dissected by deep gorges with numerous caves and rocky overhangs, and fringed by coastal plains. The Park is dominated by open Spinifex shrub lands. There are 13 campgrounds, an eco-lodge and numerous day visit sites situated along the parks coastline. An access road over the range, Shothole Canyon and Charles Knife road on the west side combined with several walk trails allows visitor access into the range.

Over the past several years the West Australian Field & Game Association (WAFGA), under the direction of the Department of Environment and Conservation (DEC), has carried out annual feral goat control programs. This is in accordance with recommendations under section 20 of the CRNP MP (page 55)

Since 1999 control programs have resulted in over 3500 goats being destroyed with operations concentrated within the southern section of the park. Mustering operations in 2001 also complimented these results with a further 700 animals being removed from the upper reaches of Yardie Creek. Mustering operations on accessible portions of the park are also programmed to for early 2007, commencing with the parks northern neighbour, Yardie Homestead Caravan Park, where 250-350 animals utilise the available water on a daily basis.

Most animals are present in small herds of 4-20 animals and can be seen grazing throughout the park. They're attracted to the coastal plain through out the year but particularly in the summer months and extended dry spells. The animals are generally shy, will move off if approached, disperse widely and hide readily. This behaviour, combined with management difficulty in traversing the steep and rough terrain has limited the effectiveness of ground shooting and mustering as the only means of goat control.

Aerial goat shooting, with professional marksmen operating from a helicopter and assisted by fixed wing spotter aircraft, is considered the only effective means to compliment the control work to date, in reducing goat numbers and their environmental impact within Cape Range National Park.

Particular attention will be focussed on the Yardie Creek area to compliment the on ground shoot program recently completed and strengthen the established buffer along the south eastern and southern boundaries. A significant reduction in goat numbers is expected to be achieved in the north in conjunction with programmed mustering operations.

The shoot detail will be completed by two experienced DAFWA qualified aerial shooters and coordinated by DAFWA Andrew Longbottom, complying with the parameters detailed in this plan.

The Department of Environment and Conservation reserves the right to terminate the operation at any time.

Only authorised personnel, licensed firearms, aircraft and vehicles are to be used for the operation for the safe and humane shooting of target animals.

Shooting is only permitted to occur in accordance with this plan and the relevant legislation.

The continuation of the program in successive years is not guaranteed.

2.0 PRE SHOOT

2.1 Justification of program

- To significantly minimise the damage to the park's conservation values caused by feral goats providing an additional strategy in the effective management of protected areas for the conservation of biodiversity.
- To protect unique habitats and communities including karst systems, rare and threatened flora and fauna species and contribute to the overall maintenance of species populations.
- To compliment control programs that have occurred in previous years.
- To obtain data on the feral goat population in CRNP.

2.2 Category

This plan outlines a Category 3 Operation – Major Aerial Shoot Feral Control Program

The Regional Manager's Approval is required.

2.3 Risk assessment / safe work procedure

2.3.1 Conduct of Shoot

All regulations and conditions of the Firearms Act are to be observed. Nothing in this program reduces those powers conferred by the Firearms Act and other relevant legislation. It is the requirement of the firearm user to make themselves aware and understand any such Acts.

Authorised firearms are only to be used on those animals listed as target species. Target species must be humanely killed whenever practical. All injured animals to be humanely destroyed as soon as possible.

All persons engaged in shooting operations are to be authorised.

Only those persons who are authorised can carry and discharge firearms within the operational area.

All shooting will be synchronized by the Shoot Planners/Coordinators. No shooting will take place until the all clear is given.

An "all clear to shoot" can only be given after the Shoot Planners/Coordinators have contacted all posted lookouts and they have all signalled an all clear for their area.

All posted lookouts and gatekeepers shall remain at station until stood down by the shoot planners/Coordinators.

The shooters must ensure they are aware of the Danger and No Shoot zones.

Shooters can only take a shot if the target is positively identified and within range.

The Park has been broken down into operation shoot zones. These are the red No shoot Zone - coastal side of main Yardie Exmouth road; yellow Coastal Zone - 4km inland from the main Yardie

– Exmouth road; green Remote Zone – upper range areas; blue Shothole Zone - radiating out 4km from day use sites.

Shoot directions for all these zones are indicated by arrows on the shoot plan map.

Any litter, including spent shells and cartridges shall be removed from the Park.

A comprehensive briefing session is to take place on the morning and through out the day prior to each shoot. Flight paths, shoot strategies and potential risks to be confirmed between the Shooting Planner, Shoot Detail Coordinator and pilots.

Approved operational shooting times are between 0730hrs & 1800 hrs. Alternative arrangements will only be possible following written confirmation from the program coordinator.

2.3.2 Landing Zones and Aircraft Fuel

Both helicopter and fixed wing aircraft are to operate and refuel out of the Exmouth Light Aircraft strip.

Suitable helicopter landing zones are to be selected and secured by the Senior Ranger (North); in accordance with pilot's specification. (See map, attachment 1)

3000 litres of fuel is to be bulk stored at Exmouth Light Aircraft strip.

Refuelling is the pilot's responsibility.

2.3.3 Access to operational area

No vehicular access into the operational area will be permitted. This will be achieved with the closure of all access roads into the range. Park management vehicles can enter operational areas only on request and with approval from the shoot detail coordinator. Yardie Creek, Mandu Mandu, Badjirrajirra and Pilgonamon walk trails will be closed for the length of time the operation is in the vicinity of these areas. Pre-shoot inspections of these sites will be checked for visitors with ranger staff present at access points to maintain closure.

2.3.4 Vehicle/Aircraft Hygiene

All vehicles and aircraft associated with the operations will be free of soil and vegetative material prior to entering the park. Vehicle access is to be under "dry soil" conditions only. In the event of significant rainfall (> 5mm) in the area, the Program Coordinator in Exmouth is to be contacted to provide a determination as to if "dry soil" status still exists. All participants are required to have an understanding of vehicle aircraft hygiene. The vehicle aircraft operators are responsible for ensuring that all vehicles and aircraft involved conform to the hygiene conditions.

2.3.5 Firearm, Shooters, Aircraft & Pilot Details

DAFWA will be providing qualified and registered shooters operating under DAFWA's corporate firearms licences 9996016 (DAWA) 9990252 (APB).

DEC has sourced registered qualified pilots and aircraft through approved tender procedures for the provision of Helicopter, reference number RFT23003.

A SLR L1A1 7.62 (308) calibre firearm is to be used with a Winchester .308 calibre, 130 grain, hollow point spear projectile.

2.4 Map and danger zones

Refer to the attached map for shooting program area and shooting directions.

2.5 Notification

Notification of the shoot team's operational intentions is to be outlined at each briefing session and agreed to by the shoot planners/coordinators prior to operation commencement. The notification shall outline the team's details, operational area, expected commencement and conclusion of operational segment .

In the event that the shoot planners/coordinators are unavailable then the contact person will be Kim Onton at the CALM Exmouth Office (9947 8000) fax (08) 9947 8050

The Exmouth Police are to be notified at the commencement of the program by the shoot planner/coordinator.

Neighbouring property owners are to be notified in writing by the Project Coordinator prior to the commencement of the program.

Project Coordinator is responsible for a public notice advertisement to be published in local newspapers and noticeboards, prior to the commencement of the program, informing the public of the aerial shooting operation and temporary sectional closure of the park.

The following persons / organisations are to be notified in writing as to the operation of the program

Officer in Charge	**Exmouth Police**
Ann Preest	**North-West Cape Aboriginal Cooperation**
John & Linda Lefroy	**Exmouth Gulf Station**
Billie & Jane Lefroy	**Ningaloo Station**
James Roschic	**Yardie Homestead Caravan Park**
Phil Anastasakis	**CEO Exmouth Shire**
Richard Karniewicz	**Defence Land Ranger**
All Commercial Tour Operators	**Via Gerard Ots, CALM Information**

Paul Wittwer	**Ningaloo Reef Retreat**

Notification Cont.

Dave Mongan	**Ningaloo Safari Tours**
William Crisp	**Little Bit Long Way Safaris**
Manger	**Exmouth Tourist Center**
	Exmouth town notice board
	Cape Conservation Group

Refer to notification check list for contact details

2.6 Access Closure

Access closure for the duration of the shoot of the following roads and trails are to be checked and be signposted daily

- Sandy Bay track over the range both ends
- Pilgonaman Gorge track
- Extended Yardie Creek Walk Trail
- Badjirrajirra Walk Trail from Shot Hole End

Periodic closure to walk trails and roads whilst the shooting operation is being conducted in the vicinity will apply to the following.

- Yardie Creek Walk Trail
- Mandu Mandu Walk Trail
- Badjirrajirra Walk Trail
- Shot Hole Canyon Access Road (Park Boundary)
- Charles Knife Road (Park Boundary)
- Neds Bore

Pre-shoot inspections for visitors at these sites will be undertaken with ranger staff present at access points to maintain closure.

Authority to close these areas of the park have been approved under Direction to Close Areas, Regulation 44(1) (appendix 9)

2.7 Signage

Prior to the commencement of the daily operation, the shoot planners/coordinators are responsible for ensuring that all areas of public access to the operation area are clearly signposted using the CALM provided "No Entry" and "Shooting in Progress" signs and that the red and white "hazard" tape is positioned across the track adjacent to the sign. Signs and tape are to be positioned as outlined above and detailed in the map provided (appendix 1.0)

The shoot planners/Coordinators are also responsible for ensuring that there are no members of the public within the operation area prior to the erection of the signs. This can be facilitated through the placement of signs on the previous day or as early as possible on the day of the operation. During the placement of signs on the tracks observations can be made as to the presence of recent vehicle tracks, if such are present the tracks should be followed to establish:

a) If the vehicle has left the area
b) Contact with the person(s) if they are still within the area

The signage shall be visible to motor vehicle traffic attempting to enter the area and shall be worded to the effect that an authorised shooting operation is in progress and that public access is prohibited.

Following the conclusion of the operation, the shoot planners/coordinators are responsible for the removal of all signs erected.

2.8 Legislation

Firearms Act 1973, the Animal Welfare Act 2002, Wildlife Conservation Act 1950, and CALM Act 1984, Occupational Health and Safety Act, are relevant to this operation. Compliance with this legislation and any other is a condition to taking part in this operation.

2.9 Ethics

Participants will at all times behave in an ethical and morally appropriate behaviour. Participants are to adhere to this and other relevant guidelines for vermin control.

2.10 Zoonoses

Handling of carcasses will not be required.

2.11 First Aid

Hunting groups are required to comply with the following:

- Each team member to carry basic individual first aid kit (snake bite, field dressing etc)
- Each team to have access to a comprehensive first aid kit,
- Minimum of one team member to be trained in first aid (prefer senior first aid certificate)
- Each team to carry list of emergency contact numbers

2.12 Safety and PPE

Individual shooters are to carry and use suitable ear, and eye protection. It is recommended for shooters to have appropriate sun, vegetation and terrain protection. The following procedures are to be complied with:

- No DEC staff shall handle or fire any firearm unless they hold approved Corporate Firearms Licence.
- Firearms to be stored in Exmouth District Office gun cabinet or Exmouth Police station.
- Ammunition to be stored in a Exmouth District gun cabinet.
- Department of Agriculture and pilots shall not be given cabinet keys and or safe codes.
- Radios and Sat phones
- High visibility vest to be worn during shoots
- First aid kits available
- Department of Agriculture and pilots to provide their own PPE.
- Constant radio communication between all staff and shooters and pilots

2.13 Communications

Phone Contact

	Work	Home	Mob
DEC Exmouth Office	9947 8000		
Exmouth Police	99492444		
Exmouth Hospital	99491011		
Steve Owen	9947 8007	9949 2801	0428 659178
Andrew Griffiths	9949 2528	9949 2428	
Roland Mau	9947 8003		0427 171 121
Kim Onton	9947 8005		
Jeanette Kirby	9947 8002	9949 4445	0428 112 783

Please note mobile phone coverage is poor throughout the operation area.

Radio Contact

DEC VHF network frequency channel 11 & 17 south of Yardie Creek
Nearest phone and radio contact to the shoot area is available at Milyering visitor centre within CRNP.

	Call Signs
DEC Exmouth Office	Exmouth Base
Milyering Visitor Centre	Milyering Centre
Steve Owen	Coral Coast 1
Andrew Griffiths	Coral Coast 2 / Coral 2 Base (home)
Roland Mau	Exmouth 2
Kim Onton	Exmouth 7
Jeanette Kirby	Exmouth 3

2.14 Emergency procedure

In the event an accident occurs the following procedure is to be adopted

- Immediate assessment and field treatment of the injured
- If safe to do so, the injured person is to be transported to appropriate medical attention
- If it is not possible to transport injured person then the qualified first aid person(s) and other persons as required are to remain with the injured person while remaining members are sent to seek medical help.
- Shoot planners/coordinators to be contacted ASAP
- DEC, Exmouth District Manager 9947 8000 is to be notified as soon as practical.

(For emergency contact details see attachment 8)

3.0 Post Shoot

Following the shoot the Shoot Planners/Coordinators is to hold a debrief session with the participants.

3.1 Carcass Disposal

All carcasses are to be left on site.

3.2 Record Keeping

Through out the operation the following information needs to be collected and maintained

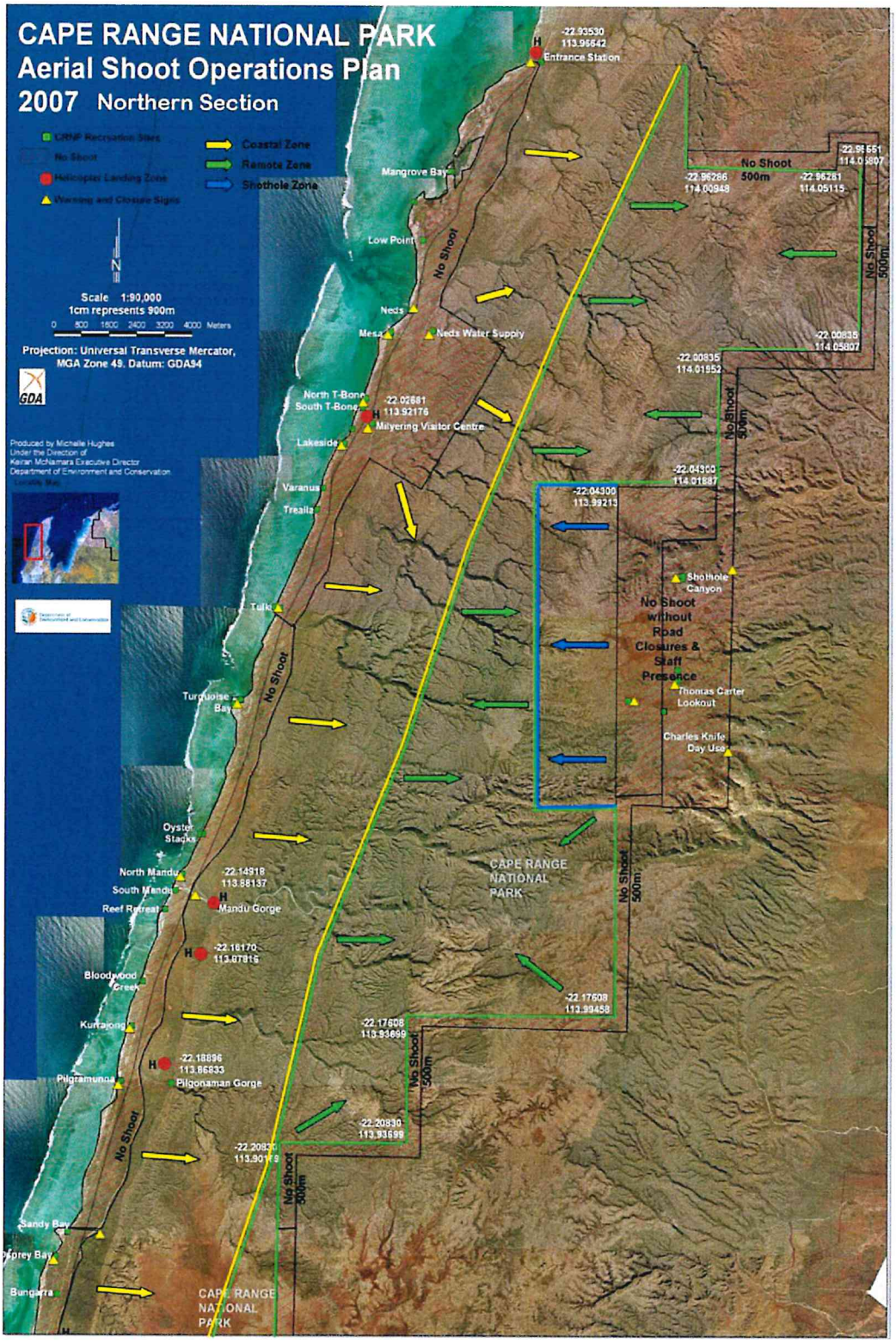
- Number and type of goats shot and the general location.
- Location and number of other goats seen but not shot.
- Time spent and area covered.
- Any secondary target species destroyed or seen.
- Any raised concerns and or issues

On completion of the program a report is to be prepared by DAFWA incorporating this information a copy of which is to be forwarded to the Project Coordinator.

3.3 Firearms Log Books

If DEC fire arms are used in the operation by DEC staff log books are to be completed

Appendix 1.0 ***Map detailing operation area***



Appendix 1.0 *cont.* ***Map detailing operation area***

Appendix 4.0 ***Track closure sign***

Appendix 5.0 ***Letter to stakeholders***

Stephen Owen, Senior Ranger
Cape Range National Park
Ph: 9937 1140
Fax: 9937 1437
stephen.owen@dec.wa.gov.au

Department of
Environment and Conservation

Name

Address

Cape Range National Park – Feral Goat Control Program

Please be advised that the Department of Environment and Conservation is planning to carry out an aerial goat control program in Cape Range National Park from **2st to 6th March 2007** inclusive. The objective of the operation is to reduce goat numbers within the National Park and minimize the impact on flora and fauna species and other environmental degradation.

The operation will be undertaken by professional shooters operating from a privately chartered helicopter, with the support of a fixed wing spotter aircraft. All personnel involved with the operation are registered under an approved program, which dictates the strict conditions under which the activity will occur.

Shooting operations will be confined to within the National Park. The coastal recreation zone west of the main Exmouth-Yardie Creek road will be excluded from the program. A 500m exclusion zone will apply along the parks external boundaries adjoining neighboring properties.

Partial park closures for short periods will be required during the shooting operations. These include Mandu Mandu, Yardie Creek, upper Shot Hole Canyon, Charles Knife/Badjirrajirra walk trails and the Sandy Bay access track over the range. All access roads and walking tracks into the control areas will be signposted during the operations and National Park Rangers present as required.

For your safety, do not enter these areas while operations are in progress.

Exmouth Police and relevant community groups have also been advised of the intended program. For further information regarding the program, please contact Kim Onton or Steve Owen, DEC Exmouth Office on 9947 8000.

Yours Sincerely

Jennie Cary

Exmouth District Manager
Department of Environment and Conservation

Appendix 6.0 ***List of adjoining private property owners and other parties notified***

Cape Range National Park
Aerial Shoot Goat Control Program 2007

Notification List

Officer in Charge
Exmouth Police
Maidstone Crescent
PO Box 408
Exmouth WA 6707

John & Linda Lefroy
Exmouth Gulf Station
PO Box 241
Exmouth WA 6707

Billie & Jane Lefroy
Ningaloo Station
c/o Post Office
Carnarvon WA 6701

Phil Anastasakis
CEO Exmouth Shire
PO Box 21
Exmouth WA 6707

Richard Karniewicz
Defence Land Ranger
PO Box 125
Exmouth WA 6707

All Commercial Tour Operators
Via Gerard Ots, DEC Information Officer
Ph. 9474 7033
gerardo@calm.wa.gov.au
(An email will be broadcast to all tour operators registered on the CALM system)

Exmouth WA 6707
Paul Wittwer
Ningloo Reef Retreat
PO Box 471
Ph. 9949 1776
reefretreat@nwc.net.au
(Phone contact sufficient)

Dave Mongan
Ningaloo Safari Tours
PO Box 203
Exmouth WA 6707
Ph. 9949 1550
ningaloosafari@nwc.net.au
(Phone contact sufficient)

Yardie Homestead Caravan Park
Po Box 504
Exmouth WA 6707
Ph. 9949 1389

Exmouth town notice board
Exmouth Shopping mall
Exmouth 6707
Mr Bill Crisp

Little Bit Long Way Safaris
22 Carpenter Street
Exmouth 6707
Ph 99494732
Mob 0416 08159

Manager
Exmouth Tourist Center

Coordinator
Cape Conservation Group
Via
fam.mau@bigpond.net.au

Ann Preest
North-West Cape Aboriginal Cooperation
Ph. 0418927104
Via
preestann@westnet.com.au

Appendix 7.0 **Copy of public notice.**

GOAT CONTROL PROGRAM

The Department of Environment and Conservation (DEC) plans to conduct aerial shooting of feral goats within **Cape Range National Park** as part of it's control program.

Feral goats are a serious threat to the unique flora and fauna communities of Cape Range National Park, and as such reduction of their numbers is critical to the conservation of biodiversity in this area.

The control program will commence **2st March 2007** and conclude **6th March 2007** (inclusive).

As a consequence and in the interests of public safety, sections of Cape Range National Park will be temporarily closed for short periods. All access roads and walking tracks into the control areas will be signposted during the operations.

For your safety

DO NOT ENTER THE CONTROL AREAS

Further information can be obtained from:

Department of Environment and Conservation
Nimitz Street Exmouth
Ph 9947 8000

Department of Environment and Conservation

Appendix 8.0 **Emergency Medical Contact numbers**

EMERGENCY CONTACT NUMBERS

Phone Contact

	Work	Home	Mob
DEC Exmouth Office	9947 8000		
Exmouth police	99492444		
Exmouth hospital	99491011		
Steve Owen	9947 8007	9949 2801	0428 659178
Andrew Griffiths	9949 2528	9949 2428	
Roland Mau	9947 8003	9949 1226	0427 171 121
Kim Onton	9947 8005		
Jeanette Kirby	9947 8002	9949 4445	0428 112 783

Please note mobile phone coverage is not reliable throughout the operation area.

Radio Contact

DEC VHF network frequency channel 11 & 17 south of Yardie Creek
Nearest phone and radio contact to the shoot area is available at Milyering visitor centre within CRNP.

	Call Signs
DEC Exmouth Office	Exmouth Base
Milyering Visitor Centre	Milyering Centre
Steve Owen	Coral Coast 1
Andrew Griffiths	Coral Coast 2
Roland Mau	Exmouth 2
Kim Onton	Exmouth 7
Jeanette Kirby	Exmouth 3

Appendix 9.0 **Delegation and Direction to Close Areas**

DEPARTMENT OF
Conservation
AND LAND MANAGEMENT
Conserving the nature of WA

REGIONAL SERVICES DIVISION

Cnr Hackett & Australia II Drives
CRAWLEY WA 6009
☎ 9442 0328 Fax 9386 6399
Email: kerryc@calm.wa.gov.au

To: Regional Managers
Manager Fire Management Services
State Duty Officers (Fire)

Subject: DELEGATION AND DIRECTION TO CLOSE AREAS

Purpose

The attached 'delegation and direction to close areas' papers provide for:

- the Executive Director's delegation to Regional Managers, District Managers, the Director of Regional Services and State Duty Officers (Fire), the power to close designated CALM- managed lands; and
- formal and written confirmation of the reason(s) and timing for closure of defined CALM-managed lands by named and authorised CALM officers.

Conditions of use

Section 133 (2) of the *Conservation and Land Management Act 1984* (CALM Act) and Regulation 44(1) of the *Conservation and Land Management Regulations 2002* provides for the 'delegation and direction to close areas'. In particular:

1. Named and authorised officers include a wildlife officer, forest officer, ranger and conservation and land management officer appointed under the CALM Act.
2. CALM land means land, or land and waters to which the CALM Act apply, and includes caves and parts of caves on or under that land.
3. A Direction to Close Areas schedule (attached) must be completed for each and every area closure of CALM-managed lands. Where written confirmation is not possible, verbal approval may be provided by the 'delegated officer' providing the schedule is completed as soon as is reasonably practicable.

4. The 'delegated officer' may vary or cancel the formal closure of an area as soon as is reasonably practicable after being satisfied that circumstances that gave rise to the direction no longer exist.

5. While a direction is in force the 'authorised officer' is to consider the need for information signs, appropriate demarcation and advice to stakeholders including commercial organisations, so as to provide proper and timely notice to neighbours, travellers, visitors and tourists.

6. The Director of Regional Services is a 'delegated officer' only on the basis that both the Regional Manager and District Manager in charge of the designated area are not available to authorise the direction to close CALM-managed lands.

7. State Duty Officers (Fire) are 'delegated officers' only in the event of a fire emergency and on the basis that the Regional Manager and District Manager in charge of the designated area are not available to authorise the direction to close CALM-managed lands.

Alan Walker
DIRECTOR REGIONAL SERVICES

16 December 2005
att

cc Director Parks and Visitor Services

Appendix 9.0 cont. **Delegation and Direction to Close Areas**

CONSERVATION AND LAND MANAGEMENT REGULATIONS 2002

DIRECTION TO CLOSE AREAS
REGULATION 44(1)

1.

2. Subject to clauses 2, 3 and 4, I ...**Jennie Cary**..., the /District Manager/Director Regional Services/State Duty Officer – Fire (strike out whichever does not apply) of the .....**Exmouth**..... Region/District of the Department of Conservation and Land Management, being satisfied that it is necessary for the protection, management and control of the CALM land described in Schedule 1, direct under regulation 44(1) of the *Conservation and Land Management Regulations 2002* (the regulations), the authorised officers named in Schedule 2, to close so much of the land described in Schedule 1 as appears to those officers to be requisite for the purpose of:

Feral animal control program utilizing aerial shooting operations throughout Cape Range National Park. The areas to be closed are to ensure the safety of park visitors.

3. A closure of CALM land under this direction shall be made in accordance with operational programs of the Department, in particular:

Aerial Shooting Plan, Exmouth District, Feral Animal Control Program, Cape Range National Park 2nd to 6th March 2007.

Access closure for the duration of the shoot of the following roads and trails are to be checked and be signposted daily

- **Sandy Bay track over the range both ends**
- **Pilgonaman Gorge track**
- **Extended Yardie Creek Walk Trail**
- **Badjirrajirra Walk Trail from Shot Hole End**

Periodic closure to walk trails and roads whilst the shooting operation is being conducted in the vicinity will apply to the following.

- **Yardie Creek Walk Trail**
- **Mandu Mandu Walk Trail**
- **Badjirrajirra Walk Trail**
- **Shot Hole Canyon Access Road (Park Boundary)**
- **Charles Knife Road (Park Boundary)**
- **Neds Bore**

Pre-shoot inspections for visitors at these sites will be undertaken with ranger staff present at access points to maintain closure.

3. Until this direction is varied or revoked, **'CALM land'** described in Schedule 1 may be closed during the period:

2nd March to 6th March 2007.....

4. In this direction the terms **'authorised officer'** and **'CALM land'** have the respective meanings given to those terms by regulation 2 of the regulations.

Appendix 9.0 cont. **Delegation and Direction to Close Areas**

Schedule 1 – Description of CALM land **[cl. 2 and 3]**

CALM land comprising:

CAPE RANGE NATIONAL PARK 27288

Schedule 2 – Authorised officers named [cl. 1]

Stephen Owen,

Senior Ranger

Cape Range National Park/Ningaloo Marine Park

Andrew Griffiths

Grade 2 Level 5 Ranger

Cape Range National Park

Signed: .....

Name: **Jennie Cary**

Position: **Exmouth District Manager**...

DELEGATE OF THE EXECUTIVE DIRECTOR

Date: **9 /2 /07**