EXERCISE BOOBY IV
ASCENSION ISLAND, 12 - 28 APR 1994

by
Maj B.J.Hughes, SSgt R.G.Thompson, J.G.Walmsley and Maj M.J. Varley

INTRODUCTION - Maj B.J.Hughes

Ascension Island is situated approximately eight degrees south of the equator in the middle of the Atlantic Ocean. The Army Ornithological Society's (AOS) expedition Exercise Booby IV visited the island in April 1994.

The aims were to continue the monitoring programme of the breeding seabirds and land-birds on Ascension Island. Particular attention was given to the Sooty Tern breeding population which formally had up to one million birds, but had declined to 350,000 in 1990. Subsequent breeding attempts have been catastrophic and the number of breeding birds is below 100,000. Predation by feral cats on Sooty Terns was monitored and a land bird survey carried out.

The expedition arrived on Ascension at the same time as the Sooty Terns were settling in to breed. By the end of our stay on the island, an estimated 26,000 breeding pairs were established, with more birds still arriving.

The four previous expeditions to Ascension have collected important data on Sooty Tern breeding sites, "Night-club" activities and cat predation through corpse collections. This procedure was repeated. In addition, tern corpses were examined (biometrical data, age and sex of birds) and the percentage loss in bodyweight of each corpse eaten was recorded.

It is possible to divide the seabird habitats of Ascension Island into four sections. The Sooty Tern breeding sites are the first of these; the others are Boatswain Bird Island (BBI), a small but spectacular guano-covered islet; fourteen small inshore stacks: and finally the main island itself.

The population of seabirds on BBI over the last 10 years has remained fairly stable and gives no concern. It was visited by the last expedition in 1992. The island is free from predation by cats and rats: but breeding space is at a premium and there is little opportunity for overall population growth.

The two inshore stacks close to Georgetown have been studied in detail while the remainder have not been censured. All the stacks are important roosting and nesting sites and contain some 2500 seabirds. The expedition carried out counts on all 13. A separate section of the report records our findings. Since our last visit these stacks have been designated as sites of Special Scientific Interest (SSSI).

Each expedition to Ascension carried out sea-watches from the Klinka Club on the north side of the island. During these sea-watches records were made of the numbers of indigenous seabirds that passed the site. Some 30 hours of sea-watch data has been recorded and compiled into a table. In addition three day-long sea-watches were carried out from sites on the north, west and south coast. Details are published in this report.

The introduced species of land-bids which occupy the main island are thriving These five species are the only birds to occupy the interior of the island besides some White Terns. The most comprehensive survey to date of these land-birds is a major section of our report. We start our report with a brief narrative description of our modus operandi followed by the more technical sections.

MODUS OPERANDI - SSgt R.G.Thompson

On 11 April 1994 the expedition assembled at Brize Norton. The group comprised 11 AOS members and one member of RAFOS:

Maj John Hughes	Expedition Leader
Maj Roger Dickey	2 i/c
Maj Mike Hann	Trekking & Observation Team Coordinator
Maj Mark Varley	Party Leader
WO1 Tony Crowe	Turtles & Dolphins
WO2 Dave Morrison	Treasurer
SSgt Gez Thompson	Expedition Diary/recorder
Sgt Andy Pickard	Sea-watch Coordinator (RAFOS Member)
Sgt Tony Duroe	Trekking & Survival Instructor
Cpl Bob Hayward	Transport Coordinator
LCpl 'H' Harris	Photographer
Mr John Walmsley	Scientific Advisor

We departed Brize Norton in a RAF Tri-Star and touched down on Ascension Island at 0720hrs on the 12th. The temperature on arrival was a balmy 26 C. After collecting the minibus , we drove to the much improved accommodation at English Bay. Having settled in, we were briefed by the Leader and the aims of the exercise were outlined. Six teams of two were formed and responsibilities allocated:

Morrison& Thompson	Stacks Surveying
Hayward and Pickard	Sea-watch Collation
Crowe and Hann	Turtles and Dolphins
Varley and Dickey	Land-birds Survey & Vagrants
Duroe and Harris	Butterflies/Photography
Hughes and Walmsley	Surveying Sooty Tern Fairs

As well as these specific tasks; everyone would take part in most other activities. Incidentally, if nothing else, the team could be said to be experienced with combined ages of 496 years (average = 41l) and a total of 249 years combined service.

The pattern for the rest of the expedition was that each team had two turns as 'Duty Crew'. This involved cooking breakfast for the rest of the party who were engaged on various tasks early in the mornings - then one man doing the 'Block jobs' while the other drove the other members where they wanted to go throughout the day.

The duty crew also collected the daily rations and prepared the evening meal. Lunch, if any, was a self-help affair. The general consensus amongst members was that the driving was the more arduous task!

The foray into the 'field' was to Mars Bay to see if the Sooty Terns had returned to the island to breed. It was discovered that they were in their 'night clubbing' stage and

44 pathetic corpses were collected -a result of the feral cats welcoming the terns back. At English Bay a sea-watch was conducted in the evening to introduce some of the party to some of the birds they had not yet seen. By the end of the day, an estimated total of 50 dolphins (in several groups) had been seen going east; 16 donkeys had been counted; at least two Green Turtles had been seen inshore and nine species of birds had been seen.

The following day, whilst the dawn sea-watch was going on, Mike Hann went to the beach at English Bay and later reported seeing a Green Turtle laying eggs in daylight. After breakfast we split into two groups; four went to Mars Bay and six to the Waterside Fairs. To our great relief we found an estimated 500 Sooty Terns on the ground (and in the air above) along a ridge in Little John Fair. No eggs were found and from this and the number of tern corpses collected (122), it was deduced that the terns were at an early stage of their breeding Cycle.

Crabs were also seen feeding at tern corpses and Mynas were present in the area. After lunch, a party of five walked to Stacks 6,7 & 8 and found them occupied by Brown Boobies and Brown Noddies. One Brown Noddy

was seen to be struggling to get up off the surface of the sea close to one of the stacks. On closer inspection it appeared to be firmly held from below by the legs and a dark shadow was seen beneath the bird. We assumed the bird was caught in a piece of fishing net or seaweed but further observation revealed the dark shadow to be several Black Fish. We watched for about 20 minutes as the bird continued to struggle in vain. Many times the bird appeared to 'flinch' and look around to try and defend itself. We concluded that the Black Fish were eating the bird's feet and legs.

At 2145hrs a party went to English Bay beach to look for Green Turtles coming ashore to lay eggs. A total of eight was counted during the night. On the morning of the 14th, Mark Varley and Tony Crowe reported rescuing a hatchling turtle which they found on the beach at English Bay -turned turtle! Turtle eggs were also discovered on the surface of the sand with evidence to suggest they had been unearthed by turtles digging their nest holes on a site previously used by other turtles. A little later, John Walmsley and 'H' also rescued a hatchling and had to virtually physically hold off a Frigate Bird in order to release the 'little fella' into the sea. John H saw the first Red-footed Booby of the trip on the morning sea-watch. Bob and Andy spent the morning sea-watching from the Klinka Club as part of their project. Dave and Gez walked from English Bay to North East Bay to check the stacks on the way. The duty crew, Mike and Tony C, saw the first Red-necked Francolin of the trip at Two Boats junction during their travels.

This procedure was repeated for the rest of the time on Ascension, with the various teams going off in different directions and gathering data for their projects. Most of the group achieved more than expected and managed to enjoy themselves at the same time.

An RAF coach picked us up in the early evening of the 23rd and took us to the Airhead where we booked in our luggage before John H delivered us all to the Volcano Club at the American Base. We had something to eat and drink before we had to return to the Airhead for our flight home.

John Hughes and John Walmsley stayed until 28 Apr to carry out survey work on the occupied Sooty Tern colonies. The rest of us left Ascension at 2245hrs on the 23rd, arriving at Brize Norton early on the 24th. The temperature was a balmy 7 C.

THE 1994 SOOTY TERNS BREEDING SEASON - B.J.Hughes

Introduction

Sooty Terns (Wideawakes) *Sterna fuscata* return to Ascension every 9.6 months to breed. Their numbers on the island at anyone time vary greatly and for three months in every nine the entire population is absent. The maximum numbers occur on the Island approximately 6 weeks after the first egg of the season is laid (Ashmole 1963). The expedition had planned its arrival to coincide with this peak of breeding terns so that a valid census could be obtained. On the morning of 13 Apr the expedition recorded 200 terns on the ground in one of their traditional nesting sites; by late afternoon this number had risen to 2000. The first eggs of the season were laid on the Waterside Fairs or colonies on 18 Apr. A census of breeding Sooty Terns w as carried out on 28 Apr by Hughes and Walmsley .This was only 10 days after the first eggs were laid and some 32 days before the date of maximum occupation of nest sites.

The 1990 Breeding Season

In 1990 Ex Booby II was fortunate enough to be on Ascension when the Sooty Tern nesting activities were at their height. A survey was undertaken to calculate the size of the fairs. Sample density counts of the numbers of eggs were also recorded. From this data it was calculated that the population in 1990 was 350,000 birds (Nash *et al* 1991).

The 1994 Breeding Season

As in previous years the returning Sooty Terns settled into their well-established sites (Fig.1). The numbers recorded on the census day 28 Apr were small and only a few of the sites were occupied. Identical procedures to those in 1990 were adopted to calculate population in the colonies which contained eggs. Only four colonies had eggs at the time of the census. The two largest, Doc I and Doc II, were allocated the numbers II and 12 in the 1990 season. The same names and numbers were used in 1994. Where surveys were required the area was calculated by carrying out a compass and pace traverse around the perimeter of the fairs, then plotting the results on graph paper.

The cairns built in 1990 to mark the boundaries were still very much in evidence so there was little actual survey work required except at colony 12 which had more than doubled in size and a complete traverse was required. The Sooty Terns occupied exactly the same areas in colonies 9 and II and no survey was needed. However as soon as colony 9 was occupied and eggs were laid it began to decrease in size. On the survey day this colony held approximately 200 breeding pairs (Table 1).

Quadrate Surveys

Estimates of densities were made by counting eggs in 17 circular "quadrates", of area 10 metre squared, spaced at random through the colonies. Nine of these quadrates were made in colony II which had a mean density of 15.2 eggs per 10 metre square. The mean of eight quadrates in colony 12 was 15.4 eggs per 10 metre square. An overall mean of 15.29 eggs per 10 metre square was used in all calculations to determine population size this season.

In 1990 the density counts varied from 5.06 to 22.97 eggs per 10 metre square. The latter density was obtained at colonies 11 and 12.

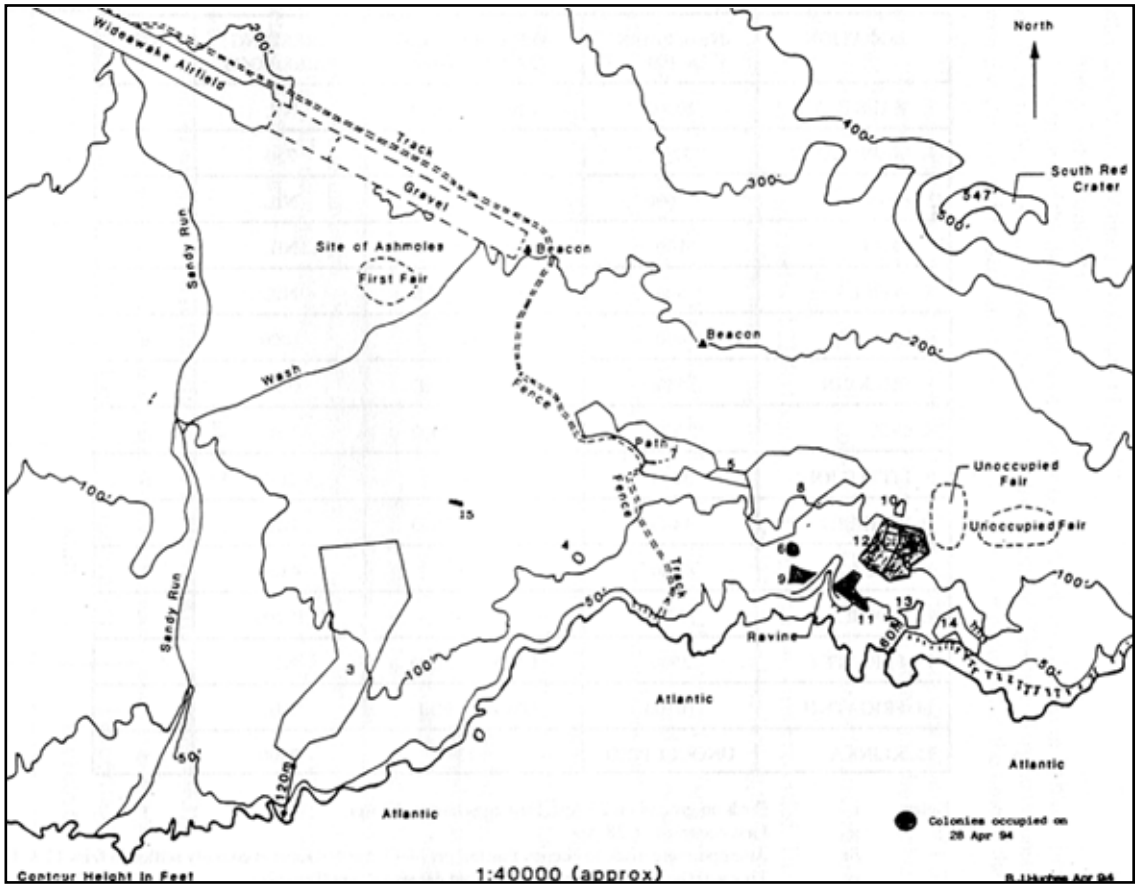

Fig 1: The Waterside Colonies occupied on 28 Apr 94

LOCATION	No of Pairs IN 1990	AREA OCCUPIED 28 APR 94 (ha)	BREEDING PAIRS?EGGS	NOTE
1. MARS BAY I	20000	UNOCCUPIED	NIL	
1. MARS BAY II	2200	0.6	750	i
3. FIONA	27600	UNOCCUPIED	NIL	
4. SMALL	100	UNOCCUPIED	NIL	
5. INFILL I	600	UNOCCUPIED	NIL	
6. INFILL II	400	0.08	1000	ii
7. BIG JOHN	35500	UNOCCUPIED	NIL	
8. GEZ	52000	UNOCCUPIED	NIL	iii
9. LITTLE JOHN	3200	0.14	200	iv
10. RICHARD	1400	UNOCCUPIED	NIL	
11. DOC I	6400	0.28	4300	
12. DOC II	12200	1.16	17700	v
13. FRIGATE I	2500	UNOCCUPIED	NIL	
14. FRIGATE II	10100	UNOCCUPIED	NIL	
15. KLINKA	UNOCCUPIED	0.13	2000	vi.

Table 1: Summary of breeding pairs of Sooty Terns on Ascension 28 Apr 94

Notes:
- i. Birds on ground on 25 Apr. First eggs laid on 27 Apr.
- ii. First occupied on 28 Apr.
- iii. Attempts were made to occupy thus fair on 14/15 Apr but terns eventually settled in fairs 11 & 12
- iv. This was the first fair to be occupied but decreased rapidly in size.
- v. This fair more than doubled in size (0.53 in 1990).
- vi. A new site situated to the north of Fiona in a clinker-filled hollow.

Sooty Tern Numbers

A summary of the numbers of Sooty Terns on each colony is given in Table 1. For comparison purposes the numbers in 1990 are also tabulated. The three largest colonies from the 1990 breeding season, numbers 3, 7 and 8 were not occupied at the time of the survey.

The majority of birds were concentrated in two adjacent sites occupying an area of 1.5 ha. In 1994 colony 12 increased in size from 0.53 ha. (in 1990) to 1.16 ha and the number of pairs from 12,200 to 17,700.

The total number of Sooty Terns in the colonies (28 Apr 94) was 26,000 pairs and the total area occupied was 1.85 ha.

At Mars Bay which had held 22,400 pairs in 1990 only 750 pairs were recorded. The site was occupied for the first time during the day on the 25 Apr and the first eggs laid on 27 Apr.

In 1990 laying began a week later at Mars Bay than at the Waterside Fairs so an increase in numbers at Mars Bay is a strong likelihood. On the other hand no successful breeding took place in 1991/92 and 23,600 eggs were abandoned in Mars Bay (Nash *et aI1992).*

One new breeding colony (Klinka,15) established in 1994 was situated a short distance from the N.E. corner of the former Fiona (3) colony. This colony was 0.13 ha. in size and held 2,000 pairs.

Care must be taken when comparing the raw data from 1990 and 1994 because the two count were made at different stages of the breeding cycle. Table 2 is an abstract of Ashmole's data (1963) which shows that the colonies increase rapidly in size. The table shows that colony size increases between three and four -and -a - half- fold from 10 days after the first egg is laid to 42 days after. At the 42 day point, as previously mentioned, the colony size is at its maximum. This means that colonies 11 and 12 could hold up to 75,000 pairs when fully occupied and the other small colonies possibly a further 15,000 giving a total of 90,000 pairs.

No of squares at First Fair	10 days after start	42 days after start	Percentage increase
M12	29	86	3 - Fold
N13	44	197	4-5 Fold

Table 2: Number of eggs on First Fair after start of laying (After Ashmole(1963))

Sea-Watch

On 18 Apr a dawn to dusk sea-watch was carried out on the edge of the Waterside Fairs by six members of the expedition. They recorded the numbers of Sooty Terns arriving from the west at five minute intervals from 0700 hrs to 1900 hrs. The only significant flight path to the breeding grounds was from the west in the direction of the seabirds feeding grounds. The lowest hourly rate of arriving Sooty Terns was 1030 between 0700 and 0800 hrs and the highest was 9473 between 1800 and 1900 hrs. The hourly number increased as the day progressed. The total for the day was 63,054 individual terns.

This figure compares favourably with the survey figure of 26,000 pairs in the colonies on 28 Apr and is our only independent check on total numbers. The sea-watch took place on the same day as the first eggs of the season were being laid and when the colony size was about half of what it was on the census day.

Conclusion

Efforts welre made to find a resident on the island who would be willing to monitor the progress of the Sooty Tern colonies once the expedition had left but to no avail. Again there was insufficient evidence to determine the rate of population change or the maximum numbers because the expedition left before the peak of breeding activity. What is clear is that numbers of Sooty Terns on Ascension continue to decrease.

PREDATION BY FERAL CATS ON THE SOOTY TERNS - J.G. Walmsley.

Introduction

The seabirds of Ascension Island have been subjected to predation by feral cats for more than 150 years. During this time ten of the eleven breeding seabird species have ceased to breed on the main island and are now confined to the off - shore Boatswain Bird Island and small inshore rocky stacks and cliffs. The exception is the Sooty Tern *Sterna fuscata,* which continues to breed on the broken lava and clinker in the south-west part of the main island.

In 1942, Chapin suggested that the Sooty Tern breeding population was in the order of one million birds (Chapin 1954). By 1960 numbers were estimated at 750,000 birds (Stonehouse 1962) with similar numbers during the period 1970-80 (Blair 1989). More recent breeding Surveys (Nash *et al.* 1991 and 1992) indicate that not only has there been a dramatic decline of Sooty Terns, but we may even consider it as a population crash.

The 1990 survey made at the height of the breeding season, revealed a figure of only 350,000 birds. Subsequent breeding seasons were reported as catastrophic; entire colonies were abandoned and total breeding estimates were well below 100,000 birds (Newlyn Browne *pers com*). This population decline has been attributed partly to predation by feral cats *Felis catus* and to other causes such as food shortage and disturbance.

Proposals to restore seabird populations on Ascension Island, by reducing the number of cats, have been prepared by the Army Ornithological Society (AOS) and Ashmole *et al.* (1994) and presented to the British Government, the Foreign and Commonwealth Office and the Ministry of Defence (MoD). Among the international organisations the World Wide Fund for Nature (WWF), the International council for Bird Preservation (ICBP) and the Royal Society for the Protection of Birds (RSPB) were also informed, but so far only the RSPB has shown any interest.

The proposals did however prompt a reaction from the United States Air Force who sent a "Bird Aircraft Strike Hazard" (BASH) team to Ascension Island to evaluate bird/wildlife hazards (Merritt *et al.*1992). After an 8-day visit the team concluded from spotlight surveys, that feral cat density was 4.2/km^2 (SE = 1.32), (480 + 231, CI = 95%) and "a conservative population estimate of not more than 750 cats for the whole island". The BASH team did not make spotlight surveys in the Sooty Tern "night club" areas.

Night-club activities

The expedition's visit to Ascension in April 1994 coincided with the last phase of the "Night-club" activities. This was 7 days before the first eggs were laid on breeding sites south-east of the Airfield on 18 Apr. The first eggs in Mars Bay were recorded on 27 Apr.

Mars Bay (I and 2) sites were first visited on 12 Apr. The night-club area was identified from the fresh guano-covered lava with its strong characteristic smell and corpses of freshly killed adult Sooty Terns. It was close to the track leading to the beach, approximately 140 metres from the sea and between 10 and 60 metres from an old lava flow oriented in a north-south direction (Fig.2). Tern corpses were in the guano-covered area, but the majority were found on highest ground to the west, indicating that cats kill birds in the night-club areas, then carry them to eating places on higher ground. This behaviour was recorded in 1990 and again in 1992. There is also evidence to suggest that a single cat can kill between 2-4 terns and eat at least three per night.

A second night-club area was found on 13 Apr in Little John (9) site, south-east of the airfield. Corpses were scattered over a very large area, in particular in the former Gez (8) breeding site. One member (H Harris) actually saw a very hungry cat eating a tern during the day. There was no evidence of any other night-club sites. From the number of corpses collected, we estimated that birds began landing in the night-club sites in early April.

Predation

After confirming night-club activities in Mars Bay on 12 Apr, we collected 44 Sooty Tern corpses. Old corpses from the previous breeding season were either buried or collected, but were not included in the counts. Visits to this site continued on a daily basis until 28 Apr; the results are presented in Fig. 3.

There was only one major collection of 122 tern corpses: from Little John and Gez sites on 13 Apr. Once Sooty Terns began settling on the ground prior to breeding on 14 -15 Apr, we decided to stop collections in this area, to avoid adding to the disturbance already caused by the cats. On 25 Apr, a further 50 corpses were collected from the Klinka breeding colony.

All tern corpses were taken back to camp at English Bay, where they were counted and a selected number processed. The selection was made according to whether they could still be sexed (examination of testes and ovaries). In many cases it was impossible to determine the sex of the birds, because only the wings, head and tail remained uneaten. This was particularly true of birds killed at the start of the Night club period when cats are very hungry.

In this report only the daily collections of tern corpses from Mars Bay are presented for the period 13 - 28 Apr. From this count of 94 terns, an average of six birds per night were killed in Mars Bay. Of the 44 terns collected on 12 Apr, we assume from our calculations that the first birds were killed and eaten in the Night club area on the night of 5 - 6 Apr.

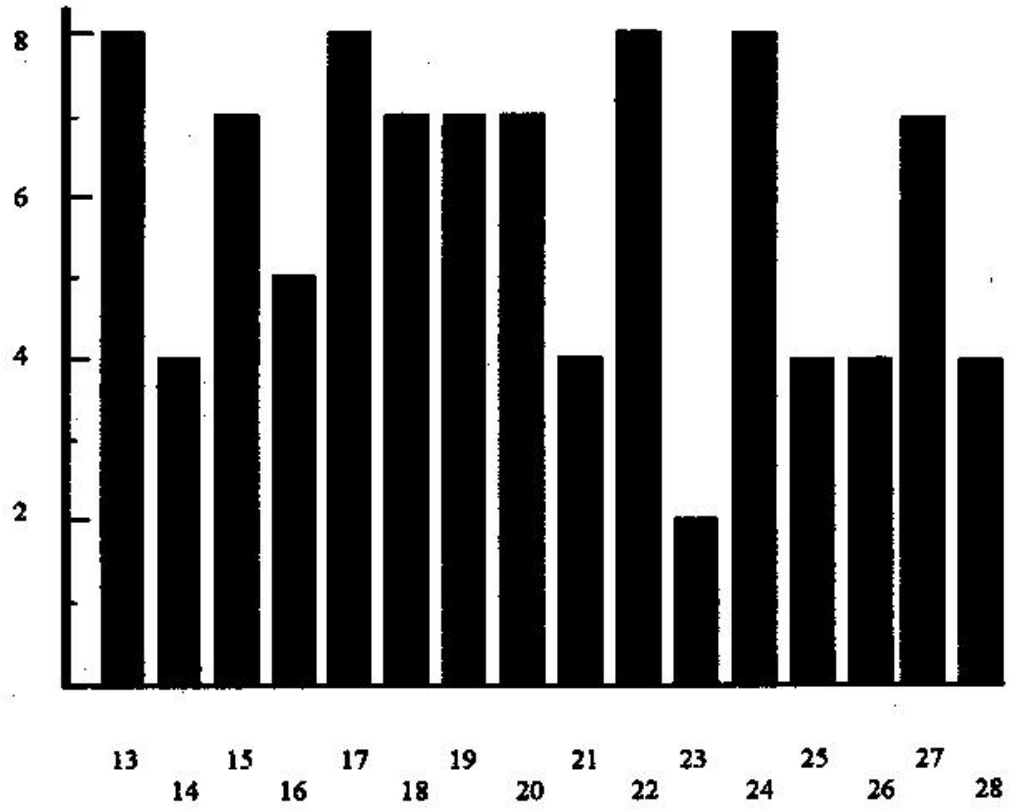

Fig 3: Sooty Term corpse collections from 13-28 Apr 94

The spotlight survey in Mars Bay on the night of 18 Apr revealed only two cats, but we should take into account the broken and hilly terrain. We also do not know the time of night when cats are most active. It would appear however, that cat numbers in Mars Bay have declined, because of poor breeding attempts and low numbers of terns in previous breeding seasons. Despite the few records of cats in Mars Bay, the numbers of tern corpses on the airfield sites still indicate relatively high cat densities.

Feral Cats

Feral cats on Ascension are not evenly distributed on the island. There are dense concentrations around human settlements, where there is an abundant food supply. There are also good numbers during the Sooty Tern breeding seasons south and south-east of the airfield. There are even signs (cat scats) on Letterbox, an isolated headland on the east coast of Ascension.

In 1992 the BASH team reported a feral cat density of 4.2/km^2 from spotlight data, the highest density (19.3/km^2) occurring along the beach at Southwest Bay. Other concentrations were reported from the rubbish dump, the golf course, and the RAF base at Travellers Hill. The lowest density was along the NASA road (Merriitt *et al. 1992).*

During Exercise Booby IV, Hughes and Walmsley made spotlight surveys on the island rubbish dump and in Mars Bay. The lamp used had a focal centre spot that can be seen at a considerable distance. At night cats can be detected without difficulty by sweeping the lamp left and right; once they are caught in the spot the light from the eyes is reflected back to the counter.

The two visits to the rubbish dump on the nights 14 and 17 Apr, revealed counts of 30 and 28 cats respectively. We could approach them and see that black, black and white and tabby cats were the dominant colours, with a mixture of age classes from kittens to adults.

On the night of 18 Apr we took the lamp to Mars Bay, where several hundred Sooty Terns were seen on the ground and 2000-3000 birds circling above. We limited the use of the spotlight to 3-4 sweeps over the night club area and beyond. Two pairs of cats were picked up in the spotlight during the two hours we were there.

When we passed the light over birds on the ground some of them took flight but most remained on the ground. A number were observed "foot stamping" which appeared to associated with preening. Birds were seen raising one foot, then the other as if the ground was hot. This behaviour has been recorded in breeding colonies on the Seychelle Islands, where the birds are reported to be "getting rid of ticks'" (Feare *pers com.*).

We did not use the spotlight in the Waterside breeding sites because the birds had only recently begun laying (the first eggs were seen on 16 Apr), and thousands more were nest prospecting.

Cats were also prevalent on the Green Turtle *Chelonia mydas* nesting beaches in the north of the island around English Bay. Cat tracks were seen regularly beside turtle nests, empty egg cases were present and signs of cats following track of newly hatched turtles were recorded almost daily.

In 1992 the BASH team found the highest density of cats along the beach at Southwest Bay, where they were observed eating refuse at beach houses and predating turtle nests (Merritt *et al.* 1992). This information will be useful when cat control becomes a reality.

Other Predators

It is well known that the Indian Mynah *Acridotheres tristis* will take eggs and chicks of the St Helena Plover *Charadrius sanctaehelenae* (Hayman *et al.1986).* They were also suspected of eating Sooty Tem eggs on Ascension in 1990. On 16 Apr, almost immediately after the Sooty Terns had laid eggs in Little John (9) colony, two pairs of Mynahs were observed among the terns, pecking at and eating tern eggs, besides disturbing incubating birds and turning over tern corpses. Mynahs were also recorded in Doc II colony.

Land Crabs *Gercarcinus lagostoma* were suspected of eating abandoned eggs of Sooty Terns in 1990, after eggs showing signs of claw marks were collected and examined. During Exercise Booby IV several members of the team saw land Crabs eating freshly killed terns. Tern corpses often attract flies and on several occasions large centipedes up to 10 centimetres in length have also been recorded.

Conclusion

Previous AOS reports (1991 and 1992) have clearly identified and reported on the impact of feral cats on the breeding population on Ascension Island.

There are conflicting views both at home and abroad about how we should deal with the feral cat problem, before Sooty Terns abandon breeding on Ascension.

We now believe that a properly organised cat control can be achieved by focusing activities in those areas where the target prey species (Sooty Terns and Sea Turtles) of cats occur. With the exception of the One Boat refuse dump, the turtle beaches and Sooty Tern breeding sites must hold the highest densities of cats. The refuse dump cats serve as dual purpose; besides feeding on refuse, they probably control the rat population. If all the cats were killed in this area, this may give rise to a sudden increase of rats, with more dramatic consequences to seabirds.

The decline of the breeding population of Sooty Terns on Ascension and the poor breeding successes recorded during the last four years, may also have affected the cat population. The small number of terns killed by cats in Mars Bay in April 1994 may be an indication of this. On the other hand we cannot overlook the possibility of a movement of cats away from Mars Bay to the Waterside sites.

In view of the recent decision to go ahead with the cat eradication campaign on Ascension island, we emphasise the need to continue to monitor the Sooty Tern breeding population throughout the eradication feasibility project, using an experienced team. This was proposed to RSPB International by Hughes and Walmsley in 1994.

SEA-WATCH DATA - B.J.Hughes

Introduction

All Service ornithological expeditions to Ascension have carried out sea-watches but to date no summary of them has been published. Table 3 is a record of the 22 hours of sea - watches produced by the expeditions in 1988, 1990 and 1992.

The original field sheets contained a few notes in the remarks column on movements of Red-footed Bobbies. These notes were extracted and compiled into a report on this species (Nash *et al.1992).* None of the other data has been used. One of the aims of these sea-watches, was to look for vagrants but none were seen. The watchers however recorded the direction, movement and numbers of seven indigenous seabird species, namely the Black and Brown Noddy, the Brown and Masked Booby, White and Sooty Tern and the Ascension Frigate Bird. The majority of records show the numbers of birds passing during intervals of 5 minutes. Most of the watches took place at either dawn or dusk.

Sea-watches in 1994

Exercise Booby IV added another eight hours of data (Table 4) to the 22 hours previously recorded. As in past years observations were made from the Klinka Club on the north side of the Island close to North Point.

24 hour Sea-Watches

This year's expedition also carried out three day-long sea-watches. They began at first light (0700 hrs) and ended at dusk about 1900 hrs. At least three teams of two observers were used for each watch. The teams recorded the numbers of birds that passed the observation point during five minute intervals throughout the day. Movements of all seven species were recorded. When the teams needed a break they recorded every alternate five minutes. About one third of the sea-watches were recorded in this fashion.

The first location selected for this sea-watch, was the Klinka Club. The second was at Portland Point on the south west side of the island. The third was close to the Waterside Fairs on the southern side of the island.

In addition to the seven species recorded on previous sea-watches, sightings of Red and Yellow-billed Tropic Birds were also noted. Details of the movement of Sooty Terns at Waterside Fairs have been extracted and used in "The 1994 Sooty Tern Breeding Season" report.

Remarks

It is not our intention in this report to analyse the data collected in these sea-watches but to alert readers to the availability of such data.

Table 3: SUMMARY OF SEA-WATCHES AT THE KLINKA KLUB ASCENSION ISLAND 1988-1992

DATE	TIME	BLACK NODDY	BROWN NODDY	BROWN BOBBY	MASKED BOOBY	FRIGATE	SOOTY TERNS	WHITE TERNS	REMARKS
28 NOV 1988	0654 – 0900Hrs	1329							5 MIN INTERVALS
10 MAR 1990	0640 – 0800Hrs	2357	65	76	733	4	11		BLACK NODDY EVERY 5 MIN
11 MAR 1990	0645 – 0800Hrs	1734	26	85	445	71	20	2	
01 JUL 1992	0645 – 0800Hrs			185		103			EVERY 5 MIN
01 JUL 1992	0705 – 0815Hrs				1348				EVERY 5 MIN
01 JUL 1992	0650 – 0810Hrs	1958	10						EVERY 5 MIN
03 JUL 1992	0700 – 0800Hrs	480	16	60					EVERY 5 MIN SEE LOG
07 JUL 1992	0725 – 0800Hrs		11	27					EVERY 5 MIN
21 MAR 1990	1218 – 1305Hrs	254	11	12	12		7	2	
?? NOV 1988	1815 – 1900Hrs	947	8						EVERY 5 MIN
?? NOV 1988	1705 – 1905Hrs	2174							EVERY 5 MIN
10 MAR 1990	1845 – 1925Hrs			320	368	5	45	8	
12 MAR 1990	1830 – 2000Hrs	852	14	469	267	6	51	7	
13 MAR 1990	1845 – 1945Hrs	818	1	433	376		4		
14 MAR 1990	1745 – 1845Hrs	190	2	98	210	3	14		EVERY 10 MIN
19 MAR 1990	1633 – 1733Hrs	500	136	79	147		6	2	
30 JUN 1992	1835 – 1905Hrs	196							3 INTERVALS OF 5 MIN ONLY
01 JUL 1992	1740 – 1905Hrs				1076				EVERY 5 MIN
02 JUL 1992	1655 – 1855Hrs		21	179	1646			2	EVERY 5 MIN SEE LOG
06 JUL 1992	1805 – 1900Hrs	730	18	274	1792			17	EVERY 5 MIN SEE LOG

Table 4: SUMMARY OF SEA-WATCHES AT THE KLINKA KLUB ASCENSION ISLAND APRIL 1994

DATE	TIME	BLACK NODDY	BROWN NODDY	BROWN BOBBY	MASKED BOOBY	FRIGATE	SOOTY TERNS	WHITE TERNS
13 APR 94	0654 – 0900Hrs	223	39	18	28	11	NIL	NIL
14 APR 94	0640 – 0800Hrs	249	-	35	16	-	NIL	NIL
15 APR 94	0645 – 0800Hrs	438	7	28	108	-	NIL	NIL
18 APR 94	0645 – 0800Hrs	312	51	53	97	193	NIL	NIL
12 APR 94	0705 – 0815Hrs	189	16	59	806	-	NIL	NIL
13 APR 94	0650 – 0810Hrs	610	12	104	361	7	NIL	NIL
14 APR 94	0700 – 0800Hrs	1013	-	-	-	-	NIL	NIL
22 APR 94	0725 – 0800Hrs	127	18	114	1763	8	NIL	1

All records refer to numbers of birds passing in each 5 minute interval recorded.

SEABIRD POPULATIONS ON THE STACKS OF ASCENSION ISLAND
- WO2 D.M.Morrison and SSgt R.G. Thompson.

Introduction

There are 15 stacks around the coastline of the island usable by seabirds. The lack of safe nesting and roosting places on the mainland, and the overcrowding on Boatswain Bird Island, make the smaller stacks important to the birds. This is reflected by the fact that in December 1993 the stacks were given SSSI status.

Observations and Results

Each stack was visited at least once during the expedition, and where possible both dusk and dawn counts were made. The following species were observed using the stacks:-

Red-billed Tropic Bird *Phaethon aetherus*
Yellow-billed Tropic Bird *Phaethon lepturus*
Masked Booby *Sula dactylatra*
Brown Booby *Sula leucogaster*
Red-footed Booby *Sula sula*
Brown Noddy *Anous stolidus*
Black Noddy *Anous tenuirostris*

Birds were seen on every stack with the exception of Stack 2. The maximum numbers of seabirds counted for each stack and the total for all stacks is shown in Table 5. The viewable area of a stack varied from 60% to 100%, and it is estimated that around 15% of the total usable stack area could not be observed. The totals for each species have been adjusted by this percentage and are shown in Table 6. These figures may give a truer indication of the numbers of birds using the stacks. The latest estimates for stacks and whole island populations (Ashmole 1994) were used to assess any variations in the stack populations (Table 7) and to determine the proportion of the total population using the stacks (Table 8).

Breeding

Actual or probable breeding by most species was observed, e.g. sitting birds, eggs, newly fledged young and nests. Manpower and time limitations prevented a full survey of this aspect of the stacks.

Conclusion

The stacks continue to be an important haven for seabirds. The total number recorded using the stacks was 2714. It is probable that the true figure is in excess of 3100. The stacks were used by seven species and are particularly important to the populations of Brown Booby, Red-footed Booby and Brown Noddy and to a lesser extent the Black Noddy. Most species show an apparent increase when compared with the 1992 estimates.

Stack No.	Red Billed Tropic Bird	Yellow Billed Tropic Bird	Masked Booby	Brown Booby	Red Footed Booby	Brown Noddy	Black Noddy	Totals
1	0	0	0	50	0	0	0	50
2	0	0	0	0	0	0	0	0
3	0	0	0	7	0	10	0	17
4	0	0	0	90	0	150	0	240
5	0	0	0	51	4	100	3	158
6	0	0	0	82	0	120	0	202
7	0	0	0	11	0	4	0	15
8	0	0	0	16	0	80	0	96
9	0	1	4	5	0	0	29	39
9A	0	1	0	20	0	0	1	22
10	0	3	34	120	2	12	190	361
11	0	0	2	18	0	0	32	52
12	0	1	3	57	3	14	91	169
13	2	5	5	90	0	0	900	1002
14	0	1	1	29	0	0	260	291
Total	2	12	49	646	9	490	1506	2714

Table 5: Maximum counts of birds using the stacks

Species	Red Billed Tropic Bird	Yellow Billed Tropic Bird	Masked Booby	Brown Booby	Red Footed Booby	Brown Noddy	Black Noddy	All Species
Total	2	12	56	742	10	563	1731	3117

Table 6: Totals adjusted for unviewable areas

Species	1992 Estimates	Actual Counts	Adjusted Counts
Red Billed Tropic Bird	<10	2	2
Yellow Billed Tropic Bird	<100	12	13
Masked Booby	30	49	56
Brown Booby	650	646	742
Red Footed Booby	5	9	10
Brown Noddy	500	490	563
Black Noddy	1000	1506	1731
Total	<2295	2714	3117

Table 7: Comparison with 1992 estimates

Species	Red Billed Tropic Bird	Yellow Billed Tropic Bird	Masked Booby	Brown Booby	Red Footed Booby	Brown Noddy	Black Noddy	All Species
Whole Population	1100	2200	9000	2000	25	1000	20000	35325
% using stacks	<1	<1	<1	32-37	36-40	49-56	7-9	7-9

Table 8: Proportion of total population using stacks

LAND -BIRDS SURVEY -Maj M.J.Varley and Maj R.C.Dickey

Introduction and aims

One of the aims of Ex Booby IV was to carry out a survey of land-birds. There are only five resident species and only three occur in any numbers. The least numerous are Red- throated Francolin *Ptemistes afer* and House Sparrow *Passer domesticus.* The more numerous were Indian Mynah*,Acridotheres tristis,* Canry *Serinus flaviventris* and Waxbill *Estrilda astrild.*

The aim of the survey was twofold, firstly to ascertain the distribution of all land-bird species on the island and secondly to attempt to estimate the number present.

Survey methods

Due to constraints of terrain, time and limited personnel a very basic system of survey was used. The island was divided into a grid of one kilometre squares, based on the conventional grid lines. Those with less than 10% of land were classified as sea. This left 116 squares to be surveyed. Squares were visited by at least one person, normally two, who walked as much of the square as possible while watching and listening for birds. The total numbers seen and heard were recorded and an attempt made to estimate numbers. Many squares were visited on a regular basis and the highest total seen at anyone visit was recorded as the final total. The results of these surveys are presented by population and species at Tables 9-13.

Species reports

House Sparrow -*Passer domesticus*

This species was introduced after the 1959 BOU expedition visited Ascension as they make no mention of sparrows in their report. During our Survey we found the species present in only one square (E1), in the centre of Georgetown on the North West coast. The maximum number recorded was twelve, seven males and five females. Nests were found but the number currently occupied was not ascertained. It is possible that the species has spread to the airpol1 and/or the US Base but no birds were seen.

Red-throated Francolin - *Ptemistes afer*

This species is extremely difficult to Survey as it is a ground living bird, almost non-vocal, that rarely takes wing. It was found in only seven squares and a total of only 16 birds were seen. In one group of seven, two young were recorded. The birds all favoured rocky areas with a thick coverage of high and dense bushes. They appear to prefer higher ground over 800 ft but at least one bird was seen near the airfield only 200 ft above sea level. It is likely that a population of between 50 -100 exists, perhaps more.

Canary -*Serinus Flaviventris*

These colorful and highly vocal birds were found in 39% of the land squares and a total of 548 were seen, making it the most numerous species. They tended to concentrate around human habitation and areas of good vegetation cover. No nests were found but singing males were everywhere, most with a female in close proximity. Isolated pairs are also found in many locations with only limited vegetation. It is likely that the population is in the region of 1000 -1200 birds. Large population centres were noted in the "Larch Like" tree plantations east of Dampiers Drip and between Butt Crater and Thistle Hill. These plantations seemed a favourite habitat and are likely to contain high densities of breeding birds.

Indian Mynah -*Acridotheres tristis*

These large and vocal birds are relatively easy to survey and seem able to live in the most isolated places. They were found in 52% of the land squares making it the most widespread species. Total numbers seen were 365 with major concentrations around areas such as the sewage works and the rubbish tip. These birds were also seen in all Sooty Tern sites and are known to predate eggs from these areas. Each built-up area had large

numbers and at least one nest with chicks was found in Georgetown. Given our total of 15 for Georgetown and a local survey of 17 pairs, it is likely that the real population is in the region of 600 -800 birds.

Waxbill - *Estrilda astrild*

These small but vocal birds are very secretive and therefore quite difficult to survey. They tend to move in small flocks but like the Canaries, seem to concentrate around human habitation and good vegetation cover. They are present at all heights and at least five pairs were observed nest-building near the sewage farm. A total of 244 birds were seen in 29% of land squares. Given the high numbers in some squares and their secretive nature it is likely that the real population is in the region of 500 -600 individuals.

Discussion

The coastal strip of Ascension Island has almost no vegetation and other than Georgetown supports no land-birds. For the remainder of the Island, vegetation cover varies from almost non-existent to the lush green fields on the summit of Green Mountain. Of the five species of land-birds, House Sparrows appear confined to Georgetown, and the Francolin limited in numbers and concentrated around the foothills of Green Mountain. The other three species appear to concentrate around areas of rich vegetation cover, which happen to be the centres of human habitation. Given the high density of birds found in some squares there does appear to be scope for continued expansion of numbers particularly of Canaries and Wax bills.

A lack of time and manpower precluded any detailed study of nesting, feeding or behaviour. However all five species were observed with either nests or young, so limited breeding was ongoing. Male Canaries were living up to their reputation as songsters making them easy to record.

Conclusions and Recommendations

Previous population estimates are well short of the actual numbers. It is recommended that careful counts are made of areas of dense vegetation and more time is taken to survey areas of high density in and around centres of human habitation.

Red-throated Francolins are probably more numerous and more widely distributed than previously thought. They do not appear restricted by altitude but rather by the need for dense canopied vegetation. This link with vegetation appears true for all the land-bird species, except the House Sparrow. Future studies should concentrate on these areas and perhaps produce a "maximum" sustainable figure for areas with good vegetation. Further studies could focus on breeding distribution and feeding requirements.

Table 9: Ascension Island Land Distribution and Population Census
Species: Canary *Serinus Flaviventris* Total Birds 548 % Area: 39%

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A														
B														
C						NV	NV			NV				
D						NV	16							
E	2					36	4	4						
F	2	1	3		6	15	14	80	25	20	3	10		
G		1	6	8	14	2	24	30	4	44	12	6		
H		1		9	6	1	8	2	5	14	28	4		NV
J				4	2	12	3	5	9	14		NV		
K							2	NV	2					
L														
M			NV											

LEGEND: NV – Not Visited; BLANK CELLS – Not Present; SHADED CELLS – 10% Land or Sea

Table10: Ascension Island Land Distribution and Population Census
Species: Red-throated Francolin *Ptemistes afer* Total Birds 16 % Area: 6%

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A														
B														
C						NV	NV			NV				
D						NV								
E														
F						1	7	3						
G									2					
H							1				1			NV
J				1								NV		
K								NV						
L														
M			NV											

LEGEND: NV – Not Visited; BLANK CELLS – Not Present; SHADED CELLS – 10% Land or Sea

Table 11: Ascension Island Land Distribution and Population Census
Species: Indian Mynah *Acridotheres tristis* Total Birds 365 % Area: 52%

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A					2									
B				1										
C						NV	NV		1	NV				
D		1		2		NV	10		1					
E	15	4	2	2	2		6	2	2	3				
F	3	4	2	6	16	74	6	6	1	1		1		
G		6	2	4	8	1	6	48	28	10	4	2		
H		4	2	5			2	4	8	6	2			NV
J		2	2	1	2	2	3	4	2			NV		
K		3	2			1	1	NV						
L			4			6								
M			NV											

LEGEND: NV – Not Visited; BLANK CELLS – Not Present; SHADED CELLS – 10% Land or Sea

Table12: Ascension Island Land Distribution and Population Census
Species: House Sparrow *Passer domesticusr* Total Birds 12 % Area: 0.9%

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A														
B														
C						NV	NV			NV				
D						NV								
E	12													
F														
G														
H														NV
J												NV		
K								NV						
L														
M			NV											

LEGEND: NV – Not Visited; BLANK CELLS – Not Present; SHADED CELLS – 10% Land or Sea

Table13: Ascension Island Land Distribution and Population Census
Species: Waxbill *Estrilda astrild* Total Birds 247 % Area: 29%

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A														
B														
C						NV	NV			NV				
D						NV								
E	4					5	30	12	16	3				
F				2	4	25	6	4						
G					2	1	6	2	8	42				
H		3		4	2				4	1	1	2		NV
J					2	6	1	6				NV		
K					2	6		NV						
L														
M			NV											

LEGEND: NV – Not Visited; BLANK CELLS – Not Present; SHADED CELLS – 10% Land or Sea

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