



Research Officer's Annual Report

January – December 2007

Pierre Pistorius & Aurelie Hermans

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1. Summary

Monthly data was collected for all tortoise transects and land bird point counts. The only transect for which data is not available is the Picard back path that was performed in December but the data sheet was somehow misplaced and is not to be found. Meteorological (temperatures and rainfall) data was collected daily from the station and monthly rainfall was measured for all rain gauges around the atoll. As usual, much time was spent collecting data on nesting Green Turtles and on juvenile Green and Hawksbill turtles.

Details of all fishing trips for subsistence were recorded, including species composition, effort data and morphometrics. All fisheries data, collected since 1996, were analyzed during the course of this year and a paper has been submitted for publication. These results were also presented at the “The progress of MPAs in the Western Indian Ocean: Success and disappointments” workshop held in Rodrigues, Mauritius, and the WIOMSA symposium in Durban. Results indicate a significant decline in CPUE (as an index of abundance) which is a cause for concern. Monthly wader counts were also performed along Settlement beach and along the south coast, and atoll-round counts of Crab Plovers were performed on a number of occasions. Data from the wader monitoring program has recently been written up and will soon be submitted for publication.

Between two and four evening traverses of back-path and/or coastal transect were performed per month throughout the year and morphometric and mark recapture data on robber crabs have been collected. The first form of vegetation monitoring (except for the exclusion plots at Cinq Cases) was initiated in April and data on the phenology of the most common plant species have been collected twice a month ever since. Monitoring of Red-tailed tropic birds commenced in mid-April and a small islet at La Gigi has been monitored three times per month.

Further to this, a butterfly fish transect off the Settlement has been monitored monthly when enough trained scuba divers were present, the presence of whales around Aldabra were monitored during July-October and interesting observations from all taxa were recorded.

2. Turtle monitoring

An analysis of the complete long-term turtle data set is underway (by Jeanne Mortimer) and I will only provide a cursory report on basic trends and data that have been collected during 2007.

2.1 Track counts along external beaches (Green turtles)

This year produced the most complete annual data of turtle track counts along Settlement beach since the conception of turtle monitoring at Aldabra. A total of 351 counts were performed along this 1.8 km stretch of beach (Table 1). I performed counts on Sundays and public holidays to avoid incurring additional costs to SIF through over-time. On average beaches 1-22 on West Grande Terre were checked for turtle tracks four times per month. The remaining beaches around the atoll were checked at least monthly, with the exception of the Cinq Cases beaches that were not checked in April and September.

Table 1. Number of monthly Green Turtle track counts at various localities around Aldabra during 2007.

	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<i>Total</i>
Settlement Beach	31	28	31	29	30	30	30	28	26	29	29	30	351
West Grande Terre	1	4	4	4	4	5	3	6	5	5	5	4	50
Cinq Cases beaches	1	2	1	0	1	1	2	2	0	2	1	1	14
South Coast beaches	4	3	3	3	2	4	3	4	3	4	3	3	39
North Coast beaches	1	1	2	1	3	2	1	2	1	2	1	2	19

On average during 2007 there were between 9 and 10 very fresh (less than a day old) green turtle tracks counted per day along settlement beach (Figure 1). This is very similar to the relatively high counts of 2006 and reinforced the long-term increase in turtle emergences at this site.

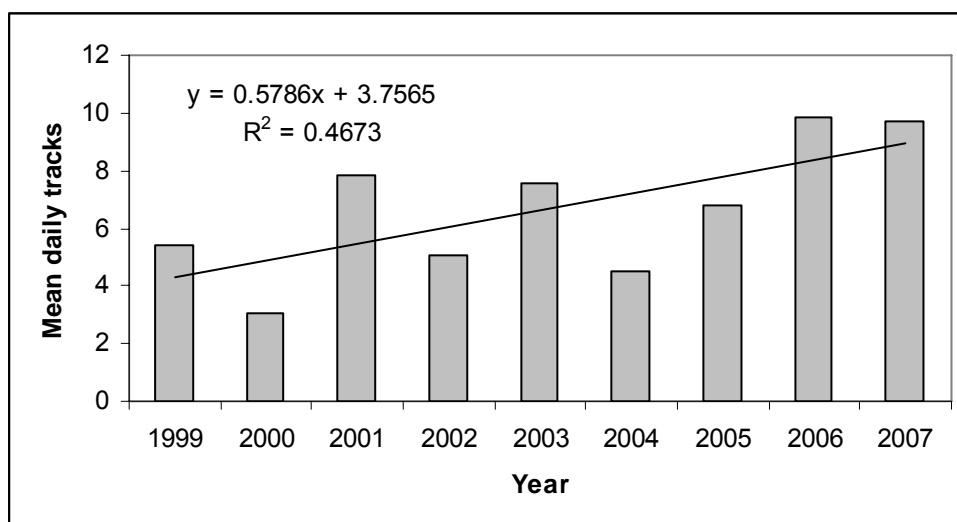


Figure 1. Mean number of green turtle tracks per day over the entire year at Settlement beach for the period 1999-2007.

Mean daily emergences along the West Grande Terre beaches were slightly down from 2006 (34 compared to 38) but still higher than the average for the period 2000-2006 (Figure 2).

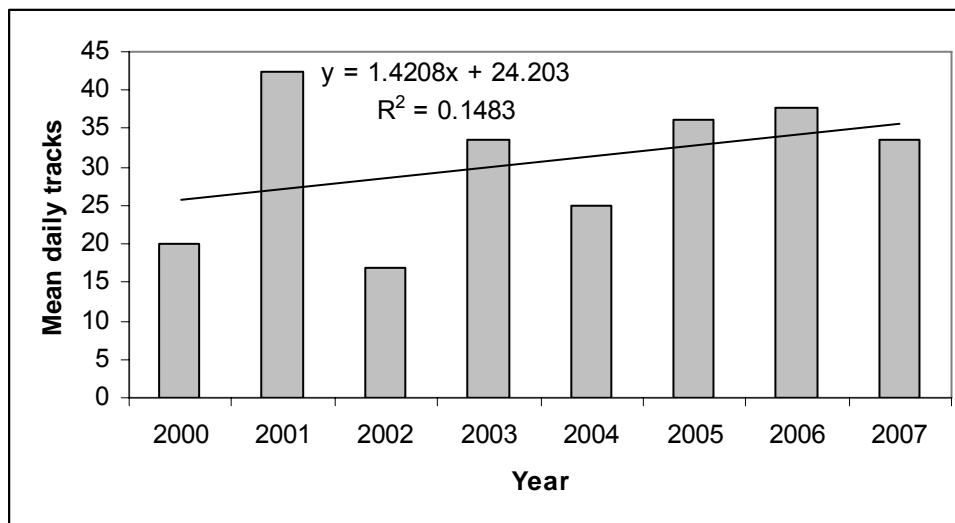


Figure 2. Mean number of green turtle tracks per day over the entire year at West Grand Terre (beaches 1-21) for the period 2000-2007.

The seasonality related to nesting activity of Green Turtles at Aldabra is dynamic (Figure 3; but also see RO report 2006). In 2007, a distinctive peak in turtle emergences at Settlement beach was apparent in March and this incrementally declined to reach a low between September and December. This varies from 2006 where emergences were very similar between February and June with a slight peak in May. During most previous years (1999-2005) nesting activity peaked during March and April, similar to what was seen for 2007.

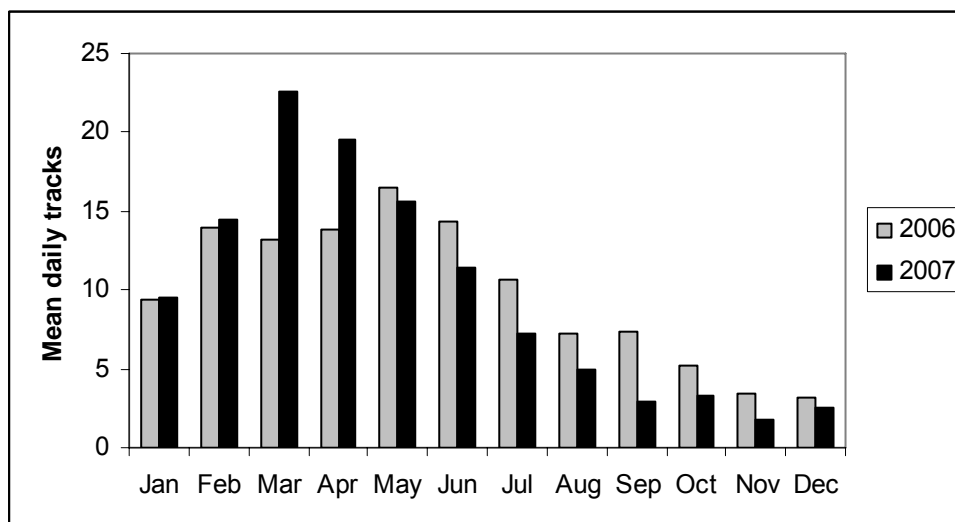


Figure 3. Average daily very fresh green turtle track counts on Settlement beach for 2006 and 2007 (beach 47).

Nesting activity along West Grand Terre peaked in April and declined at a faster rate than was seen in the previous year (Figure 4). Similar to at Settlement beach, the lowest number of emergences were seen between September and December.

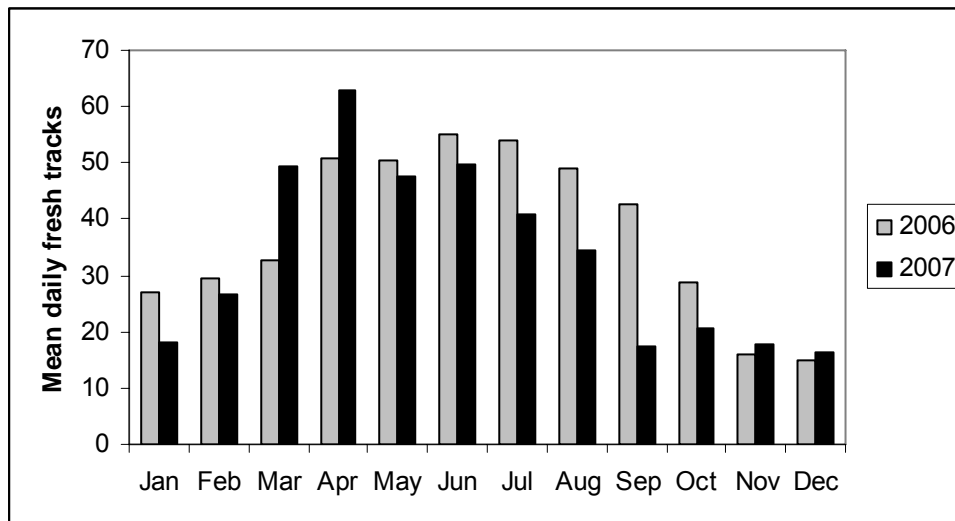


Figure 4. Average daily very fresh green turtle track counts on West Grande Terre beaches for 2006 and 2007 (beaches 1-21).

2.2 Track counts along lagoon beaches (Hawksbill turtles)

Hawksbill turtles occasionally nest on the lagoon beaches. Breeding activity is primarily restricted to the period September to March. Lagoon beaches were checked once or twice monthly between January and March and again in November. I was on leave during the period that the lagoon censuses should have been initiated again in September-October and failed to remind the rangers to do so. As always breeding activity on these beaches was low and on average two tracks were seen per census.



In the late afternoon of 27th November a hawksbill turtle was found nesting on Settlement beach, near the cemetery. Once she had completed laying and covering the nest she was measured and tagged and material for genetic analysis was collected.

2.3 Tagging of nesting turtles

Several nights (mostly 3-4) per month tagging of nesting green turtles took place at Settlement beach and also at other localities around the atoll while on monthly camps. A total of 339 nesting green turtles were encountered on all the beaches on Aldabra during the course of the year (Table 2). A total of 116 of these were resights providing valuable data on the ecology of Green turtles at Aldabra

Nesting Hawksbill turtles were encountered on three occasions (two individuals as one encounter was a resight). These were seen on outer beaches of the atoll (Settlement beach and Anse Mais beach).

Table 2. The number of turtles handled in 2007 at Aldabra.

	<i>Total handled</i>	<i>Total tagged</i>	<i>Total old tags</i>
Nesting green turtles	339	223	116
Nesting hawksbill turtles	3	2	1
Juvenile green turtles	103	94	9
Juvenile hawksbill turtles	45	29	16

2.4 Tagging of juvenile turtles

A total of 148 juvenile turtles were caught during in-water activities, conducted 3-4 times per month as tides permitted. These were all weighed, measured and tagged if not previously tagged (Table 2). About 10% and 35% of the juvenile Green and Hawksbill turtles respectively were recaptures. Tissue samples were collected for genetic analyses.



A Loggerhead turtle encountered in Passe Dubois in April

3. Aldabra Tortoise monitoring

3.1 Introduction

Since 1998, attempts have been made to collect data (numbers, sex, size) of tortoises along 12 transects around the atoll (Figure 5) on a monthly basis. Ten years of data has now accumulated which will be analyzed and hopefully written up during the first part of 2008. Below I briefly report on population estimates of tortoises on the various islands as derived from the Bourn model, but data will be treated in more detail in the near future.

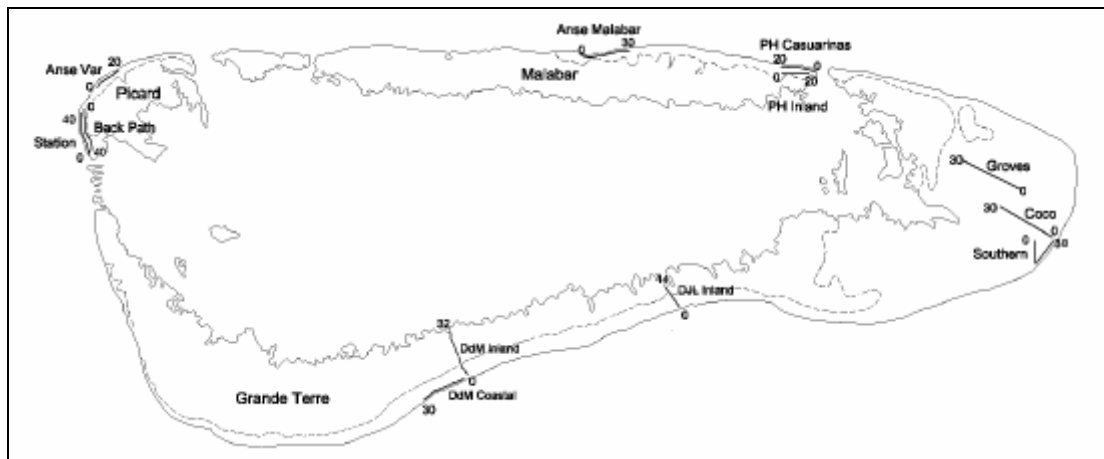


Figure 5. The location and relative length of tortoise transects around the Atoll.

3.2 Grand Terre

According to the Bourn model, the Grand Terre population (which makes up about 95% of the Aldabra population) is currently estimated at 76,654 individuals, a substantial drop of over 15% from 92,857 estimated for 2006 (Figure 6). It must be kept in mind that these estimates are based on data obtained from sampling less than 1% of the land surface area of Aldabra and high variance associated with the estimates means that this decline is not statistically significant.

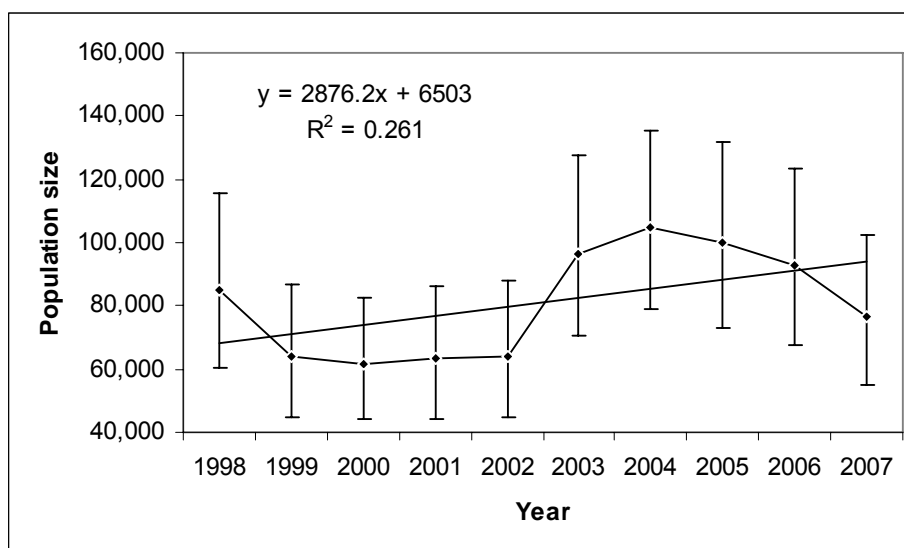


Figure 6. Population numbers of giant tortoises on Grande Terre (1998-2007).

Prior to 2007, it appeared as if the population was recovering after a long term decline between 1973 and 1997. However, currently it resembles a cyclical pattern and this may be revolving around a new equilibrium associated with a dryer environment.

3.3 Malabar & Picard

As is the case for Grand Terre, tortoise numbers on Malabar showed a substantial decline in relation to 2006 (Figure 7). The population is currently estimated at 2,809 compared to 3,546 last year.

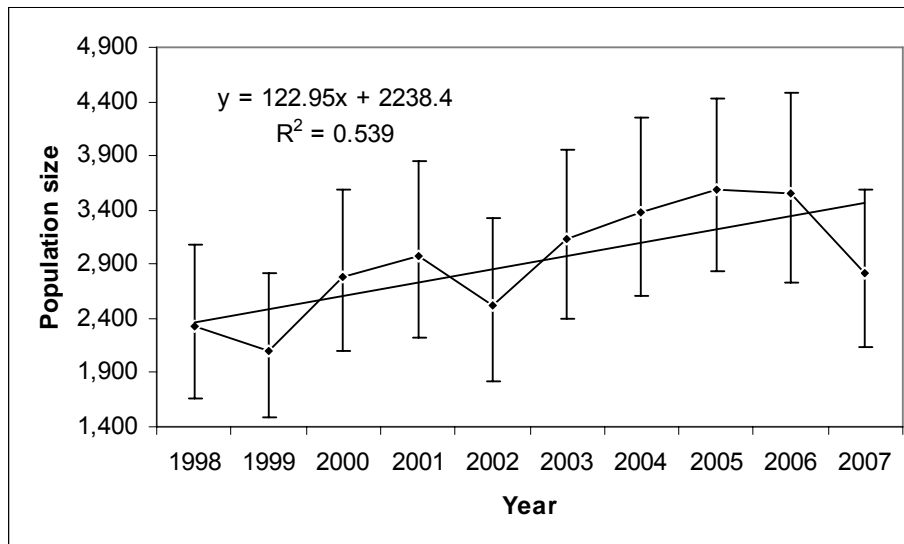


Figure 7. Population numbers of giant tortoises on Malabar (1998-2007).

The small population at Picard increased slightly in relation to last year and is currently estimated at 811 individuals (Figure 8).

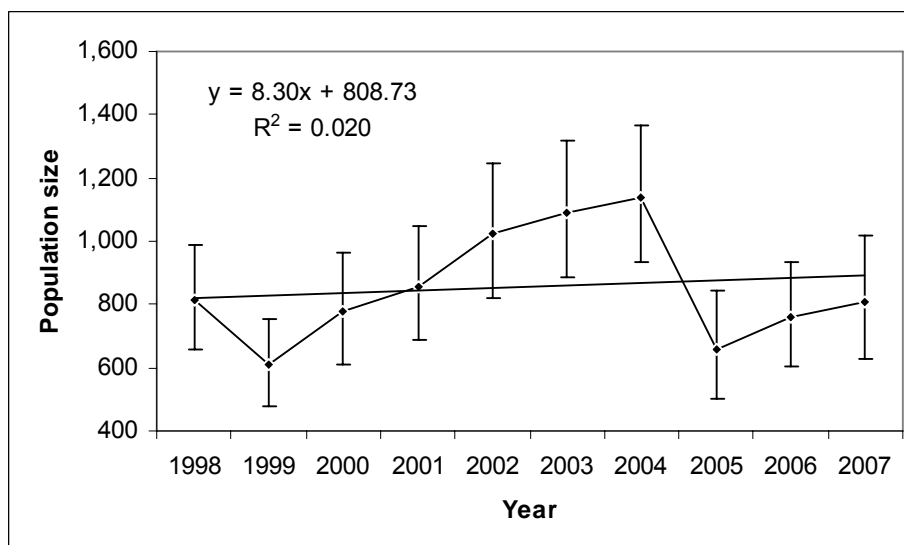


Figure 8. Population numbers of giant tortoises on Picard (1998-2007).

3.4 Aldabra population (total numbers)

The Aldabra population in total is currently estimated at 80,274 individuals compared to 97,162 in 2006 (Figure 9).

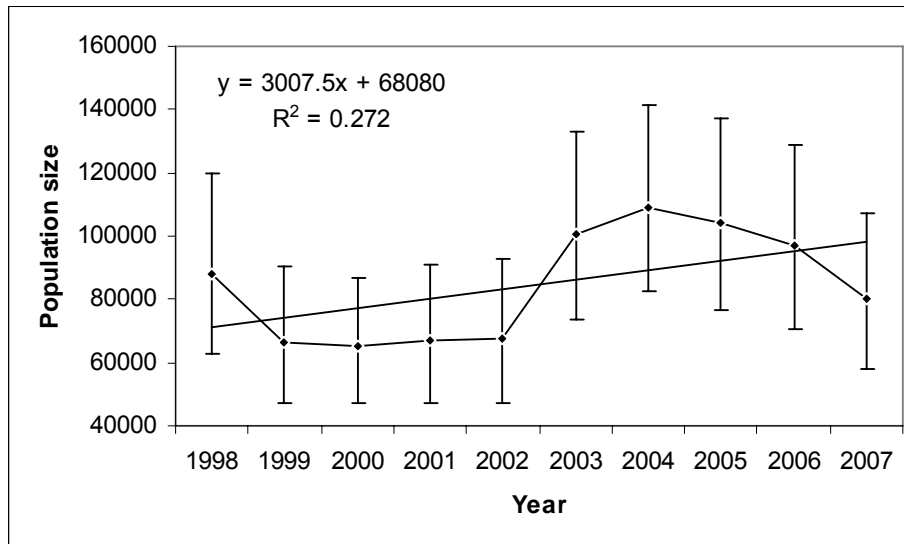


Figure 9. Total population numbers of giant tortoises on Aldabra for the period 1998-2007 and excluding the small Ile of Polymnie.

In 2004, Rainer Von Brandis created a model based on trends in tortoise numbers along the different transects (see RO 2005 annual report). It identifies a Threshold for Potential Concern (TPC) based on the following:

1. The number of successive annual declines in tortoise numbers
2. The percentage of variation in tortoise numbers between years
3. The correlation coefficient of tortoise numbers over time.

Level of concern is rated on a scale of one to three. According to this model counts from two out of the six transects on Grand Terre triggered a level one cause for concern and one a level two cause for concern. Counts from all three transects on Malabar gave a cause one for concern. For more details on model functioning see the RO 2004 annual report.

Dead juvenile tortoises are occasionally encountered after rails have managed to peck through the soft carapace



4. Bird monitoring

4.1 Land birds

To remind readers, land bird monitoring by means of point counts along seven of the tortoise transects around the atoll has been taking place since 2002. As with some of the other monitoring programs, the accumulation of such long-term data is becoming increasingly valuable in the face of global environmental change.

The transects are as follows:

1. Station back path, Picard, 9 count points
2. Bassin Lebine trail, Picard, 5 count points
3. Dune Jean-Louis, Grande Terre, 4 count points
4. Dune d'Messe, Grande Terre, 9 count points
5. Cinq Cases Coco, Grande Terre, 8 count points
6. Cinq Cases Groves, Grande Terre, 8 point counts
7. Middle Camp Inland Traverse, Malabar, 6 count points

The figures below give total annual counts from all the transects combined for the period 2002-2007. In years when counts were not performed during one or more months, average monthly counts were used to make the necessary adjustments.

The numbers of virtually all species (except for the Madagascar Coucal) are down from last year when numbers were particularly high (Figure 10 and Figure 11). The high numbers counted in 2006 were ascribed to the unusually high rainfall experienced that year. Likewise, the drop in numbers this year could be related to below average rainfall in 2007. As rainwater is not retained on Aldabra, the spread of rain throughout the breeding season (or entire year) may be a more important variable influencing the food supply of the respective species than total rainfall.

Numbers of Madagascar White-eye, Aldabra Fody and Aldabra Drongo in 2007 were 6-7% lower than the average for the previous five years. Pied Crow and Sacred Ibis numbers were 35-40% lower. Numbers for these two species from the point counts are always low and this is probably not an optimal sampling protocol for these gregarious species. Temporal changes observed here are therefore not necessarily reflective of these populations. The number of Madagascar Kestrels was 13% lower than the average for previous years but once again low numbers are encountered for this species inhibiting meaningful temporal comparisons. Linearly increasing trends over the six year period is evident for three species (all with $R^2 = 0.65$), Comoro Blue Pigeon, Madagascar Turtle Dove and the Souimanga Sunbird.

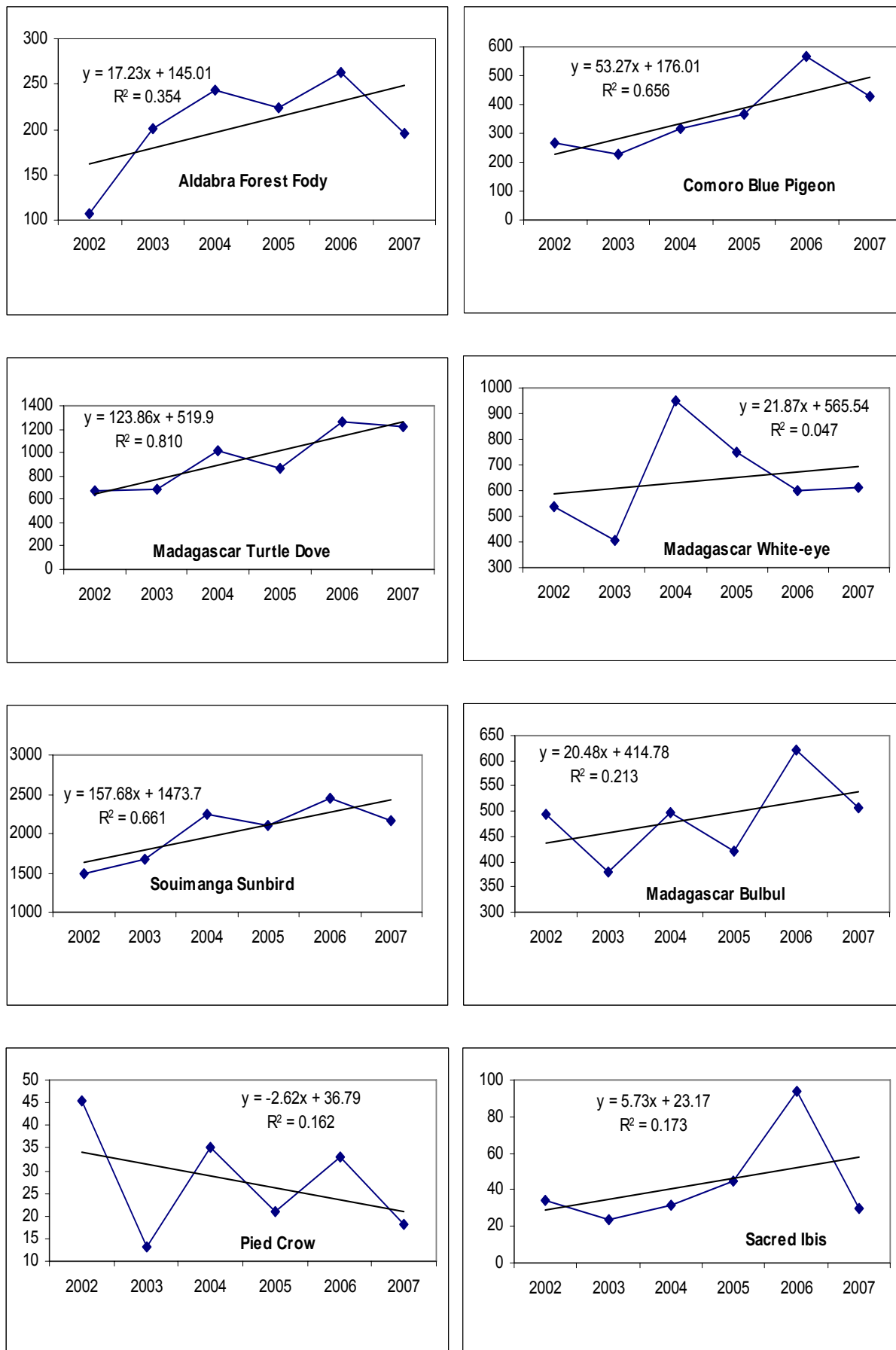


Figure 10. Trends in land bird counts from 2002 to 2007 (total birds counted during year).

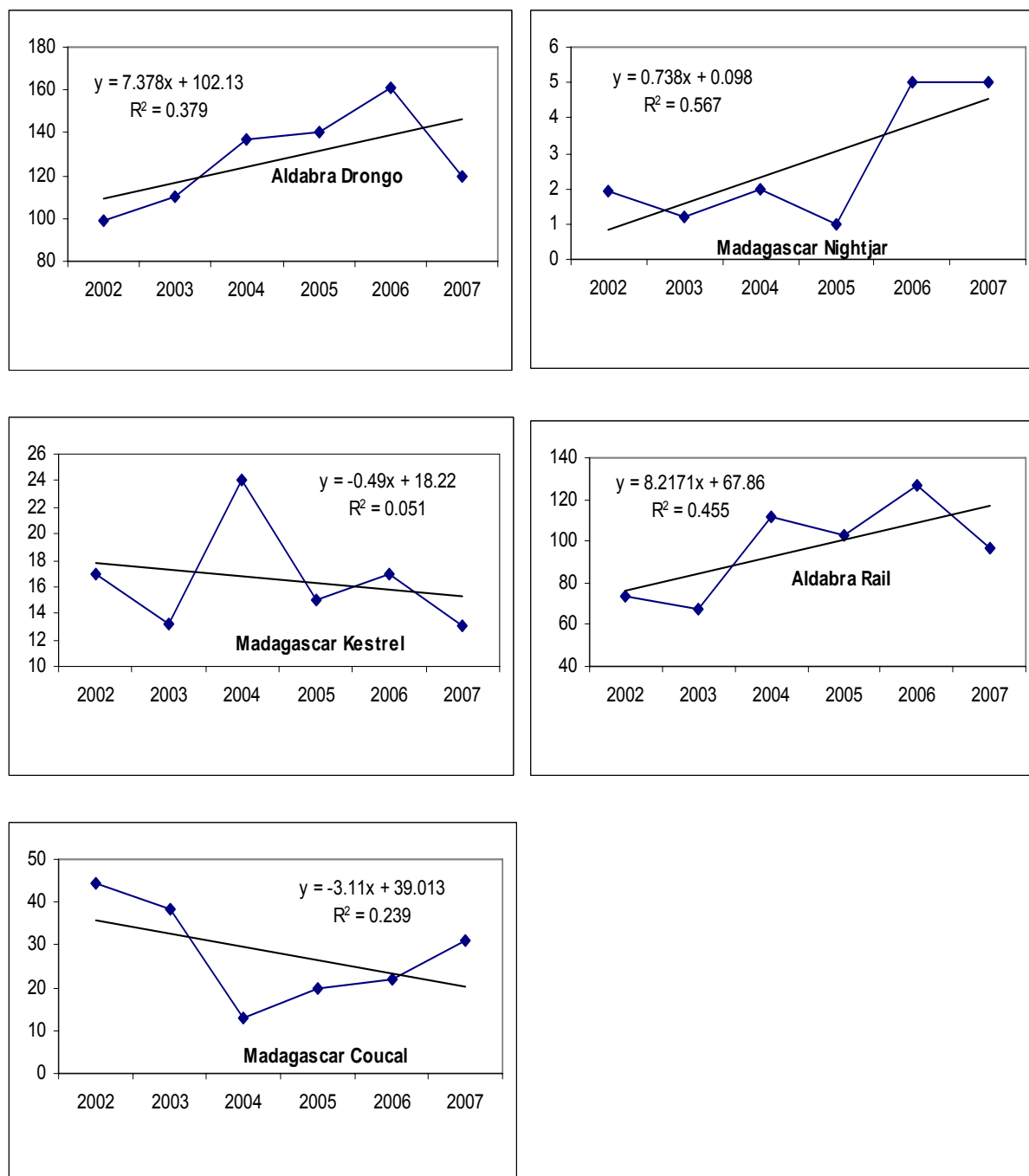


Figure 11. Trends in land bird counts from 2002 to 2007 (continued).

4.1.1 Rail Monitoring

Currently the rail population is being monitored by means of the land bird point counts, which suggests that the population is down from last year but similar to 2004 and 2005, and substantially higher than the two years prior to that. This is likely to be a reasonably accurate form of monitoring (although suffering from low numbers that are encountered per site and per month) but should ideally be augmented with the Huxley monitoring procedure as has been supported by Ross Wanless:

“I recommend that frequency of rail monitoring be reduced from the present monthly surveys to twice yearly surveys; once at the end of the breeding season in March or April and again towards the end of the dry season in October or November. The results of surveys in the former month will be comparable with those of Huxley. The latter survey also allow some

assessment of seasonal variation in rail numbers and responsiveness to playback. A tape player should be used for all playback, not a whistled imitations. The particular recorded song and the volume at which the tape is played should be standardised. RMW will provide a continuous-loop tape recording for this purpose.”

Estimates derived from this method between 2001-2004 resulted in large variance around estimates and data was considered to be of limited value. This could have been due to variability in methods and the high frequency of monitoring that took place (Rails become accustomed to the tape playback and do not respond as readily if frequently subjected to it).

The population on Picard appears to have reached carrying capacity as much fighting between individuals resulting in injuries has been observed. A study on the current status of rails on Picard (and possibly the other islands) could be an interesting and rewarding study for a suitably qualified volunteer.

4.2 Wader counts

4.2.1 Wader counts at Picard and Grand Terre

Low-tide wader counts were performed twice during each month between the northern end of Settlement beach and La Gigi (Figure 12). Similarly, all waders along the stretch between Dune Jean-Louis and Dune D'Messe were counted monthly but at varied tide heights. This makes analytical treatment difficult, and counts at Dune Patates (when this stretch is walked at high tide) probably provide the most useful information as this is an important roosting area for Sand Plovers and Curlew Sandpipers. The maximum number of Greater Sand Plovers seen here were 110, Lesser Sand Plovers 96 and Curlew Sandpipers 294. In the past Curlew Sandpipers were regularly seen here numbering over a thousand.

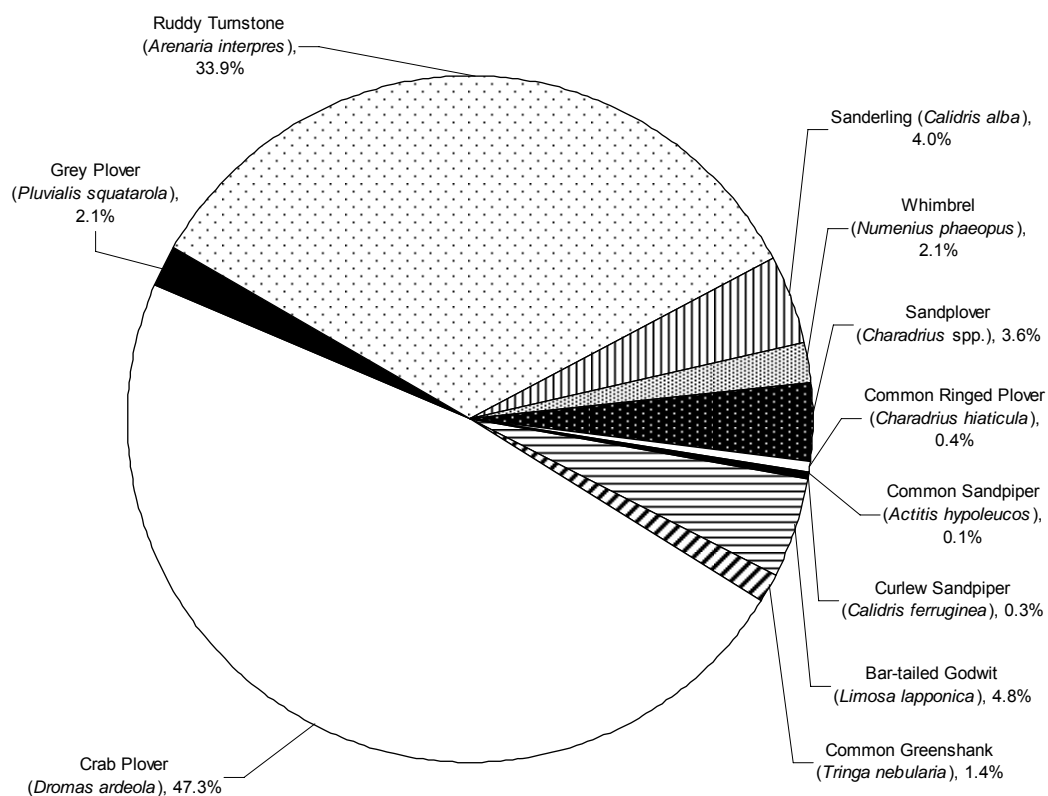


Figure 12. Species composition and relative abundance of migratory waders along Settlement beach.

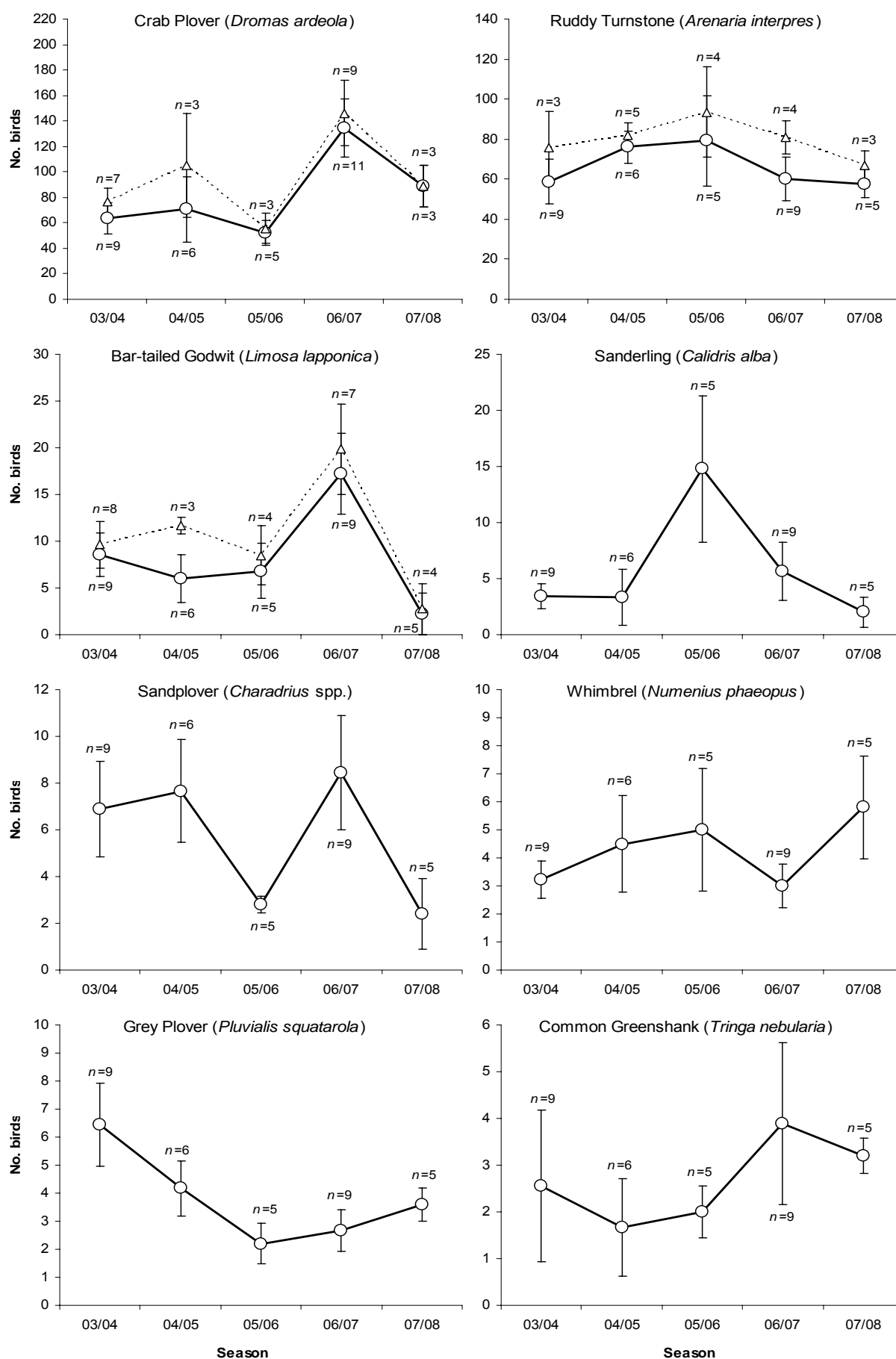


Figure 13. Mean number of individuals (with standard errors) counted (\circ = all counts; Δ = counts that were not significantly influenced by sea level) at the Settlement study site for eight of the most common species wintering at Aldabra for the period 2003-2007.

Figure 13 shows the annual changes in migrant waders wintering at Aldabra based on the Settlement low tide counts. Substantial inter-annual variation can be seen in counts of all the species except for Ruddy Turnstones where the numbers have been reasonably stable. During the five years of monitoring, Bar-tailed Godwits, Sanderlings and Sandplovers were lowest in numbers in the 2007/2008 wintering season (based on November and December counts). The 2006/2007 season on the other hand saw the largest numbers of Crab Plovers, Bar-tailed Godwits, Sandplovers and Common Greenshanks. None of these inter-annual differences in mean counts were significant (Crab Plovers: $\chi^2 = 8.41$, $df = 4$, $p = 0.078$; Ruddy Turnstones: $F = 0.45$, $df = 4$, $p = 0.768$; Sandplovers: $F = 1.52$, $df = 4$, $p = 0.223$; Sanderlings: $\chi^2 = 7.09$, $df = 4$, $p = 0.131$; Whimbrels: $F = 0.83$, $df = 4$, $p = 0.519$; Grey Plovers: $F = 2.59$, $df = 4$, $p = 0.057$; Common Greenshank: $\chi^2 = 4.16$, $df = 4$, $p = 0.385$) except for the 2006/2007 and 2007/2008 means for Bar-tailed Godwits ($F = 2.98$, $df = 4$, $p = 0.043$). The Crab Plover count grouped over the latter two seasons of the study was, however, significantly higher compared to earlier counts ($\chi^2 = 8.44$, $df = 1$, $p = 0.004$). Grey Plover counts, on the other hand, were significantly lower during the last three compared to the first two wintering seasons of the study ($\chi^2 = 4.96$, $df = 1$, $p = 0.026$).

There has generally been much variation in the number of individuals counted during each census per species within each season. This implies that a large number of counts within each season is required to establish statistically meaningful temporal patterns. For future monitoring, it is important to ensure that at least two wader counts are performed per month. It is also important to perform this within two hours of a low tide when the sea level is +1.3 meters or lower. At sea levels higher than this, the reef ridge is not exposed and lower numbers of Bar-tailed Godwits, Crab Plovers and Dimorphic Egrets are encountered.

4.2.2 Crab Plover Count

Two complete atoll counts were performed in 2007 (during two consecutive wintering seasons), the first in March and the second in December. These counts suggest that the population wintering at Aldabra currently consists of 3000-3800 individuals (Table 3). These estimates are larger than reported in the 2006 annual RO report and are based on a more complete knowledge of the areas used for roosting by this species.

Table 3. Population estimates of Crab Plovers at Aldabra during March and December 2007.

<i>Locality</i>	<i>06 Mar 07</i>	<i>28 Dec 07</i>
Ile Moustiques	1150	1350
Settlement beach	478	86
Dune Jean-Louis-D'Messe	728	9
Ilots west of Ile Michel	346*	346*
La Gigi	7	117
Grand Cavalier	350*	350
Petit Cavalier	4*	4
Cinq Cases landing stage	50*	50*
North Coast	200*	200*
Rest of Lagoon	500*	500*
Total	3813	3012

Note: * based on observations of Crab Plovers falling outside the above dates

During March and April, roosting Crab Plovers on Settlement beach were counted on 14 occasions and during November and December on 16 occasions. All these counts were performed within two hours of high tide. These counts were plotted against sea level height at the high tide during which the counts were performed. This was done to test for a relationship

between tidal variation and Crab Plover numbers at Settlement beach and to see whether counts here could serve as a reliable index of population size.

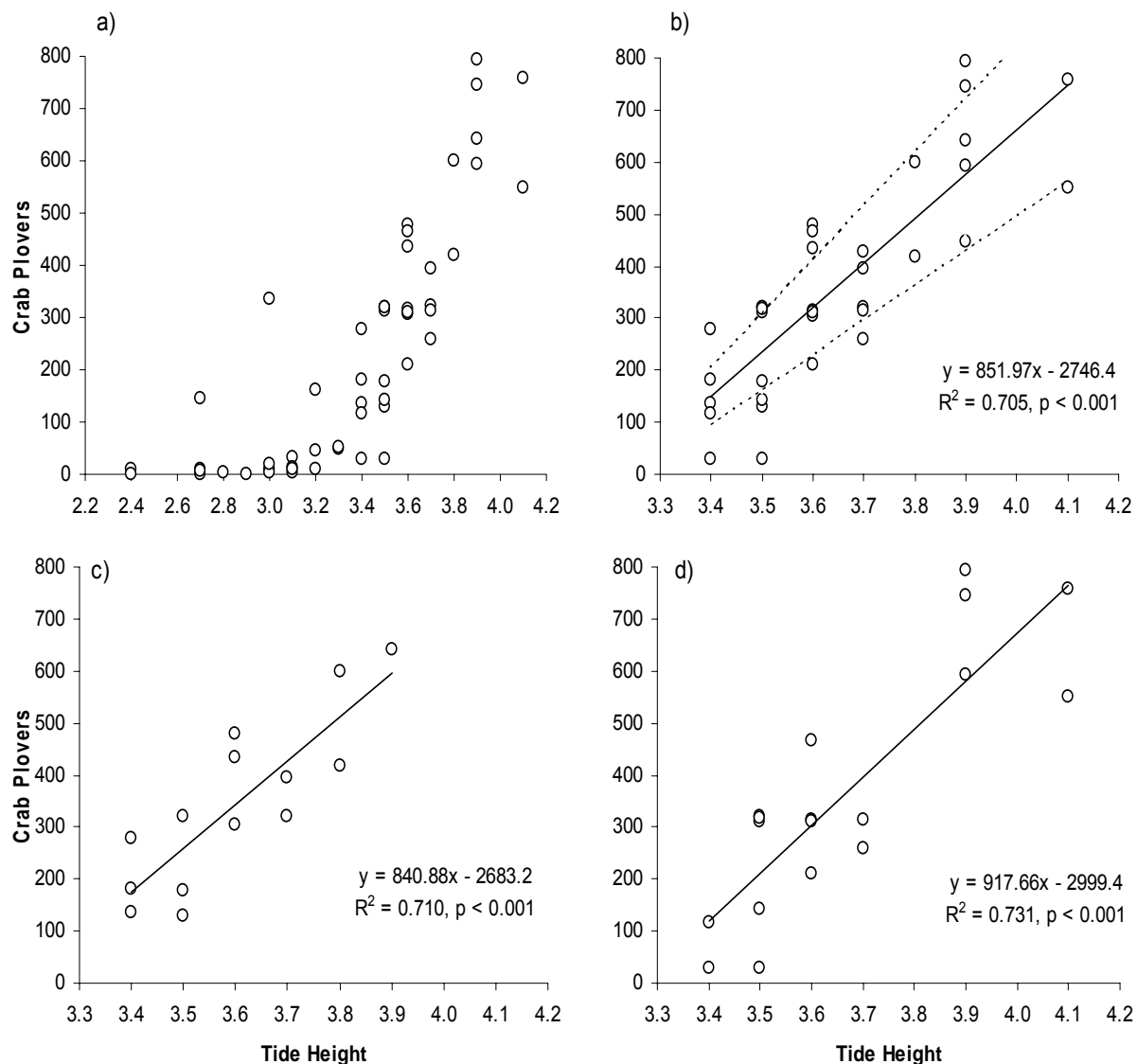


Figure 14. The relationship between sea level height at high tide and the number of Crab Plovers roosting on Settlement beach. a) all high tide sea levels, b) tide height over 3.3m, showing 95% CI, c) March-April 2007, d) November-December 2007.

When plotting all the counts of roosting Crab Plovers on Settlement beach against sea level at high tide, it was clear that in most cases few individuals roosted here when the sea level was below 3.4 meters (Figure 14a). A highly significant positive relationship between roosting numbers and sea level height of 3.4 meters and higher was, however, evident (Figure 14b). This was also the case when we separated the data from the two wintering seasons (Figure 14c & d). The good fit of the regression model to all the data and to the data from both seasons independently ($R^2 > 0.7$) suggest that roosting counts here could serve as a useful index of population size and population status. These counts are performed in the mornings together with the turtle track counts (when this falls over high tide) and do not require additional resources.

4.2.3 Flamingo sightings

On the 4th of April an excursion was undertaken to the Takamaka flamingo nesting pool. 22 adults were present with two small chicks in the water with adults. Twenty-two nests were found, 11 empty, three with chicks (one in the process of hatching) and eight with eggs. Only one chick (a third the size of the adult with decurved bill) on Aldabra has been reported before and this was in 1995. The remote location has, however, seldom been visited in the past (possibly a reason for them breeding there) and the presence of chicks could easily have gone unnoticed.



Rainer Von Brandis reported all flamingo sightings during the goat eradication program and together with SIF staff sightings these are presented in Table 4. The maximum number seen in a group was 27 compared to 57 individuals seen in a single group in 2006.

Table 4. Sightings of greater flamingos at Aldabra during 2007.

<i>Date</i>	<i>Location</i>	<i>Number</i>	<i>Stages</i>
21/03/2007	Cinq Cases Coco	13	ad, juv, sub-a
04/04/2007	Nesting pool	27	ad & c
19/04/2007	Bassin Flamant	1	nr
12/05/2007	Bassin Ibis CC	1	ad
12/05/2007	Landing Stage	1	ad
12/05/2007	Nesting pool	11	8 c, 3 ad
14/06/2007	CC Coco	1	ad
14/06/2007	Pool of path LdS to hut	4	ad
18/07/2007	CC Coco	1	ad
18/07/2007	RHS of path LdS to hut	1	ad
18/07/2007	RHS of path LdS to hut	2	1 sub-ad, 1 ad
04/08/2007	Bassin Flamant	1	ad
16/08/2007	Bassin Flamant	3	ad
16/08/2007	RHS pool near LdS path.	1	ad
16/08/2007	Pool along LdS path	8	5 ad, 2 juv
17/08/2007	Bassin Flamant	1	ad
18/08/2007	Pool along LdS path	1	ad
26/08/2007	Close to exclusion plot at LdS	16	11 ad, 5 juv
27/08/2007	Bassin Flamant	16	11 ad, 5 juv
09/09/2007	Mud flat CC & Takamaka	10	6 ad, 4 juv
11/09/2007	Nesting pool	15	13 ad, 2 juv
12/09/2007	Opposite the exclusion plot in a pool	9	ad
13/09/2007	Pool LHS along LdS path from hut	9	ad
14/09/2007	Pool RHS along LdS path from hut	1	ad
14/09/2007	Pool RHS along LdS path from hut	2	ad
26/09/2007	LdS trail	7	ad
01/10/2007	LdS	5+?	ad
01/10/2007	Close to exclusion plot at LdS	1	ad
04/10/2007	Mud flats between CC & Takamaka	6	4 ad, 2 juv
04/10/2007	Mud flats between CC & Takamaka	5	4 ad, 1 juv
05/10/2007	Bassin Flamant	5	4 ad, 1 juv

14/10/2007	Trail from LdS to hut	1	ad
16/10/2007	LHS pool from hut to LdS near	1	ad
16/10/2007	Close to LdS;	8	5 ad, 3 juv
16/10/2007	Mud flats between CC & Takamaka	1	ad
31/10/2007	Close to exclusion plot at LdS	7?	ad
31/10/2007	Mud flats between CC & Takamaka	10	7 ad, 3 juv
01/11/2007	LdS	2	ad
03/11/2007	Flamant pool, breeding site	6	3 ad, 3 juv
07/11/2007	Bassin Flamant	1	ad
09/11/2007	LdS	1	ad
27/11/2007	LdS trail	14	11 ad, 3 juv

4.3 Seabirds

4.3.1 Red-tailed Tropic Bird monitoring

From mid-March onwards, an important islet in La Gigi for breeding Red-tailed Tropic birds has been monitored every two weeks. The aims have been to obtain information on breeding seasonality and nesting success for this species, both of which can be related to the state of the surrounding environment. Earlier work in the 1970's suggests peak breeding activity in February-March. Data from a complete season will therefore only be available in 2008. Although some activity was evident year-round (between 1 and 2 adults on eggs or chicks during winter), nest occupancy only increased in December when nine adults were found on eggs.

This monitoring should be augmented with at least one count of all nesting Tropic birds (White-tailed and Red-tailed) on islets stretching along the northern shore of the lagoon between Passe Femme and Passe Gionett, a count which was last performed in 2000. This should be conducted at the height of the breeding season for Red-tailed Tropic birds i.e. February-March (White-tailed show no seasonality in breeding). It will be important to map all these islets (and the birds occupying them) in a GIS framework to ensure that the same sites can be revisited annually.

4.3.2 Frigate birds and Boobies

The most practical way to monitor environmental change, without the necessary expertise and equipment on Aldabra to perform dietary and chick provisioning studies, is through population censuses. The last complete atoll census of both species of Frigate birds and Red-footed boobies were done by Dr Alan Burger in March 2000. If time allows, an attempt will be made in March 2008 to perform a similar count comparable to the 2000 estimate. If successfully performed, this will place me in a position to make recommendations regarding the future interval between successive counts and staff requirements. It would, however, probably be desirable to census these populations at least once in every five years. As Frigates demonstrate very low fidelity to breeding sites (there is much movement between the three colonies at Aldabra) entire atoll counts are required to obtain information on population status.

4.3.3 Caspian Terns

A maximum of 18 birds was counted on the 17th of April. Three chicks and two eggs were observed on Anse Grand Poche, two chicks at La Gigi and two eggs on Ile Moustique.

4.4 Vagrant and unusual bird sightings

During field activities, observations of unusual or vagrant birds are recorded and these are presented in the table below.

Table 5. Sightings of vagrant or unusual birds at Aldabra during 2007.

<i>Bird</i>	<i>Location</i>	<i>Number</i>	<i>Date</i>
Indian Pond heron	Settlement	3	03/02/2007
	Picard/Rangers houses	1	03/02/2007
	Cinq Cases coco	2	13/09/2007
	Cinq Cases coco	1	10/12/2007
Little swift	Bassin Morel	1	21/02/2007
Little stint	Settlement beach	1	27/02/2007
Saunders/little tern	Settlement beach	66	16/03/2007
	Around champignon des Os	12	04/09/2007
	Cinq Cases beach	30	13/09/2007
European roller	Dune Jean-Louis	1	05/03/2007
	Picard/old Settlement	1	16/05/2007
	Picard/old Settlement	1	17/05/2007
Curlew sandpiper	Ile Chaland	200	05/03/2007
Sooty tern	off coast Aldabra to Assumption	30	29/03/2007
Barn swallow	Research station	1	08/04/2007
	Research station	1	26/10/2007
	Research station	2	30/10/2007
Marsh warbler	Old Settlement	1	24/04/2007
Common sandpiper	Settlement beach	1	06/08/2007
	Settlement beach	1	10/08/2007
	Settlement beach	1	12/08/2007
	Settlement beach	1	31/08/2007
	Cinq Cases water pool	2	19/09/2007
Long-tailed cormorant	Cinq Cases Coco water pool	1	17/08/2007
Brown booby	Settlement reef	1	07/09/2007
	Ilot Passe Lanier	1	19/10/2007
	Ilot Passe Lanier	2	29/10/2007
	Ilot Passe Lanier	2	31/10/2007
	Middle Camp	1	04/12/2007
Great white egret	Cinq cases water pool	1	14/09/2007
	Middle camp	1	14/09/2007
Common swift	West Grande Terre	1	20/09/2007
Broad-billed roller	Old settlement	1	29/10/2007
	beach 19	1	30/10/2007
	beach 18	1	31/10/2007
	coastal path	1	06/11/2007
Spotted flycatcher	Mess	1	29/10/2007
	Rangers house	1	01/11/2007
	Rangers house	1	02/11/2007
	Rangers house	1	03/11/2007
European bee-eater	settlement beach	2	14/11/2007
White wagtail	Settlement beach	1	22/11/2007
	Boat shed	1	25/11/2007
Yellow wagtail	Old settlement	1	19/12/2007

On the 4th of December a Brown Booby was seen on a nest in the Frigate colony at Middle Camp. This is significant as it is the first record of a Brown Booby breeding on Aldabra. The observation was made by the Foto Natura photographers.

Marsh Warbler caught on
24/04/07 at Old Settlement



Between the 14th and 21st of June, one or more Grey Herons were seen predating on Aldabra White-throated Rails. On two occasions herons were observed having caught rails and on another occasion a heron was observed ambushing and pursuing rails with no success. Although the heron(s) were not observed ingesting the rails, as they flew or ran off with their prey it is likely that the rails were successfully consumed. These are the first observations of any form of predation on Aldabra White-throated Rails, which would be among the largest avian prey recorded for Grey Herons. A detailed account of these events has been accepted for publication in the Wilson Journal of Ornithology.

5. Subsistence fishing

Data from the subsistence fishery was analyzed and written up as a paper entitled “Declining catch rates of reef fish in Aldabra’s marine protected area” and submitted to Aquatic Conservation for publication. A copy of the draft manuscript is available on request. The following figure and abstract are taken from the manuscript.

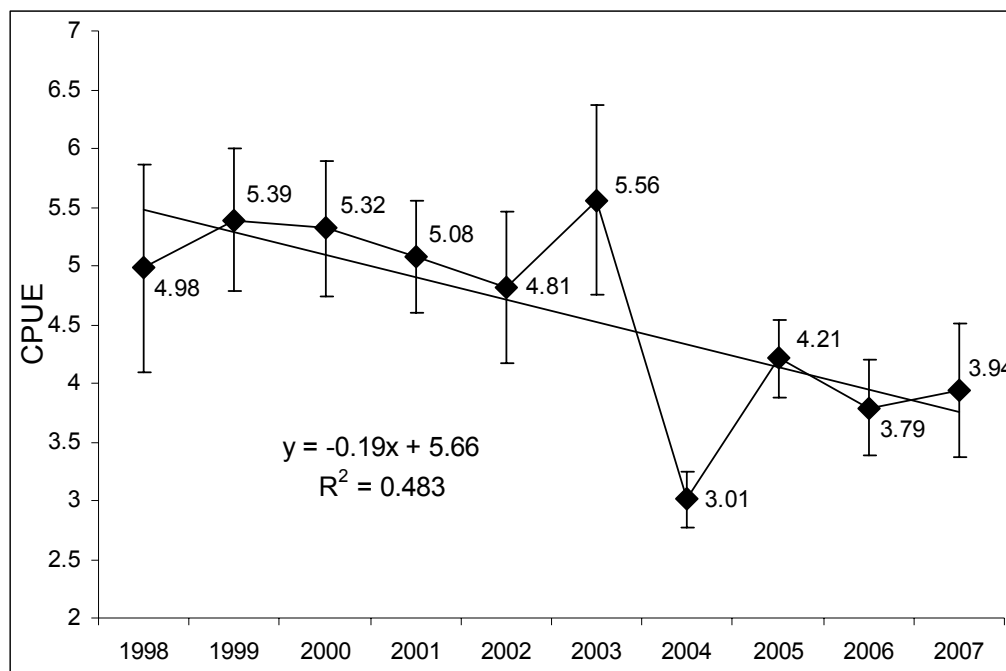


Figure 15. Annual CPUE (±SE) estimates (kg.h⁻¹ per person) from a small scale subsistence fishery at Aldabra for the period 1998-2007.

“Fish landings from a small scale subsistence fishery at Aldabra, Seychelles, were monitored from late 1995 to early 2007 to describe the predominant species caught, catch per unit effort (CPUE) and patterns in yield over time. During this period a total of 19.5 tons of fish (piscivores) were caught, varying between 991 kg and 2459 kg per annum. Although

information on catch composition were recorded from all the fishing trips that took place during this period (n=446), effort data allowing for CPUE estimation was only available for 259 of these trips and from 1998 onwards. Over the study, and in order of importance, *Lutjanus bohar*, *Variola louti*, *Lethrinus nebulosus*, *Epinephelus multinotatus* and *Epinephelus polyphekadion* made up over 80% of the total catch. Annual CPUE varied between 3.01 and 5.10 kg.h⁻¹ per person and showed a significant decline during the study period which was particularly pronounced after 2003. Throughout the period fishing pressure was low, and largely limited to the subsistence fishery. We argue that changing catch rates are likely to have been independent of direct anthropogenic influences but a result of reef degradation following the 1998 bleaching event.”



After a successful fishing trip, the catch is weighed and measured before being cleaned and frozen

When looking at individual species (and comparing estimates for the period 2004-2007 with earlier estimates) a significant decline in catch rates of *L. nebulosus* and *E. multinotatus* (43.2% and 61.1% respectively) and mean individual weight of *L. bohar* (16.6%) was apparent (Figure 16) and would largely have influenced observed changes in CPUE. Although not significant, the decline in catch rate of *L. bohar* and mean weight of *V. louti* would also have come into play. Interesting to note is that the only increase was found for *V. louti* where a significant increase in catch rate was apparent while the average individual weight for this species declined.

As I was reminded by Jan Robinson and Ray Buckley after the first draft was circulated for comments, the linear relationship between CPUE and fish abundance can break down under various circumstances. Most relevant on Aldabra is probably the fact that annual variation in areas fished could strongly influence CPUE and so can fisherman competence. A similar decline in CPUE was, however, evident within different sections of the reef. The gradual turn-over of staff would likely also ensure a continuation of local knowledge. CPUE estimates from Aldabra are therefore very likely to be a good index of fish abundance.

The decline in fish abundance is most probably either a result of over-fishing or of large scale changes in the reef system following the 1998 bleaching event. There is not enough information available to ascribe the decline to either of these potential drivers although, in my view, the second is the most probable. In other parts of the Seychelles (inner granitics) a similar pattern has emerged and this was argued to have been a result of the breakdown of the reef framework (which influences virtually all reef dwelling organisms) several years after the

bleaching-associated coral mortality. Although the loss of habitat at Aldabra would not have been nearly as severe as around the granitics it is still likely to have been significant.

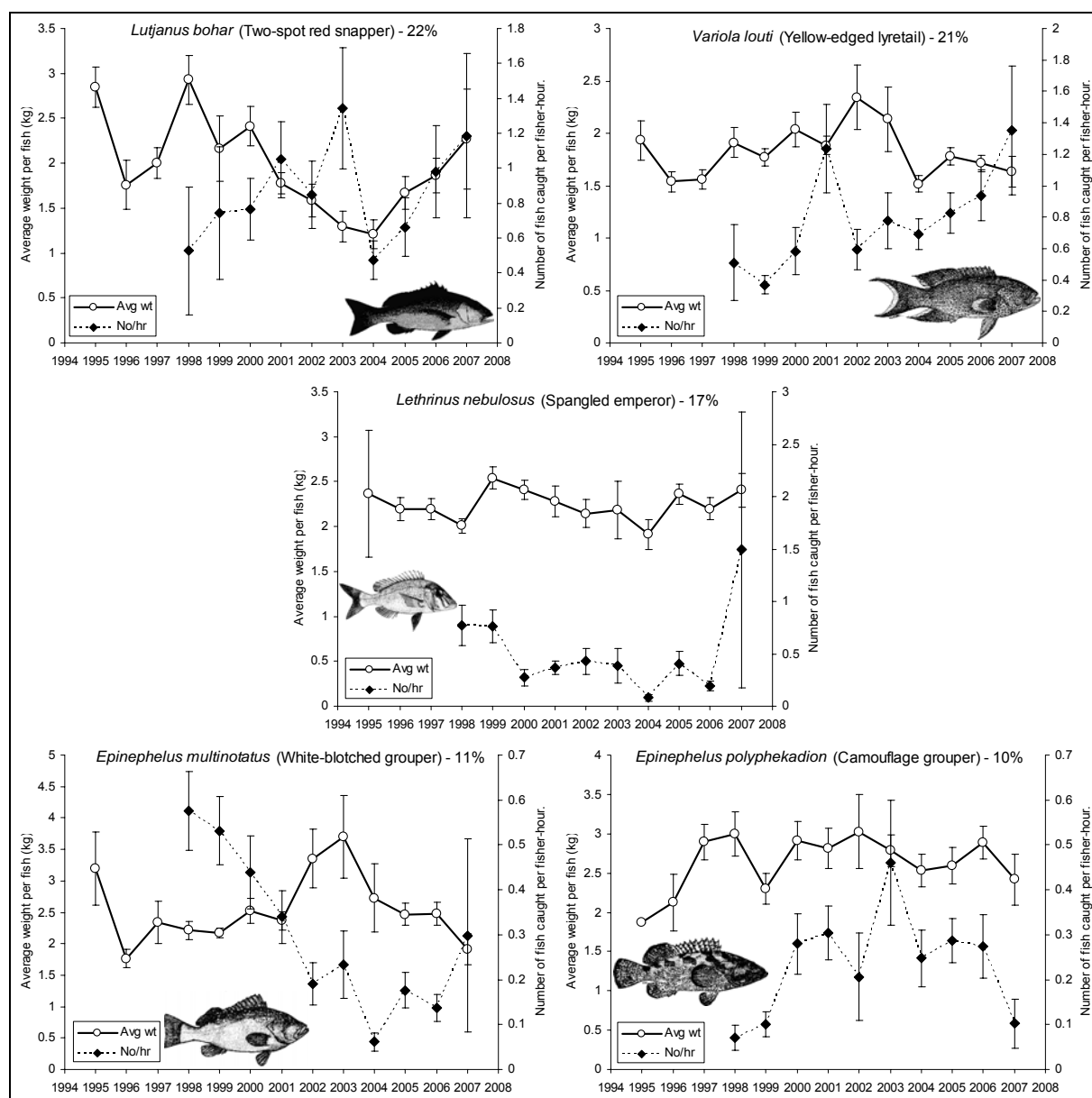


Figure 16. Mean individual weight and number of fish caught per person per hour (\pm SE) for five demersal reef fish that make up 81.3% of biomass caught.

I have not managed to find information on sustainable yields of Piscivores on coral reefs. These studies generally refer to off-takes from fisheries that target various functional groups and mostly included functional groups with relatively fast turn-over rates. For these fisheries 8 tons/km² per annum is thought to be sustainable. The off-take at Aldabra since 1996 has been between 1-2.5 tons of fish per annum (Table 6) over its 28km² reef area (despite most fishing effort being focused in the western side of the atoll). If off-take was equally distributed over the reef area it would imply a maximum of 89 kg/km² per annum and double this if fishing takes place over only half the reef area. It is difficult to imagine that these low figures would have a significant impact on target species. If the decline in abundance is due to over-fishing, it would therefore probably stem from illegal sources, which could potentially be significant. As one of the last refuges where a reef system can be monitored with the virtual absence of direct anthropogenic pressures, all attempts should be made to prevent illegal fishing from taking place.

Table 6. Total weight of demersal fish caught, total fishing trips and number of trips from which CPUE could be estimated, and annual average number of lines per trip at Aldabra for the period 1998-2007.

<i>Year</i>	<i>Kilograms</i>	<i>Total fishing trips</i>	<i>Fishing trips with CPUE</i>	<i>Average lines per trip</i>
1995 (Oct-Dec)	394	6	0	unrecorded
1996	1,715	28	0	unrecorded
1997	2,459	42	0	unrecorded
1998	1,742	27	9	4
1999	1,430	26	20	4
2000	1,817	42	31	4
2001	2,246	55	33	4
2002	1,309	40	27	3
2003	991	28	21	4
2004	1,147	37	33	4
2005	1,748	61	48	3
2006	1,948	41	30	4
2007 (Jan-May)	519	13	7	4
Total	19,499	446	259	4

Presently, before visiting boats come to Aldabra they are provided with rules and regulations stating that fishing within 1km of the atoll is illegal. If there is place available on the boat, a ranger will also accompany vessels at all times (the occasional exception being when they are moored/anchored in front of the station). Atoll round patrols are supposed to take place monthly but often resources are not available (boats, boatman, rangers) or the sea conditions are unfavourable. More effort should be spent making sure that these patrols do take place regularly. Some form of automated surveillance (e.g. radar) would be ideal and should become a priority.

6. Robber crabs

Robber crab monitoring commenced in October 2006, but regular counts (including marking and weighing) along the back path and coastal path at Picard only started in March 2007. Data collection will continue until the end of February 2008 to give complete monthly information over an entire year. Data will then be thoroughly examined before recommendations are made regarding the continued monitoring of the population. Below I present some of the preliminary results from the monitoring program based on data collected from 1499 individuals of which 140 marked individuals were recaptured at a later stage.

It has previously been reported that robber crabs are most active during dark nights and less so during times when the moon is near full. We have found no such relationship as is evident from Figure 17. This means that a temporal comparison of apparent abundance would not be biased by variation in the lunar phase during the time that counts are performed. Although there was a positive relationship between recent rainfall and robber crab numbers this was not significant (Figure 18).

Despite the variance associated with the monthly means being high due to few counts per month, a seasonal pattern has emerged (Figure 19). Maximum numbers were seen in March and counts declined to a low during July through September before increasing again. The very low counts in January and February could be a result of the limited coverage during these months.

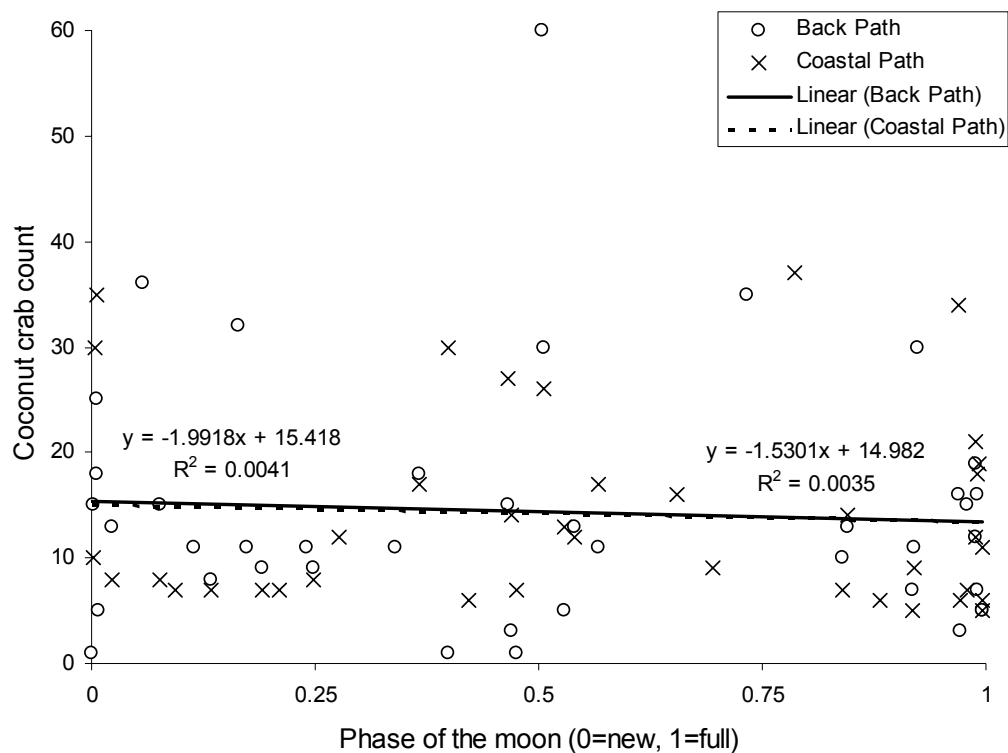


Figure 17. Relationship between robber crab counts and phase of the moon.

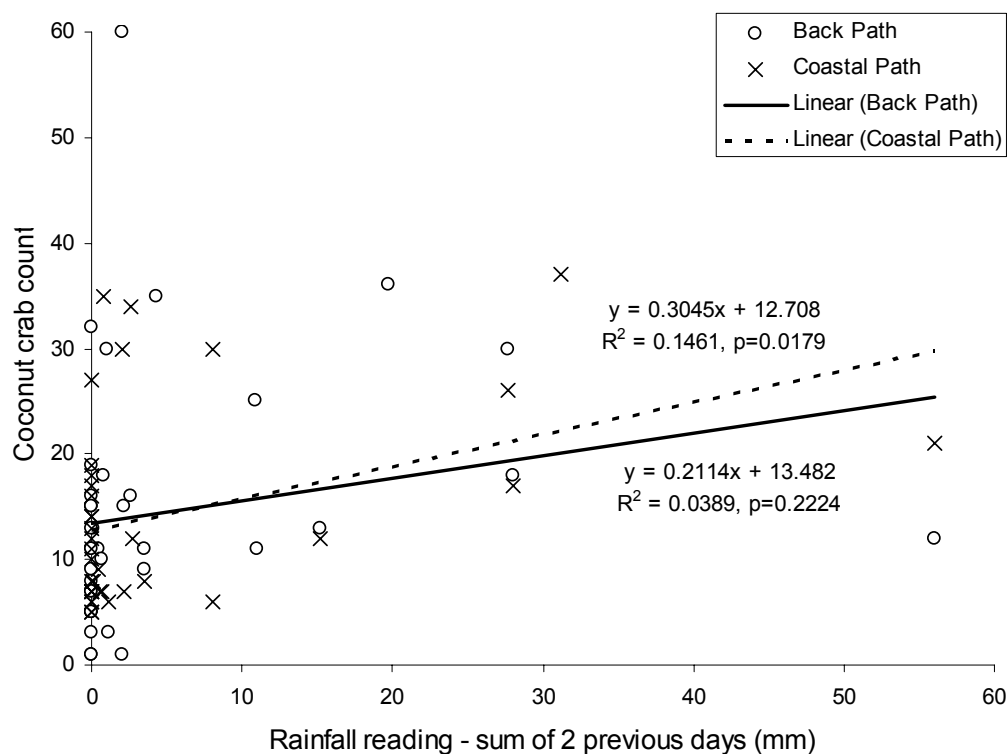


Figure 18. Relationship between robber crab counts and rainfall.

The largest percentage of male robber crabs weighed in the region of 400 grams and females between 200 and 300 grams (Figure 20). Interesting to note is the similar percentage of males in weight categories greater than a kilogram. This would suggest that mortality is very low once this weight is reached. The maximum size that females reached was 1.5 kg and the heaviest male recorded was 3.625 kg.

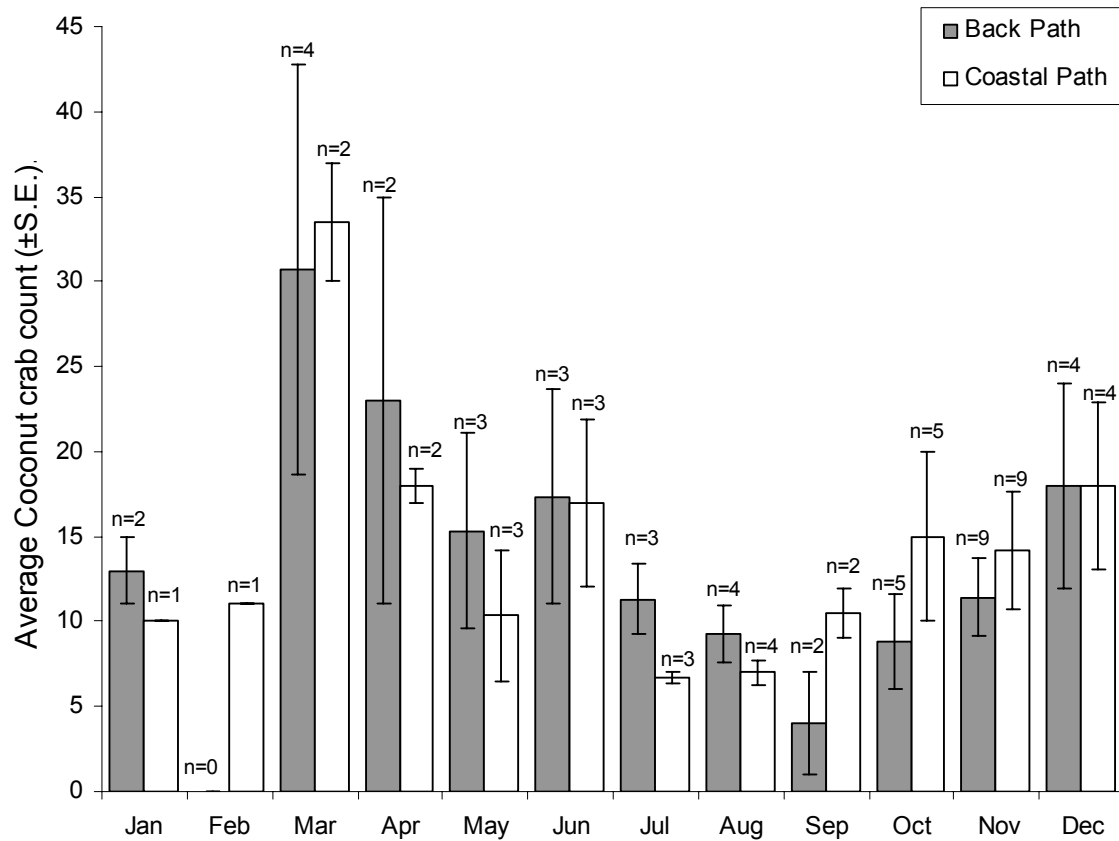


Figure 19. Average monthly counts of robber crabs on two transects at Picard.

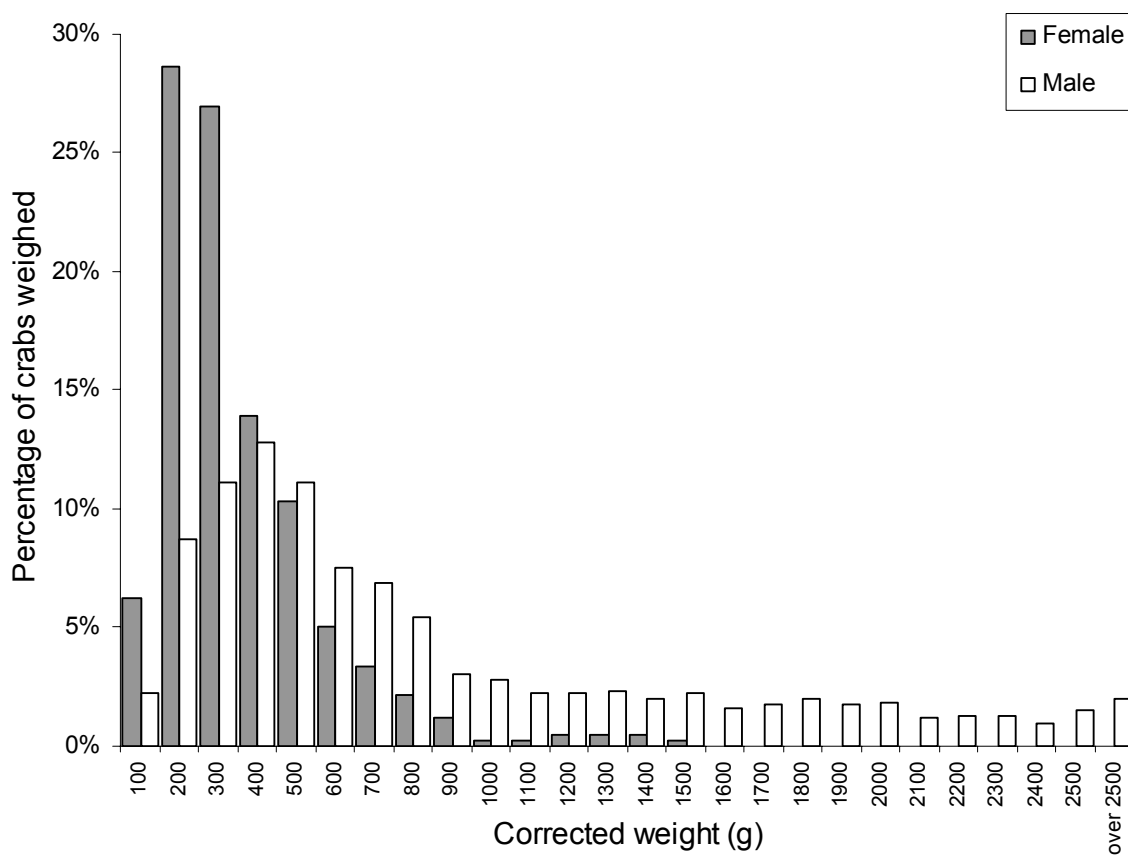


Figure 20. Weight distribution of robber crabs on Aldabra Atoll.

Just under 70% of recaptured robber crabs were found within 50 meters of the site where they were marked or last observed (Figure 21). About 15% were seen over 500 meters from the last site and one was seen 1.3 km from the last site. These crustaceans therefore do have the potential to move large distances in search of food or mates. The longest period between resights was just over 6 months, demonstrating the efficacy of the marking method.

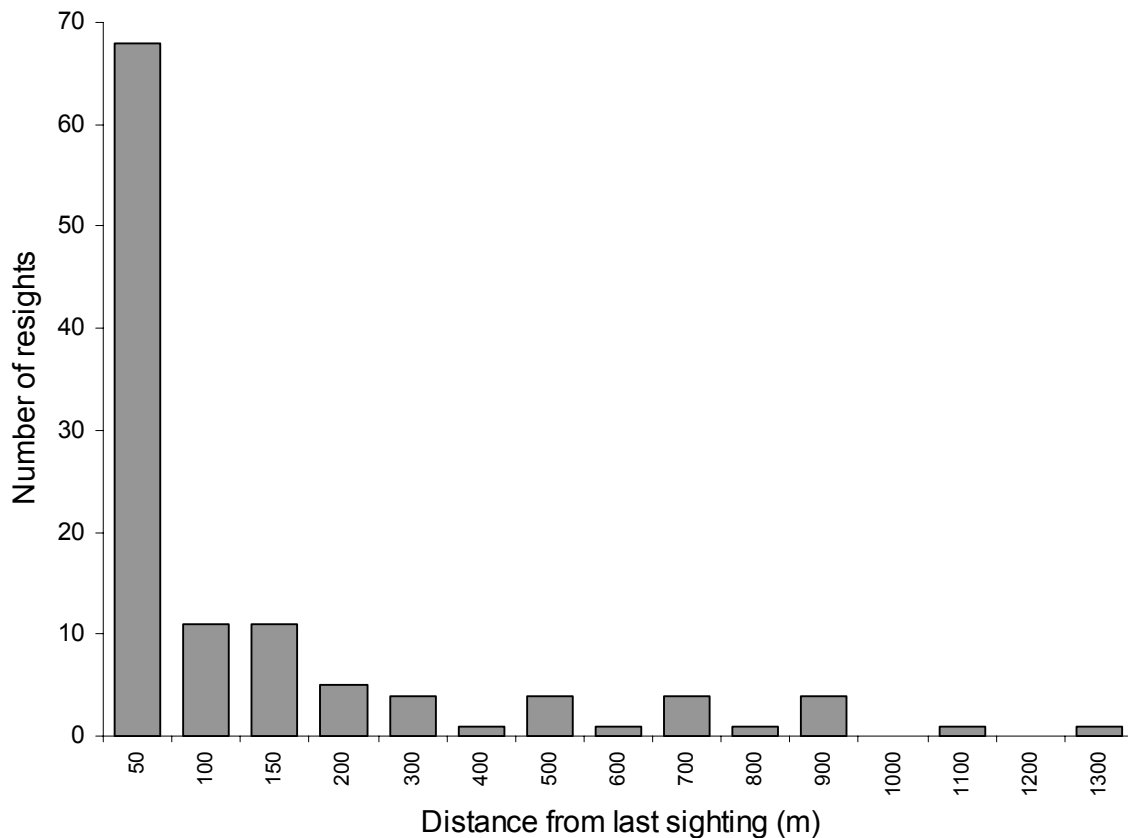


Figure 21. Distance from last sighting of robber crabs on Picard.



A crab marked with permanent marker under the claw



A 'fat-tail', ready to moult

7. Marine mammals

The first Humpback whale was seen on the 9th of July and the last one on the 23rd of October. All opportunistic sightings were recorded and a concerted effort was made this year to report all these sightings. A total of 256 whales from 148 observations were reported within this period.

Most whales were sighted during July with slightly lower numbers during August (70 whales) and September (71 whales) (Figure 22). The season finished in October this year, which is earlier than the year 2005 where the last record of Humpback whales was the 15th November.

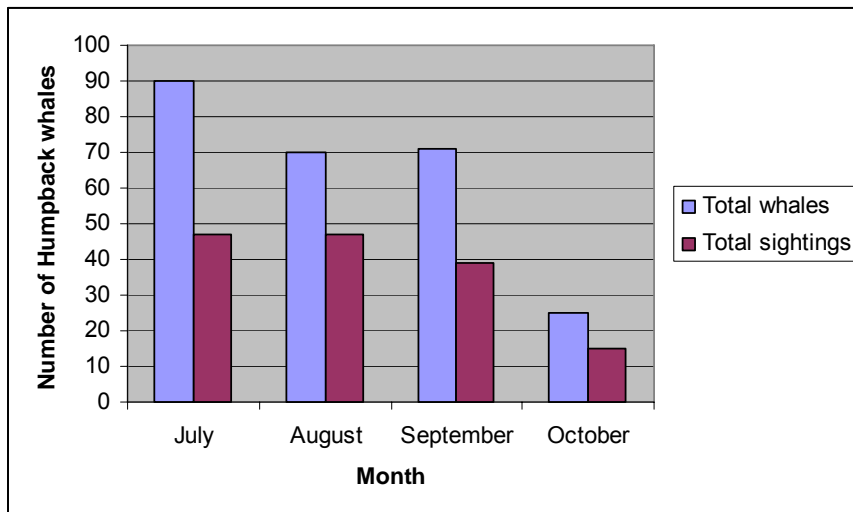


Figure 22. Total Humpback whales compared with total sightings reported in Aldabra waters from July to October 2007.

As is apparent from Figure 23, a maximum number of whales were reported in 2007 in relation to previous years. Obviously effort would have been variable over this period and these figures would not allow for a temporal comparison of abundance.

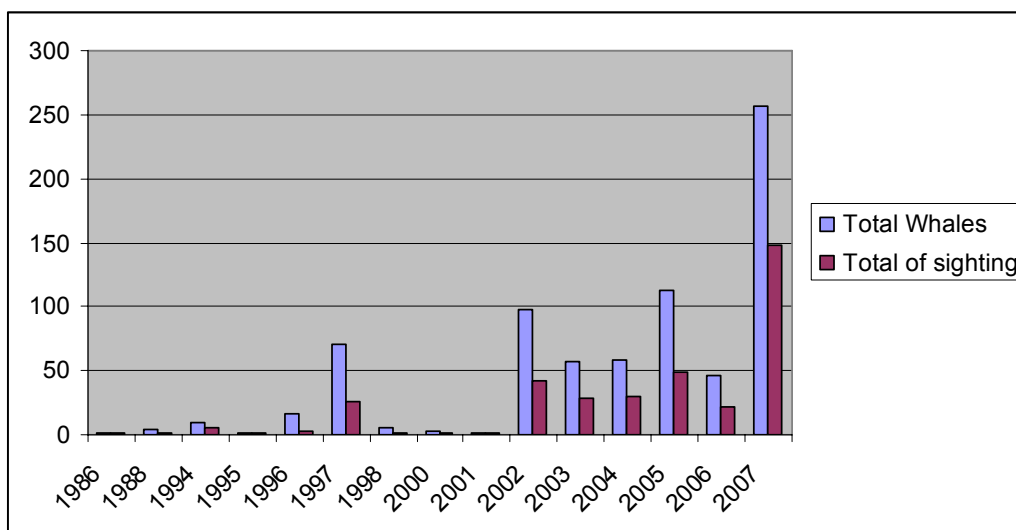


Figure 23. Total annual Humpback whales compared with total annual sightings reported in Aldabra waters between 1986 and 2007.

A first attempt was made to perform identification photography in order to create a photo ID catalogue which would be useful for studying this species.

Short-finned pilot whales were observed on three occasions, on the 5th of January (20 individuals), the 3rd of February (10 individuals) and the 19th of December (4 individuals).

Spinner dolphins were regularly sighted all through the year but sightings have generally gone unrecorded.

Dugongs were only sighted twice, at the beginning of the year. The first one was on January the 9th and the second in February on the 4th. Both times only one individual was seen inside the lagoon (between Dune Jean-Louis and Dune D'Messe, and Bras Monsieur Claremont area). Dugongs were also sighted twice during the course of 2006 compared to six sightings in 2005.

8. Vegetation Monitoring

Since April 2007, the phenology of 27 common and rare species of plants (Table 7) have been monitored twice per month. Initially one specimen was selected per species but after observing some differences in phenology between different plants of the same species it was decided to select three specimens per species. These were selected and marked along the back path on Picard. On each encounter, a plant is described according to the following criteria:

SPR: Sprouting

DRY: Few or no leaves

FB: Flower buds

FL: Flowering

FR: Fruits

GR: Green

NR: Not recorded

Any unusual observations, including insect damage are recorded under notes.



Labelling of trees using laminated name/species tags on Picard back-path for monitoring but also to facilitate familiarization with the more common species on Aldabra

A laminated sheet with the location of the plants (in relation to tortoise transect sections or land bird points) is used in the field to locate all the specimens. For the first few months many specimens were not found (often omitting information for two of the three specimens) but that has improved with familiarity gained.

Table 7. Species monitored in vegetation phenology study.

<i>Acalypha claoxyloides</i>	<i>Allophylus aldabricus</i>	<i>Apodytes dimidiata</i>
<i>Azima tetraacantha</i>	<i>Canthium bibracteatum</i>	<i>Capparis cartilaginea</i>
<i>Erythroxylum platycladum</i>	<i>Euphorbia pyrifolia</i>	<i>Flacourtia indica</i>
<i>Grewia picta</i>	<i>Jasminum elegans</i>	<i>Lomatophyllum aldabrense</i>
<i>Maytenus senegalensi</i>	<i>Mystroxyton aethiopicum</i>	<i>Obetia radula</i>
<i>Ochna ciliate</i>	<i>Pandanus tectorius</i>	<i>Polysphaeria multiflora</i>
<i>Clerodendrum glabrum</i>	<i>Scutia myrtina</i>	<i>Sideroxylon inerme subsp. cryptophle</i>
<i>Solanum aldabrense</i>	<i>Tarenna supra-axillaris</i>	<i>Terminalia boivinii</i>
<i>Tournefortia argentea</i>	<i>Tricalysia ovalifolia</i>	<i>Triainolepis africana subsp. hildebrand</i>

Katy Beaver made several corrections to spelling and status of the initial list of species. Several of the labels still have incorrect spelling and these need to be replaced.

One of the values of this monitoring program is that it will provide baseline data that can be monitored over the long term in the face of changing climatic conditions. Monitoring of a broad range of rare species will be particularly pertinent and this was also initially proposed. The ideal situation would be to get a trained (and fit) botanist to spend some time on Aldabra to locate and identify a number of rare species that can be monitored. These are likely to be distantly spaced and perhaps monitoring would only take place quarterly due to logistical difficulties.

9. Climate

Aldabra received relatively low rainfall in 2007 (Figure 24). Readings from the station indicated a rainfall of 621mm compared to the average of 935mm for the period 2000-2006 and just over a 1000mm for the period 1950-2000. It is about a third of the rainfall received in 2006 which was the highest rainfall year since 1949. The monthly rainfall pattern was also unusual with an unexpected peak in June (Figure 25).

As usual, much of the rainfall was localized and rainfall varied between 434 and 1004mm across the atoll (Table 8). The rainfall gauges at Ile Esprit, Polymnie and Gionnet have been checked as close as possible to the end of each month (usually within 2 days) and these should give a good representation of monthly rainfall.

Table 8. Annual rainfall figures for the 12 rainfall gauges around Aldabra

CC Hut	545
CC Groves	548
DJL	719
DDM	928
A. Mais	674
A. Var	697
B. Lebine	837
Gionnet	1004
Polymnie	982
A. Malabar	801
M. Camp	434
Ile Esprit	975

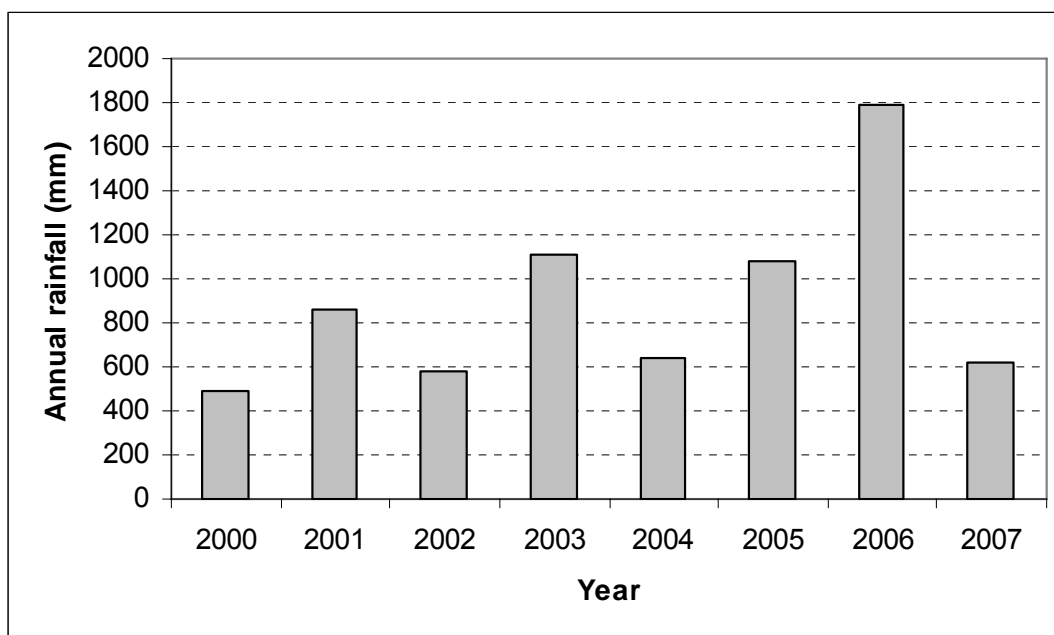


Figure 24. Total annual rainfall at the research station on Aldabra for the period 2000-2007.

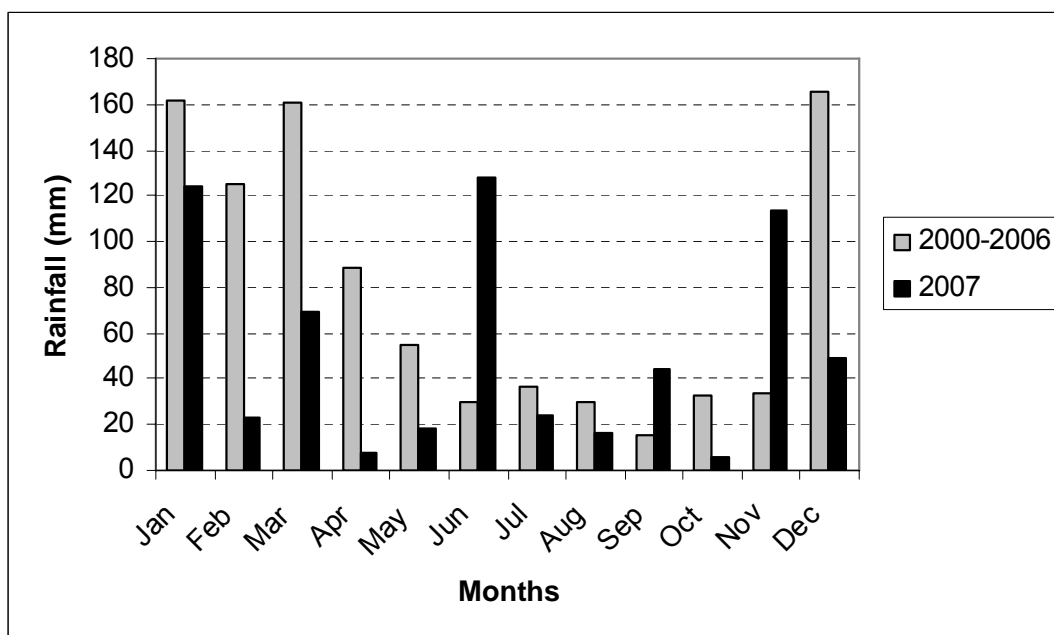


Figure 25. Monthly rainfall measured at the research station on Aldabra for 2007 and the average of measurements taken between 2000 and 2006.

Monthly temperature readings from the station are provided in Table 9. Mean annual dry bulb temperature for 2007 was about 0.5°C higher than 2006 but well within the range reported since 2000 (Figure 26).

Table 9. Mean monthly temperatures measured at Aldabra Station during 2007.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean dry bulb, C°	27.9	29.0	28.2	28.0	27.5	25.6	24.6	25.1	25.2	26.2	27.1	28.0
Mean wet bulb, C°	27.7	27.4	28.1	27.3	26.3	26.1	24.0	24.2	24.2	25.0	26.0	26.7
Mean Max, C°	33.0	33.2	33.6	35.1	35.2	35.4	35.3	35.4	35.4	35.4	35.4	35.5
Mean Min, C°	24.0	27.5	21.7	25.2	25.8	23.8	23.4	22.9	23.5	24.4	24.5	24.7

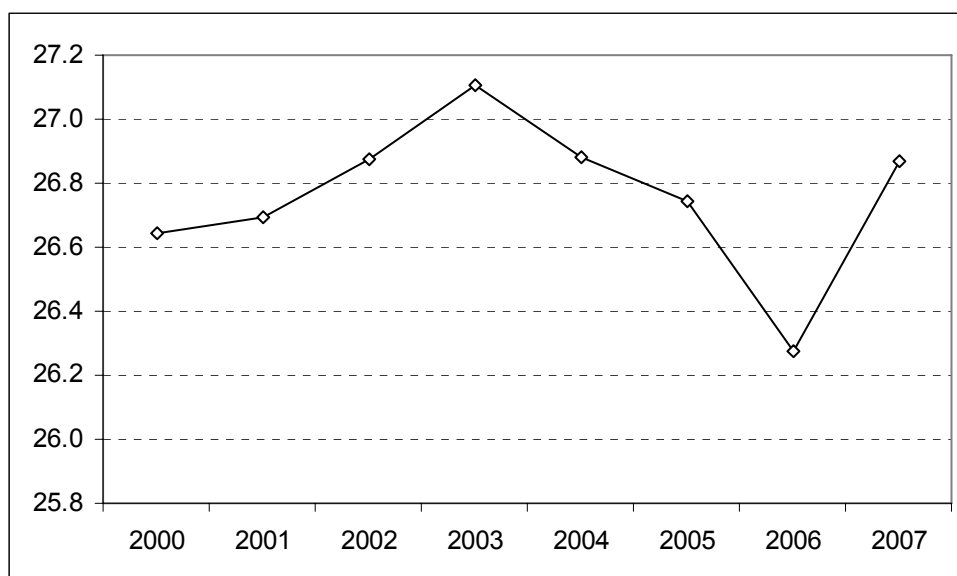


Figure 26. Mean monthly dry bulb temperatures at Aldabra station for the period 2000-2007.

10. Rangers projects

Devis Monthy has been working on a project titled “Abundance, distribution, size range and habitat association of sea cucumbers around Aldabra” since May, after it was proposed in March. Not much progress has been made, largely because of him having spent much time working as a boatman. He will be leaving Aldabra in March 2008 and it is doubtful that this project will be completed. His initial work could possibly be followed up through the volunteer program.

Alex Underwood’s personal project entitled “The impact of rats on the vegetation on Picard” is nearing completion and will be submitted to SIF in the near future. A file with all the descriptive statistics for the data collected has recently been lost which is a setback.

Early on in 2006, Catherina Onezia demonstrated an interest in collecting data on the size of territories and partnership fidelity in Aldabra Drongos by means of ringing a number of individuals. This has not materialized and she has turned her interest to Greater Flamingos and has been collating all the data that have been collected for these birds on Aldabra.

11. Goat eradication

A goat eradication program on Aldabra, led by Rainer von Brandis, took place between mid-July and mid-December. The summary from the final eradication report follows and the full report is available on request.

“A final total of 202 goats were eliminated by the eradication team. A total of 1153 hours were spent in the field during which 2158km were covered. 10 Judas goats (6 females and 4 males) were established using the latest and most effective methodology available (sterilization and prolonged oestrus). Three Judas goats were recaptured and relocated and 4 were eliminated since they had associated permanently with other Judas goats. Male Judas goats appeared to be more efficient than females but this could not be substantiated statistically. Mean home range of Judas goats was 4.6km² at the beginning of the program but increased to 9.58 km² towards the end. Of the eliminated goats, 49% were below the age of 15

months indicating that the population had been in a state of sharp increase. A near equal ratio of males and females (102♂:100♀) was eliminated. Mean hunting success for the program was 0.24 goats per hunting hour. Hunting success decreased steadily throughout the program. In the last 150 hours of hunting, no goats were found. Staff from the research department have been trained in the use of the telemetric gear and will continue to monitor the 6 remaining Judas goats on a monthly basis for a period of 2 years. Eradication cannot be confirmed until the monitoring program has run its full course”.

12. Departmental issues

12.1 Staff

At the onset of 2007 there were four rangers in the research department, Uzice Samedi, Catherina Onezia, Alex Underwood and Devis Monthy. Aurelie Hermans joined the department in the capacity of Assistant Research Officer on the 27th of March. The creation of this position has been beneficial as it allows the RO more time to work on the preparation of manuscripts. In April, adjustments were made to Devis Monthy's contract and he has been dividing his time between ranger and boatman ever since. Uzice Samedi took over the position of island manager from Guy Esparon in May and thereby left the research department. Edwina Jean-Baptiste joined the research department as a ranger in July.

Under current circumstances it is desirable to have at least five staff present in the research department at one time for completion of data collection from all the monitoring programs. Although six staff were employed throughout most of 2007, often there would be one member on leave with five individuals remaining in the department. These numbers generally worked well, but the demand on the department shifts drastically between seasons. During the south east when very few tourist vessels are around four could suffice but when there is high tourist traffic six individuals are recommended. This is now more relevant than ever as Aldabra will probably see unprecedented levels of tourism and visitor activities in 2008.

The morale of staff has varied much though out the year. Although generally positive during the first part of the year I noticed a definite slump after I returned from leave in early November. A general discontent towards SIF was felt and this appeared to revolve around several factors. There was a feeling that SIF was oblivious to the needs of the local staff and that requests were not being met. Much of this may have stemmed from the fact that there was an interval of about 3½ months between receiving supplies. The lack of fresh produce as well as alcoholic beverages (beer and wine) at most times is a source of discontent. Among other things, there have also been complaints about the lack of appropriate foot wear for field work and the attempts by SIF to reduce the amount spent on overtime, which adds considerably to the monthly wages. Several of these issues were addressed by the CEO after the AGM.

An unfortunate trend emerged during the beginning of the year where SIF was providing funds for work that fell outside normal duties. This included turning one of the old houses into a gym, renovating the boatshed and improving and extending the Cinq Cases hut in preparation for the goat hunters. Although there was apparently an unfair distribution of funds between personnel involved in some of these projects, a larger problem followed in the wake of these events. The legacy created made it difficult to get staff to do any work that falls outside the normal job description. An example is the visitors centre where I couldn't get assistance from rangers to complete the centre as additional funds were requested. The contracts of future staff should emphasize the fact that they will be required to assist in undertakings (during normal work hours) that fall outside their normal line of duties.

While on Mahe, SIF provided Alex Underwood the opportunity to join a course on “Coastal and shore ecology of the Seychelles” through Earthwatch which took place in August on Silhouette. Catherina Onezia partook in the workshop entitled “Seabirds as bio-indicators in the western Indian Ocean” held from 13-15 December 2007 in Victoria. There has been an interest expressed by the rangers to do temporary work in other environmental organizations as a possible exchange program.

12.2 Logistics

During a storm in September, Tyomityo 2 apparently broke loose from the mooring and has not been seen since. Black-tip (the zodiac) was used up to the end of November but is severely perished and is no longer in commission. A replacement for Tyomityo was purchased and arrived at Aldabra in November, but the second-hand motors gave endless problems. A proper assessment and possible replacement of the zodiac is advised. An inflatable is the desired means to take tourists into the lagoon, to the frigate colony at Gionnet's and also on diving trips.

Several of the field huts are in very bad state, particularly Malabar and Anse Mais. The rangers often take tents to these localities but several huts need serious attention.

The location of the dive store (between the research block and generator shed) is unsuitable. It is firstly too close to exhaust fumes from the generators and secondly makes for an unnecessary long distance that tanks need to be carried. It is proposed that at least the compressor is moved to the northern end of the boat shed. This can be easily done as there is space available. There is much movement by visitors around that area and for safe storage of other dive gear an enclosed area that can be locked will have to be built.

12.3 Information transfer between Aldabra and Head Office

Communication between the Scientific Committee and the research department has been very good, where this has been a problem in the past. Special thanks to Katy Beaver for all her efforts in ensuring this. Her absence from SIF will not go unnoticed. Research proposals from visiting scientists, however, often do not reach the station (if so often in the last minute) which is frustrating.

12.4 Volunteers

The last volunteers on Aldabra were Christina L. Marcham who left in December 2006 and Sam Bostock who left in January 2007. They submitted both their reports (on coucals and sharks respectively) early in 2007 and these are available on request.

We have recently received two volunteers from the South African Institute for Aquatic Biodiversity (SAIAB) which hosts a wide range of expertise in various aquatic fields. A MoU between SAIAB and SIF whereby student volunteers can come out to collect data for academic purposes will certainly be attractive to SAIAB and will aid in correcting the current highly terrestrial-focused monitoring and research at Aldabra.

12.5 Visitors centre

Work on the visitors centre started towards the end of 2006 when all the inside walls received a white coat of paint. Much of the initial painting was done by the volunteer Christina Marcham. During 2007, I motivated the rangers to collect information on different topics associated with Aldabra for posters to be displayed in the visitors centre. Using this information, Frances Taylor designed a series of posters which we had printed while in South Africa and these have now been mounted, along with additional historical information provided by Guy Esparon and Christina Marcham. Although the centre is functional, there are still a number of additions that would improve it. Some smaller A4 posters/pictures to fill in the spaces between the larger posters, a few murals and informative displays of biological material such as bird nests and tortoise carapaces would round off the centre.



12.6 Library

Based on the 2000 annual report an electronic inventory of all books in the library was created. Although a hard copy of this inventory is available in the library I have not encountered an electronic version. Digitising of such an inventory should be a future priority.

Richard Barnes kindly donated four books that he authored or co-authored dealing with aquatic biodiversity.

I have made a request to Head Office to supply the library with monthly copies of the journals "Africa Geographic" and "Africa Birds and Birding". These are highly informative journals dealing with topical environmental issues in Africa and islands

12.7 Equipment

A complete inventory of equipment for the research department is attached.

Nikon kindly made a donation of photographic equipment and binoculars, which was motivated by Photo Natura and Carlos Vejarano. The equipment included: five D40 cameras with 8-55mm lenses (two of which were sent to Head Office on request, for use at Vallée de Mai), six small field binoculars, three large binoculars (two of which were sent to Head Office) and two 55-200 mm Nikon lenses.

Items that went missing include a brand new large K-Way backpack which the boatman (Bernard Marie) apparently last used during my leave.

13. Poaching

On arrival in Mahe after his contract expired, Bernard Marie (boatman) was found with two juvenile tortoises, salted fish and shells in his possession. These could potentially have come from Assumption.

On two occasions in February, once on Le Ponant and the other on Island Sky, crew were observed fishing (within a 1km zone of land) by rangers that were onboard at the time. In both cases their lines were pulled up and the crew members reported ignorance. Since these events a concerted effort has been made by SIF to ensure that the rules and regulations of Aldabra reach all individuals visiting the atoll. No illegal vessels were seen around Aldabra, despite the extended presence of the goat hunters on the eastern side of the atoll. Aldabra may be more subjected to poaching in the future as Cosmoledo gets developed and acquires a permanent presence. Illegal vessels, particularly from Madagascar, may then be more prone to come to Aldabra rather than Cosmoledo.

There was an unsubstantiated account from one of the crew members on IOE that a vessel from Madagascar poached tortoises on Grand Terre early on during the year.

I have not managed to find information on how and when the 1km marine protected area around Aldabra came about. This narrow margin around the atoll is, however, not adequate to protect Aldabra's marine resources and makes it harder to control illegal activity. Long-lines set for sharks at this distance will, for example, certainly impact on the Aldabra population. Likewise, illegal vessels could sit at 1km offshore and occasionally sneak closer and prosecution would be near impossible.

14. Visiting Scientists

From 20-22 April members of the Save Our Seas Foundation, with the company of David Rowat, visited Aldabra and performed an assessment of the shark species assemblage around Aldabra. Carl Lundin and Jerker Tamelander from IUCN surveyed the Aldabra reefs and lagoon between 21-26 November as part of the program "Detecting marine bio-invasives on small islands in the Indian Ocean."