



Seabird News

SEYCHELLES SEABIRD GROUP Newsletter Issue 6 Nov 2010

The *Seychelles Seabird Group* was formed in 2002 to facilitate the sustainable management and conservation of seabird resources in Seychelles. It comprises owners and managers of globally recognized IBAs (Important Bird Areas) and nationally important seabird sites. Our main role is to work collaboratively to: Gain national perspective; Prioritise seabird research and monitoring on a national level; Coordinate all seabird research and monitoring; Utilise standardised methods to ensure the comparability of data; Ensure priority seabird work is undertaken; and Use information collected to direct future research and/or management.

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Editorial

Dear SSG members,

Following the revival of the Seychelles Seabirds Group newsletter in 2009, I am happy to see that we altogether managed to maintain the interest of the different stakeholders for collaboration and sharing of experience on seabirds' research, monitoring and conservation through this sixth SSG newsletter. This new issue highlights the efforts recently made for the development of seabirds monitoring and conservation activities in the outer islands of Desroches and Alphonse, the revival of seabirds monitoring of Fregate, a better understanding of the impact of *Pisonia grandis* on seabirds on Cousin and the continuation of the regional ECOMAR research programme to investigate the influence of climate change on seabirds movements at sea using geolocators.

Let's try to maintain this annual frequency for the SSG newsletter and I wish you all a happy reading!

**Gilles-David Derand, Nature Seychelles
Science Coordinator & SSG coordinator**

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In 2010, seabirds census for year-round breeding species (white-tailed tropicbirds, white terns, and Audubon's shearwater) were conducted on Cousin both during the North-West monsoon (15th-19th February) as well as during South-East wind season, between 20th-23rd July for two first above mentioned species, and between 17th-26th August for Audubon's shearwater. In July, lesser nody and brown nody breeding populations were also assessed. Methods followed those described in the Appendix 3 of the Seabird Monitoring Handbook for Seychelles.

The white-tailed tropicbird population on Cousin shows a high level of intra- and inter- annual variability, fluctuating by up to 400-600 pairs from year to year and even from month to month. In fact, both February and July 2010 censuses for this species gave lower estimates: respectively 733 pairs (s.e.: 136 pairs) and 656 pairs (s.e.: 117) compared to 1157 pairs in July 2009. This species breeds all year round and with only a portion of the population breeding at any one time, it is not surprising that the breeding numbers within each census vary so much.

Like the white-tailed tropicbird, white terns also breed year-round and therefore the numbers found breeding during any

one census are likely to fluctuate. A rather high estimate of 2,083 breeding pairs (s.e. 272) of white tern was recorded in February whereas only 868 pairs (s.e. 170) in July. This February 2010 estimate was very similar to February 2004 (2,006 pairs), but still lower than February 2000 estimate (3,606 pairs), which tends to confirm that the white tern population has decreased since 2000 on Cousin.

For Audubon's shearwater, both February 2010 estimate (742 pairs; s.e.: 186) and July 2010 estimate (920 pairs; s.e. 190) are broadly comparable with estimates from recent years (1630 pairs in February 2004; 767 pairs in July/August 2006). However, all of these recent estimates are much lower than estimates obtained in 1999 and 2000 of 5120 and 5177 pairs respectively, suggesting that this species underwent a dramatic decline in numbers between 2000 and 2004 and has not recovered in recent years.

The July 2010 lesser nody estimate (86,708 breeding pairs; s.e. 6,105) was higher than the estimates from the previous 2 years – 66,272 pairs in July 2009 and 10,029 pairs in July 2008, with notably the later being attributed to a La Niña event which

Photo: Lesser nody chick (Glenn Jackway)

resulted in food shortages and hot/dry weather. In fact the lesser noddy estimate from 2010 is more comparable with censuses from 2005-2007, where population estimates were in the range of 82,562 – 89,679 breeding pairs.

The estimated number of brown noddy (1409 pairs; s.e. 366) was comparable with results from previous years, 1999- 2007, where estimates ranged between 944 breeding pairs in June 2005 to 1955 breeding pairs in July/August 2006.

The following graphs show the overall seabird population numbers on Cousin obtained during the seabird census from 1999 up to 2010. Although none recent census has been conducted for both bridled tern (last estimate of 404 pairs in 2007) and wedge-tailed shearwater (last estimate of 11,107 pairs in 2002), the populations of both species are thought to have remained stable, but this would require further survey. All the seabird population estimates cited are from Nature Seychelles unpublished reports between 1999 and 2010 and full reference can be obtained from Nature Seychelles.



Photo: Audobon shearwater



Photo: White tern and chick (Steve Hazell)

SSG Report from Fregate Island

By Julie Gane

Period Reporting: April to October 2010

A population census for the Lesser Noddy's (*Anous tenuirostris*) was completed on Fregate Island this quarter due to the indication of a dramatic increase in numbers through visual observations over the last ten years. It was noted that they were building nests in trees and areas where previously none had done so. This resulted in the census which was executed in the middle of July during the main incubation period. It was noted that nest building only began at the end of May and that the majority were incubating by the beginning of July. Strangely the Noddy's only nest in trees in the eastern half of the island covering a small area of approximately 17.5ha (175000 m²). Direct counts were done in combination with plot sampling. The population measure used was the measure of apparently occupied nests (AONs), which assumes that each nest built represents a breeding couple. The total breeding population of Lesser Noddy's on Fregate Island at the end of July 2010 was estimated at 27 516 breeding pairs. This amount indicates a substantial increase in numbers since the last census done in June 1999 which estimated a total amount of 7302 breeding pairs. As expected the Native woodland supports the highest density at 8004 pairs, followed by mixed exotic woodland at 7522 pairs, banyan clumps at 5036, buildings & gardens at 3026, coconut planted with natives at 2456 and the agricultural area with the lowest density at 1482 pairs.

The end of the nesting season was characterized by a high Lesser Noddy chick mortality which was a bit concerning, but was probably a result of the food stocks moving further afield. Nesting Tropic Birds are not common on Fregate, but we are happy to have had at least five nesting this season around Fregate. We also had 4 or 5 resident Bridled Terns for over a month, which may have just been visiting from Ilot Fregate Island. Otherwise we are happy to see a rise in seabird numbers around Fregate, but look forward to a little quiet time before the next breeding season begins again!



Wedge-tailed Shearwaters breeding on Desroches Island

By Danielle Jupiter

Being an island that supports a large population rats, Desroches is one of two other islands in Seychelles, including Alphonse and Remire, which hosts a breeding colony of wedge-tailed shearwaters in the presence of this vermin. Cats being another threat to seabird colonies are also present on Desroches and Alphonse. With the opening of a conservation centre run by Island Conservation Society in June 2009, a monitoring program was set up by the ICS staff to monitor the breeding Shearwaters.

In 2001 a small colony of Shearwaters was discovered at the Desroches lighthouse on the eastern end of the island. It was estimated that the colony consisted of 200 burrows. Then in 2008 another small colony of 20 burrows

was found at Muraille Bon Dieu on the South western end of Desroches. When ICS arrived on Desroches in 2009 the colony near the lighthouse no longer existed and the Muraille Bon Dieu colony has largely increased from the 2008 records (see Map – blue boundary is the main colony; red boundary is a sub-colony).

ICS began monitoring the Muraille Bon Dieu colony in July 2009. It was found that the colony spreads out over a vast area, starting in the forest just next to the Hotel Spa and extended through the dense scaevola bush along both sides of the road to Muraille Bon Dieu point which is the south west tip of the island. Thus the colony occupied almost the entire area around Muraille Bon Dieu and many of the burrows were not easily

accessible for monitoring.

Thirty-three of the colony's burrows were marked and monitored from July to March. The burrows chosen were the ones that were accessible, easy to look into and had one or two birds found in them. The initial monitoring was done at night on a weekly basis. Once the birds were found to be present in the burrows during the day the monitoring was changed to daylight hours. On the 30th of October 2009 the first eggs were seen. In total 13 eggs were seen in the 33 burrows monitored. Three other eggs were found laid randomly on the ground, not in or even outside a burrow. We left the eggs where we found them and after two weeks they had disappeared, presumably predated.



To our excitement on the 29th of December 2009 two chicks were observed. However three weeks later one of the chicks was no longer in its burrow, presumably predated. The other burrows among the 33 were still visited; at times we would find two birds, one bird, and empty egg shells. At the end of February 2010 the second chick was healthy and was partially feathered. By the end of March that chick was no longer in its burrow and we believe it fledged.

We were very concerned about the safety of the Shearwaters thus we set rat traps amongst the burrows. 787 night traps were set in between July and December 2009. 132 rats and possibly 1 mouse (species identify not yet confirmed) were caught. The hermit crabs in the area set off 41% of the traps, thus making the trapping of rats less effective.

In August 2010, the birds were back and 62% of marked burrows (n= 100) were active. The first egg was observed on 30th September 2010. Unfortunately, the status of most nests could not be identified. The presence of predators on the island is believed to have modified the bird's burrowing behaviour, with most birds preferring to dig long, winding burrows, unlike on Aride where birds will happily nest in shallow crevices.

The whole area around Muraille Bon Dieu could contain c100-150 occupied burrows and ICS wishes to improve the monitoring techniques used, in order to estimate population size and get more accurate data of breeding success for the next season. We plan to start a ringing programme, as well as a more effective rat control method.

Photos: Wedge-tailed shearwater in a burrow on Desroches - top right

Wedge-tailed shearwater breeding pair on Desroches



Seabird news from Cousine

By Kevin Jolliffe

Results from July 2010 census showed that brown noddies (estimate of 5,146 breeding pairs), white-tailed tropicbirds (estimate of 1,589 breeding pairs) and bridled terns population (estimate of 451 breeding pairs) remained relatively stable, whereas white-tern (estimate of 2,004 breeding pairs) appeared to have decreased, but caution should be exercised when interpreting single census results as only a part of the breeding population is intercepted. Two pairs of roseate terns have been observed and they will be closely monitored for any sign of nesting. Regarding lesser noddy, the fledging success was 72%, however it is estimated that less than 50% of c3 chicks that fledged may have survived due to marked food shortage, especially for the chicks that fledged at the end of the season.



Photo: Top: a day old lesser noddy chick Bottom: a day old Bridled Tern chick.



Black-naped Terns on St François Atoll

By Aurelien Nahaboo¹ & Pierre-Andre Adam²



Black-naped Tern *Sterna sumatrana* breeds from the western Pacific to the western Indian Ocean where it is represented by race *mathewsi*. Seychelles lies at the western limit of the species' range but holds almost the entire African regional population. As a result, the BirdLife International threshold for the species to qualify a site for consideration as an Important Bird Area (IBA) is currently just two birds.

In Seychelles, birds are currently known to breed on Aldabra (50-70 pairs), African Banks (5-10 pairs), St. François Atoll (10-15 pairs), St. Joseph Atoll (10-20 pairs), Cosmoledo (30-50 pairs), Farquhar (20-40 pairs) and possibly Bancs du Sud, Providence. It has also been recorded as a vagrant to Bird, Aride, Cousin and La Digue. In 2009, Adam et al. suggested the whole Seychelles population to be 125-205 pairs (or 375-615 birds). This paper also suggested that the IBA criteria of just 2 birds to be too low and should be raised to 4-7 birds. Despite this increase St François Atoll would still easily qualify for consideration as an IBA at whichever level is accepted.

St. François Atoll is an atoll of about 18 ha (land) and a lagoon of approximately 5,700 ha. It lies close to Alphonse Atoll at the southern edge of the Amirantes archipelago approximately 400 km south of Mahé. It is uninhabited but on Alphonse there has been a small resort open since 1999 and a conservation centre where the Island Conservation Society (ICS) have employed full time staff since 2007.

ICS began recording regular monthly counts of birds in February 2007. These records confirm that Black-naped Terns are present throughout the year. The maximum counts for islands in the Alphonse Group have been as follows:

- o Alphonse (26 Sep 2009): 47 birds; roosting on the sand flat at Pointe Dot.
- o St. François (18 Feb 2009): 32 birds; roosting on the sand

bank on One Palm Island;

- o Bijoutier (20 April 2007): 26 birds; 5 pairs were observed copulating along the south beach;

Black-naped Terns have been regularly observed for several years and breeding was suspected on St. François Atoll. This was confirmed for the first time in March 2008 by ICS staff who, with the help of the Alphonse Island Resort fly-fishing guides, have been following their breeding success on a yearly basis.

In March 2008, 10 active nests (c.10 pairs) were observed concentrated in a small coral rubble patch at the northern end of One Palm Island (a sand bank – Fig 1) and another nest with two eggs on a sand bar which has formed on the western side of St. François Island within the last 8-9 years.

In February 2009, 16 active nests were recorded - 7 nests with 1 egg and 9 with 2 eggs. Unfortunately, only 5 young successfully fledged. In June 2009, it was observed that the Black-naped terns were breeding again but not on One Palm Island (St. François) as in February, but on the beach platform amongst the coral rubble on the outer edge of the island. 14 active nests were recorded - 5 nests with 1 egg & 9 with 2 eggs of which a minimum of 9 chicks successfully fledged.

Overall, 2009 was a very good year for Black-naped Terns on St François atoll. Despite the heavy nesting failures during their first nesting attempt on One Palm Island in February 2009, they were much more successful during their second nesting attempt on the beach platform on the outer skirts of St. François Island in June 2009. Results for 2009 are encouraging since it suggests that the Black-naped Tern breeding population for the Alphonse Group to be around 15-20 pairs, which is greater than in 2008 which was calculated at 10-15

pairs. The only obvious culprits that could be identified for the high nesting failures on One Palm Island have been Hermit crabs and Grey herons. It will be interesting to observe their nesting site preference pattern in the coming year to verify whether egg/chick predation was the main cause for changing their nesting site.

This year, the breeding colony was only sighted on the second known breeding site positioned on the beach platform, western edge of Saint François. A new nesting event has been monitored in March-April 2010.

In March, 13 active nests were recorded – 9 nests containing 1 egg and 4 nests with 1 downy chick. A minimum of 6 birds successfully fledged on this occasion, which constitutes a breeding success consistent with the one observed in February 2009.

In May, no bird was recorded on the island during a first trip on the 9th. A second site monitoring visit on the 20th showed that 12 pairs were apparently preparing for a new nesting event, which has unfortunately not been followed due to transport constraints.

The necessity of monitoring Saint François during the South-East monsoon season is now a clear fact. We believe that the Black-Naped Terns have been breeding in May/June, but a number of other species are also thought to be possible breeders on the atoll. The main constraint to the development of monitoring programmes during May/September on Saint François is the availability of a boat able to withstand rough seas securely.

Literature cited:

Adam P. A. et al. (2009). Breeding record of Black-naped Tern from St François Atoll: 78 – Bull ABC Vol 16 No 1.



Fig 1: St. François Atoll showing approximate locations of Black-naped Tern breeding colonies.

Source: Habitat Map produced by Living Oceans Foundation – Not to Scale.

Impacts of *Pisonia* on Seabirds on Cousin Island

A new survey confirms that white tern, white-tailed tropicbird and Audubon's Shearwater populations may be particularly impacted by *Pisonia* on Cousin

By Gareth TO Davies and Gilles-David Derand



In 2009, a first survey of *Pisonia*-induced mortality on seabirds on Cousin indicated that lesser noddy was the most common victim although, as a population, white tern but also white-tailed tropicbird and Audubon's shearwater were apparently the most impacted. Given the limitations of this first survey, an improved protocol design was used by Gareth Davies in 2010, with the objectives to 1/ Assess the *Pisonia* seeding intensity and quantify the level of mortality on each seabird species, 2/ Relate species specific mortality to the estimated breeding populations, 3/ Clean, mark and release as many entangled birds as possible, investigating the cleaning effectiveness, trying to quantify re-entanglement levels, and producing a protocol for cleaning birds, 4/ Preparing a long-term monitoring procedure for Nature Seychelles.

As part of his MSc from the University of East Anglia, Gareth undertook a 10 weeks' field research on Cousin between April and June, with assistance from Fabian Trotman-Drake, gap-year volunteer. To assess both seeding intensity and related seabird mortality, 35 (50m x 50m) plots were randomly selected for weekly sampling, stratified to areas with *Pisonia* presence only (the plateau and lower hill slopes). This high saturation sampling (37% of the Cousin island area with *Pisonia* presence) was chosen to ensure accuracy despite the high spatial variability of *Pisonia* seeding events (Andrews 2009, Catry et al. 2009), and to

determine the minimum area required for future monitoring.

In addition, six of these 35 plots were also surveyed on a daily basis (Constant Effort Sites) to monitor and correct for any movement of entangled birds. To equate all findings to the current breeding population, seabird censuses were performed twice in all 35 plots. The white tern and white-tailed tropicbird populations were modeled with minimum inputs (reproductive recruitment and *Pisonia* induced mortality, assuming no other variable) and under strict band of assumptions.

In total, 530 entangled seabirds were recorded during the 10 weeks' fruiting event, out of which 343 were cleaned, marked and released, and only 3 re-entangled seabirds were observed (2 Lesser Noddy, 1 White-tailed Tropicbird). Of the 246 seabirds marked in Constant Effort Sites, none of those which left the plots were observed anywhere else on the island and entangled birds movement is unlikely to have caused significant overestimation of entanglement. The estimated proportion (\pm 95% CI) of the populations of each species entangled and killed by *Pisonia* seeds was: 1.68% (\pm 0.38) for lesser noddy, 24.52% (\pm 7.92) for white tern, 9.38% (\pm 3.95) for Audubon's Shearwater, and 3.65% (\pm 1.26) for white-tailed tropicbird. Although the assumptions made are unlikely to be fully representative of the real situation and comprehensive demographic information are currently lacking for all the

studied species (notably for the Audubon's Shearwater), the model predicted that *Pisonia* related mortality could lead to the local extinction of white tern and white-tailed tropicbird populations on Cousin.

In terms of seabirds cleaning, ethanol has been successfully tested to ease seeds removal. The fact that most cleaned seabirds were not re-sighted refutes the hypothesis that once-entangled birds will be more susceptible to entanglement and Gareth considered that 'there is no evidence that stronger birds would not survive after cleaning'. For long-term monitoring, Gareth recommended that 15-20 (50 m x 50 m) plots be randomly selected on the plateau, five of these (CES) for daily sampling to allow calculation of a correction factor, and all entangled birds counted and removed weekly (birds in CES marked and counted daily). For mapping the long-term phenology of *Pisonia*, estimating the percentage of trees masting was also recommended, with a 6m wide transect of the diagonal of each plot to be surveyed weekly.

Although the seeding event of May/June 2010 was considered relatively small-scale based on previous observations, Gareth emphasized that 'there is a real and substantial impact on the studied species', but it cannot be concluded that *Pisonia* induced mortality alone will lead to extinctions. Greater understanding of the populations is required to improve the model outputs, notably through large-scale mark-recapture projects, tagging, and tracking of individuals to ascertain survival to breeding age, what immature birds do before they join the breeding population, whether seabirds are site-loyal, and whether nest site is important to breeding success and survival.

Literature cited:

Andrews, D. J. R. (2009). The effects of *Pisonia* on seabirds' unpublished MSc thesis. University of East Anglia, UK.
Catry, T., Ramos, J., Monticelli, D., Bowler, J., Jupiter, T. & Le Corre, M. (2009) Demography and conservation of the White-tailed Tropicbird *Phaethon lepturus* on Aride Island, Western Indian Ocean. *Journal of ornithology*, 150, 661-669.

Hand Rearing White-Tailed Tropicbird Chicks

Kevin Jolliffe, Conservation Manager Cousine Island



White-tailed Tropicbirds (*Phaethon lepturus*) are an iconic species in the Seychelles, with large populations present on the protected seabird islands of Cousin, Cousine and Aride. Smaller populations exist on many of the other island, including those with introduced predators such as rats and cats.

These are the smallest of the three tropicbird species and are unmistakable with their 'kite like' appearance as they circle over the islands often in large numbers where they are protected from predators. The adults are entirely white below with a black partial black 'V' marking on their back, black tips to the wings and a black stripe above the eye. They have a bright yellow bill and a long trailing white tail streamer. Juveniles have a paler bill, with black mottling on their back and a short tail. The only other species recorded breeding in the Seychelles is Red-tailed tropicbird, which is the largest species, with a red tail and red bill. The last species, the Red-billed Tropicbird is the rarest species in the Seychelles and is only recorded as a vagrant.

Tropicbirds mate for life and in protected areas they typically nest on the ground, where they have no threats from introduced predators and prefer to nest in sheltered sites under rocks or logs and at the base of large trees, however on islands

that have introduced predators such as rats and cats, the birds have adapted to nesting high up on inaccessible cliffs and in hollows in trees. This is where the problems arise, particularly on heavily populated islands like Mahé, Praslin and La Digue. Trees are cut down without the knowledge of a nest being present and the egg destroyed or the chick left to succumb to the elements or predators. Fortunately some do get rescued by well meaning members of the public. Unfortunately many of these birds end up being fed on bread and other human foods, which are not suitable and results in the death of many rescued chicks.

Tropicbirds feed on a diet of fish and squid and regurgitate this to their hungry chicks. The breeding cycle is quite long, 18-20 weeks (up to 140 days on Cousine Island), 6 week incubation period, 3 week as a C1 chick (covered in down), 3 weeks as a C2 chick (starts growing feathers) and 6 weeks as a C3 chick (fully feathered) before it fledges never to return until it is ready to breed again. The chick is fed regularly by the adults until it weighs up to 30% more than they do. They stop bringing food after about 10 weeks after hatching and the chick then has to lose weight for the next 2 weeks before taking its first flight.

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HAND REARING OF CHICKS

I have managed to rear a large number of tropicbird chicks, some of which have been brought to me from Mahé, others are young chicks that have been abandoned by their parents too early or have suffered from food shortages. All chicks are fed fresh fish that has been frozen within an hour of catching. The fish used shouldn't really matter, but I prefer using Small Spot Pompano (*Trachinoyus bailloni*), Milk Fish (*Chanos chanos*) and Mullet (*Mugilidae*) all of which are very common around Cousine Island and easy to catch in numbers. The frozen fish are either kept whole in the case of Milk Fish and Mullet or with Pompano cut, depending on their size into two or three strips. The fish is allowed to defrost in water before feeding. Younger chicks are given smaller portions two to three times a day, while large fully feathered chicks will take much more. The preferred average weight for the fish used are between 50g to 100g, with larger chicks regularly eating 200g or more a day

New chicks may take a day or two to become used to their new 'parent', diet and home, but after the first few feeds they quickly learn that if they stay where they are, the food will come to them and beg from any humans close by. Some chicks become gluttons, putting on weight very rapidly, with the heaviest chick weighed at 360g (average adult weight is 330g). Chicks seem to naturally start accepting less food as they approach their fledging date. On the day of fledging, they will waddle out into an open area and fly off. I have managed to successfully fledge most chicks up to two weeks faster than natural nests, due to regular feeding.

So please those of you who happen to find a tropicbird chick, look after it properly or ensure that it is safely handed to a conservation organisation for correct rearing and released to fly the skies over the islands.



An 8 week old chick eating a 100g Milk Fish.



The chick with the fish half swallowed



The fish is almost down



A satisfied chick with a full stomach