



Sixth annual frigatebird survey completed at Aldabra



Adult birds and chicks at one of the frigatebird colonies © SIF

February saw the completion of the sixth annual frigatebird survey at Aldabra by a team of up to five Aldabra staff.

To estimate the breeding colony size of the two species of frigatebird at Aldabra, the team divided each of the four colonies into smaller sub-colonies, to limit overlap and possible double counting. These sub-colonies were then surveyed by three counters. Two counters counted all Lesser Frigatebirds and Greater Frigatebirds on nests who were incubating eggs or brooding a small chick, and a third counted chicks on nests (separated by species). The survey was timed with the later stages of incubation to limit the disturbance to and desertion of nests. While breeding at Aldabra is somewhat synchronised in both species, it is more prolonged and variable in Lesser Frigatebirds than in Greater Frigatebirds. Conducting the annual survey in January/February ensures that most breeding pairs of both species are likely to be in the later stage of egg incubation or already rearing their chicks. Previous surveys of the population have shown marked annual fluctuations in numbers and considerable changes in the location and distribution of the main breeding colonies on the atoll. The data collected from the 2016 survey will now be analysed to obtain an estimate of the current population size and compare this to the previous years.



The team undertaking the survey in inclement weather conditions © SIF

Aldabra holds the largest frigatebird colony in the Indian Ocean with at least 4400 pairs of Greater Frigatebirds (*Fregata minor*) and 6600 pairs of Lesser Frigatebirds (*F. ariel*) breeding annually. This estimate of population size was taken from the SIF survey in 2011 which showed a 10% increase from the population estimate in 1980. Mixed breeding colonies of these two species are only known from North Keeling (of the Cocos Keeling Islands, Indian Ocean) and Aldabra. Estimates of the breeding population of frigatebirds on Aldabra were undertaken in 1967 (Diamond 1975), 1976–1977 (Reville 1980, 1983) 2000 (Burger) and most recently by SIF, in the form of annual surveys starting in January 2011. The population size estimates of the previous non-SIF surveys are not included here as they all used different methodologies and were conducted at different times of year, therefore the population estimates are not comparable to those estimated by SIF. Since 2011 the four known frigatebird colonies at Grande Poche, Passe Gionnet, Camp Frigate and Middle Camp have been surveyed annually using a simple, consistent methodology that gives basic information about the

Aldabra and the Vallée de Mai take centre stage in National Geographic feature on Seychelles



Cover of the March issue of the National Geographic magazine © SIF

A National Geographic magazine article titled 'Return to Seychelles' was published online at the end of February and features both Aldabra and the Vallée de Mai.

The article focuses on how the biodiversity of Seychelles has been 'bouncing back', and that through active and innovative conservation management many species and habitats have recovered from previous population declines. This article has been several years in the making and National Geographic photographer Thomas Peschak visited Aldabra and the Vallée de Mai back in 2014 to shoot for this article. Working closely with the SIF staff Tom was able to get some incredible pictures that really reflect the uniqueness of these two sites. Accompanying the photos is text by Kennedy Warne, a renowned New Zealand travel and natural history writer, who invokes excellent imagery of the two sites. Many SIF staff are quoted and mentioned by name in the article. It is certainly a moment of great pride for SIF that an article which will reach millions of people worldwide has recognised the work and efforts of our teams both past and present in ensuring that Seychelles' two UNESCO World Heritage Sites continue to be protected.

An online version of the article can be found here - <http://www.nationalgeographic.com/magazine/2016/03/seychelles-islands-nature-reserve-national-parks> and it is also featured in the March issue of the print magazine.

Two volunteers needed for Aldabra Atoll



The beauty of Aldabra Atoll © SIF

We are looking for two enthusiastic, hard working volunteers to join our team on Aldabra for six months from May 2016. These are two different positions with one volunteer needed with excellent experience in the use and development of Access databases, and the other to work as part of the Aldabra research team, conducting routine monitoring on turtles, giant tortoises, birds, and plants. Fieldwork will include spending time at field

Prize-giving for Coco de Mer anti-poaching school competition



The competition prize winners © SIF

To commemorate Protected Area day on the 31st January, SIF organised a ceremony to award the winners of the 'Stop Coco de Mer poaching' poster competition that was held in schools last year. The ceremony was held at the Natural History Museum in the presence of representatives from the Attorney General's Office, Seychelles National Parks Authority, Ministry of Education, SIF staff, teachers and staff of the Natural History Museum.

Poaching of Coco de Mer nuts is one of the major threats to the survival of this species in the Vallée de Mai and Praslin National Park. To help raise awareness of this threat with the local population, SIF organised a poster competition in all primary and secondary schools on Mahé, Praslin and La Digue. The aim of the competition was to encourage the youth of Seychelles to be more conscious of the need to protect the Coco de Mer. More than 73 students from several different schools participated in the competition with 73 entries received altogether.



Coco de Mer nuts on the female tree © SIF

The CEO of the Seychelles National Parks Authority (SNPA), Flavien Joubert, showed his support towards this very important cause by delivering the opening remarks at the ceremony. He congratulated the students and SIF in highlighting this important national issue and producing such insightful and passionate work. This was followed by the presentation of prizes to the winners. The competition winners were:

Primary School 1st - Neil Commetant from Bel Ombre Primary School, 2nd - Andria Ranaivonirina from Anse Boileau Primary School, 3rd - Salome Abel from Anse Boileau Primary School, Special Effort - Elie Sopha from Beau Vallon Primary School.

Secondary School 1st - Fabiana Bertin from Beau Vallon Secondary School, 2nd - Shawn Bastienne from Beau Vallon Secondary School, 3rd - Sarah Larue from Beau Vallon Secondary School, Special Effort - Ashley Espérance from Beau Vallon Secondary School.

number of nesting pairs in each area and population trends. The results of the 2016 survey will be included in a future edition of the newsletter.

campers in basic conditions, boat work, walking in difficult terrain and high temperatures and possibly marine work. This role offers a unique opportunity to experience and contribute to the conservation and monitoring of one of the planet's most pristine ecosystems.

Full job descriptions can be found on our Facebook page or by request from info@sif.sc

SIF will continue to conduct more educational activities on the issue of Coco de Mer poaching throughout this year to raise awareness and help the Praslin community develop a sense of ownership of this unique palm species.

Aldabra's landbird breeding season approaches its end



Two newly hatched Madagascar Bulbul chicks in a nest © SIF

Since our last update in November the landbirds on Aldabra have been busy breeding and the team has been monitoring this nesting activity.

The landbird nest monitoring programme is conducted during the breeding season from October to April. This period has a relatively high amount of rainfall and most fruiting and flowering. The resulting abundant food sources are ideal for breeding birds. Currently this programme comprises twice-weekly nest checks in different areas (to observe nesting behavior in different vegetation types) and also searching for new nests. This frequency minimises disturbance to brooding adults or nestlings.



A Comoros Blue Pigeon Squab seen on the surveys © SIF

In the 2014/2015 breeding season 127 nests were monitored and so far this season 59 nests have been monitored, with more expected by the end of the season. It is to be expected that there might be annual variations in the total number of nests located due to differences in climate, phenology etc. This season the Souimanga Sunbird and Aldabra Fody have had the highest breeding success, and the most nests have been found for the Souimanga Sunbird (26), the Aldabra Fody (8), the Aldabra Drongo (7) and the Madagascar White-eye (5). Nests of the Comoros Blue Pigeon, Madagascar Bulbul, Madagascar Coucal, Madagascar Nightjar, Aldabra Rail, and Madagascar Turtle-dove have also been monitored. Breeding activity has dropped with the end of the season approaching but the team will continue this monitoring programme while there are still nests with eggs.

World Wetlands Day celebrated with local partners



Students planting mangrove seeds on La Digue © SIF

This month SIF celebrated World Wetlands Day on the 2nd February to raise public awareness of the value and benefits of wetlands. In partnership with PUC (Public Utilities Company), SIF joined an activity on La Digue with 50 Friends of Vallée de Mai school club members.



Students participating in the wetland presentation © SIF

First on the programme was a presentation given by Ms Shirley Joubert from the Department of Environment on Praslin. Her presentation highlighted the different types of wetlands, the plant, animal and bird species that live in the wetlands, factors that affect wetland health and the benefits of wetlands to people. To make the presentation more fun and to test what the children had learned, Ms Joubert quizzed the students afterwards and they had the chance to win a Wetlands t-shirt for each question answered correctly. Thinking about what they had just learned in the presentation, the students then created their own postcards which illustrated a healthy wetland. The students then had the chance to make their contribution to the restoration of wetlands in Seychelles, and they planted a total of 150 mangrove seeds in the wetland area at Anse Severe on La Digue.

SIF on Twitter!



Follow us on Twitter! As one of the top ten most used social media websites, Twitter offers us a chance to connect and share with a truly international audience. If you are regular Twitter user then you can find us under @SIF_Seychelles. For those of you new to this social media page why not sign up now? You can find the link to our page here, https://twitter.com/SIF_Seychelles, and can follow all of our latest updates and news.



Don't forget to like our Facebook page! The page has regular news and updates on research and events at both World Heritage Sites. We would invite all friends, supporters, partners, colleagues, and anyone else who has an interest in staying up to date with the management and protection of the UNESCO World Heritage Sites in the Seychelles, or in Seychelles' biodiversity and conservation in general to become a fan of our page. For those who have a Facebook account already please use this link https://www.facebook.com/pages/Seychelles-Islands-Foundation-SIF/1414466072110654?hc_location=stream and 'Like' our page. For those that are not on Facebook then perhaps you can receive updates through a friend or family members account, or maybe now is the time to join Facebook for yourself! We look forward to welcoming you onto this page!

Black parrot genetic research published



Seychelles Black Parrot © SIF

A SIF co-authored paper was published recently in the journal *Ibis* on the evolutionary distinctiveness of the Seychelles Black Parrot in relation to other black parrot species in the Western Indian Ocean region. The research described in this paper provides the basis for the announcement of the Seychelles Black Parrot as a distinct endemic species in 2015.

Island endemic species are acutely vulnerable to extinction due to their naturally small populations which are disproportionately threatened by random events and human impacts. Conservation of island biodiversity is therefore a high priority, and research into the evolutionary history of island biodiversity is important to understand the origins and uniqueness of these species. The Seychelles Black Parrot (*Coracopsis barklyi*) is an island endemic classified as vulnerable to extinction by the IUCN. Its total population of 520–900 individuals is restricted to the 10 km² island of Praslin, and it is one of the few remaining endemic island parrots that survive in the Indian Ocean. This paper combined molecular and morphological data to explore the Seychelles Black Parrots' evolutionary history using their genetic and morphological distinctiveness from other subspecies of black (or lesser vasa) parrot found on Grand Comoros (*C. sibilans*) and Madagascar (*C. n. nigra* & *C. n. libs*), while quantifying levels of genetic diversity within the population on Praslin.

Important physical differences were observed between black parrots from different islands. Body size emerged as the most important factor for to discriminate between subspecies, with the Seychelles Black Parrot being the smallest of the three. Interestingly, body size appears to have increased as the black parrot has radiated from the Seychelles and Grand Comoros onto Madagascar.

Genetic data obtained from museum specimens of black parrots from the Seychelles, Grand Comoros and Madagascar was used to reconstruct their evolutionary history. This showed that the Seychelles Black Parrot forms a distinct group which appears to be on a different evolutionary trajectory compared with other subspecies found on Grand Comoros and Madagascar. The genetic data also allowed the researchers to measure 'effective population size' and genetic diversity. Effective population size is a reflection of how many individuals within a population are actively breeding and contributing diversity to the ongoing gene pool. Worryingly, the effective population size declined from approximately 864 parrots in 1878 to just six individuals in 2011. A loss of genetic diversity was observed, suggesting that the current population may have undergone a population bottleneck (been reduced to a small size) as a result of rapid contraction and habitat loss.

This research provides valuable insight into the evolutionary genetic and morphological processes that have shaped the Seychelles Black Parrot. It offers an important perspective on the parrot's genetic status that led to its new classification as a distinct species and will have raised its conservation importance.

The paper is another output from the highly successful research collaboration between SIF and Dr Hazel Jackson and Dr Groombridge at the Durrell Institute of Conservation and Ecology (DICE) at the University of Canterbury, UK. We thank them both for their continued academic support and collaboration in improving SIF's evidence base for conservation management.

The online version of the paper can be found here: <http://onlinelibrary.wiley.com/doi/10.1111/ibi.12343/abstract>. The full citation is: Jackson, H. A., Bunbury, N., Przelomska, Groombridge, J. J. (2016), Evolutionary distinctiveness and historical decline in genetic diversity in the Seychelles Black Parrot *Coracopsis nigra barklyi*. *Ibis*. doi: 10.1111/ibi.12343

Progress of Seychelles Black Parrot

Long-term monitoring of Aldabra's landbirds indicates increasing population trends



A scientific paper has been published by SIF in the journal *Bird Conservation International* which analysed data from Aldabra's landbird monitoring programme over an 11-year period. The paper found that the population trends of most species monitored showed an increase in abundance, a positive sign for Aldabra's landbirds.

Since 2002, the SIF research team have been conducting monthly landbird surveys at seven locations around the atoll. This paper used data from 2002–2013 and the population trends of seven species were evaluated and revealed that six species showed an increase in abundance (Comoros Blue pigeon, Madagascar Turtle-dove, Madagascar Bulbul, Aldabra Fody, Souimanga Sunbird, Madagascar White-eye), while the population of the seventh species (Aldabra Drongo) was stable over time. The increases in abundance ranged from 41% - 89% in the 11 year period.



Sunbird chicks in a nest © M Sur

Several factors were noted in the paper as possible causes for the variation in abundances. Some of the landbird species were affected by climate; for example years with higher than normal rainfall dramatically increased the abundance of the Souimanga Sunbird. Other species showed seasonal behavioural changes, e.g. Aldabra Fodies became more vocal during breeding seasons, which meant that they were more obvious and more likely to be counted during the surveys. The monitoring methods of this long-term programme were also thoroughly reviewed in the paper and the authors suggested revisions, such as recording additional information on how easy it is to detect the different species during the monitoring session.

The results of this paper are an encouraging outcome of many years of hard work from the Aldabra team in undertaking these surveys and continuing the atoll's protection. SIF will work further on revising the landbird monitoring programme to ensure the continuing high quality of the data collected.

The online link to this paper is http://journals.cambridge.org/abstract_S0959270915000143.

The full citation for the paper is: Van de Crommenacker, J., Richards, H., Onezia, C., Mahoune, T., Haupt, P., Accouche, W., Fleischer-Dogley, F and Bunbury, N. (2015) Long-term monitoring of landbirds on Aldabra Atoll indicates increasing population trends. *Bird Conservation International*. Available on CJO doi:10.1017/S0959270915000143

Third season of Aldabra's marine monitoring programme completed



Undertaking photoquadrat surveys at Aldabra © SIF

The marine monitoring season at Aldabra began in November 2015, and surveys at 11 of the 12 designated coral reef sites located around the atoll were all completed by January 2016.

Since 2013, SIF has been conducted an annual marine monitoring programme at 12 sites around the atoll. This season at each site, the team conducted 'benthic point intercept transects', photo quadrats, and fish counts to assess reef health. The data from these surveys will enable the changes to the marine ecosystem to be detected and serve as an indicator of reef health which can then be used to make management decisions. To survey all the necessary sites, even those that are further from the research station on Picard, the team stayed at several field camps over the monitoring period. Organising this is a major logistical challenge, but the team worked tirelessly together to make sure that all surveys were completed.



A black parrot fledgling from last years breeding season © SIF

As reported in last month's newsletter the 2015/2016 Seychelles Black Parrot breeding season has made slow progress so far. At the moment only five eggs have been recorded by the team, which only two hatched.

The first chick to hatch was discovered dead in the nest, a few days after hatching. There appeared to be signs of rats at the nest, although it is not possible to confirm that it was rats which caused the chick's death. The second chick lived to 25 days but was then, to the team's dismay, also found dead in the nest whilst they were conducting routine monitoring. Again the cause of death is not known for this chick as there were no clear signs of predation and the chick's body was too decomposed to conduct a post mortem assessment.

The breeding activity of the parrots, never high this season, has been slowing down in the Vallée de Mai. Some individuals have developed dark coloured beaks (their non-breeding colouration) and breeding calls are being heard less frequently, indicating that this season is coming to an end. Although the Black Parrot team has become smaller, with the temporary departure of Terance Payet to a training course in the UK, the team continue to monitor all potential nest sites as it is still possible that more eggs could be discovered. In past seasons, eggs have been found as late as March so there is still hope that more chicks may hatch next month. There has also been a sighting of what appears to be a fledgling black parrot being fed by a parent in the Vallée de Mai. This indicates that there may well have been one or two successful nests this season which the team were not able to locate.

The 2011/2012 breeding season also had very low breeding activity and was followed by a busy breeding season in 2013/2014 indicating that these fluctuations may not be an unusual occurrence. It is not still certain why the black parrot breeding activity varies so much between seasons, although it is thought to be linked to climate or food availability. We'll keep you updated as the season continues.

New research project on Giant Bronze Gecko started at the Vallée de Mai



Giant Bronze Gecko on a male Coco de Mer inflorescence © SIF
Chong-Seng

A new MSc research project has started this month to gain new information on the ecology of the Giant Bronze Gecko (*Ailuronyx trachygaster*) in the Vallée de Mai.

Chris Tagg, an MSc student studying Biodiversity Conservation at Bournemouth University, UK, will be adding to previous research on this species of gecko by SIF by studying its movement ecology. Previous research by SIF has shown that these giant geckos are high canopy dwellers and have a marked preference for Coco de Mers. Population density, however, has not been possible to estimate so far because it is not known how far individual geckos move, or how large their home ranges are, and therefore how many geckos occur in a fixed area. To answer these questions Chris will be capturing as many individuals as possible using traps set in the canopy of the palm forest. Once the geckos have been caught, they will be measured, sexed and a DNA sample will be taken. Finally, a PIT (Passive Integrated Transponder) tag will be implanted, which permanently identifies individuals with a unique 'barcode' which can be read with a scanner when re-captured later on. Several geckos will also be fitted with tiny radio transmitters that will allow their movements to be tracked *in-situ* in the forest. Similar radio transmitters were used in 2014 in initial research conducted by SIF to study the gecko's movement ecology. Chris's research will build on the data and methods from the 2014 work.

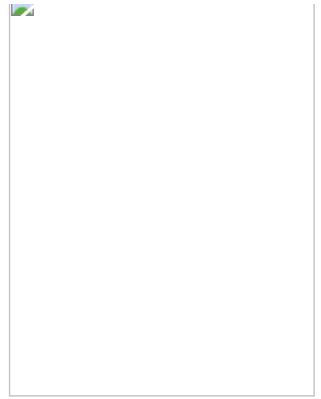


Conducting marine surveys at Aldabra © SIF

To ensure high quality data and continuation of the monitoring programme, staff training sessions have been organised allowing more staff to participate in the marine programme and making sure their identification and technical skills are top-notch. During the fish training sessions, the staff learned to identify the fish species surveyed around the atoll both through desk-based training and in-water snorkelling sessions. The in-water sessions were certainly more challenging as the fish are constantly on the move! The staff were also trained in the identification of benthic organisms, learning how to distinguish the many species. As with the fish training sessions, there were both classroom and in-water sessions. These benthic organisms are much easier to identify as they are mostly sessile animals which means the surveyors can take their time to observe them without having to chase them around.

Diving here at this remote coral atoll is very different to the experience of the inner granitic islands of Seychelles. While descending to complete the survey you are greeted by the various and numerous species of colourful fish as they swim by. A variety of corals awaits you at the bottom, diverse and with different growth forms, which makes the survey work seem magical.

The marine monitoring is always a challenge at Aldabra due to the logistical and environmental constraints of working in such a remote location. A big thank you goes to the entire team at Aldabra for their hard work in making this another successful season and collecting this valuable data.



*MSc student Chris Tagg setting up traps in the Vallée de Ma
SIF*

The findings of this new study should provide more insight into the ecology of the Giant Bronze Gecko, allowing for more effective management strategies for this reptile. For example, the gecko is currently listed as vulnerable to extinction on the IUCN Red List but there is still minimal information on its population size, demographics, habitat use and diet so Chris's research could be of use in reassessing and possibly updating its threat level, especially when considering the fragility of its habitat. More updates will follow as the research progresses.

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