

Indian Ocean Seabird Group





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EDITO

Here is the 6th issue of the Indian Ocean Seabird Group Newsletter. Another very diverse set of projects are presented here: a method for aging seabirds, some records of longevity of rescued birds in Réunion Island, regional workshops and training courses, plastic ingestion by seabirds, tropicbird ecology in the Seychelles, and implementation of artificial colonies for fairy terns.

We hope to see some of you at the next Island Biology conference, organised in Réunion island in July this year. Please note that a special symposium on “seabirds on islands” has been submitted and accepted by the scientific committee of the conference.

Another very important event will be the Third World Seabird Conference, a wonderful opportunity to meet and share ideas etc... As most of you are aware it will take place in Hobart, Tasmania, in October 2020. Be prepared!

Aurélie & Matthieu

The 5th World Seabird Twitter Conference (#WSTC5) will take place from the 9th April until the 11th this year, and abstract submissions are now open. The closing date for abstract submissions is on the 15th February, but there will likely be one-week extension. You can submit your abstract here: <https://blackbawks.shinyapps.io/WSTC5/>

This year, a number of journals (such as IBIS) and organisations are sponsoring the conference, and there are some great prizes to be won. Twitter conferences are free, and have the advantage of being particularly interactive with the opportunity to network online.

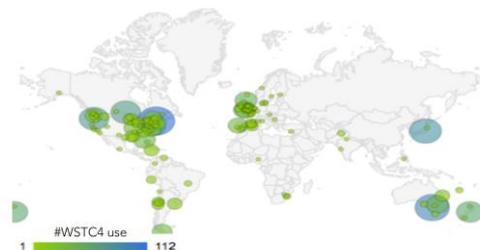
You can tweet in English, French, or even Spanish and there is help available to have your tweets translated ahead of the conference.

The previous four conferences were a huge success and there is no doubt that Twitter conferences are becoming widespread in all fields of research.

Should you need any help with using Twitter and/or creating an account, ask Aurélie for help (Twitter handle: @amtlabbe, email: Aurelie.mt.labbe@gmail.com).

ANNOUNCEMENTS

The Fifth World Seabird Twitter Conference #WSTC5



At the last World Seabird Twitter Conference the #WSTC4 hashtag was used by over 600 tweeters from all over the world with the tweets reaching over 1.2 million Twitter users

MEMBERS CONTRIBUTIONS

Field course on seabird monitoring in Madagascar

Matthieu Le Corre, Christophe Caumes, Anasvaler MBelomanana, Toky Randriamoria Maheriniaina, Ny Sanda Ranaivoson, Elizabeth Sadowski



The staff of Time+Tide Miavana with the seabird monitoring trainees

Although Madagascar holds only 50,000 pairs of breeding seabirds (which is very few compared to the 6 million pairs that breed in the western Indian Ocean), there is an increasing interest in the country to protect the main seabird colonies and to monitor the effects of conservation actions on seabird populations. Nosy Manampaho (north east of Madagascar, Nosy Ankaon archipelago) is the main seabird colony of the country with around 20,000 pairs of sooty terns (in 2008). The colony was egg harvested by local villagers until 2012, when it was decided to stop this harvest and to preserve the island. The NGO Fanamby is now in charge of protecting the island and monitoring its marine avifauna, with support from Time+Tide Miavana and the Time+Tide Foundation.

In order for the staff of Fanamby and Time+Tide to be able to monitor seabirds, we organised a field course on the island, during the main breeding season of the terns (May to October). The field course was done by M. Le Corre (University of Reunion Island) and Christophe Caumes (Madagascar), with the support of Vahatra, Time&Tide Foundation and Island Conservation.

Two sessions were organised: one in July 2018 during the incubation period, and one in August 2018 during the chick-rearing period. During these sessions, the trainees learnt how to census sooty terns colony, how to monitor the breeding success, how to band and measure adults and chicks, etc...

They also learnt how to identify the different seabird species that breed on the island, and gained some information on their ecology in land and at-sea.

The field course also included in-class teaching on how to use camera traps to estimate the impact of introduced predators on seabirds, how to use automated acoustic station to monitor nocturnal seabirds such as shearwaters and petrels, and how to use some tracking devices to study foraging movements and migrations.



Point count of nests at the main sooty tern colony

The training was very successful and we found 48,000 pairs of sooty terns during the course, as well as several hundred pairs of roseate terns and great crested terns. This was a clear result of the abandonment of egg harvest on the island.



Visual counting of roosting noddies

How do you age seabirds? Looking for a reliable molecular tool to age seabirds: a case study of pentosidine

Aurélie Labbé



Bridled terns roosting on top of a sunshelter on Penguin Island, Western Australia

How do you reliably estimate the age of a seabird that has not been banded, or that was banded as an adult? This remains an unresolved problem in ornithology, and particularly in seabird research where individuals can be very long-lived.

Using telomere length (DNA) has been problematic and not particularly reliable for marine birds. However, using biological markers may be the only avenue for estimating age because plumage and other physical / physiological characteristics are often uniform amongst adult birds.

Therefore, I decided to try using pentosidine as a biological marker of age in bridled terns breeding on Penguin Island, Western Australia, where we had a number of individuals that were banded as chicks and therefore were of known age.

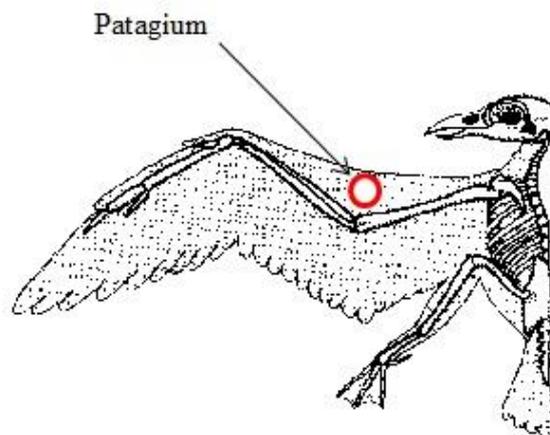
Pentosidine had been successfully used in some species of land birds, but had yet to be trialled on seabirds. It is a naturally occurring biological product that accumulates over time in living organisms, and particularly in their skin. Therefore, by sampling a small skin sample from a live bird, the amount of pentosidine can be used to determine a bird's age.

Unfortunately, this technique did not work for bridled terns, and it did not work for common gulls either. This could possibly suggest that seabirds may either have some molecular adaptation to resist ageing, or that their diet (which is high in omega-3) and lifestyle does not

generate much pentosidine, so that marine birds do not age the same way as land birds. However, more trials are needed before coming to such conclusions, and the quest to find a reliable biological marker of age for seabirds is still going.

To read the article in more details, follow the link or ask Aurélie for a PDF copy:

<https://www.tandfonline.com/doi/full/10.1080/01584197.2018.1552081>



Area of biopsy for skin sampling

New longevity records for rescued seabirds in Reunion Island

Julie Tourmetz



Papy Puff, a record longevity for a rescued tropical shearwater

One of the goals of the wildlife rescue centre of SEOR, in Réunion, is to rescue and rehabilitate birds found by people and to inform population about the unique wildlife of the island.

This gives a second chance to birds disorientated or injured by man-made infrastructure and thus compensates, at least to

some extent, our impact on biodiversity. In twenty years of activity, the rescue centre hosted 35,000 birds (mostly seabirds) among which 80% were released successfully in the wild.

After a period of rehabilitation, birds are generally banded with a metal ring (banding program agreed by the Centre de Recherche des Populations d'Oiseaux, CRBPO, the French Authority for bird banding in France) and released.

This banding program gives precious information on the capacities of rescued birds to survive in the wild, while providing valuable information on longevity. Below are three recent examples:

1° Tropical shearwater

A fledgling tropical shearwater was found stranded on 20th December 2001 in the city of Sainte Marie, north of Réunion Island. Similarly to hundreds of fledgling shearwaters each year, this bird had been attracted by urban light. It was rescued and released on the 21st December 2001, and found again on the 17th November 2018, again attracted by urban lights in the city of Saint Denis, less than 10 km away from the place it was found 17 years earlier!

This bird has a wound to its right eye (probably due to a collision with a street lamp) and is currently recovering at the rescue centre. The good news is that it is recovering very well and should be released in a few days.

To our knowledge this data is probably a record of longevity for this species. Furthermore, it also demonstrates that rescued fledgling shearwaters can survive and recruit in the adult population.

2° Barau's petrel

A fledgling Barau's petrel was found stranded in Cilaos on 22nd April 2001, banded and released successfully the day after. Again, this bird was one of the numerous victims of light pollution. It was then found again on the 3rd January 2019 in the town of Les Aviron (west of Réunion Island). Unfortunately this bird had several opened fractures to its right wing and we had to put it down. The bird was 18 years old, another very interesting information on the longevity of

this endemic and endangered seabird. Several breeding Barau's petrels of the same age or a little bit older (also banded as fledglings when attracted by light) are also known at a number of colonies.

3° White-tailed tropicbird



Tropic bird raised as a chick at the SEOR and recovered as an adult

On the 28th June 2010, someone brought a downy white-tailed tropicbird chick to the rescue centre. The chick was involuntarily removed from its nest. This chick was fed over two months, banded, and released successfully on the 27th August 2010.

This bird was found again on the 24th December 2018, after colliding with a car. It was in full adult plumage. The bird spent one week at the rescue centre while its wounds (superficial) were treated, this bird was successfully released on the 1st January 2019. This demonstrates for the first time that hand-raised chicks of white-tailed tropicbird can survive after release.

All these examples (among others) show that rescuing seabirds of Réunion Island not only is a very efficient way to educate people and make them aware of the situation of endangered species, it also contributes to the improvement

of the conservation status of these species. Banding rescued birds also provide invaluable information on their survival and longevity.

Spying on tropicbirds: new research from Aldabra

Annette Fayet



Red-tailed tropicbird in its nest with its newly hatched chick

Tropicbirds are a key seabird species in the Seychelles, with the elegant white-tailed tropicbirds breeding on many inner and outer islands, and the rarer, larger red-tailed tropicbirds mostly breeding on Aride and Aldabra. Recent research on Aldabra by a researcher from Oxford University (UK) in collaboration with the Seychelles Islands Foundation investigated these poorly studied species. The breeding success of the two species on Aldabra is poor, and the project used new technologies to spy on the birds at the nest but also at sea, to learn more about their breeding behaviour and hopefully understand why the species are not doing so well (red-tailed tropicbirds especially seem to be declining on Aldabra).

Tropicbirds feed away from the coast, making it difficult to observe their behaviour at sea. Annette Fayet, a Junior Research Fellow at Oxford, used miniature loggers (geolocators attached to the birds' legs) to record their movements while away from the nest. While many nests failed and she could not retrieve all devices, she managed to record the movements of about 10 birds. She found that for both species, birds went several hundreds of kilometres away from Aldabra (mainly to the

Somali Basin), covering over a thousand kilometre in a week. The loggers, which weigh less than 2g, will continue recording the birds' movements and behaviour after the breeding season ends.

Annette also deployed infra-red motion activated cameras to observe tropicbirds' nests, to identify why so many fail before the chick is old enough to leave the nest. Her cameras, installed on rocky islets in the lagoon, photographed worrying events. Many white-tailed tropicbird nests failed during the incubation stage because of rats eating the egg when left unattended, confirming the unsurprising news that rats are likely to have a substantial detrimental impact on Aldabra's seabird populations. Red-tailed tropicbird nests, on the other hand, were more successful at hatching chicks but those were frequently predated by crows later on, even when an adult was present. On other occasions red-tailed tropicbirds evicted their smaller cousins, the white-tailed tropicbirds, out of their nests, which was unexpected.



Rat visiting a tropicbird nest at night

Analysis of the behavioural and dietary data is ongoing, and will help to obtain a better picture of the tropicbirds' feeding ecology. Annette will also return to Aldabra in January 2019 to continue the project. This time she will combine the immersion loggers with miniature GPS loggers and even some dive loggers to obtain higher resolution data on the foraging behaviour of tropicbirds, and expand the nest video monitoring. Annette will also repeat the work at a smaller scale on Aride, to compare the foraging ecology of white-tailed tropicbirds between the inner and outer islands. Overall, this research will help fill a gap in the knowledge on tropicbirds' breeding biology and spatial ecology, and will have important

implications for the protection of these magnificent birds on Aldabra. With seabirds being more threatened than ever by ocean pollution, invasive species, overfishing, and climate change, such research and conservation efforts are critically needed.



Red-tailed tropicbird evicting white-tailed tropicbird from its nest

The project is funded by the Percy Sladen Memorial Fund (Linnean Society) and a crowdfunding campaign (2017), the Africa-Oxford Initiative and the John Fell Fund (2018). In 2018, the Seychelles Islands Foundation also obtained support for the project from the Seychelles Environment Trust Fund.

@AldabraSeabirds <https://aldabratropicbirds.wordpress.com/>

Regional workshop on biological invasions and island restoration in the western Indian Ocean

Matthieu Le Corre

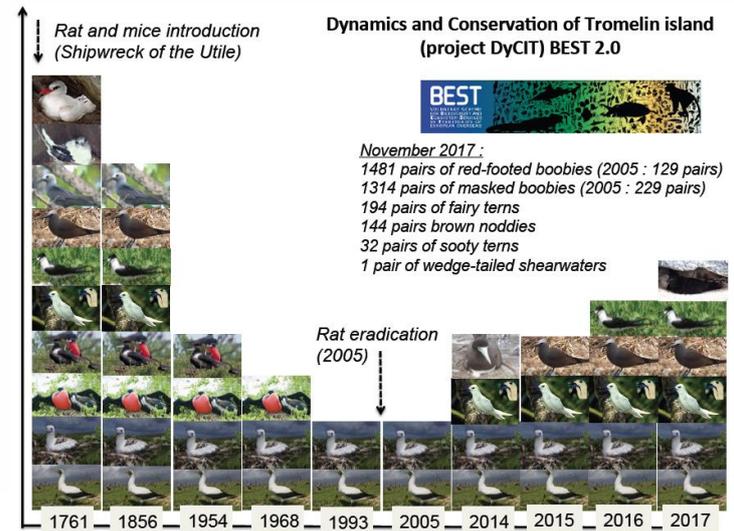


Some of the participants of the workshop

As part of the European funded project 'Dynamics and Conservation of Tromelin Island' (DyCIT), the UMR ENTROPIE (Réunion University), the Conservatoire Botanique National de Mascarin (CBNM-CPIE) and the

Administration des Terres Australes et Antarctiques Françaises (TAAF) organised from 29th to 31st October 2018 a regional workshop on 'Biological invasion and island restoration in the western Indian Ocean'.

The goals of this workshop were
 1°) to share the results of the DyCIT project with local and regional partners and collaborators
 2°) to learn about other ongoing projects in Réunion but also in Madagascar, Mayotte and Mauritius,
 3°) to discuss methods to study the impact of biological invasions on islands and to eradicate the most impacting introduced species and
 4°) to discuss about joint projects for the future.
 Most of the presentations dealt with invasive mammals (rats, cats, mice) but some also highlighted invasions by exotic plants.
 Around 90 participants attended the workshop, including invited participants from Madagascar, Mauritius and Mayotte and the students of the Master 'Biodiversity and Tropical Ecosystems' of the University of Réunion Island.



Seabird biodiversity recovery on Tromelin following rat eradication

Among the various results of the projects, the figure above shows the amazing recovery of the seabird community on Tromelin. Although Tromelin had only two breeding species of seabirds (totalling less than 360 pairs) at the time of rat eradication (December 2005), the seabird community is now composed of six breeding species totalling more than 3,160 breeding pairs! The recovery process is still ongoing as several seabird species consistently prospect the island and may settle in the near

future (in particular red-tailed and white-tailed tropicbirds, and lesser noddies).

A booklet with all the abstracts of the workshop is currently in preparation. Please send an e-mail to Matthieu Le Corre to receive it).

For a short presentation of DyCIT, see IOSG Newsletter n°4 (April 2018), visit the web page <http://umr-entropie.ird.nc/index.php/portfolio/projet-dycit>.

Plastic ingestion in marine birds of the western Indian Ocean

Audrey Cartraud

Ingestion of plastic by marine fauna has been reported all around the world and affects a large number of seabirds causing stomach obstruction and internal wounds resulting in low body conditions and death. Only few studies have focused on tropical areas and this is the first one focusing on the western Indian Ocean.

We analysed plastic ingestion in nine seabird species breeding or foraging in Reunion Island, two of which are endemic and endangered (Barau's petrels) or critically endangered (Mascarene petrels). We also included tropical shearwaters, wedge-tailed shearwaters, white-tailed tropicbirds, and brown noddies which breed on the island. Lesser noddies which use the island as a roosting place during the post breeding migration (probably originating from Mauritius or the Seychelles), as well as sooty terns from Juan de Nova (Central Mozambique Channel), and two Cape Gannets which were probably originating from South Africa, were also inspected. All birds were found dead in Reunion Island, mainly from light pollution or collisions, and from cat predation for the sooty terns.



Extracting gut contents to investigate plastic ingestion

Overall, 50% of the birds analysed had plastic in their gizzard or proventriculus, but there was strong variation in relation to species and age. The two most contaminated species were the tropical shearwater (79% of the birds had plastic in their gut) and Barau's petrel (59%). Furthermore, it was noted that for Barau's Petrels, the number of ingested particles was significantly higher in juveniles than in adults.



Example of plastic particles found during the investigation

Our study showed that the nine seabird species included in this study ingest plastic accidentally or opportunistically when foraging, or when fed

by their parents. Petrels and shearwaters are known to ingest plastic frequently in various parts of the world as they forage exclusively at the surface of the sea and can therefore mistake plastic for preys. Petrels and shearwaters may also have more plastic in their gut because of the gizzard present in the Procellariidae family, which can accumulate non-digested food items.

Feeding areas for these species differ and could indicate different levels of marine debris pollution. Our study is the first to quantify plastic ingestion in a range of tropical seabird species of the western Indian Ocean. We suggest using Barau's petrels and tropical shearwaters as bioindicator species to monitor plastic pollution in this region as it represents a regular and predictable number of dead birds every year.

This work was part of my MSc project (University of Réunion Island) and has been published (just a couple of weeks ago !) in Marine Pollution Bulletin :

<https://doi.org/10.1016/j.marpolbul.2019.01.065>

Australian fairy terns breeding colony near a busy harbour

Claire Greenwell

The Australian Fairy Tern is the smallest tern species to nest in south-western Australia and is listed as Vulnerable under both state and federal legislation. The decline of suitable nesting habitat in the state has facilitated the use of 'managed sites'; a contemporary strategy used to limit disturbance to breeding colonies and maximize local reproductive success.

In 2013, the Rous Head Fairy Tern sanctuary was constructed on reclaimed land within the Fremantle Port, a historically-known breeding area for the birds. A layer of shell material was added to the ground surface to enhance the attractiveness of the site and the perimeter of the site is now fully enclosed, providing protection to nesting terns and their young. Situated at the mouth of the Swan River, where small baitfish are abundant, the site is ideally located and provides an opportunity for proactive pest management, site maintenance and observation.



Urban tern: a fairy tern at the breeding colony near the Fremantle Port

Despite the unusual setting within the bustling port, the breeding population has increased from 90 pairs in 2013/14 to 250 pairs in 2017/18, and 220 pairs in 2018/2019, making it the most successful breeding location for Fairy Terns in the greater south-west region.



Tern at the end of the tunnel

In 2015-16 a banding project commenced at the site with the aim of understanding more about Fairy Tern population movements, sub-regional relationships and overall population health. After four years of banding at various colonies across the south-west, recaptures are revealing important new insights into population movement, interchange, and size.



Fairy tern flight over decoy

The site is a major study site for a PhD project, looking at the 'life history and populations dynamics of the Australian Fairy Tern'. Investigations into site establishment requirements, and the breeding and feeding ecology of the terns are currently underway. The outcomes of this research will be used to guide management programs for the species in the future.

If you would like to know more about the project, contact Claire Greenwell from Murdoch University at C.Greenwell@murdoch.edu.au

The contributors of this Newsletter are:

Cover page photo: Fairy tern (*Sternula nereis nereis*) fledgling - Claire Greenwell

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Thanks to all of you!

Call for contributions: This is the sixth newsletter of the group. We plan to prepare the next issue for May-June 2019, so please send your contributions to one of the editors (see above) now!

