



Beak and feather disease virus confirmed in ring-necked parakeets culled on Mahé

Key research was published in September which confirmed the presence of beak and feather disease virus (BFDV) in ring-necked parakeets (*Psittacula krameri*) that were culled as part of the eradication of this species on Mahé. The ring-necked parakeet has been implicated in introducing diseases that have threatened other native parrot populations, such as the echo parakeets (*Psittacula eques*) in Mauritius. The ring-necked parakeet eradication was initiated to prevent the same from happening in Seychelles to the Seychelles black parrot and this research provides further validation for the eradication.



The Seychelles black parrot samples tested negative for BFDV © SIF

The research was led by Debbie Fogell, a PhD student at the Durrell Institute of Conservation and Ecology, UK, who analysed blood samples collected by SIF from 24 black parrots on Praslin

and 23 ring-necked parakeets on Mahé. All of the black parrot samples tested negative for BFDV, but the virus was detected in nearly 50% of the ring-necked parakeet samples. Another important finding was that the strain of BFDV found in Seychelles was most closely related to the UK strain, suggesting that the virus entered the country - and subsequently infected the wild ring-necked parakeet population - by way of a parrot or parakeet imported from the UK. Although it is extremely worrying that the wild ring-necked parakeets on Mahé were carriers of the BFDV, it is encouraging that all of the black parrot samples were BFDV free and that the ring-necked parakeets were restricted to Mahé, with one individual on Silhouette. It has been more than a year since the last known wild ring-necked parakeet was culled on Mahé, be sure to check out our next newsletter for news on the eradication.



Ring-necked parakeet and black parrot blood samples © SIF

The full citation for the paper is: Fogell DJ, Martin RO, Bunbury N, Lawson B, Sells J, McKeand AM, Tatayah V, Trung CT, & Groombridge JJ (2018) Trade and conservation implications of new Beak and feather disease virus detection in native and introduced parrots. *Conservation Biology* doi: 10.1111/cobi.13214.

SIF's biggest 'Clean up the World' campaign yet!

To celebrate 'Clean up the World' day on Saturday 15th September and to tie in the activities with our Aldabra Clean-Up Project, SIF implemented several clean-up campaigns across the country. These included clean-ups at both Aldabra and the Vallée de Mai, as well as Anse à La Mouche on Mahé and Anse Georgette on Praslin.

On Aldabra, the team cleaned the beaches around the research station, removing marine debris from the water's edge up to top of the beach line. Big pieces of wood and bamboo were also moved away from turtle nesting areas to give better access to female green turtles coming up the beach. A big focus was on removing the large nets and ropes that had been washed ashore and caught on the champignon in front of the station. This was not an easy task as the champignon has razor-sharp edges and the ropes get really entangled. A total of 145kg of waste was removed altogether.



Ropes and nets that wash ashore onto the champignon can be very difficult to remove © SIF

In the Vallée de Mai, the clean-up activity focused on the sides of the main road starting at the reserve all the way down to Nouvelle Découverte. Staff from the Vallée de Mai divided into smaller groups with one group focusing on removing litter closer to the road and a second group collected debris further inside the forest. An alarming quantity of waste was collected in

the perimeter of the Vallée de Mai, estimated at 1.5 tonnes! This consisted mostly of empty alcohol containers and bottles, corrugated iron sheets, plastic, vehicle parts, old tyres, and household waste. This amount is far more than has been collected in previous clean-ups of the same area and suggests a worrying trend in littering on Praslin.



The group collected litter along the road that passes through the Vallée de Mai © SIF

The team at SIF's head office participated in the 'Seychelles biggest Clean Up' event coordinated by NGO The Ocean Project Seychelles. SIF coordinated a clean-up at Anse à La Mouche beach, and staff were joined by the local volunteers of the Aldabra Clean-Up Project, scouts from Anse Boileau and members of the Anse à La Mouche community. The team collected over 235kg on Anse à La Mouche beach, including plastic and glass bottles, lighters, toys, snack packets, take-away boxes, ropes and even boat parts. The Vallée de Mai team also participated in another 'Seychelles biggest Clean Up' event at Anse Georgette beach together with staff from Lemuria Hotel and members from other organisations such as the Duke of Edinburgh Awards and the Baie Sainte Anne watershed committee. It is estimated that more than 1 tonne of beach debris was collected.

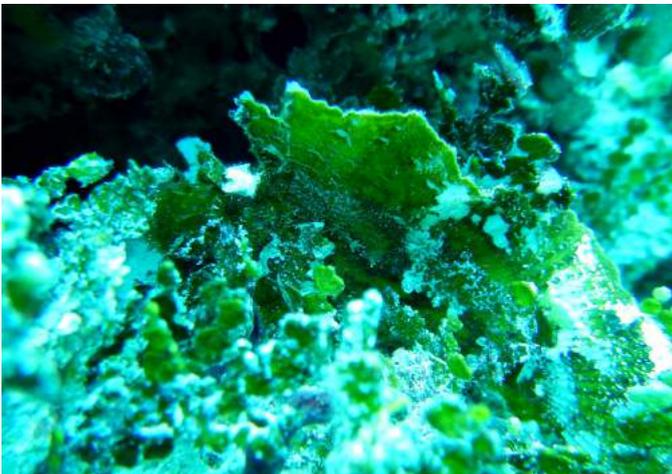
These coordinated efforts have helped to remove an enormous amount of beach debris washed ashore from the sea, but also prevented a large amount of litter from making its way into the ocean to be carried away by currents. The turnout at these events was outstanding with more than 50 people at the Anse à La Mouche



The team collected over 235kg on Anse à La Mouche beach © SIF

clean-up and almost 50 people helping in the two clean-up events on Praslin, and SIF encourages and supports more clean-up campaigns. If you missed out on this year's event, we hope you'll join us next year and in upcoming clean-up events in our efforts to remove discarded waste and protect our national treasures. In the meantime please continue to make picking up rubbish part of your normal routine as you enjoy Seychelles' beautiful landscape.

International Year of the Reef Coral News: The beauty of diversity



Leaf scorpionfish blending in to the Halimeda © Anna Koester

Coral reefs are highly diverse ecosystems that can look substantially different, even when they are close to each other. Environmental conditions at a site can support or suppress the growth of organisms, considerably shaping the reef community. On Aldabra, we see vast

differences between the western and eastern reefs: the west, being more sheltered, supports higher hard coral cover and diversity whilst the eastern reefs remind divers of a beautiful green underwater garden. The algae in the picture is a species of the genus Halimeda. The algal body is made of calcium carbonate and when decomposed is an important provider of reef sands. On the reef it creates beautifully different seascapes and is home to some organisms that we only spot when we look very closely. Can you see the little leaf scorpionfish perfectly blending in?

More training for SIF staff

September was an exciting month in terms of training opportunities for SIF staff, with two staff members starting their master's degrees as recipients of SIF scholarships and one completing dive training with GVI. Marc Jean-Baptiste, the long-serving Vallée de Mai site manager embarked on his MSc in Conservation Biology at the University of Kent, UK. Marc has been with SIF since 2008. Marc manages the Vallée de Mai operations with a passion for the environment that infuses everything he does, and this MSc will be an opportunity for him to delve deeper into the realm of conservation biology and we wish him the best of luck.



Marc and Dylis © SIF

Dylis Cedras, SIF marketing and product development officer started her MBA in Business Administration with the University of West of Scotland, administered by the University of Seychelles. Dylis came to her position in

2015 with the task of developing products and services that enhance visitors' experience in the Vallée de Mai and Aldabra, and over time she has also taken on the role of attaché to the CEO. With her MBA she hopes to expand her role at SIF to include a greater focus on finance and management.



Ronny © SIF

Ronny Marie, a senior ranger on Aldabra, has just completed training at the GVI marine expedition based at Cap Ternay, Mahé. Ronny was already an experienced diver, but joined the expedition to gain experience, improve his coral identification skills and develop the techniques needed for marine monitoring on Aldabra. Ronny will put this experience to good use during the Aldabra marine monitoring later this year. Congratulations and good luck to you all!

SIF Vacancies

We have several vacancies at the head office on Mahé, in the Vallée de Mai and at Aldabra which need to be filled urgently. Details can be found on our website at <http://www.sif.sc/jobs> or contact HR on 432 17 35 if you are interested in any of the following positions:

Mahé

- Accounts Technician
- IT and Database Development Officer

Aldabra:

- Tourism Coordinator

- Shopkeeper
- Ranger, preferably with boat experience

Vallée de Mai:

- Visitor Centre Service Coordinator
- Visitor Attendant
- Field Worker
- Housekeeper



New monitoring of sooglossid frogs to start soon in the Vallée de Mai

A new project aimed at the long-term monitoring of sooglossid frogs will begin soon in the Vallée de Mai. The project will monitor the absence and presence of the endemic *Sooglossus sechellensis* through bioacoustic monitoring. This is part of a national project to establish long-term monitoring of endemic amphibian fauna on several Seychelles islands and was developed by Dr Jim Labisko, who recently completed his PhD on the Seychelles sooglossids, in collaboration with partners in Seychelles.

Seychelles is home to 13 endemic amphibian species: seven caecilians and six frogs. Due to their extended isolation and occurrence on just a handful of the inner granitic islands, Seychelles' amphibian fauna is globally significant and of high conservation value. Of these highly

restricted taxa, the family Sooglossidae remain little known. Vallée de Mai hosts a population of *Sooglossus sechellensis* found mostly in undisturbed areas of the forest with good plant cover and water availability.



Sooglossids are very difficult to spot in the forest © SIF

Sooglossid frogs are difficult to observe and cryptic in their behaviour, hiding in deep leaf litter, root material, and in crevices among piles of boulders. The only way to assuredly confirm their presence (or absence) is to listen out for their unique vocalisations. Static/passive bioacoustic monitoring through the use of song meters is a method that permits researchers to continually monitor habitats over periods of days to months and even years, necessitating far less time spent in the field. Once deployed, song meters record at regular intervals and need only be checked as often as required. Considering the cryptic behaviour of sooglossids, the use of static recording devices to monitor frog activity is a favourable option to obtain consistent, meaningful data, and this



Song meters allow researchers to continually monitor habitats over long periods © SIF

approach forms the backbone of the monitoring methodology. The research team at the Vallée de Mai has recently received four song meters and is busy preparing for the official kick-off of the monitoring in January next year.

The monitoring of Sooglossid frogs under this project will also take place on other islands, including Silhouette which, in addition *Sooglossus sechellensis*, also hosts the other three endemic species of Sooglossid: *Sooglossid thomasetti*, *Sechellophryne gardineri* and *Sechellophryne pipilodryas*. This national project will improve understanding of sooglossid ecology and the environmental conditions of the species, laying the foundations upon which adaptive conservation management plans can be developed and enacted, conservation needs assessed, and effective measures put in place to safeguard the Seychelles' sooglossid populations.

Invasive species activities ramp up in preparation for the black parrot breeding season

The Vallée de Mai research team are working on invasive species control efforts on several different fronts, including targeting rats and yellow crazy ants. These invasive species are being controlled to reduce their environmental, economic and social impacts across the Vallée de Mai.



Setting rat traps © SIF

Wide-scale live capture and removal of rats started in mid-September, and will continue until the end of the year to decrease rat numbers in time for peak black parrot breeding season and hopefully reduce their impact on black parrot nests. For this wide-scale trapping the Vallée de Mai has been divided into four sections and a total of 74 traps deployed. Through this effort the populations of rats are expected to be substantially reduced, which should benefit black parrot nesting success in the Vallée de Mai. Once the black parrot breeding has started, an additional targeted trapping regime around selected nesting cavities will commence and provide nesting parrots an even greater level of protection.



A GoodNature trap © SIF

Aside from environmental impacts, invasive species also have economic and social impacts. The presence of rats around the visitor centre and offices frequently results in damage to souvenirs and equipment. Rat control is therefore being carried out routinely in the visitor centre and offices using GoodNature traps, ethically approved self-re-setting kill traps. These traps only require daily checks to monitor and dispose of dead rats around the traps and are a humane and efficient way of controlling rat numbers around the visitor centre.

Another targeted invasive species is the yellow crazy ant, noted as one of the world's worst invasive species. Yellow crazy ants have a detrimental impact on native fauna, and in the Vallée de Mai have been observed attacking endemic animals such as caecilians

and snakes, as well as inside black parrot nesting cavities on chicks. Over the last few years a substantial increase in the range and abundance of yellow crazy ants in the Vallée de Mai has been recorded. To tackle this issue, 50 KM AntPro bait stations have been deployed across the reserve. These use boric acid, a naturally occurring substance, as a slow-acting poison, which is mixed with a sugar and protein bait. The design of the bait stations prevents anything larger than an ant from accessing the boric acid bait. The bait is 'topped-up' every two months and the bait stations are planned to remain on site for several years as part of a long-term control scheme for yellow crazy ants in the Vallée de Mai.



Counting yellow crazy ants © SIF

These large scale and combined efforts will reduce the detrimental impacts of invasive species in the Vallée de Mai. Efforts have been increased as the Seychelles black parrot breeding season is about to start. With continued monitoring, the research team aims to capture the effectiveness of these efforts which will help future conservation management of the black parrots and potentially species elsewhere.

Survey of naturally regenerating coco de mer nuts to increase understanding of the population

With growing demand for coco de mer nuts and kernels since the mid-1990s, these iconic nuts are an important and still increasing economic resource for Seychelles. SIF collects coco de mer nuts for the tourist trade, and this revenue source provides a percentage of the foundation's annual income. Prior to the initiation of the regeneration scheme in 2012, almost all of the easily spotted fallen coco de mer nuts in the Vallée de Mai were collected for sale and this legal nut collection was thought to reduce the risk of poaching. However 100% nut collection of known nuts, even if other undiscovered nuts are left to regenerate, is clearly not sustainable and research supported by SIF estimated that regeneration of at least 20% of fallen coco de mer nuts per year is necessary to maintain a stable population in the Vallée de Mai.



A coco de mer nut with shoot beginning © SIF

Every month field workers collect coco de mer nuts from the forest floor to sell as souvenirs in the shop. To ensure that enough coco de mer nuts remain in the forest to regenerate, the field workers who are responsible for the collection of nuts must ensure that for every four nuts that are collected one nut must remain on the forest floor. The research team then GPS and tag these nuts for monthly monitoring. These nuts are referred to as nuts in the 'regeneration scheme'.

Much of the Vallée de Mai is inaccessible and with the steep and rocky terrain and thick leaf

litter on the forest floor, many nuts are not detected, particularly those that are further from paths. These nuts are referred to as 'natural regeneration' nuts and the number and stage of these nuts and seedlings is unknown. In September the Vallée de Mai team set



Coco de mer seedling © SIF

about mapping and quantifying these nuts. All nuts not in the regeneration scheme that were between the stages of nut and seedling were recorded. This survey of naturally regenerating nuts is important to ensure that the coco de mer population in the Vallée de Mai will grow, given current known legal harvesting and known and unknown poaching incidents.

World Tourism Day

On Thursday 27th September SIF joined the rest of the world in celebrating World Tourism Day by embracing the Seychelles set theme of 'We Are Tourism'. Guests were able to play 'guess the weight of the coco de mer' and enjoyed special guided tours. Cocktails and fresh coconuts were for sale and the first ten clients received free cocktails. It was a fun day for staff and visitors!



Visitors guessing the weight of a coco de mer © SIF

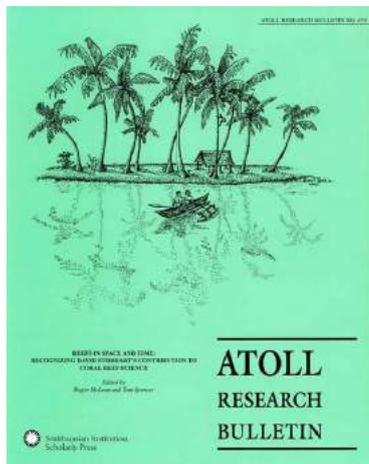


aldabra atoll

Aldabra lagoon mapping featured in Atoll Research Bulletin

The David Stoddart memorial issue of the Atoll Research Bulletin was published in September and features the first birds' eye view bathymetry map of the Aldabra lagoon. This edition of the Atoll Research Bulletin, titled "Reefs in space and time: recognising David Stoddart's contribution to coral reef science", honours Professor Stoddart, a life-long champion of Aldabra and one of the founders of the Aldabra research station. He was a world authority on coral atolls and a leading figure in coral reef science and conservation.

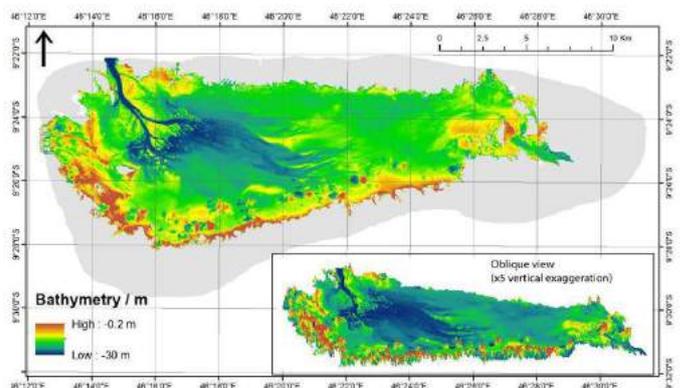
The bulletin features research representing the phases and locations of Professor Stoddart's long career, and Aldabra is represented in a paper on the benthic communities and bathymetry of the lagoon, "Mapping the lagoon at Aldabra Atoll, Western Indian Ocean". The research, led by Sarah Hamylton



Atoll Research Bulletin

from the Cambridge Coastal Research Unit, used satellite remote sensing techniques and detailed in situ ground-referencing within the lagoon to provide a detailed snapshot of the habitats and bottom topography of the lagoon. The fieldwork was undertaken in 2009 with some results, including the lagoon habitat and bathymetry maps at oblique angles, published in 2012, but this is the first time that the bathymetry map produced by the team has been published as a birds' eye view and provides a fascinating image of the depths across Aldabra's lagoon. Bathymetry is the study of underwater depths and the Aldabra lagoon floor has an elevation range of -0.2 to -30 metres. Much of the lagoon is a flat and shallow platform and the deep areas occur in the channel areas.

Understanding bathymetry is important for navigating the lagoon, which is highly tide dependent and can be very challenging, and for understanding the possible habitats and distribution of species within the lagoon. In the context of a changing climate the bathymetry and habitat maps also provide a detailed record of the lagoon at present, against which changes can be monitored.



Birds' eye and oblique view bathymetry map of the Aldabra lagoon © Atoll Research Bulletin

The full citation for the paper is: Hamylton S, Hagan A, Bunbury N, Fleischer-Dogley F & Spencer T (2018) Mapping the lagoon at Aldabra Atoll, Western Indian Ocean. Atoll Research Bulletin 619. 45 – 59

Aldabra Clean-Up Project: Local corporates answer Aldabra's call

It is with much excitement that we announce that the Aldabra Clean-Up Project has now raised £90,492/SCR 1.628 million which is over 60% of its goal! As of this month the team is also well on the way to raising the targeted SCR 500,000 in Seychelles thanks to the generous support of three leading Seychelles companies: Cable & Wireless, Mauritius Commercial Bank and Raffles Seychelles. Cable & Wireless became the Aldabra Clean-Up Project's first sponsor in Seychelles, a silver sponsor no less. Their donation of SCR 100,000 was handed over at an official ceremony at their offices on the 12th of September. Raffles donated SCR 50,000 to the project, becoming its second overall supporter and first bronze sponsor, and the Mauritius Commercial Bank committed SCR 100,000 towards Aldabra Clean-Up Project becoming the project's second Seychelles silver sponsor.



SIF CEO receiving the donation from Cable & Wireless © SIF

It is extremely encouraging to see Seychelles' leading companies in telecommunications, banking and tourism supporting the project and committing their corporate social responsibility tax to the environment. These companies have not only answered Aldabra's call for help, but have also committed their brands to environmental action and sustainability in Seychelles, acknowledging that our environment is the source of our wellbeing and wealth. In supporting the Aldabra Clean-Up Project they join international companies and individuals

from around the world in stepping up to the global challenge of combating marine plastic pollution.



The first three local sponsors © SIF

Depending on their contribution the sponsors will receive promotional materials and a host of other benefits from the project, including invitations to a post-project reception. For more information on how to donate and what sponsors are entitled to please consult the Aldabra Clean-Up Project Sponsorship Guide which can be downloaded from our the download tab of SIF's website. Over 50 Seychelles companies have been approached by the Seychellois project volunteers and it was only possible to achieve current results through their hard work. The funds raised are already being spent on equipment and supplies, some of which will be sent to Aldabra in next month's supply boat. As usual if you want to stay up to date please follow Aldabra Clean-Up Project on Facebook and Twitter.



International sponsors © SIF

Lee Cat - a new boat, almost...

Lee Cat has become an iconic boat for visitors to Aldabra; she is one of the main boats used for manoeuvring outside the reef, which is necessary

for completing many research tasks on the atoll, and for making crossings to Assomption. She was bought in 2015 by SIF second-hand; although new to us she was actually already five years old, now after three years on Aldabra she has been in service for eight years. Lee Cat is usually the preferred boat to use on Aldabra due to her layout, and during her busy three years on Aldabra, although her engines have always been serviced regularly, other maintenance was needed. Over time she experienced abrasion on her hull and some damage was observed during a recent monthly inspection. A full makeover of this important boat was therefore prioritised at the end of the north-west season.



The team worked hard to make sure Lee Cat is in perfect condition © SIF

the painting), she was lowered off the bricks and moved in front of the station. Here, further work was conducted on her interior; she even had new carpets installed! Following completion of the maintenance work the team has now run tests with all the equipment, Lee Cat is back to being in top shape.



Lee Cat at La Gigi © SIF

Diagnosis by the mechanic revealed a power head that needed fixing. The power head is essentially the beating heart of the engine and is very difficult to repair is on Aldabra without all the required spare parts and tools. The decision was therefore taken to source a second hand power head on Mahé and have it sent to Aldabra; maintenance on the atoll can be quite a process! Electrical maintenance and repairs also had to be done and the whole system was assessed with all corroding and faulty cables replaced.

There are no dry docking facilities on Aldabra, making it very challenging to do maintenance work. Most boat work is done at La Gigi, a short walk from the station. To get Lee Cat off the ground she was cranked up slowly and concrete bricks were stacked underneath, allowing the team to conduct fibreglass work on the hull. Then to do work requiring electricity (such as



Lee Cat was given a fresh coat of paint © SIF

Lee Cat's makeover took the entire south-east season due to the restrictions and difficulties inherent in working on Aldabra, but now she looks brand new thanks to the hard and skilled work of the logistics team. 'Lee Cat' is actually the name of the boat manufacturer, so what do you do when you renovate a boat that has never had a name? You give it one!

Names are currently being debated among the Aldabra staff, soon a vote will take place and then this beautiful boat will be christened. What would you name a boat as important as her?

PhD candidate trains in outreach and science communication during first 6 months of PhD

It has been more than six months since Annabelle Constance, SIF's former project and science coordinator, started her PhD research at the University of Zurich under the University Research Priority Programme on Global Change and Biodiversity. During this time, Annabelle has developed the outline of four research chapters for her PhD thesis with the main aim of understanding the persistence of Aldabra's ecosystems in the face of global change drivers, especially sea-level rise. Annabelle is excited to travel to Aldabra next year for a two-month field work season to collect data for her first research chapter, specifically targeting changes occurring



Annabelle explaining the "wheel of misfortune" © SIF

in mangroves.

Aside from her thesis, Annabelle is expected to complete mandatory and optional courses offered by the University of Zurich and other partner universities in Switzerland. So far, she has taken part in training on 'science busking' where she had to create an object that represented her work in a form that can be used for street entertainment with the general public. Annabelle designed a "wheel of misfortune" representing the network of interactions between living and non-living components of an island ecosystem similar to Aldabra. For more information on the wheel go to: <http://biodiversitymeanslife.ch/no-species-is-an-island>. After the training she participated with her wheel in two public outreach projects and received excellent feedback from the public, especially from children who just loved learning about islands! Besides being essential for the PhD, Annabelle feels such skills courses on outreach and communication are beneficial for her career in conservation.

Since starting the PhD in February 2018, Annabelle has also attended several seminars on global changes and biodiversity conservation and has taken some academic courses including one on advanced statistics and experimental design. We are looking forward to seeing how Annabelle and her research progresses and hosting her on Aldabra next year for her first field season.

Articles contributed by: Jennifer Appoo, Joel Bonne, Jude Brice, Annabelle Constance, Anna Koester, Terence Mahoune, Jeremy Raguain, Lynsey Rimbault and Vicky Stravens. **Editing by:** Jennifer Appoo, Nancy Bunbury and Lynsey Rimbault