



SIF Newsletter December 2019



SIF celebrates long-service staff and two dedicated Seychellois conservationists

In December, SIF held an event to reward and celebrate its staff who have dedicated 10 years of service to working at SIF. The event was a formal awards ceremony and was a special occasion as it was the first time the whole of SIF Head Office staff had the opportunity to attend an event with staff from the Vallée de Mai.



Dr Frauke Fleischer-Dogley, SIF's CEO, with the awardees © SIF

The awards ceremony took place on the 6th December at the Oasis Hotel on Praslin. The ceremony was attended by SIF's CEO Dr Frauke Fleischer-Dogley, three members of SIF's Board of Trustees and SIF staff members from the Head Office and the Vallée de Mai.



Mr Andy Norrice, Mrs Laurette Barreau and Mrs Elna Stevens with their certificates © SIF

SIF staff celebrating © SIF

The awardees were Mrs Elna Stravens, Mrs Laurette Barreau and Mr Andy Norrice, who had all worked for SIF for more than 10 years. They were presented with a certificate and a cheque in recognition of their long devoted service. The event was followed by an end of year gathering for all the staff present.

The event was also a perfect opportunity to celebrate the recent achievements of Marc Jean-Baptiste, Site Manager of the Vallée de Mai, and Dr Victorin Laboudallon, SIF Trustee. Marc recently graduated with Master's degree in Conservation Biology from the University of Kent. He is a dedicated, hard-working and passionate Site Manager and the whole SIF team were very proud to celebrate his achievement and give a round of applause. Dr Laboudallon was recently recognised by Her Majesty Queen Elizabeth II as the 118th Commonwealth Point of Light in honour of his lifetime achievement in conservation work in the Seychelles. In addition the University of Seychelles also honoured his lifelong dedication to Seychelles' nature conservation and awarded him an honorary doctorate. Congratulations to Victorin who has been and continues to be a wonderful inspiration to us all.

The event was enjoyed by everyone who attended, and there was a fun and celebratory atmosphere. It was also a fantastic way for new staff members to mingle and get to know the whole team. Congratulations and thank you to Elna, Laurette and Andy who have been committed to SIF over so many years.

April Burt continues island connectivity research in Seychelles

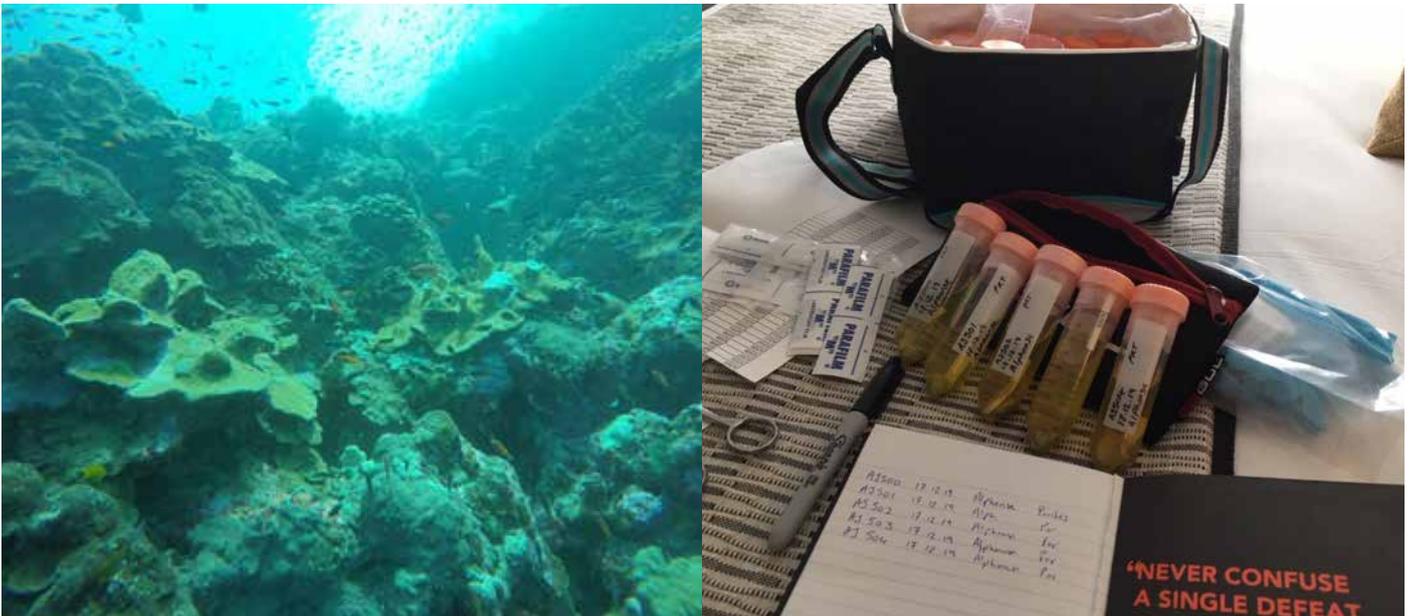
Seychelles is at the frontline of climate change; the sea level is rising, weather patterns are changing and cyclones and storms are becoming more frequent. Globally we need to reduce carbon emissions into the atmosphere but what can we, as a small island nation, do to protect our precious ecosystems in the face of climate change?



April enjoying her return to the Seychelles © April Burt

One answer is that we must do our best to make sure they are as healthy as possible! Evidence has shown that healthy, balanced ecosystems which are less polluted tend to recover better from disturbance events. This is especially true of coral reefs. Temperature driven mortality events, or 'coral bleaching' episodes, are predicted to increase in frequency, duration and severity. Consequently, Seychelles organisations and government have been working to better understand the coral reef systems and how we can ensure the persistence of these important ecosystems in the future.

Researchers are looking at which coral reefs act as source, or 'parent' reefs, supplying coral larvae (babies) to other reefs through dispersal in the system. This is important to know because these parent reefs will be extremely important in ensuring that coral reefs which are heavily impacted by climate events are able to recover. Understanding the connectivity of coral reefs within Seychelles will help to make the best management choices, by channelling resources to ensure that these key parent reefs are as healthy as possible.



Coral reef in Seychelles © April Burt

April's coral samples © April Burt

In December 2019 April joined the cruise ship 'La Bougainville' to collect samples from some of the furthest outer islands in Seychelles. Having collected samples from Aldabra and Assomption last year she was delighted to get to sample corals from Farquhar and Astove as well as to stop off at her old home of Aldabra. April's coral sampling work would not have been possible without the support of a number of organisations and especially Ponant for sponsoring this trip. Now it's time for April to get into the lab and extract the DNA!

But how can we learn about connectivity? Well, there are two ways. Firstly, we can map ocean currents and simulate particle movements through time and space (watch this space for more info on this). Secondly, we can collect coral samples of the same species from as many reefs as possible in Seychelles and use genetic techniques to determine which coral reefs show the highest genetic similarity. This is what former science coordinator of Aldabra, April Burt, has been doing for her PhD research.

SIF Vacancies

We have several vacancies in the Vallée de Mai and Aldabra which need to be filled urgently. We are actively seeking Seychellois applicants for all of the positions. Details can be found on our website at www.sif.sc/jobs or contact HR on 432 17 35 if you are interested in any of the following positions:

Vallée de Mai:

Visitor Attendants x 2
Property Maintenance Supervisor

Aldabra:

Ranger
Marine mechanic
Cook/Gardener



YCA surveys in the Vallée de Mai suggest that baiting has reduced

The annual yellow crazy ant (YCA) pitfall survey took place from 2nd to 6th December. The YCA is an invasive alien species and causes significant impacts on the native wildlife of the Vallée de Mai. SIF responded to this threat by setting up a dedicated YCA taskforce earlier in 2019, who have carried out two rounds of baiting in the forest in an attempt to reduce the numbers of YCA. In December we surveyed the numbers of ants using pitfall traps, to assess the impact of baiting on YCA distribution and abundance.



Vallée de Mai team setting up pitfall traps © SIF

The YCA taskforce used a more ergonomic pitfall trap design for this survey in the Vallée de Mai, which was treated with AntOff (the ant bait). Another survey was carried out in Fond Peper without AntOff treatment for comparison. The resulting 75 samples (50 from the Vallée de Mai and 25 from Fond Peper) were then sorted in December.

The results showed that YCA now occupy 60% of the Vallée de Mai in very low numbers (0–9

individuals) which is the smallest distribution since 2015 and the lowest numbers since they were first discovered in the site. YCA appear to have returned to the distribution from 2010; they are found in highest abundance only in the north-east of the forest. On the other hand, the results showed the highest numbers of YCA in Fond Peper since pitfall surveys began.

The substantial decrease of YCA in the Vallée de Mai strongly suggests that the two fipronil treatments this year were highly effective in reducing YCA numbers and bolsters our confidence in further reducing them with another baiting deployment in March.

The Fond Peper survey shows us how abundant YCA could have been had no action been taken to arrest their increasing population. It also highlights the potential for rapid reinvasion if control efforts are not sustained. The high numbers of YCA in Fond Peper are also of major conservation concern given the site's importance for endemic caecilians, geckos, skinks, black parrots, snails, slugs and many other invertebrates.

Populations of other invasive alien ants such as *Technomyrmex albipes*, *Nylanderia bourbonica* and *Odontomachus simillimus* have also decreased substantially since baiting started in 2019. This is noteworthy as if we manage to locally eradicate YCA in the future, the absence of a competitor may make way for another ant species to invade Vallée de Mai, or indeed allow native ants to return.

Black parrots not breeding in the Vallée de Mai this breeding season

Right now we should be halfway through the black parrot breeding season. But so far the Vallée de Mai team have found no evidence of breeding attempts at all this season.

Ordinarily, the black parrot breeding season runs from roughly October to March. We begin to hear breeding calls in mid-October, then birds are seen inspecting cavities for nesting suitability. We usually start finding eggs in late November and early December, with the first ones hatching by the start of the New Year. The young typically begin to fledge at the end of February with the last ones leaving the nest by the end of March.

Interestingly, the black parrot breeding monitoring carried out by SIF over the past eleven years has revealed an unusual pattern. The data collected so far shows a pattern of the black parrots breeding for three seasons in a row and then having a rest year where little to no breeding is detected. The previous two low breeding seasons four and eight years ago, demonstrated very limited breeding attempts, with four and one nests respectively discovered by the team and only a handful of breeding calls heard. This season, only one, partial breeding call was heard once in the Vallée de Mai in November and no other breeding calls have been heard. Despite the team monitoring over 100 possible nesting cavities (many of which have been used before), not one has shown any signs of being used by a black parrot.

Despite not breeding, we have seen a couple of female parrots in the Vallée defending their nesting area. Some of them have been chasing other parrots away from nest trees issuing alarm calls when bulbuls get too close. Some of the parrots have also shown a lighter beak (black parrot beaks change from brown to yellow during a normal breeding season), although very few have changed fully this year and we have seen several birds partaking in mutual feeding (a courtship behaviour where parrots give each other food).



Parrot caught for ringing showing slight change in beak colour © SIF



Brief excitement was caused by this view inside a tree cavity. At first we thought it was finally the first eggs of the season, then realised they were in fact mushrooms! © SIF

Right now we are not certain what causes this seemingly regular lull in the breeding attempts although there are many possible reasons, including changes in weather (rainfall, temperature) or food availability, which are being investigated. Or maybe, after three years of raising kids alone the

female parrots just need a year off to catch up on some sleep!

SIF will continue monitoring the black parrots and their breeding cycles to try to pinpoint what causes the change in the breeding activity.

Children's creativity celebrated at YCA poster competition ceremony

SIF launched a YCA (yellow crazy ant) poster competition in schools earlier in 2019. The competition was very popular and we received a lot of entries. The ceremony event was an opportunity to reward the best posters with prizes.



The prizewinning posters on display at the Roche Caiman Community Centre © SIF

The prize-giving ceremony was held at the Roche Caiman community centre on Tuesday 11th December. Sponsors, partners and students who participated in the competition were invited to the ceremony.

The CEO of Seychelles Islands Foundation, Dr Frauke Fleischer-Dogley, addressed the audience. Her speech highlighted the many successful projects and activities we held this year about the YCA threat in the Vallée de Mai. She encouraged everyone present to think twice before introducing exotic plants and animals to the country as they may be destructive to the rare and endemic life that we have in the Seychelles.

This was followed by the presentation of prizes to the winners, who were:

Primary Category

1st Prize: Anil Lozaique from Beau Vallon Primary School

2nd Prize: Ella Moustache from Beau Vallon Primary School

3rd Prize: Edel Allisop from Independent School

Special Effort: Adrianna Richemond from Independent School

Secondary School

1st Prize: Brandon Lucas from Plaisance Secondary School

2nd Prize: Shakira Tirant from Mont Fleuri Secondary School

3rd Prize: Staelle Rigodon from Mont Fleuri Secondary School

Special Effort: Charmaine Soffola from Plaisance Secondary School

The winners received some very interesting prizes like educational books, dinner vouchers from several hotels on Praslin, vouchers to visit the Vallée de Mai, PADI scuba diving vouchers and vouchers to visit Silhouette Island. These wonderful prizes motivated the students to take part in the competition and encouraged them to think about environmental issues which included the dangers of invasive species.

During the ceremony there were also performances from the winning schools. Beau Vallon primary school did a drama performance, Mont Fleuri secondary school did a song performance and Said Lesperance from Baie Ste Anne primary school performed a beautiful poem. SIF looks forward to similar enthusiastic participation in activities organised in the near future.

Christmas came early for Praslin children at SIF's Holiday Camp

This year's Christmas holiday was an exciting one for the children of Praslin who participated in the SIF Christmas holiday camp on Monday the 16th to Friday 20th December. Children and parents alike look forward to engaging in the activities organised by SIF at the Vallée de Mai UNESCO World Heritage Site.



Children taking part in a workshop with Ivan from the Aldabra Clean-Up Project © SIF

The children were involved in a variety of fun environmental activities for the five days at the Vallée de Mai. The students learnt about birds of Seychelles and more specifically birds that are found in the vicinity of the Vallée de Mai. We particularly focused on the Seychelles Black Parrot and the black parrot team leader Terance Payet gave a presentation.

The children also learnt about other endemic species that are found in the Vallée de Mai and at Aldabra Atoll. We gave a presentation about Aldabra and the Aldabra Clean-Up Project project. The children also took part in a new holiday camp activity - a beach clean-up in partnership with Parley of the Ocean. This was a very worthwhile activity as the students had the chance to reflect on the dangers that plastic can have on marine species.

The children enjoyed other outdoor activities such as nature visits to New Comme trail and the



Children doing a beach cleaning activity with Parley of the Ocean © SIF *Children doing a tree planting activity at the holiday camp © SIF*

Vallée de Mai. They learnt about the dangers of invasive alien species, by attending presentations given at the Vallée de Mai on yellow crazy ants, and learned how to count and trap ants in jam bait.



SIF's research into flightlessness in the Aldabra rail indicates it could be a distinct species

A new research paper published by SIF and collaborators on Aldabra's endemic white-throated rail *Dryolimnas [cuvieri] aldabranus* has shown two new facts about this unique bird: it evolved among the most rapid flight loss known in birds so far; and it should be considered an evolutionary distinct species from *Dryolimnas cuvieri*, not a subspecies as previously thought.



Aldabra white-throated rail © Janske van de Crommenacker

The Aldabra white-throated rail is somewhat of an anomaly, as unlike the rest of its species, notably the Madagascar white-throated rail, it cannot fly, yet it is only considered a subspecies. This level of variation within a single species is explained by the Aldabra rail being one of the fastest examples of the evolution of loss of flight documented. Furthermore it is genetically more distinct from the Madagascar lineage of rails than current taxonomy suggests.

To investigate this, SIF researchers and collaborators analysed modern samples and historical (museum) specimens to examine the genetics and morphology of the flightless rails of Aldabra. The

museum specimens were needed to obtain the DNA from the extinct rails from Assumption. The results show surprisingly high genetic divergence of the Aldabra rails from the Madagascar population, and confirm the divergence of the Aldabra and Assumption rail populations from those

on Madagascar between 70,000 and 130,000 years ago. The Aldabra rail's flightlessness must have therefore evolved rapidly, in less than 130,000 years, which agrees with estimations from the fossil record. The findings however, do not end here.



Rails at Aldabra © Janske van de Crommenacker

The significant genetic and physical differences found between the Aldabra/Assumption subspecies and the Madagascar subspecies led the researchers to argue that the Aldabra rail should be reclassified as a distinct evolutionary unit, which has implications for its management and protection and builds a case for the Aldabra rail to be formally recognised as a separate species. The researchers provide numerous examples and suggestions of how best to protect the Aldabra rail in their research paper, 'Rapid loss of flight in the Aldabra white-throated-rail'. They also provide a recommendation to the IUCN to re-assess the Red List (threat) status of the Aldabra white-throated rail, as its current status is based on the far less threatened and more widely distributed Madagascar white-throated rail, which is inappropriate for the conservation of the Aldabra rail.

As the last flightless bird in the Western Indian Ocean, the Aldabra rail has long had unique conservation significance, and this paper confirms and increases its importance. It is crucial that this unique endemic species receives appropriate recognition, protection and conservation management.

Tortoise sweeps provide insights into Aldabra's populations

Although a big sweep on Aldabra may sound like a major annual cleaning session, it's actually the time of year when we get down and personal with the tortoises. Aldabra hosts the largest population of giant tortoises in the world, and while there has been a lot of research on these tortoises, we still lack some basic information on them in the wild.



Giant tortoises at Aldabra Atoll © SIF



Germano Soru, Field Research Officer, carrying out tortoise sweeps © SIF

When you think about a human population, some of the most important statistics are sex ratios (how many males compared to females), the age structure of the population (toddlers, teenagers, adults, retirees), and other particulars such as average height. For tortoises, this is also important to know. It has been shown statistically that tortoises on different parts of the atoll have physical differences. In this case, the tortoises on Picard (north-west of Aldabra) are much larger than tortoises in the south-east part of the atoll, despite being the same species!

It's all about resources; the tortoises on Picard have more food and water year-round allowing them to grow larger, while the tortoises in the south-east have more limited resources, thereby staying smaller. What we don't know is the differences in growth rates, whether the sex ratios differ, and whether the population is made up of younger, older, or similar aged tortoises. Although the tortoise population trend is stable, there is still much more to learn to understand and conserve these gentle giants.

The SIF team on Aldabra has started to collect information on tortoise population demographics since 2017 via 'sweep' surveys. Our research staff go into the field armed with measuring tapes, to pre-designated areas in which all tortoises within that area are measured and assessed. In November, the team measured 225 tortoises on Cinq Cases in two sweep zones and 190 tortoises on Picard in four areas. The tortoises on Picard are mostly marked from previous studies, so we can collect information on individuals, which is incredibly useful data. Of those 190 tortoises, 127 had an ID, which will allow us to look at individual growth rates, survival and movements.

At the other end of the atoll at Cinq Cases, exciting developments are being made to the programme to allow us to also follow tortoises there at an individual-level. Overall, all the effort that has gone and continues to be put into the programme, will help us to understand the population in the two very different locations of the atoll. We will keep you updated as the programme continues to develop, and when the next sweeps occur in June!

SIF's research reveals the impact of coral bleaching on Aldabra's reefs

Record-breaking high ocean temperatures from 2014 to 2017 caused prolonged and widespread coral reef bleaching worldwide. Coral bleaching occurs when corals are stressed by changes in conditions and react by expelling the symbiotic algae that live in their tissues, causing them to turn completely white.



Bleached coral at Aldabra © SIF

Corals can survive a bleaching event, if the algae return within a few weeks, but they are more vulnerable after these events and need time to recover. Climate change means that the time windows between these bleaching events are shortening, and there is less time for corals to recover.

SIF has been carrying out its Aldabra Reef Monitoring programme (ARM), since 2013, which monitors 12 coral reef sites around the atoll. The data collected by this programme allow SIF to track changes to Aldabra's reef and compare the coral composition over time.



Aerial view of Aldabra's reef © SIF

Coral in the lagoon at Aldabra Atoll © SIF

Before the bleaching event, which lasted from December 2015 to June 2016 at Aldabra, the seafloor community was made up of living corals alongside algae, sediment and invertebrates. Eight months after the bleaching, these living corals were dramatically reduced. Soft corals declined by 93% of their original cover to make up less than 1% of the reef after the bleaching.

Hard coral cover also declined, but the extent of the decline varied among habitats, with the seaward reef losing far more hard coral than the lagoon reef. This agrees with previous studies on Aldabra's lagoon reefs and suggests that the corals in the shallow lagoon may have already adapted to temperature stress and may be less susceptible to bleaching.

Overall, even Aldabra's relatively remote and pristine reefs were significantly impacted by this

bleaching event, with almost all coral groups suffering major declines. Aldabra's protected status means the reefs are healthier and free from anthropogenic pressures, and appear to be able to recover more quickly. But Aldabra is set to experience increasingly frequent bleaching events in future as climate change runs its course, which may at some point be too short to enable recovery.

The researchers therefore reached the unhappy conclusion that current trajectories of climate change and global sea temperature rises mean that Aldabra is highly likely to lose more corals, and some species will struggle to recover. This probably means significant destruction for Aldabra's reefs and a compromised future for the marine status of this regional and global benchmark site, unless the world takes concerted action to limit the impacts of the climate crisis.

Eleonora's falcon seen on Aldabra

SIF staff on Aldabra often see migratory and vagrant birds around the atoll between January and March. At the end of December, the team noticed an unusual bird resting on a casuarina tree on the beach in front of the station. Two drongos were flying around the bird and screeching and diving. The bird appeared to be a large falcon but the research staff were unsure, so we contacted the Seychelles Birds Records Committee to log the sighting and to identify the species. After some email exchange it was determined that the bird in question was likely a juvenile Eleonora's falcon!



Eleonara's falcon on Aldabra © SIF

The Eleonora's falcon is named after Eleonora of Arborea, Queen of Sardinia who in the 14th Century became the first person in history to grant protection to nesting falcons from hunting. The majority of Eleonora's falcons breed on islands in the Mediterranean, making their nests on coastal cliffs. They mainly spend winter in Madagascar and Mozambique, so the juvenile seen on Aldabra was likely heading there.



The juvenile Eleonara's falcon perched on a casuarina branch close to the Aldabra research station © SIF

Eleonora's falcons hunt large insects and small birds, delaying their breeding until the early European autumn to take advantage of the abundance of birds migrating to Africa. Interestingly, they often capture small birds, strip them of their flight feathers and place them on cliff ledges. They then feed them to their young a day or two later, effectively storing fresh food for when it is needed.



aldabra atoll

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