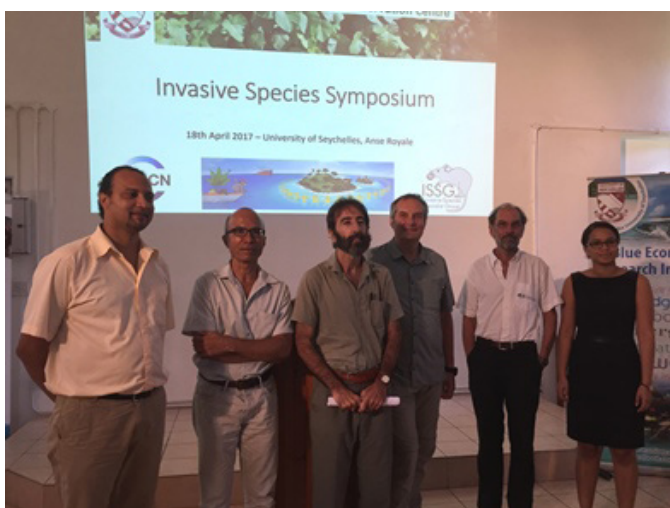




SIF's successful and ongoing bird eradications presented at invasive species symposium

SIF has successfully eradicated several introduced bird populations in Seychelles since 2012. This achievement was the main message of a presentation given recently at an Invasive Species Symposium at the University of Seychelles in the presence of the chair of the Invasive Species Specialist Group of the IUCN. The presentation showcased the proactive management of SIF to eradicate invasive alien bird populations to better protect the biodiversity of Seychelles' UNESCO World Heritage Sites.



Presenters at the symposium © SIF

SIF's bird eradication efforts targeted red-whiskered bulbuls and Madagascar fodies on Assumption Island and Aldabra Atoll, and ring-necked parakeets on Mahé. The introduced birds from Assumption, 27 km away from Aldabra, threatened the intact original avifauna of the atoll. A combination of culling methods was used, with mist-netting and shooting having the highest success rates on Assumption and

Aldabra, and shooting the most success on Mahé. On Assumption, more than 5000 red-whiskered bulbuls and over 3200 Madagascar fodies were eliminated. After three major follow-ups and two years with no signs of both species, the eradications were declared successful in early 2017. On Aldabra, over 250 Madagascar fodies, including suspected hybrid Madagascar/Aldabra fodies, and one red-whiskered bulbul were culled over three years, and both species were declared to be eradicated in March 2017 (see the March newsletter for details).



Ring-necked parakeet (left) and red-whiskered bulbul (right) © SIF

The invasive parakeets on Mahé posed a serious threat to the vulnerable Seychelles black parrot on Praslin, only 48 km from Mahé. The intensive ring-necked parakeet eradication started in July 2013 and a total of 547 birds have been culled so far, including one bird on Silhouette and one on Praslin. The last confirmed parakeet in the wild was shot in May 2016. The project is currently in the final monitoring phase and following up further reports of bird observations, before the eradication can be confirmed.

As a result of SIF's invasive species management, red-whiskered bulbuls and ring-necked parakeets will be entirely eradicated from Seychelles, and Madagascar fodies

removed from two islands. None of the three species have been eradicated in such large numbers before, but our experience shows that similar eradications can be implemented elsewhere. Key lessons learned from these successful eradications include the importance of stakeholder engagement and public support; and the need for enormous persistence, which is critical to overcome logistical and financial challenges.

Supplying wonderland

Situated over 1000 km from Mahé, keeping Aldabra supplied with everything needed on the atoll is a major task! Supplies required vary from construction materials to basic commodities, including most of the food consumed by staff on the atoll. Depending on requirements, major supply trips are done three or four times per year and are delivered to Aldabra by boat.



Loading the boat on Mahé © SIF

The resupply all starts with a requisition list sent by the Aldabra island manager, the list must include enough supplies to last until the next scheduled supply boat. This is usually between three to four months later so careful revision and analysis of current stock must be done before submitting a requisition. Having an accurate requisition list is very important to prevent wastage and also ensure that the Aldabra team don't run out of supplies! Understandably, the

items on the list are extremely varied and April's supply list included: guitar strings, 40 bags of cement, 50 kg of white sugar and a pizza cutter!



Part of the head office team © SIF

Ronny Rose, the SIF operations and logistics officer is then responsible for organising the sourcing, purchase, transportation and storage of all items on the list, and then the delivery of all supplies to the vessel. This operation requires the involvement and support of many other parties, including the accounts team for support with payments and the Aldabra island manager and shop keeper for input into items purchased. For a successful supply boat it takes a real team effort.

One of the most significant threats to Aldabra is the risk of invasive species being accidentally transported to the atoll and impacting the native biodiversity. Biosecurity is therefore a very important component of the resupply process. All



Unloading the boat at Aldabra © SIF

items bound for Aldabra are checked thoroughly by the biosecurity officer before the departure of the vessel. This is especially important for high risk items such as fresh food, dried goods and bulky construction materials. The biosecurity checks start while packing is being done, including during loading of the vessel, and the majority of materials are placed in sealed containers to minimise risks. Biosecurity checks are conducted again upon arrival at Aldabra and continue while unloading is being carried out.

The whole process ends with unloading everything onto the beach at Aldabra, sometimes in very challenging conditions including while being battered by the waves. Keeping Aldabra well stocked is a very large task, but well worth the effort when it allows the team on Aldabra to continue with the excellent work they do!

New staff on board

Due to the great distance between Mahé and Aldabra, getting staff to the atoll is often a challenge. Luckily transport was available in April and Jennifer Appoo the new assistant Aldabra scientific coordinator and the two new volunteers, Jake Letori and Lorraine Cook, were able to start work on the atoll this month. Trevor Henriette was recruited as a junior skipper on Aldabra and Netifa Esther joined the Vallée de Mai team as housekeeper this month.

There are still several vacancies as sales clerk, visitor attendant, security officer, administration and accounts assistant and a property and maintenance supervisor available at the Vallée de Mai, so if you're interested, please get in touch with Mrs Bernadette Julie at hr@sif.sc or +248 432 17 35 for details.



Friends of Vallée de Mai Earth Day trip to Curieuse Island

For almost 50 years Earth Day has been celebrated each year on the 22nd April to raise awareness of environmental issues and to demonstrate support for environmental protection. This year, in honour of Earth Day SIF organised an activity for the Friends of Vallée de Mai members held on Thursday 13th April at Global Vision International (GVI) on Curieuse Island. The aim of the visit was to learn about sustainability measures at the GVI base.



Exploring Curieuse Island © SIF

The day started with the base manager giving the children a guided tour of the base where they learnt about the efforts towards sustainable operations there. This included an explanation of the GVI efforts to mitigate their contribution to climate change. The children were particularly intrigued by the rain gauge and they had the opportunity to read and record the rainfall readings for the previous night. They were surprised to hear that Curieuse gets less rainfall than other islands close by and learnt from the base manager about measures required to cope with the scarcity of water for daily life functions like washing, bathing and cooking.



Guided tour of the base © SIF

Other examples of sustainable operations at the GVI base were given, including; the limitation of taking only one trip to Praslin per week to avoid wastage of fuel, avoiding food wastage and eating all leftovers, using energy generated by a solar panel, and recycling bottles, drink cans and plastics. He emphasised that these practices not only help them to save money, but more importantly they help save the planet.



Happy participants! © SIF

The children then proceeded to the newly reopened historical doctor's house on Curieuse. The doctor's house includes a variety of displays that impressed the children. They were fascinated with how realistic the papier-mâché displays were. After the visit to the doctor's house the group hiked to Anse José and the day ended with a picnic on the beach. It was a memorable day and a great way for the students to start their holiday.

SIF staff member attends Earthwatch capacity building training

Earthwatch is a non-profit organisation that since 1971 has been working towards engaging people worldwide in scientific research and education in order to promote sustainable environmental practices. For the past several years Earthwatch has been providing annual training courses in Seychelles. Shanone Adeline, the invasive species technical officer in the Vallée de Mai research team, recently participated in a capacity building training with Earthwatch.



Teamwork was an important component of the course © SIF

This year's training was conducted by Dr Julian Clifton from the University of Western Australia, Dr Eslam Osman from the University of Essex

and Lucy Goodman from Earthwatch. It was held on Praslin for two weeks and was attended by six participants, hailing from Kenya, Mauritius and Seychelles. The training included designing research questionnaires and conducting semi-structured interviews with members of the hotel industry as well as community members. Data analysis methods were taught to produce summary statistics and participants had to prepare and deliver a presentation. Many of the activities included working as a team, a vital skill in conservation! After conducting surveys the team entered data in excel sheets, and performed their own data cleaning and analysis, producing a statistical summary of the data collected, the results of which were then presented to the tutors.



The participants with their certificates © SIF

During the training participants were given the opportunity to attend a presentation on coral ecology and the projects for the rehabilitation of reefs by different organisations. Allen Cedras from Seychelles National Parks Authority gave a talk about his past work on Curieuse Island. The group also had the opportunity to meet project funders and long-time Earthwatch supporters, the Mitsubishi Company.

At the end of the training programme certificates were distributed to each participant. Continued capacity building is vital for the continued growth of conservation in Seychelles and SIF would

like to sincerely thank Earthwatch and all course trainers and supporters for once again hosting a successful course.

The IUCN Inva'Ziles Project Steering Committee hosted by SIF

The International Union for Conservation of Nature, better known as the IUCN, is an international organisation that works towards nature conservation and the sustainable and fair use of natural resources with a wide variety of projects. The IUCN is most well-known for publishing the IUCN red list which is the most comprehensive assessment of the conservation status of species worldwide.

One of the IUCN's current ongoing projects is the Inva'Ziles Project which is working towards the "preparation and testing of a comprehensive model for preventing and managing the spread of invasive species on island ecosystems". The project is funded by the European Union and is focused on the Western Indian Ocean. The most recent steering committee of the Inva'Ziles project was hosted by SIF as a permanent member of the committee on the recommendation of the EU Delegation in Mauritius following the successful implementation of SIF's invasive alien species project funded by the EU. Following their meeting the committee embarked on various field visits in Seychelles.

One of the sites visited was the Vallée de Mai, where the group was given a guided tour by Gemma Jessy, one of the most knowledgeable nature guides in Seychelles and a committed friend of the Vallée de Mai. During the hour long tour they were introduced to the forest's endemic plants and animals. Following the tour and then refreshments at the café, the Vallée de Mai research team delivered a series of presentations to the Inva'Ziles members detailing some of



SIF staff members delivering presentations © SIF

the work being done by SIF. Senior ranger and black parrot team leader Terance Payet gave a presentation on the Seychelles black parrot. The presentation included background to the work being done with black parrots in the Vallée de Mai and a short summary of black parrot ecology, the presentation also included a description of some of the known invasive species that pose a threat to black parrots; rats, Indian mynahs and cats. Chris Tagg, a senior field research officer delivered a presentation on reptiles and amphibians, giving an overview of the species to be monitored in the Vallée de Mai and discussed the methods and aims of this new research and the threats of invasive species. Trainee field research assistant, Emmanuel Morel gave the final presentation summarising the invasive alien species work in the Vallée de Mai. These projects include both plant and animal invasive species and Emmanuel covered ten plant species, Indian mynahs, ring-necked parakeets, cats, rats and yellow crazy ants. The presentations were well received by the committee and were followed by some interesting discussion.

Under the IUCN Inva'Ziles project, SIF has been awarded funding for a pilot project to control and manage more invasive species in the Vallée de Mai which is much needed and has been gratefully received. Thank you to the Inva'Ziles committee for your visit to the Vallée de Mai, SIF is looking forward to further collaboration in the fight against invasive species.



aldabra atoll

Aldabra celebrates 5 years as a solar-powered research station!

As of the 1st of April, the Aldabra solar photovoltaic system has been in operation for five years! The system uses solar panels to harness the power of the sun to generate electricity for the daily needs of the research station. During its first five years of operation it provided 96% (168,685 kWh) of the research station's electricity needs. The remaining 4% was contributed by a diesel generator. The generator is used only when there is not enough solar energy to meet the electricity demands of the station and when it is necessary to charge the batteries to 100% for maintenance purposes.



The Aldabra research station © Frauke Fleischer-Dogley

Due to the reduced reliance on the generator, SIF was able to reduce its consumption of fossil fuels by 98% in this 5-year period and the station now uses less than three drums per year. A total of 185,120 litres of diesel have been saved since the start of the project with a monetary value of SCR 3.1 million. Furthermore the release of 141,000 kg of carbon dioxide has been avoided. As well as sourcing more sustainable electricity, investments at the station into energy efficient equipment have reduced the total electricity demand of the station by 61%, which avoided another 185,200 kg of carbon dioxide in the past five years!



Photovoltaic solar panels at Aldabra © Alexander Muller

The project has confirmed that investments into energy efficiency should be a prerequisite for any photovoltaic project. In Aldabra's case they have been seven times more cost effective than investments into photovoltaic technology itself! At Aldabra the investment costs of the photovoltaic system alone have already been returned within four years of operation. Considering the overall project costs, including transport, electrical rewiring, and construction, the payback time is expected to be eight years. It is hoped that the success of this project will assist with galvanising efforts and the wider application of the most available and easy to harness renewable energy source we have, the sun.

Impacts and water temperature of the 2016 coral bleaching event on Aldabra's reef

2016 marked the third global mass coral reef bleaching event in recent years due to a severe El Nino event, and Aldabra's outstanding coral reef unfortunately didn't escape its impacts. There is little direct conservation action that can be taken to prevent mass coral death as water temperatures rise during a bleaching event; however, monitoring of the reef conditions, the impacts of the bleaching and the eventual recovery after the event can provide critically important information to understand the changes to the ecosystem during and after such an event.



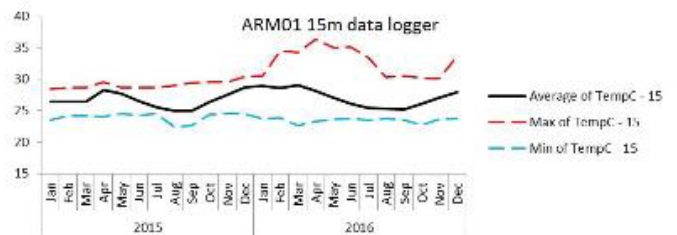
Data logger © SIF

SIF conducted extensive monitoring of Aldabra's coral reefs before, during and after the peak bleaching last year. The team worked with the Seychelles Fishing Authority during April 2016 to collect vital data on the extent of the bleaching. Results showed that 69–99% of all corals surveyed were impacted by bleaching. The most recent surveys in December 2016 collected 2223 photographs of the benthic community along permanent transects around

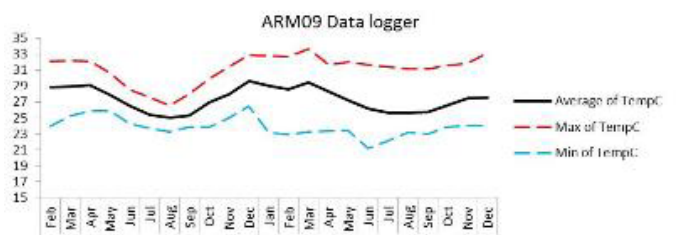
Students interacting with Aldabra's wildlife © SIF

Aldabra. These photographs were analysed to identify the hard coral, algae and sponge in each picture and provide an estimate of percentage coral cover at each site and depth which could be compared with pre-bleaching results. The results confirmed that overall there was a 50% reduction in hard coral cover between 2014 and late 2016.

Data loggers are also permanently deployed at the same transects to monitor ocean temperature. Collecting this basic data is vital if we are to understand the conditions faced by the coral and the subsequent changes to the marine ecosystem. The data loggers were collected in early 2017 after recording temperature data for the past two years. The following graphs display the temperature recorded from a 15m-deep permanent transect on Aldabra's outer reef and from one site inside the lagoon.



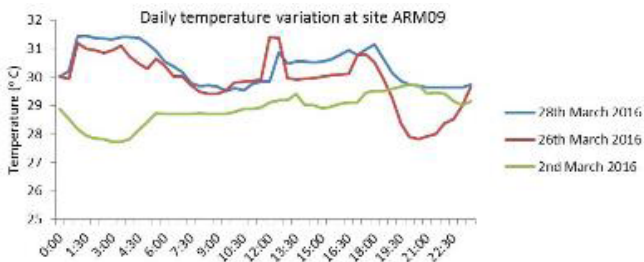
Two years temperature series data from a 15m survey transect on the outer reef



Two years temperature series data from a 2.5m survey transect inside the lagoon

The graphs show two peaks in water temperature during the bleaching event period; December 2015 and March 2016. The hottest temperature recorded was on the outer reef in April 2016 when the maximum water temperature reached 36.2°C! In the same month the coolest temperature recorded was 23.30C, showing

great variation from the average of 29.00°C within a month. The lagoon site showed a smaller range but also experienced a 10°C temperature variation in March 2016. A closer look at the daily variation of the water temperature of the lagoon site shows a remarkable daily range of 27.8–31.4°C.



A snapshot of three days temperature variation throughout the daily tidal cycle. Note: 2nd March was a neap tide, the other two dates were spring tides.

The data collected is now being analysed to assess the temperature variation around Aldabra during the bleaching, and will be examined alongside data on the impacts and coral recovery rates and extent, which, it is hoped, will shed light on the potential for coral recovery after bleaching in different areas.

Aldabra's new cyclone shelter completed!



Location of the site © SIF

After April 2016 when cyclone 'Fantala', with up to 340km/h wind speeds devastated Farquhar Island, a decision was taken by the SIF board to construct a cyclone-proof building on Aldabra. The cyclone shelter would be used in the event that Aldabra is hit by a cyclone or tropical storm and there is not enough time to evacuate the atoll. In the worst case scenario the cyclone shelter could also be used as temporary accommodation while rebuilding the research station.



The almost completed shelter © SIF

Given their experience in constructing a cyclone-proof building on Farquhar, the Green Island Construction Company (GICC) was awarded the contract to build the cyclone shelter for Aldabra. We are pleased to report that the project was completed in two months with the help of fifteen construction workers who started on the 21st February 2017.

A preferred location at the old settlement on Picard Island was selected. The site has sufficient soft soil to anchor the building and it is far enough from the beach crest in the event of high waves or surge.

The construction went quickly, without delays, except for a few days of rain. One month from the start date, the building was standing and the roof already started! It was a race against the clock for the foreman and his team to have everything completed before the departure of



GICC construction team © SIF

the supply boat which would take most of the equipment and construction workers home. The construction workers departed on the 30th April, leaving behind a construction shelter that is ready to provide a safe haven from any future tropical storm or cyclone. Thank you to the GICC construction team for all your hard work!

Articles contributed by: Shanone Adeline, Jude Brice, Maria Brioche, April Burt, Annabelle Constance, Terance Payet, Christina Quanz, Lynsey Rimbault and Ronny Rose; Editing by Nancy Bunbury and Lynsey Rimbault