







seychelles islands foundation

ANNUAL REPORT 2015/16

CONTENTS


A Mitchell


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Message from **SIF's CEO**

The annual reports of the Seychelles Islands Foundation are much sought after, and we regularly get calls from people asking for our latest edition. Recently we learned that our annual reports, in combination with our monthly newsletters, do not only serve to keep everyone abreast of our activities, but are referenced by government and assist with reporting obligations under the different environmental conventions. This is the reason we have decided to once again combine two years into one report. When reading you will realise that many of our projects, activities and investments in our staff spill over from one year to the next.

An excellent example is that our first recipient of the Professor David Stoddart scholarship not only completed her undergraduate degree in Environmental Science with the University of Seychelles but was also awarded the university's "Outstanding Performer Award" for 2015 and following which she immediately enrolled with the University of Zürich in an MSc course. The investments in our people are indeed bearing fruit, our science officer completed her MSc studies at the University of Kent as a Chevening scholar and even at ranger level the prestigious Durrell Endangered Species Management Graduate Certificate (DESMAN) was achieved, CONGRATULATIONS!

Following this increase in scientific capacity we find it crucially important to share our research locally. Therefore the first ever science and project symposium was held on Praslin by SIF to celebrate World Heritage Day 2015. This one-day symposium presented a number of topics to an audience of over 50 people, sharing information on SIF's research activities and successes at the Vallée de Mai. We are very enthusiastic about sharing our successes and challenges with as many people as possible, since it is only with better understanding by everyone that the winds of change can start blowing, be it at local, national or even international level. On a similar note, although completely different to a symposium, it was a significant milestone when Aldabra and the Vallée de Mai featured in the National Geographic article: Return of the Seychelles, in January 2016. The article focused on how species and habitats are recovering in Seychelles as a result of active and innovative conservation management, and many SIF staff are quoted and mentioned by name in the article, introducing our work to millions of people worldwide. Again a different audience was reached at the world premiere of the exciting and one-of-a-kind 3D film of 'Aldabra: Once upon an Island' in Prague in November 2015. This film met critical acclaim and was screened to thousands of viewers, including Seychellois. The premiere in Seychelles a few months later was well attended by international and local press, as well as many important local figures who have contributed to the conservation of Aldabra. The premiere in Seychelles was also attended by Mrs Jenita Brutus who is one of only a few surviving people who were born on Aldabra.

Finally I want to bring to your attention a previously not encountered scenario on Aldabra. Despite illegal fishing being one of the most often reported threats in marine protected areas, illegal fishing in Aldabra waters was only listed as a matter of procedure in international reports. In December 2015 an unexpected situation unfolded in front of us when over a period of seven days, seven illegal fishing vessels manned by fishermen from the Comoros and Mayotte were apprehended with the support of the coastguard and police, and 1.4 tonnes of poached fish was seized. I am proud to say that with the determination of all Aldabra staff and the support of the authorities SIF responded effectively and upheld its mandate to protect Aldabra, and all of the fishermen were successfully prosecuted. Such incidents remind us how precious our natural resources are, not only to us but equally at a regional level. The success of the development of the blue economy in Seychelles will be decided by the health and management effectiveness of protected areas like Seychelles' UNESCO World Heritage Sites.

Dr Frauke Fleischer-Dogley
Chief Executive Officer

HIGHLIGHTS

2015

After four years SIF's €1 Million EU-funded project on invasive species came to a close. This project was highly successful at tackling some of the invasive alien species having high ecological impacts in the Vallée de Mai and on Aldabra Atoll. Many achievements were made over the four years, including the verification of the goat eradication, eradication of the red-whiskered bulbul and significant control of the Madagascar fody, development of biosecurity plans for Aldabra and the Vallée de Mai, surveys of the yellow crazy ants at the Vallée de Mai, detailed research into rat and cat population dynamics on Aldabra in preparation for an eradication, and major progress on eradicating sisal from Aldabra and the ring-necked parakeet from Mahé.

Significant progress on the removal of introduced trees from the Vallée de Mai was made by January with the treatment of the last adult cinnamon tree (a total of 420 trees). The team have now treated eight different species of introduced trees in the Vallée de Mai.

The first recipient of the Professor David Stoddart scholarship with SIF, Annabelle Constance, completed her undergraduate degree in Environmental Science with the University of Seychelles. The second scholarship was awarded to Jessica Moumou and she started her BSc in September 2015.


Eco-Schools group | C Onezia

The first prize of the national Eco-School programme, a trip to Aldabra, returned as a highlight on the national annual school calendar. This was the first Eco-School trip to Aldabra since 2009, when they were stopped due to the threat of piracy activities in the Western Indian Ocean.

The first SIF projects and science symposium was held at the Vallée de Mai to celebrate World Heritage Day. This one-day symposium presented a number of topics to an audience of over 50 people, sharing information on SIF's research activities and successes at the Vallée de Mai.


Aldabra fody | SIF

Genetic research confirmed that there has indeed been recent hybridization between the two species of fody now present on Aldabra, the endemic Aldabra fody and the introduced Madagascar fody.

The Vallée de Mai had the privilege of welcoming another distinguished guest when the President of Palau, Tommy Remengesau, visited this World Heritage Site in July as part of a three-day visit to Seychelles during National Day celebrations.

Two MSc projects were completed in 2015 in a collaboration between SIF and the University of Zurich (ZARP) on the Aldabra giant tortoise


Coco de Mer | L Chong-Seng

The Vallée de Mai was awarded the TripAdvisor Certificate of Excellence again in 2015. This award celebrates excellence in service and is given only to establishments that consistently achieve excellent reviews on TripAdvisor.

For the first time the national Chevening scholarship from the British High Commission in Seychelles was awarded to a member of SIF staff, Wilna Accouche, to undertake an MSc in Conservation Project Management at the Durrell Institute of Conservation and Ecology at the University of Kent, UK.

Three SIF staff members have taken their education further with 1 BSc and 2 MSc degree courses in environmental science and related fields, ensuring that the institutional and national capacity needed to fulfil our mandate to protect two sites of outstanding universal value is built.

After two years the ZSL EDGE fellowship programme for Vallée de Mai Ranger Terance Payet and the Seychelles black parrot came to an end. This programme provided invaluable financial and training support for Terance and allowed SIF to continue the research and awareness programme for this endemic bird.


Creole festival 2016 | SIF

The Vallée de Mai hosted the official opening ceremony of the 30th edition of Festival Kreol on Praslin.

SIF responded quickly to the presence of seven illegal fishing vessels at Aldabra in November-December. With the support of the police and coast guard, several fishing vessels were apprehended and 1.4 tonnes of poached fish was seized.

The invasive bird eradication on Assomption reached its final stages, with a survey of the island in November not finding any sign of Madagascar fodies. After the last red-whiskered bulbul was shot in late 2014, the eradication of the Madagascar fodies from Assomption will secure the protection of Aldabra's avifauna from invasive bird species.

The exciting and one-of-a-kind 3D film of 'Aldabra: Once upon an Island' premiered in Prague, Czech Republic in December which the Chairman and CEO of SIF attended. This film met critical acclaim and was screened to thousands of viewers.

SIF responded quickly to the presence of seven illegal fishing vessels at Aldabra in November-December. With the support of the police and coast guard, several fishing vessels were apprehended and 1.4 tonnes of poached fish was seized.

The Vallée de Mai continued to welcome even more visitors with a new annual record of 99,205 visitors in 2015. This increasing number of visitors is testament to the continuing improvement in visitor service and experience at the Vallée de Mai.

Seven scientific peer-reviewed papers were published on the Vallée de Mai and Aldabra with one other in press.

2016

Aldabra and the Vallée de Mai were featured in a National Geographic article on Seychelles titled 'Return to Seychelles'. The article focused on how species and habitats are recovering in Seychelles as a result of active and innovative conservation management. Many SIF staff are quoted and mentioned by name in the article. It is a significant milestone for SIF to be featured in such an influential publication, through the article our work was likely introduced to millions of people worldwide.

An SIF co-authored paper was published in the journal Ibis on the evolutionary distinctiveness of the Seychelles black parrot in relation to other black parrot species. The research reported in the paper was used in 2014 to provide the justification to list the Seychelles black parrot as a distinct endemic species, Coracopsis barklyi.

SIF and SFA carried out the pilot phase of a research partnership at Aldabra. The collaborative marine monitoring included repeat surveys of the coral reef communities that are part of SIF's long term monitoring to assess the extent and severity of the coral bleaching event. The partnership also includes ongoing monitoring of four species that are on the priority list of the SFA Demersal Management Plan.

The Aldabra research team implemented a coral bleaching monitoring protocol to assess impact of bleaching.

The first prize of the national Eco-School programme was once again a trip to Aldabra.

The Vallée de Mai biosecurity manual was finalised, highlighting high risk pathways and species and laying out a comprehensive strategy to safeguard the ecological integrity of the Vallée de Mai from invasive alien species.

The 3D film of 'Aldabra: Once upon an Island' had its international premiere in Seychelles, the film was well attended by international and local press, as well as many important local figures who have contributed to the conservation of Aldabra.


United Nations Secretary General, Ban Ki-Moon, visits the Vallée de Mai | SIF

The Vallée de Mai had the privilege of welcoming United Nations Secretary General, Ban Ki-Moon, for a visit to the World Heritage Site. The Secretary General was accompanied by his wife Ban Soon-Taek.

The Vallée de Mai biosecurity manual was finalised, highlighting high risk pathways and species and laying out a comprehensive strategy to safeguard the ecological integrity of the Vallée de Mai from invasive alien species.


Dugong | SIF

Record-breaking numbers of dugongs were sighted at Aldabra during July and August. The increase in sightings suggests that the number of dugongs around Aldabra is increasing, and sightings of female dugongs with juveniles suggests that Aldabra's lagoon may play an important regional role as a dugong breeding or nursery area..

Two Vallée de Mai staff members attended a work placement at the Eden Project in the UK. The aim of the visit was to allow for the exchange of ideas and practices with the hugely successful Eden project to improve the visitor experience and education programme at the Vallée de Mai.

SIF CEO attended the 3rd UNESCO World Heritage Marine Site Managers conference in the Galapagos Islands. Aldabra was chosen as an example of best practices in World Heritage Site Management and the CEO presented SIF's experiences in regards to adaption to Climate Change and presented SIF's response to the coral bleaching 2015/2016.

Two SIF staff members completed their MSc degree courses this year, one of which was in collaboration with the University of Zurich (ZARP).

MSc research was conducted on the giant bronze gecko (Ailuronyx trachygaster) in the Vallée de Mai, the research was conducted by Bournemouth University student Chris Tagg, producing the first population estimate for the Vallée de Mai. The dataset established important ecological information for the species, which only occurs on Praslin.

Three apps were developed and implemented for the Aldabra research programme by volunteer Fernando Cagua; the tidal app, library app and the fishing data app.

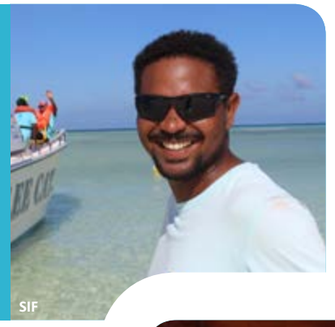
The Vallée de Mai hosted various activities as part of the annual Creole Festival

The Vallée de Mai was awarded the TripAdvisor Certificate of Excellence again in 2016 for the second year in a row.

The Vallée de Mai once again broke its record for the number visitors with a new annual record of 107,600 visitors in 2016.

Four scientific peer-reviewed papers were published on the Vallée de Mai and Aldabra

STAFF CHANGES & NEW POSITIONS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ALDABRA ISLAND MANAGERS

Jakawan Hoareau joined the team in 2015 as Aldabra island manager for one year. No stranger to Aldabra, Jakawan worked there in 2011 for three months as a ranger. He also assisted SIF on the invasive bird eradication programme on Assomption in 2012. Most recently Jakawan worked as a course leader and lecturer in the Fisheries Science Department at the Maritime Training Centre on Mahé.


SIF

Jude Brice started working for SIF as a skipper on Aldabra in 2008 and spent many years in this position and in the role of senior skipper and relief island manager, so he knows the waters around the atoll incredibly well. Upon Jakawan's departure in 2016 Jude applied for the position of island manager for Aldabra and is now responsible for running Aldabra operations, managing staff, supporting the research team, enforcing regulations to protect Aldabra, and providing regular monthly reports to maintain contact between Aldabra and the SIF head office on Mahé.


SIF

ALDABRA SCIENTIFIC COORDINATOR

April Burt came to the position of Aldabra scientific coordinator with a wealth of experience that is a great asset to the SIF team. She has been working in Seychelles leading conservation programmes on Curieuse and Cousin Island for the past four years, in addition to being the coordinator for the Seychelles Seabird Group and Seychelles Magpie Robin Recovery Team for the past two years. With a BSc in Marine Biology from Bangor University, April was also lead scientist on a marine research expedition in Madagascar. To date, her research articles have aimed at improving conservation management of endangered species such as the hawskbill turtle and the Seychelles magpie robin.


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ACTING SCIENCE AND PROJECTS PROGRAMME COORDINATOR AND ALDABRA MARINE COORDINATOR

Karen Chong-Seng took up the position of acting science and projects programme coordinator with SIF for six months in 2015 while Dr Nancy Bunbury was on maternity leave. Karen completed her PhD with James Cook University in 2014 where she researched post-bleaching coral reef recovery in Seychelles, and has since undertaken a short post-doctoral research position on crown-of-thorns starfish. With a strong academic background and extensive experience in coral reef research, Karen's marine expertise was fully used as she led the 3rd season of the Aldabra marine monitoring programme, during which she witnessed another bleaching event. Due to her surveillance the bleaching was fully documented which will be important in SIF's future research.

VALLÉE DE MAI SCIENCE COORDINATOR

Vicky Stravens joined the team at the Vallée de Mai in 2015 as the Praslin invasive species project officer and was promoted to Vallée de Mai science coordinator in 2016. Vicky is Praslinois and a graduate of the BSc in Environmental Science at the University of Seychelles. After completing a one month work-based experience placement with SIF during her undergraduate degree, Vicky was keen to return to SIF and contribute to the protection of the Vallée de Mai through the control and management of invasive species, and later to oversee the team, conducting research and participate in the monitoring programmes


SIF

VALLÉE DE MAI SENIOR FIELD RESEARCH OFFICER

Chris Tagg started working for SIF in 2015 initially as a volunteer on the ring-necked parakeet eradication team and in 2016 he completed his MSc thesis researching movements and population status of the giant bronze gecko in the Vallée de Mai.


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OPERATIONS AND LOGISTICS OFFICER

Edmé Melton-Durup rejoined SIF as operations and logistics officer in 2015. Edmé previously worked for SIF in 2013 as team leader of the ring-necked parakeet programme following several months as a trainee invasive species technical officer on Aldabra and Assomption. After taking time out to work on a family business, Edmé returned to SIF's Head Office and made good use of his previous skills and knowledge at SIF as operations and logistics officer. **Ronny Rose** then replaced Edmé as operations and logistics officer towards the end of 2016. Ronny joined SIF after working in operations and logistics at Hunt Deltel and his background and experience will serve him well in the position.


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MARKETING AND PRODUCT DEVELOPMENT OFFICER

Dylis Cedras re-joined SIF in August 2015 as the marketing and product development officer. She previously worked as the SIF visitor services and sales manager from 2012 to 2014. Her role is to research and develop products and services that will enhance visitors' experience in the Vallée de Mai and Aldabra. Dylis' responsibilities at SIF extend to the development of advertising media and working with promotional agents both locally and overseas to attract more visitors to both sites.


SIF

COMMUNICATIONS OFFICER

Lynsey Rimbault started as SIF's communications officer in 2016, joining SIF after working in environmental consulting in South Africa. She completed her MSc in Biodiversity, Conservation and Management at the University of Oxford in 2013 and, with an undergraduate degree in English and Geography, her unique combination of communication and conservation skills serve her well in the role.


SIF

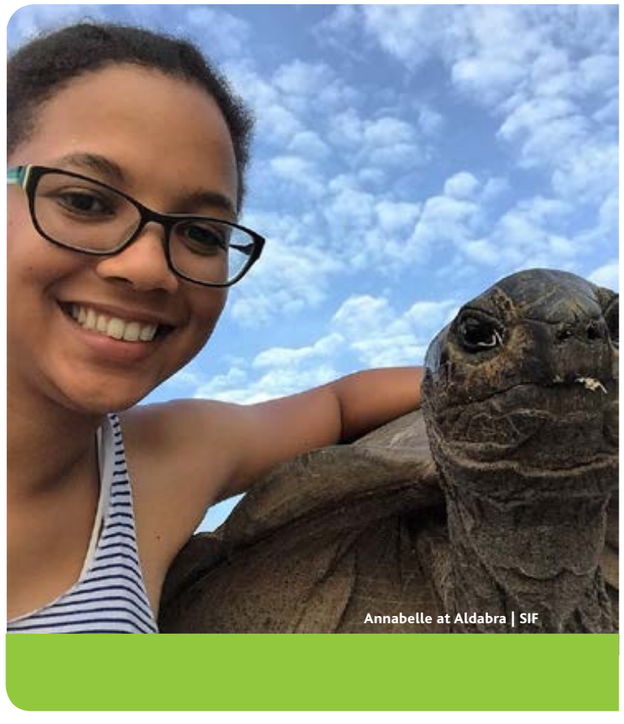
SIF FURTHER EDUCATION FOR STAFF

Several SIF staff members pursued further education courses in 2015 and 2016 when they started a variety of university degrees.

Jessica on Assomption | SIF

Jessica Moumou was awarded the second Professor David Stoddart scholarship, a university scholarship programme in honour of one of the founding fathers of Aldabra's protection, to undertake the BSc Environmental Science course at the University of Seychelles. A dedicated member of the SIF team, Jessica spent two years on Assomption leading the introduced bird eradication programme and was instrumental in the eradication of both introduced bird species from this island. Jessica has since been using her invaluable experience on the ring-necked parakeet eradication programme on Mahé. She is excited to be undertaking this course and hopes to use the knowledge and skills she gains to assist with the future work of SIF.

Annabelle Constance started an MSc in Environmental Science at the University of Zurich in 2015. After joining SIF in 2011, Annabelle left to complete a BSc in Environmental Science at the University of Seychelles in 2012 as the first recipient of the Professor David Stoddart Scholarship. At the time, Annabelle was the assistant project officer at SIF on the European Union-funded invasive species project. Upon completion of her BSc she assisted the ring-necked parakeet eradication team until beginning her MSc in 2015. Annabelle's MSc research focused on the distribution and composition of Aldabra's mangroves, she confirmed that the mangroves of the atoll are highly stable over time and are likely to expand in the right conditions. Annabelle completed her MSc in late 2016 and will be coming back to work with SIF in 2017.



Annabelle at Aldabra | SIF

In 2015 SIF's science and projects programme officer, **Wilna Accouche**, joined an MSc programme at the University of Kent in Conservation Project Management. Wilna had been with SIF since 2010 after previously working at the Ministry

Wilna at the University of Kent | SIF

of Environment. With her previous experience she was well placed to undertake this course and in recognition of this she was awarded a Chevening Scholarship through the British High Commission. This scholarship is aimed at developing global leaders and offers an opportunity to study in the UK in order to develop both professionally and academically. For her dissertation Wilna researched the application of business excellence models for the conservation sector, using the 'Conservation Excellence Model' to assess Aldabra and completed her MSc in 2016.

In 2015 several other previous SIF staff members also joined the BSc Environmental Science course at the University of Seychelles. Julio Agricole joined SIF in 2012 and worked on the introduced bird eradication programme on Assomption, as a member of the research team on Aldabra, with the ring-necked parakeet eradication team on Mahé as well as assisting at Head Office as assistant project officer. Catherina Onezia joined SIF first in 2006 as a ranger at Aldabra Atoll. She was promoted in 2012 to senior ranger, and again in 2014 to senior ranger and assistant training officer. Her wealth of experience and excellent knowledge of Aldabra has been invaluable. Dillys Pouponneau began working with SIF as a field research assistant at the Vallée de Mai in 2014. After eighteen months of contributing to the research programme at the Vallée de Mai team, Dillys decided to pursue further education. In 2016 two further previous SIF staff members embarked on the BSc Environmental Science course at the University of Seychelles, Mariette Dine and Brian Souyana. Mariette worked with SIF at the Vallée de Mai as a field research assistant between 2014 and 2016. She played an important role in managing the coco de mer regeneration scheme and wanted to expand her knowledge and develop her passion for the environment even further. Brian began working with SIF as a trainee field research assistant during a work attachment placement in 2013. He returned to work full-time at the Vallée de Mai in November 2015 and was a crucial part of several research projects, including black parrot monitoring and giant bronze gecko research. This wide range of experiences has inspired Julio, Catty, Dillys, Mariette and Brian to take their education further and they are all looking forward to expanding their knowledge and skills on the BSc Environmental Science course

Terance receiving his DESMAN certificate | SIF

Vallée de Mai ranger **Terance Payet** completed the Durrell Endangered Species Management Graduate Certificate (DESMAN) at the Durrell Institute in Jersey, UK. Terance excelled in the course and won a small grant from Durrell as he was judged to have the best presentation skills. The grant of £250 went towards work on the Seychelles black parrot research programme.

We wish all of our scholars all the best in their studies at their respective institutions, and congratulate those that have completed them. We are delighted that we have been able to inspire them to take this step forward in their careers.

VALLÉE DE MAI MANAGEMENT

The Vallée de Mai is home to all six of Seychelles endemic palms | L Rimbault

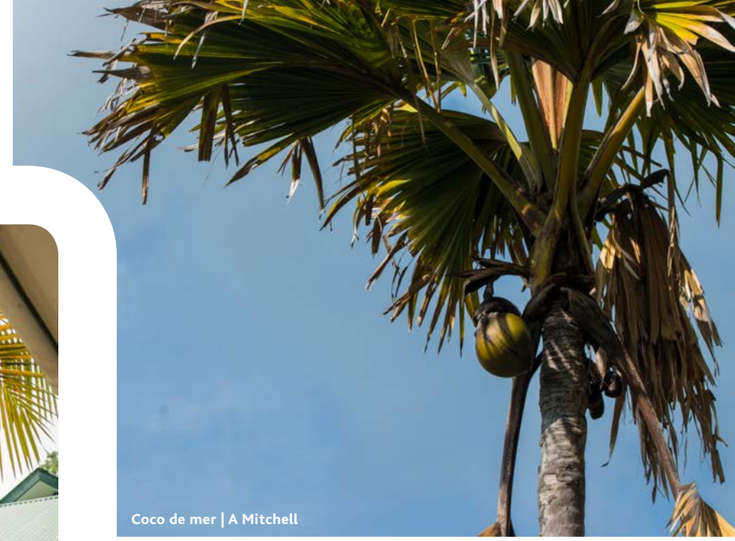
The Vallée de Mai continues to be a main attraction for tourists in Seychelles with consecutive record numbers of visitors in 2015 and 2016. In 2015 99,205 visitors were welcomed to the UNESCO World Heritage Site, with a staggering 107,600 people visiting the Vallée de Mai in 2016. The site remains a highlight for visitors to Praslin. Happily the number of coco de mer nuts poached in 2015 decreased to 81 nuts. Although this number is still unacceptably high, it is a significant reduction from the 228 nuts poached in 2014. In 2016 there was a further slight reduction with 75 nuts being poached throughout the year. We believe that improved enforcement in the Vallée de Mai has been key to this reduction. With the creation of the coco de mer task force and the amendment to the coco de mer management decree, the decreasing trend in poaching is set to continue. The restructuring of the research team and the finalisation of the biosecurity manual have allowed the Vallée de Mai management to shift a greater emphasis towards preventing and controlling invasive alien species, an important step in ensuring that a major threat to the palm forest is being addressed.

Total number of visitors to the Vallée de Mai from 2004 - 2016

VALLÉE DE MAI STATISTICS

The number of visitors to the Vallée de Mai continued to rise in 2015 and 2016, with 99,205 visitors recorded in 2015; an increase of 14% from 2014. In 2016 the number of visitors increased by a further 8% to a total number of 107,600 people. This year-on-year increase in visitor numbers is partly a reflection of the continuing improvement in service and experience by the staff at the Vallée de Mai.

Vallée de Mai visitor centre | S Mühlig



Coco de mer | A Mitchell

COCO DE MER STATISTICS

The number of coco de mer nuts harvested in the Vallée de Mai and Fond Peper in 2015 and 2016 was similar to 2014, with 407 and 393 nuts collected from both locations for sale each year.

The total number of coco de mer nuts poached from the Vallée de Mai decreased significantly from 228 nuts in 2014 to 81 nuts stolen in 2015 and 75 in 2016. After an unusually high number of nuts poached in 2014, it was reassuring to see that the enforcement measures taken within the Vallée de Mai by SIF are still effective. The launch of the coco de mer task force (see article below) we hope has also contributed to deterring poachers.

SIF 2016 AGM IN THE VALLÉE DE MAI

The future direction of Seychelles' two UNESCO World Heritage Sites was mapped out in the Vallée de Mai when SIF's Board of Trustees met for the organisation's Annual General Meeting in October 2016. Important discussions at the meeting included finding ways to better protect the Vallée de Mai and Aldabra Atoll from the effects of climate change and illegal activities.

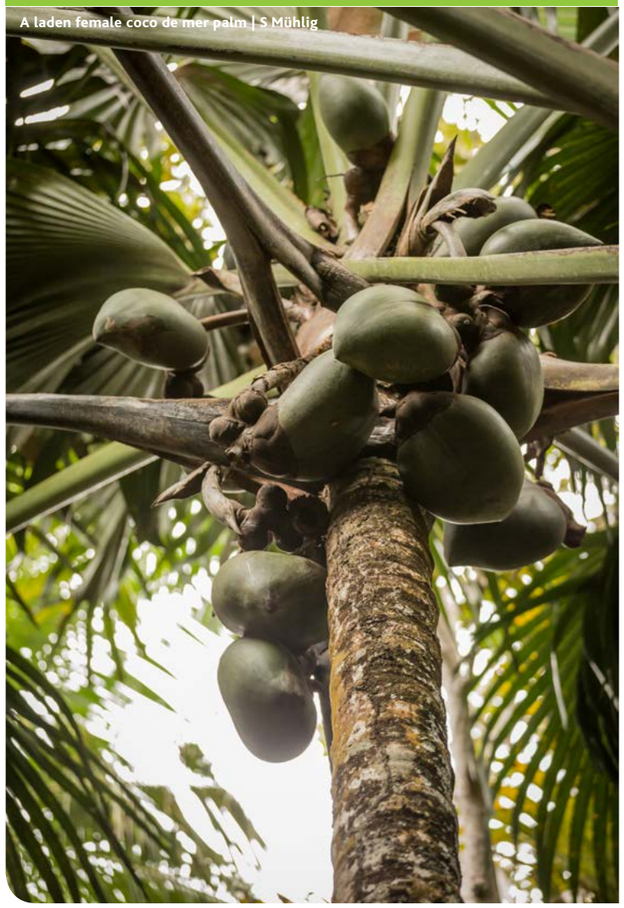
The board of trustees, which is nominated by the President of Seychelles, has a mandate of three years. Between them the 15 local and international board members bring a huge amount of valuable scientific, technical and educational knowledge and experience to the management of SIF. The Annual General Meetings are an essential part of the successful management of SIF and we are grateful to all of the board members for volunteering their continuing contributions and support.

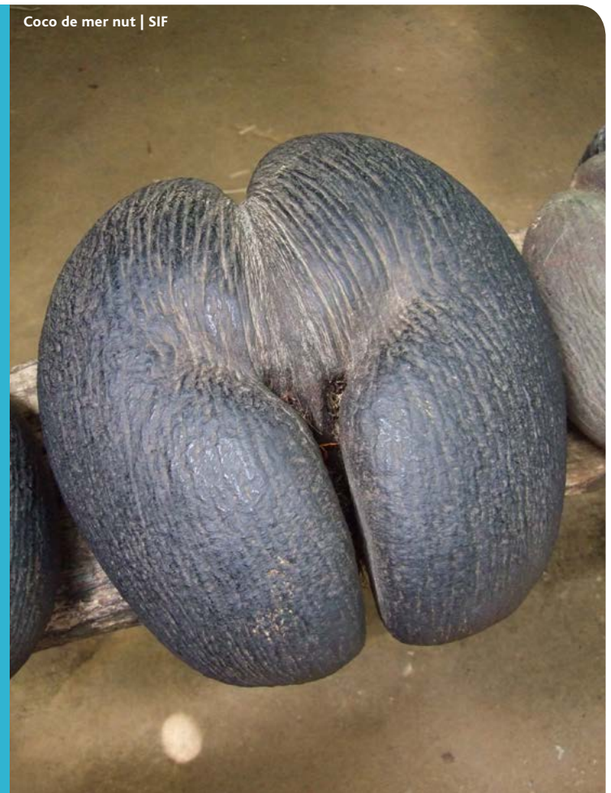
The SIF Board of Trustees met in the Vallée de Mai for their 2016 Annual General Meeting | SIF

LAUNCH OF COCO DE MER TASK FORCE

Poaching of coco de mer nuts remains the most pressing threat to the long-term persistence of the coco de mer and the Praslin palm forest. In February 2015, the Minister for Environment, Energy and Climate Change, Didier Dogley, chaired the first meeting of a newly established coco de mer 'task force' at the Vallée de Mai. All interested parties concerned with coco de mer protection on Praslin were invited to attend and become part of this task force. Those members met again in April to discuss the way forward in tackling coco de mer poaching.

This task force presents a new opportunity for many stakeholders to unite in combatting this critical issue. Parties that have joined the task force include the Department of Environment, Seychelles Police Force, Fond Ferdinand and Seychelles National Parks Authority as well as private land owners. At the meetings the parties discussed how to tackle the increasing problem of coco de mer poaching and reviewed the new draft legislation proposed for the coco de mer. They also discussed ways in which the Police Force can offer support to ensure that the arrest of poachers leads to prosecution, assisting in the legal enforcement of poaching. Given the extent and gravity of the poaching issue, it is encouraging to see so many organisations acting together. SIF remains committed to collaborating with as many of these partners as possible to further protect the coco de mer from poaching and to provide the necessary platforms for all partners to engage effectively.


A laden female coco de mer palm | S Mühlig


Coco de mer nut | SIF

NEW COCO DE MER MANAGEMENT ACT

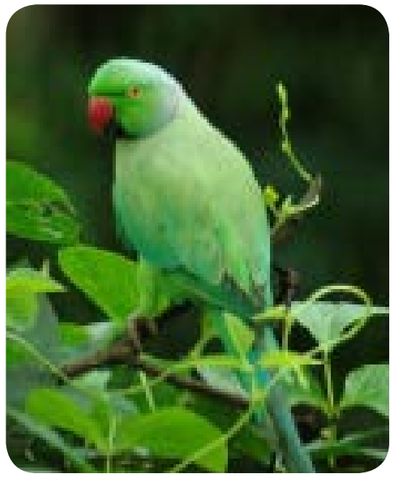
Coco de mer legal protection was increased in 2015 with the gazetting of the Coco-de-mer (Management) (Amendment) Act, 2015 which serves to amend the Coco-de-mer (Management) Decree, 1978.

The amendments include increasing the prescribed fine for offenses under the decree. Prior to the amendment act the stipulated maximum fine was 5000 rupees, this has been increased to a minimum of 25,000 rupees and a maximum of 500,000 rupees. The amendment act also increases the scope of ministerial regulations to include measures for the protection of the coco de mer tree or any part of the tree, and its habitat. Previously the decree made provision for regulations largely related to licensing and prices of coco de mer nuts.

This increase in the legal protection afforded to the coco de mer is welcomed, and it is hoped the increased deterrent will lead to a further reduction in poaching.

RESTRUCTURE OF THE VALLÉE DE MAI RESEARCH TEAM

The Vallée de Mai research team was restructured in 2016 with the formerly separate research and invasive species teams merging into one larger team. As invasive species are a major threat to the Vallée de Mai, it was essential that the research and control of these is mainstreamed and fully integrated into the work of the research team. The new team will be led by former Praslin invasive species project leader, Vicky Stravens. The aim behind merging the teams is to integrate and streamline the work, increase staff flexibility and experience by training them in different aspects of conservation management, and have an onsite scientific coordinator to manage and report on the research programme. So far the merger seems to working well, with staff appreciating the change in broadening of their work and the extra opportunities to learn and apply new skills.



VALLÉE DE MAI BIOSECURITY MANUAL FINALISED

A new biosecurity manual was finalised for the Vallée de Mai in 2016. This document identifies high-risk pathways and species, and lays out a comprehensive strategy to safeguard the ecological integrity of the Vallée de Mai from invasive alien species. This is the first time that a manual such as this has been implemented for the Vallée de Mai and builds on the work of the last few years of invasive species management in the area.

Biosecurity means taking precautions to prevent or limit the spread of dangerous or potentially harmful organisms and diseases, combining detection, surveillance and emergency protocols. Biosecurity plans outline actions to avoid or limit the entrance and establishment of these harmful biological agents, especially in protected areas.

The Vallée de Mai is highly vulnerable to the introduction of invasive alien species because of its integration among the surrounding more invaded forest and the continuous relatively high flow of tourists into the area. These factors create two main pathways for species to enter the Vallée de Mai; through the forest boundaries and the entrance gate. The manual includes a detailed analysis of these pathways to set biosecurity priorities and also considers the current status of existing invasive alien species and potential outbreaks of new ones given the location of and pathways into the site.

The manual provides guidelines on preventing new invasive alien species from establishing in the Vallée de Mai, and for managing those species already occurring, as well as guidelines for education and awareness activities regarding biosecurity. Any new species introduction could have devastating impacts on the delicate ecosystem of the Vallée de Mai so maintaining the results of the hard work and effort that have been put into controlling invasive alien species in the Vallée de Mai is essential.

ALDABRA MANAGEMENT

Aldabra is famous for its limestone formations | FotoNatura

Aldabra management activities in 2015 and 2016 took place on Mahé, Aldabra and in the sea surrounding the atoll, highlighting the complexities inherent in managing such a remote site. Progress was made on the Aldabra House project and the architects and exhibition designers had the opportunity to present to the SIF board for the first time. The 2015 Annual General Meeting of SIF board members took place on Aldabra and the 15 local and international board members were able to witness first-hand the work on the atoll. Illegal fishing was seen to be a persistent threat to the Aldabra marine protected area in 2015 but key steps towards the enforcement of fishing restrictions were made through collaboration by the SIF staff and the Seychelles Coast Guard, Seychelles Fishing Authority and other agencies. The Aldabra subsistence fishing regulations were reviewed and apps were developed to aid in the management of the atoll.

The SIF Board of Trustees held their 2015 Annual General Meeting on Aldabra | SIF

SIF 2015 AGM ON ALDABRA

SIF's Board of Trustees met on Aldabra for the organisation's Annual General Meeting in March 2015.

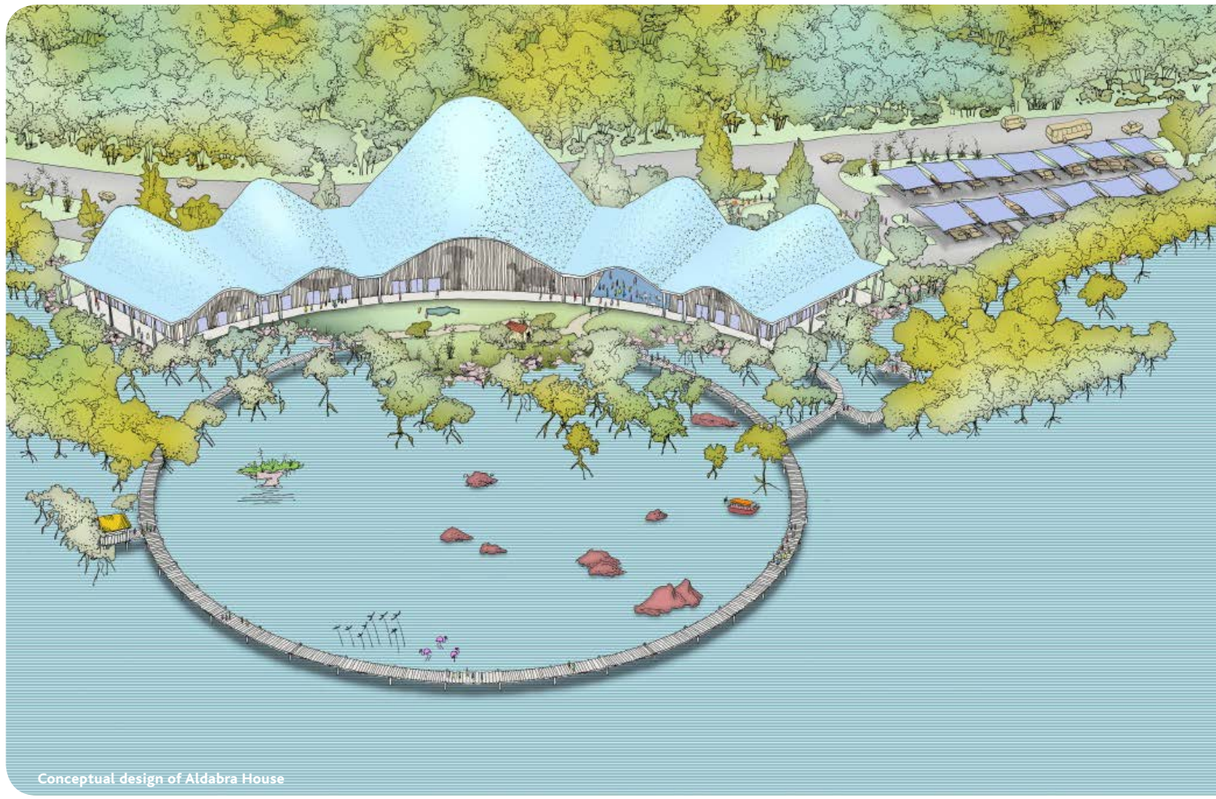
After a successful 2014, the board began reviewing 2015 by starting the meeting on Mahé where they focussed on the progression of the Aldabra House project. Representatives from Marks Barfield Architects and Real Studios presented concepts and ideas to the board, which were discussed at length as they tried to ensure that the true Aldabra experience will be communicated by this project. The board members then journeyed to Aldabra where they spent three days immersing themselves in the research and work at the atoll. The Aldabra staff gave several presentations to the board on recent and current research projects, as well as organising some opportunities for them to explore the atoll a little further. The trip to Middle Camp on Malabar Island was especially appreciated by all of the board and for many it was their first visit to this magical place.

ALDABRA HOUSE CONCEPT DEVELOPMENT MOVES FORWARD

Several workshops, meetings and brainstorming sessions were held and expert advisors recruited in 2015 and 2016 to ensure that the future Aldabra House will be as exciting and interesting an experience as possible. The architects and exhibition designers recruited in 2014 travelled to Seychelles to present the concept development to the SIF board during the 2015 Annual General Meeting in a full day workshop. Having the unique opportunity of meeting all the trustees of the foundation, meant that this was an exciting workshop full of discussions and brainstorming ideas to ensure that the concept progresses towards the exciting and inspiring Aldabra House we all envision and are looking forward to.

the additional time spent on all of these elements will ensure the best possible results and highest visitor satisfaction and financial feasibility. It is hoped that the concept development stage will be completed in 2017 when it will be submitted to the Planning Authority.

In addition to working on the concept development, SIF was busy advancing the business model for the project and seeking further financial opportunities. Simultaneously the exhibition content and design was further developed and much work was put into evolving the storyline of the exhibition. During the Seychelles National Expo in June 2015 questionnaires with the public were



Conceptual design of Aldabra House

To guide the Aldabra House concept development towards a financially feasible project, a crucial step was the appointment of a cost consultant. This costs consultant reviewed the proposed building designs against the fixed budget. They also carefully analysed all the existing building options and provided the architects with the much needed knowledge of local construction costs to proceed with a realistic concept development.

Throughout this whole process in 2015 and 2016 the architectural design of Aldabra House was modified and developed. Although the project is not as progressing as quickly as originally planned, completed on their opinion of Aldabra House. The feedback received was very encouraging and everybody was looking forward to see this project materialize.

SIF is determined to make the dream of Aldabra House come true and realise a fantastic Aldabra experience on Mahé that will hopefully exceed everybody's expectations.

An illegal vessel was intercepted off Aldabra in late 2015 | SIF

ILLEGAL FISHING VESSEL ACTIVITIES AT ALDABRA

In 2015 there was a marked increase in the number of illegal vessels seen in Aldabra waters. In August a boat was spotted off Picard making its way in a southerly direction towards Grande Terre. A patrol team from the Aldabra station was deployed to investigate any further presence of the unknown vessel, but it was not sighted again. The Seychelles Coast Guard was alerted immediately and an air patrol was conducted. In addition one of the Seychelles Coast Guard vessels was deployed, and conducted another patrol in the surrounding area but neither patrols sighted any vessels. In October, a second unidentified vessel was spotted along the West coast of Grande Terre, by the staff on Aldabra. A patrol team was launched to investigate the situation, but the unknown vessel had already left. The Seychelles Coast Guard was again alerted and they conducted another air patrol of the area to look for signs of the vessel. Due to the sightings of these vessels several members of the Seychelles Coast Guard were stationed on Aldabra on a full time basis. This would allow for a timely response to any illegal activities sighted in Aldabra's waters.


The fish retrieved from the illegal vessel | SIF

In November the frequency of these activities increased with five illegal vessels intercepted near Aldabra. The first boat was sighted when staff from Aldabra were making a crossing from Assomption to Aldabra. There were three men seen on board, and they were fishing within the boundaries of the Aldabra marine protected area. The boat was intercepted by SIF rangers with the help of the three Seychelles Coast Guard officers who were based on Aldabra. After the initial suspicious activities were detected these officers accompanied SIF staff crossings to Assomption. In the following days four further fishing boats were intercepted. A total of 19 fishermen from the five different boats were detained by Seychelles Police and were thought to be citizens of neighbouring Mayotte and the Comoros. Police officers visited Aldabra to gather evidence and statements, and all 19 fishermen were transferred to Mahé where they were detained before being deported back to their home countries. Over one tonne of poached fish was retrieved from the boats which highlights Aldabra's vulnerability to illegal fishing activities. Such activities could severely threaten Aldabra's protected marine ecosystem.

After the peak of illegal fishing activities in late 2015 the Coast Guard officers left the atoll at the end of December 2015, however SIF continued to work closely with the Seychelles Coast Guard to increase surveillance and to ensure that the Aldabra's protected area remains untouched. There were no known incidences of illegal fishing near Aldabra in 2016, although staff have remained alert to any illegal activities in the area.

ALDABRA'S SUBSISTENCE FISHING ACTIVITIES REVIEWED

With its isolated location and hostile environment, Aldabra's productive waters and associated fish communities have historically been protected from the degradation associated with high fishing pressure that has impacted many reefs throughout the Indian Ocean. In its 2015 report to the Government of Seychelles, the National Geographic Pristine Seas team estimated fish biomass in the near shore waters surrounding Aldabra to be nearly five tonnes per hectare, more than ten times the fish biomass found in the Seychelles inner islands. Aldabra's abundant and diverse fish life is a fantastic example of the structural complexity of a near-pristine marine ecosystem, with species from all trophic levels represented as well as some of the highest apex predator biomass found in the Western Indian Ocean.

Aldabra's small subsistence fishery has supported the SIF research station and its 10–15 staff for the past four decades. Fishing takes place with baited hand lines or lines trolled at low speeds behind a boat. No trapping, shore or spear fishing takes place to avoid targeting the herbivorous species that are crucial for reef health. Fishing is not permitted by anybody not working for SIF on Aldabra. The monitoring and management of the fishery is tightly controlled to ensure that these practices are sustainable and remain in keeping with Aldabra's unique values and protected status.

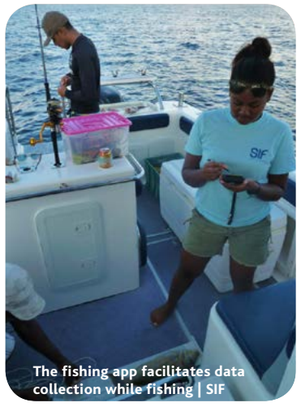
The subsistence fishing activity has been the subject of a review in 2016 in tandem with the development of Aldabra's new management plan. Part of this new management plan, which will be finalised in 2017, is to introduce a zoning system to the protected waters of Aldabra with designated fishing areas known as 'Food Security Zones'. All other areas will then be categorised as 'No Take Zones'. This will provide fully protected areas for the large, long-lived, slow-growing species, such as groupers, that are at risk from even very low fishing pressure. The review also identified several threatened fish species that are not permitted to be caught at Aldabra, with staff trained in venting and release techniques for fish affected by barotrauma. During the review, the monitoring methodology has been updated and a new automated on-board data collection app and database have been developed to facilitate data collection and enable immediate analysis of any changes and trends in Aldabra's subsistence fishery. SIF remains committed to ensuring that Aldabra's subsistence fishery has as little impact as possible on Aldabra's marine ecosystem. This review is just one of the measures taken to ensure that management practices are continually reviewed and adapted to attain this objective.

Aldabra has a large tidal range | A Mitchell

APPS DEVELOPED TO ASSIST WITH ALDABRA MANAGEMENT

As part of efforts to update and improve research and management on Aldabra three apps were developed in 2016 by research volunteer Fernando Cagua.

The Aldabra library | FotoNatura



The fishing app facilitates data collection while fishing | SIF

TIDAL APP

The tides dominate life on Aldabra so accurate predictions of the tidal pattern are essential. Despite their significance, measuring and predicting tides is not straightforward. Aldabra's tide tables have, for a long time, been dependent on data collected elsewhere in the region, resulting in inaccuracies. The atoll has foiled several attempts to collect local tidal data but, since the installation of a new tidal gauge in 2015 and with over a year's worth of data, a new model for the tidal range of Aldabra was developed in 2016.

Aldabra has a large tidal range and a semidiurnal tide system which means it experiences two high and two low tides of approximately equal size every day. Each month there are two extra-high spring tides at the time of a new or full moon. The tidal gauge precisely measures the distance between the sea floor and the ocean's surface. Fernando constructed a tidal model and online app that allows us to predict the local tides with a much higher accuracy. This app will make it much easier to effectively plan research activities on Aldabra, allowing more time in the field; it will afford all staff the ability to plan around the tides, not just the skippers and other highly experienced staff; and it will help us understand how Aldabra's fauna is influenced by the tides.

LIBRARY APP

Aldabra's small library contains hundreds of scientific books and reports, a significant proportion of which were brought here many decades ago by scientists from the Royal Society and other visiting researchers. The collection has slowly grown over the years and is now quite a treasure trove. There has been no up-to-date catalogue of these books for decades, so the creation of one is long overdue. The process of cataloguing, structuring and organising a library of books can be a daunting, difficult and time consuming task, but it is now being done with the help of the Aldabra library app.

By checking the collections of more than 72,000 libraries in 170 countries, the Aldabra library app is able to use a barcode scanner (or a search by title, author, etc.) to automatically locate and download all of a book's details, in addition to the Library of Congress Classification Number, which identifies the book and indicates its shelf location. The details of each book are retained and logged within a simple database in the app allowing easy searches of the catalogue from both Aldabra and SIF head offices. The Aldabra team hope to have the library fully catalogued before the start of 2017.

FISHING APP

To allow SIF management an immediate visualisation of the monitoring data collected during subsistence fishing trips and ensure that subsistence fishing regulations are adhered to, a comprehensive application was developed which facilitates rapid exploration and summarising of the new subsistence fishery database. The app graphically displays a variety of information and gives an overview of trends in the fishery's statistics, regulation compliance, and of sustainability indicators. It can be used to efficiently produce graphs and summaries for monthly and annual reports and is a fantastic tool allowing for the early identification of any changes in catch composition or fishing behaviour. Fernando has left quite a mark on Aldabra's research management and shown how valuable volunteer contributions are.

The Vallée de Mai | A Mitchell

SIF RESEARCH IN THE VALLÉE DE MAI

2015 and 2016 were busy years for research in the Vallée de Mai, with work done on the coco de mer, amphibians, the Seychelles black parrot, and reptiles; as well as the publication of several scientific papers in peer-reviewed journals. Emma Morgan completed her PhD on coco de mer genetics in 2016 which produced some fascinating insights into this endemic species. In another significant study, chytrid fungus, which has had devastating effects on amphibians worldwide, was found to be absent from Seychelles during the period tested (2010–2013). Although this news is encouraging for Seychelles frogs and caecilians, the risk of chytrid entering the country remains high. Another major highlight was the research leading to the recognition of the Seychelles black parrot as a distinct species, and therefore Seychelles' 13th endemic species. Interesting research was done on Praslinois perceptions of the back parrot which showed that Praslinois are mostly positive towards the black parrot, and most respondents were supportive and willing to help SIF in protection efforts. Finally, research also shed light on the evolutionary history and species separation of the Seychelles bronze geckos, and an important study was done on the population size and dynamics of the giant bronze gecko.

COCO DE MER

GENETIC RESEARCH

Emma Morgan, a PhD student from the Swiss Federal Institute of Technology (ETH) in Zurich, finished her third and final field season for her PhD research on the coco de mer in May 2015. The research investigated how environmental and genetic factors affect the genetic structure of coco de mer populations, sex ratios, and overall reproductive success, as well as the impacts of habitat fragmentation on this system. In this final season she took the last measurements and collected the remaining leaf samples needed from seedling and adult coco de mers in the Vallée de Mai and from Curieuse. Once back at the ETH, Emma conducted her final lab work, extracting DNA from the samples, and all the data was analysed and written up for her PhD thesis which was completed at the end of 2016.

Emma's results show, perhaps not surprisingly, that the huge seeds of the coco de mer are dispersal-limited, and that this results in an intense fine-scale spatial genetic structure, with neighbouring pairs of male and female trees being closely related. Inbreeding levels are high, and genetic diversity levels are also relatively high across all populations, although these differed in disturbance and habitat fragmentation. The results support what was already suspected – that seed dispersal distances are mainly very short, and seedlings naturally establish in dense clusters around the mother tree, or if they are growing on a steep slope, in elongated ellipses downhill of the mother tree. The high relatedness levels at all life stages is consistent with the idea that mating between nearby pairs is common in coco de mer.

A detailed study of female inflorescences revealed large variation in reproductive output among individuals over a seven-year period. The ability to produce offspring was limited, at different phases of the reproductive cycle, by soil nutrient concentrations and by pollen availability. Many female trees, especially in open areas, bore abnormal fruits that failed to produce viable seeds, possibly because of pollen limitation. Therefore the variability in the ability of female trees to produce viable seed is possibly linked to the density of male trees in the landscape. This likely to be particularly important in degraded forest patches where shorter average pollen distances were found.
Previous research has shown that most coco de mer populations

have unbalanced sex ratios. However, the reason for this - whether different numbers of male and female seeds are produced or mortality rates of established plants are unequal - was not previously known. Emma's results show approximately balanced sex ratios in all non-mature sub-populations, with no detectable effects of the environment upon this ratio, suggesting that mortality rates of established coco de mers are unequal. The reasons for the biased adult sex ratios are probably complex and may in part reflect human activities.

This new information on reproduction, and an improved understanding of the natural population structure and dynamics of the coco de mer, will greatly aid management of this species.

Emma completed her final fieldwork in May 2015 | SIF

SEYCHELLES BLACK PARROT

SEYCHELLES BLACK PARROT GENETIC RESEARCH

A SIF co-authored paper was published in 2016 on the evolutionary distinctiveness of the Seychelles black parrot in relation to other black parrot species in the Western Indian Ocean region. The research conducted for this paper provided the evidence for the announcement of the Seychelles black parrot as a distinct endemic species in 2014.

The Seychelles black parrot (Coracopsis barklyi) is an island endemic threatened with extinction. The total population (estimated at 520–900 individuals in 2011) is restricted to the 38-km2 island of Praslin, and it is one of the few remaining endemic island parrots in the Indian Ocean. To evaluate the conservation status of the Seychelles black parrot, and provide important guidance for ongoing conservation management by SIF, this paper combined molecular and morphological data to explore the Seychelles black parrots' evolutionary history in terms of their genetic and morphological distinctiveness from other subspecies of black parrot found on Grand Comoros (C. n. sibilans) and Madagascar (C. n. nigra & C. n. libs), whilst quantifying levels of genetic diversity within the population over time.

Black parrot feeding on a thief palm | L Chong-Seng

Significant morphological differences were observed between black parrot subspecies from different islands: total body size was the predominant variable for discriminating between subspecies, with the Seychelles black parrot being the smallest of the four subspecies. Interestingly, body size appears to have increased as the black parrot has radiated from the Seychelles and Grand Comoros onto Madagascar.

Genetic data obtained from museum specimens of black parrot from the Seychelles, Grand Comoros and Madagascar was used to reconstruct their evolutionary history. This showed that the Seychelles black parrot forms a distinct group on a different evolutionary trajectory compared with the subspecies on Grand Comoros and Madagascar. This genetic data also allowed the researchers to calculate effective population size and genetic diversity. Effective population size is a theoretical measure of how many genetically unrelated individuals within a population are actively breeding and contributing diversity to the ongoing gene pool (and is therefore often much smaller than actual population size). Worryingly, over the last 146 years, effective population size has declined from approximately 864 parrots in 1878 to just six individuals by 2011. A loss of genetic diversity was observed, suggesting the current population may have undergone a population bottleneck (been reduced to a small size), probably as a result of range contraction and habitat loss.

This study provides a first insight into the evolutionary, genetic and morphological processes that have shaped the Seychelles black parrot and provided an important perspective on this parrot's genetic status that led to its classification as a distinct species, a re-assessment which is crucial information for its conservation.

The citation details for the paper can be found at the end of the report.

SIXTH AND SEVENTH SEASONS OF BREEDING MONITORING PROGRAMME

For both the sixth and seventh consecutive monitored seasons the Seychelles black parrot breeding monitoring team was led by Vallée de Mai senior ranger Terance Payet, using the same methodology. During the weeks and months leading up to the breeding season the team begins checking potential nesting cavities for nests. When the team finds an active nest it is monitored using an infrared camera, ladders and an access door to reach the eggs or chicks inside. The eggs are checked every three days to see if they hatched. If hatched the chicks are monitored and weighed every three-five days to assess their progress. At around 35 days old, just before fledging, the chicks are ringed with a unique colour combination to allow them to be identified in the field. After fledging at about 45 days old, the team continue to monitor the chicks as even at this age they are still dependent on their parents for food.

Black parrot chicks have blood samples taken | A Mitchell

In the 2014/2015 (sixth season) the team found more active nests compared to previous seasons, with 25 nests recorded and 13 chicks fledged. Two of the nests contained four eggs, which is an uncommonly high number. Although black parrots are known to lay 1–4 eggs per nest, four egg nests are not frequently encountered. More nests or more eggs per nest does not necessarily mean more chicks, as there are various factors that affect breeding success. Sadly several chicks died, some probably killed by predators, others from starvation and some from unknown causes.

The 2014/2015 breeding season saw several new observations, with a nest located in both a live albizia and badamier tree for the first time, unusual as the parrots typically nest in dead standing palm trunks. Also, although it was previously suspected that feral cats could be a predator of parrot nests, camera traps set up this season confirmed this predation as a cat was caught red-handed in a nest.

The 2015/2016 (seventh) breeding season saw low nest numbers, and even lower nest success, with no monitored chicks surviving to fledging. A total of only three nests were located, all in December and January. Of these nests, two chicks hatched, one of which died at only a few days old. The other survived for more than 20 days but sadly was also found dead in the nest just before it was due to be ringed. The cause of their deaths is unclear but there are many factors which may have been responsible, such as lack of food or predation.

Although none of the chicks found by the team survived, several fledglings were seen being fed in the Vallée de Mai and Fond Ferdinand, indicating that at least a few nests were missed by the team and must have been successful this year so the outcome of this season is not quite as gloomy as the figures suggest.

This season was only the seventh year for which breeding success has been monitored by SIF and there are still many gaps in the knowledge of this species that need to be filled, not least of which is the question of why the breeding activity fluctuates so much across seasons. This is not the first season in which the activity has been so low. We also saw minimal breeding four years ago in the 2011/12 season, when the team only located one active nest, which fledged one chick successfully. Other seasons have seen over 20 monitored nests. The fluctuations are thought to be naturally occurring, possibly due to seasonal variation in food resources, but this has yet to be explored in detail.

It is only with continued monitoring and data collection on the parrots, their breeding, habitat and dietary requirements that we will be able to piece together an understanding of their needs and limiting factors to their breeding, ensuring that we can conserve this iconic and charismatic bird.

Nesting cavities are monitored before and during the black parrot breeding season | A Mitchell

Before they fledge black parrot chicks are fitted with bands that allow the research team to identify them later | S Mühlig

SURVEY ON PUBLIC PERCEPTIONS OF BLACK PARROT

In 2014 a survey was conducted on Praslin to find out more about the Praslinois perception of the black parrot to identify education and outreach needs. A total of 181 people (all Seychellois) were interviewed from several sectors of society, including farmers, students, people working in the tourism industry and the local community. The results of this survey were collated and summarized in 2015.

98% of those interviewed could identify the black parrot and 97% knew that the bird was endemic to Praslin, but only 42% of them knew of the threats to this bird. The majority did not think that the black parrot caused any problems and 77% understood that the bird contributes to the economy. There was a small minority that deterred the birds from their property, but these were mostly farmers who did not want their fruit crops damaged by black parrots. Most Praslinois were supportive and willing to help SIF in the protection of the black parrot which was a positive and encouraging result. Interestingly students showed the best knowledge of the black parrot, presumably due to the SIF education and awareness programme on Praslin. This suggests that placing more efforts into educating other sectors of society as well could assist in the protection of the parrots. The more knowledge people have about the parrot, the more likely they are to establish an emotional attachment and be supportive of their protection.

ZSL EDGE PROGRAMME COMES TO A CLOSE

The ZSL EDGE programme came to a close in 2015. The aim of the ZSL EDGE programme was to provide investment, expertise and targeted training in conservation, ecology and taxonomy to improve the knowledge, management and conservation status of the 12 EDGE (Evolutionarily Distinct & Globally Endangered) species in Seychelles.

Terance Payet, a ranger at the Vallée de Mai and ZSL EDGE programme fellow for the Seychelles black parrot, provided his thoughts on the difference he thinks this programme has made to the protection and awareness of this endemic bird, and to his skillset.

What has been achieved under this programme for the Seychelles black parrot?

The EDGE programme has assisted me in acquiring further training that will help me to better protect and manage this species. My abilities regarding how to monitor and collect data in the field have improved, which will assist SIF in their black parrot research programme and in turn will allow us to better manage and protect this species. Through education and outreach activities, such as the survey on public perceptions of the black parrot, I was also able to raise awareness and improve the knowledge of the Praslin community on the Seychelles black parrot.

What skills do you think you have gained through this programme? How will they help you in your job as ranger at the Vallée de Mai?

Under this programme I was able to visit the Mauritius Wildlife Foundation and gain experience on their echo parakeet programme. Whilst there I gained skills in climbing, field data collection, and learned more about the threat that the ring-necked parakeet poses to other parrot species as well as the black parrot. Through several workshops that were held under the EDGE programme I also developed my skills in education and outreach, leadership, and report writing. These skills have already helped me in my work at the Vallée de Mai and I have been able to pass on this knowledge on to other SIF staff.

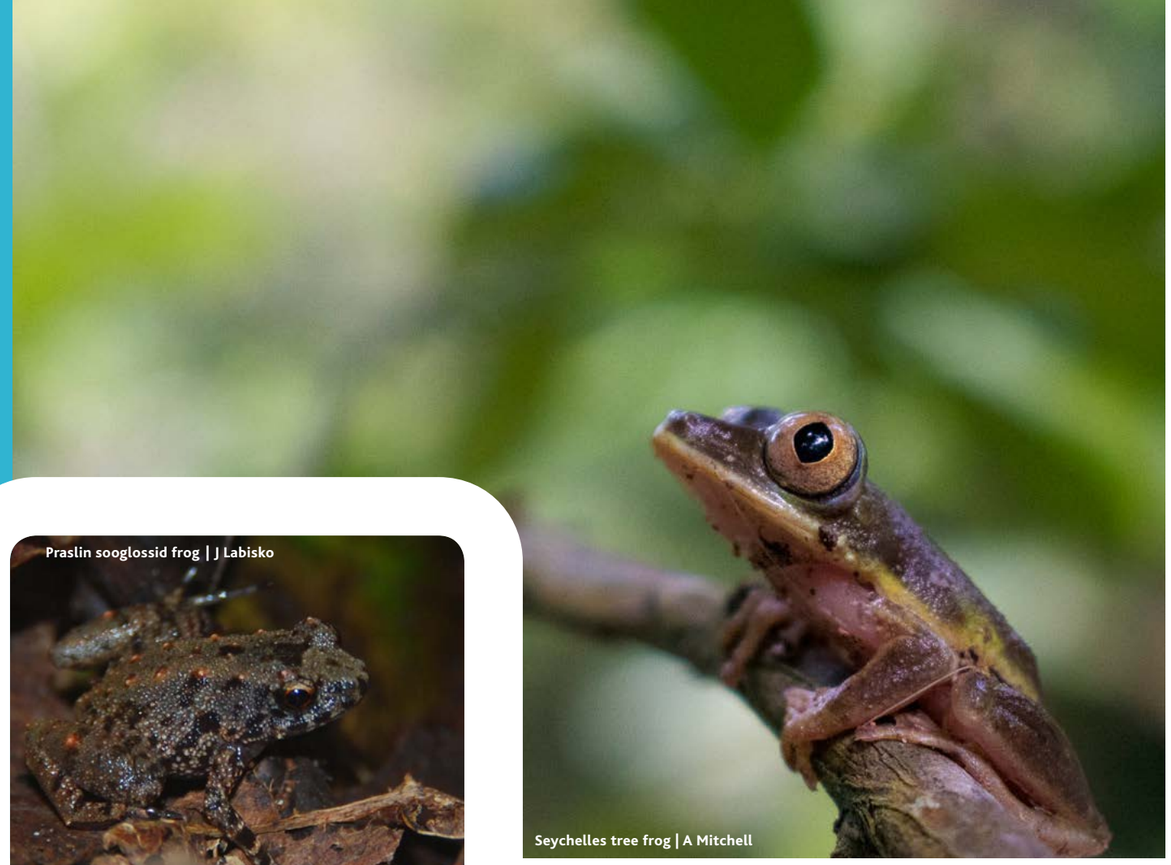
How do you think this programme has helped the conservation of the black parrot?

I undertook a questionnaire as one of the activities of this programme and this has provided invaluable information on the perception of the black parrots by the Praslinois. This additional knowledge, as well as the skills that I have developed, will be essential in making decisions on actions needed to protect and conserve the black parrot.

Seychelles black parrot fledgling | S Mühlig

Terance with a black parrot | SIF

A black parrot on Praslin | A Mitchell



Seychelles tree frog | A Mitchell

Praslin sooglossid frog | J Labisko

AMPHIBIANS

PHD RESEARCH ON SEYCHELLES AMPHIBIANS

Simon Maddock, a PhD student from University College London and the Natural History Museum, London, completed his doctoral thesis on the evolution of the Seychelles tree frog and Seychelles caecilian species in 2015

Titled 'Systematics and Phylogeography of Seychelles Amphibians', Simon's PhD thesis investigated the evolution of the seven species of caecilian in Seychelles and the Seychelles tree frog across the granitic islands of Seychelles. Much of Simon's research focussed on the distribution and population size of the six known endemic species of caecilian as well as looking for potentially new species. Simon and his colleagues collaborated with SIF and visited the Vallée de Mai during three separate field research seasons during 2013–2015. During these trips they were excited to discover the caecilian Grandisonia alternans in the Vallée de Mai, which is the first verified record of this species on Praslin. Simon and his colleagues also worked closely with Charles Morel from the Natural History Museum Seychelles. Charles was designated as the caecilian fellow under the ZSL EDGE project and has been working to improve the knowledge and awareness of this elusive and little-known group of amphibians in Seychelles.
For some of his research Simon used genetic data from historical museum specimens of Seychelles caecilian species at the Natural History Museum, London and the University of Michigan Museum of Zoology. This research uncovered significant genetic and morphological separation amongst and within the currently classified caecilian species. This indicated that there could be new undescribed species but further research is needed to confirm this status.

Although the Seychelles tree frog showed a variety of different colour patterns across the different islands of Seychelles, Simon found that it had conflicting genetic and morphological variation. This data suggests that the differences in colouration between islands does not represent the evolutionary history of the species, but instead seems to be linked to environmental factors during their development.

Work on the Seychelles caecilians is still ongoing by Simon and his colleagues, but the discovery of distinct evolutionary patterns sheds interesting light on the generation and maintenance of genetic diversity within Seychelles. It is clear that there is still much more to be learned about the evolution of the endemic caecilians, especially the true extent of their diversity within Seychelles.

CHYTRID FUNGUS NOT DETECTED IN SEYCHELLES AMPHIBIANS

Amphibians across the world have been suffering declines and extinctions from a fatal fungal infection caused by the Batrachochytrium dendrobatidis pathogen or 'chytrid'. With five endemic species of frog and six endemic species of caecilian in Seychelles, there has been major concern that chytrid could have severe effects on these amphibians if it reaches the country. However, until recently no screening had been done to determine if it was already here.

A paper published in 2015 reported the results of the first large-scale screening for chytrid in Seychelles amphibians. The study was led by PhD student Jim Labisko, who is conducting his PhD research with SIF on the Praslin Sooglossus frog and is based at the Durrell Institute of Conservation and Ecology at the University of Kent, UK. The screening work was carried out alongside Jim's PhD research and supplemented by several leading amphibian researchers to ensure that a range of species and locations was covered.

A total of 291 skin samples were taken from 10 of the 11 endemic amphibian species across six islands, including 213 frogs and 78 caecilians. All of these samples tested negative for chytrid infection and no symptoms of the disease were observed during sampling. The results suggest that chytrid was absent from Seychelles during the period tested (2010–2013). This is good news for Seychelles amphibians but the threat of the pathogen entering the country remains high.

Following the publication of the paper, a meeting was held between several stakeholders to discuss the potential emergence of chytrid and possible mitigation measures to protect the amphibian populations. Shortly after this meeting in March 2015, the Seychelles government announced a ban on the import of most aquarium living organisms, and increased sanitary regulations for the remaining organisms with immediate effect. SIF applauds and supports this move and rapid response by the Seychelles government to this substantial threat. The aquarium trade is not the only transmission route of the pathogen but it is an important one and the ban is therefore a positive step in protecting these unique species.

The citation details for the paper can be found at the end of the report.

Sooglossids are famous for being some of the smallest frogs in the world | SIF

Caecilian | A Mitchell

The three bronze geckos; bronze-eyed gecko (left), dwarf bronze gecko (middle) and giant bronze gecko (right) | SIF

Bronze-eyed gecko | A Mitchell

REPTILES

PAPER PUBLISHED ON EVOLUTIONARY HISTORY AND SPECIES SEPARATION OF THE SEYCHELLES BRONZE GECKOS

An SIF co-authored paper was published in 2016 in the Biological Journal of the Linnean Society in collaboration with researchers from the University of Vigo, Spain and CIBIO, Portugal. The paper reported findings from a genetic study of the three bronze gecko species of Seychelles; the giant bronze gecko Ailuronyx trachygaster, the bronze-eyed gecko A. seychellensis and the dwarf bronze gecko A. tachyscopaeus. The researchers found that the giant bronze gecko, which occurs only on Praslin, has the most ancient evolutionary lineage, having split off from the smaller two species around 10 million years ago. The two smaller bronze gecko species then split from each other more recently and, as with all other reptile genera studied so far in the Seychelles, there is a clear genetic divide between populations of the two smaller species in the northern and southern granitic islands.

The researchers also found useful morphological differences between the species. Identification can be difficult between the two smaller species, with even experienced observers sometimes mistaking them. This analysis therefore provides useful information to identify the different species in the field

One important additional finding for conservation is that the giant bronze gecko has relatively low genetic diversity and a small effective population size. This is not surprising, as it has by far the most restricted distribution of the three species, but it is important information for conservation management of this species.

The citation details for the paper can be found at the end of the report.

MSC RESEARCH CONDUCTED ON GIANT BRONZE GECKOS IN THE VALLÉE DE MAI

A five month MSc research project was conducted in 2015 to gather new information on the cryptic and elusive giant bronze gecko (Ailuronyx trachygaster) in the Vallée de Mai.

Chris Tagg, an MSc student studying Biodiversity Conservation at Bournemouth University, UK, undertook to extend research previously conducted on this species by SIF by focussing on population status and movement ecology. Previous research by SIF has suggested that there is a relationship between the giant bronze gecko and the coco de mer as a source of food. It was still not known however, how many there are, how large their home ranges are or anything about their daily movement patterns. To answer these questions Chris captured geckos in the canopy of the palm forest, measured and sexed them and implanted each gecko with a PIT (Passive Integrated Transponder) tag, which meant that each individual would automatically be identifiable by this 'barcode' in the future. Several geckos were also fitted with tiny radio transmitters allowing their daily movements to be tracked in-situ in the forest. Radio transmitters similar to these were used in 2014 in pilot research conducted by SIF to study the gecko's movement ecology, and Chris's study built on the data collected in this earlier research. Throughout his study Chris captured and PIT-tagged a total of 214 different individual geckos and had an additional 452 recaptures and confirmed sightings, which is an impressive dataset for this previously little-studied species.

The population size estimate for the geckos in the 3 ha study area was 284 individuals, which is a density of approx. 95 individuals/ha. Extrapolating this estimate to the rest of the Vallée de Mai gives a total population for the whole site of approx. 1800 individuals, although the habitat across the Vallée de Mai is not uniform so further research will be needed to obtain a more accurate total population estimate. As the giant bronze geckos are dependent on coco de mers for food competition between geckos for these limited resources could be a key factor affecting gecko population size.

Of the 14 geckos that were fitted with radio transmitters, 12 were successfully tracked and each was located between 15 and 65 times. The radio-tracking data showed that home range size of the geckos varied between individuals but male and female home range size was similar, unlike in other gecko species where males normally have much larger home ranges.

The research, especially when combined with Emma Morgan's PhD results on coco de mer genetics, highlights the importance of maintaining a high quality core area of mature palm forest with an intact canopy. Thanks to Chris, and for the great help and support from the whole Vallée Mai team who assisted with several months of late night capturing, processing geckos, and early morning radio-tracking.

Giant bronze gecko fitted with a radio transmitter | C Tagg

SIF RESEARCH AT ALDABRA ATOLL

Research on Aldabra in 2015 and 2016 provided good news, new research partnerships, and sad evidence of the threat of a changing climate on the atoll. Long-term monitoring of seven landbird species on the atoll has shown increasing population trends in six species, and a stable population in the seventh. The successfully completed GEF-funded Protected Areas project found that Aldabra's reefs are more extensive than previously thought, and prompted the government to approve a proposal to extend the marine protected area. The National Geographic Pristine Seas Expedition documented a high biomass of fishes and 165 species of hard corals at Aldabra, including seven new records for this region. However the El Niño induced bleaching event was a stark reminder that Aldabra is not safe from global climate change. SIF entered into an exciting new research partnership with the Seychelles Fishing Authority. There was also good news for green turtles, with record numbers of turtles nesting on the atoll's beaches in 2015. 2015 also saw work on several important studies on the Aldabra giant tortoise and on the Aldabra banded snail which was rediscovered in 2014. MSc research on Aldabra's mangroves was concluded in 2016, shedding light on their distribution and structural characteristics.

Aldabra | FotoNatura

BIRDS

RESEARCH ON LONG-TERM MONITORING OF LANDBIRDS INDICATES INCREASING POPULATION TRENDS

An SIF-authored paper was published in November 2015 in Bird Conservation International on the status of Aldabra's landbirds. The paper used data from SIF's long-term landbird monitoring programme from 2002 to 2013 in which monthly surveys were conducted at seven locations around the atoll.

Female sunbird feeding chicks in the nest | A Mitchell

Population trends of seven landbird species from Aldabra were evaluated and showed that six of these species were increasing in abundance over this time period (Comoros blue pigeon, Madagascar turtle-dove, Madagascar bulbul, Aldabra fody, souimanga sunbird, and the Madagascar white-eye). The seventh species, the endemic Aldabra drongo, remained stable over this time period. The increase in abundance was 83–100% in the 11-year period, which may indicate that at the start of the surveys in 2002 the landbirds were recovering from a disturbance still to be identified. Some of the landbird species seemed to be affected by climate, for example in years with more rainfall the abundance of the souimanga sunbird increased. Other species showed seasonal behavioural changes, e.g. Aldabra fodies became more vocal during breeding seasons, which meant that they were more obvious to the observers and more likely to be counted during the monitoring.

An important outcome of these findings is that revisions to the long-term landbird monitoring programme are required. One of the suggestions is to record additional information on the ease of detection of different species during the monitoring session, as this can have an impact on the accuracy of the data recorded and allow for an estimate in population size in addition to understanding population trends.

The citation details for the paper can be found at the end of the report.

FIFTH AND SIXTH ANNUAL FRIGATEBIRD CENSUS

The 5th and 6th annual censuses of frigatebirds at Aldabra were conducted in 2015 and 2016, with all four known frigatebird colonies on the atoll surveyed. The team counted both greater frigatebirds (Fregata minor) and lesser frigatebirds (F. ariel) on nests which were incubating eggs or brooding chicks, in addition to nests containing older chicks with no parent present.

In total, 7426 frigatebird nests were counted during the 2015 census which was a 15% increase in nesting frigatebirds in comparison to the 2014 census. In the 2016 census 5835 frigatebird nests were counted, which was a 27% decrease from 2015. Fluctuations in the breeding population of frigatebirds on Aldabra have been documented in the previous four years

Frigatebird with bright red gular sac inflated | A Mitchell

Frigatebird chicks on nest in the colony | FotoNatura

of surveys, with 2011 and 2013 also representing 'peak' years in comparison to lower numbers of breeding frigatebirds recorded in 2012 and 2014. This is thought to result from the characteristics of frigatebird reproduction, with a single breeding cycle spanning more than one year. The 2015 and 2016 censuses illustrate that the patterns of frigatebird breeding on Aldabra are complex and require further surveys to better understand them.

A closer look at the species counts shows that greater frigatebird numbers have declined over time whilst lesser frigatebird numbers have remained relatively stable, as have the number of chicks recorded. Although six years of annual surveys is a good starting point to look at population dynamics it is not sufficient to draw finite conclusions and it is important that the annual survey is continued for a longer dataset. A review of the frigatebird census and development of a monitoring protocol will therefore take place in 2017.

SEVEN YEARS OF TROPICBIRD NEST MONITORING DATA ANALYSED

Aldabra supports the largest breeding populations of red-tailed (Phaethon rubricauda) and white-tailed tropicbirds (Phaethon lepturus) in Seychelles and they are the only seabird species in which breeding success is monitored continuously on Aldabra. Monitoring breeding success can provide valuable insights into the health of the surrounding ocean. In June 2016 volunteer Fernando Cagua analysed the last seven years of tropicbird nest monitoring data. Fernando found that both the number

White-tailed tropicbird | FotoNatura

Nesting red-tailed tropicbird | FotoNatura

of white-tailed tropicbird nests found, and their success rate have been stable over the study period, but that there has been a marked reduction in the number of nests established by red-tailed tropicbirds.

The reasons for this potentially worrying trend could not be determined from the monitoring results, and the process of analysing the data has provided greater insight into the adequacy of the methods and database. Although these are mostly sufficient to monitor nesting success, some small improvements would improve ease of analysis and data quality. Some adjustments were therefore made to the protocol in December 2016, the research team will now include information on nest type (either in vegetation or in champignon) and nest exposure to sun and weather, as well as optional chick ringing data recording. The database was revamped to include these amendments and the new protocol will be launched in January 2017. We hope the amendments will shed light on rates of tropicbird breeding success on Aldabra in the coming years.

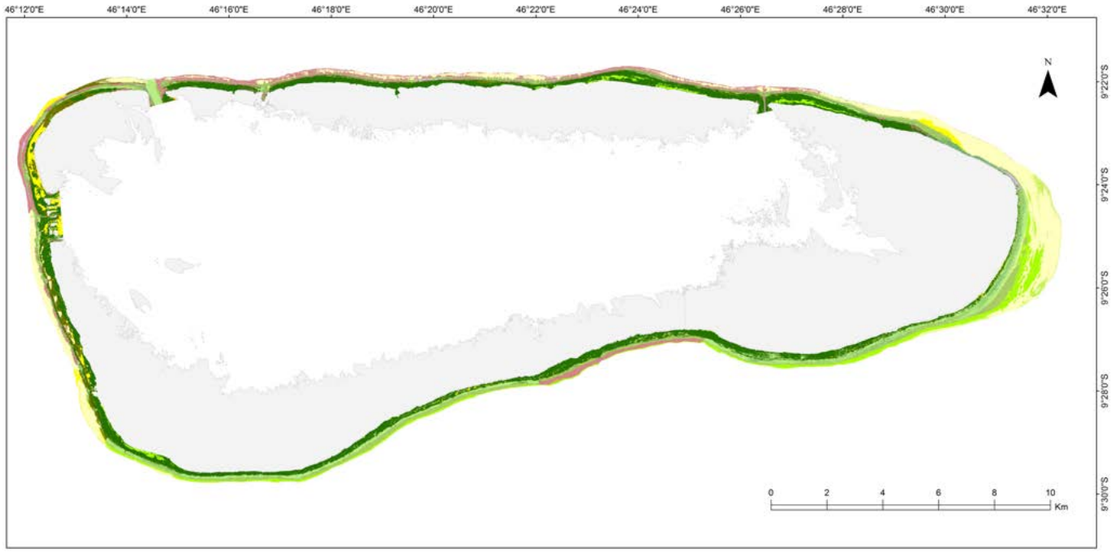
MARINE

END OF GEF-FUNDED PROTECTED AREAS PROJECT

The GEF-funded project 'Strengthening Seychelles' Protected Area System through NGO Management Modalities' came to a close in July after four years. The project aimed to support the establishment of new protected areas, and also to improve the management of existing terrestrial and marine protected areas. Several NGOs, parastatal organisations and private sector companies including SIF received funding from GEF to achieve these objectives.

Under the project, SIF focussed on Aldabra Atoll and aimed to: 1) increase the extent of Aldabra's Marine Protected Area; 2) improve surveillance of Aldabra; 3) develop a more sustainable financing mechanism for the atoll; and 4) develop thresholds and bio-indicators as benchmarks in the management of Aldabra's ecosystems. Several achievements were made under this project. The outer reef habitat map that was created under the first objective confirmed the need to extend Aldabra's marine protected area, as some areas of outer reef were not known about, or protected by the existing 1 km Special Reserve boundary around the atoll. The proposal to extend this marine protected area was approved by government. The project also allowed for the development of a long-term programme to monitor the diversity and abundance of the marine species at Aldabra. This programme will provide a better understanding of Aldabra's near-pristine marine ecosystem, and how coral reefs respond to human or natural impacts.

OUTER REEF HABITAT MAP OF ALDABRA ATOLL



NATIONAL GEOGRAPHIC PRISTINE SEAS EXPEDITION

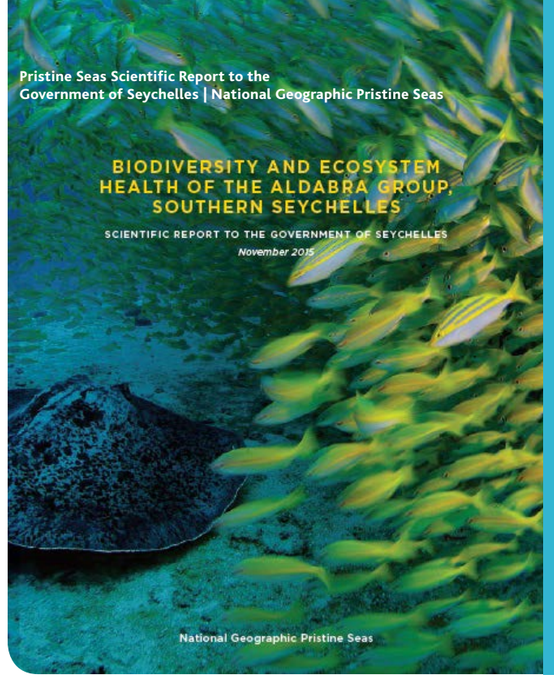
The National Geographic Pristine Seas Expedition visited Aldabra Atoll in March 2015 as part of an expedition to the Aldabra group of islands (including Assomption, Astove and Cosmoledo). Their mission was to survey, assess and publicise these islands as one of the last remaining pristine marine ecosystems on the planet and to enhance their protection.

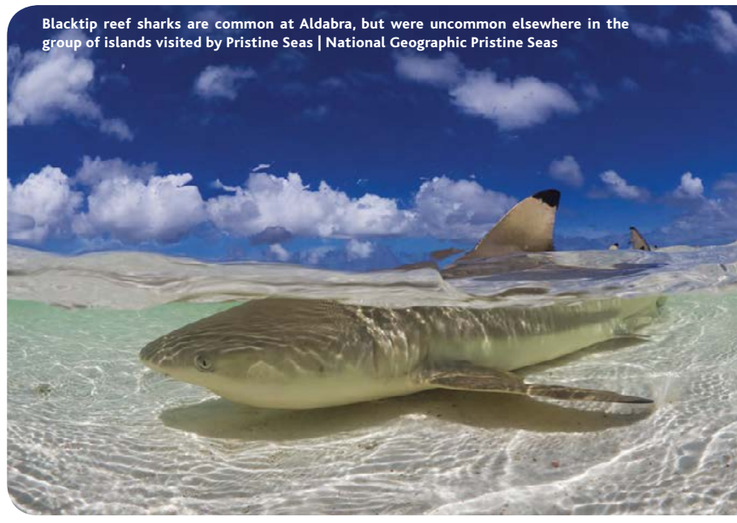
The Pristine Seas team was comprised of a range of experts including a botanist, fish taxonomist, phycologist and coral specialist, in addition to a renowned film crew who were there to capture images and footage of Aldabra's incredible marine life. The SIF team assisted the Pristine Seas crew on their research dives and terrestrial transects, and were also interviewed as part of the documentary. The enthusiastic staff team made the most of this opportunity to learn from these experts and improve their identification skills.

The Pristine Seas team also took the opportunity to apply hi-tech camera equipment to explore Aldabra from above and below. Two drones were used to capture video and images from heights of up to 150 m above the atoll. Below the waves the team deployed a deep-drop camera which was dropped to 1500 m depth to capture images of the abyssal slopes and the life that inhabits these dark, unknown waters. Some very exciting footage was captured with lantern sharks, false cat sharks and deepwater snappers seen on the videos.

During the expedition, transects were walked across the atoll by the team's botanist, to assess the terrestrial habitat. SCUBA diver surveys were undertaken to assess the coral and algal cover, benthic diversity, and fish diversity and biomass on Aldabra's seaward reefs. These data can provide an indicator of coral reef health as healthy reefs have a higher number of large predatory fish, high coral cover and limited algal growth. Sediment and water samples were also taken by the team to assess palaeoclimate and water quality.

The team recorded 332 species of fish during the expedition, dominated by large groupers and jacks, with fish biomass in the Aldabra Group averaging over four tonnes per hectare and fish biomass at Aldabra averaging almost five tonnes per hectare. Biomass of fishes in the Aldabra Group was the largest of the sites surveyed in Seychelles, and was dominated by large predatory fish such as potato groupers. The team also found a total of 165 species of hard corals including seven new records for this region. These findings support SIF's application to extend the marine protected area of Aldabra to protect these precious resources.




Blacktip reef sharks are common at Aldabra, but were uncommon elsewhere in the group of islands visited by Pristine Seas | National Geographic Pristine Seas


Lantern shark at 1,463m | National Geographic Pristine Seas

Conducting fish surveys during marine monitoring | SIF

COMPLETION OF SECOND AND THIRD SEASON OF MARINE MONITORING

The second and third seasons of Aldabra's marine monitoring programme were completed in 2015 and 2016. This programme was established in 2013, with 12 permanent sites around the atoll being monitored with benthic photoquadrats (i.e. photos of squares on the seabed) and fish surveys.

The sites were established to monitor the rich and diverse marine life of the atoll. This research is important not only to create a long-term dataset for Aldabra's marine environment but also to serve as a reference point to monitor changes caused by large-scale environmental pressures in the Western Indian Ocean. As the fish surveys are undertaken on the same transect lines as the benthic surveys, changes in fish community structure can also be analysed in relation to changes in habitat. Management responses can then be formulated and applied where necessary to maintain the health of this unique marine environment.

Before carrying out these surveys, several Aldabra staff were thoroughly trained in the identification of target species and the different methods. The fish surveys involve stationary point counts to record a number of species, while the benthic photoquadrats record continuous pictures of the seabed along marked lines (transects). The 12 survey sites around the atoll and transects are done at both 15 and 5 m depth. The marine monitoring programme can be challenging to complete as restrictions from the tides, weather and rough seas can make diving impossible. Nevertheless the staff are always eager to undertake these surveys and they are never dull! All of the sites are unique in their composition and every dive brings with it the possibility of spotting exciting marine species such as turtles, rays or sharks. Even without any of these 'special' sightings the fish life is abundant, with many of the more inquisitive fish species such as groupers bold enough to follow you underwater.

Photoquadrat surveys | SIF

The first two seasons of marine monitoring established a baseline for the composition of the sea bed and fish communities, with monitoring being done each year between November and April. In late 2015 the El Niño weather phenomenon that was occurring meant that the team were expecting high likelihood of a coral bleaching event visible by January 2016 and emphasis was placed on ensuring that all sites were surveyed before the likely bleaching event. In comparison to the previous two seasons, this third season's surveys needed to be completed between November and December before the bleaching was likely to occur. With a massive effort by the team, 11 of the 12 sites had been surveyed by January. During the third season the reefs were found to be in relatively good condition with 20–40% coral cover at many sites and a total of 154 fish species recorded along the transects. A gradual increase in hard coral cover has been recorded over time for the shallow reefs whereas deeper reefs had remained fairly consistent.

CORAL BLEACHING MANAGEMENT PROTOCOL IMPLEMENTED

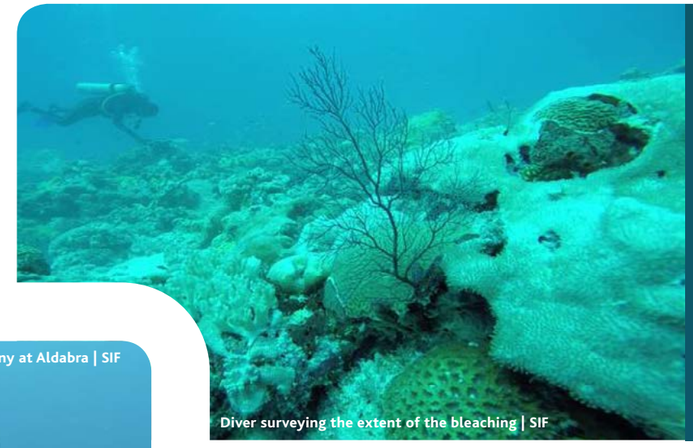
As predicted the expected coral bleaching event was first observed at Aldabra on 8th January 2016 and a response programme was immediately developed and implemented. New methods were required beyond those used for the annual Aldabra reef monitoring because the annual monitoring had no dedicated coral specific surveys (as opposed to whole benthic assemblage surveys, where coral is a part of the monitoring, but not the focus).

Coral bleaching can occur for many reasons, but essentially it comes down to stress on the algae that is living in the coral. If this stress occurs for long enough, the algae will leave the coral. Without the algae, the coral not only loses its primary food provider but also its colour, hence the term "bleaching". Once the coral appears bleached there are two possible outcomes; the stress is removed and the algae returns to the coral, or the stress continues and the algae never return. The former means the coral stands a good chance of recovery although it will probably have diminished growth and reproductive potential. The latter results in the coral eventually starving to death and literally becoming a skeleton of its former glory.

A bleached Porites coral colony at Aldabra | SIF

The coral bleaching management protocol encompassed several stages. The first stage of this process was to assess the extent of the bleaching around Aldabra. The second stage was to tag individual coral colonies from different genera to monitor their health through time. Coral recruitment tiles were installed at survey sites to ascertain recovery potential. We were fortunate to have temperature loggers already installed prior to the bleaching at multiple dive sites and depths around the atoll as part of the marine monitoring programme.

Initial findings from the surveys done in April showed a very high level of bleaching at all locations with 60–99% of all corals being affected. The surveyed corals were categorised into three bleaching levels, with most corals recorded as category two. Bleaching affected all coral genera to differing degrees. The most abundant genus to be affected by bleaching was Porites (a genus of stony corals), which also had the most recently dead colonies. Other genera impacted were Isopora, Acropora, Pocillopora, Goniastrea, Montastrea and Leptoria.



Diver surveying the extent of the bleaching | SIF

At the end of May, after more than a month of cooler temperatures, there had been a substantial change in the reefs. A proportion of the corals were dead and had quickly been overgrown by turf algae. Some corals still appeared to be bleached despite temperatures returning to normal, which meant that they were still alive but lacking their symbiotic algae and therefore remained vulnerable to mortality. Positively, there were some corals which appeared to have nearly or completely recovered from the bleaching, and had returned to their usual colour.

The long-term impact of the bleaching had not been determined as of the end of 2016, but the fact that Aldabra's reefs are under fewer environmental pressures than most areas of coral reef will play a key role in their ability to recover naturally. The full extent of the damage caused by the bleaching event will be assessed during the next season of marine monitoring.

RESEARCH PARTNERSHIP WITH SEYCHELLES FISHING AUTHORITY

In April 2016 the Seychelles Fishing Authority (SFA) and SIF carried out a pilot phase of a potential research partnership at Aldabra to undertake some collaborative marine monitoring.

The SFA vessel RV L'Amitie arrived at Aldabra with a full crew and three members of the SFA research department. One of the aims of the trip was to assist with the response to the coral bleaching event by conducting repeat surveys of the coral reef communities at nine sites around Aldabra. The second aim of this research trip was to extend the data set and sampling collected from Aldabra's subsistence fishery to include valuable information about fish stocks, stock health and genetic connectivity. SFA research technician Maria Cedras was stationed on Aldabra for a week and led the training of the research staff in extracting the otoliths (ear bones) that can be used to age fish; gonad samples for information on spawning productivity and seasonality; fin clips for DNA analysis to assess population structure and connectivity; and liver and muscle samples for analysis of stable isotopes, content of lipids, fatty acids and heavy metals, which will be analysed to determine fish health and information on trophic ecology. The sampling programme will focus on four species caught at Aldabra that are on the priority list of species on the SFA Demersal Management plan. These include; Aprion virescens (Zob Gri/Green Jobfish), Lutjanus bohar (Varavara/ Red Snapper), Epinephelus fuscoguttatus (Vyey Goni/Brown Marbled Grouper), and Epinephelus polyphekadion (Vyey Masata/Camouflage Grouper).

The week was a fantastic opportunity for the two organisations to work together and cement a research partnership for the future. A great deal was achieved but a lot fun was also had with many new friendships made. Our sincere thanks to Captain Gerard Ernesta and his crew for such a successful week.

One of the staff members under supervision by SFA research technician Maria Cedras | SIF

The SIF and SFA staff that were onboard SFA research vessel L'Amitie | SIF

ALDABRA GIANT TORTOISE

Much of the research on Aldabra giant tortoises in 2015 and 2016 was done under the Zurich-Aldabra Research Platform (ZARP) a multi-disciplinary collaboration between SIF and scientists based mainly at the University of Zurich which was initiated in 2011. The main objectives of the platform are to support research into Aldabra giant tortoise population genetics, and to uncover the links between climate, vegetation and tortoises on Aldabra. Under ZARP in 2015/2016 two MSc's were completed by Richard Baxter and Rowana Walton, and one PhD was in process by Wilfredo Falcon. ZARP moved into its second phase in December 2015, when a team from the University of Zurich came for an intense 10 days of field work with the aim of completing a series of drone flights at selected regions across the atoll. The use of these drones will build on our understanding of tortoise habitat use, enabling higher resolution mapping and sensing of focal areas, as well as an increased fine-scale understanding of ecosystem drivers and seasonal climate and vegetation dynamics across the atoll. The drones flights were also a pilot study to assess their use for surveying terrestrial and marine megafauna like tortoises, turtles and dugongs.

Aldabra giant tortoises sheltering from the sun | A Mitchell

LONG-TERM MONITORING DATA ON ALDABRA GIANT TORTOISE SHOWS STABLE POPULATION

A paper published in 2015 in the open-access journal Ecology and Evolution analysed 15 years (1998–2012) of data from the long-term monitoring programme of the Aldabra giant tortoise and found that the tortoise population on Aldabra has remained very stable over this period.

This research built on studies from the 1960s by the Royal Society, allowing trends over the last 40 years to be reviewed. The early work on Aldabra's tortoises found that the island on which a tortoise lived affected not only its size but whether there was sexual dimorphism. No conclusions could be drawn at that time regarding the causes of these differences – was it a result of the earlier harvesting of tortoises for food, or a more natural occurrence?

In the published analysis of SIF's tortoise monitoring data, the researchers investigated whether there were any changes in tortoise population size, density, sex ratio, individual size, and sexual dimorphism between the islands. Positively, Aldabra's tortoise population has remained stable throughout the monitoring period with no sign of the steep declines that had been observed in previous research. Tortoise size differed over time with tortoises on Picard getting larger, while those on all the other islands got smaller. The largest tortoises occur on Picard, and the smallest on East Grande Terre. Males were found to be typically larger than females across the atoll.

The results of this research show that many of the differences between tortoises on different islands of Aldabra are still apparent after 40 years, and that they are likely to be due to differing environmental conditions such as terrain, vegetation, predator communities, and access to fresh water among the islands. More specifically, differences in tortoise size between islands are speculated to be a consequence of limited availability of food or fresh water, which influence the growth and survival of juveniles.

In the current changing climate, and with giant tortoise reintroduction and rewilding programmes underway in the region, further genetic studies of this native tortoise population are necessary to understand how adaptive tortoises are, should their environment change.

The citation details for the paper can be found at the end of the report.

Tortoise hatchling | A Mitchell

MOVEMENT AND ACTIVITY DRIVERS OF AN ECOSYSTEM ENGINEER

Richard Baxter, University of Zurich MSc student under the Zurich-Aldabra Research Platform (ZARP), completed his thesis in 2015 on giant tortoise movement and activity. Richard's research was carried out to understand patterns of Aldabra giant tortoise Aldabrachelys gigantea movement in response to climatic variation, in the context of future climate change effects on keystone species. Giant tortoises are cold-blooded and may be especially vulnerable to climatic changes as their basic life-history traits are related to temperature. Understanding their responses to climatic variation should therefore help to predict and prepare for the effects of climate change.

The Aldabra giant tortoise is an ecosystem engineer, which means that it has significant impacts on its habitat. Changes in the tortoise population therefore could have substantial direct and indirect effects on Aldabra's habitat structure and composition. Richard's project examined the effects of different factors on tortoise (i) home range size; (ii) movement and activity; and (iii) habitat use. He used GPS tags to track 31 tortoises in different regions of Aldabra and from this collected an average of 26 months of fine-scale movement data for each tracked individual.

The movement data so far has shown that tortoise home range size varies considerably between different sexes, seasons and regions. Rainfall and temperature both affect home range size. Movement types appear to be of several different categories but more information is needed to confirm and explore this intriguing finding. Tortoises spent most of their time on grasslands and in scrub areas but this differed between regions and seasons. Tortoises showed a daily pattern of activity with two peaks, one early morning and one late afternoon, which is related to temperature.in response to daily temperature fluctuations. The optimum temperature range for greater tortoise activity is between 25–32°C and above this, tortoises become inactive to rescue the risk of overheating.. Rainfall also appeared to have a strong effect on tortoises' activity patterns over the year.

Richard's research forms an excellent foundation for understanding and predicting the effects of changing climate on this important keystone species on Aldabra. His results provide valuable insights into the movement ecology of the Aldabra giant tortoise, which highlight the need to consider the limiting factors affecting their movements for the management of the atoll in the face of climate change.

Following the completion of his thesis, the next step under the collaboration was to install a camera known as a 'phenocam' in the east of Grande Terre Island. This solar-powered camera system was mounted above canopy level and takes a wide-angle photo of the vegetation at hourly interval. These photos will be analysed with phenocam software, and provide calibrated phenological data that can be used to monitor vegetation changes, e.g. shifts in growing seasons which could be linked with climatic change. This will increase the fine-scale understanding of ecosystem drivers as well as seasonal climate and vegetation dynamics in an area of the atoll that has the highest density of Aldabra giant tortoises.

HABITAT USE AND PREFERENCE OF THE ALDABRA GIANT TORTOISE

Rowana Walton, SIF communications officer at the time and University of Edinburgh part-time MSc student, completed her thesis in 2015 on the habitat use and preference of the Aldabra giant tortoise on Aldabra with the University of Zurich under the ZARP collaboration.

With habitat loss and fragmentation widely recognised as the greatest threats to wildlife, a better understanding of the habitat use of species is critical for conservation management actions. The Aldabra giant tortoise is dependent on Aldabra's vegetation for food, shade and water, making it vulnerable to factors that could cause habitat loss and fragmentation, such as climate change or invasive alien species.

Tortoise fitted with a GPS | R Baxter

Tortoises congregate at Basin Cabris after rain | R Baxter

Rowana used a combination of remote sensing techniques, two years of GPS movement data from 31 giant tortoises (that are being tracked under a parallel ZARP activity, see last section), and a 14-year data set from 12 giant tortoise monitoring transects on Picard, Malabar and Grande Terre, to study the habitat use and preference of the Aldabra giant tortoise.

As part of the study she created a classified terrestrial habitat map of Aldabra with GIS software using satellite images and in-situ habitat reference points. This terrestrial habitat map is the first of its kind for Aldabra using these techniques, and will be used in many terrestrial research programmes on the atoll. The map has eight habitat categories and shows that standard mixed scrub is the dominant habitat type on the atoll.

The GPS tracked tortoises showed a distinct preference for grassland, or 'tortoise turf', despite this habitat only accounting for a tiny proportion of the total land area of Aldabra. Conversely, pemphis scrub habitat was largely avoided by these tortoises. There was not any difference in habitat preferences shown in either the dry or wet season by either the GPS-tagged tortoises or in the analysis of the tortoise transect data.

The results of the thesis suggest that the grassland habitat of the atoll is of high importance to the giant tortoises despite its small proportion of the total habitat composition on the atoll. Rowana's findings indicate that conservation management actions for the tortoises should focus on habitat protection and maintenance particularly of this habitat where possible.

Grassland or 'tortoise turf' is of high importance for tortoises | SIF

GIANT TORTOISE EXCLUSION PLOTS

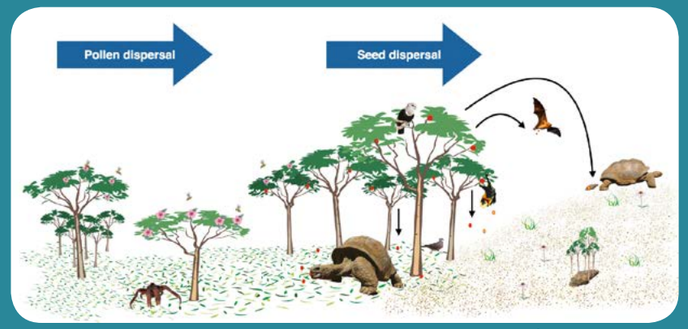
Aldabra giant tortoises are believed to be 'ecosystem engineers', as they are thought to heavily influence their environment by modifying plant communities and vegetation structure. They do this by browsing, trampling, disturbing soil in their resting areas, and dispersing plant seeds.

The exclusion plots keep tortoises out so that their impact on the 'tortoise turf' can be monitored | R Baxter

The density of giant tortoises on eastern Grande Terre is thought to be higher than that of mammalian herbivores found in other grass-dominated ecosystems around the world. In similar studies that have focussed on mammalian herbivores, grazing pressure has been shown to help maintain a high diversity of plants and shape their structure, which in turn affects the animal community. To examine this effect on Aldabra, five exclusion and five control (no exclusion of tortoises) plots were established in 2014 in eastern Grande Terre as part of the ZARP collaboration, to study whether giant tortoises are indeed shaping the 'tortoise turf' plant communities on Aldabra. The turf plant communities on Aldabra are particularly unique, and are dominated by grass, sedge, and herb species. The 25 m2 exclusion plots were constructed to keep giant tortoises out of the plots.

If giant tortoises do influence the turf plant community on Aldabra, we would expect to find lower species diversity and a change in plant structure (e.g. differences in plant height and coverage) in the exclusion plots in relation to the control plots over time. If giant tortoises do not influence the turf community, we would not expect to find any differences between the control and exclusion plots.

After more than two years the difference between the turf plant community in the exclusion and control plots was evident. Compared to the control plots, in which tortoises are free to graze and move around, the exclusion areas had greener and taller plants, with particular species starting to show dominance. This experiment will need to continue for several years before any conclusions can be drawn, but in combination with other ZARP projects, it will shed more light on the role of giant tortoises as ecosystem engineers on Aldabra.



Pollen and seeds are dispersed by different animals, over different distances | W Falcon

ZARP PRESENTATION AT 6TH INTERNATIONAL SYMPOSIUM OF FRUGIVORES AND SEED DISPERSAL

In June 2015, international researchers met in the Drakensberg, South Africa, to share findings on their frugivores and seed dispersal projects from around the world. Dr Dennis Hansen attended and presented the preliminary results of PhD student Wilfredo Falcon's work on the seed dispersal interactions on Aldabra.

In recent years it has become evident that reptile species play a key role as seed dispersers – both on islands and continents. Wilfredo has been working with the University of Zurich and SIF on Aldabra investigating Aldabra's seed dispersal network and especially the role of giant tortoises. A video presentation on the preliminary findings of this work was presented by Wilfredo's supervisor Dr Hansen at the symposium. Wilfredo's early results suggest that the Aldabra giant tortoise and Comoros blue pigeon are the main drivers of the seed dispersal network on Aldabra, but there are several other interesting observations as well, such as the prominent role of the Aldabra tomato (Solanum aldabrense) in the network.

Wilfredo is using S. aldabrense as a model to study the effects of animal-mediated seed dispersal on plant population genetics. S. aldabrense was selected based on his initial network findings, as it is one of the most well-connected plants, with Aldabra giant tortoises, Madagascar turtle doves, Comoros blue pigeons, and Madagascar bulbuls all eating its fruits and potentially dispersing the seeds. A poster of this work was also presented at the symposium.

Comoros blue pigeon | D Hansen

FOSSIL DISCOVERY AT ALDABRA

During the research visit by members of the ZARP group in December 2015 and January 2016, one of the researchers, Dr Dennis Hansen, made an unusual and exciting find on Grande Terre. Whilst visiting one of the dried out pools near the Cinq Cases hut Dennis found many parts of the coral rock that are usually covered in water were laid bare. Lying on the surface and embedded into the coral rock were many fossils. This is not unusual in itself as Aldabra is known to have many fossilised tortoise bones, corals and other marine species on several of the islands. But as Dennis was exploring the area he spotted what looked to be a large tortoise bone fossil lying directly on the surface. On closer inspection he realised that there was a row of large, circular hollows on the other side. It was not a tortoise bone at all but a large piece of the lower jaw of the extinct Aldabra crocodile! The fragment was approximately 12 cm long, which is almost twice the size of any of the fragments previously reported.

Fossilised lower jaw of the extinct Aldabra crocodile | D Hansen

Delighted with this unusual find, Dennis and the team returned to the area the next day and found several more fossil remains of tortoises, sharks, turtles, including some quite large fragments of a turtle carapace, and another smaller crocodile jaw fragment. These fossils are currently lodged at the Seychelles Natural History Museum and will be sent to researchers at the Palaeontological Institute and Museum at the University of Zurich who are world experts in crocodiles and chelonians. They have already confirmed Dennis' identification from the photos taken of the specimens and will be able to provide more information on this exciting find once they have the specimens themselves. An unexpected and exciting discovery like this only demonstrates the number of treasures that are still waiting to be found at Aldabra!

Fossilised turtle carapace edge | D Hansen

MANGROVES

RESEARCH INTO THE DISTRIBUTION AND STRUCTURAL CHARACTERISTICS OF ALDABRA'S MANGROVES

Annabelle Constance completed her MSc in Environmental Science at the University of Zurich, with research focusing on the distribution and structural characteristics of Aldabra's mangroves.

Annabelle conducting fieldwork in the mangroves on Aldabra | SIF

Rhizophora mucronata roots | SIF

The mangrove forests found on Aldabra are the largest area of mangroves in Seychelles and are 16 times bigger than the mangroves at Port Launay on Mahé. In spite of their recognised importance, there is presently limited information on the compositional, functional and structural properties of the mangrove habitat on Aldabra. Mangrove forests occur around almost all the lagoon shores of Aldabra, providing feeding and breeding areas for sea turtles, sharks, fish, shorebirds and seabirds. Mangrove habitat is an important component of Aldabra's listing as a Ramsar Wetland Site of International Importance and a listed value of the site under its UNESCO inscription.

In this research, post-classification change detection using multi-temporal Landsat imagery (1995, 2003 and 2009), was applied to evaluate recent mangrove habitat change trends on Aldabra. It was observed that over time a small net gain of 174 hectares of mangrove area occurred between 1995 and 2009. Mangrove vegetation at their landward margins was seen to be dynamic, with both expansion into new suitable areas and considerable retraction occurring. No substantial retraction of mangrove was observed from the seaward margin, suggesting that mangroves on Aldabra are resilient, and persistent in colonising new suitable areas over time.

To address the research gap on mangrove species structural characteristics on Aldabra, field surveys were conducted in Bras Cinq Cases (27 ha), an extensive mangrove stand on Grande Terre. A total of three mangrove species were surveyed in 39 plots of 5 x 5m in April and May 2016. Structurally, the most dominant species in the stand was Rhizophora mucronata followed by Ceriops tagal and Avicennia marina. There was a large variation in the size structures of measured trees, and the stand density was lower for larger trees and higher for smaller sized trees, while seedling density was 12,308 stems/ha, indicating a high regeneration rate and recruitment potential of mangrove species at Bras Cinq Cases.

These findings imply that conservation management actions should focus on the continued monitoring of mangrove habitat, as a resilient yet vulnerable ecosystem.

Aldabra banded snail | C Onezia

OTHER MONITORING ACTIVITIES

ALDABRA BANDED SNAIL

The thought to be extinct Aldabra banded snail (Rhachistia aldabrae) was rediscovered in August 2014 on Malabar Island (see 2014 annual report for full details). The initial discovery recorded seven individuals and all were found in aestivation (dormant state) on the endemic bwa mamzel (Allophylus aldabricus) tree. In October 2014 a follow up visit recorded a total of 31 snails, including adults, sub-adults and juveniles. All were again dormant, and the majority were found on Allophylus aldabricus trees. An area of approximately 50 m2 was searched, focused around the point of the initial re-discovery.

In 2015 the team returned to Malabar and a total of 38 Aldabra banded snails were recorded, in different life stages and once again strongly associated with the bwa mamzel tree. A similar search area was covered as previously, and it is hoped that more of the snails could be located if a wider survey was conducted in the surrounding habitat.

During this visit in 2015 the team made some more interesting observations of the snails. Early in the morning four snails were seen moving around a bwa mamzel tree and as the sun rose and the temperature increased they became inactive. The snails were monitored over two days and almost all individuals moved at some point during this period, with faeces and fresh tracks seen near some individuals. Another interesting find was that the snails must be tolerant of salty conditions, as three individuals were found on a large bwa mamzel tree within 4 m of the beach where they would have been exposed to sea spray.

A long-term monitoring programme for this re-discovered species is planned to be developed to better understand their ecology and ensure they are not lost again.

Mating green turtles | A Mitchell

TURTLES

A total of 7137 emergences by nesting female green turtles were documented on Aldabra's Settlement Beach in 2015, averaging 19.6 emergences per night. This is the highest number of emergences on record for Settlement Beach and a huge 52% increase since 2008, when the last study was published reporting a substantial population increase! A total of 5135 turtle emergences were recorded on Settlement Beach in 2016 (averaging 14.8 per night). Following on from the highest number of emergences ever recorded on the beach in 2015, 2016 was a relatively quiet year, but it was still the third highest year (2013 had an average of 16.9) since records began in 1998.

The diurnally nesting hawksbill turtles nest seasonally between September and March, predominantly on the lagoon beaches and in small numbers. Track counts of hawksbill turtles are conducted, where possible, every two weeks on the beaches inside the lagoon and also during the daily track counts along Settlement Beach. Hawksbill turtle nesting followed a similar pattern to green turtle nesting, following the peak year of 2015, the 2016 nesting activity was relatively low.

A total of 43 nesting green turtles were flipper tagged in 2015, with 38 previously tagged turtles re-sighted. This is a lower number of turtles than in previous years but there was an increased effort in turtle tagging in 2014 due to the satellite tagging project, resulting in a higher number of encounters.

Fifty-seven nesting green turtles were tagged in 2016, with tagging efforts along Settlement Beach ceasing during non-peak season to reduce effort by maximising efficiency.

In 2015 and 2016, 52 and 32 juvenile turtles were encountered, respectively, during in-water tagging events, most of which were new green turtles. Overall juvenile green turtles are encountered more frequently then hawksbill turtles with over 80% of encounters being recorded as green turtles.

A hatchling making its way down to the sea | A Mitchell

INVASIVE SPECIES ACTIVITIES

After four years SIF's €1 Million EU-funded project on invasive species officially ended in 2015. This project was highly successful at tackling some of the invasive alien species having high ecological impacts in the Vallée de Mai and on Aldabra Atoll. Many achievements were made over the four years, including the verification of the goat eradication, eradication of the red-whiskered bulbul and significant control of Madagascar fody, development of biosecurity plans for both sites, surveys of yellow crazy ants at the Vallée de Mai, detailed research into rat and cat population dynamics on Aldabra in preparation for an eradication, and major progress on eradicating sisal from Aldabra and the ring-necked parakeet from Mahé. Details of this work can be found in the SIF annual reports from 2010/2011 to 2014.

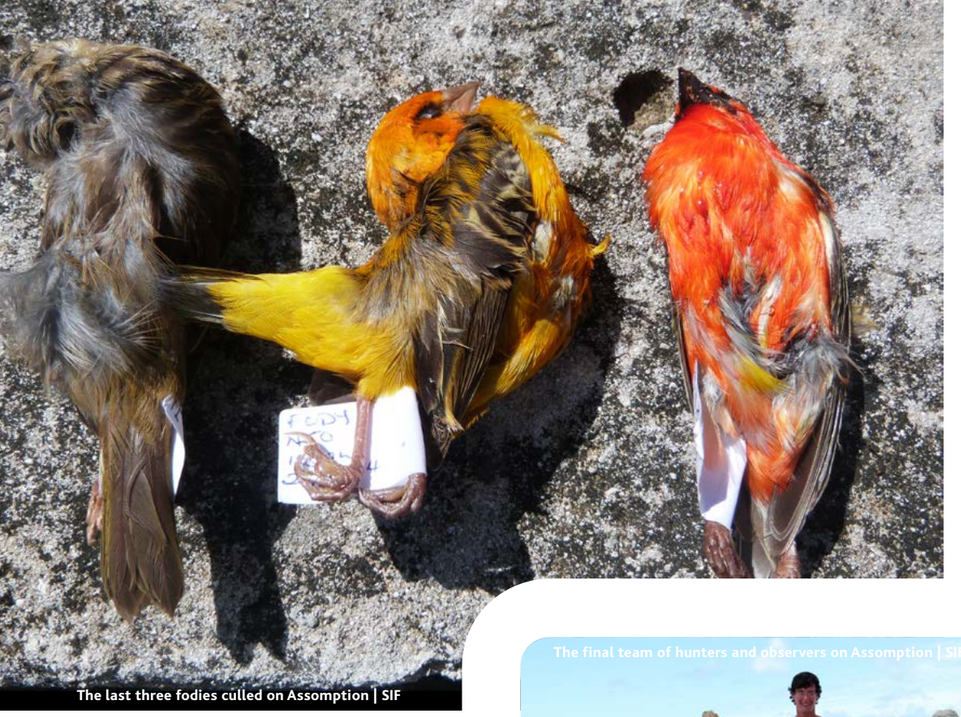
Although the EU-funded project has ended eradication and research are ongoing on several invasive species affecting both World Heritage sites. Further progress was made in 2015 and 2016 towards the eradication of invasive Madagascar fodies from Assomption and Aldabra, the last known Madagascar fody on Assomption was shot in January 2015, with no additional sighting on the island of this invasive species since then so signs are promising for eradication success. One of the last two known introduced Madagascar fodies on Aldabra was shot in January, and the other has not been seen since December 2014. Significant steps were taken towards the eradication and control of invasive plants, including sisal on Aldabra and six new species in the Vallée de Mai. The ring-necked parakeet eradication team was boosted by the addition of two professional hunters from New Zealand and the eradication is continuing to target the increasingly elusive birds. Alarming results were collected on the distribution of yellow crazy ants in the Vallée de Mai, which increased from 46% coverage of the site in 2015 to 74% in 2016, making the control of this invasive species a priority for 2017.

M Sur

ASSOMPTION INVASIVE BIRD ERADICATION

Following the success of the red-whiskered bulbul eradication from the island of Assomption and Seychelles (Assomption and Aldabra were the only islands that this invasive species occurred in Seychelles before eradication), the Madagascar fody eradication neared completion in 2016. The Madagascar fody is the second species to be tackled in this major eradication effort on Assomption, in a bid to protect Aldabra from the threat of the introduced bird species on this nearby island. This threat was confirmed with results published in a scientific paper in 2015 (see p. XX) that the Madagascar fody had hybridised with the Aldabra fody on Aldabra. By the end of 2014 more than 3000 fodies had been culled on Assomption by mist-netting and shooting over a three year intensive eradication effort. Only a handful of birds remained which

Assomption Island | SIF



The last three fodies culled on Assomption | SIF

The final team of hunters and observers on Assomption | SIF

needed to be painstakingly tackled one by one as they became increasingly wary and difficult to target.

After shooting a male fody in January 2015, the team of four staff scoured the island for 2 months and saw no trace of another fody. The team members were then redeployed on other projects to give both them and any remaining birds a short break and to allow any fodies to resume their patterns after the disturbances. A three-week follow-up visit to Assomption by a team of experienced staff was then carried out in April to re-survey the island, check hotspots and search for any signs of remaining fodies. Very encouragingly, not a single fody was seen in this trip anywhere on the island. SIF then removed all staff from Assomption for the southeast monsoon season as it did not make logistical or financial sense to keep a team employed there during the non-breeding season with so few and potentially no birds remaining.

At the start of the landbird breeding season in November 2015 a team of four Aldabra rangers, all experienced in invasive avian species eradication, returned and spent a further three weeks on Assomption to complete an extensive search of the island. Using both point count methods and walking sweep surveys the team covered the whole island several times, spending additional observation time in areas where the last Madagascar fodies were seen. The team also searched every sink hole on the island as this is where the fodies were known to prefer to nest. They happily reported that no sight or sound was made of any Madagascar fodies during their survey.

Throughout 2016, several shorter visits by Aldabra staff transiting via Assomption occurred, with all eyes trained for any signs of the introduced birds and none were seen. A team of two staff from Aldabra visited Assomption Island for two weeks during October 2016 to undertake a comprehensive survey of the island to look for any signs of Madagascar fodies. The team again reported no sign of any Madagascar fodies during their surveys. As of the end of 2016, these follow-up surveys suggest that now, nearly five years since the eradication began, and almost 2 years after the last introduced bird was culled, Assomption no longer has a population of either red-whiskered bulbuls or Madagascar fodies and it is hoped that the eradication will be declared a success in early 2017 after a final visit.

Madagascar fody on the left and Aldabra fody on the right | SIF

ALDABRA INVASIVE BIRD ERADICATION

GENETIC IMPACT OF MADAGASCAR FODY TO ALDABRA AVIFAUNA

Aldabra was the largest tropical island in the world with an entirely native avifauna until 2012, when Madagascar fodies (Foudia madagascariensis) were discovered in the Takamaka area on Grande Terre. The presence of this invasive species was considered a severe threat to Aldabra's avifauna, as potential hybridization between the Aldabra fody (Foudia aldabrana) and Madagascar fody could contribute to the loss of endemic genetic diversity. Additional concerns included competition for food and transmission of novel pathogens from the Madagascar to the Aldabra fody.

Due to this threat, an eradication programme of the Madagascar fody was started by SIF in March 2012 with support from UNESCO's International Assistance programme. As part of this programme, both species of fody were caught using mist-nets and blood samples taken from all birds. SIF's resident researcher Dr Janske van de Crommenacker led the study in collaboration with the Durrell Institute of Conservation and Ecology (DICE), and researchers at the University of Basel and the University of Zurich. The study used genetic molecular techniques to identify whether hybridisation had occurred between the two fody species and also to assess the direction and timing of the invasion of the Madagascar fody to Aldabra.

In the lab, Janske used a combination of genetic analyses to assess whether hybridization had occurred on Aldabra. The results of the study, published in the journal Diversity and Distributions, confirmed that there had indeed been a recent hybridization event between the two species of fody. Furthermore, through modelling techniques and comparing different hybridization scenarios to assess the direction and timing of the invasion, it was shown that the Madagascar fody population on Aldabra had originated from the neighbouring island of Assomption, where the birds had been introduced in the 1970s for decorative purposes. The research suggested that the arrival of the Madagascar fody on Aldabra pre-dates the SIF led eradication programme on Assomption (i.e. the eradication activities on Assomption did not cause the Madagascar fodies to fly to Aldabra – they were already there). Over the past few years the Madagascar fody eradication programmes on Aldabra and Assomption have made great progress, andvit is hoped that both islands will soon be declared free of this invasive species.

The citation details for the paper can be found at the end of the report.

ERADICATION EFFORTS ON ALDABRA

After the first two successful seasons targeting the introduced Madagascar fody population at Takamaka on Grande Terre, the main priority for the third eradication season in 2014/2015 was to implement a fine-scale survey to estimate the number of remaining fodies. The 'Takamaka season' coincides with the landbird breeding period of October–April, which is the best time to detect and target introduced Madagascar fodies, and distinguish them from endemic Aldabra fodies.

The three-month survey started in November 2014, with point counts completed in a grid pattern which covered an area of approx. 8 km2. This included the known core area of the invasion plus a substantial margin around the edges of the invaded area with no invasion. By February 2015, the survey was completed and only two Madagascar fodies had been encountered by the team.

The small number of Madagascar fodies recorded indicated that the previous seasons' eradication efforts had been highly effective. One of the two detected fodies was culled in January 2015, and the other, now legendary fody "Rasputin", was last seen in December 2014. 'Rasputin' was not seen again and it is suspected that he may have died naturally. In addition to 'Rasputin' it was possible that there were a few female Madagascar fodies remaining in the Takamaka area, which may not have been picked up by the survey, as the females are more difficult to detect and distinguish from Aldabra fody females and juveniles.

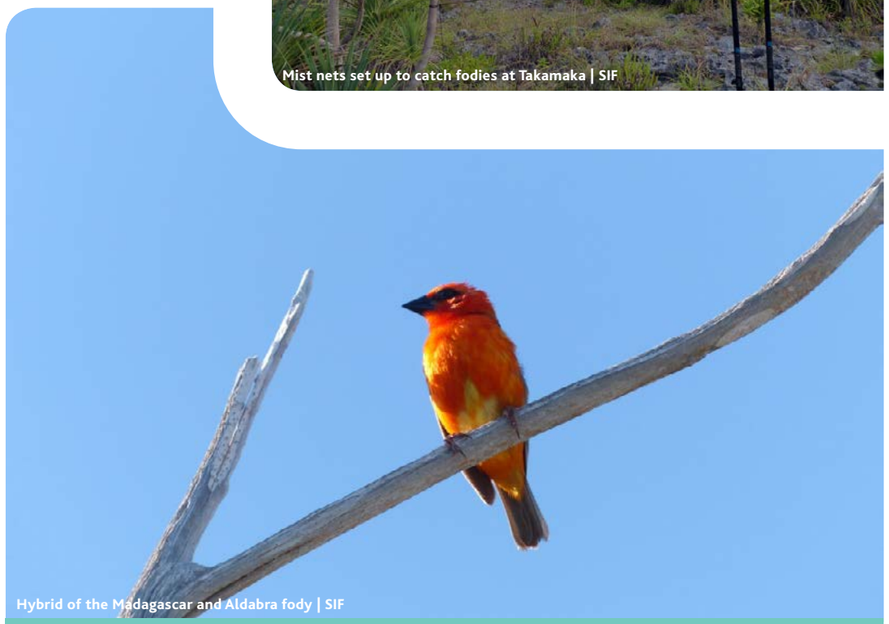
The team returned again at the start of the next breeding season in October 2015 to search for these remaining Madagascar fodies with a three week survey. During this fine-scale survey the team were delighted to report that there were no sightings of any Madagascar fodies.

A small team visited Takamaka in April 2016 to search for any remaining introduced fodies in the area. The team spent 10 days at Takamaka, conducting fine-scale sweep surveys in selected areas looking for any signs of these birds. The weather conditions at Takamaka during the visit were unfortunately not favourable for the surveys. A strong south-easterly wind and heavy rain affected the behaviour of the birds and they flew low, remained silent and/or stayed amongst dense foliage. This made detecting Madagascar fodies more difficult for the team. The Aldabra fodies at Takamaka were coming to the end of their breeding season and showing various moulting stages, which made it more difficult to distinguish the two species. However, the team was confident that they did not encounter any Madagascar fodies either by sight or sound, and no Madagascar fody nests were located.

A third follow-up trip was made in November 2016, and promisingly, once again no Madagascar fodies were detected. The team did spot a few fodies which appeared to be hybrids of Madagascar and Aldabra fodies, which are known to occur in the area of former Madagascar fody presence. Reassuringly, the team observed the endemic Aldabra fody population to be abundant across the area and all bird sightings were confidently identified with no ambiguity over species identification.

A fourth post-eradication trip is planned early in 2017, 2 years after the last known Madagascar fody on Aldabra was culled, and should this trip yield no sign of Madagascar fodies, we hope that we will soon be able to declare the eradication a success.

Mist nets set up to catch fodies at Takamaka | SIF



Hybrid of the Madagascar and Aldabra fody | SIF

SISAL ERADICATION ON ALDABRA

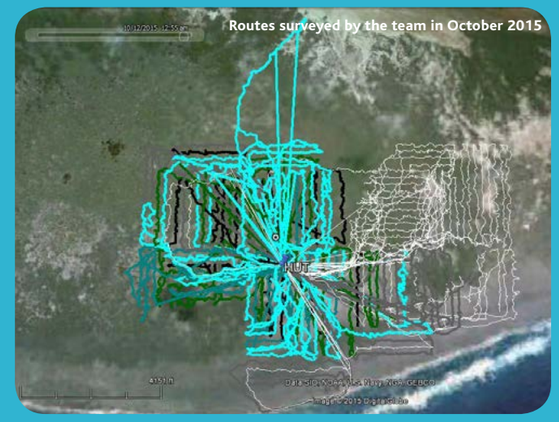
SIF paper published on control methods of invasive sisal

In 2015, the online journal Conservation Evidence published an SIF-authored paper on the effectiveness of different herbicide concentrations and application methods for the control of invasive sisal (Agave sisalana) on Aldabra. Experimental trials were done over a 7-month period in 2013/2014 to determine the most effective and least disturbing control method for the full eradication of this invasive species.

The application methods trialled were plant specific, therefore there was no general spraying of any plants other than sisal and care was taken to ensure that herbicide did not come into contact with other plant species or the soil. Individual sisal plants were allocated different 'treatment groups' and treated with varying concentrations of herbicide. The herbicide solution was either sprayed on the plant or applied directly to the cut growing tip. There was also a 'control' group which did not receive any herbicide treatment.

The trials found that only a high herbicide concentration applied directly to the growing tip of the plant killed adult plants. Smaller plants could also be killed with lower herbicide concentrations but spraying was shown to be completely ineffective in controlling sisal. Fortunately even at the high concentration needed to kill adult plants there were not any negative effects on the surrounding native vegetation.

The success of eradicating sisal from Aldabra relies on this carefully conducted preliminary trial, the results from which were used to guide the full eradication. The findings should also be useful elsewhere for control or eradication of this invasive species.



Routes surveyed by the team in October 2015

The citation details for the paper can be found at the end of the report.

ERADICATION OF SISAL FROM ALDABRA NEARING COMPLETION

Sisal is considered an invasive alien species as it can spread quickly and create impenetrable 'stands' where other plants cannot grow. The plant also out-competes other native flora, reducing available habitat and biodiversity as well as food sources for other wildlife. Sisal was likely introduced to Aldabra by early settlers for the use of its tough hemp-like fibres and has since spread at several locations on the atoll.

Efforts to remove sisal from Aldabra have been ongoing over the last 40 years at the four locations where it is known to occur; Picard (at the old settlement), Anse Polymnie, Anse Malabar and Ile Michel. Previously the method of uprooting, removal, and burning had been successful in areas where staff reside close by or that are regularly visited (e.g. the area near to the research station on Picard). Sisal, however, is a hardy plant, tolerating a wide range of soil conditions and able to thrive in harsh, dry, saline conditions. Because of the plant's ability to spread vegetatively (via roots or fertilised plantlets), if any plant material or roots are left in the rock or ground this can lead to re-sprouting. Therefore thorough research into the most effective and practical control method and follow up regime for the eradication of sisal at Aldabra was undertaken first (see article above).

The survey team for the final trip in 2016 | SIF

Dense sisal patch at Ile Michel in March 2014 | SIF

Several visits were made by the Aldabra team in 2015 to the four locations at Aldabra where invasive sisal plants had previously been treated in 2013 and 2014. Visits were made to Picard, Anse Polymnie, Anse Malabar and Ile Michel in January, April, August and November 2015. At the first three sites the team was delighted to report that they did not see any re-growth of the plants on any of the visits. Ile Michel, which had the largest stand of sisal originally, was unfortunately found to have a small amount of regrowth of sisal plants in April and November. These plants were treated with herbicide again.

In early January 2016 the team again visited Ile Michel to reapply herbicide to the 31 small plants that were found, and follow-up visits were made in May, September and December 2016. In December 2016 just four shoots were found, and these will be treated in January 2017. It is likely we are now approaching the end of the very long story of sisal invasion on Aldabra. To be 100% certain the team will continue to be vigilant with this extremely resilient invasive and further checks of the area will need be made before we can confirm the eradication of this species from Aldabra... Certainly the outlook for the successful completion of this eradication is very promising and a further update will be given in 2017.

Area from which a dense stand of sisal was removed, photographed in January 2016 | SIF

In January 2016 31 small sisal plants were found at Ile Michel | SIF

RING-NECKED PARAKEET ERADICATION ON MAHÉ

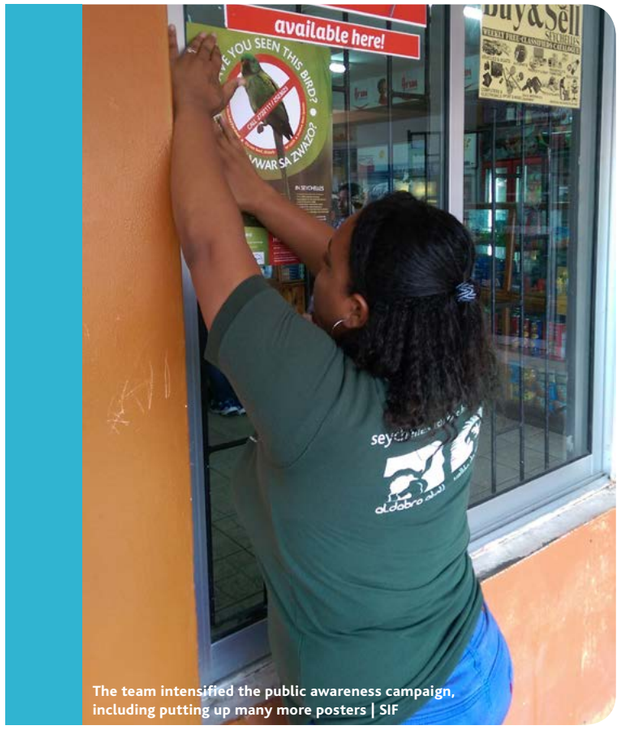
Work continued on the ring-necked parakeet (kato ver) eradication programme in 2015 and 2016, with excellent progress made to take the project into its final stages.

In January 2015, the ring-necked parakeet team visited Praslin for a second time to search for signs of a parakeet that was reported on the island. They spoke to those who had reportedly seen the bird and surveyed key points on the island but did not see any ring-necked parakeets. The presence of the species of Praslin therefore could not be confirmed and it was decided to not pursue this until more evidence or reliable observations come to light.

In January and February 2015, with an estimated 80–90 parakeets remaining, the team was boosted with the addition of two professional hunters from New Zealand, Jesse Friedlander and Nick Page, a recent graduate from the Maritime Training Centre, Nyara Anacoura, returning Assomption eradication team leader Jessica Moumou, and new volunteer Chris Tagg. With two professional hunters on the team, as well as a committed observation team, they focussed on feeding areas where the parakeets could easily be targeted. As a result of the decreasing parakeet population, the team's strategy and tactics had to continually adapt according to changes in the birds' behaviour. This was possible thanks to the kind landowners who allowed the team access to their private property

The team also intensified their public awareness campaign to reach a wider number of the people on Mahé. This included educational talks at local schools, a presentation at the SIF symposium and many more posters being put up in known and suspected parakeet areas. Two members of the team were also interviewed about the project on two local radio stations. These activities were invaluable in gathering more information from the general public about the location of the remaining birds. The team also used this awareness campaign to provide more information about the species itself. The information procured from the public is of vital importance for the last and elusive birds to be targeted.

At the end of 2016 the number of birds culled was 547 since the project started, with the last known wild ring-necked parakeet on Mahé shot in May 2016. However it is too early to say with certainty that the species has been entirely eradicated from the country, as any remaining birds would likely be the most elusive and intelligent individuals. The team is making fantastic progress with this ambitious eradiation project and we hope that with the public's help once again we can eliminate this threat to Seychelles' national bird, the Seychelles black parrot. Warm thanks also to our partners; the Environment Department, the Police Special Services Wing, the Seychelles Peoples Defence Force and not forgetting all those members of the general public who provided information, access to land, great conversation, cups of tea and even bags of fruit (see next item)! We very much hope to be able to announce the eradication of this bird from Seychelles in the not too distant future, and the assistance of the public and our partners on Mahé is integral to this success.



The team intensified the public awareness campaign, including putting up many more posters | SIF

Team members were interviewed for local radio stations | SIF

RING-NECKED PARAKEET ERADICATION SUPPORTERS THANKED IN A SPECIAL EVENT

An event hosted by SIF and the Department of Environment was held on 9th December 2016 at El Coco Café in the National Botanical Gardens to acknowledge the contribution of key members of the public and SIF partners to the success of the ring-necked parakeet eradication project.

Members of the public who have supported the eradication were awarded tokens of appreciation | SIF

Overwhelming support was received throughout the project by people across Mahé and even on Praslin and Silhouette. They allowed access to their properties for bird observations, mist-netting and shooting. Many of them remained in regular contact with the eradication team to report movements and activities of birds near their properties. The Defence Forces and the Public Security Support Wing of the Police also assisted SIF as field escorts and for the safe storage of firearms. The contribution of these stakeholders was vital to the progress of the eradication project on Mahé. SIF therefore organised the event to thank key people and partner organisations for their contributions. The event was attended by the Minister for Environment, Energy and Climate Change Mr Didier Dogley; SIF trustees; and representatives from the Department of Environment. Also in attendance were project funders Environment Trust Fund Seychelles; previous project team members; members of the Police force and the Seychelles People's Defence Force; and several members of the public who have greatly assisted the eradication efforts.

Removing vya tang from the Vallée de Mai | SIF

Philodendron creeper before treatment (left) and after (right) | SIF

Cinnamon has been found to be the most resistant to control methods | SIF

INVASIVE PLANT SPECIES AND BIOSECURITY IN THE VALLÉE DE MAI

A notable achievement in 2015 in tackling invasive and introduced plants in the Vallée de Mai, was the large-scale removal of another six plant species from the site. These were cinnamon (Cinnamomum verum), strawberry guava (Psidium cattleianum), bwa ber (Pentadesma butyracea), coco plum (Chrysobalanus icaco), rubber tree (Hevea brasiliensis), and vya tang (Dieffenbachia seguine). This tremendous achievement was combined with the simultaneous uprooting of the saplings of the six previously managed tree species; santol (Sandoricum koetjape), lagati (Adenanthera pavonina), jackfruit (Artocarpus heterophyllus), bwa zonn (Alstonia macrophylla), albizia (Falcataria moluccana) and kalis dipap (Tabebuia pallida).

Trees and saplings of all of these species were also checked every two months by the team to monitor the effectiveness of the control treatment. The checks included the survival, health state, defoliation and also any defensive responses to control methods shown by the trees. The team found that, so far, cinnamon has been the most resistant to the control methods and bwa zonn the most receptive. Where necessary they reapplied or adapted the control methods for the trees. For example, some of the trees that were initially only ring-barked were showing signs of defence responses, such as bark re-growth, re-sprouting and aerial roots. To prevent these trees from recovering it was decided that the trees should be controlled using another method as the ring-barking was not as effective as hoped. The trees had holes drilled into the trunks or stems into which herbicide was applied, and the holes were then sealed. These trees will continue to be monitored and it is hoped that this new method will be more effective and that in doing so we will identify the most effective control method for each species.

The team have also applied the results of a leaf litter experiment conducted in 2014 to their work. Initial results from this experiment suggested that palm leaf litter limits the growth of invasive plants while benefiting the growth of natives. Palm leaf litter is now being used at the stewardship scheme plot where a large number of invasive plants have been removed and endemic or native plants planted in their place. Early indications from this area are that the leaves are preventing the regrowth of invasive plants and allowing the new native seedlings to grow, which is promising for a broader application of this method.

Although the EU-funded project officially ended in 2015, the hard work and positive results of Praslin's invasive species team in combatting these invasive plants in the Vallée de Mai is continuing as their work is gradually integrated into Vallée de Mai operations and management.

In 2016 the team focussed their attention on the virulent Philodendron creepers. Early in 2016 a small trial on control methods for this species was conducted, and based on the results the team started controlling the creepers inside the Vallée de Mai. To do this the stalk is cut at the base of each plant and inserted into a bag of herbicide. The herbicide used is readily biodegradable in the local environment. It is also a selective translocating herbicide which means that it doesn't affect other surrounding plants and is moved to all other parts of the creeper through the plant's vascular system.

To make sure there are no non-target effects, the herbicide is triple bagged around the cut stem and secured tightly with elastic bands to the stem, and finally sealed with tape so there is no leakage or spillage, and no animals can accidentally enter the bag. It is hoped that this method will show promise as a large-scale control method for these plants

Yellow crazy ants | John Tann

ANNUAL YELLOW CRAZY ANT SURVEY

In 2015 and 2016 the Praslin invasive species team conducted the annual survey of yellow crazy ants in the Vallée de Mai using the pitfall trap method that was trialled in 2014. The aims of the survey are; to monitor the distribution of yellow crazy ants within the Vallée de Mai over time, relate the distribution to ecological (e.g. other ant species, relationships with scale insects) factors, and explore the hypothesis that the relationship between other ant species and scale insects is limiting the spread of yellow crazy ants through the Vallée de Mai.

At each survey point, a pitfall trap is set up, consisting of a plastic bottle partly buried in the ground with slots in the side, filled with a sugar, soap and ethanol solution. After 24 hours the team collects the traps and recorded the humidity and temperature of the site. The team also records the ant communities on trees with and without scale insects. Back at the office, the traps are examined and the number and identity of the different species caught recorded. In addition to yellow crazy ants and other ant species, other insects (e.g. mosquitoes) and organisms (e.g. scorpions) are recorded.

During the 2015 survey yellow crazy ants were present in Of the 50 core sites that had been surveyed since 2009, 23 points had the ants present, which is one less point than the 2014 survey and indicated no significant expansion. The 2016 results, however, indicated that crazy ants were present at 37 of the 50 sites, representing 74% of the Vallée de Mai, and a major increase in distribution from the 46% coverage found in 2015. The 2016 distribution included new areas of crazy ant invasion to the west of the Vallée de Mai.

The findings of the 2016 survey were alarming, and urgent action is required as they are likely to spread further. The known impacts of yellow crazy ants both from Seychelles (on arboreal molluscs and geckos in the Vallée de Mai) and elsewhere (on seabirds, crabs, land birds and leaf litter) strongly suggests that they will have detrimental effects on the biodiversity of the Vallée de Mai within a short time and further research and control of the species are therefore high priorities for 2017.

Setting pitfall traps | SIF

EDUCATION & OUTREACH


School visit to the Vallée de Mai | SIF

The strong tradition of SIF involvement in education and outreach activities continued in 2015 and 2016.

EDUCATION

FRIENDS OF VALLÉE DE MAI CLUB

In 2015 and 2016 respectively there were 119 and 121 children enrolled in the Friends of Vallée de Mai club from all four schools on Praslin (Praslin Secondary, Grande Anse Primary, Baie Ste Anne Primary and Vijay International), this amounts to over 5% of the school children on Praslin, it is fantastic to see many new club members joining each year.

SCHOOL ACTIVITIES

In 2015 a total of 461 students of 10 school groups, visited the Vallée de Mai from eight different schools. This number was more than doubled in 2016 with 1146 students of 19 school groups from 15 different schools visiting the Vallée de Mai. The large increase is partly a result of visits organised by the Seychelles National Youth Council. The students had a 45 – 60 minute guided tour of the Vallée de Mai forest and depending on the purpose of a visit a short presentation or educational activity with the SIF education and outreach programme officer. The large number of students visiting the Vallée de Mai is an extremely encouraging sign and we will continue to welcome all schools that are interested.

As part of SIF outreach efforts in schools five presentations were given in four different schools in 2015, with nine presentations given in five different schools in 2016. The presentations were on a variety of subjects including migratory birds, water conservation and invasive species.

In 2015 SIF also held a poster competition in the public schools on coco de mer poaching. The competition was open to primary and secondary students and asked students create a poster on the threat of poaching to the coco de mer. We received a good number of entries from several schools and the judges were impressed with the insight that the students showed into this issue.

In 2016 the SIF competition was a postcard and a powerpoint presentation competition in the primary and secondary schools on Mahé, Praslin and La Digue. The theme of the competitions was "the importance of the Vallée de Mai to Seychelles" and was launched with the aim of encouraging students to recognise the ways in which the Vallée de Mai contributes to the Seychelles economy. These competitions are a fantastic way to enable the children to engage in important subjects and demonstrate their creativity.

HOLIDAY CAMP HELD EACH AUGUST AND DECEMBER

Each August and December during the school holidays SIF holds a holiday camp programme. These week-long programmes include a variety of activities to raise their awareness about different aspects of the Vallée de Mai, Aldabra and the environment in general. Common topics include the endemic birds of Seychelles, the flora and fauna of the Vallée de Mai, how to reuse and recycle materials found in the environment, seeds and how plants grow, invasive species and threats to biodiversity. The topics are taught with presentations, outdoor activities like bird watching, and arts and crafts. The August and December 2015 holidays camps hosted 19 and 14 children respectively, with the 2016 camps increasing in number of participants to 24 and 34 children at each camp. The December camp is extra special each year as it concludes with a Christmas Carol Concert.


Holiday Camp | SIF


Holiday Camp | SIF

Holiday Camp | SIF

ECO-SCHOOLS TRIP TO ALDABRA

During March of both 2015 and 2016 two groups of school students had an unforgettable opportunity to visit Aldabra. Each group consisted of 12 very lucky students who, as winners of the 2014 national Eco-Schools competition, were proud recipients of an SIF-sponsored prize to visit Aldabra Atoll for five days. This national annual prize has been sponsored by SIF for many years but has not been possible to run for five years because the risk of piracy in the outer islands was considered too great a threat to the visitors. SIF was therefore delighted to be able to resume our support of this important initiative in 2015 and continue the visits.


Eco-Schools trips to Aldabra | SIF

The national Eco-schools competition is coordinated by the Environmental Education Unit at the Ministry of Education. All schools in Seychelles are encouraged to participate by engaging in environmental activities, conduct environmental projects at school and generally adopt more environmentally friendly practices at their school. At the end of the year each school presents the achievements they have made to the judges. The 2014 winning schools that were awarded the 2015 trip to Aldabra were Beau Vallon Secondary (first), Anse Royale Primary (first), English River Secondary (second), Bel Ombre Primary (second), Plaisance Secondary (third) and Anse Etoile Primary (third). Winner of the Best Club member award in the Friends of Vallée de Mai Club on Praslin, Jessica Farabeau, also had the opportunity to join this group and visit Aldabra. The 2015 winning schools who visited the atoll in 2016 were Beau Vallon Secondary (first), Anse Royale Primary (first), Plaisance Secondary (second), Anse Etoile Primary (second), English River Secondary (third) and Bel Ombre Primary (third). The winner of the Best Club member award in the Friends of Vallée de Mai Club on Praslin was Ella Pierre.

Each year the Aldabra team plans many activities for the children so that they can learn and experience as much of Aldabra as possible. These include boat trips into the lagoon to see the frigatebird colony, encountering many green turtles along the way and joining the research staff to participate in the coconut crab monitoring. They also receive presentations from the staff on a variety of subjects, undertake beach cleaning on Picard, snorkel, and take part in turtle nesting patrols among many others. The most popular encounter is usually seeing and swimming with blacktip reef sharks in front of the research station.


Eco-Schools trips to Aldabra | SIF


Eco-Schools trips to Aldabra | SIF

OUTREACH

Outreach activities in 2015 and 2016 reached a large local and international audience with events taking place on Praslin and surrounding islands, La Digue and Mahé. A large number of theme days highlighted the links between people and the environment. SIF participated in several festivals and expos, sharing Aldabra, the Vallée de Mai and the foundations' work with the public.

THEME DAYS

SIF celebrates several theme days though out the year. World Wetlands Day was celebrated in 2015 in a joint activity with Constance Lemuria Hotel. A group of schoolchildren from Praslin went on a tour of the Constance Lemuria wetland and then planted mangrove seeds. Each child was given three mangrove seeds to plant across the wetland area. After this activity they got creative and drew pictures of how they would like to see the wetland in the future. They also had their faces painted with their favourite wetland species. In 2016 the day was celebrated in partnership with PUC (Public Utilities Company), and the Department of Environment on Praslin. A group of children from the Friends of Vallée de Mai club engaged in mangrove planting in the wetland area of Anse Severe on La Digue.

Mangrove planting for International Biodiversity Day 2015 | SIF

For **WORLD WATER DAY** in both 2015 and 2016 SIF collaborated with PUC, in 2015 children from the Friends of Vallée de Mai club on Praslin and school children from La Digue participated in a water conference, presentations mainly focussed on ways that participants could conserve water both at home and work. After the presentations the children broke out into groups to write a pledge on how they would help conserve water at their schools and at home. These pledges of commitment were then read out to the audience. In 2016 a group of students visited the Vallée de Mai where they diligently collected specimens of each of the species that live there. The species were carefully placed in clear plastic bowls where children took turns to observe them. They were provided with magnifying glasses to enable them to observe the species closely and identify them from a poster. To help the students understand the link between the rivers of the Vallée de Mai and the PUC water treatment station, a visit to the station was also organized for them. The students had a guided tour with a member of PUC staff and they received detailed information about the different stages of water treatment.

EARTH DAY in 2015 and 2016 was celebrated with a visit for a group of Friends of the Vallée de Mai club members to Curieuse Island in 2015 and Cousin Island in 2016. In 2016 the Vallée de Mai team also organised a night safari of the forest that aimed at exposing participants to the nocturnal species of the Vallée de Mai. A large variety of species were seen on the night safari, including chameleons, tree frogs, giant bronze geckos, slugs, crayfish and crabs.

For both years International Biodiversity Day was enjoyed in the Vallée de Mai with a series of activities available to visitors. These included the popular 'guess the weight of the coco de mer' game, a biodiversity riddle quiz, face painting, a display of specimens of species found in the Vallée de Mai, and different interactive educational stations set up in the reserve for visitors to learn about the unique biodiversity of the Vallée de Mai reserve.

WORLD ENVIRONMENT DAY 2015 was marked by an 8km march to raise awareness about the issue of coco de mer poaching in the Vallée de Mai and elsewhere. The turnout surpassed expectations with over 150 participants joining the march. The event was extremely popular with participants requesting that it be held again! In 2016 SIF organised a unity walk on Praslin where members of the two districts on Praslin came together to symbolise the unification of these two communities on Praslin. It was wonderful to see that over 350 people from Praslin participated in the unity walk to show their support not only for the environment but as a gesture of unification. SIF and the Seychelles National Youth Council

World Environment Day march in 2015 | SIF

were the lead organisers for the event, but many of SIF's other partners also participated. There were two points of departure for the unity walk, starting at opposite ends of the island the two groups made their way from the two districts singing and chanting, until they met at the Vallée de Mai visitor centre.

In recognition of the importance of tourism for the conservation of both the Vallée de Mai and Aldabra, **WORLD TOURISM DAY** is celebrated in the Vallée de Mai with a full week of activities. In 2015 the day was celebrated under the theme "1 billion tourists, 1 billion opportunities" and SIF took the opportunity to officially open its newly designed education centre at the Vallée de Mai. This new education centre was also the location of an art exhibition by local artists, in collaboration with the Small Enterprise Promotion Agency (SeNPA) to showcase the link between sustainable tourism and biodiversity conservation.

To start off the activities for the visitors, 10 visitors received complimentary tickets to the Vallée de Mai. The visitors could also learn more about the endemic Seychelles black parrot at a special 'black parrot station'. On the last day of the week there was live entertainment to welcome visitors to the visitor centre and they were offered free guided tours in German, Italian, French or English. The theme of World Tourism Day in 2016 was 'tourism for all', reflecting the importance and immense benefits universal accessibility has. With many of the same activities as in 2015, this year visitors were also offered the 'guess the weight of a coco de mer nut' game and a special promotion in the souvenir shop.


Arts and crafts at the Seychelles Sea Turtle Festival | SIF

FESTIVAL & EXPO PARTICIPATION

As a proudly active member of the Seychelles environmental community, SIF frequently joins other organisations in participating in National festivals and expos. **THE SEYCHELLES SEA TURTLE FESTIVAL** is held in August each year and brings together organisations working in sea turtle research and conservation, to promote collaboration and help celebrate and protect Seychelles' sea turtles. In 2015 and 2016 the festival was held at Beau Vallon, Mahé, with displays and activities by a number of organisations. For both years SIF sponsored a group of Friends of Vallée de Mai students to travel from Praslin to Mahé to participate, and hosted a stand each year to help raise awareness amongst children and adults alike on the dangers that sea turtles face in Seychelles. The SIF stand gave children the opportunity to make their own sea turtle habitat and scene.

The SIF stand at the 2015 National Expo on Praslin | SIF

In 2015 SIF participated in the Mahé **NATIONAL EXPO** with a stand in the 'Eco-village' area that was organised by the Ministry of Environment, Energy and Climate Change. The SIF stand attracted a large audience over the three days of the show with an estimated total of 500 people visiting. A range of items from the Vallée de Mai and Aldabra were on display, including a coco de mer nut and catkin, prickly purse of the palmis, and Aldabra giant tortoise bones and scales. Several interactive games were also on offer on the SIF stand, and by far the favourite was the 'coco de mer challenge'. Members of the public were challenged to hold an entire coco de mer nut, the largest seed in the world, for as long as possible. People were invited to make a coco de mer 'pledge' on how they thought they could help protect this endemic palm, particularly in relation to coco de mer poaching. The game 'Guess the invasive species' was a great way to educate people on what an invasive species is and that even some of the commonest species in Seychelles (e.g. the Indian Mynah Bird) are not native. An Expo was also held on Praslin and the Vallée de Mai team participated. To bring the Vallée de Mai to the public the forest was recreated in the stand. Endemic palms and leaves lined the stand to create the forest canopy whilst playing in the background was the sounds of the streams and birds in the forest. The stand's position at the entrance to the expo meant that over 5000 people, including the President of the Republic of Seychelles, James Michel, passed through our stand.


The team welcomed visitors to a re-creation of the Vallée de Mai | SIF


Children learn from senior citizens at Creole Festival | SIF

In 2016 the 40th anniversary of Seychelles' independence was commemorated with a grand, four-day National Expo. The SIF stall in the Expo's 'Eco Village' received many visitors, both local and international. Many of these visitors participated enthusiastically in the various activities organized. VIP visitors to the stall included Mr Didier Dogley, the Seychelles Minister for Environment, Energy and Climate Change, and Mr Tim Sands, renowned conservationist and editor of the recently published 'Aride Island – Tread Lightly' book. At the SIF stand the 'Take your Aldabra selfie' activity against a backdrop of the island's champignon landscape turned out to be a crowd pleaser, with many people participating and posting their shots on social media. As was the case in 2015, men and women, young and old, put their strength to the test with the 'coco de mer challenge'. For the first time, an 'Aldabra House' banner provided an overview of this upcoming project to the public and this was a topic of much interest. A short survey was also conducted in English and Creole to gauge public awareness of SIF's work. The Expo provided an excellent opportunity to interact with the local public as well as SIF's well-wishers, and share information about SIF's on-going projects at the two World Heritage sites of Seychelles.

Outreach at the 2016 National Expo on Mahé | SIF

CREOLE FESTIVAL is one of the most important events in Seychelles calendar of activities, for a week each October special events and activities spotlight Seychelles' traditional and culture. SIF participates in this national celebration every year, with the aim of sharing Creole culture with the visitors to the Vallée de Mai. Antique household items are on display on the deck, with tour guides embracing the challenge of explaining their origins and use. Traditional house design and building materials are on display to demonstrate the evolution in the construction of houses in Seychelles. Local artisans are invited to the Vallée de Mai to display and sell their products to visitors, and at the Kokosye café visitors have the opportunity to try traditional local drinks and Creole snacks such as gato bannann, gato mayok and moukat. Activities are organised for groups from local schools and from the Praslin community are also invited to participate activities. In 2015 the Vallée de Mai was chosen to host the launch of the 30th edition of Creole Festival on Praslin.

SIF SYMPOSIUM

In April 2015 a research symposium was held by SIF on Mahé. This symposium presented research and conservation work from both Seychelles' World Heritage Sites, the Vallée de Mai and Aldabra Atoll, and was a chance to share with the wider scientific community and the general public the advances in research that are being made by SIF, and the importance of continuing protection for these sites.

The symposium was opened by the Principal Secretary for Environment, Energy and Climate Change, Mr Alain de Commarmond, who in his opening remarks shared his personal connections to these two World Heritage Sites and his excitement at learning more about some of the work that had been conducted by SIF in recent years. Two SIF staff members and recent graduates from the BSc Environmental Science course at the University of Seychelles, Vicky Stravens and Annabelle Constance, led the symposium. The results of both of their theses were also on display at the symposium, and Annabelle gave a presentation on her BSc dissertation on coco de mer leaf growth. It was excellent to have these young Seychellois graduates leading this symposium and they will hopefully serve as an inspiration to other young aspiring conservationists.


The SIF Symposium | SIF

Presenters taking questions from the audience | SIF

A range of SIF research projects were presented at the symposium with titles including: 'Coco de mer: translating research into management', 'Ring-necked parakeet eradication: Why? How? And where are we now?', 'The new Aldabra marine monitoring programme: what can it tell us?', and 'Using genetics as a conservation tool: Are Madagascar and Aldabra fodies hybridising?'. There was great engagement with the audience with lively question panel sessions after each group of presentations

The symposium had a fantastic turnout of over 130 people, including local NGOs, government departments, SIF board members, SIF staff, researchers, conservationists, teachers, university and school students and other interested individuals. This is the highest attendance to date of any SIF symposium or presentation and we hope reflects the public's growing interest in Seychelles' two World Heritage Sites and the environment in general. It was rewarding to see that a large proportion of the audience was comprised of secondary school and university students. We hope that by seeing some of the young Seychellois SIF staff present their work at the symposium that these students may be inspired to follow them into a similar field.

VIP VISITS

PRESIDENT OF PALAU

The Vallée de Mai had the privilege of welcoming the President of Palau, Tommy Remengesau, to the World Heritage Site in July 2015 as part of a three-day visit to Seychelles. President Remengesau was accompanied by SIF Chairman, Ambassador Loustau-Lalanne, and CEO Dr Fleischer-Dogley, as well as the Minister and Principal Secretary of Environment, Energy and Climate Change. The delegation took a leisurely walk in the forest and the President was delighted to see the de-husking of the infamous coco de mer. Before his departure Dr Fleischer-Dogley presented the President with a copy of her book on coco de mer as a token of his visit to the Vallée de Mai. The President received the gift gratefully and commented that he was very impressed with the conservation efforts on Praslin and at the Vallée de Mai.

SECRETARY GENERAL DE LA FRANCOPHONIE

In March 2016 the Vallée de Mai management and staff welcomed the Secretary General de la Francophonie, Michaelle Jean and her delegation to the Vallée de Mai. The Secretary General was accompanied around the reserve by the Minister for Environment, Energy and Climate Change, Didier Dogley, and Dr Frauke Fleischer-Dogley. She was delighted to witness the popular de-husking of the coco de mer and to see all the wonders of the Vallée de Mai.

UNITED NATIONS SECRETARY GENERAL

The Secretary General of the United Nations, Ban Ki-Moon, to the Vallée de Mai in May 2016. Mr Ban was accompanied by his wife Ban Soon-Taek; Minister Dogley; Mr Barry Faure, and other delegates. The delegation was guided around the Vallée de Mai reserve by Dr Frauke Fleischer-Dogley. Dr Fleischer-Dogley shared some of the interesting and unique facts about this UNESCO World Heritage Site with the Secretary General and his wife on their tour.


UN Secretary General Ban Ki-Moon with his wife, Minister Dogley, Ambassador Faure and SIF staff | SIF

FOOD AND AGRICULTURE ORGANISATION DIRECTOR-GENERAL

The Director-General of the United Nations Food and Agriculture Organization José Graziano da Silva visited the Vallée de Mai in September 2016. He was accompanied by the Minister for Fisheries and Agriculture Mr Wallace Cosgrow, as well as other officials from the Seychelles government. The Vallée de Mai site manager Mr Marc Jean Baptise was honoured to welcome them to the UNESCO World Heritage Site and he conducted a guided tour with them in the reserve and showed them the café, souvenir shop and the environmental education and outreach room.


FAO Director-General José Graziano da Silva and Minister Cosgrow in the Vallée de Mai | SIF

COMMUNICATIONS	*2015*	*2016*
NEWSPAPER ARTICLES	19	17
MAGAZINE ARTICLES	4	3
NATIONAL TELEVISION FEATURES	13	5
NATIONAL RADIO FEATURES	3	0
E-NEWSLETTERS	12 ISSUES	11 ISSUES
FACEBOOK FANS	2120 | 268 POSTS	3120 | 264 POSTS

STAFF TRAINING & MOVEMENTS

2015 and 2016 saw the continued investment by SIF in the training and development of staff. Several staff embarked on or completed BSc and MSc courses; participated in workshops held locally and internationally and attended a variety of shorter specialised courses.

OVERSEAS TRAINING

Feb 2015	Marc Jean-Baptiste	BIOPAMA Negotiation training for Protected Areas , South Africa
Jul 2015 - 2016	Annabelle Constance	MSc Environmental Science (University of Zurich, Switzerland)
Sept 2015 - 2016	Wilna Accouche	MSc Conservation Project Management (DICE, University of Kent, UK)
May 2016	Terance Payet	Durrell Endangered Species Management Graduate Certificate (DESMAN) at the Durrell Institute in Jersey, UK
Oct 2016	Vicky Stravens	Workshop on biological invasions at the University of La Réunion.

OTHER TRAINING

Mar 2015	Terance Payet, Jessica Moumou	Conservation Leadership Development, organised by Dr Simon Black from the University of Kent (Mahé)
Apr 2015	Terance Payet	Coral Communities in Seychelles (Earthwatch)
Jul 2015	Vallée de Mai staff	First aid practical training (Praslin)
	Mariette Dine, Vicky Stravens, Terance Payet, Wilna Accouche	Data Analysis using R (University of Seychelles)
Aug 2015	Samuel Basset	STCW seamanship course (Mahé)
	Shiira Padayachy	Coral reef monitoring and PADI Advanced Open Water course (GVI Curieuse)
	Vicky Stravens	Stakeholder engagement/Conflict resolution and negotiation skills (Mahé)
Sept 2015 - present	Jessica Moumou	BSc Environmental Science (University of Seychelles)
Apr 2016	Mariette Dine	Coral Communities in Seychelles (Earthwatch)
Aug 2016 - present	Mariette Dine	BSc Environmental Science (University of Seychelles)
Aug 2016 - present	Brian Souyana	BSc Environmental Science (University of Seychelles)
Oct 2016	Terance Payet, Vicky Stravens	Forestry management with chainsaws, Seychelles National Parks Authority, Praslin

STAFF MOVEMENTS

May 2015	CEO	UNEP Multi-stakeholder expert meeting, Geneva, Switzerland
Jun 2015	CEO	Session Megaphone du Seminaire FEDER, Reunion
Oct 2015	CEO/Christina Quanz	Aldabra House Project, London, UK
Aug 2016	Maria Brioche/Elna Stravens	Work placement at the Eden Project, UK
	CEO	International Symposium on Capacity Building for Sustainable Oceans, Japan
Sept 2016	Annabelle Constance	University Research Priority Programme (URPP) Global Change and Biodiversity Conference in Monte Verità, Switzerland.
	CEO	3rd UNESCO World Heritage Marine Site Managers conference, Galápagos Islands, Ecuador

PUBLICATIONS

MEDIA
(NEWSPAPER AND MAGAZINE ARTICLES)

07/01/2015	*Seychelles Nation newspaper*	SIF Chief attends World Parks Congress
12/01/2015	*Seychelles Nation newspaper*	The Black Parrot breeding season gets underway
12/01/2015	*Seychelles Nation newspaper*	Invasive bird eradication resumes at Takamaka
19/01/2015	*Seychelles Nation newspaper*	Annual yellow crazy ant survey undertaken at Vallée de Mai
24/01/2015	*Seychelles Nation newspaper*	Marine monitoring surveys underway at Aldabra
31/01/2015	*Sesel Sa magazine*	Return to Aldabra Atoll
09/02/2015	*Seychelles Nation newspaper*	Introduced red-whiskered bulbul eradicated from Seychelles
11/04/2015	*Seychelles Nation newspaper*	Aldabra, an amazing sanctuary
23/04/2015	*Seychelles Nation newspaper*	SIF Congratulates Sir James for Aldabra's speech
27/04/2015	*Seychelles Nation newspaper*	SIF touches base on Vallée de Mai and Aldabra Atoll
28/04/2015	*Today in Seychelles newspaper*	Questioning nature is encouraged
01/05/2015	*Silhouette magazine*	coco de mer: The artists muse
14/06/2015	*Times of India magazine*	Treasure chest
14/06/2015	*Deccan Herald magazine*	To save endemics
14/06/2015	*Mumbai Mirror magazine*	Nutty in Seychelles
02/07/2015	*Seychelles Nation newspaper*	Palau President leaves with good memories
18/07/2015	*Seychelles Nation newspaper*	Vallée de Mai awarded 2015 Tripadvisor Certificate of Excellence
13/08/2015	*Seychelles Nation newspaper*	Aldabra to become a fully protected area
01/09/2015	*Sealife magazine*	A Turtle's journey: Where do Aldabra's green turtles go?
01/09/2015	*Sealife magazine*	Aldabra to become a fully protected area
01/10/2015	*Sesel Sa magazine*	Travel through time at the Vallée de Mai
19/10/2015	*Seychelles Nation newspaper*	CBS assist at the Vallée de Mai
13/11/2015	*Seychelles Nation newspaper*	Green turtle from Aldabra found on nesting beach in Tanzania
30/11/2015	*Seychelles Nation newspaper*	SIF attends Aldabra 3D film premiere in Prague
08/02/2016	*Seychelles Nation newspaper*	Students join chorus to stop coco de mer poaching
01/03/2016	*National Geographic Magazine*	Return of the Seychelles
09/05/2016	*Seychelles Nation newspaper*	Seychelles should preserve the treasure of nature
13/07/2016	*Seychelles Nation newspaper*	Work on to control invasive creepers
12/12/2016	*Seychelles Nation newspaper*	MSc submitted on Giant Bronze Gecko, Seychelles black parrot breeding season begins
15/12/2016	*Seychelles Nation newspaper*	Contributors to parakeet eradication project rewarded

SCIENTIFIC PUBLICATIONS IN 2015/2016 (PEER-REVIEWED ARTICLES)

ALDABRA

Hansen DM, Austin JJ, Baxter RH, de Boer EJ, Falcón W, Norder SJ, Rijsdijk KF, Thébaud C, Bunbury N & Warren BH. (2016). *Origins of endemic island tortoises in the western Indian Ocean: a critique of the human-translocation hypothesis. Journal of Biogeography 44: 1430–1435*

Harper G, van Dinther M, Russell J & Bunbury N. (2015). *The response of black rats (Rattus rattus) to evergreen and seasonally arid habitats: informing eradication planning on a tropical island. Biological Conservation 185: 66–74.*

Harper G & Bunbury N. (2015). *Invasive rats on tropical islands: their population biology and impacts on native species. Global Ecology and Conservation 3: 607–627.*

Turnbull LA, Ozgul A, Accouche W, Baxter R, Chong Seng L, Currie JC, Doak N, Hansen D, Pistorius P, Richards H, van de Crommenacker J, von Brandis R, Fleischer-Dogley F & Bunbury N. (2015). *Persistence of distinctive morphotypes in the native range of the CITES-listed Aldabra giant tortoise. Ecology and Evolution 23: 5499-5508.*

van de Crommenacker J, Bourgeois YXC, Warren BH, Jackson H, Fleischer-Dogley F, Groombridge J & Bunbury N. (2015). *Using molecular tools to guide management of invasive alien species: assessing the genetic impact of a recently introduced island bird population. Diversity and Distributions 21: 1414-1427.*

van de Crommenacker J, Richards H, Onezia C, Mahoune T, Accouche W, Fleischer-Dogley F & Bunbury N. (2016). *Long-term monitoring of landbirds on Aldabra Atoll indicates increasing population trends. Bird Conservation International 26: 337–349*

van Dinther M, Bunbury N & Kaiser-Bunbury CN. (2015). *Trial of herbicide control methods for sisal (Agave sisalana) in the arid island environment of Aldabra Atoll, Seychelles. Conservation Evidence 12: 14–18.*

VALLÉE DE MAI

Edwards PJ, Fleischer-Dogley F & Kaiser-Bunbury CN. (2015). *The nutrient economy of Lodoicea maldivica, a monodominant palm producing the world's largest seed, New Phytologist 206: 990-999.*

Jackson HA, Bunbury N, Przelomska N, Groombridge JJ (2016). *Evolutionary distinctiveness and historical decline in genetic diversity in the Seychelles Black Parrot Coracopsis nigra barklyi. Ibis 158: 380-394*

Kaiser-Bunbury C, Fleischer-Dogley F, Dogley D & Bunbury N. (2015). *Scientists' responsibilities towards evidence-based conservation in Small Island Developing States. Journal of Applied Ecology 52: 7–11*

Labisko J, Maddock ST, Taylor ML, Chong Seng L, Gower DJ, Wynne F, Wombwell E, Morel C, French GCA, Bunbury N & Bradfield KS. (2015). *Chytrid fungus (Batrachochytrium dendrobatidis) undetected in the two orders of Seychelles amphibians. Herpetological Review 64: 41–45.*

Morgan E, Määttänen K, Kaiser-Bunbury CN, Buser A, Fleischer-Dogley F & Kettle C (2016). *Development of twelve polymorphic microsatellite loci for the endangered Seychelles palm Lodoicea maldivica (Arecaceae). Applications in Plant Science 4: 1500119*

Morgan E, Kaiser-Bunbury CN, Edwards P, Fleischer-Dogley F & Kettle C (In press). *Keeping it in the family: strong fine-scale genetic structure and inbreeding in Lodoicea maldivica, the largest-seeded plant in the world. Conservation Genetics.*

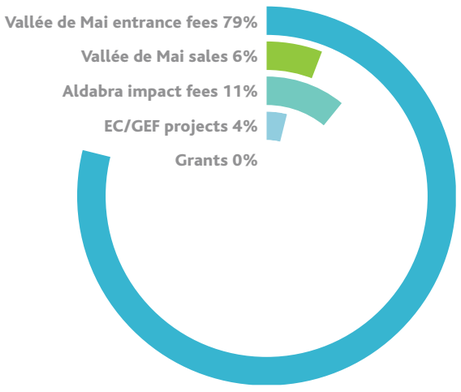
Rocha S, Perera A, Bunbury N, Kaiser-Bunbury CN & Harris DJ (In press). *Speciation history and species delimitation within the Seychelles Bronze geckos, Ailuronyx spp.: molecular and morphological evidence. Biological journal of the Linnean Society.*

FINANCIAL INFORMATION

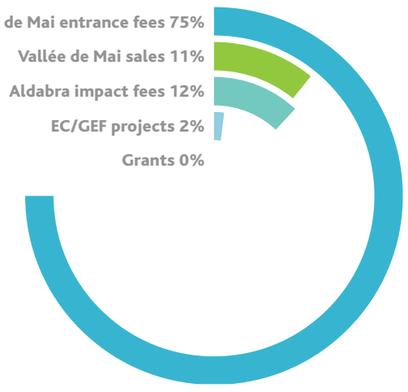
SIF's revenue is increasingly diversified and the foundation's reliance on the Vallée de Mai entrance fees has decreased by 5% in 2016 compared to 2015, when it was at one of its highest at nearly 80%. By offering better services to our visitors at the café and souvenir shop, revenue from sales in the Vallée de Mai has also increased by 5% from 2015 to 2016. These numbers confirm the importance of investing in the necessary infrastructure to increase income by generally increasing visitor satisfaction. Additionally over the last two years the increase in visits to Aldabra by small cruise ships has increased the site's contribution towards overall revenue generation. In 2014 Aldabra's contribution was only 6%, but by 2016 this was doubled to 12.5% which is a great result and reduces the reliance of Aldabra for daily operations on the entrance fees of the Vallée de Mai. Overall project funds from overseas have reduced by half with the completion of the EU-funded project "Mainstreaming Biodiversity in Seychelles' UNESCO World Heritage sites" in 2015. Consequently the majority of project funds were spent in 2015. However the increase in visitation to the Vallée de Mai, as well as the need to address the threats of poaching has required that the operational budget of the site to be nearly doubled in 2016 whilst the budget for Aldabra and the Head Office remained unchanged. The Head Office budget also includes an allocation of 10% for educational programmes.

INCOME

2015

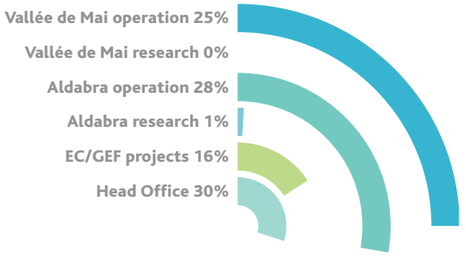


2016

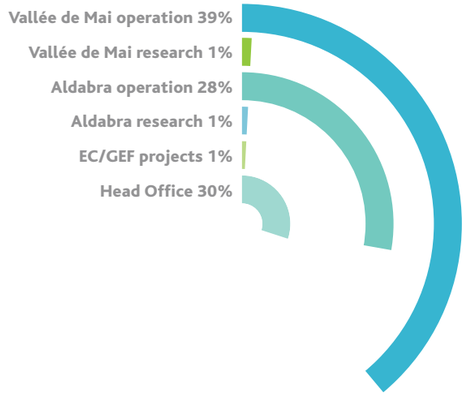


EXPENDITURE

2015



2016



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Consultants/Researchers: Dr Dennis Hansen, Richard Baxter, Dr Gabriela Schaepman-Strub, Professor Michael Shaepman, Mattias Knuebuhler, Dr Janske van de Crommenacker.
PhD student: Wilfredo Falcon (ZARP, University of Zurich)
Volunteers: Fernando Cagua, Rosie Gordon, Anna Koester, Thomas Mannering, Adam Mitchell

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Invasive Species Technical Officer: Patrick Banville

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Island Development Company
Island Conservation Society
Praslin Development Fund
Seychelles National Meteorological Service

...THE FOLLOWING PEOPLE FOR THEIR HELP AND ADVICE ON SPECIFIC PROJECTS

Katy Beaver (Plant Conservation Action Group)
Dr Rachel Bristol (EDGE project)
Lindsay Chong-Seng (Plant Conservation Action Group)
Andrew Hill, Ridge to Reef Consultancy
Jeanne Mortimer
The EU Project Steering Committee (Pierre-Andre Adam, Ronley Fanchette, Denis Matatiken, Pat Matyot, James Mougal, Ronny Renaud, Adrian Skerrett, Sidney Suma)

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Dr Lindsay Turnbull (University of Zurich, Switzerland)
Dr John Turner and Dr Rebecca Klaus (University of Bangor, UK)
Dr Janske van de Crommenacker

SIF IN A NUTSHELL AND HOW TO HELP

Seychelles Islands Foundation (SIF) is a non-profit charitable organization which was established as a Public Trust in 1979 to manage, protect, research and promote sustainable ecotourism in the Seychelles' two UNESCO World Heritage sites of Aldabra Atoll and the Vallée de Mai on Praslin. A major focus is on scientific research to support and improve conservation management of the unique biodiversity and ecosystems of these two very different sites.

To successfully operate and protect two World Heritage sites, which are more than 1000 km apart and each with their specific set of challenges, SIF relies primarily on income generated by entrance fees and sales from the Vallée de Mai. This is supplemented by project funding, grants and donations. Aldabra provides some direct income through visitor impact fees but piracy activities have reduced this source of revenue. SIF's management and work at these sites will continue to be dependent on visitor numbers and the generosity of our supporters for the foreseeable future.

There are a number of ways in which you can help us with this work:

- Visit the Vallée de Mai any day of the year and experience the magic of this unique site for yourself
- Purchase SIF products and souvenirs directly from the Vallée de Mai shop or the SIF Head Office in Mont Fleuri, Victoria
- Stop at the Vallée de Mai cafeteria and support local Praslinois producers and suppliers
- Tell other people about SIF and our work
- Volunteer for SIF – depending on active projects, there may be limited volunteer opportunities for suitably qualified international volunteers to help with research, conservation work or specific projects for 4-6 month periods.

If you would like to contribute, receive more information or are interested in receiving further news about SIF via monthly e-newsletters please sign up on the home page of our website or contact us by email at info@sif.sc.

You can also find more information on our website: www.sif.sc, Facebook page: 'Seychelles Islands Foundation – SIF', Twitter page: @SIF_Seychelles and Instagram page: @sif_seychelles

aldabra atoll

SIF
seychelles islands foundation

vallée de mai

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