







TABLE OF CONTENTS

01	Message from SIF's CEO	
03	2019 Highlights	
05	Vallée de Mai	
11	Research and Conservation	
	SIF tackles yellow crazy ant invasion.....	08
	Ring-necked parakeets eradicated from Mahé.....	10
	Black parrots in the Vallée de Mai.....	11
	Reptiles and amphibian surveys.....	12
13	Site management and sustainable tourism	
	Visitors to the Vallée de Mai.....	13
	Coco de mer nuts.....	14
15	Aldabra Atoll	
17	Conservation & Action	
	Aldabra Clean-Up Project achieves outstanding success.....	17
	Aldabra designated Platinum Level Blue Park status.....	21
	Important Marine Mammal Area.....	22
23	Research	
	SIF's research into the Aldabra rail indicates it could be a distinct species.....	23
	SIF's research reveals heavy toll of coral bleaching on Aldabra's reefs.....	24
	SIF research confirms grassland as giant tortoises' favoured habitat on Aldabra.....	25
	Research sheds light onto the mystery of coastal skinks.....	26
	SIF carries out research into Aldabra's mangroves.....	27
	April Burt carries out island ecosystem connectivity research in Seychelles.....	27
	Anna Koester investigates coral reef recovery at Aldabra.....	28
29	Monitoring	
	Six years of Aldabra marine monitoring.....	29
	Tortoise monitoring provides a better understanding into Aldabra's population.....	30
	Results of distance sampling pilot study for Aldabra's landbird monitoring.....	31
	Research on Aldabra's long-term turtle monitoring yields insights.....	31
32	Island management and sustainable tourism	
	SIF annual general meeting held on Aldabra.....	32
	Aldabra's Tourism reaches pre-piracy levels.....	33
	Sisal successfully eradicated from Aldabra after 40 years of efforts.....	35
	SIF cancels Aldabra House with great regret.....	36
	Aldabra's deep waters explored by Nekton.....	37

40 Communications, Education and Outreach

Communications

Media.....	41
Social Media Analysis.....	42
Newspaper articles.....	43

45 Education

Eco-school award winners spend a week on Aldabra.....	45
SIF awards Professor David Stoddart scholarships to two students.....	46
Yellow crazy ant poster competition.....	46
A summary of Aldabra Clean-Up Project education activities.....	47
Holiday camps.....	47
Friends of the Vallée de Mai club.....	47
School activities.....	48

49 Outreach

SIF's 3rd public Research & Conservation symposium.....	50
Island Biology Conference in La Réunion.....	51
Theme Days.....	52
Festivals.....	55

56 VIP visits

57 Staff

Staff changes and new positions.....	57
Further education and training.....	59

61 Finances

62 Publications

63 Thanks and acknowledgements

65 SIF in a nutshell and how to help



Message from the CEO

There is no such thing as an unresolvable situation, if we speak up, engage and also learn to let go in the right moments; many hands get deeply involved, becoming critical parts of the solution and together make a huge change.



2019 is one of the years that will be written in bold in the SIF journal. Following the launch of the Aldabra Clean-Up Project (ACUP) last year, this undertaking was successfully completed. Over 25 metric tonnes of marine debris were removed from 16 of Aldabra's turtle-nesting beaches as a result of the endurance, perseverance, support and commitment of many. It is difficult for me to name everyone, ensuring that no one is forgotten, within the space of this foreword. Please make sure to read all about it on page 17-20. This project has taught me a life lesson: "There is no such thing as an unresolvable situation, if we speak up, engage and also learn to let go in the right moments; many hands get deeply involved, becoming critical parts of the solution and together make a huge change". Twenty times more than the collected amount of marine debris had to be left behind on the atoll, but many other individuals are engaged in various initiatives across Seychelles and abroad, creating a wave of change. Nevertheless, it is questionable that marine debris is what put our beloved Aldabra into headlines across the world rather than its natural wonders. Then again, it is this project which allowed SIF to engage with the biggest audience ever! It has substantially raised our standards in terms of reaching out to make a change for the future.

The desire to share Aldabra's uniqueness with each and every Seychellois is based on the need to ensure that future generations are inspired to protect this extraordinary and wonderful place. Over five years, SIF was engaged in the Aldabra House project but, despite the substantial progress made, the Board of Trustees decided to cancel the project as it faced substantial challenges from a competing development next to its site. This extremely difficult decision has translated into a new passion to find other ways to bring Aldabra to everyone. We will not give up, but explore for example new technology to achieve exactly what Aldabra House was designed to do.

Unlike Aldabra, the lush green and fresh air of the Vallée de Mai can be experienced by many, luckily. However, similar to ACUP, success in controlling the yellow crazy ants (YCA) hugely depends on how well we can engage across the organisation and with everyone on Praslin. The launch of the YCA taskforce was the first time that every employee, regardless of their workstation, became in one way or another involved in the very first baiting of the whole of the Vallée de Mai. It was a daunting project when contemplating the huge boulders and different waterways that needed to be included in the sensitive baiting method. However, with everyone on board, this first baiting was achieved and the mission is now to sustain this engagement and determination for the follow-up baiting. Our experience shows that control and eradication of invasive species is a long battle we are not scared of, which is why SIF can finally proudly celebrate the nationwide eradication of the ring-necked parakeet - a world's first! This and other experiences, such as the eradication of sisal on Aldabra, were described by the very first SIF delegation to participate in the International Island Biology Conference in Reunion. Sharing of knowledge, knowhow and solutions is a crucial part of learning and practising conservation management. This was also the spirit of a very rewarding second SIF Research and Conservation Symposium which was held mid-year. Interest shown by the audience was proof that it was high time for a third symposium. The Seychelles Broadcasting Corporation recorded the symposium so that it could be shared with an even larger audience.

"I very much hope that my foreword has put you in the mood to turn the page quickly to read for yourself all about SIF's 2019. Enjoy!"



Dr Frauke Fleischer-Dogley
CEO





2019 Highlights

Aldabra Clean-Up Project achieves outstanding success

SIF and University of Oxford's Aldabra Clean-Up Project (ACUP) successfully removed 25 metric tonnes of marine debris from 16 of Aldabra's turtle-nesting beaches. Its outreach and awareness-raising activities sparked significant media interest and inspired people in Seychelles and around the world to tackle the issue of plastic pollution.

Aldabra awarded Platinum Level Blue Park status

The Marine Conservation Institute recognised Aldabra as an outstanding Marine Protected Area with a Platinum level Blue Park status, a level of award achieved by only nine other sites globally to date.

Aldabra designated Important Marine Mammal Area (IMMA)

The Marine Mammal Protected Areas Task Force recognised Aldabra as an Important Marine Mammal Area (IMMA), Aldabra's sixth international designation.

SIF launches yellow crazy ant taskforce

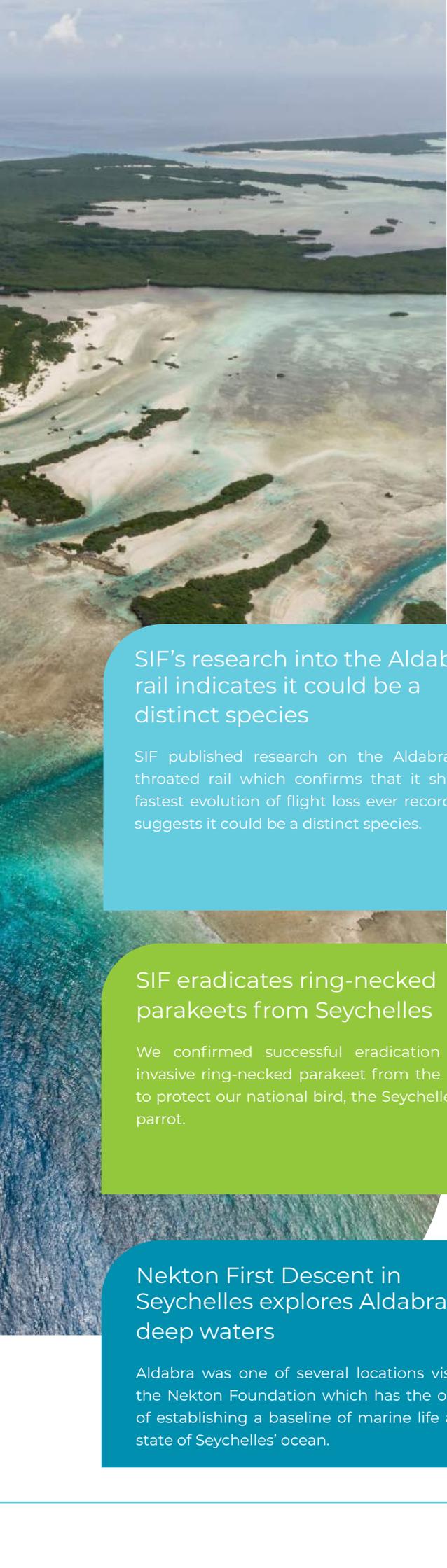
We launched a dedicated team with new control methods to tackle the invasive yellow crazy ants (YCA) invasion in the Vallée de Mai. The taskforce aimed to reduce the numbers of ants and protect the native wildlife in the forest.

Eco-school award winners spend a week on Aldabra

12 dedicated students and their teachers had the experience of a lifetime on Aldabra in March 2019.

SIF eradicates sisal from Aldabra

We successfully eradicated the invasive plant sisal from Aldabra to protect the atoll's native flora and fauna.



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

SIF published research on the Aldabra white-throated rail which confirms that it shows the fastest evolution of flight loss ever recorded, and suggests it could be a distinct species.

SIF's Research Symposium informs and educates the public

We held a free public symposium in May 2019 to showcase our research and conservation projects which featured X presentations from both sites and was attended by over 100 people.

Vallée de Mai Site Manager completes MSc and SIF Trustee recognised at home and abroad

Mr. Marc Jean-Baptiste, Vallée de Mai Site Manager, completed his MSc fully funded by SIF at the University of Kent and SIF Trustee, Dr Victorin Laboudallon was presented an honorary doctorate from the University of Seychelles, as well as a UK Points of Light award.

SIF eradicates ring-necked parakeets from Seychelles

We confirmed successful eradication of the invasive ring-necked parakeet from the country to protect our national bird, the Seychelles black parrot.

SIF awards Professor David Stoddart scholarships

We awarded Professor David Stoddart scholarships to two BSc students of Environmental Sciences at the University of Seychelles. The scholarships are awarded in honour of the late British geographer who worked tirelessly to protect Aldabra and set up the research base there.

Nekton First Descent in Seychelles explores Aldabra's deep waters

Aldabra was one of several locations visited by the Nekton Foundation which has the objective of establishing a baseline of marine life and the state of Seychelles' ocean.

SIF attends Island Biology Conference in Reunion

Several SIF staff members and associated researchers attended the global Island Biology conference which attracts scientists and practitioners from around the world who are working to manage and protect island ecosystems.







Research & conservation

In fantastic news for the endemic black parrot, another invasive alien species of great concern, the ring-necked parakeet, was confirmed to have been eradicated from Mahé

The Vallée de Mai research team achieved a great deal in 2019 on both research and conservation fronts. Invasive alien species control came to the forefront, primarily in dealing with the yellow crazy ant invasion that has swept across our fragile World Heritage Site. A taskforce was set up and an intensive baiting programme began. In fantastic news for the endemic black parrot, another invasive alien species of great concern, the ring-necked parakeet, was confirmed to have been eradicated from Mahé, and therefore from Seychelles, following the SIF-implemented eradication campaign which lasted five years. The black parrots themselves obligingly had a very active and relatively successful breeding season!

Solid progress was also made in monitoring of herpetofauna (reptiles and amphibians) for which the Vallée de Mai is a crucial national hotspot. A dedicated survey across the Vallée and other palm forest areas provided important new data on abundance and distribution of some key species. Alongside this, the Vallée de Mai research team worked on a crucial review and analysis of the plant fruiting and flowering data collected over the past 10 years, started a review on the coco de mer regeneration programme and updated the monitoring protocols. Coco de mer poaching in the Vallée de Mai was at an all-time low this year. Read more about most of this work in the following pages.





SIF tackles yellow crazy ant (YCA) invasion

SIF first observed YCA, *Anoplolepis gracilipes* in the Vallée de Mai in 2009. With this ant being listed in the top 100 worst invasive alien species in the world and having devastated several island ecosystems, SIF did not take this discovery lightly and set up monitoring to keep track of their numbers and distribution. For the following six years, surveys showed the distribution and population of YCA to have remained relatively stable, remaining around the Vallée de Mai's margins. However, in 2016 the YCA population substantially spread across the site, from 28% in 2010 to 74% in 2016. With research indicating that areas of YCA infestation in the palm forest had fewer native arboreal (tree dwelling) species, including snails, slugs and geckos, SIF identified this invasion as one of the most severe emerging and existing threats to the Vallée de Mai's Outstanding Universal Value (OUV).



Consequently, the SIF board of Trustees declared the invasion of YCA in the Vallée de Mai an emergency at the 2017 Annual General Meeting (AGM) and requested immediate action. Shortly after, in the same year, European Union (EU) funding was secured through the IUCN-administered Inva'Ziles project. Inva'Ziles focused on researching, trialling and deploying invasive alien species control measures across the Vallée de Mai, with YCA a particularly targeted species. Ant-specific bait stations using boric acid solution were trialled from March 2018. But these trials did not show a major impact on YCA numbers. While research in other sites on the use of bait stations and boric acid suggested a potentially long-term impact, results from Inva'Ziles were far from reassuring. In any case, the annual YCA survey of November 2018 showed that the YCA population covered 100% of the Vallée de Mai, and at much higher average density than had been recorded since its introduction to the site. Meaning that Inva'Ziles measures had not slowed the YCA incursion across the site nor prevented their numbers from increasing.

In continuing to tackle the threat, SIF invited invasive ant biology expert Associate Professor Lori Lach to examine the abundance and distribution of YCA and advise on the best way to manage the population. Professor Lori Lach, who is based at the James Cook University in Australia and had been in contact with SIF since 2015, visited the Vallée de Mai in July 2019 and recommended AntOff, a pesticide which has been the most successful substance to control YCA globally. Simultaneously the SIF team led by Consulting Director of Conservation and Research, Dr Nancy Bunbury, applied for emergency funding of \$100,000 from the UNESCO World Heritage Centre to address the YCA threat.

2009

SIF first records yellow crazy ants (YCA), *Anoplolepis gracilipes* in the Vallée de Mai

SIF first makes contact with invasive ant biology expert Associate Professor Lori Lach

2015



2016

YCA population substantially spread across the site



The SIF board of Trustees declared the invasion of YCA in the Vallée de Mai an emergency

2017

2017

SIF secures EU funding through IUCN-administered Inva'Ziles project to researching, trialling and deploying invasive alien species control measures across the Vallée de Mai, with YCA a particularly targeted species



Ant-specific bait stations using boric acid solution were trialled, but do not show a major impact on YCA numbers

2018





2019

Professor Lori Lach visits the Vallée de Mai and recommends AntOff a pesticide which has been the most successful substance to control YCA globally

Shortly after the funding was approved at the end of August, SIF launched the project entitled: “Minimising impacts of the invasive yellow crazy ants at the Vallée de Mai UNESCO World Heritage Site to preserve its outstanding universal values”; which aims to substantially reduce the numbers of invasive YCA in the Vallée de Mai. With a dedicated 18-member taskforce made up of SIF staff as well as other organisations and led by previous Aldabra Volunteer and Aldabra House Science Coordinator, Lorraine Cook, the project takes a new approach to tackling YCA while ensuring the local community remains informed and engaged with the developments.

Lorraine holds years of biosecurity experience in Seychelles and also has a decade of leadership experience in tackling invasive alien species in New Zealand, so she has been instrumental in providing specialised training to the taskforce as AntOff has never before been used as bait in Seychelles’ forests.

SIF applies for emergency funding of \$100,000 from the UNESCO World Heritage Centre to address the YCA threat

2019

AntOff comes as granular pellets and is especially designed to combat ants. The active ingredient is fipronil, a pesticide which is toxic to ants but is contained in such minuscule quantities (0.001% within each pellet) that it does not pose a risk to other wildlife in the forest or to humans. The pesticide remains active for around six hours before it naturally breaks down. The remaining 99.999% of the bait is composed of fish meal, a paste which has been designed to be extremely attractive to ants, but is not attractive to other invertebrates, such as bees. Following inspections and enquires, the Ministry of Energy, Environment and Climate Change (MEECC) and Seychelles Pesticide Board approved the use of AntOff in the Vallée de Mai.

2019

Emergency funding approved and SIF launches the a project to substantially reduce YCA in the Vallée de Mai entitled: “Minimising impacts of the invasive yellow crazy ants at the Vallée de Mai UNESCO World Heritage Site to preserve its outstanding universal values

The taskforce carried out two rounds of baiting in 2019, in which pellets were scattered across the forest, except in areas which were within 5 metres of waterways or streams. For these areas the taskforce used liquid bait stations which could only be accessed by ants, to avoid contaminating the waterways and potentially harming aquatic invertebrates.

The taskforce also monitored native fauna in the Vallée de Mai before and after both rounds of baiting to see if the populations of native wildlife such as geckos and molluscs had been impacted in any way.

The results of the ant pitfall surveys carried out in December 2019 showed that the baiting did significantly reduce the numbers of ants in the forest. The YCA still occupied 60% of the Vallée de Mai but at very low numbers (0 to 9 individuals) which is the narrowest distribution and the lowest abundance since pitfall surveys began in 2015.

A dedicated 18-member YCA taskforce is set up made up of SIF staff as well as members of other organisations

2019

SIF is delighted that the taskforce has succeeded in controlling the numbers of YCA in the forest, and plans to carry out further baiting deployments in 2020 to prevent a reinvasion and sustain the efforts put in so far. We will also be investigating how to control the species in the long-term in 2020.

2019

The taskforce carried out two rounds of baiting

“ SIF is delighted that the taskforce has succeeded in controlling the numbers of YCA in the forest, and plans to carry out further baiting deployments in 2020 to prevent a reinvasion and sustain the efforts put in so far. We will also be investigating how to control the species in the long-term in 2020.



Ring-necked parakeets eradicated from Mahé

In March 2019, Seychelles made history by becoming the first country in the world to eradicate an established population of ring-necked parakeets from the wild. The parakeets are highly invasive and posed a serious threat to Seychelles' national bird, the endemic Seychelles' black parrot, found only on Praslin. If the parakeets had spread to Praslin, they could have transmitted the lethal parrot virus - Beak and Feather Disease Virus (BFDV) - to the black parrots. As ring-necked parakeets are known to carry BFDV and black parrots are not, this could have had a potentially devastating effect. It is also possible that these parakeets could have competed aggressively with the black parrots for nesting sites.

SIF-led efforts to remove ring-necked parakeets from Seychelles began in 2011. Partnership with the MEECC, the Seychelles Police Force and the Seychelles People's Defence Force (SPDF), alongside funding from the EU, the Environment Trust Fund (ETF) Seychelles, the Global Environment Facility (GEF) and its very own funding, secured the eradication's success.

SIF trialled different culling methods and monitored the parakeet population to assess population size and movements. During the three year intensive eradication phase between 2013 and 2016, expert avian hunters culled over 500 parakeets. The last known wild parakeet was culled near Morne Blanc, on Mahé's west coast, in August 2017. SIF completed the final phase of monitoring in 2019, and with no evidence of any more parakeets remaining in the wild, we declared the eradication successful in March 2019.

Our public information campaign was an essential part of this project, with members of the public assisting the team by providing information on parakeet sightings. This information was especially useful in targeting the last elusive birds.

The importance and timeliness of the eradication was underscored in September 2018 when the analysis of blood samples confirmed the presence of BFDV in half of all ring-necked parakeets sampled from Mahé and was not detected in any of the screened black parrot samples.

After more than seven years of eradication efforts, our staff, volunteers and the dedicated members of the public achieved a remarkable feat, which cements Seychelles' reputation as a pioneer in invasive bird management. We hope that this successful eradication will inspire and assist other islands and countries to control invasive bird populations.



2011 SIF led efforts to remove ring-necked parakeets from Seychelles begin. The efforts are made possible through partnerships with the MEECC, the Seychelles Police Force and the SPDF as well as funding from the EU, GEF, ETF and SIF's own revenue

During this three year intensive eradication phase expert avian hunters culled over 500 parakeets

2013-16

2017 The last known wild parakeet was culled near Morne Blanc, on Mahé's west coast,

SIF completes the final phase of monitoring

2019

2019 Seychelles makes history by becoming the first country in the world to eradicate an established population of ring-necked parakeets from the wild.





2009
Black parrot monitoring programme begins to monitor the breeding patterns of this unique, endangered species

2011
First SIF census of black parrot population carried out, with estimate of the total population being 520-900 parrots in the wild

2018
Another census carried out by SIF and supported by Funds for Endangered Parrots, estimates that the total black parrot population is between 1076-1742

2018-19
The research team found 19 black parrot nests which hatched 24 chicks.

2018
SIF repeats rat trapping trials started under the Inva'Ziles project



Black parrots in the Vallée de Mai

The Seychelles black parrot is the only endemic parrot species left in the Seychelles, and only occurs on Praslin. Our 2018 census, supported by Funds for Endangered Parrots, suggests there are only 1382 (1076-1742) of these birds left in the world. We set up our black parrot monitoring programme 10 years ago to monitor the breeding patterns of this unique, endangered species.

Praslin's habitat and terrain make it tricky to study the parrots, particularly as they prefer to nest in the cavities/holes of fragile and dead trees. Although the breeding season is between November and March, there are some years where breeding is minimal or not taking place at all. At present we do not know the reasons for this.

Black parrots are picky about their nest cavities but there does not appear to be a shortage of available cavities in most seasons. Still, nest failure rate has been found to be relatively high with only 51% of nests recorded in the last 10 years being successful (fledged at least one chick). There are many potential causes of nest failure, and factors such as predation by invasive alien species, yellow crazy ant attack, poor weather and food shortages all play a role in low nest success.

In the 2018/19 breeding season the research team found 19 black parrot nests which hatched 24 chicks. From this number, 18 chicks fledged, a record number since our monitoring began! The black parrot team also ringed 31 adults and 16 chicks in 2019, bringing our total number of ringed parrots to 313!

The start of the 2019/20 breeding season did not show great promise, with no evidence of any breeding attempts at all. However, this seems to coincide with a pattern revealed by SIF's monitoring, which suggests that black parrots breed for three seasons in a row and then have a 'rest year' in which there is minimal or no breeding. We are not yet sure what causes this lull in breeding activity, but it could be due to changes in weather or food availability. SIF will continue to monitor the black parrots and their breeding cycles to try to determine what causes the change in the breeding sequence.



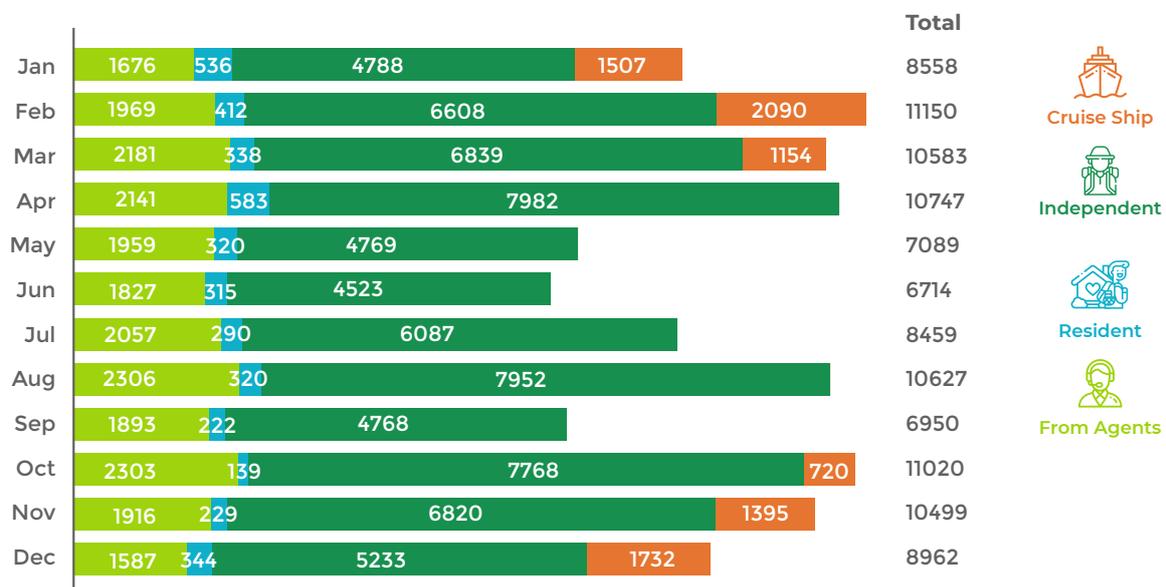
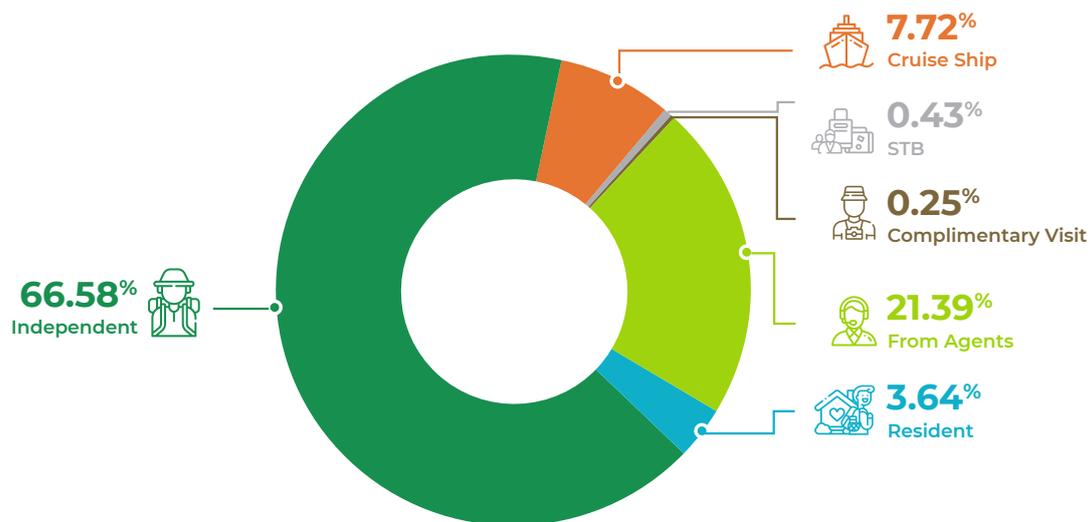
Site management and sustainable tourism

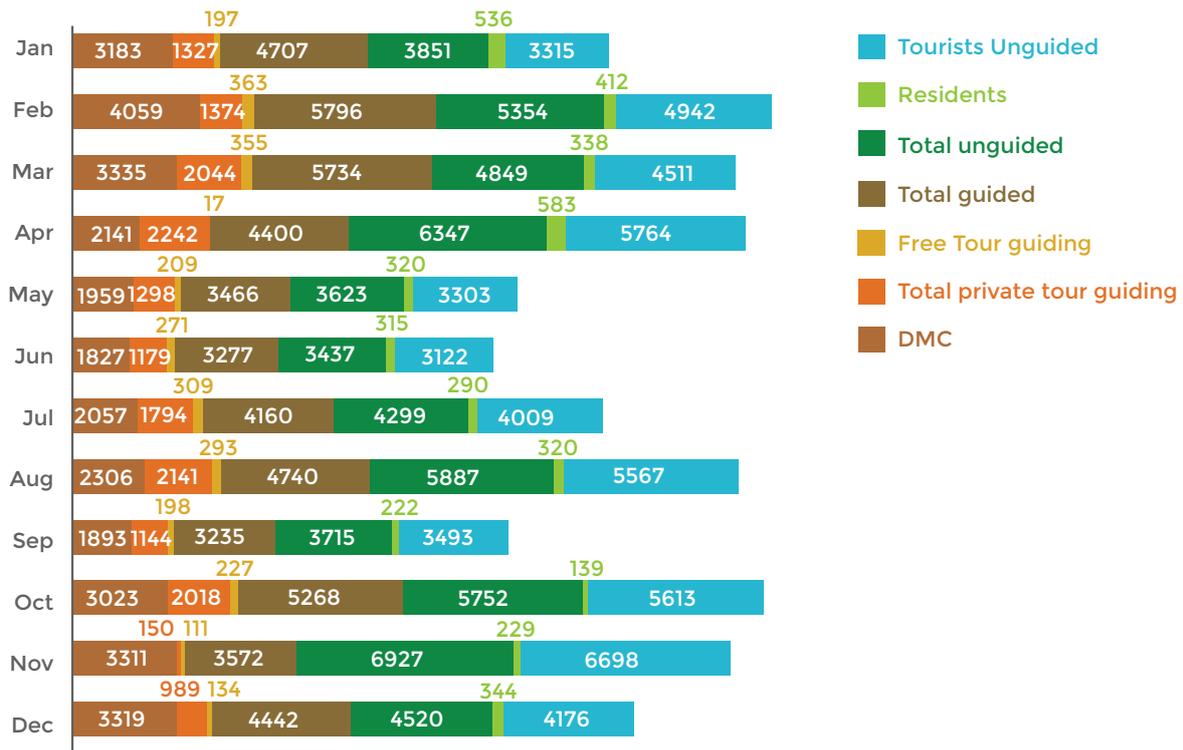
Visitors to the Vallée de Mai

The Vallée de Mai welcomed 111,358 visitors in 2019, slightly fewer than the 119,121 visitors who came in 2018. 4048 Seychelles residents visited the Vallée de Mai in 2019, representing 3.6% of total visitors and comparable with the 4510 residents, 4% of total visitors in 2018. Many of our local visitors came to the forest on school trips.

Visitor numbers in the Vallée de Mai peak several times during the year, with February, March, April, August, October and November all having more than 10,000 visitors! May, June and September received the lowest number of visitors. The majority of visitors to the site are walk-in visitors and around 20% come through various travel agents such as Masons Travel or Creole Travel. Numbers generally increase from October to March as a result of cruise ships that offer the Vallée de Mai as an excursion.

The Vallée de Mai was once again awarded a TripAdvisor Certificate of Excellence in 2019 due to high ratings on the site (average rating of 4.5 out of 5). This was the sixth consecutive year that the Certificate of Excellence was received by the Vallée de Mai and seventh time since 2012.

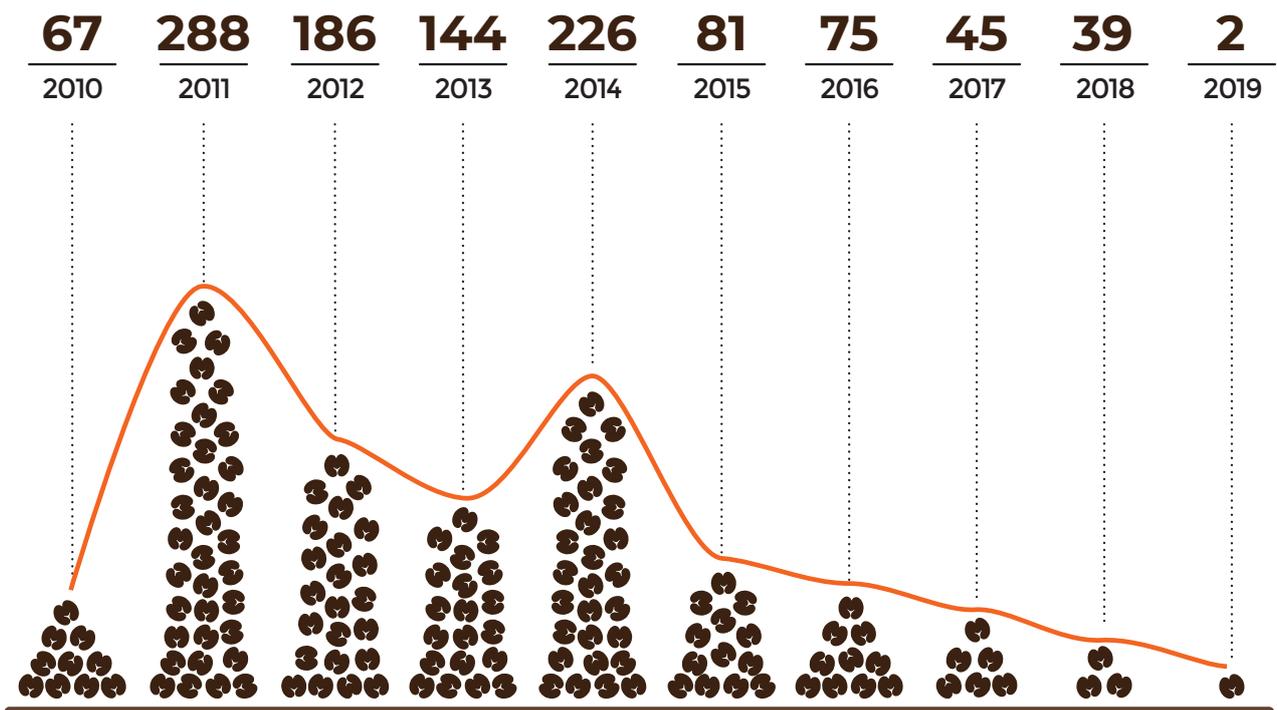




Coco de mer nuts

SIF harvested 347 coco de mer nuts to sell from the Vallée de Mai in 2019. We were very pleased to have recorded only two incidents of poaching of coco de mer nuts in 2019, which is testament to increased security measures at the Vallée de Mai and in Fond Peper and an increased awareness of the importance of the UNESCO World Heritage for the community.

Total poached nuts per year









Conservation & Action

2019 was an eventful and very progressive year for Aldabra. We were thrilled that Aldabra, and SIF's work, has been recognised in two further conservation designations this year, with the announcement of its status as a Blue Park, at Platinum (the highest) level, and confirmation of the atoll as an Important Marine Mammal Area, shortly afterwards.

However despite Aldabra's growing list of accolades these designations should not cloud the reality of the serious increasing problems we face on a daily basis. To tackle one of these problems, the ever-growing issue of plastic pollution, the Aldabra Clean-Up Project was implemented in February/March and extremely successful in its fund-raising, the amount of plastic debris collected, as well as the scope and impact of a high-profile media and outreach campaign which reached millions of people. The project has enhanced awareness of the plastic pollution problem globally, and highlighted the urgent need to tackle this internationally, showing the world that if an atoll as remote and apparently pristine as Aldabra can become so densely littered with trash from other countries, we must all take more accountability for our plastic use. On the research front, new genetic analysis led by SIF staff and former staff has been published showing that the iconic Aldabra white-throated rail, previously lumped with its much more widespread and abundant Madagascar sister species, should be considered an evolutionary distinct species, which has implications for its conservation significance. Research was also published on i) the impacts of the most recent global coral bleaching event on Aldabra's reefs, with a concerning outlook for Aldabra's shallow reefs, and ii) on habitat preference in the giant tortoises - read below to find out which habitat these gentle giants favour. There is much other fascinating and important ongoing research work happening on the atoll, alongside our regular monitoring programmes, which now include comprehensive annual marine monitoring. Many of our findings and steps forward are documented in the following pages.

Aldabra Clean-Up Project achieves outstanding success

In March 2019, SIF collaborated with Queen's College of the University of Oxford for one of the most ambitious beach clean-ups ever undertaken in the Indian Ocean. The five-week expedition united five Oxford graduate students with six Seychellois volunteers, selected through a national video competition.

The project was officially launched at the Royal Society in London in May 2018. In Seychelles the launch was hosted by the President of Seychelles at State House as the main event to celebrate World Environment Day in June 2018. The aim of both events was to present an extraordinary expedition to clear as much waste as possible from the endangered green turtle nesting beaches, and important tortoise grazing areas along the south coast of Aldabra. The project team also defined four contributing aims:





SIF Seychelles Islands Foundation

SeyCCAT

Aldabra Clean-Up Project

The project has created waves of change towards improved waste management and reduced plastic pollution throughout the Seychelles, unlocking local capacity to think differently of waste by transforming it into a resource.

25	3.5	60,000	514	6	9
metric tons of marine plastic pollution removed	tons of the collected waste recycled	individual flip-flops collected	metric tons of marine plastic pollution remaining	women out of a team of 12 persons	persons out of a team of 12 was youth under 30 years old

The project team succeeded in raising SCR 3.9 million, 148% of their original fundraising target. SIF and Queen's College also pledged SCR 351,400 and SCR 90,000 respectively. Of the funds raised, 41% was from Seychelles and the remaining 59% were raised internationally, a significant achievement.

The ACUP team approached over 50 Seychelles businesses for Corporate Social Responsibility tax contributions. Four corporations, the Mauritian Commercial Bank (MCB), Cable and Wireless Seychelles, Eden Island Development Company and Raffles Seychelles donated SCR 550,000. United Construction Products Seychelles contributed by offering a discounted rate to charter the Spirit of Ton Joe vessel which transported the collected pollution. The British High Commission pledged SCR 34,600.

The team also approached over 40 international corporations. Five of these: Ponant, Nobel Caledonia Charitable Trust, Utilita Energy, EV Bullen and Aspect Capital donated SCR 1,750,000 between them. As small luxury expedition companies that regularly visit Aldabra, Ponant

and Nobel Caledonia's considerable financial support was specifically appreciated and underlined the private sector's responsibility to help.

The team applied for 15 local and international grants, of which four were successful: the Seychelles Conservation and Climate Adaptation Trust's second Blue Grant Fund (SCR 1,000,000), the Schroder Charity Trust (SCR 86,500), British Birds Charitable Trust (SCR 26,000) and Wings World Quest (SCR 13,000).

The remaining funds were raised from crowdfunding, with SCR 270,000 from 101 sponsors who gave individual donations ranging from SCR 17.3 to SCR 8,700. With the additional funds raised, AUCP was able not only to meet unforeseen costs such as a greater number of days of hire for the supply vessel and the purchase of more slings, but also to create higher quality media pieces and run several education and outreach events in Seychelles and abroad.



ACUP's financing strategy was published as an International Union for the Conservation of Nature (IUCN) Panorama Solution for a Healthy Planet. You can view the submission here:

<https://panorama.solutions/en/solution/funding-aldabra-clean-project-through-corporate-sponsorship-and-crowdfunding>





Expedition

In February 2019, eight months after the project officially launched, the team of 12 volunteers arrived on Aldabra for the intensive five-week expedition, led by April Burt (Oxford Co-Lead) and Jeremy Raguain (SIF Co-lead). The majority of the time was spent at three remote field camps with no electricity or running water, and limited communication with the outside world. Aldabra's size, extreme terrain, climate, tides and remoteness presented serious logistical challenges as well as various hazards. The volunteers and SIF staff however, were incredibly determined, and succeeded in clearing 16 beaches of plastic pollution – an incredible achievement.

Collecting the plastic pollution was only one part of this expedition; it also needed to be sorted into different categories and then moved to designated access points. The SPDF joined the expedition in its last two weeks, assisting with moving collected plastic from shore to the supply vessel. This last phase of the expedition was the riskiest, and although sea conditions were calm, there was a strong onshore swell which made it very challenging. We were extremely grateful for the assistance of the SDPF for this phase of the expedition.

“ACUP removed a staggering 25.75 metric tonnes of plastic from Aldabra, a monumental amount of pollution that would have caused significant harm to Aldabra's wildlife.”

Education and outreach

At the end of 2019, ACUP had organised or participated in over 50 education and outreach events in Seychelles and internationally, and ACUP members had personally engaged with over 4,000 people in Seychelles and internationally.

ACUP achieved significant media attention both locally and internationally. In Seychelles the coverage spanned print, radio and television news reaching 90,000 people. ACUP also achieved a formidable social media presence in a relatively short time.

The ACUP success story was also broadcast to 102 million homes globally through Sky News' coverage of the expedition and its 24 minute documentary [“50,000 flip-flops in paradise”](#).

The ACUP team also created their own documentary film, “Island under Siege”, which was screened at two cinemas in Seychelles, and entered in the Ocean Festival in November 2019. A short animation aimed at young children, is also being worked on. Entitled “The Song of Aldabra”, it is about plastic pollution as the latest threat to Aldabra, and is due to be released next year.

Research

Plastic pollution poses multiple threats to island ecosystems. There are the direct impacts of plastic entangling, smothering or being ingested by a wide range of animals, and once plastic pollution accumulates along coastlines it creates a barrier to critical habitats, such as turtle-nesting beaches. There are also indirect impacts from the transport of unwanted species, and the breakdown of macro-plastics into micro-plastics which then accumulate in the ecosystem with unknown effects. Seychelles is therefore at the forefront of this issue, battling the global marine plastic problem on all fronts. Information on effective management of this threat is greatly needed.

ACUP analysed the plastic pollution collected from Aldabra, looking at composition, accumulation rates, quantity, attached animals and plants, and recording the clean-up resources required. The research component of this project was led by April Burt as part of her DPhil on island management and connectivity.

ACUP estimated that there are at least 514 metric tonnes of marine plastic on Aldabra, with 6.5 tonnes arriving annually. 52% of the collected marine plastic pollution was fishing gear, and 22% was flip-flops – 59,265 of them! 75% of all the marine pollution had animals and/or plants attached to it, which has biosecurity implications for Aldabra.

April's research will be published and shared to inform management and policy decisions regarding marine plastic pollution on Aldabra.

Reprocessing

As part of ACUP's aim to be holistic and go beyond moving the problem of waste from Aldabra to Mahé, the months following the expedition focused on finding ways to recycle, reuse and reprocess the mountain of pollution. With very limited recycling facilities in Seychelles and the majority of the collected waste being degraded by years of exposure to sun and salt, this was one of the most challenging objectives. Nevertheless, with two public sort-out days, facilitated by the Landscape and Waste Management Agency (LWMA), which allowed the pollution to be stored on its premises at no charge, 9% of the pollution was prevented from entering Mahé's landfill. Hundreds of buoys were reused by the Seychelles National Parks Authority (SNPA) and Marine Conservation Society Seychelles (MCSS) for marine monitoring, whereas NGOs such as The Ocean Project (TOP) Seychelles, schools, artists and even one hotel repurposed them along with hundreds of kilograms of flip-flops and other material into educational and art pieces. Some of the marine plastic pollution was also used in SIF's entry into the SNPA's annual raft race!

The sort-out days also provided a chance for further research, with data collected on the manufacturers of PET bottles and buoys as well as the identification numbers of Fish Aggregating Devices used in industrial tuna fishing. The team is communicating with several international organisations to see if more of the pollution can be repurposed, and even researched circular economy technologies.





Aldabra designated Platinum Level Blue Park status

Aldabra received a prestigious Platinum Level Blue Park Award from the Marine Conservation Institute in October 2019. This was awarded to Aldabra as an outstanding marine protected area (MPA), indicating that it meets the highest science-based standards for marine life protection and management.

The Blue Park Awards were established by the Marine Conservation Institute to encourage governments to safeguard marine wildlife, secure critical habitats, promote resistance to climate change and protect the oceans. The initiative aims to assemble an effective network protecting and sustaining marine life globally.

The Marine Conservation Institute works with existing and new MPAs to ensure they are well-designed, effectively managed, protect our oceans and deliver on their commitment to protect marine biodiversity. MPAs that meet these standards can achieve a Blue Park designation, the highest award of marine conservation excellence. Aldabra was awarded the Platinum Level Blue Park Award, which is the highest level of Blue Park Award. Today there are 16 marine protected areas that have been awarded Blue Park status, 10 of which have received the Platinum level award.

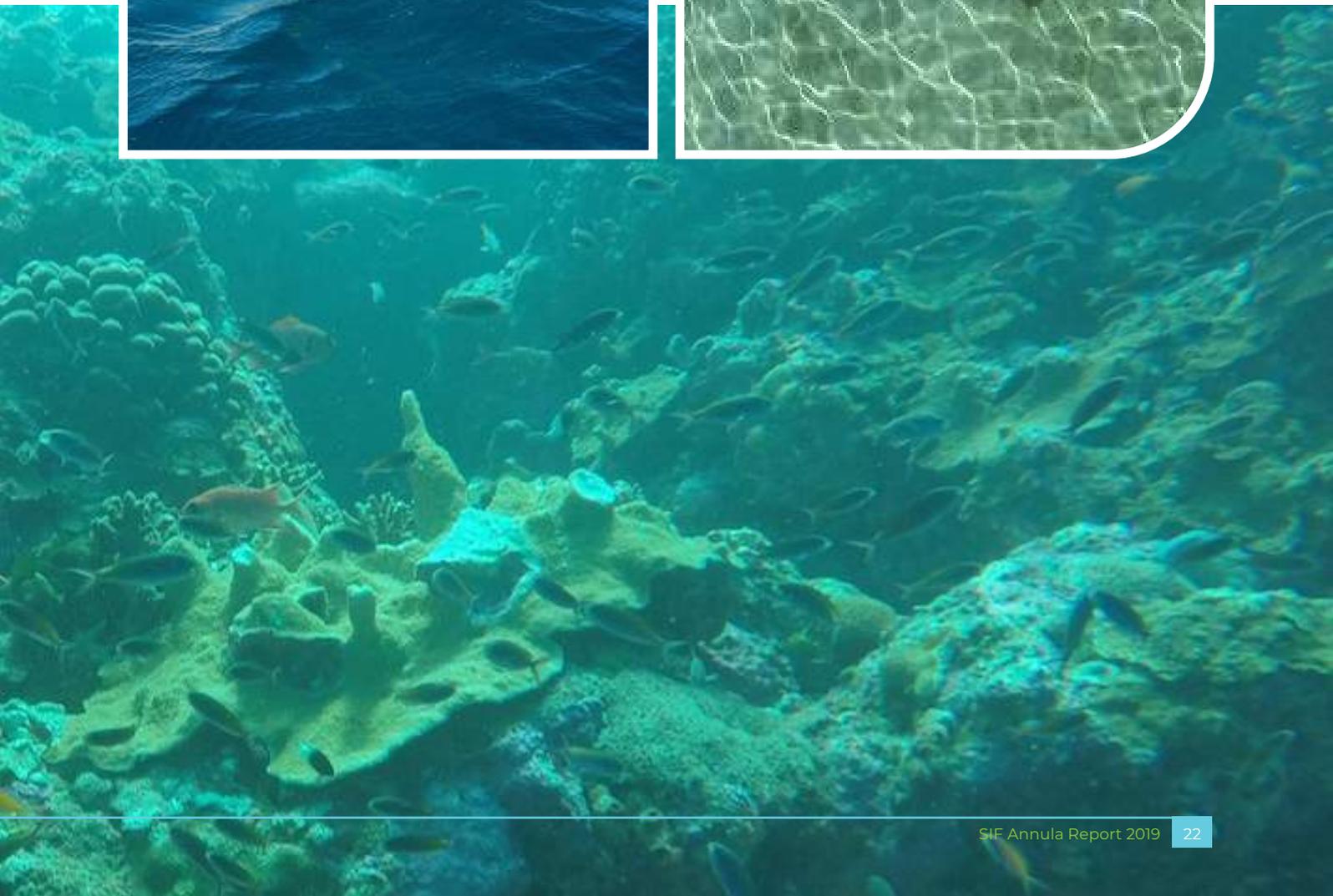


Important Marine Mammal Area

Aldabra was also designated as an Important Marine Mammal Area (IMMA) by scientists at the Marine Mammal Protected Areas taskforce in December 2019. This is Aldabra's sixth international designation to date. This designation follows on from SIF's nomination of Aldabra to be considered an IMMA with the submission of detailed reports, such as "The use of Aldabra and its protected waters by marine mammals" and evidence that met the taskforce's rigorous requirements.

IMMAs are defined as areas of habitat which are important for one or several marine mammal species which benefit from conservation action. They are identified through a carefully planned process in which experts assess submitted evidence of marine mammal distribution and habitat use in that area. Aldabra was selected as an IMMA because it is an important habitat for the only remaining population of dugongs in the Seychelles, and forms part of the breeding grounds and migratory corridor for humpback whales in the region.

The citation details for "The use of Aldabra and its protected waters by marine mammals" can be found towards the end of the report, under Publications, page 62.





Research

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

SIF collaborated with researchers from the UK, France and South Africa to publish a scientific paper in 2019 about the Aldabra white-throated rail, *Dryolimnas [cuvieri] aldabranus*. This paper revealed two exciting new facts about this unique bird: it shows the fastest evolution of flight loss ever recorded, and it should be considered an evolutionary distinct species from the Madagascar white-throated rail *Dryolimnas cuvieri cuvieri*, not a subspecies as previously thought.

SIF researchers and collaborators analysed modern rail samples and historical (museum) specimens to study the genetics and morphology of the flightless rails of Aldabra. The museum specimens were used to obtain DNA from the extinct rails of Assumption Island which neighbours Aldabra. The results showed surprisingly high genetic divergence of the Aldabra rails from the Madagascar population, and confirmed the divergence of the Aldabra and Assumption rail populations from those on Madagascar between 70,000 and 130,000 years ago. The Aldabra rail's inability to fly must therefore have evolved extremely rapidly, in less than 130,000 years, which also agrees with estimations from the fossil record.

The significant genetic differences found between the Aldabra / Assumption subspecies and the Madagascar population led the researchers to argue that these genetic and physical differences mean the Aldabra rail should be re-classified as a distinct species, which has implications for its management and protection. The researchers provide numerous examples and suggestions of how best to protect the Aldabra rail in their paper: 'Rapid loss of flight in the Aldabra rail'. They also gave a recommendation to IUCN to re-assess the Red List threat status of the Aldabra white-throated rail, as its current status is based on the far less threatened and more widely distributed Madagascar rail, and is an inaccurate threat assessment of the Aldabra rail.

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

The citation details for "*Rapid loss of flight in the Aldabra rail*" can be found towards the end of the report, under Publications, page 62 .



SIF's research reveals heavy toll of coral bleaching on Aldabra's reefs

Record-breaking high ocean temperatures between 2014 and 2017 caused prolonged and widespread coral reef bleaching worldwide. Coral bleaching occurs when corals are stressed by changes in conditions and react by expelling the symbiotic algae that live in their tissues, causing them to turn completely white. SIF has been carrying out its Aldabra Reef Monitoring Programme (ARM) since 2013, which monitors 12 coral reef sites around the atoll. The data collected by this programme allow SIF to track changes to Aldabra's reef and compare the coral composition over time.

Before this bleaching event, which lasted from December 2015 to June 2016 at Aldabra, the seafloor community was made up of living corals alongside algae, sediment and invertebrates that had survived and recovered from previous bleaching events. Eight months after the bleaching, these living corals were dramatically reduced. Soft corals, which cover 2% of seafloor coverage, declined by 93% of their original cover to make up less than 1% of the reef after the bleaching. Hard coral cover also declined, but the extent of the decline varied among habitats, with the seaward reef losing far more hard coral than the lagoon reef. This agrees with previous studies on Aldabra's lagoon reefs which suggests that the coral in the shallow lagoon may have already adapted to temperature stress and may be less susceptible to bleaching.

Overall, even Aldabra's relatively remote and pristine reefs were significantly impacted by this bleaching event, with almost all coral groups suffering major declines. Aldabra's protected status means the reefs are healthier and free from anthropogenic pressures, such as damage from



boats and anchors or pollution, and appear to have a faster recovery. But Aldabra is set to experience increasingly frequent bleaching events as global greenhouse gas emissions rise. At some point the windows between bleaching events will be too short to enable recovery. The researchers therefore reached the upsetting conclusion that with current climate change trajectories and global sea temperature rise, Aldabra is highly likely to lose more corals, and some species will struggle to recover. This probably means significant destruction for Aldabra's reefs and a compromised future for the marine status of this regional and global benchmark site, unless the world takes concerted action to limit the impacts of the climate crisis.



SIF research confirms grassland as giant tortoises' favoured habitat on Aldabra

SIF's collaborative research with the University of Zurich on the habitat preferences of Aldabra's giant tortoises was published in the journal *Biodiversity and Conservation* in August. The research is based on Rowana Walton's MSc thesis and is part of the Zurich-Aldabra Research (ZARP) Platform collaboration. The research paper, "*In the land of giants: habitat use and selection of the Aldabra giant tortoise on Aldabra Atoll*", features the first detailed terrestrial habitat map of Aldabra produced from satellite imagery in 2011, which is invaluable for the future research and the management of Aldabra. The map is now freely available online.

Advances in remote sensing techniques mean that we now have accuracy to visualise fine-scale vegetation types. Combining these images with GPS technology to track tortoises enabled the researchers to identify how giant tortoises used different habitats and which areas they preferred. Understanding how species use and interact with different habitats is key to conservation. The Aldabra giant tortoise, *Aldabrachelys gigantea*, is highly vulnerable to habitat loss and climate change is already reducing the amount of rainfall on the atoll, so this new research helps us understand the impact of such changes. There is also a strong case for 'rewilding' islands which have lost their giant tortoise populations, to promote ecosystem restoration in islands such as the Mascarenes, Madagascar and some of the granitic Seychelles islands. Understanding how tortoises use their habitats is essential to ensure the success of these projects.

The researchers analysed four years' worth of GPS data on the giant tortoises' movements around the atoll and the habitats they selected and avoided. They combined this data with the detailed terrestrial map of the atoll, and investigated whether seasonal changes affected

“The Aldabra giant tortoise, *Aldabrachelys gigantea*, is highly vulnerable to habitat loss and climate change is already reducing the amount of rainfall on the atoll, so this new research helps us understand the impact of such changes.



which habitats were chosen by the tortoises. Grassland was by far the most preferred habitat over all seasons, despite being a relatively uncommon habitat type (making up only 3% of the atoll's terrestrial area), followed by mixed open scrub. Grassland on Aldabra provides a relatively rich, diverse habitat and is an important food source for the tortoises, but is also a habitat that is highly susceptible to changes in rainfall and is likely to diminish in area over time as rainfall decreases. Aldabra's grassland habitat is therefore an essential part of the environment to secure for its giant tortoise's future.

The citation details for "*In the land of giants: habitat use and selection of the Aldabra giant tortoise on Aldabra Atoll*" can be found towards the end of the report, under Publications, page 62.



Research sheds light onto the mystery of coastal skinks

Coastal skinks are found on beach habitats across the tropics and many island groups, including Australia, Polynesia and the Western Indian Ocean, in an astonishingly broad range which extends over 10,000km! These animals have posed a mystery to researchers who are eager to understand long-distance dispersal and how certain groups of animals have spread so widely across huge bodies of water.

As part of its core mission to conserve Seychelles' natural heritage through evidence based management, SIF strives to research and better understand the species and ecosystems under its protection. In doing so, through research collaboration, SIF is able to contribute to uncovering long held mysteries. The paper "*Habitat preference modulates trans-oceanic dispersal in a terrestrial vertebrate*" published in June 2019, which analysed coastal skink samples from Aldabra and various other locations in the Western Indian Ocean and Pacific Ocean, has provided new insights. Researchers carried out genetic analysis on skink samples and found that the ancestors of modern coastal skinks in Australia adapted to be able to exploit coastal habitats. This allowed the skinks to disperse widely and colonise coastal habitats from Australia to the East African coastline, and north and east to Hawaii and the Polynesian islands.

How did the skinks manage to spread so far? The skinks were on these islands long before humans colonised, so they must have initially travelled there without the assistance of people. It seems that the traits that evolved which allowed them to specialise in coastal habitats also enabled their journeys across such vast bodies of water, and facilitated their dispersal to many island archipelagos. This makes sense, given that traits which allow animals to thrive in coastal areas, such as saltwater tolerance and an ability to swim or float, are also likely to make dispersal across seawater feasible. Researchers are still trying to pinpoint exactly which traits enabled the remarkable spread of these fascinating creatures. SIF was glad to contribute to this international research and is looking forward to be involved in the continuation of this research.

The citation details for "*Habitat preference modulates trans-oceanic dispersal in a terrestrial vertebrate*" can be found towards the end of the report, under Publications page 62.

“ How did the skinks manage to spread so far? The skinks were on these islands long before humans colonised, so they must have initially travelled there without the assistance of people. ”





“Habitat preference modulates trans-oceanic dispersal in a terrestrial vertebrate”

SIF carries out research into Aldabra’s mangroves

In November 2019, SIF’s PhD student Annabelle Constance, and the Aldabra team began field research on Aldabra’s mangroves on the islands of Picard and Grande Terre. This research is part of Annabelle’s PhD at the University of Zurich, the main aim of which is to investigate factors that influence the distribution of mangroves and their diversity on the atoll.

Annabelle’s work combines a survey of mangrove adults and seedlings, their environment, (soil conditions and water exposure) and distribution. A huge team effort from everyone involved enabled Annabelle to survey 49 plots of 5m², with 650 adult mangroves and more than 350 seedlings surveyed. The biggest tree recorded was at Bras Cinq Cases on Grande Terre, with a trunk circumference of 151cm!

The intensive mangrove field research will continue into January 2020, after which SIF will continue to monitor the mangrove environment and seedlings for the following six months. Annabelle is very thankful for all the help she has received from SIF to plan and carry out the surveys, and looks forward to sharing the knowledge from her work so that it can be integrated into Aldabra’ management.

April Burt carries out island ecosystem connectivity research in Seychelles

April Burt, a PhD student at Oxford University co-supervised by SIF, is carrying out research into island ecosystems in Seychelles and around the world. The first part of her research focuses on island conservation management from a practitioners’ perspective. She interviewed conservation practitioners and island managers in Seychelles and is now developing an online quantitative questionnaire for island management practitioners and researchers to find out how biodiversity-rich island ecosystems are being managed and monitored, and how this can be improved.



Alongside this, April is also carrying out genetic research into Seychelles' coral reefs, including Aldabra's. Coral reefs are in decline globally, and bleaching events are becoming more frequent and severe. Places like Aldabra may act as nurseries to produce larvae which repopulate coral in other areas. Aldabra's lagoon coral has responded differently to bleaching events than the outer fringing reefs. April will investigate these differences and connectivity by analysing coral DNA. With the financial assistance of SeyCCAT and the help of organisations such as SNPA, Global Vision International and the Island Conservation Society, as well as SIF, she sampled coral from a number of sites in both the inner and outer Seychelles island groups.

As mentioned before, April's research also covers the threat of plastic pollution to island ecosystems. Her work through ACUP and with TOP to investigate accumulation rates, composition and quantity of plastic waste arriving in Seychelles will inform island management on how we can better manage this threat.

Anna Koester investigates coral reef recovery at Aldabra

Anna Koester, PhD student at the University of Bremen, has been analysing data collected on Aldabra's coral reefs by SIF's ARM programme. Anna and the SIF team have noted that there are positive signs of recovery at Aldabra's reefs after the 2016 coral bleaching event. Coral cover increased at all seaward reefs between 2016 and 2019, with 2019 reaching 93% of pre-bleaching cover inside the lagoon! Additionally, coral juvenile density also increased in this time period and was three times as high in 2019 than in 2016.

Alongside the reef monitoring, Anna and the SIF team have also been studying coral recruitment at Aldabra by leaving ceramic tiles on the reefs. Throughout one year, tiles were replaced every two months, taken out of the water and then, under a microscope, the number of settled coral larvae (that by then look like tiny coral colonies) were counted on the underside of the tiles. The last coral tiles were retrieved from the reef in August 2019. Anna and the team found high numbers of corals, up to 120 baby corals per tile, which is a very positive result after such a short time and following the severe bleaching episode! This study also revealed that corals at Aldabra likely spawn mainly at the beginning of the north-west season, during October–December, the time when water temperatures increase fastest and the sea is calmest.



Monitoring

Six years of Aldabra marine monitoring

The Aldabra research team completed the sixth season (2018/19) of SIF's marine monitoring programme in January 2019. This programme has been running since 2013 and chiefly comprises of the Aldabra Reef Monitoring (ARM) programme and the Baited (and unbaited) Remote Underwater Video systems (B/RUVs). The ARM was set up to monitor changes in the benthic and fish community compositions over time. Together with temperature and water level dataloggers that are deployed at selected sites, the monitoring allows SIF to assess the state of Aldabra's reefs, and record changes in water temperature and sea level rise. There are 12 permanent monitoring sites around the atoll, each of which have permanently fixed transects marked out at 15m and 5m depth at the seaward reefs and at 2-3 m water depth inside the lagoon. The SIF team used 'photoquadrats' to collect data on the benthic community composition, and carried out fish surveys using belt transects. This season, the team collected 2535 photoquadrats across 63 transects at the 12 sites. Coral cover remained similar at shallow and deep sites compared to last season.

This season, the team recorded greater numbers of fish in their fish surveys, 66% more than last season. They also recorded a substantially higher number of piscivores (fish-eating fish), although this was mostly due to a huge shoal of trevally.





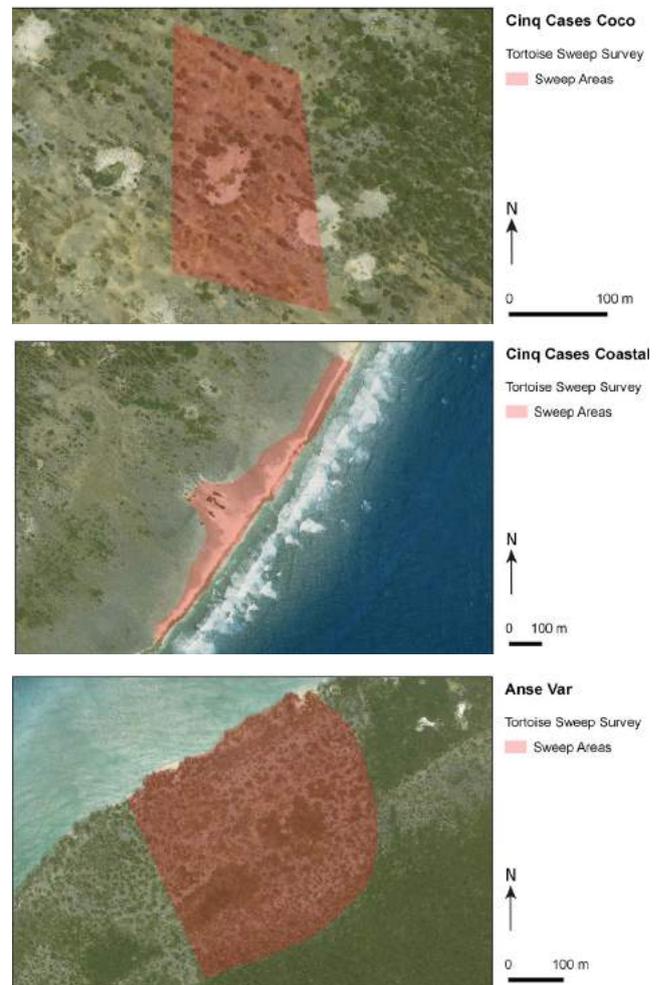
The team also deployed BRUVs and RUVs to investigate fish species composition across habitats, depths and different locations across Aldabra's outer reef. They are deployed for one hour underwater and offer an insight into what species are in particular areas, especially those that are 'diver shy' and may not otherwise be seen. The analysis of B/RUVs takes long hours, noting every single species of fish captured in the videos and requires extensive knowledge of the Western Indian Ocean fish species. So far only the 2017 B/RUVs survey has been analysed, which documented higher number of fish and species in the Conservation Zones (CZ) than in the Food Security Zones (FSZ). Fish numbers and species were higher at shallow sites (0-10m) compared to sites at medium depths (10-20m) and deep areas (>20m). Butterflyfish, groupers and snappers comprised 49% of all fish recorded in both management zones in similar proportions. Piscivorous fish were the dominant fish feeding group in both zones. Six different species of shark were recorded on the videos, with grey reef sharks (*Carcharhinus amblyrhynchos*) being the most common species. Plus, one individual of the elusive and endangered giant grouper (*Epinephelus lanceolatus*) was also documented. In November 2019 the seventh season (2019/2020) of marine monitoring started. Although it is too soon to make any assessments about the state of the reefs, the team had some incredible diving experiences, including a close encounter with a manta ray off the south-east of the atoll.

Tortoise monitoring provides a better understanding of Aldabra's population

The Aldabra research team have collected information on the atoll's giant tortoise population demographics since 2017 via 'sweep' surveys. The overall goal is to collect long-term data on population trends and dynamics on the different islands of Aldabra to be able to detect and act on population decreases quickly. SIF also aims to build up its knowledge of individual tortoises and collect enough data to investigate growth rates, longevity, survival, mortality and movements of individuals. To carry out the tortoise sweeps, our research staff mark out pre-designated areas, and go into the field armed with measuring tapes. They

then measure and assess all of the tortoises in that area. In November 2019, the team measured 225 giant tortoises at Cinq Cases in two sweep zones and 190 tortoises on Picard in four areas (most of the tortoises on Picard are individually marked from previous studies). Of those 190 tortoises, 127 already had an ID. The team will be gradually marking more individuals on Picard throughout the following years.

In October 2019, SIF received an extremely generous donation by Odense Zoo in Denmark towards its giant tortoise monitoring programme. Odense Zoo have giant tortoises in their collection and they are keen to support our work in monitoring this species. Their donation of EUR 6000 enabled us to launch a pit-tagging programme, which is an improvement on the previous marking method and will allow us to track tortoises on Grande Terre and also capture individuals with smaller, thinner shells which can't be branded. A Passive Integrated Transponder or PIT tag is a small radio transponder that contains a unique code, allowing us to assign each tortoise an ID number. Staff will be trained in pit-tagging methods in early 2020 to allow us to start pit-tagging tortoises on Aldabra shortly afterwards. The data that we collect by monitoring tortoises with pit-tags will be much richer and provide us with more information on individual tortoises, which will provide much more insight into tortoise biology and ecology and ultimately support more effective conservation decisions. A big thank you to Odense Zoo!



Results of distance sampling pilot study for Aldabra's landbird monitoring

All 13 of Aldabra's landbird species are monitored using a point count survey, which indicates the relative abundance of these species along seven transects across the atoll. Data collected through the point counts have pinpointed changes in population dynamics over time for some species. However, while this method is able to provide data on relative abundance, it does not allow us to estimate absolute density and abundance (i.e., true population) of landbird species, like the endemic Aldabra drongo or Aldabra fody. This limitation is due to the fact that point counts are unable to account for animals that are present in the area but missed during the count. A better method for landbird monitoring would therefore account for incomplete detection.

Accordingly, with these limitations in mind, a proposal to test distance sampling surveys for landbird monitoring led to a pilot study being conducted on Picard in February 2018. The pilot study was analysed in 2019 by Science Officer Lorraine Cook and its results and recommendations discussed. Generally speaking, distance sampling surveys are widely used and popular. They are designed to provide reliable, comparable and unbiased absolute estimates of population density. One of the Aldabra landbird monitoring pilot study's aims was to assess whether the distance sampling method was suitable for eight of Aldabra's landbird species (Aldabra drongo, Aldabra fody, Comoro blue pigeon, Madagascar turtle-dove, Souimanga sunbird, Madagascar bulbul, Madagascar white-eye and Madagascar coucal). The pilot tested the overall feasibility of the method for monitoring Aldabra's landbirds while also determining its optimal design.



The pilot study indicated that some of Aldabra's landbirds are more suited for distance sampling than others. In summary, the study showed that distance sampling on Aldabra could provide absolute abundance estimates for bulbuls, blue pigeons, sunbirds and turtle-doves as well as drongos and fodies if a large-scale survey can be implemented. However, the study showed that distance sampling is not suitable for white-eyes and coucals, in addition to other landbirds already deemed unsuitable (such as the Aldabra

rail, Madagascar nightjar, Madagascar kestrel, pied crow and sacred ibis). This means that if estimates of absolute abundance are required, distance sampling is likely the best method, despite being limited to only six of Aldabra's 13 landbird species and requiring intensive effort (increase in transects). Ultimately, Lorraine's analysis recommended that a decision to implement distance sampling must be based on management objectives and desired outcomes and that the existing landbird monitoring programme could be extended to include more transects.

Research on Aldabra's long-term turtle monitoring yields insights

Aldabra's turtle monitoring programme offers the longest continuous record of protection for nesting green turtles (*Chelonia mydas*) in the Western Indian Ocean. For SIF and other conservation organisations the long-term monitoring of turtle populations is essential for assessing the effectiveness of conservation efforts. In an MSc project collaboration with the University of Exeter, entitled "Green Turtle Population Recovery at Aldabra Atoll Continues after 50 Years of Protection", 38 years (1980–2018) of green turtle track count data were analysed and results were compared to early nesting estimates.

University of Exeter MSc student, Adam Pritchard, working closely with SIF staff, used the data to illustrate the significance of Aldabra's nesting green turtle population and show that this population's recovery continues 50 years after its protection in 1968. Adam was able to show, despite the lack of standard methodologies and data across sites making accurate comparison very difficult, that Aldabra is the Western Indian Ocean region's second most important monitored breeding site, with only Europa in the French Iles Eparses, having a greater estimated population. His ongoing research also indicates that Aldabra's nesting green turtle population has not yet fully recovered. Adam's analysis for the thesis will now be developed and expanded for a scientific paper, so more results and recommendations are to come.





Island management and sustainable tourism

SIF annual general meeting held on Aldabra

Although some Trustees have been members for many years, some are new to SIF, and for some it was their first visit to Aldabra. During their visit the Trustees were able to meet all of the Aldabra staff and were lucky to be on the atoll at the same time as the ACUP. Moreover, considering that SIF's commitment to tackling plastic pollution on Aldabra was made at the 2017 AGM and materialised into the ACUP, this shows the importance of Trustees visiting both UNESCO World Heritage Sites.

Ultimately, 2019's AGM included many presentations and decisions concerning the Aldabra House, the restoration of the Aldabra Chapel, the yellow crazy ant invasion of the Vallée de Mai and the poaching of giant bronze geckos, to name but a few. All these topics and projects are priorities for SIF that contribute to the realisation of its mandate and align with a long term vision for the organisation and Seychelles. The actualisation of SIF's mandate and vision, while also taking on the various challenges that arise, is a key focus for the Trustees, who have expertise in conservation, science, research, academia, finance and tourism among many other fields. Their decision-making role and advisory capacity ensure that SIF continues to pioneer evidence-based management and sustainable tourism, as well as tackling emerging site-specific, national and international environmental issues. For more information on the composition of our board, please read pages 63 under Thanks and acknowledgements section.

“ The annual general meeting (AGM) of the SIF board of Trustees took place on Aldabra from March 8th to 12th. The AGM's location alternates between the Vallée de Mai and Aldabra each year and 2019 was the first AGM for the new board which was appointed at the end of 2018.

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Aldabra's Tourism reaches pre-piracy levels but impacted by the COVID-19 pandemic

2019 saw Aldabra receive its highest number of visitors (over 1000) since the 2008/2009 season, before piracy around East Africa took off. The 2018/2019 season was also the second season in which a Tourism Coordinator, Jake Letori, liaised between expedition teams on board visiting vessels while supervising and reporting each visits' activities. The addition of a Tourism Coordinator and tourism policy, has not only ensured that the Aldabra team is not overwhelmed by such high numbers, but also guarantees that SIF is conscious of the practicalities and challenges of tourism operations on Aldabra and can respond accordingly. The year also saw smaller changes such as the addition of a biosecurity video for visitors, helping to reduce their impact on a virtually pristine wonder, as well as the barcoding of souvenir items.

Eight different vessels, including larger expedition cruise ships and small chartered or private yachts, visited Aldabra a total of 12 times in the 2018/2019 season, carrying a sum of 1011 passengers. It is noteworthy that *The World*, the largest private residential ship on the planet, carried the highest number of passengers (189) to Aldabra, with *Le Lyrial* following in a close second with 185 visitors for the season. The chartered yacht *Lonestar* carried six passengers to Aldabra and was the smallest group received for the season. While larger vessels with greater numbers of passengers and crew means more income from impact fees and potential souvenir sales (which helps fund the research and protection of Aldabra), it also presents logistical challenges for the small Aldabra team and can place further pressure on parts of Aldabra's ecosystem that are within the tourism



zones. A 'sweet spot' in numbers of passengers and sizes of vessels rests somewhere between 50 and 150 passengers, but being able to meet the demand from visitors while understanding the business models of expedition cruises and yacht charters, makes reaching a balance complex. Nevertheless, with regular reports capturing both quantitative (i.e. visitor numbers) and qualitative (the experiences of the Aldabra team in handling vessels and visitors) data, SIF is able to analyse trends and communicate Aldabra's needs with the relevant stakeholders to allow better management over time.

Biosecurity efforts continue to pay off on Aldabra

Invasive species are widely recognized as a major threat to biodiversity, and their impacts can be devastating for native species and entire ecosystems. Preventing the introduction of invasive alien species (IAS) requires far fewer resources than would be needed to respond to a pest incursion or an eradication. The chances of intercepting an IAS are significantly higher before it arrives on an island. It is therefore essential to have well established prevention and detection procedures, as well as emergency response measures in place, minimising the risk of establishment and the subsequent need for an eradication. Consequently, establishing the necessary biosecurity facilities and equipment continued to be a top priority for SIF in 2019. Reviewing and strengthening SIF's biosecurity plan, creating ID guides for relevant invasive plant and animal species as well as incursion response procedures, and educating staff on the prevention and potential eradication of IAS were all key outcomes this year. Over the last couple of years, Aldabra's biosecurity measures have been augmented to impressive levels due to the efforts of SIF staff on the atoll and on Mahé. All people and supplies are thoroughly checked before landing on Aldabra.



Moreover, there has been a recent addition to Aldabra's biosecurity monitoring with the trialling of an ant monitoring programme that helps us to understand what ant species are already on the atoll. Once the system is fully developed, monitoring will be carried out after supplies and people are brought ashore, acting as an early detection method in case any invasive ants were able to sneak ashore. With biosecurity, prevention is key, but early detection is the most important step in ensuring IAS do not spread and establish breeding populations. As such, IAS monitoring will play an important role in Aldabra's strengthened biosecurity programme.

It is important to note that maintaining Aldabra's biosecurity measures requires an annual budget of approximately \$89,000. This, however, is a small cost compared to \$290 million for a potential ant eradication (with no guarantee of

success), or \$9 million for a rat or cat eradication on Aldabra. The team is determined to maintain and enhance Aldabra's biosecurity measures to protect Aldabra's native flora and fauna, and preserve this unique and precious ecosystem.

Sisal successfully eradicated from Aldabra after 40 years of efforts

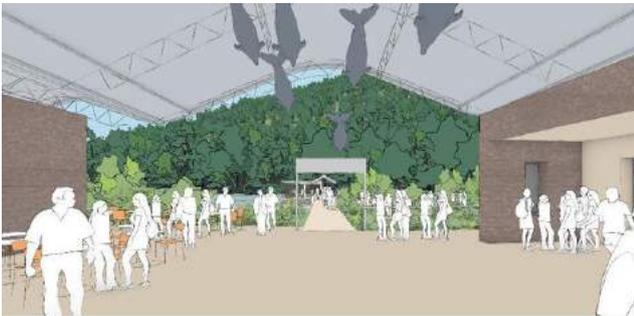
Sisal, an invasive alien plant, was introduced to Aldabra by early settlers. The species can spread quickly and create impenetrable areas where other plants cannot grow. Sisal occurred at four sites on Aldabra (Picard, Anse Polymnie, Anse Malabar and Ile Michel), and efforts to remove it started in the 1970s. These attempts were only partially successful because the hard porous limestone rock at Aldabra allows the plants to root deeply, and as a result they could not be removed manually. In 2012 SIF resumed the eradication effort with an EU-funded invasive alien species project, which prompted an investigation into chemical control methods. SIF carried out experimental trials over seven months in 2013 and 2014 to determine the most effective control method which caused as little environmental harm as possible. The Aldabra based team took care to ensure that they targeted individual plants, not spraying any plants other than sisal and taking great care to ensure that herbicide did not come into contact with any other plant species or the soil. The



trials found that only a high herbicide concentration applied directly to the growing tip of the plant was powerful enough to kill adult plants. Fortunately, this method had no negative effects on the surrounding vegetation and substrate.

Following the trial, SIF made several visits to the four locations in 2015. There was no sisal re-growth at any of the sites except at Ile Michel, where sisal had been most abundant. We re-treated these plants with herbicide and made follow-up visits in December 2016, which discovered four new shoots. After treating these shoots in January 2017, we carried out follow-up visits throughout 2017 and 2018 with no sign of any sisal. As of January 2019, there had been no signs of sisal re-growth at Ile Michel for more than two years, and at the other three sites for more than four years. The eradication was therefore successful, and we declared Aldabra sisal free! This was the fourth successful eradication of an invasive alien species from Aldabra in seven years.

SIF cancels Aldabra House with great regret



Sadly, in July SIF had to announce the cancellation of the Aldabra House project, which would have brought the magic of Aldabra to Mahé. The decision to cancel, which came after careful consideration and extensive discussion by SIF's Trustees, was an extremely difficult one as it meant letting go of seven years of hard work and planning. Aldabra House was conceived as an interactive visitor centre on Mahé which would have featured a fully immersive multimedia exhibition using cutting-edge technology to inspire and educate its visitors.

Regrettably, the plot of land which had been designated for Aldabra House sits within an area undergoing extremely dense infrastructure development that would have been incompatible with the visitor centre's design, especially the planned outdoor exhibition. Within a press release explaining the cancellation Dr Frauke Fleischer-Dogley, SIF's CEO, said "We deeply regret the cancellation of this project, which we have spent considerable time and effort planning over many years. Aldabra is a national treasure of Seychelles and of enormous importance for the whole world. I remain passionate about finding ways to share Aldabra with Seychellois and ensure that future generations are inspired to protect this unique and wonderful place". Although the cancellation is a significant setback, SIF is determined to bring Aldabra closer to home and will be exploring other educational and outreach opportunities to engage the public with Aldabra's outstanding universal value as well as the research and conservation taking place on the atoll.

The never-ending challenge of maintaining Aldabra's infrastructure

Aldabra is not only a tough place to work in, but also an unrelenting test for the equipment and infrastructure that is installed there. The sea salt spray means everything corrodes quickly (from doors, to tools) and the constant shifting of sand and rock is tough on boats and engines. There is also no way to dock and raise boats for maintenance, and the constant 'surprises' make it a challenge to complete planned work. Due to this, team members not only pull their own weight to get things done but also learn new

skills in fields other than their own. Many hands are usually needed for construction and maintenance projects on Aldabra, therefore skippers become skilled at building and redesigning kitchens, the mechanic doubles up as an electrician and builder, and technicians must know a wide range of skills from plumbing to fixing anything the team may need. In 2019, Aldabra's biosecurity building made incredible progress because various members of the team put their hands and skills to good use. The biosecurity building will enhance SIF's efforts to prevent IAS from being introduced on Aldabra by allowing more thorough biosecurity checks to take place in a sealed environment.

As there are no machines on Aldabra (only human power), the arrival of supplies which takes place in large quantities every six months requires a great deal of energy. Hundreds of heavy boxes filled with food, construction materials and much more must be moved from a supply boat's landing stage to Aldabra's stores. To aid them in this challenging task the team uses a self-made trolley to transport supplies. It is a much-needed assistant, and although it has tried to quit several times, it has been creatively rewelded, and continues to carry on strong! When the team is not busy renovating staff houses, re-roofing buildings, or rebuilding field camps, they carry out excellent maintenance work on the research station's boats, including smaller fibreglass work. Replastering water storage tanks and maintaining the station's garden - which is crucial for fresh food during the southeast when there are no supply missions - are important jobs as well. It takes a dedicated and multi-skilled team to keep the research station running, ensuring everybody is well fed, alive, and happy.





Aldabra's deep waters explored by Nekton

For the first time ever, Aldabra's deep sea was explored in March 2019 by the Nekton Foundation, a non-profit research foundation and a UK registered charity. Very little research has been undertaken deeper than 30m across Seychelles' vast ocean territory and the Nekton Seychelles expedition, themed "First Descent: Indian Ocean", surveyed for the first time Seychelles' deep waters with the objective to establish a baseline of marine life and the state of the ocean. Nekton's research focused in the region between the ocean surface into the bathyal zone (200–300m), home to the greatest range of biodiversity but also substantially impacted by human activities. Two sites around Aldabra, in the north and the west of the atoll, were surveyed and Nekton's deep sea scientists used a range of high-tech equipment to monitor and document Aldabra's deep sea communities. Remotely operated vehicles (ROVs) and manned submersibles conducted video transects of the seafloor to document the communities living at various depths; and a multiple-beam echosounder, a type of sonar used to map the seabed, was used to document the shape and bathymetry of the ocean floor down to 500m. The expedition also deployed a conductivity-temperature-depth instrument down to almost 450m to measure the temperature, salinity, light, pressure and conductivity of the seawater in the water column. The expedition around Aldabra also collected some deep ocean specimens for museum curation and further taxonomic research and even made some exciting discoveries, such as the first sighting of a sixgill shark at 300m!

A major component of First Descent was its public relations and outreach, with submersible dives around Aldabra broadcast live by Sky News and reported on by the Associated Press. Termed "Deep Ocean Live", the broadcasts aired over four consecutive days (18th-21st March) showcased never before seen footage of Aldabra's deep sea community to a global audience of millions. It also covered the efforts of the ACUP and provided for live interaction with school children, who could ask questions about the deep sea and plastic pollution to the Nekton and SIF teams. Another key part of Nekton's mission in Seychelles was capacity strengthening, in which several young Seychellois marine scientists had the chance to take part in the expedition and conduct research. SIF's Science and Projects Coordinator, Jennifer Appoo, joined the Nekton expedition for two weeks. She received training, and assisted with the data collection, and even got a once-in-a-lifetime opportunity to join a submersible dive to 250m! For Jennifer, the most amazing part of the experience was seeing the transition of communities from shallow to deep water and she describes her experience of diving in a submersible as one of life's most amazing moments! Through Nekton, Jennifer was also one of seven Seychellois who directly benefited, having one of five research projects co-financed by SeyCCAT and participating in the Africa Oxford Initiative (AfOx) Visiting Fellowship Programme. Read more about these amazing opportunities on page 60 in the Further education and training section.





Communications

2019 was an incredible year for SIF's communications. Building on top of past successes and momentum, and having the ACUP complement the Foundation's education and outreach in 2019 meant that SIF's work was recognised at new levels nationally and internationally. SIF's third public research and conservation symposium, mentioned on page 50, marked SIF's 40th anniversary and allowed the sharing of our research and projects with the Seychelles public and various environmental organisations. SIF also attended the International Conference on Island Biology, taking SIF research and project results to an international academic and professional audience, while the Eden Project's 'Guardians of the Future' exhibit showcased the results of the ACUP. SIF press releases, newsletters and information on specific projects were frequently featured on national and international news. Social media continued to provide periodic insights into the science and stories of both the UNESCO World Heritage Sites, reaching over 350,000 people through the SIF and ACUP Facebook pages. SIF also took part in national festivals and organised several actions and events to mark international theme days. School children also continued to visit both sites, with 949 to Vallée de Mai through the Friends of the Vallée de Mai and holiday camps, while 12 winners of the 2019 national eco-school competition visited Aldabra. 2019 also saw Ms Sophie Adams join the team as the organisation's Communications, Education and Outreach Coordinator in April, following the departure of Ms Lynsey Rimbault as SIF's Communications Officer.

Media

	Newspaper articles	56
	Magazine articles	8
	National television features	12
	International television features	6
	E-newsletters	12

f SIF Facebook page likes at year end 2019

7918

SIF Facebook reach* throughout 2019

241,800

ACUP Facebook page likes at year end 2019

1934

ACUP Facebook reach throughout 2019

107,114

ig SIF Instagram followers at year end

6906

SIF Instagram reach throughout 2019

19,127

ACUP Instagram followers at year end 2019

835

ACUP Instagram reach throughout 2019

2815

tw SIF Twitter followers at year end 2019

1125

ACUP Twitter followers at year end 2019

434

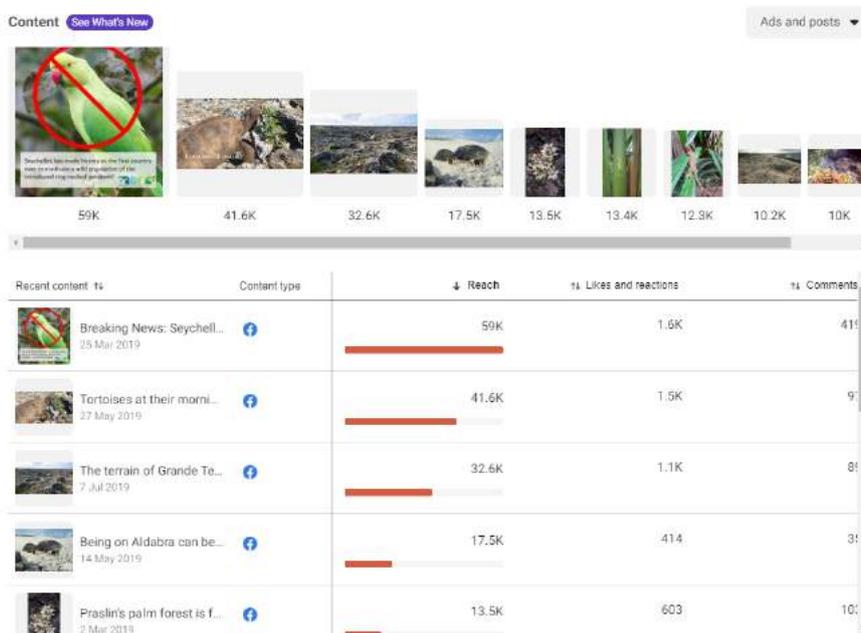
yt SIF You-tube channel followers at year end 2019

82

*The number of people who saw any content (inclusive of posts, stories and adverts) from or about the SIF facebook or instagram account.

Social Media Analysis

Social media has become a significant part of SIF's public relations, regularly delivering vibrant photos, videos and engaging information about our research, with insights into the monitoring going on at both sites, as well as inviting interaction from local and global communities. It also provides SIF with a better understanding of what interests the public and can raise awareness on environmental issues which require public buy-in. Out of the 298 Facebook posts created in 2019, the announcement of the successful ring-necked parakeet eradication was the post that attracted the most engagement in 2019. Posted on the 25th March 2019 it received 8500 clicks and 2200 reactions, comments and shares. Other popular posts included a video on Aldabra 'tortoise cave' at Cinq Cases posted on 27th May, which received 3500 clicks and 1800 reactions, comments and shares; and photos of Aldabra terrain posted on the 7th July, which received 5900 clicks and 1300 reactions, comments and shares. Almost a quarter of a million people from around the world were reached solely through SIF's Facebook page in 2019, while SIF's other social media platforms also performed extremely well, continuing to steadily grow the audience locally and internationally.



Newspaper articles



DATE	ARTICLE TITLE
19-01-2019	More data and closer collaboration to save Seychelles amphibians
09-02-2019	Nekton Group, Sky News to explore and film marine life near Aldabra
18-02-2019	Meet the ACUP team
04-03-2019	Nekton Mission officially launches deep ocean expedition in Seychelles
18-03-2019	Former President Rene A champion for Seychelles UNESCO World Heritage Sites
18-03-2019	Eco-Schools award winners thrilled with Aldabra trip
04-04-2019	Seven projects to be funded from SeyCCAT 2nd blue grants fund
20-05-2019	The Aldabra experience has profoundly changed me
23-05-2019	Biodiversity, our food, our health
23-05-2019	Yellow crazy ant spread and control in the Vallée de Mai
27-05-2019	Yellow crazy ants invade Vallée de Mai
27-05-2019	40 years of eradication efforts against invasive plants on Aldabra finds success
30-05-2019	SIF displays its pioneering research and conservation work
30-05-2019	40th anniversary of Seychelles Islands Foundation
06-06-2019	Prezidan I onor bann ero konservasyon biodiversite
24-06-2019	Fish populations at Aldabra and Mahé plateau
24-06-2019	Seychelles' largest mangrove forest
24-06-2019	Presentations made during the SIF symposium on Aldabra and the Vallée de Mai held in May
24-06-2019	Plant phenology
15 07 2019	Environment Trust Fund celebrates quarter of century
17 07 2019	Seychelles represented at international conference on island biology in Reunion
30 07 2019	SIF cancels Aldabra House project
26-08-2019	SIF launches yellow crazy ant taskforce to tackle invasion of Vallée de Mai
30-08-2019	Aldabra clean-up sponsors, supporters rewarded
02-09-2019	18-member voluntary team tasked with eliminating crazy ants in the Vallée de Mai
11-09-2019	Aldabra plastic waste - great raw materials for recycling opportunity
24-09-2019	President Faure meets SYC youth delegate Jeremy Raguain
24-09-2019	Growing up on a farm has helped shape my life
12-10-2019	Shanone Hibonne, Ella Nancy win Professor David Stoddart scholarships
21-10-2019	Raft Race 2019 promises recycling opportunity for Aldabra plastic
25-10-2019	Aldabra Atoll Special Reserve earns prestigious Blue Park Award
28-10-2019	Praslin ek La Digue osi I selebre Festival Kreol

Education

Eco-school award winners spend a week on Aldabra

In March 2019, a group of schoolchildren had the unforgettable experience of visiting Aldabra. The group of 12 students, aged between 10 and 16, were winners of the 2019 national eco-school competition, and were proud recipients of an SIF-sponsored prize to visit Aldabra for five days.

The national eco-school competition is coordinated and judged by the Environmental Education Unit within the Ministry of Education and Human Resource Development. All schools in Seychelles are encouraged to participate by engaging in environmental activities and projects at their schools and adopting sustainable practices, such as recycling. At the end of the year every school presents their achievements to the judges. The winning 2019 schools were Anse Royale primary and secondary, Baie Lazare primary, Beau Vallon primary and secondary, Baie St Anne Praslin primary, Mont Fleuri secondary, Plaisance secondary and Pointe Larue secondary as well as members of the Friends of Vallée de Mai. The SIF team on Aldabra plan many activities for the children so that they can learn and experience as much of Aldabra as possible. The children go on boat trips through the lagoon to see the frigatebird colonies, carry out beach cleaning on Picard, snorkel, and join in turtle nesting patrols, among many other activities. They also receive presentations from our Aldabra staff on a variety of exciting subjects. The most popular experience is usually seeing and swimming with blacktip reef sharks in front of the research station, which has a hugely positive influence on the children's perceptions of sharks.

Next year will be the 20th anniversary of these amazing school trips which are funded and hosted by SIF. We will be celebrating this milestone and also using it as an opportunity to appreciate the long-term value of these trips and consider improvements for the future. Watch this space!





SIF awards Professor David Stoddart scholarships to two students

SIF awarded its Professor David Stoddart scholarship to two students commencing their BSc in Environmental Science at the University of Seychelles in 2019. SIF offers this scholarship on an annual basis to Seychellois students who have secured a place on this course. The scholarship is awarded in honour of the late Professor David Stoddart, the British physical geographer known for his seminal research on coral reefs and atolls. David Stoddart was instrumental in setting up the Aldabra research station and protecting the atoll from being transformed into a military base.

2019 was an exceptional year for the scholarship, with two bursaries being awarded to Shanone Hibonne and Ella Nancy. Through the scholarships SIF will fund the entirety of their undergraduate tuition fees. Shanone and Ella were both employed by SIF before they enrolled on their course, and will return to work after they graduate. SIF looks forward to welcoming them back to lead exciting monitoring programmes and projects!

Yellow crazy ant poster competition

SIF launched a poster competition in Seychelles schools in 2019, which encouraged children to demonstrate their knowledge of YCA and how this noxious invasive alien species impacts the Vallée de Mai. The competition was extremely popular and we received many entries. The

judges were impressed with the children's creativity and their understanding of the topic. Congratulations to all the winners of the competition, listed below, and many thanks to all for taking part and helping to raise awareness of this important issue.

Primary Category



1st Prize

Anil Lozaique from Beau Vallon Primary School



2nd Prize

Ella Moustache from Beau Vallon Primary School



3rd Prize

Edel Allisop from Independent School



Special Effort

Adrianna Richmond from Independent School

Secondary Category



1st Prize

Brandon Lucas from Plaisance Secondary School



2nd Prize

Shakira Tirant from Mont Fleuri Secondary School



3rd Prize

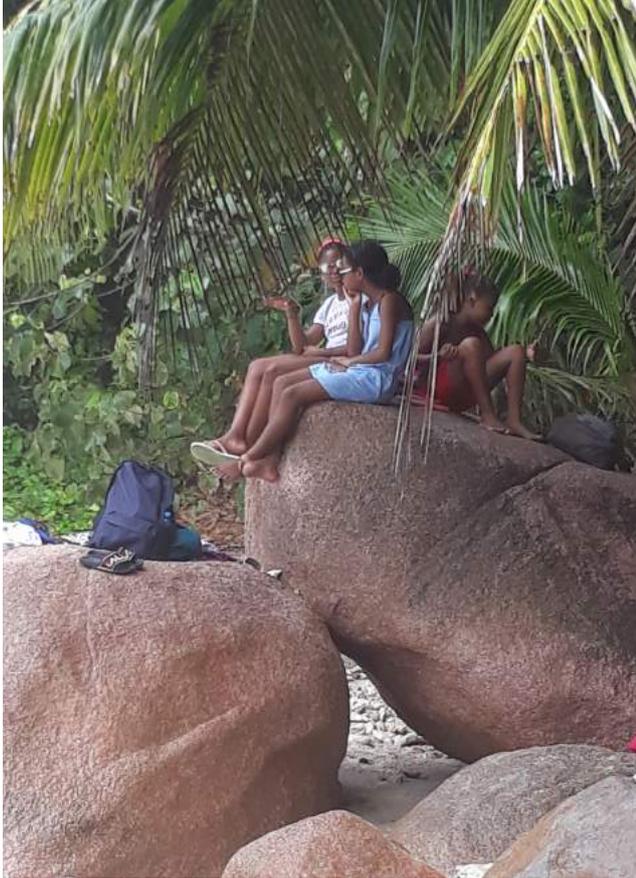
Staelle Rigodon from Mont Fleuri Secondary School



Special Effort

Charmaine Soffola from Plaisance Secondary School

The lucky winners received some exceptional prizes, including ferry tickets to visit the Vallée de Mai, PADI scuba diving courses, trips to Silhouette Island, educational books and dinner vouchers. These wonderful prizes motivated the students to take part in the competition and encouraged them to think about the threats invasive species pose to their endemic counterparts.



A summary of Aldabra Clean-Up Project education activities

To understand the impact and reach of the ACUP, a record was kept of all the education and outreach activities it organised or participated in. Free documentary screenings, beach clean-ups, conferences and exhibitions about ACUP were some of a total of 52 activities that took place between May 2018 and August 2019. These activities directly reached approximately 255,000 people and mostly took place in Seychelles, with some events also taking place in the UK such as the 'Guardians of the Future' exhibit held at the Eden Project, and in other parts of the world.

Holiday camps

Every August and December, during the school holidays, SIF runs holiday camps for schoolchildren in the Vallée de Mai. These week-long camps hold a variety of activities to raise awareness about SIF's conservation work in the Vallée de Mai and Aldabra, and also teach the children about the natural world in general. Common topics covered are



endemic birds of Seychelles, flora and fauna of the Vallée de Mai, reusing and recycling litter found in the environment, discovering how plants grow, and what threats invasive species pose to biodiversity. The subjects are taught with presentations, outdoor activities and arts and crafts workshops. 41 children attended the holiday camps in 2019.

Friends of the Vallée de Mai club

Every one of the four schools on Praslin has a "Friends of the Vallée de Mai" club. Each club has up to 30 students and one teacher as a club leader. The club members are regularly involved in activities held at the Vallée de Mai and at national level, and SIF's Education and Outreach Programme Officer, Maria Brioché, regularly attends the children's extra-curricular activities at the schools. The aim of the club is to foster a sense of ownership and interest in Seychelles' two UNESCO World Heritage Sites and help the members to learn awareness and sensitivity to the environment and the threats it faces. In 2019, 99 children enrolled in the Friends of the Vallée de Mai club from all four schools on Praslin (Praslin Secondary, Grande Anse Primary, Baie Ste Anne Primary and Vijay International). It is fantastic to see so many new club members joining each year and we hope this will lead to long-term interest in, and support of, the Vallée de Mai.





School activities

In 2019, 949 students from 20 school groups visited the Vallée de Mai. The students were taken on a Vallée de Mai tour and, depending on the purpose of the visit, they listened to a presentation or took part in an educational activity with SIF's Education and Outreach Programme Officer. The large number of students visiting the Vallée de Mai is an encouraging sign and we will continue to welcome all schools that are interested in visiting.



SIF gave 41 presentations in schools in 2019. The presentations were on a variety of subjects including YCA and other invasive alien species, plastic pollution, black parrots and migratory birds.





Outreach

Outreach activities in 2019 reached a large local and international audience, with events taking place on Praslin, La Digue and Mahé. SIF celebrated a number of theme days which highlighted the links between people and the environment. We also participated in several festivals, expos and international conferences, sharing our research and conservation work with the public.

SIF's 3rd public Research & Conservation symposium

SIF held its third public Research and Conservation symposium on 14th May 2019 on Mahé. This was a free public and day-long event during which we shared our latest research findings and conservation projects, and celebrated SIF's 40th anniversary. It was a fantastic day full of fascinating talks, question and answer panels, and video presentations. Over 100 people attended the symposium, which also gained significant press coverage. SIF's Chief Executive Officer, Dr Frauke Fleischer-Dogley opened the symposium and gave personal introductions for all the SIF staff who were presenting.



Christina



Emmanuel



Frauke



Jennifer



Jeremy



Julio



Katy



Lorraine



Louise



Mariette



Monica



Nancy



Natalie

SIF staff and researchers presented a range of topics, covering the ring-necked parakeet eradication, the YCA invasion in the Vallée de Mai, and the ACUP. The audience were extremely engaged with the topics and there were lively question and answer sessions after each group of presentations. To mark the occasion, a Special Symposium Newsletter Edition was created and can be accessed through this link: https://www.sif.sc/sites/default/files/downloads/SIF%20May%20Newsletter_web.pdf

A big thank you to everyone who presented, helped to organise, and attended!



Island Biology Conference in La Réunion

SIF attended the International Conference on Island Biology 2019 which was hosted by the University of La Réunion on 8th to 13th July 2019. The global conference attracts scientists and practitioners from around the world who are working to manage and protect island ecosystems. This event gathered 385 attendees from 48 countries and represented more than 200 organisations working on island research and conservation across the world. This is the third time the event has been run by the Society for Island Biology, with the previous conferences being held in Hawai'i and the Azores. There were 229 talks and 128 posters presented on aspects of island conservation, biology and ecology.



With the conference occurring for the first time in the Western Indian Ocean, there was very high attendance from within the region, which made it an excellent forum for meeting regional collaborators and making new contacts. There was particularly strong representation from many Seychelles organisations at the conference, such as Green Islands Foundation, the Island Biodiversity and Conservation Centre of the University of Seychelles, Plant Conservation Action group (PCA), Terrestrial Restoration Action Society of Seychelles (TRASS), SNPA and Fregate Island, as well as 11 staff and associated researchers from SIF. There were also researchers from the University of Exeter, University of Oxford, University of Bremen and the University of Zurich who are collaborating on studies based in the Seychelles. All of these organisations attended the conference to present the research and conservation work they are doing in the Seychelles. It was a fascinating and valuable experience for everyone who attended and we would like to thank the organisers for such a well-organised and stimulating conference.

Theme Days

World Wetlands Day

The 2nd February marks one of the most important environmental theme days of the year – World Wetlands Day. This day is celebrated across the world to mark the date of the adoption of the convention on wetlands, called the Ramsar Convention. To celebrate World Wetlands Day this year the ACUP team initiated a tree-planting activity in collaboration with TRASS.



World Water Day

SIF celebrated World Water Day on the 22nd March 2019 to highlight and celebrate the importance of water. The theme this year was “Leaving no one behind”, and focused on people who do not have access to safe drinking water and how these problems can be resolved. To help schoolchildren reflect on the theme, SIF organised a visit to the PUC water treatment station at Nouvelle Decouverte on Praslin. The visit taught the children about the water treatment process and let them see first-hand how their homes are provided with safe drinking water.



World Meteorological Day

To celebrate World Meteorological Day on the 23rd March 2019, a group of primary school children from Praslin visited the Vallée de Mai. The goal of this visit was to teach the children about different weather instruments and how the automatic weather station at the Vallée de Mai works. A member of SIF’s research team gave a presentation about different weather phenomena and gave an overview of Seychelles’ climate.

World Migratory Bird Day

SIF celebrated World Migratory Bird Day in May 2019 by giving a presentation at Vijay International School Praslin. This presentation explained why birds migrate, where they go, how they fly so far, how they navigate and why they migrate to the Seychelles. SIF was impressed with the pupils’ knowledge and enthusiasm for this subject.



International Biological Diversity Day

Every year, SIF organises activities to celebrate International Biological Diversity Day, which is celebrated on 22nd of May each year. 2019’s theme was “Our Biodiversity, Our Food, Our Health”. The activities kicked off with an exhibition at Orion Mall in Victoria organised by the Biodiversity, Conservation and Management division of the MEECC. The Minister for MEECC, Mr Wallace Cosgrow, officially launched the exhibition. SIF exhibited the winning children’s artwork as well as other pieces produced for this competition, and awarded prizes to the winners of the ACUP National Art and Essay competition. Many schoolchildren came to the exhibition and had a chance to participate in games organised by SIF and other NGOs, as well as interacting with facilitators at different stands.



Additionally, black parrot team leader, Terance Payet, gave a radio interview on SIF’s conservation work on the black parrot and launched a black parrot naming competition. This competition was also extended to primary schools on Praslin and to Vallée de Mai visitors. At the Vallée de Mai, International Biological Diversity Day was celebrated with a tree planting activity, forest tour, and presentations for schoolchildren. A special guided tour, night safari, trail quiz and aerobics were also organised to show case Vallée de Mai’s biodiversity under different light.

World Environment Day

SIF celebrated World Environment Day on the 5th June 2019, focusing on raising awareness on the threat of YCA as well as the work being carried out to control this invasive alien species. The day centred around a competition between Vallée de Mai's partners to find YCA nests and trap



the ants using natural tools such as honey. Following the activity, an exhibition to showcase the different methods used in this challenge was set up. The Vallée de Mai's acting Site Manager opened the exhibition with a ceremony that featured songs, poems, speeches and drama performances by schoolchildren. The exhibition was open for the whole day and was an important opportunity for visitors to learn more about YCA and the threats they pose to the forest. Meanwhile Terance Payet, Emmanuel Morel and Shanone Adeline from the Vallée de Mai research team, were invited to a special State House celebration of World Environment Day hosted by President Danny Faure. The ceremony recognised the work of wardens and rangers across Seychelles and celebrated their contribution to conservation.

World Oceans Day

SIF gave a presentation at the World Oceans Day conference organised by the James Michel Foundation on the 8th June 2019. This year the conference theme was "Together we can protect and restore our oceans". More than 100 secondary school students and young professionals attended the event this year, which aimed to raise awareness about sustainable ocean management and preservation. SIF also took a group of students from the Friends of the Vallée de Mai club snorkelling at St Pierre Island.



World Day to Combat Desertification and Drought

SIF celebrated World Day to Combat Desertification and Drought on the 22nd June 2019 with a mangrove tree planting activity organised with TRASS.



World Tourism Day

SIF celebrated World Tourism Day 2019 with a special day of various exciting activities organised for Vallée de Mai visitors on 26th September 2019. Visitors received a free postcard as a gift from SIF and were offered free guided tours in five different languages as well as special tours which included bird watching at the Vallée de Mai viewpoint. Visitors also played a game of guessing the weight of a coco de mer nut, and marked their country of origin on a large map of the world.





International Day of Peace and Climate Action Week

SIF celebrated International Day of Peace on 21st September 2019 by combining activities with Climate Action Week. This year, the theme for International Day of Peace was “Climate Action for Peace”. SIF was involved in marches which took place on Mahé and Praslin for the public to show their support for tackling climate change. Participants wore white to symbolise peace, and carried posters and chanted throughout the walk. Aldabra also joined the action through a demonstration, creating a banner and standing shoulder to highlight the need to go green. Furthermore, Vallée de Mai staff took part in a tree planting event on the 25th September on the coast of Anse Kerlan. This was also to celebrate World Clean-Up Day on the 21st September. SIF was proud to support these events and hopes that the strong surge of global support will influence world leaders to make the significant policy changes needed to protect our planet.

Of major significance was the attendance of SIF’s Project Officer, Jeremy Raguain, at both the UN Youth Climate Summit on the 21st September and the UN Secretary-General’s Climate Action Summit on the 23rd September. Both summits took place at the UN headquarters in New York, with the youth summit being part of a weekend of events leading up to the Climate Action Summit and uniting hundreds of young climate champions from more than 140 countries and territories to share their solutions on the global stage, and deliver a clear message to world leaders – “We need to act now to address climate change”. Jeremy also had the privilege to join the Seychelles President’s delegation in attending the Climate Action Summit which

saw over 65 countries, including Seychelles and the EU pledge to cut greenhouse gas emissions to zero by 2050. Seychelles also joined other Small Island Developing States in increasing its climate targets by 2020 to achieve 100% of its energy from renewables by 2030.





Festivals

As a proudly active member of the Seychelles environmental community, SIF frequently joins other organisations in participating in national festivals and expos.

Sea Turtle Festival

The Sea Turtle Friends of Seychelles organised activities on La Digue to celebrate the Sea Turtle Festival on Friday 27th September 2019. SIF used this opportunity to inform students about our turtle monitoring work on Aldabra by exhibiting photos and reports. They could also view footage of the sea turtles in their natural habitat at Aldabra. In addition, children had the chance to enjoy art and craft activities. Some students made turtles out of egg trays and paper and then decorated them. Others made beautiful drawings.



Creole Festival

SIF celebrated the Creole Festival for a whole week in October 2019. Seychelles' Creole Festival is a famous celebration and regarded as one of the country's most important annual cultural events. It aims to bring Seychellois together, revive Creole traditions, while also showcasing the opportunities in valuing Creole culture.



To kickstart the festival, Praslin's two District Administrators on Praslin organised "Laserenad" (a lively parade with music, dancing and clothes displays). The theme of the "Laserenad" was to show the different uses of the coconut tree. Participants were judged on their displays and how innovative they could be with the parts of a coconut tree. SIF was proud to win first prize in the competition!

A week of exciting activities took place in the Vallée de Mai to celebrate the Creole Festival and give visitors a chance to experience the Creole spirit and way of life. The activities started with a debate between the youth of Praslin secondary school and the senior citizens of Praslin about the different stages couples go through before they get married.



The deck of the Vallée de Mai visitor centre was transformed into a traditional Creole house. Visitors could also taste some of the Seychelles' traditional snacks such as banana cakes, chilli cakes and 'moukat' (made from banana and wrapped in banana leaves). Local music was also played throughout the week.

The Baie St Anne District Administration office held a Creole Festival quiz during the week, in partnership with SIF. On the Friday, senior citizens performed traditional Creole songs and dances. There was also a prize-giving ceremony for the quiz champions, alongside a fashion show of traditional clothes by senior citizens, song and dance performances by primary schools, and a dance performance by Vallée de Mai staff. The festival ended with a lively 'moutya' (traditional dance with singing), by the Latanier Group.

Thank you to everyone who celebrated the Creole Festival with us this year – we hope you enjoyed it as much as we did!

VIP VISITS

In 2019 the Vallée de Mai was honoured to welcome the following distinguished guests:



Ralph E Gonsalves
Prime Minister of St Vincent
and the Grenadines



Kerry McCarthy
UK Member of Parliament (MP)



Karalyn Monteil
UNESCO Regional Office
for Eastern Africa

Staff

Staff changes and new positions



Julio Agricole

Operations & Logistics Manager

Julio has been working for SIF since 2012, and has now joined the Head Office team on Mahé as the Operations and Logistics Manager. He has been involved in and led several successful eradication projects conducted by SIF. After graduating with honours in a BSc in Environmental Science at the University of Seychelles, he became Acting Site Manager for the Vallée de Mai UNESCO World Heritage Site. His role was to organize and supervise all departments in the Vallée de Mai to ensure that they run effectively and efficiently. Julio also acts as relief manager for Aldabra when needed.



Sophie Adams

Communications, Education & Outreach Coordinator

Sophie is the Communications, Education and Outreach Coordinator at SIF. She has an MA in English and joined us in May 2019 having worked in communications across a variety of sectors in London, UK. Sophie is responsible for local and international communications. She aims to raise awareness of SIF's work and of the value of the Vallée de Mai and Aldabra Atoll among Seychellois and in the international arena. You'll see her work in our newsletters, annual reports and social media pages and in our educational and outreach activities.



Luke A'Bear

Aldabra Science Coordinator

Luke first joined SIF as the science coordinator of the Vallée de Mai, later transferring to Aldabra in November 2019. Before coming to the Seychelles, he worked for over two years in Mauritius on Round Island, co-managing the conservation and restoration projects. Prior to that he was based in Southeast Alaska working on forest and salmon stream restoration projects. On Aldabra he is responsible for managing the research team, ensuring high quality data collection across all projects, providing regular technical reports, and is the main contact point for researchers. Luke hopes to build on the strong foundations of all the previous Aldabra staff and continue the great research that has gone before him.



Aurelie Hector

Vallée de Mai Science Coordinator

Aurelie Hector is a conservation biologist from Mauritius. She worked with the Mauritian Wildlife Foundation (MWF) for almost five years and was the Senior Warden for the Round Island restoration project. Her role was to ensure that the island biosecurity was maintained, to remove emergent threats caused by invasive species introductions, to manage island infrastructure and to train and supervise new staff, students, and volunteers. Aurelie also worked on the Evolutionarily Distinct and Globally Endangered (EDGE) of Existence Project to protect a very unique species of snake. Aurelie's love for nature has helped her to travel around the world and build her knowledge of wildlife conservation. She moved from Mauritius to Madagascar to England and now to the Seychelles where she is working with SIF as the Vallée de Mai Science Coordinator.



Emeline Lafortune

Project Officer

Emeline has been working as Project Officer with SIF from mid-October 2019. Prior to joining the SIF Head Office team, Emeline had recently graduated from Keele University in the UK, with a BSc in Environment and Sustainability. She finds that SIF provides many opportunities to develop and apply her skill sets and knowledge from her degree to better assist in managing and protecting Seychelles' unique environment. Her role involves the development and execution of SIF's projects on both UNESCO World Heritage Sites. She is working on her first project, an evaluation of the Eco-School Aldabra Trip, which for the last 20 years has served as the Eco-school programme's star prize. Emeline also leads on biosecurity protocols, ensuring strict measures and best practices are applied to mitigate the risk of introducing invasive alien species to Aldabra. With skills and passion for environmental conservation, Emeline strives to continue pursuing projects effectively towards solutions to building a sustainable future for our sites and Seychelles as a whole.



Veronique Banane

Project Officer

Veronique Banane joined SIF as a Project Officer in October 2019. She is a recent BSc graduate from the University of Aberdeen, Scotland, where she studied Marine Biology. In her role she assists with the revision of the Vallée de Mai management plan as well as the development and execution of the yellow crazy ant project, taking part in fieldwork such as “baiting” and “jamming”. She is also a biosecurity officer, ensuring flights, as well as supply vessels to Aldabra, are not harbouring any invasive alien species. She also contributes to SIF’s communication, education and outreach activities, focusing on Vallée de Mai. Veronique finds that SIF has already improved her skillsets and looks forward to further developing herself while thoroughly exploring SIF’s sites and other departments.



Monica Griffith

Black Parrot Officer

Monica Griffith is the Black Parrot Officer at the Vallée de Mai, working on all aspects of the black parrot monitoring: catching and ringing birds, observing and identifying individuals and observing their breeding attempts. She also assists with other work being conducted by the Vallée de Mai research team, as needed. Before joining SIF, Monica worked in Mauritius on the Echo Parakeet recovery project, which is where she first started working with parrots. She also has a Post Graduate Diploma in Endangered Species Recovery from the Durrell Institute of Conservation and Ecology. Monica spends as much time as possible in the forest, and is just as likely to be seen up a tree as on the ground.



Constance Tragett

YCA Project Officer

Constance Tragett obtained her BSc in Natural Sciences and her MSc in Conservation Sciences from Imperial College London, where she first worked with insects (entomology). Since then, she has gained experience in a wide variety of fields including fund raising, wildlife rehabilitation, field techniques and project management but has a penchant for herpetology. Constance has worked for several organisations including the Frankfurt Zoological Society, the Durrell Institute of Conservation and Ecology and the Mauritian Wildlife Foundation. Constance joined SIF in November 2019 and has been working on the yellow crazy ant project, which involves monitoring surveys as well as large scale baiting events in the Vallée de Mai.



Brian Souyana

Field Research Officer

Brian Souyana first joined SIF as a Field Research Officer in October 2019 at the Vallée de Mai. Prior to completing his Bachelors in Environmental Science at the University of Seychelles, he worked for SIF as a Vallée de Mai Field Research Assistant throughout 2015, focussing on Black parrot breeding activity and other terrestrial projects that involved fieldwork and data collection. During his Bachelors, Brian participated in several internships and volunteered on islands such as Fregate Island Private and Cousin Island Special Reserve. Brian thrives knowing that his efforts are contributing to the conservation of Seychelles’ UNESCO World Heritage Sites and enjoys sharing knowledge, quality research data while working with SIF team members and external researchers.



Irma Dubois

Field Research Officer

Irma Dubois has been working at the Vallée de Mai as Field Research Officer since November 2019. Her work entails the monitoring of different flora and fauna, such as the coco der mer and black parrot within the Vallée de Mai and Praslin national park, as well as assisting the yellow crazy ant project. Irma has a BSc (Hons) in Environmental science in which she specialised in tropical biodiversity and conservation. Prior to joining SIF, she was involved in different aspects of conservation in Seychelles, such as sea bird monitoring, coral reef restoration, marine education and surveying, just to name a few. She has worked with different organisations such as WiseOceans, Save Our Seas and the Marine Conservation Society of Seychelles. Irma believes that sustainable research will help us to better understand some of our unique species in order to better protect them.

Further education and training

SIF prioritises and supports the development of its human resources. Each year, team members begin and complete degrees as well as various training opportunities within and outside of Seychelles. 2019 saw a number of highlights, with enrolments and graduations among other exciting opportunities.



Team members from Vallée de Mai and Aldabra secure the Professor David Stoddart Scholarship

This year Shanone Hibonne, the Vallée de Mai's Invasive Species Technical Officer, and Ella Nancy, an Aldabra Ranger, enrolled in their Environmental Science degrees at the University of Seychelles. Their studies are being fully funded by SIF, though the Professor David Stoddart scholarship for Seychellois students who have a place to study Environmental Science at the University of Seychelles. The scholarship is awarded in honour of Professor David Stoddart, the British physical geographer known for his ground-breaking research on coral reefs and atolls. David Stoddart was instrumental in setting up the Aldabra research station and also played a major role in protecting the atoll from being used as a military base in the 1960s. Both Shanone and Ella have expressed how the scholarship has enabled them to take on their degrees and continue their conservation careers in SIF while also using their new knowledge and skills to inspire and help colleagues and others.



Site Manager, Marc Jean-Baptiste completes Masters and returns to the Vallée de Mai

In September 2018 Vallée de Mai Site Manager, Marc Jean-Baptiste, started his Master in Science in Conservation Biology at the University of Kent. In October 2019 SIF was happy to welcome Marc back to the Vallée de Mai after he successfully completed his studies. His dissertation was on the habitat preferences of chameleons in Seychelles' granitic islands, a subject he is extremely passionate and equally knowledgeable about. Indeed, Marc's Master degree builds on his extensive understanding and experience in leading the Vallée de Mai and working on Praslin. Through this advanced degree he will be able to increase management effectiveness of this precious site and make even more informed conservation decisions, essential in the development of the Vallée de Mai management plan. Marc was able to take on this degree thanks to Julio Agricole acting in his place as Site Manager of the Vallée de Mai while he was studying.

Science and Projects Coordinator, Jennifer Appoo awarded AfOx-Nekton Marine Science Fellowship

In addition to Jennifer joining Nekton's First Descent: Indian Ocean expedition she also was one of two Seychellois (the other being Sheena Talma, an ACUP Volunteer) among 20 researchers from 12 African countries selected to participate in the AfOx Visiting Fellowship Programme. These 20 finalists were chosen from a pool of 250 applicants from 30 countries and it is extremely impressive that Jennifer was able to secure this chance. The AfOx aims to foster the establishment of equitable and sustainable collaborations between African academics and the University of Oxford. Through the programme, scholars and researchers get access to the university's facilities and library to conduct research. For the AFOX-Nekton Marine Science Fellowship, Jennifer's research project focuses on investigating and describing Aldabra's marine predator community, which is made up of sharks and large groupers, from the shallows to the deep. Her project will increase SIF's understanding of the diversity and depth range of marine predators around Aldabra. This will enable an assessment of the effectiveness of current zoning of the atoll and deliver crucial lessons for Aldabra's subsistence fishery, which can be an exemplary model for other areas in Seychelles.



Finances

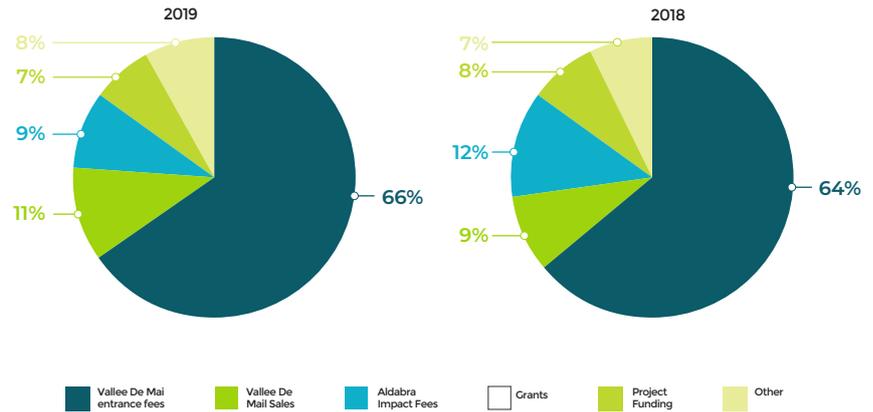
In 2019 SIF was in a position to maintain the diversification of its revenue, as in 2018. Overall, the Foundation's reliance on the Vallée de Mai entrance fees is now 66% compared to earlier years when it stood at nearly 80%. The goal to further increase revenue from services at the Vallée de Mai café and souvenir shop was achieved.

Nevertheless, visits to Aldabra by chartered yachts and small cruise ships continued to contribute to SIF's overall revenue generation. Less than five years ago, the Aldabra impact fee accounted for only 6%, but since 2016 it has increased by 50%. Thus, although 2019 saw a decrease from 12% in 2018 to 9%, Aldabra remains less reliant on Vallée de Mai entrance fees.

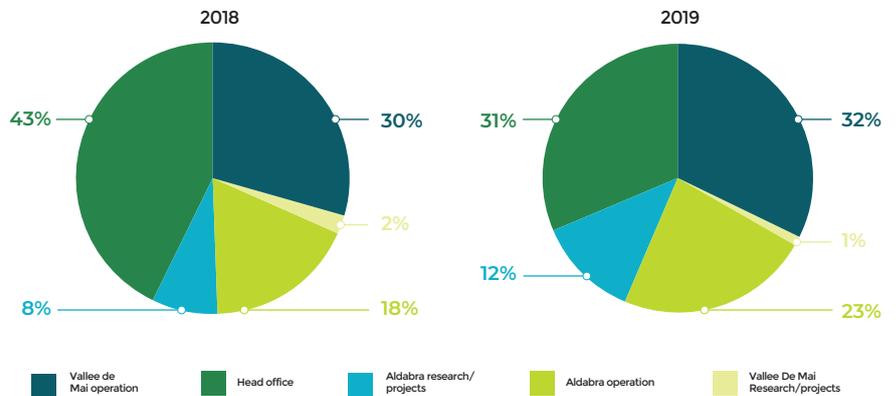
Overall, project funding has remained unchanged, but with the completion of the COI biosecurity project, the onset of the Aldabra Clean-Up Project and the IUCN funded yellow crazy ant project, project spending increased compared to 2018, standing at 13% of the overall expenses compared to 10% in 2017. Project/research funds also help to reduce operation costs by assisting in the purchase of supplies and maintenance of equipment that goes beyond a project's lifetime. However, this does increase the spending at Head Office proportionally. It should be noted that Head Office expenses include overall research and project coordination as well as the communication, education and outreach activities. Overall, the results of 2019's financial analysis are satisfying and confirm SIF's commitment to ensure financial effectiveness across the organisation.



Revenue



Expenditure



Publications

Scientific peer-reviewed articles

Six SIF led or co-authored research papers were published in 2019. The details of several of these appear in the text of this report and the original papers can be found on our website, or please email SIF for a copy. Full details for each are below:

Aldabra

Appoo J, Sanchez C, Burt A, Richards H, van de Crommenacker J, Currie J & Fleischer-Dogley F. (2019) The use of Aldabra and its protected waters by marine mammals. *Seychelles Research Journal* 1(2): 166-179

Van de Crommenacker J, Bunbury N, Jackson HA, Nupen LJ, Wanless R, Fleischer-Dogley F, Groombridge JJ & Warren BH. (2019) Rapid loss of flight in the Aldabra white-throated rail. *PLoS ONE* 14(12): e0226064.

Walton R, Baxter R, Bunbury N, Hansen D, Fleischer-Dogley F, Greenwood S & Schaepman-Strub G 2019. In the land of giants: habitat use and selection of the Aldabra giant tortoise on Aldabra Atoll. *Biodiversity and Conservation* 28: 3183-3198.

General

Bunbury N, Haverson P, Page N, Agricole J, Angell G, Banville P, et al. (2019) Five eradications, three species, three islands: overview, insights and recommendations from invasive bird eradications in the Seychelles. In: Veitch, C.R., Clout, M.N., Martin, A.R., Russell, J.C. and West, C.J. (Eds.). *Island invasives: Scaling up to meet the challenge*. Proceedings of the international conference on island invasives 2017. Occasional Paper SSC no. 62. Gland, Switzerland: IUCN. xiv + 734pp.

Holmes ND, Spatz DR et al. (2019) Globally important islands where eradicating invasive mammals will benefit highly threatened vertebrates. *PLoS One* 14(3): e0212128 doi: org/10.1371/journal.pone.0212128

Vallée de Mai

Labisko J, Griffiths RA, Chong-Seng L, Bunbury N, Maddock ST, Bradfield KS, Taylor ML & Groombridge JJ. (2019) Endemic, endangered, and evolutionarily significant: Cryptic lineages in Seychelles' frogs. *Biological Journal of the Linnean Society* 126(3): 417-435. doi: 10.1093/biolinnean/bly183/5288504

Five eradications, three species, three islands: overview, insights and recommendations from invasive bird eradications in the Seychelles

N. Bunbury, P. Haverson, N. Page, J. Agricole, G. Angell, P. Banville, A. Constance, J. Friedlander, L. Leite, T. Mahoune, E. Melton-Durup, J. Moumou, K. Raines, J. van de Crommenacker and F. Fleischer-Dogley

Seychelles Islands Foundation, La Ciotat Building, Mont Fleuri, P.O. Box 853, Victoria, Mahé, Seychelles. <nancy@sif.sc>

Abstract Management and eradication techniques for invasive alien birds remain in their infancy compared to invasive mammal control methods, and there are still relatively few examples of successful avian eradications. Since 2011, five separate eradication programmes for invasive birds have been conducted on three islands by the Seychelles Islands Foundation (SIF). Target species were prioritised according to their threat level to the native biodiversity of the UNESCO World Heritage Sites of the Seychelles, Aldabra Atoll and Vallée de Mai, which SIF is responsible for managing and protecting. Red-whiskered bulbuls (*Pycnonotus jocosus*) and Madagascar fodies (*Foudia madagascariensis*) occurred on Assumption, the closest island to Aldabra, which, at the time, had no known introduced bird species. The growing population of ring-necked parakeets (*Psittacula krameri*) on Mahé posed a threat to endemic Seychelles black parrots (*Coracopsis barthii*) on Praslin where the Vallée de Mai forms their core breeding habitat. In 2012, red-whiskered bulbuls and Madagascar fodies were detected on Aldabra, so an additional eradication was started. All eradications used a combination of mist-netting and shooting. The intensive part of each eradication lasted three years or less. On Assumption, 5,279 red-whiskered bulbuls and 3,291 Madagascar fodies were culled; on Mahé, 545 parakeets were culled; and on Aldabra 262 Madagascar fodies and one red-whiskered bulbul were culled. Each programme underwent 1–2 years of follow-up monitoring before eradication was confirmed, and four of the five eradications have been successful so far. None of these species had previously been eradicated in large numbers from other islands so the successes substantially advance this field of invasive species management. The challenges and insights of these eradications also provide unique learning opportunities for other invasive avian eradications.

Keywords: Aldabra, Indian Ocean islands, invasive alien bird management and control, mist-netting, parakeets, passerines, shooting

Globally important islands where eradicating invasive mammals will benefit highly threatened vertebrates

Nick D Holmes¹, Dena R Spatz^{1,2}, Steffen Oppel³, Bernie Tershy², Donald A Croft², Brad Kelt⁴, Piero Genovesi⁵, Ian J Burfield⁶, David J Will¹, Alexander L Bond^{3,7}, Alex Wegmann^{1,8}, Alfonso Aguirre-Muñoz⁹, André F Raine¹⁰, Charles R Knapp¹¹, Chung-Hang Hung¹², David Wingate¹³, Erin Hagen¹, Federico Méndez-Sánchez⁹, Gerard Rocamora¹⁴, Hsiao-Wei Yuan¹², Jakob Fric¹⁵, James Millett¹⁶, James Russell¹⁷, Jill Liske-Clark¹⁸, Eric Vidal¹⁹, Hervé Jourdan¹⁹, Karl Campbell¹, Keith Springer²⁰, Kirsty Swinerton²¹, Lolita Gibbons-Decherong²², Olivier Langrand²³, M de L Brooke²⁴, Miguel McMin²⁵, Nancy Bunbury^{26,27}, Nuno Oliveira²⁸, Paolo Sposimo²⁹, Pedro Geraldes²⁸, Pete McClelland³⁰, Peter Hodum³¹, Peter G Ryan³², Rafael Borroto-Páez³³, Ray Pierce³⁴, Richard Griffiths¹, Robert N Fisher³⁵, Ross Wanless^{32,36}, Stesha A Pasachnik³⁷, Steve Cranwell³⁸, Thierry Micol^{39,40}, Stuart H M Butchart^{6,24}

Affiliations + expand

PMID: 30917126 PMID: PMC6436766 DOI: 10.1371/journal.pone.0212128

Free PMC article

Abstract

Invasive alien species are a major threat to native insular species. Eradicating invasive mammals from islands is a feasible and proven approach to prevent biodiversity loss. We developed a conceptual framework to identify globally important islands for invasive mammal eradications to prevent imminent extinctions of highly threatened species using biogeographic and technical factors, plus a novel approach to consider socio-political feasibility. We applied this framework using a comprehensive dataset describing the distribution of 1,184 highly threatened native vertebrate species (i.e. those listed as Critically Endangered or Endangered on the IUCN Red List) and 184 non-native mammals on 1,279 islands worldwide. Based on extinction risk, irreplaceability, severity of impact from invasive species, and technical feasibility of eradication, we identified and ranked 292 of the most important islands where eradicating invasive mammals would benefit highly threatened vertebrates. When socio-political feasibility was considered, we identified 169 of these islands where eradication planning or operation could be initiated by 2020 or 2030 and would improve the survival prospects of 9.4% of the Earth's most highly threatened terrestrial insular vertebrates (111 of 1,184 species). Of these, 107 islands were in 34 countries and territories and could have eradication projects initiated by 2020. Concentrating efforts to eradicate invasive mammals on these 107 islands would benefit 151 populations of 80 highly threatened vertebrates and make a major contribution towards achieving global conservation targets adopted by the world's nations.

Thanks and acknowledgements

Our thanks to...

The Patron of the SIF is the President of the Republic of Seychelles, Danny Faure.

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Ms Sophie Adams	Communications, Education and Outreach Officer (incoming)
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Ms Jennifer Appoo	Science and Projects Coordinator
Mr Jeremy Raguain	Project Officer
Ms Emeline Lafortune	Project Officer
Mr Veronique Banane	Project Officer
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Mr Luke A'Bear	Aldabra Science Coordinator (incoming)
Mr Jake Letori	Tourism Coordinator
Mr Alain Banane	Senior Mechanic
Mr Joel Bonne	Skipper
Mr Trevor Henriette	Junior Skipper
Mr Marvin Roseline	Maintenance and Logistic Technician
Mr Ronny Marie	Field Research Assistant
Mr Germano Soru	Field Research Officer
Ms Jessica Moumou	Field Research Officer
Ms Anna Koester	Volunteer/Marine Research Assistant
Jilani Suleman	Skipper
Mickael Esparon	Trainee boatman/ranger
Andre Bonne	Chef
Albert Belmont	Ranger
Diane Ernesta	Ranger
María Bielsa	Volunteer
Matt Waller	Marine Volunteer
Ms Elysia Davies	Volunteer/Shopkeeper
Mr Edward Constance	Senior Marine Mechanic

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Mr Marc Jean Baptiste	Site Manager (in-service student)
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Mr Luke A'Bear	Vallée de Mai Science Coordinator (incoming)
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Ms Elsa Lesperance	Assistant Administration and Accounts Officer
Mr Perry Cedras	Property Management Supervisor
Mr Andy Nourrice	Senior Security Officer
Mrs Elna Stravens	Shop Supervisor
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Mr Yanny Didon	Visitor Centre Service Coordinator (outgoing)
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Mr Emmanuel Morel	Field Research Assistant
Ms Shanone Adeline	Invasive Species Technical Officer
Ms Monica Griffith	Black Parrot Project Officer
Ms Louise McLaughlin	Herpetofauna Officer
Ms Katherine Collins	Volunteer
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Aldabra Clean-Up Project

- President Danny Faure, SIF's Patron and his team at Statehouse
- 12 Aldabra Clean-Up Volunteers (2018-2019)
- Seychelles People's Defence Forces
- Ministry of Environment, Energy and Climate Change
- Ministry of Education and Human Resources Development
- British High Commission Victoria Seychelles
- Landscape and Waste Management Agency
- Seychelles Broadcasting Corporation

- SkyNews
- Nekton Foundation
- Seychelles Conservation & Climate Adaptation Trust
- The Ponant Foundation
- Noble Caledonia Charitable Trust
- The Mauritius Commercial Bank (Seychelles) Ltd
- Utilita Energy
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- United Construction Products Seychelles
- EV Bullen
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- British High Commission Victoria Seychelles
- Aspect Capital
- British Birds Charitable Trust (Grant)
- Wings World Quest (Grant)
- 105 Amazing crowd-funders
- The Queen's College & University of Oxford

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- Global Vision International (GVI) Seychelles
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- Island Conservation Society (ICS)
- Ministry of Environment, Energy and Climate Change (MEECC)
- Ministry of Education and Human Resources Development
- Praslin Development Fund
- Seychelles Agricultural Agency (SAA)
- Seychelles Coast Guard
- Seychelles Fishing Authority (SFA)
- Seychelles National Meteorological Service
- Seychelles National Parks Authority (SNPA)
- Seychelles Police Force
- Seychelles People's Defence Force (SPDF)

Our Research Collaborators

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- Dr David Gower (Natural History Museum, London, UK)
- Dr Jim Groombridge (Durrell Institute of Conservation and Ecology, University of Kent, Canterbury, UK)
- Dr Dennis Hansen (University of Zurich, Switzerland)
- Philip Haupt (Rhodes University, South Africa)
- Indian Ocean Turtle project (La Reunion)
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- Dr Lori Lach (James Cook University, Australia),
- Dr Simon Maddock (Natural History Museum, London, UK)
- Professor David Newbery (University of Bern, Switzerland)
- Dr Arpat Ozgul (University of Zurich, Switzerland)
- Dr Gabriela Schaeppman-Strub (University of Zurich, Switzerland)
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- Yellow Crazy Ant Information sharing group

SIF in a nutshell and how to help

The Seychelles Islands Foundation (SIF) is a non-profit charitable organisation 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 also provides some direct income through visitor impact fees. 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 opportunities for suitably qualified volunteers to help with research, conservation work or specific projects for four - six 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.



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