



**SIF**  
seychelles islands foundation

**ANNUAL REPORT**  
**2010 / 2011**



## Acknowledgements

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# Message from the CEO

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Some time ago we decided that this Annual Report would have to cover the two years 2010 and 2011, simply because the many activities SIF is engaged with have not allowed us the necessary time to sit back, reflect and compile. We surprised ourselves with how much there is to report and also how the challenges we described in the previous annual report, such as piracy, are no longer foremost in our minds. In 2010 the landing of an apparently 'drifting' skiff with nine Somali pirates on board led to the development of a security protocol for our staff which was and is regularly drill-tested. We have had to learn to accept and operate despite piracy and are now focused on the need to ensure the security of our staff.

It is with great satisfaction that I report the completion of SIF's reports under the UNESCO second periodic cycle of reporting for Africa which also included the acceptance of the statements of Outstanding Universal Value for both Aldabra and the Vallée de Mai during this period. These statements are the key to international recognition and protection of the sites and help to ensure their continuing World Heritage status so are a vital part of the World Heritage standing. Compilation and processing of reports and statements was a lengthy mission for our staff and we were delighted when they were accepted at the 34th Session of the World Heritage Committee in June 2010 in Brazil.

Following the opening of the Vallée de Mai visitor centre, the souvenir shop and café have helped to diversify our income. Regular visitor surveys indicate that these extra services, and especially the Creole touch to them, are much appreciated. In addition the Vallée de Mai has become the only forest in Seychelles which can be visited by everyone. Being disabled or challenged in any way no longer deprives anyone of an amazing forest experience. These and other changes were implemented following a management effectiveness assessment which became the basis of our new Vallée de Mai management plan. Our doors have specifically re-opened for a different involvement and engagement with the Praslin community, including as partners in local supply chains and creating a hub for environmental education and fun.

At the end of December 2010, for the first time, a major project financed by the European Union was signed of which we are extremely proud. It is also the first project operating in both Seychelles' Heritage Sites and addresses THE major threat, Invasive Alien Species. The success of the project will be defined by our and Seychelles ability to engage in committed partnerships. Particularly in 2011 the project funds have partially contributed to a more cost effective operation of Aldabra by combining activities and coinciding supplies of both the project and our operation. The implementation of the Aldabra off-grid solar energy system has substantially advanced and you will be able to find out all the details up to the delivery of all elements to v at the end of 2011.

Finally it remains to tell you that many of the projects and activities successfully undertaken in the last two years are not only a result of our commitment but also your interest, support, funding and engagement. Thank you very much and happy reading!

# SIF milestones & achievements in 2010/2011

This is a brief summary of milestones and achievements in this 2-year period. More details on all items can be found in the report:



## GENERAL

- Implementation of UNESCO World Heritage Convention in Seychelles and approval by the Convention of the retrospective Statements of Outstanding Universal Value for Aldabra and Vallée de Mai
- A major project on mainstreaming invasive alien species management in Seychelles' World Heritage sites was awarded to SIF by the European Union in 2010 and launched in 2011
- SIF became a major partner in a new GEF-funded project on Protected Areas launched in 2011
- 8 scientific papers accepted/published on Vallée de Mai and Aldabra research
- Significant increase in education and outreach activities
- Aldabra children's educational books funded by Mangroves for the Future were launched in June 2011
- Marc Jean-Baptiste, Site Manager for Aldabra and Vallée de Mai, spent 2 months on a training scholarship with the US National Parks working in the Grand Canyon World Heritage Site

## VALLEE DE MAI

- The Coco de Mer was listed on CITES Appendix III in 2010
- Vallée de Mai visitor facilities improved with the opening of a shop, cafeteria and wheelchair trail
- Vallée de Mai management improved with the development and implementation of a new Management Plan in 2011, following a Management Effectiveness Assessment in 2010
- Sustainable harvesting research on the Coco de Mer was published
- 4 MSc projects completed on Vallée de Mai species: on Sooglossus frogs, yellow crazy ants, black parrot ecology and population status, and black parrot genetics
- A black parrot survey completed in 2010 revealed no resident parrots on Curieuse
- Research into the new Sooglossus frog population started in 2010 and continued in 2011
- An experimental study into Coco de Mer pollination started in 2011
- A new species of cricket was discovered in the Vallée de Mai


## ALDABRA

- On Aldabra, major advances in and preparations for the installation of a solar energy system were made, making 2012 the likely year for Aldabra to go solar
- Her Royal Highness Princess Anne visited Aldabra and the Vallée de Mai in December 2010
- Data management was considerably improved, with development of new protocols and databases
- Research on giant tortoises (ZARP) was launched in collaboration with University of Zurich
- Funding for turtle satellite transmitters was received from ISSF and a tagging project started in 2011
- Aldabra's nesting green turtles were documented as increasing by 500-800% over the last 40 years of protection
- Surveys on Aldabra rails on Picard and breeding frigatebirds were done in 2011
- ReCoMaP project to improve Aldabra's management and research facilities was completed in 2010
- Work to prepare for the Assumption introduced bird eradication started at the end of 2011
- A Memorandum of Understanding to protect dugongs under the Convention for Migratory Species was signed by SIF as representing the Republic of Seychelles



# Implementation of the UNESCO World Heritage Convention in Seychelles





The second cycle of UNESCO's periodic reporting of Africa, which was launched in 2009 required SIF's full commitment and engagement in 2010. The periodic report is intended to serve four main purposes which are to: (a) assess the application of the World Heritage Convention by the State Party; (b) assess whether the World Heritage values of the properties inscribed on the World Heritage List are being maintained over time; (c) provide updated information about the World Heritage properties to record the changing circumstances and state of conservation of the properties; and (d) provide a mechanism for regional co-operation and exchange of information and experiences between State Parties concerning the implementation of the Convention and World Heritage

The uniqueness of Seychelles' biodiversity resulted in our hotspots and sites being recognized globally prior to worldwide assessments and inventory. Consequently both our UNESCO World Heritage Sites were designated relatively early, only 10 years after the World Heritage Convention was established. In the early years (pre-2005), the Statement of Outstanding Universal Values (OUV) was not an obligatory part of the nomination file. The Statement of OUV describes the global importance of the site and acts as an essential tool and key reference document for future protection and management of all sites inscribed on the World Heritage list. During the second cycle of periodic reporting for Africa both statements were retrospectively drafted and have been officially approved by the World Heritage Committee.

The definition of OUV by the World Heritage Convention is: "Outstanding Universal Value means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity". They consist of a brief synthesis, justification for criteria, statement of integrity and requirements for protection and management.

SIF was fully devoted to the process and submitted the National Report within the deadline which, in a nutshell, confirmed that the values of Aldabra Atoll and the Vallée de Mai have been fully maintained over the last nearly 30 years and that the major threats are being addressed and/or monitored. The second cycle of periodic reporting also provided for four regional meetings to network with other World Heritage Site Managers, of which two were attended by SIF.

Extracts from the statements of OUV for Aldabra and the Vallée de Mai appear below. The statements can be requested in full from SIF.

## ALDABRA ATOLL

Aldabra Atoll is a prime example of a raised coral atoll which occupies a total area of 346 km<sup>2</sup> and is arguably the largest raised coral atoll in the world. The atoll is home to the largest giant tortoise population in the world, about 10 times larger than that of the Galapagos. Due to its remoteness and inaccessibility, the atoll has remained largely

untouched by humans for the majority of its existence. This makes it an extraordinary laboratory in which to study evolutionary and ecological processes. Furthermore, the richness and diversity of the ocean and landscapes result in brilliant colours and formations that give the atoll astonishing appeal and exceptional beauty.

Aldabra is listed as a World Heritage Site under Criterion (vii) Superlative natural phenomena or natural beauty; Criterion (ix) Ongoing biological and ecological processes; and Criterion (x) Biological Diversity and threatened species.

Aldabra is sufficiently large to support all ongoing biological and ecological processes essential for ensuring continued evolution in the atoll. Aldabra displays an almost intact ecosystem and there is a naturally viable population of the species at the top of the terrestrial food chain, a trophic level which, unusually, is occupied by a herbivore; the giant tortoise, which adds to Aldabra's global interest and appeal. The remoteness and inaccessibility of the atoll limit extensive human interference which would jeopardize ongoing processes.

The most imminent threats are identified as invasive alien species, climate change and oil spills, particularly the latter in the event that oil exploration increases in the region.

## VALLEE DE MAI

The Vallée de Mai is a palm forest which remains largely unchanged since prehistoric times. Amongst the smallest natural World Heritage properties, the forest is located on one of the oldest and only granitic islands in the world—the Seychelles' island of Praslin. Dominating the landscape is the world's largest population of Coco de Mer, a spectacular flagship species of global significance and bearer of the largest seed in the plant kingdom. The forest is also home to all of the Seychelles' other endemic palms and many endemic fauna species. The property is a scenically superlative forest of exceptional natural beauty.

The Vallée de Mai is listed as a World Heritage Site under Criterion (vii); Criterion (viii) Earth's history, geological and geomorphic features and processes; Criterion (ix); and Criterion (x).

The property contains an unparalleled example of scenically outstanding mature palm forest. This extraordinary forest has incomparable aesthetic appeal, with the statuesque palms and strikingly attractive Coco de Mer leaves creating astonishing natural formations. Largely untouched, the near-natural state of the Vallée de Mai makes for a magnificent spectacle.

The Vallée de Mai has been likened to a living museum, transporting visitors back to the time of the dinosaurs. Shaped by processes that took place millions of years ago, the property is an outstanding example of an earlier and major stage in the evolutionary history of the world's flora. Many tropical areas would once have held similar palm forests before the advent of more advanced plant families. The Vallée is dominated by the legendary Coco de Mer (*Lodoicea maldivica*). The ancient palms form a dense forest ecosystem where unique ecological processes and interactions occur. The Vallée de Mai is the world's stronghold for the endemic Coco de Mer and other rare palms, as well as endangered Seychelles black parrots. Rich in biodiversity, [the forest] provides a refuge for viable populations of many endemic and/or endangered species.

The most imminent threats are identified as fire, impacts of invasive species, and climate change.

# SIF STAFF CHANGES AND NEW POSITIONS



Lindsay ChongSeng, SIF's former Science Coordinator

Lindsay ChongSeng, the legendary SIF Science Coordinator and Seychelles natural historian, left SIF at the end of 2010. Lindsay embodied SIF's mission for 15 years and led the organisation for much of this time. His unrivalled knowledge of Seychelles, particularly Aldabra's, biodiversity, his outstanding field skills as a naturalist, his ongoing passion and curiosity for Aldabra and the Vallée de Mai, and his commitment to protecting them, made him an asset to SIF, and to both of the Seychelles' World Heritage sites. We are deeply indebted to Lindsay for his dedication and loyalty to the sites, for his many years of work, and for being a constant font of endless knowledge. We are fortunate that he will be continuing to work with SIF on a consultancy basis linked to specific projects – there are several ongoing activities, such as the frog research, which will benefit hugely from Lindsay's involvement.

Wilna Accouche joined SIF in the new position of Science Programme Officer in May 2010 after a 6-month secondment as the Assistant Research Officer on Aldabra. Wilna brings an invaluable 10 years of experience working for the Environment Department and a Diploma in Nature Protection and Management from France. Wilna is responsible for scientific and logistic support of monitoring and research programmes on Aldabra and at the Vallée de Mai. She has a special interest in freshwater ecosystems and is fascinated by the endemic fish and shrimps which inhabit the islands' rivers and estuaries. She is passionate about the islands' ecology and has frequently travelled to work in the inner granitics as well as the outer islands.



Wilna Accouche, SIF's Science Programme Officer, catching introduced birds on Assumption

The Aldabra Scientific Coordinator (previously 'Research Officer') position has been filled by two people in the 2010/2011 period. Jock Currie did an excellent job before returning to South Africa to pursue a PhD following his passion for marine conservation. We would like to thank him for his great efforts and wish him all the best with his studies and beyond. In particular, Jock's expertise on the goat eradication ensured that this programme was conducted and staff were trained to a very high level, and substantially contributed to the success of this long-term project.



Jock Currie (right) with two Aldabra rangers Stan Denis (left) and Mike Marianne (centre) after re-collaring a successfully darted and sedated feral goat as part of the Aldabra goat eradication programme

Dr Janske van de Crommenacker has ably stepped into the ASC's shoes since March 2011. Janske conducted her PhD on the Seychelles warbler so was very familiar with Seychelles and island life which made her an ideal candidate. As well as her expertise with birds she brings an all-round wealth of experience in monitoring and managing projects on islands.





Janske van de Crommenacker, new Aldabra Scientific Coordinator, and a Madagascar bulbul

SIF is taking steps to improve communication, education and outreach to make more people aware of the work being done in the two World Heritage Sites and of environmental issues in general. Two positions were created in 2011 as the cornerstone of these efforts. Maria Brioché is the new Vallée de Mai Education and Outreach Officer. Maria used to be a school teacher and her focus is on improving environmental education to tourists and schoolchildren on Praslin.



Maria Brioché, Education and Outreach Officer for the Vallée de Mai

In Head Office, Matthew Harper has taken on the new role of Communication and Outreach Officer and has since worked on Mahé and in the Vallée de Mai and already done much to improve SIF's local profile and media presence. Between the two of them, outreach to all schoolchildren on Praslin and La Digue is planned as well getting all of them to the Vallée de Mai!

With several new large projects being launched, support was urgently needed in Head Office and Annabelle Constance was taken on as Assistant Project Officer in May 2011 to assist with logistics and administration, particularly of the EU-funded invasive species project. Annabelle completed her A-levels 2 years ago and brings experience of pilot training to this position.



Annabelle Constance, Assistant Project Officer

With the continuation and expansion of SIF's much anticipated Environmental Management System (EMS) project, Christina Quanz, was recruited to implement the sustainable energy options for Aldabra researched and recommended in her MSc thesis, which was submitted in 2009. Christina's MSc work and history with SIF made her a natural choice of EMS Project Officer. Following her energy audit of the atoll and subsequent recommendations to reduce energy consumption, she has taken on the task of



Christina Quanz, EMS Project Officer, on Aldabra

ensuring that the dual goals of minimising energy expenditure and installing an off-grid solar energy system are achieved.

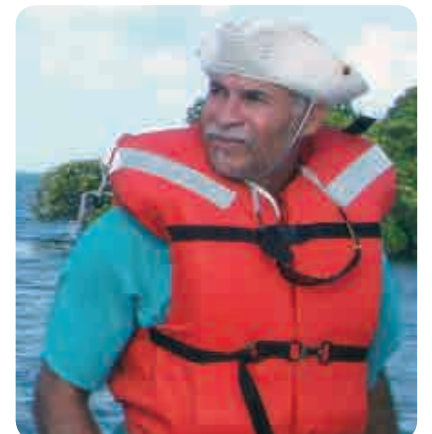
SIF also started a new research project focussing on the ecology of giant tortoises in collaboration with the University of Zurich, catchily titled the ZARP (Zurich-Aldabra Research Platform) project. A ZARP Project Officer, Richard Baxter, will be based mainly on Aldabra for 2 years from November 2011 to lead the fieldwork for this project. Rich spent 3 years as warden of Round Island, Mauritius, where he gained extensive experience with reptiles, including giant tor-



Rich Baxter, ZARP Project Officer, on Aldabra

toises, and in island management. On Aldabra, the position of Assistant Aldabra Scientific Coordinator (previously Assistant Research Officer) was difficult to fill for around 2 years due to shortage of qualified candidates so we were delighted to recruit Joel Souyave to support Janske in the management of monitoring and research on the atoll. Joel brings over 30 years of relevant experience to Aldabra

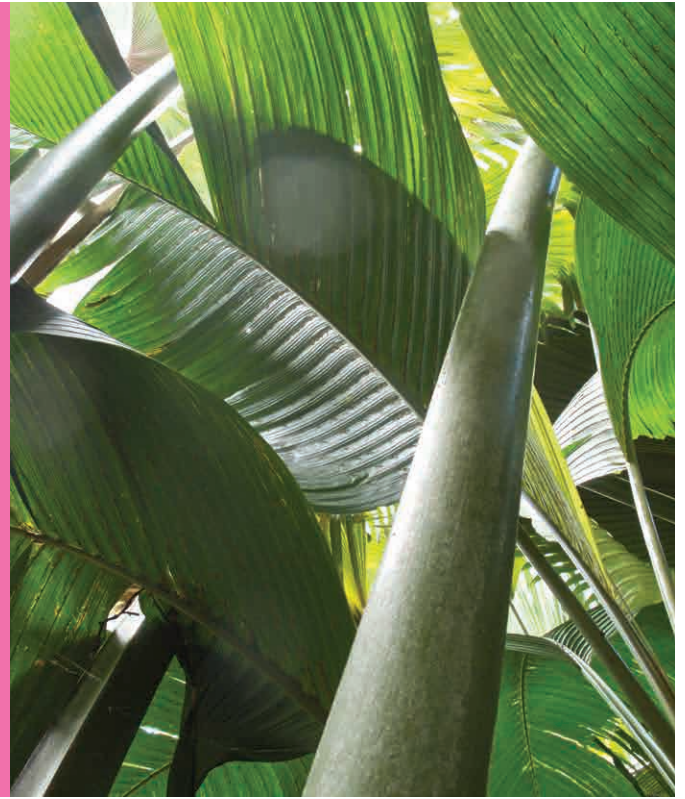
We were pleased to welcome all these and other new staff to the SIF 'family' and are confident that these new positions will play important roles in achieving our mission and vision for the two sites: advancing research and conservation, improving protection and reaching more people with news and messages about the work being done.



Joel Souyave, Assistant Scientific Coordinator and now Aldabra Island Manager (C. Onezia)

# VALLÉE DE MAI MANAGEMENT

2010 and 2011 saw several important steps forward regarding management practices in the Vallée de Mai. Not only was a Management Effectiveness Assessment carried out, but a new Management Plan was started and developed as a follow-up action of the assessment. The new Management Plan was finished in March 2011 and implemented immediately. A study on benchmarking World Heritage was conducted in parallel. These activities were all carried out by Swiss consultant Lea Ketterer, who describes the need for the documents and the process below. In addition to the operational management improvements, the coco de mer kernel was listed on CITES Appendix III, a record number of tourists visited the site in 2011 and a new shop and cafeteria were opened at the Visitor Centre. So it has been a very busy time for all involved.



## Management Effectiveness Assessment

Assessing management effectiveness and applying the results for adaptive management is at the core of good practices in Protected Area management. The Seychelles Islands Foundation therefore decided to carry out a Management Effectiveness Assessment for the Vallée de Mai from April to September 2010; an assessment which was previously conducted for Aldabra.

The assessment applied the “Enhancing our Heritage Toolkit”—a workbook including a range of 12 assessment tools that can be used by natural World Heritage site managers to build a comprehensive system of management effectiveness. These tools are compiled under the Framework for Assessing the Management Effectiveness of Protected Areas by the IUCN World Commission on Protected Areas (WCPA), which aims both to give some overall guidance in the development of assessment systems and to encourage basic standards for assessment and reporting. The in-depth assessment involved several workshop sessions with the Seychelles Islands Foundation management and employees under the guidance of an external consultant and resulted in a report with outcomes compiled through the analysis of the 12 tools. The assessment output and analysis of the assessment process provided the management of the Vallée de Mai with a thorough analysis of management practices in the World Heritage site.

Generally, the assessment concluded that the management has successfully preserved all the site values. Effectiveness of operations, however, could be enhanced if several identified gaps are addressed in a new Management Plan, including the development of several aspects of management, e.g. education and outreach, visitor management, scientific programme and data management. A review and update of the Management Plan was highlighted as the most important action to improve consistency in management and adaptation.



## UNESCO World Heritage Site Vallée de Mai Management Plan 2011 - 2015

A new Management Plan for the Vallée de Mai was developed from October 2010 to March 2011. The previous Management Effectiveness Assessment identified an urgent need to review and update the management planning document to ensure strategic management aimed at preserving the site values, which are the main resource of a natural World Heritage Site hence their preservation is crucial. Site values according to UNESCO criteria were therefore used for planning and steering management decisions and activities.

The previous Vallée de Mai Management Plan 2002-2008 did not allow for work plans to be derived from it and no monitoring and review mechanism was established as part of it. Thus, adaptive management was not an integral part of management planning. The Management Effectiveness Assessment was used to review implementation of management activities of the outdated Management Plan. This exercise and its outcome were crucial for the preparation of the new Management Plan and provided its foundation. Identified shortcomings of the previous Management Plan were acknowledged and addressed.

The model 'The cycle of management' (UNESCO/IUCN, 2006) where management is seen as a process or cycle with six distinct stages or elements was used to structure the new Management Plan which includes besides the introduction into and context of the site (values and threats), the vision and management goals as well as the action plan with different management areas and an annual work plan. Monitoring and review mechanisms are a substantial part of the Management Plan to ensure the preservation of the Vallée de Mai site values.

The main aim of the Management Plan is to improve existing structures, to guarantee successful operation and to address additionally identified areas such as implementation of programmes in education and outreach, and visitor management. The Management Plan should not only play an important role on a strategic level, but also assist with daily operations on-site and in the head office through its yearly work plans which are prepared in a practical applicable way.

## BENCHMARKING WORLD HERITAGE AND TOURISM

The Vallée de Mai was also part of an international pilot study entitled "Benchmarking World Heritage & Tourism", led by Swiss World Nature Forum AG (WNF AG), which aims to develop a widely applicable web-based management and monitoring tool for World Heritage (WH) sites. The expected result is a tested and accepted methodology for the assessment of tourism management in WH sites and their communities and regions. The Vallée de Mai was selected as one of several pilot sites in a study to serve as a reference in which natural and cultural sites are compared. In the study natural sites are represented by mountain regions and cultural sites by historical old towns.

The study focuses on the key role of tourism in the sustainable development of WH regions, and whether sustainable regional development can promote protection of WH sites. The main interest of this study is on management activities and their contribution to regional development.

The first part of the study (Oct-Dec 2010) is complete and collated

information including interviews with stakeholders from three different backgrounds and areas: (1) WH management; (2) the 'community' or, as per the study terminology, WH region; and (3) tourism in general. The second part of the study, to be carried out by WNF AG, will include the development of the web-based tool and the insertion of the data collected through the different case studies.

Participation in the study "Benchmarking World Heritage & Tourism" is of interest not only for SIF management to identify its options of impacting upon (sustainable) regional development, but is also important since Seychelles projects are often limited in scope and applicability due to the country's small size. The benchmarking exercise is thus considered likely to improve placement and allow comparison of results in a broader context, which should reach and influence wider perceptions on certain issues.

## VALLÉE DE MAI STATISTICS

The annual number of visitors to the Vallée de Mai has steadily increased since its lowest point for the last 5 years in 2009, with a record number of over 80,000 tourists visiting the site in 2011 (Fig. 1). On Aldabra there were very limited numbers of visitors in 2010 or 2011 due to the piracy situation.

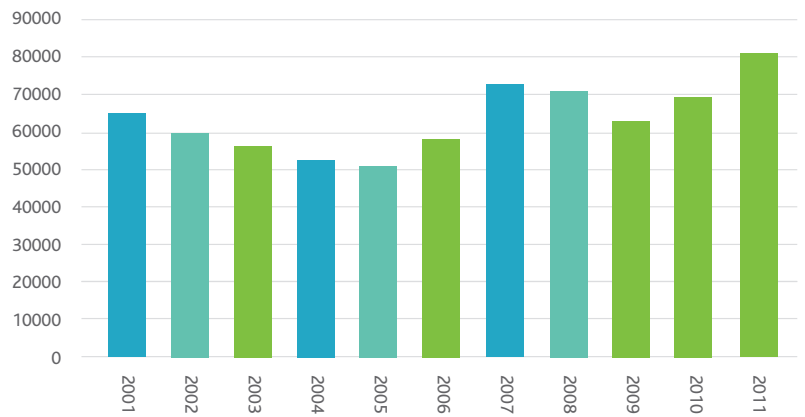


Fig 1. Total number of visitors to the Vallée de Mai from 2001 to 2011

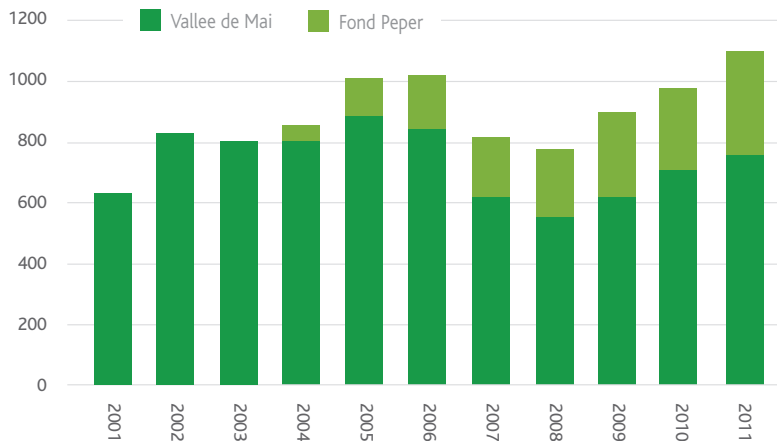


Fig. 2. Annual number of Coco de Mer nuts collected from the Vallée de Mai and Fond Peper from 2001 to 2011

## COCO DE MER STATISTICS

In 2011, 1097 nuts were collected from the Vallée de Mai and Fond Peper. The trend shows an increase in the number of nuts harvested since 2008. In 2011, the highest number of nuts from Fond Peper so far was collected (342). Nuts are collected by field workers and security officers and measured and weighed by SIF's rangers. Harvesting of Coco de Mer nuts is primarily for souvenir sales to visitors and constitutes a source of revenue for SIF. In line with SIF's and ETH Zurich's recent collaborative research, however, the harvesting regime is being reconsidered to promote increased forest regeneration.

## OPENING OF DISABLED TRAIL IN THE VALLÉE DE MAI



SIF was proud to open in 2010 the country's first trail to enable disabled visitors to truly experience the Seychelles forest. Setting it up involved smoothing and broadening the first section of the Central Path, which even though well used was too uneven and narrow to host wheelchairs. The Central Path runs towards the middle of the palm forest and many of the main features of the Vallée de Mai and all of its scenic beauty and ambience can be experienced from it. The trail has received positive feedback from the visitors who have been to the site in wheelchairs and been able to enjoy immersion in the forest for the first time.

## OPENING OF CAFE & SHOP

The new Vallée de Mai Visitor Centre officially opened in late 2009, and to broaden the available services and facilities for visitors, a shop and cafeteria soon followed suit. The Eden Project (UK) kindly supported one of their staff members, Bethany Lewis, to spend two weeks pro bono with SIF on Praslin and set up the cafeteria. What Bethany achieved in that short time was

remarkable. In just two weeks she set the cafeteria up, trained all staff in management and customer service, researched other cafes on Praslin, set up a menu with an emphasis on local products, and researched and sourced local suppliers and supplies for the menu. We are hugely grateful to Bethany for this huge amount of work and to Eden for making it possible for us to have a cafeteria to be proud of. With the Vallée de Mai shop, which was



fully stocked for the first time in 2010, we are striving to provide a sales outlet which promotes local products produced by Praslinois artists. The shop also aims for a level of quality and professionalism which is helped by the involvement of experienced retailers Kenwyn House and Creolor.

# COCO DE MER CITES LISTING

Following increasing concern about poaching and illegal trade in Coco de Mer kernel, from October 2010, CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) included the Coco de Mer kernel on Appendix III of its list of controlled species for international trade.

CITES is an international agreement between governments, which was adopted in 1973 and aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

CITES is one of the largest conservation agreements in existence, with 175 governments participating, and the treaty offers protection to more than 33,000 species of animals and plants. There are three appendices in the treaty. Appendix III, which now includes Coco de Mer, contains species that are listed after one member country has requested assistance from other CITES parties in controlling trade in a particular species. Once approved, trade in these species are only permitted with an appropriate export permit and a certificate of origin from the member country who has listed the species.



SIF worked closely with the Environment Department to provide information for this listing, including detailed physical descriptions of the species which will be used in an identification manual for international border control officers. Following the listing, all Coco de Mer producers and traders were informed about the new procedures for issuing permits as well as the penalties for failing to produce a permit. The listing was also publicised in a poster designed by SIF for an exhibition in the Seychelles Natural History Museum.

The listing of the Coco de Mer on CITES is a vital step for the protection of this species which is threatened by, among other things, the illegal trade in kernels. Inclusion on CITES is therefore considered an important conservation achievement for the Coco de Mer but, to secure its future, more efforts are also needed to reduce poaching and other threats within Seychelles.



## SIF ASSISTS WITH FIRE MANAGEMENT

Fire is one of the most significant and concerning threats to the Vallée de Mai since a large fire could wipe out the entire forest and its unique associated fauna. Fires are a frequent occurrence on Praslin during the dry season and sadly most of these are thought to be human-caused. We take the risk very seriously and protect the Vallée with firebreaks but rapid action is often the only to avert a catastrophe. SIF donated a bambi bucket to Helicopter Seychelles in May 2010 specifically to help fight fires on Praslin.

# ALDABRA MANAGEMENT

Aldabra's management has been strengthened through 2010/2011, with the activities of two major projects on the atoll. The first a long-term and ongoing project to design and implement an environmental management system for Aldabra. The second is the completion of an important ReCoMaP-funded project to strengthen general management and infrastructure at the site. Both projects have contributed substantially to significant progress in Aldabra's management over this period.



## Towards more sustainable operation of the Aldabra research station: Environmental Management System Project update

To ensure successful planning and implementation of more sustainable operations on Aldabra, SIF created the position of a full time Project Officer in 2010. Christina Quanz was recruited to implement the sustainable management strategies proposed in her 2009 MSc thesis, which itself had been supported by SIF and the Indian Ocean Commission (COI). The installation of a renewable energy system was designated as an initial project priority with water and waste management to be followed up later. Throughout 2010 many potential suppliers were contacted around the globe and possibilities to obtain more energy efficient equipment were investigated. The most promising and professional offer was received in April 2010 from our future project partner IBC Solar, a worldwide supplier of solar technology.

Several project applications resulted in a positive feedback from the Finnish Fund for Local Cooperation of the Finnish Embassy in Kenya who approved €50,000 for the purchase of energy efficient appliances for Aldabra. This was the first crucial step to reduce Al-

dabra's high electricity demand to a feasible level and allow the introduction of renewable energies. Subsequently, the Mauritius Commercial Bank (MCB) expressed interest in generously supporting this challenging project on Aldabra. 2010 ended with the final approval of the SIF board towards a sunny future on Aldabra.

During 2011 all efforts were put into downsizing Aldabra's energy demand to prepare for a new energy system and investigating appropriate future system sizing. After a very fruitful meeting in April 2011 with our established partner, IBC Solar, things were progressing well and the final quote for a 25 kWp PV system with battery backup was approved. To ensure a successful system operation, the purchase of a new efficient backup diesel generator and underground armoured cables to redo the electricity grid on Aldabra were also ongoing. With the help of IBC Solar more efficient appliances (such as deep freezers and

chillers) were imported to significantly reduce the atoll's electricity demand. The solar system and new appliances were finally purchased in August 2011. A wonderful and timely gift of support came in the form of final approval from MCB who provided much-needed support to our project, with a \$200,000 donation.

In the meantime required construction work to build a new generator house, with room for batteries and inverters, as well as basements for the solar panels, were started in November 2011 by a local construction company. Finally, packed into four containers, the entire solar system arrived on Mahé in December 2011 ready for further shipment to Aldabra in early 2012 to begin a new epoch of noise-, pollutant- and hazard-free, environmentally friendly electricity generation on one of the most remote and difficult to access islands in the world in 2012.

## ALDABRA RECOMAP PROJECT CONCLUSION

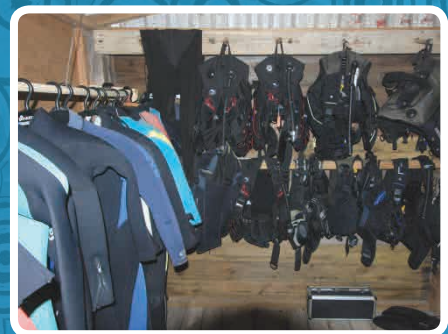
The SIF ReCoMaP (Regional Programme for the Sustainable Management of the Coastal Zones of the Indian Ocean) project entitled "Ensuring the universal value of an MPA and World Heritage Site: Strengthening management, infrastructure, training and research on Aldabra Atoll" was successfully completed at the end of 2010. Under this project SIF have completed various activities which have improved Aldabra's management and prepared the team and station for other projects and research to come. This has included: (1) building or renovating five field camps around the atoll which are all in use as bases for fieldwork and monitoring; (2) substantial improvement in the quality of diving and marine research and communication equipment which will enable the team to start marine research and remote sensing work planned under the GEF project; (3) training four staff members to PADI Advanced Open Water diving level and one to Rescue Diver level; (4) installation of VHF radio communication system which has improved long-range communication for management and staff safety, (5) the purchase of 4 GPS units and training of all staff in their use and of GIS software; (6) setting up an automatic weather station which is collecting more detailed climatic data than previously possible; and (7) installation and implementation of a tidal gauge which, for the first time is recording long-term tidal data for Aldabra.

The project has also acted as a foundation for other complementary activities and projects such as the GEF project including the setup of a GIS database, the re-development of marine monitoring and the planning and initiation of new research (e.g. remote-sensing of the atoll, reef monitoring, species surveys) made possible by the equipment and technology provided under the project.

The project faced serious and unexpected problems mainly concerning the increase in piracy in the region, which caused severe transport delays for many of the activities and prevented external researchers visiting the atoll. The flexibility and support shown by the ReCoMaP team throughout the problems ensured that the project was a great success and SIF would like to thank ReCoMaP for the opportunity to do this project and for the difference it has made to Aldabra and to SIF's management of this unique World Heritage site.



Construction of Anse Malabar hut under the ReComap project. Before (top), during (middle) and after (bottom) renovations in 2010 (J. Currie)



Aldabra's new ReCoMaP dive centre (J. Currie)



Installation of the new automatic weather station (Dec 2010) (N. Bunbury)



## SIF LAUNCHES MAJOR EU-FUNDED PROJECT ON INVASIVE SPECIES

SIF is delighted to announce the launch of a major new project following approval of €767,000 of funding from the European Union to address invasive species problems in the Seychelles' World Heritage Sites. Following an intensive application process starting in July 2009 and lasting over a year, it was confirmed in mid-2010 that the SIF application had been successful. The project – "Mainstreaming the management of invasive species as fundamental to preserving the ecological integrity and enhancing the resilience of Seychelles' World Heritage Sites" – was chosen from among applications from African, Caribbean and Pacific countries under the EU's Thematic Programme for Environment and Sustainable Management of Natural Resources. The budget for the project is approx. €1 million over a period of four years and SIF will be co-financing the additional costs.

Securing this funding is a major achievement for SIF and marks two

important milestones. It is the first large EU grant to a Seychelles environmental organisation outside government and it will be the first project to incorporate both the Seychelles World Heritage sites under a major project.

The project consists of many activities which combine to develop, implement and mainstream a strategic programme to assess and reduce the impacts of invasive alien species (IAS) in the World Heritage sites. The programme will directly benefit Aldabra and the Vallée de Mai as well as areas affecting these sites, including Praslin National Park, Mahé and Assumption Island. Activities are already underway and the focus is on increasing understanding of the dynamics of IAS threats, developing plans for control and eradication of at least two IAS, controlling major plant IAS in a core zone of Praslin National Park, and integrating IAS control and management into operations in and beyond the World Heritage sites.

### ★ The specific project aims are to:

- 1 Research, develop and implement an eradication plan for introduced birds from Assumption to eliminate this threat to Aldabra's biodiversity
- 2 Complete the Aldabra goat eradication
- 3 Investigate rat and cat eradication on Aldabra and prepare the way for a potential eradication by improving understanding and conducting feasibility trials
- 4 Research, develop and implement an eradication plan for introduced ring-necked parakeets (*Psittacula krameri*) from Mahé to eliminate the threat they pose to the black parrots
- 5 Eradicate sisal from Aldabra
- 6 Research invasive species in the palm forest of the Vallée de Mai
- 7 Create a core zone of restored native forest in Praslin National Park (including Vallée de Mai) for conservation, ecotourism and education







Other project aims include consolidation and sharing of lessons learned, generation of strategic partnerships through the sharing of best practice models, educating the public about IAS issues, local capacity building to address IAS threats, and incorporation of lessons learned into Seychelles IAS management, laws and policies. There are strong synergies with a parallel national UNDP-funded project – the 'Biosecurity Project' – which SIF is actively participating in and which will help to ensure that project results are sustainable.

Such a project is essential for Aldabra and the Vallée de Mai, both of which are designated World Heritage Sites (WH) because of their Outstanding Universal Values (i.e. natural habitat, little degradation, high biodiversity and ecological integrity). Introduced species pose among the most serious threats to the values of both sites and, at a global scale, the second most important threat to the existence of biodiversity (after habitat loss) is the biological invasion of introduced species (Convention for Biological Diversity, 1992). To maintain and even improve the ecological integrity and conservation value of both sites it is therefore imperative to address these threats before it is too late to act.

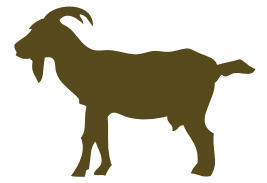
The project was launched in February 2011 and will finish in early 2015. Project partners and associates include the Seychelles Environment Department, Seychelles National Parks Authority, Island Development Company and Island Conservation Society. The project is being monitored by the EU delegation based in Mauritius and SIF will lead and implement the project working with its partners and associates as part of the organisation's mandate to manage and protect the two WH sites of Seychelles. We feel honoured to have been evaluated by the EU as having the necessary technical and management capacity to lead a project of such magnitude in tackling critical conservation issues to the Seychelles' WH sites.



Invasive Alien Species being researched or controlled under the new project include: (top) introduced birds including red-whiskered bulbuls on Assumption; (below) rats on Aldabra; (left) ring-necked parakeets on Mahé; (bottom) yellow crazy ants on Praslin; and invasive plants (including cinnamon) on Praslin



# ALDABRA GOAT ERADICATION PROGRAMME UPDATE



The Aldabra goat eradication programme (GEP) is now covered by the EU invasive species project. This inclusion has provided considerable financial relief as there is now guaranteed support to conclude this 30-year programme within the project time-frame.

Since the 2009 report, the Aldabra team has continued to monitor the Judas goats on a monthly basis and renew any failing radio collars of the Judas goats. The last two associate (non-Judas) goats were seen and shot in March 2010. At the time of writing, it has therefore been almost 2 years since the last sighting of a non-Judas goat on Aldabra.

This suggests that we are getting very close to success with this eradication, but it would be premature to announce that Aldabra is goat-free. Deciding when to declare success with an eradication on an island as large and rugged as Aldabra, based only on an absence of sightings, is difficult and potentially controversial. In addition to the absence of sightings during regular monitoring and to help verify that the SIF team has completed a successful eradication, an aerial sweep of the atoll by an Indian navy helicopter was conducted in December 2011. The aerial team spotted and photographed only four goats in the south-east of the atoll, all four of which were later identified as known Judas goats. No non-collared individuals were seen, which is very encouraging news. Further more intensive verification activities are planned in 2012 which may be the year we can finally declare Aldabra Atoll goat-free once again.



The Aldabra Goat Eradication Programme in action: (top) and (middle) tracking goats by radio telemetry from trees and the ground; and (bottom) a recently re-collared sedated Judas goat recovering.



Invasive species activities already started include (top) census of introduced birds, native birds and plants on Assumption; (middle) monitoring of sisal on Aldabra (C. Onezia); and (bottom) yellow crazy ant survey on Praslin.

## OTHER INVASIVE SPECIES ACTIVITIES



The Assumption introduced bird activity was launched in October 2011 after many months of preparation and organisation. A team of five SIF and ICS staff started by censusing all land-bird populations and conducting a survey of the dominant plant species on the island. This is important information for the island which has been little studied in the past. The team then conducted feasibility trials for various control methods which will go ahead in 2012.



Sisal is a highly invasive agave species which has been identified as among the most invasive plants on Aldabra and a threat to its habitats. Since starting the EU project, the Aldabra team have included sisal observations into the routine monitoring programme, including distribution mapping, and flowering and fruiting status, to start building a picture of what will be needed to control this species on the atoll.



A survey of ring-necked parakeets was started at the end of the year to assess population status on Mahé. This will help with developing the eradication plan. An awareness campaign concerning the species status was launched.



The first ring-necked parakeet on Praslin was first seen and eventually caught and dispatched. The bird has been screened for diseases and samples from it sent for processing.



A survey of Silhouette was also conducted for ring-necked parakeets further to information on possible sightings on this island. No parakeets were seen but the island staff were talked to and made aware of the species appearance, sound and the importance of contacting project staff.



Prior to and in preparation for invasive species activities under the EU project, an MSc student from the University of East Anglia surveyed yellow crazy ants in the Vallée de Mai in April 2010 to map their distribution and abundance (see p21 for more details). This species is listed as one of the 100 worst invasive species in the world on the global invasive species database but its distribution and ecological impacts in palm forest are unknown. This first survey of the species in the Vallée de Mai has therefore provided important baseline data for future monitoring and action



Fotomatura

# ALDABRA INCLUDED IN NEW GEF-FUNDED PROJECT TO STRENGTHEN SEYCHELLES PROTECTED AREA SYSTEM

In 2011, after years of planning and preparation, a multi-partnered national project entitled "Strengthening Seychelles' protected area system through NGO management modalities" was approved by the Global Environmental Facility (GEF). The project, in which SIF is one of the key partners, will inject a total of more than €1 million into improving management of Seychelles' Protected Areas over the next 4 years. SIF's activities under this project will address some of the major threats to the biodiversity and integrity of Aldabra (i.e. risk of an oil spill, invasive species, illegal poaching, and high operating costs), provide important baseline information on which to base future management decisions and strengthen the link between research and management.



Installing the repeater station at Dune Jean-Louis.

Outputs will include: (a) expanding the Aldabra Special Reserve; (b) improving surveillance, enforcement and compliance capacities; (c) developing a sustainable financing strategy for Aldabra; and (d) development of thresholds and bio-indicators as benchmarks in the management of Aldabra's ecosystems.

The project launched in July 2011 and SIF has already initiated several activities including:

- Improve surveillance, enforcement and compliance capacities– the VSat networking and VHF radio communication needs were evaluated, considering sustainable power options for its development. An antenna and solar panel at the repeater station were installed and tested, and the VHF coverage of the area expanded. Staff were trained in radio communication and the radio communication protocol was reviewed in light of safety aspects under the current piracy situation.
- Develop a sustainable financing strategy for Aldabra – Since piracy has stopped Aldabra's only direct source of income, tourism, and project funding is insufficient to support Aldabra's operational needs, SIF recruited a consultant, Ahab Downer, to conduct a financial analysis, and identify mechanisms to improve Aldabra's financial sustainability. Ahab's results are due in 2012.
- Develop thresholds as benchmarks – Protocols and databases were developed for monitoring programmes on Aldabra throughout 2011 to facilitate accurate and consistent data collection, storage and analysis, to ultimately guide a more targeted approach to monitoring.
- Also as part of the above outcome, several surveys were launched in 2011 to assess the state of Aldabra's biodiversity, including surveys of the breeding frigatebird population of Aldabra and the Aldabra rail population on Picard, plus landbird nesting success monitoring on Picard. In collaboration with other partners work has also started on monitoring and tracking of giant tortoises (with the University of Zurich) and invasive species management (European Union).

SIF's component of the GEF project will be expanded in 2012 and 2013, including a substantial marine monitoring aspect. SIF has also recruited Philip Haupt as the project coordinator, who will be starting in 2012.

# SIF RESEARCH VALLEE DE MAI

Building on and advancing the research done in 2009, the scientific programme in the Vallée de Mai has blossomed in the last 2 years. Research done by students and associates in the Vallée de Mai has started producing outputs and strong baseline data for further work, as well as inevitably raising many more questions and identifying new research areas. During 2010–2011 leaps have been made in our knowledge and understanding of Coco de Mer, Praslin Sooglossus frogs and black parrots, and collaborations have been diversified and strengthened. To summarise the figures, research in the Vallée de Mai in 2010/2011 has resulted in five Masters theses, four scientific papers (on Coco de Mer, Phelsuma ecology and frogs), a new species discovery and a lot of useful data!



## COCO DE MER RESEARCH & MANAGEMENT

### Outcomes from sustainable harvesting research

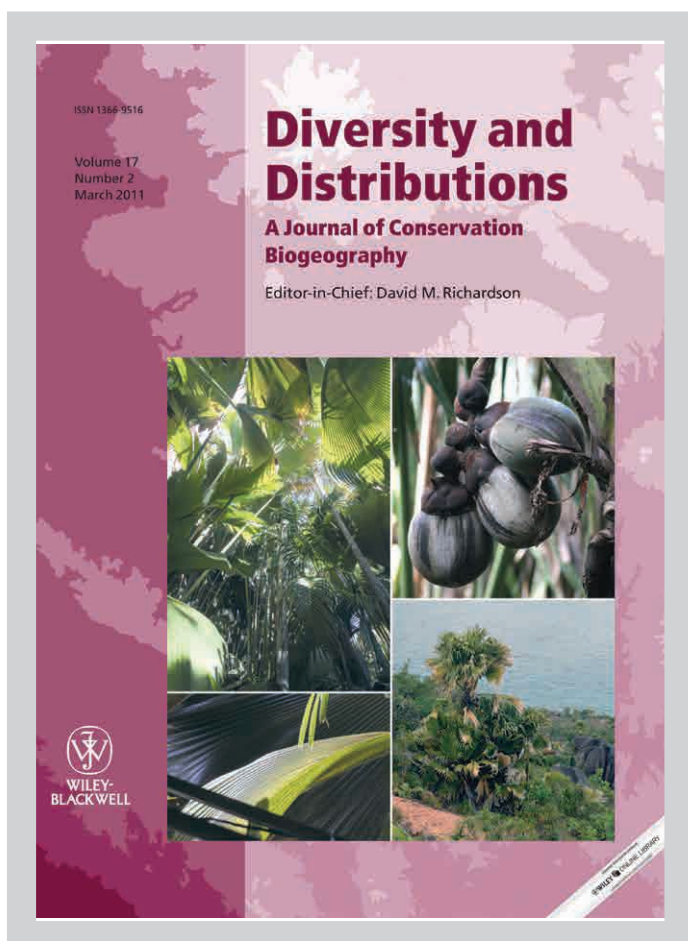
In 2009, a study led by Dr Lucy Rist of the ETH Zurich modelled the long-term population effects of various harvesting scenarios of Coco de Mer nuts. The study, based on existing information on survival and reproduction rates, confirmed that the Coco de Mer population is being over-harvested at current levels of nut removal. The research resulted in the identification of priorities to ensure sustainable nut harvesting. These priorities have since been integrated into the SIF workplan and the Management Plan for the Vallée de Mai. A manuscript on the work was accepted and published in the scientific journal *Forest Ecology and Management* in 2010, which will ensure dissemination of the information to an international audience.

In 2011, to encourage implementation of the paper's recommendations, the authors wrote a letter to the Government of Seychelles and all authorities of Coco de Mer areas. The letter outlined specific recommended guidelines for the sustainable management and harvesting of Coco de Mer which included: (1) leaving at least 20% of annual seed production in the forest; (2) encouraging as much as possible natural as opposed to artificial (planted) regeneration of nuts; (3) avoiding exchange of nuts between Praslin and Curieuse to preserve genetic adaptations to the varying environmental conditions on these islands; and (4) managing some areas of Coco de Mer forest for sustainable nut production (with manual pollination as required) while ensuring that other areas are set



Researchers and forest managers in Praslin palm forest.

aside and remain undisturbed. The scientists also recommended the selling of nuts for germination to companies and private people on Praslin and Curieuse to increase the number of Coco de Mer trees across the islands and reduce the harvesting strain on the existing small populations.





(left) Vallée de Mai Senior Ranger Uzice Samedi measuring growth; (right) Marks on Coco de Mer leaf stems for the monitoring (C. Kaiser-Bunbury).

## Growth monitoring

The sustainable harvesting research raised several questions about Coco de Mer life history which, once answered, would improve the accuracy of the model and therefore the management of this species. For example, Coco de Mer longevity, lifetime reproductive success and mortality rate are unknown and potential trade-offs between reproduction and growth are not understood. The research highlighted growth monitoring as an important research avenue to start filling these gaps and this was started in 2009. Individual Coco de Mer trees of different age groups and sexes are now monitored on a quarterly basis for leaf growth and reproductive performance. On each tree the growth of individual leaves and reproductive output (nuts and inflorescences) are measured. Since the Coco de Mer is so long-lived, this will be a long-term monitoring programme which should yield useful data as early as 2013. The data will determine growth rates and help to assess longevity and reproductive rates of Coco de Mer at different life stages and under different environmental conditions. The information being gathered is already being used in other research on the Coco de Mer and to help develop and refine further research questions.

## Solving the enigma of what pollinates the Coco de Mer?

The question of how the Coco de Mer is pollinated is one of great scientific, conservation, cultural and economic interest, and has resulted in decades of discussion and speculation. The long-term viability of the Coco de Mer population and the production of nuts depend on continued pollination. Lack of knowledge of this vital link in the reproductive chain of the Coco de Mer needs to be addressed. Male Coco de Mer inflorescences produce vast amounts of pollen grains almost all year round. Because the pollen, high in the canopy, is readily picked up from the male flowers by wind, and could be deposited on the open, easily accessible female flowers, wind pollination has been suggested as a main mechanism. This, however, does not explain the bright colour and strong smell of the flowers and pollen, neither of which are typically found in wind-pollinated plants. Why waste energy on producing smell and making pigments if this is not essential for reproduction? Nor does it explain the shape and relatively tiny receptive surface area of the female flower since wind-pollinated flowers generally have a large surface area to maximise the chance of 'catching' airborne pollen. Alternative suggestions include insects (bees and flies), reptiles, slugs or even fruitbats, all of which eat pollen from the male flowers, which is a high energy and reliable food source. Anyone who has observed a male Coco de Mer inflorescence in flower will have noticed what a magnet the flowers can be for many types of animal – and may have their own views on pollination. Disentangling the influence of the different players in Coco de Mer pollination requires a carefully controlled experiment.

In 2011, pollination ecologist and SIF research associate, Dr Christopher Kaiser-Bunbury (Aarhus University, Denmark), designed and set up an experiment to resolve the famous question. The experiment is designed to exclude certain groups of potential pollinators (for example, geckos or flying insects) in a series of different treatments on the female flower during its receptive phase. The 'control' group has no treatment at all and is left open as a comparison. Treatments are removed once the receptive phase is over and flowers are then monitored to record whether fruits develop. The outcome of the treatments is assessed by the number of fruits that develop from the flowers. This research is being carried out by Vallée de Mai ranger Terence Payet with members of the black parrot team Anna Reuleaux and Heather Richards, following training by Dr Kaiser-Bunbury, and has benefitted from Terence's prior extensive experience with hand pollination of Coco de Mer and ability to assess receptivity of female



Pollination treatments set up on a Coco de Mer inflorescence in the Vallée de Mai controlling the size of what can approach the flower. On the left is a complete exclusion treatment in which nothing can enter, including wind-carried pollen; on the right is the wind-only treatment, which allows only pollen to enter; in the centre the mesh is large enough to allow insects to enter but excludes geckos. These treatments are replicated at a large scale (C. Kaiser-Bunbury).

flowers. The experiment will take at least a year to complete due to long fruit development times and to include enough flowers to ensure a reliable result. More on this in 2012 – in the meantime enjoy and contemplate an educated guess on the identity of the pollinator!

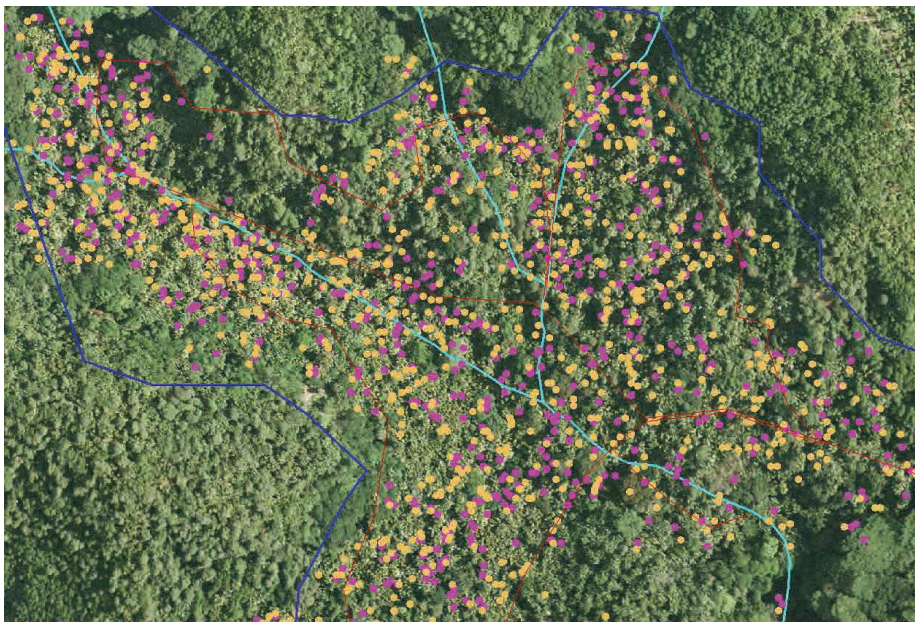
## Genetic research

Research by SIF and the ETH Zurich, led by Dr Frauke Fleischer-Dogley and Chris Kaiser Bunbury examined the morphological and genetic variation between different Coco de Mer populations to improve management of these populations. For the first time, a genetic aspect was included, which was conducted by Dr Chris Kettle. Physical differences in Coco de Mers from different populations had been recorded previously in Dr Fleischer-Dogley's PhD, but it was unknown whether the differences were due to genetics or to variation in environmental conditions (e.g. light or soil). The research showed that genetic differentiation is unlikely to be the cause of the physical differences. All populations were found to be relatively genetically diverse with little differentiation among populations. This suggests that the Coco de Mer can physically adapt to different environmental conditions. There is some genetic connectivity between the populations, which could support limited wind pollination. This research was published in the scientific journal *Diversity and Distributions* in 2011 and has raised several further research questions which will be addressed in continued collaboration.

## OTHER COCO DE MER RESEARCH

Other significant work on the Coco de Mer is also in process. Central to good protected area management is knowing the distribution and abundance of the key protected or flagship species within the reserve. In 2010, Vallée de Mai staff started a census and mapping project to document all mature Coco de Mer trees in the Vallée de Mai. This was completed in 2011 and the resulting map which will be used to designate areas for Coco de Mer regeneration. The census revealed a total of 871 males and 652 female trees in the Vallée de Mai and all trees now have a unique identification number. The marking helps to follow individual trees for research such as growth monitoring and pollination, and also to assess the damage of poaching incidents, which are sadly becoming more frequent. Similar work censusing the Fond Peper Coco de Mer population will be undertaken in 2012–2013. The Vallée de Mai mapping exercise has already provided a valuable conservation, management and research tool which is in use on several projects.

In another project, Prof. Peter Edwards (ETH Zurich, Switzerland) and Chris Kaiser-Bunbury, in col-



Map of all adult Coco de Mer trees in the Vallée de Mai. Male trees are indicated by orange dots and females by pink dots.

laboration with SIF, are aiming to understand the ecological dynamics between Coco de Mer trees and other species in the palm forest. The Coco de Mer is suspected of being a highly dominant species in the ecosystem which acts as an 'ecosystem engineer'. An ecosystem engineer species is able to drive ecological changes in its local environment to suit its requirements, or, in this case its offspring's requirements, which may be important as the species is unusual

in having almost no seed dispersal. To test this hypothesis, the researchers are conducting a series of experiments to assess the influence of Coco de Mer ecology and morphology on water and nutrient balance of the surrounding forest and soil, and its impact on the associated species. The research will provide the basis for novel conservation recommendations of Coco de Mer forest and the results will be analysed in 2012.

## BLACK PARROT RESEARCH



Pair of parrots feeding on fruits of endemic palm *Phoenicophorium borsigianum*.

A black parrot research programme was started by SIF in 2009 and all breeding seasons have since been intensively covered, as well as studies outside the breeding season focussing on population status, feeding and genetics. Two research students, Anna Reuleaux (University of Göttingen, Germany) and Natalia Przelomska (Durrell Institute of Conservation and Ecology at the University of Canterbury, UK) produced MSc dissertations in 2010 on different aspects of black parrot ecology and their research, in combination with the ongoing SIF black parrot programme, has resulted in many important insights into this Praslin endemic including:

### How many black parrots are there and where are they?

As part of her MSc research Anna Reuleaux conducted a black parrot survey on Praslin and Curieuse to determine population size more precisely than the previous survey and confirm habitat preferences. She covered both islands conducting 268 point counts using a grid system and trained the rangers in survey methods. She used the programme 'Distance' to analyse the data and estimated the density of parrots on Praslin to be 0.14–0.24 individuals/hectare, resulting in a total population estimate for the whole island of 520–900 individuals. The highest parrot densities occurred in endemic palm and mixed forests and the higher the proportion of palms the more likely the habitat was to support parrots. Importantly, no individuals were detected on Curieuse, confirming Praslin as the only island to support a breeding population of this endemic parrot. This work is currently being written up for publication in which it will be recommended that the parrot is categorised as Vulnerable on the IUCN Red List and that the continued protection and expansion of the endemic palm forest is key to its conservation.

## Which plant do the parrots prefer to eat?

All feeding observations have been recorded by Vallée de Mai research staff since Dr Pascal Villard initiated this work on parrot feeding ecology in 2009. This opportunistically collected data provided a lot of useful information but, as incidental data, it does not indicate feeding preferences, so was supplemented by a feeding ecology study by Anna using transects. So far, the parrots have been recorded as feeding on at least 42 different species, indicating that they are not particularly specialised in their feeding preferences. They are, however, pickier when it comes to the type of plant. More than half of the feeding observations were on endemic plant species, despite introduced species being more available. Endemic palms made up a large part of the diet, with the three most favoured species being *Phoenicophorium borsigianum* (latanyen fey; endemic palm), *Dillenia ferruginea* (bwa rouz; endemic broadleaf) and *Deckenia nobilis* (palmis; endemic palm), together accounting for more than 50% of the feeding observations. Endemic species, especially palms, are therefore the most important food source for the parrots, which has implications for plant species selection and landscaping of areas on Praslin. Endemic palm species, rather than introduced fruit or ornamental trees, are likely to be much more of a draw for parrots and support their conservation.

## What is the breeding success and main threats for reproduction?

Black parrot breeding has been monitored for three seasons, starting in late 2009. The breeding season is from Nov/Dec until March. As part of this work, all potential nesting cavities are mapped and regularly checked. When nests are found eggs and chicks are monitored frequently until they fledge or, in some cases, fail. Because the



Parrot breeding (left to right) eggs in a cavity; chick on day of hatching and unhatched egg; 8-day old chicks; and 26-day old chick. (A. Reuleaux & P. Villard).

nests are always in rotten hollow trunks they are extremely fragile and nest checking is a complicated business which has taken some time to perfect. The nests are checked using a construction of a remote camera attached to a pulley system on an extendable pole. The camera is hoisted up, positioned over the cavity and lowered down inside the trunk, so the team can see the contents of the nest without disturbing it or even touching the tree.

Twelve nests were found and monitored in the first two seasons, four in the first season of 2009/2010 and eight in the second (2010/2011). The third season (2011/2012) is ongoing but it looks like it will be a poor breeding year as no nests have been found so far and the birds are not displaying the usual breeding behaviours (vocalisations and copulations) for this time of year. It is too early at this stage to speculate on the reason for this and we are hoping that the start of the breeding has simply been delayed.

Of the 12 nests found so far, 27 eggs have been laid and 13 chicks have fledged. Rats appear to be a problem but there are too few nests so far to draw conclusions



(left) Checking a parrot nest with the remote camera



(left) MSc student Anna Reuleaux surveying areas of Praslin for black parrots; (top) Ranger Nathachia Pierre being trained in GPS.



on their impacts. There may also be potential infertility and embryo death but sample sizes are too small to quantify this at the moment.

Additional significant findings of the breeding work include:

- Only the female incubates and feeds chicks, and the male feeds the female.
- While each nest has a single female there may be up to several males per nest – this is extremely difficult to assess without more ringed birds and needs to be investigated further.
- Anna's research also indicated that breeding females have individually recognisable calls, and this has since been confirmed and can be used as a powerful identification tool in the field.

## Does the Seychelles black parrot have low genetic diversity and is it a problem?

MSc student Natalia Przelomska studied black parrot genetics using blood samples collected during the first two seasons of ringing by the SIF team. Evidence suggests that the black parrots may have been through a recent population bottleneck which may have reduced genetic diversity. The aim of Natalia's project was to assess this diversity and compare it to that of a closely related species, the greater vasa parrot *Coracopsis vasa* of Madagascar. Natalia found the Seychelles parrot to have low levels of genetic diversity and high levels of inbreeding compared to the Madagascan population, suggesting that the Seychelles black parrot is genetically impoverished. It could not be determined whether the low diversity is the result of a recent bottleneck or due to a protracted evolutionary history of isolation at relatively small population size. While Natalia's research has provided the first insight into the genetic status of the Seychelles black parrot and explored methods for comparisons, further genetic research is essential to assess whether the Seychelles black parrot is distinct species (rather than the subspecies it is currently considered) to the other *C. nigra* populations in Madagascar and the Comores. Subsequent genetic work will focus on resolving this question.



*Sooglossus* sp. on Praslin

# HERPETOFAUNA RESEARCH

## RESEARCH STARTED ON PRASLIN'S SOOGLOSSID FROGS

In 2009 a *Sooglossus* frog was discovered in the Vallée de Mai, which was the first record of this endemic group of frogs on islands other than Mahé and Silhouette. MSc student, Michele Taylor, from the Durrell Institute of Conservation and Ecology (DICE), supervised by Dr Jim Groombridge and Prof. Richard Griffiths, initiated the first ecological and genetic research on the new population in 2010. Michele collected samples from Praslin and Mahé and her results suggest that the Praslin population is more closely related to *S. sechellensis* on Silhouette, both of which are distinct from *S. sechellensis* on Mahé. Michele also found considerable divergence between the more closely related Praslin and Silhouette populations, suggesting a long evolutionary history and indicating that the Praslin frogs have not recently colonised Pra-

slin, but have a history which substantially pre-dates human colonisation of the island. Another outcome of Michele's work which has important applications for subsequent fieldwork was the development of a non-lethal method for sampling these tiny frogs. Previously whole specimens have been taken for laboratory research due to the frogs' small size but Michele found that toe-clips can be used and will yield high quality DNA for genetic work.

Michele's research was written up and accepted for publication by the scientific journal *Conservation Genetics* at the end of 2011; the manuscript will be published in 2012. One of the recommendations of this initial research is that the Praslin population is sufficiently different to be managed as an evolutionary significant unit (i.e. independent to the Mahé and Silhouette populations). This means that while it is still too early to announce it as distinct species, treatment as an evolutionary significant unit will help to retain the uniqueness of its genetic diversity within this ancient amphibian family. Since Michele's research was a preliminary study and therefore limited in scope, further research was strongly recommended to strengthen and advance the genetic results, as well as initiation of ecological research.

This recommendation was followed up with the recruitment of a new student Jim Labisko, also from DICE, who arrived in November 2011 for 6 months and will be carrying out fieldwork for a Masters by Research (MRes). Jim's research will considerably broaden the ecological knowledge of the Praslin *Sooglossus* and his research aims include: (1) map distribution and identify new areas of *Sooglossus* sp. on Praslin; (2) assess morphological differences between the island populations; (3) expand and strengthen the genetic analysis done so far with samples from more individuals and from more areas; (4) assess variation in vocalisations among island populations; and (5) screen all frogs sampled for chytrid fungus. Jim will also be working with local staff and demonstrating handling, measuring and sampling methods and contributing information to SIF education and outreach initiatives.





## OTHER HERPETOFAUNA RESEARCH NEWS

A paper on day gecko (*Phelsuma*) species niche partitioning in the Vallée de Mai based on Tamsyn Noble's MSc research (reported in 2009 Annual Report) was accepted and published in the *Journal of Zoology* in 2010.

A team of scientists from the Zoological Society of London and Durrell Institute of Conservation and Ecology working on the ZSL EDGE Initiative visited in October 2010, with the aim of clarifying research and conservation needs for evolutionary distinct and globally endangered (EDGE) species in the Seychelles through discussions with stakeholders. Seychelles, with several EDGE species (including all of the sooglossid frog species, caecilians, corals and the black parrot) is considered an EDGE species hotspot and the team are developing a project proposal to be submitted to the Darwin Initiative to improve research and conservation of these species.

In April 2011, a group of researchers from CIBIO at the University of Porto visited Seychelles to sample reptiles for genetic research, focussing on burrowing skinks, bronze geckos and snakes. They spent two days in the Vallée de Mai searching, catching, measuring and sampling these reptiles with a group

of SIF staff. Burrowing skinks were found to be relatively common in the palm forest leaf litter, which was positive news. Perhaps most excitingly, four giant bronze geckos *Ailuronyx trachygaster* were caught and sampled. These are the first samples of this huge gecko species, which was only described 10 years ago

and is possibly restricted to the Coco de Mer forest of Praslin. It was a very special day for all involved to see this incredible endemic species up close for the first time. The samples will now be used to shed light for the first time on phylogenetic relationships in this endemic gecko genus.



Reptile processing with University of Porto herpetologists Prof James Harris, Dr Sara Rocha and Dr Ana Perera; (top right) entire team delighted after first dramatic capture of an *Ailuronyx trachygaster*; (left) SIF Science Programme Officer Wilna Accouche with an *Ailuronyx trachygaster*; and (bottom right) a relatively small *Ailuronyx trachygaster*; note in addition to the large size the proportionally large head and feet which are characteristic of this giant gecko.

## DISTRIBUTION & IMPACTS OF INTRODUCED YELLOW CRAZY ANTS



Yellow crazy ants on Praslin (C. Kaiser-Bunbury)

In 2009, the first reports of the invasive yellow crazy ant *Anoplolepis gracilipes* in the Vallée de Mai raised concern about its potential impacts on the endemic fauna. Yellow crazy ants are known to have devastating effects where they have been introduced on other tropical islands. Harriet Cuthbert, an MSc student from the University of East Anglia supervised by Dr Diana Bell, spent 3 months in the Vallée de Mai in 2010 to start research on the species in the palm forest ecosystem. The aims of her research were primarily to map the distribution and abundance of yellow crazy ants within the palm forest and assess the impact of this destructive invasive species on endemic arboreal species richness and abundance (including geckos, snails and slugs).

Harriet found that yellow crazy ants were confined to the north-east side of the Vallée de Mai, and were most abundant around the entrance and start of the North Path. Most importantly she found that overall abundance and species richness of arboreal endemic species were much lower in crazy ant infested areas, with snails and slugs being most affected. Of most concern was the absence of tree-dwelling molluscs from the crazy ant-infested area of the Vallée de Mai. This is the first report on the extent and current impacts of yellow crazy ants on the palm forest ecosystem. The present restricted distribution of crazy ants at the Vallée de Mai, combined with the negative impacts on native fauna, make further research essential to monitor the possible spread of this species through the site and to assess potential control measures.

### Other research in the Vallée de Mai in 2010/2011

- Ant researcher Dr Brian Fisher visited Seychelles, including the Vallée de Mai, in Jan/Feb 2010 to catalogue ant species diversity in the country. SIF research staff accompanied him in the field on Praslin and were trained in ant identification, collection and preservation. Dr Fisher provided SIF with an ant field guide and made a reference specimen collection of ants found at the Vallée de Mai, which has already been used extensively in the subsequent ant research.
- A new cricket species was discovered in the Vallée de Mai in 2010 by Dr Sylvain Hugel which is thought to be endemic to Coco de Mer leaf litter. The species is in the process of being named and described.
- SIF participated in a study conducted by three MSc students from the ETH Zurich, supervised by Dr Christoph Kueffer and Chris Kaiser-Bunbury, which is comparing biological traits (e.g. growth rate, chemical composition) of native and introduced plants to determine whether invasive species in the Seychelles share characteristics and how these compare with traits of native species

# SIF RESEARCH ALDABRA

Aldabra's scientific programme is much longer established than that of the Vallée de Mai with much of the research work being long-term monitoring programmes that were, in some cases, set up as long ago as the 1970s by the Royal Society. Such monitoring programmes are extremely important in a relatively undisturbed location like Aldabra because they produce baseline data, which can reveal ecological changes and trends both on Aldabra and elsewhere, and can act as 'benchmark' information against which other (e.g. more disturbed) areas can be compared.



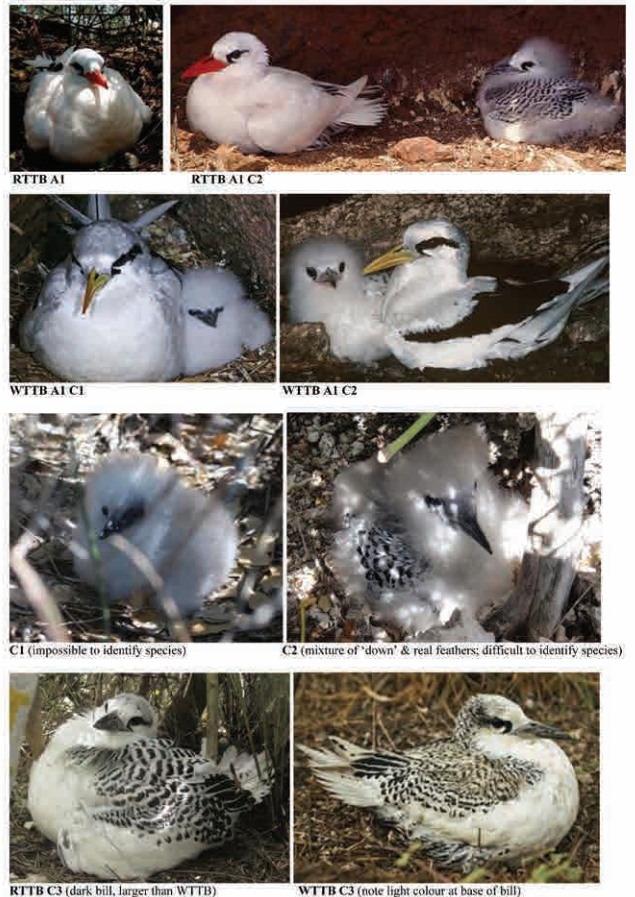
## DATA MANAGEMENT IMPROVEMENTS

The data collected on this wide range of programmes, however, can only be useful if well organised and standardised. Starting in 2010 Aldabra's monitoring programmes and the resulting data have undergone two major improvements in preparation for and as part of the GEF funded project to improve management. These are database development and the introduction and improvement of standardised protocols.

New databases were developed in 2011 by GEF consultant and ex-Aldabra volunteer Philip Haupt in Microsoft Access. Data were previously compiled in Excel which caused some problems so the change will ensure long-term data compatibility, reduce the potential for errors in data entry, and make the data more user-friendly, particularly with respect to summarising figures and statistical analysis. Most of the older data has been migrated from multiple files into the new single databases (per programme) and all staff have been trained in the use of the new recording system.

Also in 2011, comprehensive and standardised monitoring protocols were developed for all monitoring programmes. Effective protocols help to ensure consistency and high standards of data collection as well as in the training of new staff. They also provide the history and purpose of each monitoring programme. Monitoring on Aldabra has always been protocol led but the quality of the existing protocols was patchy, the information provided was inconsistent and some recently introduced programmes lacked them altogether so they were in little active use. New staff were commonly trained only verbally, which led to small changes appearing in some aspects of the methods (methodological 'drift'). Standardised protocols were developed by a team of SIF staff, with all providing comments to ensure veracity and quality. In some cases, where additional expertise was required, protocols were externally reviewed (e.g phe-

ANNEX 2. PHOTOS OF TROPICBIRD SPECIES AND STAGES

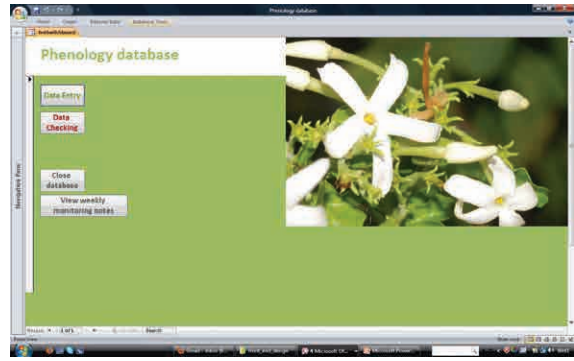


Tropicbird monitoring protocol

nology, cetaceans). Protocols are now in use for monitoring of phenology, tropicbird nesting, landbird abundance, coconut crabs, wading bird counts, subsistence fishing and cetacean monitoring. Developing a new protocol for the turtle monitoring has not been necessary since this is one of the few programmes which has been rigorously and consistently standardised and checked externally by Dr Jeanne Mortimer. The other programme still to be tackled is the giant tortoise monitoring programme which will be developed in conjunction with the ZARP project.

Establishing more effective databases and finalising suitable protocols

for all monitoring programmes has been a long-term and much needed goal for SIF. Achieving it has been time-consuming and intensive but has considerably improved the quality and accessibility of the data and resulted in better trained staff. One result is that changes and improvements to the monitoring programmes can now be made more easily, since the new protocols can be associated with data from a given period. Previously data could often not be linked to a description of exactly how it was collected, which greatly limited its use. A final benefit is that the information being collected on Aldabra can now be more easily shared with and understood by external researchers and used to answer broader ecological questions.



Example of one of the new monitoring databases in Access

## GOOD NEWS FOR ALDABRA'S GREEN TURTLES

An important aim for the intensive green turtle monitoring on Aldabra has been to make more use of the huge quantity of data collected and disseminate the results. In 2010 and 2011 Dr Jeanne Mortimer and co-authors analysed Aldabra's green turtle track data and subsequently published an important paper in the journal *Chelonian Conservation and Biology*. The authors assessed the reproductive output of nesting turtles on Aldabra, using track counts as a proxy, and calculated that the mean annual estimate of egg clutches rose from 2000–3000 in the late 1960s, when the Aldabra population became the first in the region to be protected, to 15,669 in 2004–2008. This equates to 3100–5225 females nesting annually and represents a 500–800% increase in annual nesting adult females over 40 years. The rate of increase was highest at Settlement Beach, which had historically suffered the most intense exploitation. The result, as well as being excellent news for Aldabra, provides strong support for Protected Areas as a means of improving turtle conservation (summarised from Mortimer, von Brandis, Liljevik, Chapman & Collie, 2011).

Turtle track monitoring and tagging has continued throughout 2010 and 2011 and the number of emergences continues to rise. On Settlement Beach, the main indicator beach with the most intensive turtle monitoring, 2010 was the highest year so far in terms of total emergences with 2011 being a close second. 2011 also had the highest average daily emergence measured to date in peak nesting season suggesting that the positive trend reported by Mortimer *et al.* is continuing.



Green turtles mating in Aldabra waters (M. Šúr)



### ISSF FUNDING RECEIVED FOR SATELLITE TAGGING PROJECT

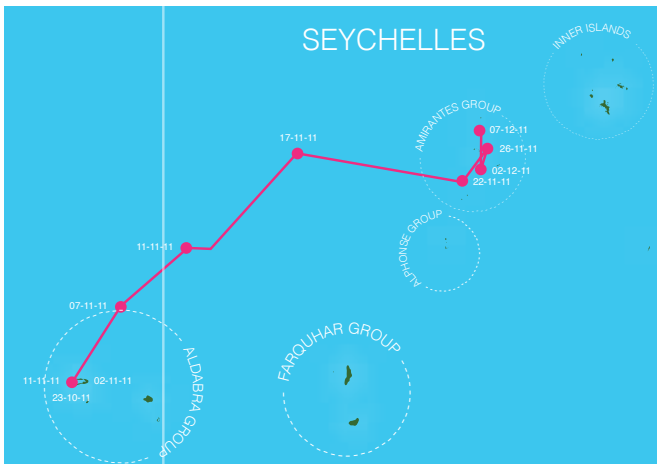
In February 2010, during the Indian Ocean Tuna Commission conference, the IOTC announced, with MWBrand, that a donation to SIF would be made as a contribution towards the preservation of Indian Ocean fish stocks. The donation was for marine research on turtles or dugongs and the generous grant was subsequently received from the International Sustainable Seafood Foundation. The funding made it possible to include a new dimension to Aldabra's turtle monitoring programme in the form of satellite tagging of nesting green turtles. Despite having one of the largest green turtle nesting populations in the Indian Ocean and thousands of tagged animals, Aldabra's turtles have never been tracked, and their whereabouts when away from Aldabra is known only from a handful of one-off re-sightings of flipper-tagged individuals. The aim of the project is therefore to determine where Aldabra's turtles migrate to forage between breeding attempts and to improve understanding of the threats these turtles are exposed to when away from Aldabra's protected waters.

After extensive research into suitable tags, eight KiwiSat PTT tags were ordered and registered on the Argos satellite system which tracks animal movements worldwide. Nocturnal observations and flipper-tagging of nesting turtles were intensified from mid-2011 to improve the chance (and confidence) of encountering a female near the end of her breeding cycle. The timing is essential to reduce the chances of the female mating after tagging which can displace or damage the transmitter.

After much planning and preparation the first turtle, named Monique, was finally satellite-tagged in October 2011, in a long process that was a very exciting time for everybody involved. Once released, Monique travelled northwards towards the inner Seychelles. Her last transmissions were



Tagging of Monique



Satellite-tagged green turtle Monique's travels (red line) from Aldabra in October 2011 to close to St Joseph in the Amirantes in December 2011, when her transmissions stopped.



Monique makes her way back to the water after having a satellite transmitter attached

received in early December 2011 from close to St Joseph Atoll in the Amirantes. Unfortunately her transmissions stopped shortly afterwards and have not been picked up since. The battery life of the transmitters is supposed to be 2-3 years but, once a tagged turtle is released, it is subject to so many environmental and physical factors that the time span of transmissions can be quite a lottery. More turtles will certainly be tagged in 2012!

## OTHER TURTLE MONITORING

To provide an extra dimension to the data being collected and its applications, GPS coordinates have been recorded for all tracks on Settlement Beach since early 2010 (already amounting to thousands of tracks). These data are now providing useful fine-scale information on favourable nesting locations and will

also be used to examine site fidelity for female turtles. The locational data have so far indicated that there is an increase in emergences with increasing distance from the Research Station, which could be a result of disturbance from boat traffic and lights around this area (Research Officer Annual Report 2010, J. Currie).

Tagging of turtles has also continued, although at lower intensity than in previous years due to many other project activities: for green turtles, 80 were tagged in 2010 and 119 in 2011. The number of hawksbill turtles tagged (via in water or 'rodeo' tagging) was two in 2010 and 11 in 2011.

## MIGRATION OF ALDABRA HAWKBILLS CONFIRMED WITH DIGITAL PHOTOGRAPHY



Hawksbill turtle in Aldabra waters (Fotonatura)

Another paper published by Mortimer and other authors in 2011 highlighted the use of digital photography in identification of tagged turtles and its use in identifying long-term migrations. The paper reports re-sightings of two hawksbill turtles which were both tagged as juveniles at Aldabra in 1996/1997. One of the turtles, a sub-adult male, was photographed close to Silhouette in 2006, 9 years after being tagged. The second was a female, photographed nesting on Desroches Island, in 2009, more than 13 years after being tagged at Aldabra. In both cases these were the first known sightings since the turtles were tagged at Aldabra, and the first recorded migrations away from Aldabra among the approximately 500 juvenile hawksbills tagged there since 1986. The unique tag numbers of both animals could be read clearly from the photographs, demonstrating that digital photography is a useful supplementary tool in unravelling the elusive migratory patterns of these long-distance travellers. The authors also point out that these cases demonstrate the extent to which hawksbill turtles of various life stages can occur across the Seychelles islands and emphasise the need for national and regional cooperation in the protection of this critically endangered species (summarised from Mortimer, Gerlach & Summerton 2011).

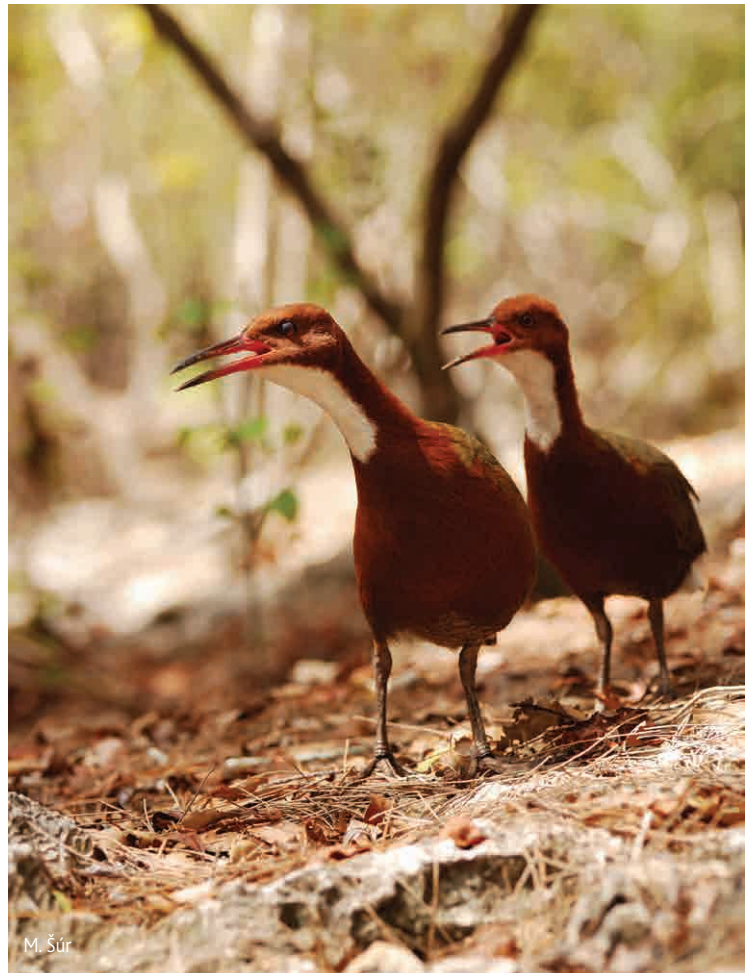
# BIRD MONITORING

All bird monitoring on Aldabra (landbirds, waders and tropicbird nesting) had been much improved by the development of new databases and monitoring protocols. Populations of all landbird species have remained stable in more than 10 years of monitoring. For waders, abundance of most species remains similar across the same period, but recent increases are evident in the number of bar-tailed godwits and whimbrels encountered. A recent paper reports the satellite tracking of a crab plover from the United Arab Emirates to Aldabra in 2008 (Javed *et al.* 2011). Caspian terns have been observed breeding in both years.

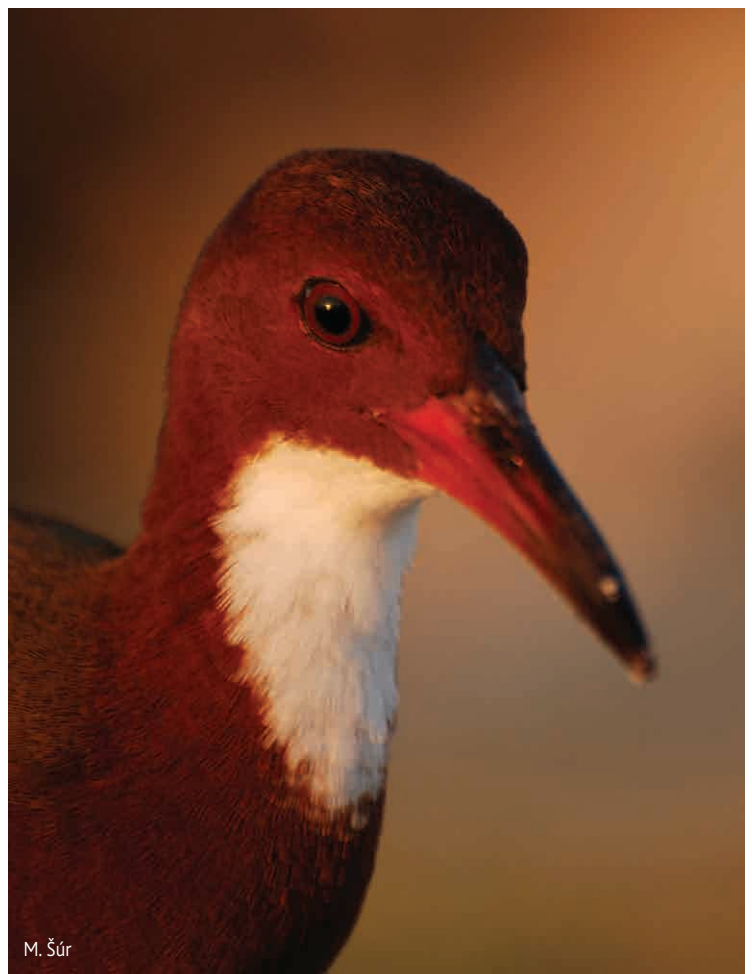
More tropicbird nests were found in 2010 and 2011 than in any year since this monitoring programme began. Nest success rates remain very low (<10%) for both species, which is probably due to predation by rats, herons and other predators. Comparing nest success between rat-inhabited and rat-free islets revealed a similar nest failure rate for both, suggesting that other predators may be impacting on these seabirds.

## PICARD RAIL SURVEY

Aldabra rails used to occur on only three islands of Aldabra (Polymnie, Malabar and Ile aux Cedres) following their extinction from Grand Terre and Picard due to cats. In 1999, 18 birds from the Malabar population were translocated to Picard. The reintroduction was a success and the birds quickly established and started breeding, but the Picard population has not been surveyed since 1999. A paper published in 2002 (Wanless *et al.* 2002) predicted that the breeding population would reach carrying capacity within 10 years and estimated that Picard could hold approximately 1000 breeding pairs. A rail survey was carried out on Picard in November 2011 by Michal Šúr, a bird survey consultant under the GEF project. Michal subsequently estimated the population to be well over the predicted 1000 breeding pairs. The results from this survey are still being analysed and will be written up for publication in 2012.



M. Šúr



M. Šúr



## FRIGATEBIRD SURVEY

Aldabra's breeding colony of greater and lesser frigatebirds is known for being the second largest in the world and the largest in the Indian Ocean; however, it has not been surveyed for more than 10 years and results from previous surveys are difficult to compare because they applied different methodologies and were done at different times of year. This makes it difficult to examine and respond to long-term trends. In January/February 2011 the first part of a 2-year survey was conducted by a team of four Aldabra staff, led by Michal Šúr. The survey covers two years because the frigatebirds' long breeding cycle (12–19 months) means that more than one year needs to be covered to obtain a clear picture of the fluctuating population size. The survey was also planned to test and standardise a methodology for long-term use by SIF staff and to use the results to review Aldabra's tourism regulations. Initial results indicate that the frigatebird population on Aldabra has probably increased. The distribution of the colonies has also changed: the Takamaka colony has not been active since the 1960s and a new and fairly large colony has established on the east of Picard in the Grand Poche area. The survey will be completed in early 2012 and the results included in full in the 2012 report.

## MADAGASCAR POND-HERONS

Following volunteer Jen Stockdale's project on the endangered Madagascar pond-heron in 2008/2009, this species has been included in the Aldabra monitoring programme and all new staff are trained in how to identify it. All sightings are recorded and mapped and notes on breeding plumage and habitat are taken. It is a very difficult species to monitor more closely but this monitoring will provide basic data on distribution, preferred habitat type, and breeding season on Aldabra. Sixty-four sightings of this species were made between 2009 and 2011 (compared to 12 sightings for the previous 8 years when there had been no monitoring focus on the MPH), all of which were adults and in the East Grande Terre region. The breeding season appears to be between November and March, although there are few observations to support this and no nests have been located.



# GIANT TORTOISE RESEARCH & THE ZARP PROJECT

In September 2011, an exciting new interdisciplinary project was launched on Aldabra giant tortoise ecology. Named the Zurich-Aldabra Research Platform (ZARP). This project is a collaboration led by SIF and five post-doctoral researchers based at the Institute of Biology and Environmental Studies at the University of Zurich. The Zurich-based scientists, Dr Dennis Hansen, Dr Erik Postma, Dr Gabriela Schaeppman-Strub, Dr Lindsay Turnbull and Dr Arpat Ozgul, have complementary skills and expertise which will enable the project to address a wide range of ecological questions. Within the project, which has received 2 years of funding for a Project Officer to be based on Aldabra, several key research areas will be investigated including the following:



Aldabra giant tortoise (M. Šúr)



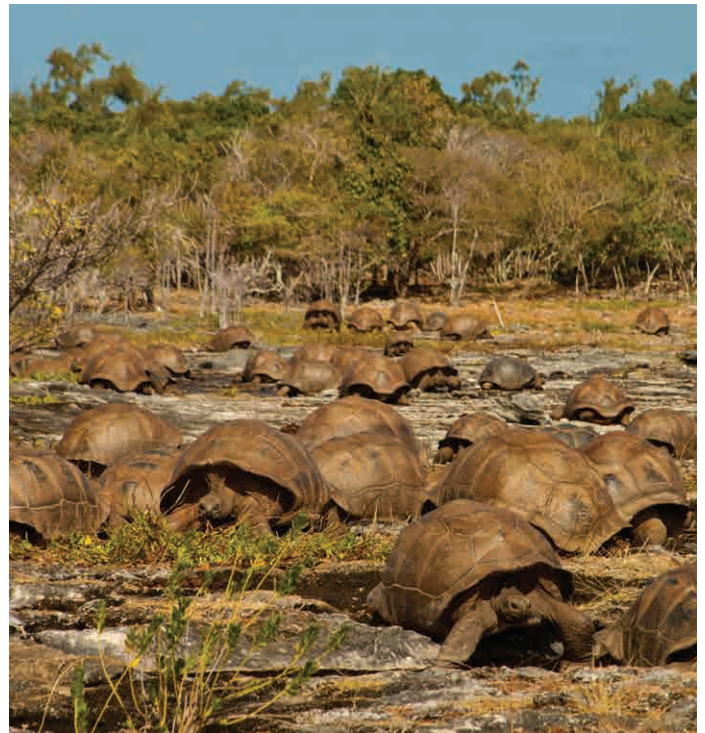
Tortoises in the shade (M. Šúr)

- 1** Marking a large proportion of the Picard island tortoise population to provide baseline data for the majority of tortoises on one of Aldabra's islands. Intensive marking and measuring has not been done for decades on Aldabra and marking enables long-term individual-based monitoring, which is extremely valuable, especially with such long-lived species. Individuals will be measured, sexed and sampled for genetics, blood chemistry and pathogens. This part of the project will be the foundation for other research and enable a number of research avenues to be pursued.
- 2** Population dynamics and genetics: The tortoises passed through a genetic bottleneck over a century ago and the current population is therefore probably descended from a small number of animals, some of which may still survive. It is not known whether current genetic diversity is reduced compared to the recent past and whether this is compromising the tortoise population recovery. Levels of inbreeding will also be examined.
- 3** Linking tortoise densities and behaviours to vegetation dynamics: Tortoises are the dominant herbivore on Aldabra and their biomass per unit area exceeds that typically found in ecosystems dominated by large mammalian herbivores. Their density presumably heavily influences the vegetation but the links between vegetation dynamics and tortoise density are poorly understood. The researchers will also investigate the links between long-term vegetation dynamics, climate variability and tortoise numbers. This work will involve analysing long-term datasets on climate, phenology and tortoises, collecting and examining tree cores to determine whether seasonality can be assessed in cores, and using satellite imagery to examine vegetation changes over time.

This work will be precisely the kind of interdisciplinary research examining broad scale ecological questions and using several types of data that SIF is trying to promote for Aldabra. The project will yield a number of valuable results including a detailed understanding of the genetic and population structure of the Aldabra giant tortoise population and potentially predictive models for the effects of environmental scenarios, such as climate change, on Aldabra.

The Aldabra laboratory was completely re-vamped before the project started and equipped with a generous donation of equipment from the University of Zurich to prepare for the project. Richard Baxter was recruited as the field-based Project Officer for this work and started fieldwork in November 2011.

Early results from the project include statistical analysis by Lindsay Turnbull of the most recent 15 years of tortoise population data which indicate that the population has been very stable on all islands throughout this period. Size differences are also marked with the largest tortoises on Picard and the smallest individuals on East Grande Terre – this difference has persisted since the 1970s despite the large changes in population density since then. The analysis is currently at early stages and will be explored in much more detail in the coming 2 years. More details on the project progress will be provided in the 2012 report.



Tortoise herd on Picard (R. Baxter)

## CLIMATE

In November 2010, a new state-of-the-art Vaisala automatic weather station was installed on Aldabra as part of the national CC DARE climate change project. SIF worked closely with the Seychelles National Meteorological Service (SNMS) to set this new instrument up and the intention was to link up via satellite to the international climate recording network and use the information from Aldabra to help predict the timing and severity of regional extreme weather events, such as cyclones. With climate change being a major threat to Aldabra detailed data collected by the new weather station on a wide range of climatic variables was intended to help SIF to assess and prepare for the threats posed by climate change. Use of the existing meteorological instruments on Aldabra was to be continued to compare with data collected by the new device. Unfortunately, the set up and running of this weather station in a location as remote as Aldabra proved to be

exceptionally problematic and securing suitably qualified local or international technicians quickly was difficult. We also had bad luck with a non-functioning satellite transmitter which, due to the transport situation, took months to be returned to Mahé from the atoll and still requires replacement. The logistics of Aldabra have therefore slowed things down considerably and, as of 2012, the new weather station is still not functioning satisfactorily. The existing low-tech weather station, however, has fortunately not failed us so basic weather data is still being collected on a daily basis. An SIF staff member attended a training course by technicians from Vaisala at the end of 2011 and we are very hopeful that, following this, the situation will be resolved. We are very grateful to staff of the SNMS for their substantial efforts and support with this complicated project so far.

Under the same CC DARE funded project, 60 years of climate data from Aldabra were compiled and summarised in a report written by Aurelie Duhec, Sam Balderson and Naomi Doak ("Climate data report for Aldabra Atoll: 1949–2009"). The report provided basic information on Aldabra's climate (temperature and rainfall) over this period, using data taken primarily from the research station but also from the 12 rain gauges in other parts of the atoll.



Fotonatura



# MARINE RESEARCH & POLICY



Dugongs: Only one sighting of a dugong occurred in this period, an adult seen in late 2010. However, following the completion of the remote sensing work on the Aldabra lagoon, a paper compiling all dugong sightings since 2001 plotting their distribution on a high resolution benthic habitat map of the lagoon was written by Dr Sarah Hamylton, Dr Annelise Hagan and Dr Naomi Doak. Sightings were found to be clustered in the north-west of the lagoon and at Bras Monsieur Clairemont, suggesting a mutual co-existence of dugongs and seagrass beds. The paper was submitted in 2011 and should be published in 2012.

Tidal monitoring: A tidal gauge was installed at Passe du Bois in 2011 and checked by the Indian Navy at the end of the year. The gauge is now collecting data on tides and will help to generate Aldabra specific tidal charts and reduce dependence on the charts from Mayotte which are currently used.

## DUGONG MEMORANDUM OF UNDERSTANDING SIGNED BY SEYCHELLES

Seychelles became the 15th signatory state to the Dugong Memorandum of Understanding (MoU) under the International Convention of Migratory Species (CMS). Ambassador Maurice Loustau-Lalanne, Principal Secretary for the Ministry of Foreign Affairs and chairman of the Seychelles Islands Foundation, signed the MoU in Abu Dhabi at the first Official Signatory State Meeting taking place from the 4-6th October 2010. Following the official signing ceremony the Seychelles Islands Foundation made a voluntary contribution of US \$10 000 towards the Small Grants Programme under this MoU for the conservation of the dugong in the South Western Indian Ocean where the population is critically low and with the possibility of extinction. Maurice Loustau-Lalanne said "This donation of US\$10 000 demonstrates the seriousness of Seychelles in its leadership towards international conservation efforts. We hope that it will deliver a strong message for other signatory states to assist in the successful implementation of this MoU, especially in our region, by preserving the migratory routes including feeding and breeding grounds of this loveable mammal." Aldabra is the only known habitat of the dugong in Seychelles. The first confirmed sighting was in September 2001 and the estimated present population is 4 individuals. The Seychelles delegation in Abu Dhabi includes Dr Frauke Fleischer-Dogley, CEO of the Seychelles Islands Foundation. Dr Dogley affirmed that "With the signatory of the MoU the efforts of the Seychelles Islands Foundation to initiate another conservation success story on Aldabra which will be formalized with the support of IOT, MW Brand and ISSF who have confirmed their financial support to set up a first comprehensive dugong monitoring programme on the atoll." (Ed notes: There are confirmed small populations in Mayotte, Kenya, Tanzania & Mozambique / Abu Dhabi has the second largest dugong population / Abu Dhabi is hosting the UNEP dugong MoU secretariat since 2009)

## PARTICIPATION IN EXTERNAL RESEARCH PROJECTS

- Coconut crab samples for research on genetics of this widespread species were collected and sent to Dr Allen Chen at the University of Taiwan.
- Hawksbill turtle DNA samples were collected for a PhD student, Karl Phillips, at the University of East Anglia, who is investigating connectivity between hawksbill populations breeding across Seychelles.
- Samples of *Euphorbia* and *Pandanus* were collected for research led by Dr Thomas Haevermans at the Paris Natural History Museum on phylogenetics of *Euphorbia pyrifolia* relatives in the Madagascar, Mauritius and Seychelles.
- In 2011, samples of *Cratopus* beetles were collected for PhD research by James Kitson at the University of East Anglia. The research aims to assess genetic diversity within this genus and assess patterns of colonisation that have led to *Cratopus* beetles being so widespread across the Indian Ocean.

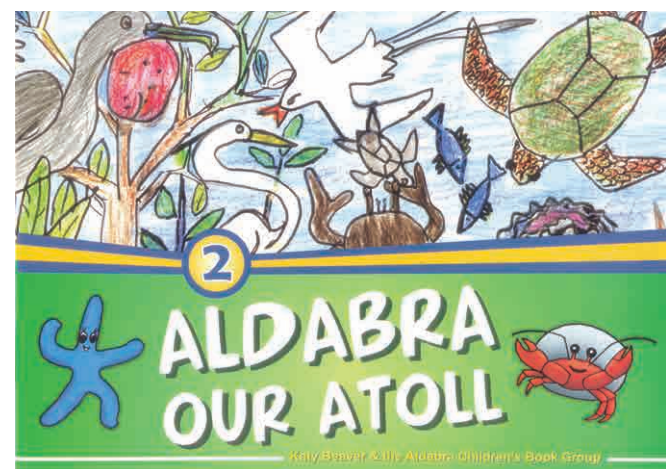
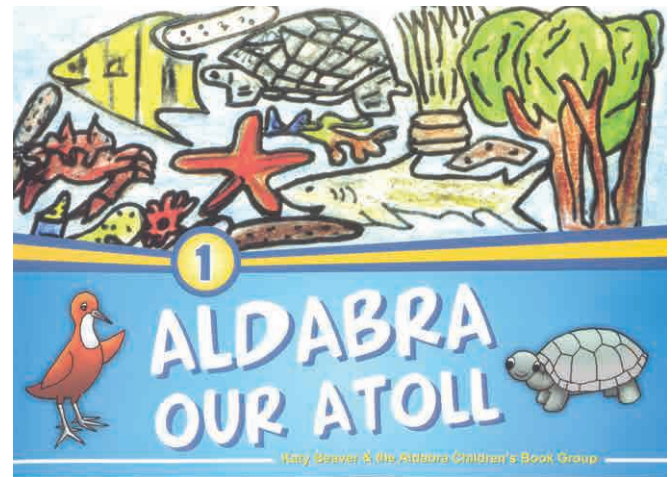
# EDUCATION & OUTREACH

There have been an increasing number of education and outreach activities, particularly focussed on the Vallée de Mai, during this period due to the recruitment of two staff dedicated to these activities. Maria Brioche has been working closely with the local communities on Praslin to improve environmental education for children and visitors alike. Some of the key education and outreach events in 2010 and 2011 have been:



- The Aldabra educational books designed under the Mangroves for the Future project with Katy Beaver, that were completed in 2009, were published and launched. These books were designed to be used as a teaching supplement to the current school curriculum. Drawing on Aldabra and the many unique features of the atoll, the activity books are full of fun materials that can be used in many different subject lessons. Some of the subjects covered in the books are: life on Aldabra, the role of SIF, geography/geology of the atoll, different ecosystems, life as a ranger, and the importance of scientific research. SIF celebrated the culmination of this project with an official book launch on 28th June 2011 with CEO Frauke Fleischer-Dogley presenting a copy of the books to the Director General for schools, Odile Octave, at the National Library. A set of books was awarded to each class in each primary and secondary school so that they could be used in future lessons. A teacher training workshop was also held for local educators. This gave them an opportunity to practice using the books and understanding how best they can be used within the national curriculum. Many of the educators found the books very useful and some even commented that it had allowed them to update their teaching techniques.

- Festival Kreol came to the Vallée de Mai in October 2010 and 2011 and is fast becoming one of the most important fixtures in the SIF calendar. There was a week long schedule of events culminating in a two day exhibition at the Vallée de Mai which attracted tourists, school students and senior citizens. These visitors to the World Heritage site were treated to traditional food, music, stories and crafts while demonstrating the role the environment has played in shaping Kreol culture. This event is in ideal opportunity to promote the link between the environment and culture. The display and performance of traditional stories, songs and crafts demonstrated this refer-



ence between the Seychellois culture and the natural environment. SIF invited senior citizens to come and tell stories to members of the Friends of Vallée de Mai from the Grand Anse and Baie Ste Anne schools. There was also a display of medicinal plants and their uses. These interactive displays were a great opportunity to celebrate the creole culture with local and international visitors, and demonstrate the importance of a Heritage site such as the Vallée de Mai.

- SIF participated in the annual worldwide 'Clean up the World' campaign from 17th-19th September 2010. This annual community-based event can have up to 120 countries participating with around 35 million people taking part. To participate in the campaign, the Vallée de Mai invited local schoolchildren and teachers to participate in a clean-up day. Many schoolchildren from different schools participated in the campaign and assisted in removing litter

from the waterfall area in the Vallée de Mai. This is a popular area with tourist and an important local water system. The children's efforts in keeping this area clean were much appreciated and will continue to contribute to the conservation a site of international importance

- Several themed days of global significance were celebrated as part of the Education and Outreach programme. These theme days allow global issues to be discussed and interacted with on a local level. As part of World Water Day, children from the Friends of Vallée de Mai club joined rangers in monitoring the rivers within the VDM. Biodiversity Day is a day of international significance and was commemorated by activities in the VDM. Local schoolchildren participated in a scavenger hunt trying to record and identify any birds, insects, plants and other flora and fauna within the VDM. This activity was an opportunity for them to learn about the biodiversity that is present with the VDM and to improve their observational skills. For World Environment Day staff, teachers and children joined together to plant endemic palm and fruit tree at the compounds of the local schools. The planting of the trees raised awareness of the endemic species in the Seychelles and the importance they play in the local ecosystem.

- In 2010 under further developments of the Visitors Centre at the Vallée de Mai, and working with the School of the Exceptional Child, wooden ramps were placed at all steps to make all facilities accessible to people with disabilities. A new trail through the forest was also constructed which allowed wheelchair users to access the forest and gain the experience of visiting such a unique heritage site. The Vallée de Mai is the only forest park and major tourist attraction in Seychelles that is now accessible to disabled visitors. In the future it is hoped that further adaptations may be made for visitors with other specialised needs.

- A group of children from the School of the Exceptional Child were invited to visit the Vallée de Mai as part of their Christmas activities. The children were treated to a guided tour of the park by the site manager using the new disabled facilities that had recently been installed. There was also an exhibition at the visitors centre for them to explore and learn about the Vallée de Mai. It was hoped that this visit would allow the children access to an area that was previously unexplored by them, and that they would share the knowledge and experience they gained with others.

# VIP VISITS TO THE WORLD HERITAGE SITES IN 2010 AND 2011



## The Princess Royal visit to Vallée de Mai and Aldabra

On 30th November and 1st December 2010, SIF was delighted to welcome and host Her Royal Highness, Anne, the Princess Royal with her husband Admiral Timothy Laurence, for an extended tour of the Vallée de Mai and then for a rare flying visit to Aldabra Atoll.

The Princess Royal was accompanied in the Vallée de Mai by Admiral Laurence, the British High Commissioner, Matthew Forbes and Principal Secretary for Foreign Affairs and SIF Chairman Maurice Loustau-Lalanne. The Princess was entertained with Creole music, art and dancers, as well as a spread of Creole food. The Princess also had the opportunity to meet significant members of the Praslinois community.

On the following day, SIF Board Members and Aldabra-based staff of SIF were privileged to welcome the Princess and her party to Aldabra for a flying visit. She was accompanied by the Minister for Home Affairs, Environment and Transport Joel Morgan.

Apart from enjoying Aldabra's wildlife, the Princess was impressed by the various scientific research programmes that are being carried out on the island to study and preserve its unique and healthy ecosystem. During her tour of the research centre, the royal delegation was briefed on the various research programmes, including remote sensing of the lagoon, which was being done in collaboration with the University of Cambridge, as well as future plans such as installation of renewable energy technologies to run the station. Before their departure, the Princess and her party were treated to a boat trip into the Aldabra lagoon, where they were able to observe sharks, turtles and rays as well as extensive coral reef in the shallow waters.

Speaking on behalf of the Princess Royal, Minister Morgan said she was impressed by the country's balance between nature conservation and development. He added that the Princess praised the noble task of the SIF and the Seychelles government to maintain Aldabra and the Vallée de Mai as UNESCO World Heritage Sites. SIF staff feel privileged to have hosted this royal visit and very much hope that the Princess Royal will treasure her memories of this special place.

*Modified from article by Roland Duval published in The Nation in January 2011*

# PUBLICATIONS

## Media Publications



- 22/02/10 – Digital photography confirms long distance migrations of juvenile hawksbills tagged at Aldabra, contributed by J. Mortimer, J. Gerlach & P Summerton (Nation)
- 14/06/10 – New helicopter bucket to help in firefighting (Nation)
- 02/07/10 – Study highlights threat from crazy ants (Nation)
- 12/07/10 – Coco de Mer centre of attraction at National Show (Nation)
- 04/10/10 – World Heritage Sites join clean-up campaign (Nation)
- 14/10/10 – SIF rewards winners of National day games (Nation)
- 10/02/11 – Seychelles Tortoises: Giants ruling the Aldabra lagoon (The Rising Sun)
- 18/02/11 – EU grant to tackle invasive species at World Heritage Sites (Nation)
- 30/10/11 - Vallée de Mai celebrates Festival Kreol (Nation)
- 28/06/11 – Schools receive educational books on the Aldabra Atoll (Nation)
- 31/10/11 – Work ongoing to eradicate Mynahs on Denis Island (Nation), following presentation by Prof. Chris Feare hosted by SIF

## Scientific publications

We are very pleased to have increased the research output of the two World Heritage sites in terms of peer-reviewed publications. This has been made possible by students and researchers coming out to the sites, and strong collaborations with several universities and research institutions. It is especially notable that publications from research based in the Vallée de Mai have increased and that all of these have been co-authored by SIF staff, who have taken an active role in promoting research into palm forest ecology. Our research on Coco de Mer featured on the cover page of the March 2011 issue of the journal Diversity and Distributions. SIF research focuses on improving ecological knowledge and understanding of these two very different ecosystems, and using the results to assess and improve our management of the two sites and identify conservation priorities.

Below is a list of all of the peer-reviewed publications on Aldabra and the Vallée de Mai by SIF staff and associated researchers, which have been accepted or published in 2010 and 2011:

### Vallée de Mai

Fleischer-Dogley F, Kettle CJ, Edwards P, Ghazoul J, Maattanen K & Kaiser-Bunbury CN. 2011. Morphological and genetic differentiation in populations of the dispersal-limited Coco de Mer (*Lodoicea maldivica*): implications for management and conservation. *Diversity & Distributions* 17: 235–243

Noble T, Bunbury N, Kaiser-Bunbury CN & Bell DJ. 2011. Ecology and co-existence of endemic gecko species in a native palm forest. *Journal of Zoology* 283: 73–80

Rist L, Kaiser-Bunbury CN, Fleischer-Dogley F, Edwards P, Bunbury N & Ghazoul J. 2010. Sustainable Harvesting of Coco de Mer, *Lodoicea maldivica*, in the Vallée de Mai, Seychelles. *Forest Ecology and Management* 260: 2224–2231

Taylor ML, Bunbury N, ChongSeng L, Doak N, Kundu S, Griffiths R & Groombridge JG. (In press). Evidence for evolutionary distinctiveness of a newly discovered population of sooglossid frogs on Praslin Island, Seychelles. *Conservation Genetics*

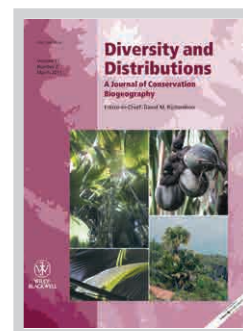
### Aldabra

Hagan AB, Hamylton SM & Doak N. (in press) Observations of Dugongs (*Dugong dugon*) at Aldabra Atoll, Seychelles, Western Indian Ocean: Lagoon Habitat Mapping and Spatial Analysis of Sighting Records. *International Journal of Geographical Information Science*

Mortimer JA, Gerlach J & Somerton P. Long-distance migrations of hawksbills tagged as juveniles at Aldabra Atoll: Confirmation from digital photography. *Marine Turtle Newsletter* 129: 11–13

Mortimer JA, Von Brandis RG, Liljevik A, Chapman R & Collie J. 2011. Fall and Rise of Nesting Green Turtles (*Chelonia mydas*) at Aldabra Atoll, Seychelles: Positive Response to Four Decades of Protection (1968–2008). *Chelonian Conservation & Biology* 10

Weimerskirch H, LeCorre M, Tew Kai E & Marsac F. (In press). Foraging movements of great frigatebirds from Aldabra Island: relationship with environmental variable and interactions with fisheries. *Progress in Oceanography*



Cover of March 2011 issue of Diversity and Distributions, featuring coco de mer research by SIF and ETH Zurich researchers

## STAFF TRAINING

### OVERSEAS TRAINING

May-Jul 2010	Marc Jean-Baptiste	Fellowship training programme organised by UNESCO and US National Parks Service in the Grand Canyon National Park, US
Aug 2010	Wilna Accouche	1 month training on Management and Protection of Nature Reserves for developing countries in China

### DIVE TRAINING

Mar 2011	Andy Gouffe, Marc Jean-Baptiste, Christina Quanz	PADI Open Water certificate on Aldabra. Instructor: Tessa Hempson
	As above plus Stan Denis	PADI Advanced Open Water certificate on Aldabra. Instructor: Tessa Hempson
May 2011	Stan Denis	Diving rescue and safety techniques

### OTHER

Mar-Apr 2011	Wilna Accouche, Aldabra Research Staff	5-week Oxford University distance-learning post-grad course in mammal/reptile survey techniques 2-day GIS training course provided by Phil Haupt, GEF Project database management consultant
Mar 2011	Marcus Pierre	Project Management Course with Lungos
May 2011	Joel Souyave	Advanced Excel
May 2011	Annabelle Constance Nathachia Pierre	UNDP Project Management Course EarthWatch training course on Coral and Coastal Ecology
July 2011	Aldabra research staff	2-day GIS training course provided by Phil Haupt

In 2010, Marc Jean-Baptiste, who has been Island Manager of Aldabra and Site Manager for Vallée de Mai, twice at each site, had a fantastic opportunity to spend 2 months with the US National Parks working in the Grand Canyon World Heritage Site learning about visitor management and park management at a much bigger scale than anything seen in Seychelles. Marc's experiences in the US were not only extremely enjoyable and an excellent learning opportunity but they have led to him bringing new and innovative ideas for managing visitors and providing information at the Vallée de Mai, which we hope to be in a position to implement soon. Many people were involved in getting Marc to the US at fairly short notice and we would like to express our heartfelt gratitude to UNESCO and the US National Parks Service for organising this unique opportunity for Marc, for the warm welcome and generous hospitality of everyone he met, and for integrating and involving him in a wide range of relevant activities. We plan to make good use of his experience!



Marc Jean-Baptiste in the Grand Canyon National Park and World Heritage Site in 2010, during his amazing 2 months with the US National Parks Service in an unrivalled training opportunity organised by UNESCO and USNPS. (right) The diving group being trained on Aldabra.

## STAFF MOVEMENTS

### 2010

Jan	Marc Jean-Baptiste	Mozambique: 5-day training, SADC Cross Border Fire Management Programme
May	Frauke Fleischer-Dogley & Marc Jean-Baptiste	Nairobi, Kenya: UNESCO workshop 2nd cycle of Africa periodic reporting
	Marc Jean-Baptiste	Grand Canyon National Park, US: 2 months of training on UNESCO programme
July	Wilna Accouche	China: 1 month on Management and Protection of Nature Reserves for developing countries
Sep	Marcus Pierre	India: MFF workshop
	Nancy Bunbury	Copenhagen, Denmark: Neobiota conference on invasive alien species and threat management
Nov	Wilna Accouche	Mauritius, presenting overview of SIF's activities to the Mauritian Wildlife Foundation
Dec	Wilna Accouche	Hawaii: Marine World Heritage Site Managers' Meeting - bringing all 43 Marine WH Site Managers together with scientists/managers to exchange experiences and build a stronger community of marine site managers

### 2011

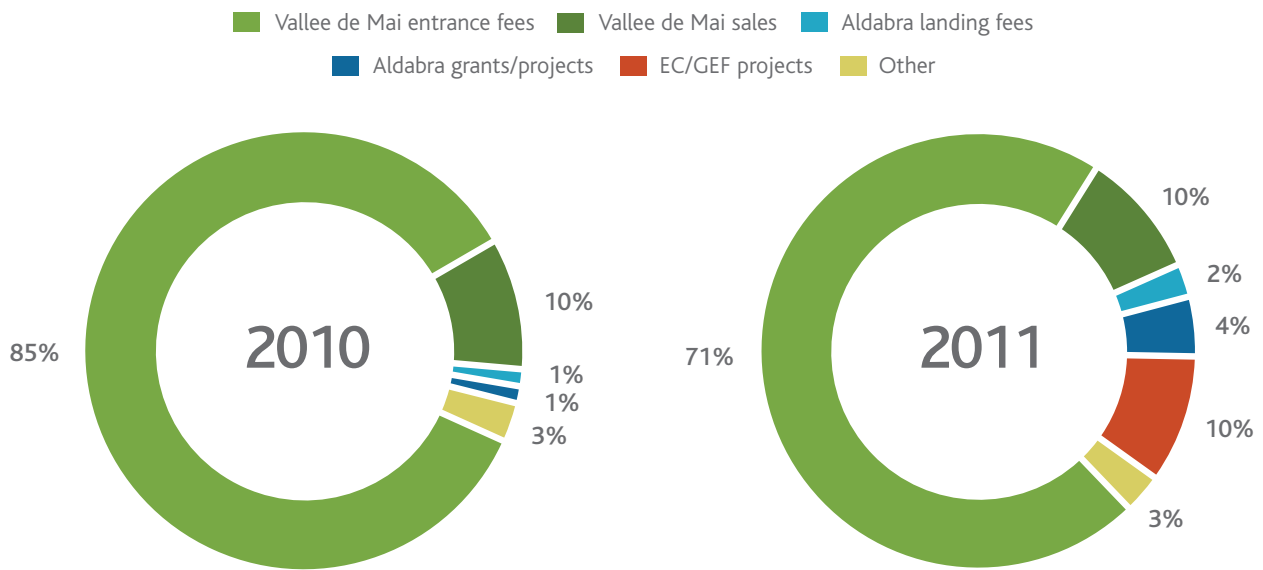
Apr	Frauke Fleischer-Dogley Frauke Fleischer-Dogley & Christina Quanz	Frankfurt, Germany & Strasbourg, France: opening of coco de mer exhibitions Bad Staffelstein, Germany: meeting with IBC Solar about Aldabra solar energy system
July	Nancy Bunbury	Zurich, Switzerland: Meeting with ZARP and presenting Aldabra and SIF activities to University of Zurich

# FINANCIAL INFORMATION

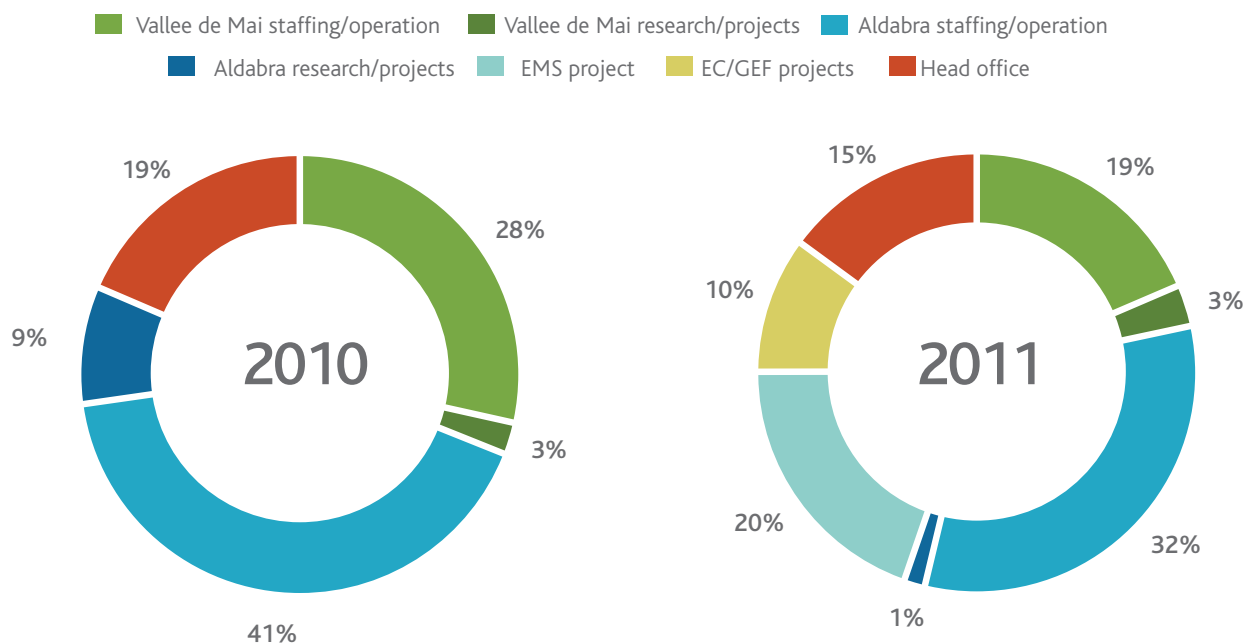
## 2010/2011

Although the Vallée de Mai entrance fees still provide the largest proportion of SIF's revenue, sources of income and expenditure have changing with the launch of more projects, as increased sales revenue from the Vallée de Mai. This becomes increasingly evident in 2011 with an increase in external project funding (in both income and expenditure) from the EC and GEF projects and a large investment into the solar system (EMS project) on Aldabra, which will substantially reduce operational costs in the long-term. The drop in income from Aldabra's landing fees compared to previous years (e.g. 13% in 2009) reflects the effect of piracy on SIF's only direct income from this site.

### INCOME



### EXPENDITURE



## SIF BOARD OF TRUSTEES

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The Patron of the Seychelles Islands Foundation is President of the Republic of Seychelles James Michel. The SIF Board of Trustees for this period are:  
Chair: Mr Maurice Loustau-Lalanne  
Trustees: Prof. Steve Blackmore, Dr Frauke Fleischer-Dogley, Dr Elvina Henriette, Mr Frank Hoareau, Ms Christelle Jacques, Prof Lars Kristoferson, Mr Victorin Laboudallon, Ms Jeanette Larue, Dr Carl Lundin, Mr Pat Matyot, Mr Pat Lablache, Mr Claude Pavard

## SIF STAFF

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HO Staff  
Dr Frauke Fleischer-Dogley (Chief Executive Officer)  
Lindsay ChongSeng (Science Coordinator)  
Dr Nancy Bunbury (Projects Programme Coordinator)  
Wilna Accouche (Science Programme Officer)  
Mary Maria (Accountant)  
Thelma Estico (Administration & Human Resources Officer, Jan-Nov 2010)  
Marille Benoit (Administration & Human Resources Officer, from Dec 2010)  
Annette Bonne (Accounts Assistant)  
Laurette Bareau (Accounts Assistant)  
Dorothy Victor (Accounts Assistant)  
Felix Francourt (Logistics Officer)  
Wilna Jean (Domestic Assistant)  
Christina Quanz (EMS Project Officer)  
Lea Ketterer (Consultant: April 2010–March 2011)  
Annabelle Constance (Assistant Project Officer: from May 2011)

## ALDABRA STAFF

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Aldabra Island Manager: Philip Woodcock/Marc Jean-Baptiste  
Aldabra Research Officer/Scientific Coordinator: Naomi Doak/Jock Currie/Janske van de Crommenacker  
Assistant Scientific Coordinator: Joel Souyave  
Rangers: Stan Denis, Nella Victor, Mike Marianne, Catherina Onezia, Bevil Narty, Andy Gouffe, Israel Labrosse, Jakawan Hoareau  
Trainee Rangers: Israel Labrosse, Malik Maiche, Lisa Larue, Roland Duval  
Senior Skipper: Jude Brice  
Skipper: Jude Ladouceur  
Mechanic: John Bonne, Roy Laurette  
Maintenance Technician: Alain Banane  
Logistics Assistant: Murvin Green  
Logistic staff/Labourers/Fieldworkers: Louis Telemaque, Louis Sanguinon, Edward Micock, Johnny Joubert, Hendrick Quatre, Barney Marengo, Curtis Baker, Ian Melli, Gonzague Dominique-Amade, Philip Benoit  
EMS staff: Marcus Pierre  
Volunteers: Sharon Drabsch, Aurélie Duhec, Sam Balderson, Michal Šúr, Philip Haupt, Martijn van Dinther, Tessa Hempson  
Project Officers and consultants: Christina Quanz, Philip Haupt, Michal Sur, Martijn van Dinther

## VALLÉE DE MAI STAFF

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Site Manager: Marc Jean-Baptiste/Marcus Pierre  
Operations Manager: Marcus Pierre  
Visitor Management Coordinator: Evadney Lafortune  
Senior Ranger: Uzice Samedi  
Rangers: Marie-Paul Bistoe, Excianne Volcere, Deborah Esther, Nathachia Pierre, Nella Victor  
Trainee Ranger: Staniella Henriette, Terence Payet  
Fieldworkers: Daniel Jessy, Nadia Vidot, Tessa Athanase, Marie-André Radegonde, Anselm Barra, Barney Marengo, Jerry Rose  
Sales Clerks: Marie-Paul Bistoe, Stella Grimace, Elsa Louise, Elna Stravens, Raissa Tirant, Anna Jeanne, Natalie Ernesta  
Security: Andrea Radegonde, Andy Nourisse, Paul Dubois  
Housekeeper: Stella Grimace, Paula Francois, Anna Savy, Bettina Simeon  
Black Parrot Researchers: Dr Pascal Villard, Anna Reuleaux, Heather Richards  
Volunteers: Anna Gray, Robin Johnson  
MSc/Internship students: Harriet Cuthbert, Michele Taylor, Anna Reuleaux, Jim Labisko, Elie Cambou

## WITH THANKS TO...

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### ...OUR SUPPORTERS

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BDO Associates  
CC DARE  
Coco de Mer Hotel, Praslin  
Ms Kathleen Eaton  
European Union  
Finnish Fund for Local Cooperation  
Mr Robert Gaines-Cooper  
Global Environmental Facility  
Indian Navy  
Indian Ocean Commission  
Indian Ocean Explorer  
Indian Ocean Tuna Commission  
International Sustainable Seafood Foundation  
Ms Ines Katerl  
Lydia Lablache and the Britannia Hotel, Praslin  
Mangroves for the Future  
Mauritius Commercial Bank  
MWBrands  
Mr Ernst Pichler  
Recomap  
Silhouette Cruises  
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UNESCO  
US National Parks Service – especially Stephen Morris, Jonathan Putnam, Jacob Fillion and Linda Bennett

### ...OUR PARTNERS AND ASSOCIATES

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Environment Department, Seychelles National Parks Authority, Island Development Company, Island Conservation Society, Praslin Development Fund, Seychelles National Meteorological Service

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

---

Katy Beaver, Plant Conservation Action Group  
Lindsay Chongseng, Plant Conservation Action Group  
Andrew Jean-Louis, Seychelles Energy Commission  
Dr Christopher Kaiser-Bunbury, University of Aarhus  
Philippe Morin, Public Utilities Corporation/Seychelles Energy Commission  
Alexander Müller, IBC Solar  
Sidney Suma, UNDP PCU  
Selvan Pillay, Hencel Hollanda, Patrick Alcindor, Vincent Amelie and Jean-Paul Dodin, Seychelles National Meteorological Service

## ...OUR ASSOCIATED RESEARCHERS

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Katy Beaver (Plant Conservation Action Group, Seychelles), Dr Diana Bell (University of East Anglia, UK), Darryl Birch (Conservation Logistics, UK), Dr Rainer von Brandis (University of Capetown, South Africa), Dr Allen Chen (University of Taiwan, Taiwan), Prof. Peter Edwards (ETH Zurich Switzerland), Prof. Chris Feare (Wildwings, UK), Dr Brian Fisher (California Academy of Sciences, US), Prof. Jaboury Ghazoul (ETH Zurich Switzerland), Prof. Richard Griffiths (Durrell Institute of Conservation and Ecology, University of Kent, Canterbury, UK), Dr Jim Groombridge (Durrell Institute of Conservation and Ecology, University of Kent, Canterbury, UK), Dr Thomas Haevermans (Paris Museum of Natural History, France), Dr Sarah Hamylton (Cambridge Coastal Research Unit, UK), Dr Dennis Hansen (University of Zurich, Switzerland), Prof. James Harris (CIBIO, University of Porto, Portugal), Pete Haverson (Conservation Logistics, UK), Dr Christopher Kaiser-Bunbury (ETH Zurich Switzerland and University of Aarhus, Denmark), Dr Chris Kettle (ETH Zurich Switzerland), Dr Jeanne Mortimer (University of Florida, US), Tammy Noble (University of East Anglia, UK), Dr Jens Olsen (University of Aarhus, Denmark), Dr Ana Perera (CIBIO, University of Porto, Portugal), Dr Pierre Pistorius (Nelson Mandela University, South Africa), Dr Erik Postma (University of Zurich, Switzerland), Dr Chris Raxworthy (American Museum of Natural History, US), Dr Lucy Rist (ETH Zurich Switzerland), Dr Sara Rocha (CIBIO, University of Porto, Portugal), Dr Gabriela Schaeppman-Strub (University of Zurich, Switzerland), Adrian Skerret (Seychelles Bird Records Committee, Seychelles), Prof. Tom Spencer (Cambridge Coastal Research Unit, UK), Dr Lindsay Turnbull (University of Zurich, Switzerland), Dr Matthias Waltert (Georg-August-Universität Göttingen, Germany), Dr Ross Wanless (University of Capetown, South Africa)



## SIF IN A NUTSHELL & HOW TO HELP

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

To successfully operate and protect two World Heritage sites which are more than 1000 km apart and each with their specific set of challenges, SIF relies on income generated primarily by entrance fees and sales from the Vallée de Mai. This is supplemented by project funding, grants and donations. Aldabra used to provide direct income through visitor impact fees but piracy has almost entirely cut off this source of revenue in recent years. SIF's work with and management of 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
- Donate to, or fundraise for, SIF – all donations receive a 100% tax allowance
- Volunteer for SIF – depending on active projects, there may be limited volunteer opportunities at both sites for suitably qualified international volunteers to help with research, conservation work or specific projects for 4-6 month periods.

If you would like to contribute, would like more information or are interested in receiving further news about SIF please contact us by email: [info@sif.sc](mailto:info@sif.sc) or check our website: [www.sif.sc](http://www.sif.sc)