SIF News Letter

seychelles islands foundation

Issue 42 - May 2016

aldabra atoll

Research trip to Cinq Cases field camp

Greater Flamingos at Cinq Cases © SIF

A team of staff spent five days at the remote Cinq Cases field camp on Aldabra's largest island, Grande Terre this month to undertake monitoring as part of SIF's research programme.

Cinq Cases is a region in the south-east of Grande Terre and is the furthest of Aldabra's field camps from the main research station on Picard. Just getting to the Cinq Cases field camp is a complex operation and perfect timing is essential. The journey starts by boat along the outside of the atoll along the north coast to the eastern end of Malabar Island. The team then transfers to a smaller boat to travel down through the far reaches of the atoll's lagoon to Bras Takamaka and further still into Bras Cinq Cases; a winding channel through dense mangrove forest. This area can only be accessed by boat on a spring tide and, to complicate things further, the time of the tides inside the lagoon differs from the outside of the atoll. It takes around 2-3 hours for high tide water to reach the extremities of the Bras areas, which allows the boat to pass over the sharp champignon rock and through the narrow passages of the mangroves. Even with this high tide the team then have to trek through around 700m of mangrove forest, sometimes in knee-deep mud, until finally arriving on dry land. At this point the team, with all of their bags, equipment and food, then have to trek approximately another 2 km southeast to the outer edge of the island where the field camp is located. So all in all it is quite a journey!

A ranger conducting the mangrove surveys © SIF

Cinq Cases field camp is usually visited for three days every month to conduct routine monitoring activities; however in May the team stayed for five days to complete additional activities. They spent two days in the mangroves surveying vegetation species composition in 20 different plots. This data will be used by MSc student Annabelle Constance to detect changes in mangrove distribution and composition over time. The surveys involved spending many hours in the inhospitable mangrove mud, but this area is a good representation of the mangrove ecosystems on Aldabra and is home to an abundance of life. Further tasks included searching for the GPS-tagged Aldabra Giant Tortoises who are part of a long-term movement study. The movement data from the tortoises' tags needs to be downloaded every three months and the team use the radio transmitter on the tags to locate them. This is no easy task and there

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

The Vallée de Mai management and staff were honoured to welcome the Secretary General of the United Nations, Mr Ban Ki-Moon, to the Vallée de Mai on Saturday 7th May. Mr Ban was accompanied by his wife Mrs Ban Soon-Taek; the Minister for Environment, Energy and Climate Change Mr Didier Dogley; Mr Barry Faure, and other delegates. The delegation was guided around the Vallée de Mai reserve by the CEO of Seychelles Islands Foundation Dr Frauke Fleischer-Dogley. Dr Dogley shared some of the interesting and unique facts about this UNESCO World Heritage Site with the Secretary General and his wife on their tour. The delegation also had the opportunity to watch the de-husking of a Coco de Mer nut, which was demonstrated by Vallée de Mai security officer Mr Andrea Radegonde.

Mr Ban and his wife with Minister Dogley and Dr Fleischer-Dogley in the Vallée de Mai © SIF

This demonstration was appreciated by Mr Ban and he was fascinated by the sweet smell of the Coco de Mer husk. After their guided tour Mr Ban signed the Vallée de Mai visitor book and exchanged gifts with Minister Dogley and Dr Fleischer-Dogley.

Mr Ban and his wife with Minister Dogley and Dr Fleischer-Dogley with the Vallée de Mai staff © SIF

vallée de mai

Work begins to tackle invasive Philodendron creepers

Applying the herbicide to a Philodendron creeper © SIF

After making significant gains in the control of several introduced plant species in the Vallée de Mai, the Praslin invasive species team have now focussed their attention on the virulent Philodendron creepers.

The team conducted a small trial on control methods for this species earlier this year. Based on the results of this trial the team have started controlling the creepers inside the Vallée de Mai. The team cut the stalk at the base of each creeper plant and insert it in a bag of herbicide. The herbicide used is readily biodegradable in the local environment. It is also a selective translocating herbicide which means that it doesn't affect other surrounding plants and is moved to all other parts of the creeper through the plant's vascular system.

A Philodendron creeper before treatment (left) and after (right) with the health of the plant visibly decreasing © SIF

The team have so far treated 20 individual philodendron creepers. The 10 plants were cut and their stems placed in 3% diluted herbicide solution in a plastic bag. To make sure there are no non-target effects, the herbicide is triple bagged around the cut stem and secured tightly with elastic bands to the stem, and finally sealed with tape so there is no leakage or spillage, and no animals can accidentally enter the bag.

The team will be checking the health of these plants every week to monitor the progress and effectiveness of the control method. We will keep you updated and hope that this method will show promise as a large-scale control method for these plants.

Vallée de Mai ranger completes Durrell

transmitter on the tags to locate them. This is no easy task and there is no better satisfaction than glimpsing a tortoise with a grey tag attached to its carapace!

Fixing the phenocam © SIF

Included in this visit was some work for the ZARP (Zurich-Aldabra Research Platform) collaborative projects. Firstly the team carried out photoquadrat surveys of the five exclusion plots and associated control plots. The exclusion plots are areas that have been fenced off to prevent any grazing from the giant tortoises. These plots will improve our understanding of the interdependence between giant tortoises and vegetation communities on Aldabra. Specifically Aldabra is the last remaining site where 'tortoise turf' is found; a very low, herbaceous plant community, comprised of grasses, sedges, and herbs that is thought to be maintained by continuous tortoise grazing and trampling. The rangers were excited to see and record large differences in turf abundance between the exclusion and control plots. The second task included fixing the 'phenocam' (phenology camera) which was installed in December 2015. This is a solar-powered camera system that monitors the land surface phenology using a calibrated sensor that records red-green-blue (RGB) and near-infrared (NIR) photographs. The photographs, in combination with satellite imagery, will be used to monitor the seasonality of vegetation and relate vegetation conditions to rainfall patterns. Unfortunately the camera fixings had become loose and the camera was found to be pointing downwards rather than across the landscape (possibly caused by a large bird landing on it). This was fixed back into position by the rangers and they are now confident that not even an albatross could shift the position of the camera! As well as this the team also undertook the routine monitoring of landbirds, tortoises and turtle track counts as well as collecting the monthly rainfall data. The team were rewarded for all their hard work by a close-up encounter with a flock of Greater Flamingos and also the rare and endangered Madagascar Pond-heron!

Update on coral bleaching event at Aldabra

Fully bleached and partially dead coral colony at Aldabra © SIF

As we have reported in our recent newsletters, a third (in the last 18 years) large-scale global coral bleaching event is currently taking place. Aldabra's reefs have also unfortunately suffered from this bleaching event. Aldabra Scientific Coordinator, April Burt, tells us more:

What is causing this bleaching event?
Caused by the El Niño Southern Oscillation (commonly called ENSO), a climatic event that is associated with a band of warm ocean water which develops in the central and east-central equatorial Pacific, including off the Pacific coast of South America. The cycle of warm and cold temperatures affect sea surface temperatures and subsequent weather patterns on a global scale.

When did it start and when will it end?
May 2016 marks the end of the 18 month 2015–16 El Niño which is the longest on record. This natural phenomenon, which occurs every two to seven years, usually peaks late in the calendar year, although the effects can persist well into the following spring. It is also possible that a reverse effect phenomenon, "La Niña", may occur. This would see temperatures fall below normal in the Pacific equatorial waters, bringing heavier rains, floods and much cooler temperatures to many countries.

What happened at Aldabra?
NOAA (National Oceanic and Atmospheric Administration), an American agency that maps the oceans and conserves their living resources and predicts changes to the earth's environment, issued bleaching warnings for Aldabra in December 2015, the warning was removed in late January but re-instated for February - April 2016. This was in comparison to the inner islands of Seychelles, which experienced a later peak in sea temperatures and bleaching

SIF main sponsor of PV system for Baie Ste Anne School

The PV system being installed on the roof of the school © SIF

As a Small Island Developing State, Seychelles is moving forward in the use of renewable energy sources to reduce their dependency on fossil fuels. One solution is to use the most abundantly available source of renewable energy in Seychelles; solar power. As part of this national initiative the Government of Seychelles, along with SIF, UNDP/GEF, and the Environment Trust Fund have undertaken a project to install a photovoltaic (PV) system in all the schools on Mahé, Praslin and La Digue. These systems will reduce the schools use of fossil fuel derived electricity whilst also reducing their energy bills at the same time.

Minister Dogley planting a tree to commemorate the occasion © SIF

The first school to benefit under this initiative was La Digue School last year. Following on from this an official ceremony was held at Baie Ste Anne primary school on Praslin this month to open the PV systems that had been installed at Baie Ste Anne primary and Grande Anse primary schools. Each school has had a 4 Kw system installed that should reduce their monthly energy bills by around SCR 2000. Following SIF's positive experience with the PV system on Aldabra, which has been running very successfully for over four years, it was decided that this initiative by the Ministry of Environment, Energy & Climate Change should be financially supported for the greater good of the Praslin community. SIF contributed over SCR 125,000, which covered the majority of the costs for the installation of one system. The Minister for Environment, Energy and Climate Change, Didier Dogley opened the ceremony. There were also presentations by the project partners on other renewable energy systems in Seychelles and their success, as well as various performances of poems, songs and drama that had been written by the students. The ceremony ended with a guided tour around the school by the headteacher, followed by the planting of an endemic tree to mark this important occasion.

Project partners gave presentations at the ceremony © SIF

SIF on Twitter!

international conservation course

Terence Payet (second from left) and coursemates taking part in a team building exercise as part of the DESMAN course © SIF

Terance Payet, a ranger at the Vallée de Mai, this month completed the Durrell Endangered Species Management Graduate Certificate (DESMAN) at the Durrell Institute in Jersey, UK. This certificate has been designed for conservation practitioners and covers a wide range of skills to maximize their efficiency at managing or participating in conservation projects around the world.

Terance (right) on one of the field exercises © SIF

The three month course, based at the Durrell Conservation Academy at the headquarters of the Durrell Wildlife Conservation Trust in Jersey, started in February 2016. Terance described the course as an incredible opportunity and learned many new skills both theoretically and practically, including in management and leadership, communication and facilitation, GIS software, conservation education, data manipulation, use of social media in conservation, project proposal writing and presentation, as well as small mammal trapping, camera trapping, radio tracking, distance sampling and capture-mark-recapture methods.

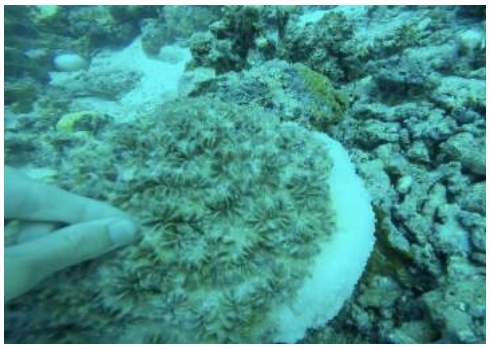
Some components of the course were new subjects for Terance and some strengthened his knowledge but all of the coursework will be invaluable for his work with SIF. Terance excelled not only on the course but won the competition for a small grant from Durrell as he was judged to have the best presentation skills. This grant will go towards his work on the Seychelles Black Parrot research programme at the Vallée de Mai. This is the second time that an SIF staff member has won this grant. Vallée de Mai Site Manager Marc Jean-Baptiste completed the DESMAN course in 2012 and also secured the small grant for his research on chameleons.

Celebrating International Day of Biodiversity

Visitors to the Vallée de Mai completing the trail quiz © SIF

To commemorate the International Day for Biodiversity on 22nd May, SIF organized several activities at the Vallée de Mai. These activities aimed to teach the visitors more about the biodiversity of this special reserve and also to increase understanding and awareness of threats that it faces. The theme of the day this year was *"Mainstreaming biodiversity: Sustaining people and their*

was first seen there in April 2016. Based on communications with several other organisations and stakeholders, the coral reefs of both the inner and outer islands of Seychelles have been significantly affected by coral bleaching. Thankfully water temperatures have dropped from 32°C to 27°C which is below the bleaching threshold temperature of 28°C. Seychelles is not alone in suffering from this bleaching event; over 90% of corals on Australia's Great Barrier Reef have been impacted.



A colony of Physogyra lichtensteini coral where the top is visibly dead © SIF

What is the situation now at Aldabra?
Surveys on Aldabra have reported that 60-99% of all corals have been affected to some degree and are currently in a state of change. The bleaching affected individual colonies and species to varying degrees of severity. Based on observations made at the end of May, after more than a month of cooler temperatures, there has been a substantial change in the reefs. A proportion of the corals are now dead and have quickly been overgrown by turf algae. Some corals still appear to be bleached despite temperatures returning to normal, which means that they are still alive but lacking their symbiotic algae and therefore remain vulnerable to mortality. Positively, there are corals which appear to have nearly or completely recovered from the bleaching, and have returned to their usual colour.

What is the outlook for these reefs?
The next few months will be critical in determining the long-term impact of this bleaching event. The fact that Aldabra's reefs are under few environmental pressures will play a significant role in their ability to recover naturally. For example, on a reef where herbivorous fish are over-fished, there is less grazing of algae, which can tip the recovery balance. This is known as a phase shift from a coral-dominated habitat to an algae-dominated habitat. In this instance the coral takes a lot longer (if ever) to recover because it is outcompeted by faster-growing algae. Ideally natural recruitment of coral larvae and settlement to a reef will be unhindered and lead to a fast recovery. The full extent of the damage caused by the bleaching event will be assessed later in the year through a repetition of the surveys conducted in December 2015 and April 2016. The team are also currently undertaking smaller scale surveys on a monthly basis, to record any changes in the coral health.

A prehistoric discovery at Aldabra

Fossilised lower jaw fragment of Aldabra Crocodile © SIF

During the research visit by members of the ZARP group earlier this year, one of the researchers, Dr Dennis Hansen, made an unusual and exciting find on Grande Terre Island.

Whilst visiting one of the dried out pools near the Cinq Cases hut Dennis found many parts of the coral rock that are usually covered in water were laid bare. Lying on the surface and embedded into the coral rock were many fossils, this is not unusual in itself as Aldabra is known to have many fossilised tortoise bones, corals and other marine species on several of the islands. As Dennis was exploring the area he spotted what looked to be a large tortoise bone fossil lying directly on the surface. On closer inspection he realised that there was a row of large, circular hollows on the other side. It was not a tortoise bone at all but a large piece of the lower jaw of the extinct Aldabra Crocodile! The fragment was approximately 12 cm long, which is almost twice the size of the fragments previously reported (Brochu, 2006).

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livelihoods."

Visitors at the Vallée de Mai participating in the activities © SIF

Activities on the programme at the Vallée de Mai were face-painting of their favourite species, a display of interesting specimens of animals found in the Vallée de Mai, a trail quiz and black parrot activity station set up in the reserve for visitors to learn about the unique biodiversity of the Vallée de Mai. At the Black Parrot station visitors could learn about the research that SIF is conducting on this endemic bird species, some of the equipment that the team used was also on display and ranger Terance Payet was on hand to share his knowledge and experience. Visitors could also express their views on the poaching of Coco de Mer nuts by writing a pledge and adding it with other anti-poaching pledges on a display board, and they were also invited to write or draw their favourite Vallée de Mai species after their visit to the reserve.

Fossilised plate of crocodile © SIF

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