SIF News Letter

seychelles islands foundation

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Fourth annual Frigatebird census started

Frigatebird colony on Aldabra © www.michalsur.sk

The end of January 2014 will see the start of the fourth annual nesting Frigatebird census on Aldabra. Undertaken during the two spring tides between the end of January and middle of February, the Aldabra research team and junior skipper will navigate all known Frigatebird nesting areas on the atoll to count the number of breeding pairs and chicks of both lesser and greater Frigatebirds. A training session was held to familiarise new staff with the survey methods and to ensure that all staff were skilled at distinguishing between the two species.

Aldabra hosts the largest Frigatebird colony in the Indian Ocean with at least 4400 pairs of Greater Frigatebirds (*Fregata minor*)and 6600 pairs of Lesser Frigatebirds (*F. ariel*) breeding annually (Sur et al. 2013). Annual surveys have been undertaken at the same time of year since January 2011. The four known Frigatebird colonies are surveyed using a simple methodology that gives basic information about the number of nesting pairs and population distribution. The results of the first two surveys in 2011 and 2012 were written up as a scientific paper which was published last year and recommended continuation of the survey to cover annual breeding fluctuations.

Assumption introduced bird eradication moves into final phase

The team on Assumption (from l - r): Jessica Moumou, Alex McDougall, Nancy Bunbury, George Angell, Kat Raines, Nick Page, Pete Haverson, Jesse Friedlander.

The Assumption team, led by Jessica Moumou, has consisted of only three people since October and they have done a remarkable job of continuing to reduce the remaining populations of the two introduced bird species on the island (Red-whiskered Bulbuls and Madagascar Fodies). The team had reached 8200 introduced birds culled by mid-January, which represented over 30% of the estimated remaining population size in the most recent survey in November 2013, with approximately 600 birds left on the island.

Assumption Island © ICS

In January the team heartily welcomed four professional hunters to boost their numbers and focus on intensive shooting as the main method for the last phase of the eradication. The core team of staff, having observed the birds closely for months, were able to perfectly place and guide the hunters in hotspots of high bird activity, helping ensure that the shooting got off to an excellent start. The hunters are using a combination of .22 semi-automatic rifles, shotguns and air rifles to target the last few hundred birds. This will not be an easy task but hopes are high that eradication of both these species will be possible in 2014.

Management of invasive alien plant species in the Vallée de Mai

Black Parrot chicks in the Vallée de Mai

Pablo, the first Black Parrot chick to be ringed this season © P Woods

During January the Black Parrot team was kept very busy by the breeding black parrots and the parrot chicks that began to hatch. So far this season 14 chicks have hatched in Vallée de Mai and adjacent Fond Peper and five in Fond Ferdinand.

When young the parrot chicks are vulnerable to starvation, or exposure if the weather is very wet. Introduced predators, such as rats, also pose a major threat. Despite these threats, there are currently 11 healthy chicks in eight nests in the Vallée de Mai and Fond Peper. The chicks at Fond Ferdinand, however, have not been as successful with none of the five having survived.

A young Black Parrot chick © P Woods

The chicks in the Vallée de Mai have grown very quickly, they hatch with their eyes closed and are covered in white downy feathers. Their eyes begin to open at around 10 days old and they start developing adult feathers soon after. When chicks are approximately 35 days old a unique combination of colour rings are fitted to the legs, which allows the team to identify individual parrots in the field. This will later provide valuable information on the parrots'

Undertaking the Frigatebird census © SIF

On Aldabra Frigatebirds nest only on the inside of the lagoon in the mangrove areas. Greater Frigatebirds nest exclusively in mangroves, while Lesser Frigatebirds nest in *Pemphis acidula* and other shrubs, as well as in mangroves (Reville 1983). In recent surveys Frigatebirds have been recorded nesting only on the north side of the lagoon. In the 1960s, however, Diamond recorded a colony at Bras Takamaka at Grande Terre but breeding has not been recorded there since the 1970s.

The main laying period for Greater Frigatebirds is June–September while most Lesser Frigatebird eggs are laid from August through to October (Reville 1980). Due to the very long breeding cycle neither species breeds in an annual cycle. It takes 12–19 months for a pair to fully raise one chick.

Frigatebird chicks in the mangroves on Aldabra © www.michalsur.sk

The 2012 survey showed a 42% decrease in the number of breeding Frigatebirds compared to 2011. This large decline was not fully understood so the survey was continued to ascertain whether the fluctuations constituted a trend or a cycle. The 2013 survey revealed an increase in numbers which was comparable to 2011. This periodic fluctuation in breeding populations may be caused by food availability, but alternatively by 'leap-years' in breeding due to a single breeding cycle spanning more than one year. Long-term monitoring will confirm if a specific periodicity in the breeding cycle of Frigatebirds exists on Aldabra and its time frame. The 2014 survey will reveal the current population size, distribution and provide further evidence as to the nature of the breeding cycles and whether this is the cause of the large fluctuations recorded in previous years.

Hunter joins Aldabra introduced bird eradication programme

The endemic Aldabra Fody that is under threat © Fotonatura

The second season of the introduced Madagascar Fody eradication programme in the Takamaka region of Aldabra is now fully in swing. The Takamaka team are

species in the Vallée de Mai

Chinese fan palm, one of the invasive species in the Vallée de Mai © Forrest & Kim Starr

The Praslin IAS team is starting its main objective under the EU project for this activity: management of invasive alien species in the Vallée the Mai. This will follow on from the plant survey finished last year, and continual assessment by the team of the threats posed by introduced species in the Vallée.

Several trials are underway to assess the efficiency of potential control options for introduced species. One is a herbicide trial, examining the effect of herbicide and ring-barking on bwa zonn (*Alstonia macrophylla*), kalis dipap (*Tabebuia pallida*), albizia (*Falcataria moluccana*), Chinese fan-palm (*Livistona chinens*), cinnamon (*Cinnamonum verum*), lagati (*Adenanthera pavonina*) and santol (*Sandoricum koetjape*).

Trees that have been given herbicide applications © SIF

A second experiment tests the use of palm leaf litter as a potential tool to control growth of invasives and promote growth of native palm seedlings. In a third trial, the effect of light gaps in the canopy on the growth of introduced and native species is being assessed, which will help to predict the performance of native and introduced species in canopy gaps following the removal of introduced trees.

Prior to starting the active management of introduced plants, the team is surveying different parts of the Vallée de Mai where the most abundant introduced plants are being recorded (jackfruit, lagati, kalis dipap, albizia, bwa zonn and santol). Their size, reproductive stage, and proximity to nearest path are all recorded. All of this information will be used to make decisions about priority species for management, methods and the potential risks during and after management.

Marking of invasive trees in the Vallée © SIF

In addition, as a key output of the project, IAS management will be included as a central part of the next Vallée de Mai Management Plan. Information extracted from the results of the

This will later provide valuable information on the parrots breeding ecology, survival and movement ecology.

A ringed Black Parrot © P Woods

The first chick to be ringed this season was 'Pablo' with a purple striped ring on its left leg and an orange ring on its right leg (see picture). The parrot team also collects a small blood sample from each chick, which is sent to the Durrell Institute of Conservation and Ecology at the University of Kent to determine the sex and to contribute to further genetic research. To date six of the 11 chicks in the Vallée de Mai have been ringed and Pablo has successfully fledged! The parrot team will remain in the field over the next month to monitor the end of this breeding season and hopefully more fledglings, as the mothers continue to feed their chicks after they have left the nest.

Genetic research on Praslin Sooglossid Frog

The Praslin Sooglossus © J Labisko

Genetic work on the tiny sooglossid frogs has so far identified a split between the Praslin population, discovered in the Vallee de Mai in 2009, and *Sooglossus sechellensis* found on Mahé and Silhouette. Up to now the split has only been identified using one gene; a further five genes will be utilised to strengthen the analysis. However, difficulties stemming from the very small samples taken from each frog (often less than 1mm of tissue was taken from the toe to avoid harming the animals) have proved problematic, namely there being very little available DNA to work with. Various methods and techniques have been trialled and adapted until, in only the last few weeks, a minor breakthrough provided some success! This now means that work can now progress as planned.

The Sooglossus sechellensis © N Doak

Another aspect of the analysis being undertaken is comparing and contrasting the vocalisations from the Praslin and Mahé frogs; there are already observable differences in structure and composition between the two. Over 1,100 calls have been extracted from recordings taken during two fieldwork seasons in 2011-12 and 2012-

Aldabra is now fully in swing. The Takamaka team are focusing on culling the remaining Madagascar Fodies in the area plus any potential hybrid birds (offspring of Madagascar and native Aldabra Fodies), which may distort and dilute the genetic makeup of the Aldabra Fody.

This season's team is again led by Terence Mahoune, who has worked on Aldabra for many years, and last year eradicated the introduced Red-whiskered Bulbul from the atoll. Assisting Terence is a team of staff from Seychelles, New Zealand and the UK, who bring with them valuable invasive species eradication experience: Jamie McAulay, Frankie Gamble and Oskar Guy have recently arrived at Takamaka and they will be joined by Trainee Ranger Stephanie Marie from the Aldabra Research department and shortly by Julio Moustache, who has been working on the invasive plant team at the Vallée de Mai. Most recently, a professional avian hunter, Nick Page, from New Zealand, has joined the team.

SIF staff at the Takamaka camp © SIF

The team has so far conducted a survey and extensive observations in the Takamaka area, in addition to targeting the introduced birds. They have developed a map of the birds' territories and the extent of the invasion on Aldabra, which also identifies target areas where Madagascar and potential hybrid birds have been seen.

The onset of the rainy season coincides with the breeding season for all the Fodies at Takamaka, when their behaviour and appearance changes significantly. Territorial displays, courtship behaviour and nest building activity are frantic and vocal, making the birds easier to locate. Due to the difficulties in distinguishing Madagascar and Aldabra Fodies when not in breeding plumage the breeding season is the main period for this eradication.

Staff using mist nets to capture birds © SIF

The team has so far been using decoys and pre-recorded Fody calls to lure and capture the birds in mist-nets. Flight patterns, favourite perches or nesting spots of the Fodies are identified and mist-nets set up on flight paths. Some birds prove more challenging than others to target and particularly these difficult birds will be targeted by Nick with a high powered rifle.

The total number of invasive birds culled so far at Takamaka now stands at over 100 birds. There are still known birds to be targetted and these will be removed with shooting and mist-netting as appropriate.

Management Plan. Information extracted from the results of the experiments, surveys and control work will form specific guidelines to mainstream the management of IAS in Vallée de Mai activities.

This practical work is complemented with an exciting publicity and outreach agenda for 2014. As last year, several fun educational activities are planned for environmental theme days focusing on the local community, especially children. One of the major new actions planned for this year will be the development of an environmental stewardship scheme. This long-term scheme will be supervised by the IAS team with the support and guidance of the Seychelles National Parks Authority. Children and adults will be taught about the value of native environments and the risks posed by introduced species and apply this knowledge in a plot of native habitat. The hope is that this scheme will promote a sense of ownership, curiosity and great interest in participants and create ambassadors for native plant species in the Praslin community.

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Re-launch of Aldabra trip as prize for Eco-school competition

Aldabra Atoll © Fotonatura

SIF are excited to announce that we will be again awarding a trip to Aldabra as the first prize in the Eco-school competition held in schools in Seychelles. This prize was the highlight of the competition for many years until the threat of piracy made the trip unfeasible in 2009. With the threat of piracy decreasing SIF is happy that this prize will be awarded once again with the 2014 winners taking their trip in early 2015.

The Eco-school competition is open to all schools in Seychelles and awards prizes to the top three schools in different categories. Some of these categories are: Best conservation practices for water, Best Practices in Solid Waste management etc. Schools accrue points throughout the year by participating in environmental education outreach activities, competitions, and by producing a portfolio of their activities throughout the year. The winners are then announced in December each year. This competition has been hugely successful in previous years with many schools participating, and has really furthered the environmental education programme that children are receiving nationally.

Previous winners of the Eco-school competition on Aldabra ©

13, and once genetic analysis has been completed, vocalisations will be the next piece of the puzzle to shed light on the relationship between the new Praslin frog and its close relatives on Mahé and Silhouette. When used in combination with the results of the genetic and morphological analyses, a more complete picture of the species relationships of this unique amphibian family will be revealed.

In the meantime, results of disease screening for the fungal pathogen known as chytrid, undertaken on Seychelles amphibians from 2010 to 2013, are due to be submitted for publication in the coming weeks. More news on a publication date and the results will be in forthcoming newsletter updates.

DNA 'fingerprints' for the Coco de Mer

Coco de Mer © L Chong-Seng

Emma Morgan, a PhD student from ETH Zurich has been working on the genetics of the Coco de Mer. Following fieldwork carried out last year with Gerry and the SIF team at the Vallée de Mai, Emma collected leaf samples for DNA extraction, from the Vallée de Mai and Fond Peper, as well as from the Coco de Mer populations at Fond Ferdinand and Curieuse. She has now fingerprinted a total of 843 individual Coco de Mer palms. Preliminary results confirm our expectations that close clusters of individuals are more related to each other than to other individuals. This is consistent with extremely limited seed dispersal in this remarkable species.

Coco de Mer on Curieuse island © E Morgan

The Coco de Mer found on Curieuse appear to be genetically distinct from those on the mainland of Praslin, with less differentiation among sites found on Praslin. Emma will be continuing her analysis in Zurich until she returns to Praslin in the next few months to start a second phase of fieldwork and to report more details of her findings.

Celebration of Protected Area Day

SIF

Of course the trip to Aldabra has always been a huge incentive for all the schools to participate as every child wants to take this trip of a lifetime! We hope that through the nomination of this prize it will motivate all schools participating in the competition to do their best and increase their environmental education activities.

Find us on Facebook

Don't forget to join us on our Facebook page that was launched last year! The page has regular news and updates on research and events at both World Heritage Sites and has been well received. We would invite all friends, supporters, partners, colleagues, and anyone else who has an interest in staying up to date with the management and protection of the UNESCO World Heritage Sites in the Seychelles, or in Seychelles' biodiversity and conservation in general to become a fan of our page. For those who have a Facebook account already please use this link https://www.facebook.com/pages/Seychelles-Islands-Foundation-SIF/1414466072110654?hc_location=stream and 'Like' our page. For those that are not on Facebook then perhaps you can receive updates through a friend or family members account, or maybe now is the time to join Facebook for yourself! We look forward to welcoming you onto this page!

Handing out the new leaflets at the Vallée de Mai © SIF

To mark the global event of Protected Area day the Vallée de Mai launched its new visitor information leaflet. This leaflet is part of a range of new interpretation materials for the Vallée de Mai that will be launched in 2014. Providing accessible and informative materials to the visitors will assist in educating them about the importance of this Protected Area and World Heritage Site.

Visitor numbers have been increasing to the Vallée de Mai with 2013 being a record year! Over 80,000 visitors came to the Vallée de Mai in 2013 which is the highest annual number to date. It is fantastic that this protected area has become such a popular attraction in Seychelles and this is credit to the hard work and professionalism of the Vallée de Mai team. We hope to have an even more successful year in 2014!

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