seychelles islands foundation

Newsletter

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Black parrot song and poem competition videos presented to competition winners

Yves Jumaye delivering his poem © SIF

SIF held a Seychelles black parrot song and poem competition in schools in Seychelles in 2017, the aim of which was to raise awareness about the importance of protecting the Seychelles black parrot, one of Seychelles' 13 endemic bird species and the country's national bird. As one of the prizes for the song category of the competition, SIF contracted the talented Seychellois artist and musician Isham Rath to create professional quality music videos of the Creole songs. The video recording was done in 2018 and as part of activities to commemorate Protected Area day on the 31st January a short viewing ceremony was held at the Natural History Museum in Victoria, and the schools were presented with a copy. The competition winners were Beau Vallon Secondary School, Plaisance Secondary School and Praslin Secondary School, and additionally Yves Jumaye's English language poem was chosen for the creation of a video.

Beau Vallon Secondary School (above) and Praslin Secondary School performing their songs © SIF

The Plaisance Secondary School students with SIF board member Mr Victorin Laboudallon © SIF

The students were very happy to receive a copy of the videos but even more excited to see the video of themselves for their first time. Unaccustomed to seeing themselves 'on TV' – especially singing and dancing - they all giggled away while watching their performances. During the ceremony the videos also went live on facebook, with Yves posting his video on the SIF Facebook page, and the others scheduled to be posted every two days on Facebook. The videos have also been uploaded to the SIF You Tube channel and we invite you to enjoy some black parrot inspired music here: https://www.youtube.com/channel/UCkZa8GzuGTMgLYZn4G8qwww. Singing is a universal language, we hope that you enjoy this musical celebration of the black parrot and the Vallée de Mai as much as we did.

SIF presents at Seychelles' Amphibian Symposium

On January 18th SIF science and projects coordinator, Jennifer Appoo presented a summary of amphibian research conducted in the Vallée de Mai at the Seychelles Amphibian Symposium. The symposium united researchers from different organisations to discuss research programmes and conservation requirements for Seychelles' amphibians.

Jennifer presenting at the symposium © SIF

Held at the University of Seychelles, the symposium kicked off with presentations by organisations who have engaged in monitoring programmes of Seychelles' endemic frogs and caecilians. In the Vallée de Mai, research on amphibians was instigated when a population of *Sooglossus seychellensis* was discovered in 2009. Since then, various projects have been implemented through collaboration with external researchers, and have gathered information about the life history and ecology of *S. seychellensis*, as well as the Seychelles tree frog and caecilians from the Vallée de Mai.

The symposium also included presentations by external researchers such as Dr Jim Labisko from the Durrell Institute of Conservation and Ecology, University of Kent (UK) on the taxonomic classification of sooglossid frogs (see subsequent article) and from Dr Simon Maddock from the University of Wolverhampton on the Seychelles tree frog. A special video message from Amphibian Ark, a leading global amphibian conservation organisation, was shown to all attendees, highlighting the threats faced by amphibians worldwide and encouraging further research and conservation of amphibians in Seychelles.

The symposium was attended by the research staff from the Vallée de Mai and was well appreciated by all. It was a great platform to discuss current gaps in knowledge, monitoring limitations and the way forward for conservation of amphibians. At the end of the symposium, the attendees agreed that there needs to be more collaboration between local organisations and that population management programmes for amphibians need to be put in place, coordinated at a national level.

SIF Vacancies

We have several exciting vacancies in the Vallée de Mai and on Aldabra which need to be filled urgently. We are actively seeking Seychellois applicants for all of the positions. More details can be found on our website at http://www.sif.sc/jobs or contact HR on 4321735 if you are interested in any of the following positions:

Aldabra:

- Shopkeeper
- Cook /Gardener
- Mechanic/Electrician
- Ranger

Vallée de Mai:

- Visitor Attendant
- Fieldworker
- Housekeeper
- Sales Clerk

Busy month for the black parrot team

With breeding season in full swing the black parrot team have been busy all month checking potential nesting cavities at three different sites. They were rewarded with the discovery of the first chick of the season on the 3rd January at Fond Ferdinand. By the end of January 13 active nests were recorded and chicks were confirmed in all three monitoring locations.

The first chick was discoverd on the 3rd January © SIF

On the 14th January the black parrot team was concerned by reports from a tourist that they had seen a parrot chick fall out of a nest! The team quickly searched the area for the chick, however, after some time no chick was found and on further questioning of the tourist, it turned out to be a bulbul swooping very low on the ground! The false alarm provided good news though, during the search for the mystery chick the team saw a parrot enter a different tree cavity. After a bit of investigation a new nest was discovered with two healthy chicks inside. So, no fallen chick and instead two new healthy chicks were added to the list!

The first chick to be ringed this season © SIF

The month's excitement continued right until the end with the first chick being ringed in the Vallée de Mai on the 27th January. Coloured rings are used to identify individual birds so after the chick leaves the nest, whenever it spotted we will know exactly which bird it is and which nest it came from. This helps to find out how far the parrots travel around the island.

The tree fell after heavy rain, luckily with no eggs or chicks inside © SIF

Black parrots mainly nest in dead coco de mer palms and they have often begun to rot. This can be a bit dangerous as in bad weather, dead trees can fall over. After the heavy rain at the end of January one tree with a potential nesting cavity fell down. Fortunately, although parrots were seen investigating the cavity, they had chosen not to use it as a nest and the tree was empty when it fell. Maybe the parrots knew that it was not a safe place to raise their little ones?

Monitoring amphibians in the Vallée de Mai

January was an exciting and busy month for amphibian research in the Vallée de Mai. A new monitoring programme on the frog *Sooglossus sechellensis* officially kicked-off and several methods were trialled for monitoring of caecilians. Seychelles' amphibians, comprised of seven caecilians and six frogs, have been isolated for more than 65 million years since Seychelles split from Madagascar and the Indian subcontinent, making them some of the oldest animal species in Seychelles. Due to this extended isolation and their occurrence on just a handful of the inner granitic islands, they are of global importance and of high conservation value. The amphibians are threatened by habitat loss, the introduction and spread of non-native vegetation, invasive fauna like yellow crazy ants, pathogens like chytrid and Ranavirus, and climate change.

Jim showing the team how to spot frogs in the leaf litter © SIF

The initiation of the new *Sooglossus* monitoring programme started with the visit of amphibian researcher Dr Jim Labisko from the Durrell Institute of Conservation and Ecology. The monitoring involves recording sooglossid frog calls using specialised devices called Song Meters. Once deployed in the field, Song Meters record vocalisations at regular intervals, which monitors the presence of the frogs with minimal human intervention. There is a population of *Sooglossus sechellensis* in the Vallée de Mai and the surrounding Praslin National Park. Seychelles sooglossid frogs are some of the world's smallest frogs, are cryptic in behaviour and difficult to observe. They communicate with acoustic calls and each sooglossid species can be identified by its unique calls. Monitoring frog calls at regular intervals is therefore a good way of obtaining consistent and meaningful information on changes in the population. The research team assisted in the set-up of the Song Meters in the field and were trained on how to check and download the data from the devices. The monitoring forms part of a national project coordinated by Dr Labisko and is funded by the Mohammed Bin Zayed Species Conservation Fund (see September newsletter).

A pitfall trap designed to monitor caecilians © SIF

Aside from the deployment of the Song Meters, during his visit Dr Labisko shared his knowledge on Seychelles' sooglossid frogs and his research on the species. On two evenings, the research team had the opportunity to go into the field to hear the frogs when they are most active - around sunset. Sooglossid frogs are terrestrial and are mostly found in leaf litter in moist environments near streams or wetlands. Such habitats are important to protect for the conservation of this endemic frog.

Caecilian experts Dr Simon Maddock (University of Wolverhampton) and Dr David Gower (Natural History Museum London) also visited the Vallée de Mai to trial methodologies for monitoring caecilians. Caecilians are limbless elusive amphibians that live in moist soil. There are seven species of caecilian in Seychelles; five occur on Praslin, three of which have been detected in the Vallée de Mai. Because they burrow in the soil they can be difficult to observe and monitor. Three methods were trialled to monitor them, involving both aquatic and terrestrial trapping.

Learning to swab caecilians to test for diseases © SIF

The Vallée de Mai research team also received training from the researchers on disease screening for amphibians, and identification of caecilians. No infections of the devastating chytrid fungis have yet been detected in Seychelles amphibians but periodic screening is essential for early detection of diseases which could have a huge impact on the populations. The team was trained in how to properly swab caecilians and sooglossid frogs. This was followed by identification of caecilian species; three main characteristics are used to identify caecilians including the ring distribution around their body, position of their tentacles and head shape.

Training in caecilian identification © SIF

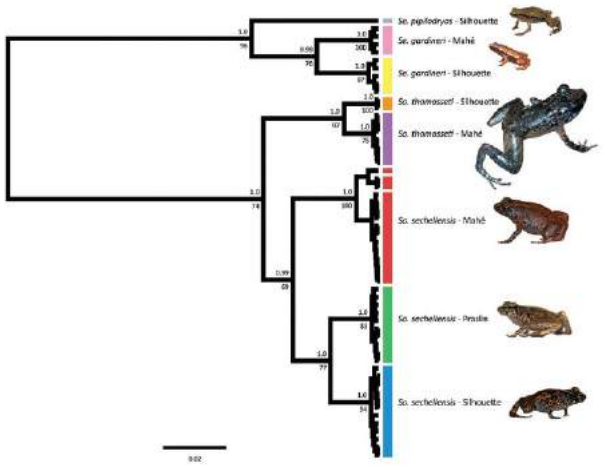
The visit of the amphibian researchers was very fruitful and appreciated by the team. SIF aims to further develop research programmes to monitor the species found in the Praslin palm forest and increase knowledge of this unique group of animals.

New research sheds light on Seychelles' sooglossid frogs

An SIF co-authored paper was published this month on the cryptic lineages in Seychelles' sooglossid frogs in the peer-reviewed *Biological Journal of the Linnean Society*. The lead author, Dr Jim Labisko, of the Durrell Institute of Conservation and Ecology, University of Kent, is one of the foremost Seychelles amphibian experts (see previous article) and the article is based on his PhD research. The Sooglossidae family is known to contain four species of frogs (*Sooglossus thomasseti, Sooglossus sechellensis, Sechellophryne gardineri* and *Sechellophryne pipilodryas*) across three islands, however Jim's research suggests that there are more species in the family than previously thought.

Sooglossid frog © SIF

A species is the basic unit of classification in biology, and the concept is used frequently in conservation, however species classification can be complicated. For example, cryptic diversity is when two or more different species are mistakenly classified as the same species because of how similar they look, despite genetic differences. Evolutionarily significant units (ESUs) are another way to classify organisms, ESUs are used partly because of the difficulties of classifying species, but also because they are useful for conservation. This term can apply to species, subspecies, or populations of a species and is a way of describing a group's distinctiveness and need for specific management.



Phylogeny of Seychelles Sooglossidae © Labisko et al., 2019

This research used genetic data from 56 frogs from Mahé, Praslin and Silhouette to find out how closely related they were. The results suggest that different populations of the four species that occur each island are ESUs, and furthermore that cryptic diversity occurs across the three islands and each island-specific population of each of the species should be considered a separate species. This implies that there are in fact eight different species in the Sooglossidae family. This increased understanding of the ESUs in the Sooglossidae family is critically important for conservation managers, particularly as amphibians are some of the most threatened species world-wide.

The full citation for the paper is: Labisko J, Griffiths RA, Chong-Seng L, Bunbury N, Maddock ST, Bradfield KS, Taylor ML, & Groombridge JJ (2019) Endemic, endangered and evolutionarily significant: cryptic lineages in Seychelles' frogs (Anura: Sooglossidae). B*iological Journal of the Linnean Society*, bly183, https://doi.org/10.1093/biolinnean/bly183

aldabra atoll

Aldabra declared free of introduced sisal!

We are very excited to announce that Aldabra is one step closer to being free of invasive alien species, after more than 40 years since eradication efforts first started, Aldabra is now free of sisal! Sisal (*Agave sisalana*) is an invasive alien species that spreads quickly and can create impenetrable 'stands' where other plants cannot grow. The plant also out-competes other native flora, reducing available habitat and biodiversity as well as food sources for other wildlife. Sisal was likely introduced to Aldabra by early settlers for its tough hemp-like fibres and has since spread at several locations on the atoll.

Dense stand of sisal at Ile Michel in 2005 © SIF

Top and bottom left: herbicide application in late 2013; bottom right: sisal at Ile Michel in 2014, six months after herbicide application © SIF

Sisal was known to occur at four sites on Aldabra; Picard (at and around the old settlement), Anse Polymnie, Anse Malabar and Ile Michel, and efforts to remove it from Aldabra started in the 1970s. However these were only partially successful because the hard porous limestone of Aldabra allows the plants to root deeply and they therefore could not be completely removed with manual methods, resulting in continuous control efforts. In 2012 the eradication effort resumed under SIF's EU-funded invasive alien species project. The difficulties of physical removal prompted investigation into the potential for chemical control of the plants. Experimental trials were done over seven months in 2013/2014 to determine the most effective and least disturbing control method. Chemical control had not previously been considered because of the risk of herbicide to the environment. Care was taken to ensure that the application methods trialled were individual plant specific, there was no general spraying of any plants other than sisal and care was taken to prevent herbicide from coming into contact with other plant species or the soil. The trials found that only a high herbicide concentration

applied directly to the growing tip of the plant killed adult plants, and fortunately there were no negative effects on the surrounding native vegetation.

Site of former Ile Michel sisal stand in December 2018 © SIF

Following the trial, several visits were made by the Aldabra team in 2015 to the four locations at Aldabra where invasive sisal plants had been treated. Visits were made to all sites in 2015. At all sites except Ile Michel, the team saw no re-growth of the plants on any of the visits. Ile Michel, which originally had the largest stand of sisal, was found to have a small amount of regrowth of sisal plants. These plants were re-treated with herbicide and follow-up visits were made in 2016. In December 2016 just four new shoots were found, and these were treated in January 2017. Follow-up visits were conducted throughout 2017 and 2018 with no further shoots seen. There have now been no signs of sisal regrowth at Ile Michel for more than two years, and at the other three sites for more than four years. The eradication can therefore finally be declared successful and once again Aldabra is sisal free! This marks the fourth successful eradication of an invasive species from Aldabra in the last 7 years.

Research conducted on current and future sea-level and climate changes at Aldabra

What do you get if you take scientists from institutes in France, Germany, the UK, Canada, Japan, Seychelles, Spain and Switzerland and put them in one place? It sounds like the beginning of a joke, but in this case the answer is a "rock" star team. In January, the Aldabra team had the pleasure to host part of this multi-disciplinary team, when seven researchers conducted research on the atoll. The research project titled "*Past analogues of current and future sea-level and climate changes: Coral reef records from last interglacial of the Seychelles*" required specialists in reef geology, paleobiology and GPS mapping. After a few months of marine-focused monitoring and research on Aldabra, it was time for the Aldabra team to switch gears and focus on the terrestrial side of things.

A drone was used to map the area that was being sampled © SIF

Aldabra is well-known for its rough limestone terrain which makes moving around the atoll quite tough. When you give that limestone a closer look, fossil corals can easily be seen. This is the case all over the atoll, if you walk inland to a point where you no longer see the ocean, giant fossilised clams can still be seen at the base of trees that are humming with landbirds. Why are these marine organisms found all over Aldabra, and what does this signify? The answer lies in Aldabra's geological history of being submerged and then re-emerging from the ocean. The group of international researchers teamed up to explore previous sea level rise and then examine current and future sea-level and climate changes. This is done by examining coral reef records from the last interglacial (120 – 130 thousand years ago) of the Seychelles. Fossilised coral reefs record precise key environmental and climatic parameters like temperature, salinity and pH and they can be dated very accurately.

Having precise GPS coordinates is crucial to this study © SIF

By using precise GPS positions and dating fossil corals, the researchers are able to reconstruct sea level throughout the last interglacial period. They chose Seychelles as their study site because the islands are located in a very stable tectonic area and are far away from former ice sheets. Aldabra especially hosts very well preserved fossil reefs from the last interglacial, making it an ideal study site.

Core samples were collected from fossil corals in order to date them © SIF

The researchers spent nearly a week on Picard Island taking core samples and based on the fossilised corals peeking through the limestone they identified what species the reef was composed of. The Aldabra staff were lucky to learn about their work and observe their methodologies, and now have a very different outlook on these fossilised coral reef outcrops. Thanks to the visiting team for sharing your expertise, we look forward to the results!

BRUV monitoring completed

As part of Aldabra's reef monitoring (ARM) programme, Baited Remote Underwater Videos (BRUVs) are conducted to collect data on fish assemblage diversity and abundance at Aldabra. The sixth season of the survey took place in January, and it was the third year we have conducted BRUV surveys in the six management zones around Aldabra identified in the Aldabra Management Plan. Deploying and retrieving the rigs is not as easy as one might think, it requires a lot of energy and patience, all while smelling the very fishy odour of the bait! With two days and good weather, the team deployed rigs at three depths at each of the six sites.

BRUV team for the season © SIF

The two important pieces of equipment for BRUVs are GoPros and bait canisters. A GoPro is attached to the top part of the rig with the bait canister at the end of a pole in the GoPro's field of view. The bait canister is filled with fish guts, from fish caught for subsistence prior to the survey. Using a GoPro reduces the amount of human interference at the site and is the best

A grouper investigating the bait canister © SIF

way to survey species that are shy of people. During the next couple of months the team will analysis all the videos retrieved from the GoPro.

Aldabra Clean-Up Project almost ready to depart

With the Aldabra Clean-Up Project expedition beginning on the 22nd February the team are making final arrangements. After conducting further beach surveys, finishing camp preparations and planning the logistics of the expedition with the Aldabra staff, the Aldabra Clean-Up Project leads April Burt and Jeremy Raguain left the atoll on the 11th January. April and Jeremy saw first-hand the amount of marine debris being deposited on Aldabra's shores by the current prevailing north-westerly winds. In fact on a trip to the last dive sites of the Aldabra reef monitoring programme, the boat's propellers became entangled in large drifting mooring rope. With the remaining time before the expedition April and Jeremy will be based in Oxford and on Mahé respectively, preparing the Oxford and Seychelles volunteers, and finalising details on the logistics.

The Aldabra team has been had at work preparing the camps © SIF

One major aspect of the logistics was selecting a vessel aptly equipped for the challenge of transporting waste from Aldabra to Mahé. The United Concrete Products Seychelles' vessel, *Spirit of Ton Joe*, was selected for this task. With *Spirit of Ton Joe*'s deck space, crane and experienced crew we are confident that the loading and transport will be a success. *Spirit of Ton Joe* will also transport much-needed supplies to the research station that will last the staff throughout the south-east monsoon season.

Eden Island
SEYCHELLES

Eden Island Development Company (Seychelles) Limited became a silver sponsor © SIF

This month the Aldabra Clean-Up Project gained another silver sponsor, the Eden Island Development Company (Seychelles) Limited. As one of Seychelles' largest real estate companies Eden Island Development Company's contribution of SCR 100,000 brings the total funds raised in Seychelles through the Corporate Social Responsibility Tax to SCR 540,000! This incredible support shows the success of our fundraising campaign and is allowing the Aldabra Clean-Up Project to be scaled up to conduct further research to better identify the sources of the pollution, and develop better ways to process the collected waste. Stay tuned for next month's update when the Aldabra Clean-Up Project will finally be underway!

The SIF Newsletter can be downloaded at www.sif.sc/downloads, or subscribe to the mailing list at www.sif.sc

Articles contributed by: *Jennifer Appoo, Maria Brioche, Monica Griffith, Jessica Moumou, Jeremy Raguain, Lynsey Rimbault and Cheryl Sanchez* **Editing by**: *Jennifer Appoo, Nancy Bunbury and Lynsey Rimbault*