



# Annual Report

2020

25th March 2021



Alliance for  
**Zero Extinction**

# The Mauritian Wildlife Foundation

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The Mauritian Wildlife Foundation (MWF) is a Registered Charity established in 1984. MWF works in close cooperation with the Government of Mauritius and the Rodrigues Regional Assembly, formalized in separate memorandums of understanding. The headquarters is located in Vacoas, Mauritius and the Rodrigues branch is based in Solitude. MWF is the largest Mauritian NGO to be exclusively concerned with the conservation of terrestrial endemic species and their habitats, and in Rodrigues has a specialization in habitat restoration. The principal objective of the organization is to save threatened native and endemic species from extinction.

## Achievements

MWF's best known achievement is the saving of the Mauritian Kestrel. The MWF, has in recent years, brought the Pink Pigeon, the Echo Parakeet and the Mauritius Fody back from the brink of extinction. MWF's work in the area of captive-breeding and hands-on wild management of endemic animals is of internationally high repute. Our expertise is also being used in Rodrigues to address problems caused by degradation of habitat. Here we are propagating native plants in nurseries and planting them out to restore vegetation communities. The Foundation also works actively to restore offshore islands, by removing exotic vertebrates and plants and by restoring vegetation and vertebrate communities. The MWF is currently working on several islands including Ile aux Aigrettes, Round Island, Ile Cocos and Ile aux Sables. All of these are high profile projects of national and global biological significance. The MWF believes that the work it is doing benefits the Mauritian nation both for the present and future generations. Most of MWF's projects are of international importance in the conservation of biological diversity and are therefore placing Mauritius at the forefront of the Conservation world giving a high profile to any projects, which need funding. The MWF is raising the profile of conservation among tourists through the Eco-tourism activities conducted on Ile aux Aigrettes, Mauritius and Grande Montagne, Rodrigues. The MWF promotes local capacity building and provides employment through its activities. The Mauritian Wildlife Foundation wishes to remain a strong, vibrant and innovative organization.

## MWF's Missions

- To save threatened Mauritian species through the restoration of entire ecosystems.
- To seek new information through field research, data management, captive studies and scientific collaboration for direct application to restoration methods and management.
- To share knowledge gained through restoration programs with fellow Mauritian and international conservationists.
- To share the joys and benefits of native wilderness and wildlife with the Mauritian people.
- To secure the future of Mauritian species through income generation and sound management of human, fiscal and capital resources.

## Organizational Structure

MWF is governed by a Council of 12 members, made up of prominent Mauritians interested in conservation, representatives from the Mauritian Government's National Parks & Conservation Service, the Durrell Wildlife Conservation Trust, North of England Zoological Society (Chester Zoo) and other international partners. MWF employs around 90 Mauritian staff at all levels of responsibility, and up to 8 expatriate staff. Their work is supported by up to 25 Mauritian and expatriate self-funded volunteers. MWF and its Council are also advised by a number of scientific associates from organizations that fund or support it, namely The Durrell Wildlife Conservation Trust, The Botanical Gardens Conservation International, Conservatoire Botanique de Brest (France), The International Zoo Veterinary Group, North of England Zoological Society, the Institute of Zoology (UK) and various universities.

## Significant Events of 2020

The world wide Covid19 pandemic had numerous significant impacts on MWF's operations in 2020. A more detailed report is later in this document but some key points are:

- Mauritius locked down as from 20<sup>th</sup> March 2020, MWF obtained work access permits for conservation staff and most other staff worked from home and held remote meetings.
- Internet banking was set up for payments.
- Work resumed normally as from 1<sup>st</sup> June 2020 but with numerous precautionary measures in place.
- Mauritius has remained 'Covid safe' with just two outbreaks in the population for the remainder of the year which were controlled.
- Borders were closed until 1<sup>st</sup> October 2020 and then all persons entering Mauritius had to pay for a 14 day quarantine in a hotel. This has restricted visitors to MWF projects.
- No work or intern permits have been issued up to the end of the year which has affected staffing levels, especially volunteers.
- With no tourism the Ecotours revenue has been severely reduced with the only visitors being Mauritians.
- Rodrigues had a shorter lockdown of one month with no reported cases of Covid19. As flight frequency increased from Mauritius after the Mauritius lockdown ended, MWF Rodrigues ecotours and the tourism sector in general in Rodrigues recovered with Mauritian tourism.

The handrearing and releases of the Mauritius Kestrel for the season 2019/2020 was completed in February.

No handrearing of any species was carried out for 2020/2021 breeding season due to the Covid19 pandemic and staff from abroad not able to come to Mauritius.

Following the impact of the Covid19 pandemic on tourism in Rodrigues, MWF participated in a novel scheme 'The Tourism Alternative Livelihood Workers' where workers in the Tourism sector were allocated to work on projects relevant to tourism. A significant number worked on our conservation projects.

The second major significant event was the grounding of the 'Wakashio' giant bulk carrier on the reef of Mauritius on the 25<sup>th</sup> of July 2020, 2 km away from Ile aux Aigrettes. Details are in this report.

30 Bojer's skinks, 30 lesser night geckos, and 6 Bouton's skinks were removed from the South East islands and transferred to Durrell in Jersey to establish captive assurance populations to protect their unique genealogy, should the wild populations be affected over the next few years due to the Wakashio oil spill.

Ecotours on Ile aux Aigrettes has operated at a very low level with the island being closed for Covid19 (20<sup>th</sup> March to 30<sup>th</sup> June) and the Wakashio oil spill (6<sup>th</sup> August to 7<sup>th</sup> December). There were no tourists since 20<sup>th</sup> March and very few school visits.

Dr Vikash Tatayah, MWF's Conservation Director, was recognised by the Critical Ecosystems Partnership Fund as one of the 'Hotspot Heroes'. See: <https://www.cepf.net/hotspot-heroes-2020>

The National Social Inclusion Foundation (NSIF) included MWF in its core funding programme and allocated Rs 10m in 2020 to our ongoing programmes. This replaces the CSR funding that had been diminished by government legislation.

Funding was obtained for 5 years from the EU for a climate change project focused on planting trees in Rodrigues.

The methodology for the island wide bat count in Rodrigues was reviewed and amended to once a year in November but extended to cover more roosts.

Having begun to red-list the Rodrigues flora in late 2019, 28 Mauritian and 15 Rodriguan flora species were submitted for red-list review in 2020.

Funding was obtained to expand the mainland island at Brise Fer in the Black River Gorges National Park, using Goodnature rat traps from 5h to 10h.

A brainstorming session was held for a MWF Risk Register and a consultation draft produced.

The first steps were taken to develop a Management plan for Mondrain Reserve.

The BirdLife Partnership Africa meeting was held virtually which enabled many more MWF staff to attend open sessions.



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# BIRDS

## Mauritius Kestrel



### Background

The Mauritius Kestrel (*Falco punctatus*) is unique to Mauritius and is one of the nine endemic bird species still left on the island. The species was saved in-extremis with an increase from just four birds in 1974, including a single breeding female, to a peak of about 600 individuals. It has become a world conservation icon as it is recognised as the most successful recovery programme in the world of an animal species and the programme remains MWF's proudest achievement.

However, because of the degradation of the Mauritian native forests the kestrels are now found only on the eastern and western part of the island where they continue to face the effects of habitat degradation and predators. The eastern population has been monitored constantly since the re-introduction of birds from 1988 to 1993 and has been healthy and stable for the past decade. However, the western sub-population suffered a decline and MWF had to resume monitoring there in 2008 after an island wide survey found a drastic reduction in kestrel numbers from the estimated 600 to around 300 birds. The findings sadly confirmed the disappearance of introduced kestrels from the Moka Mountain Range. The current monitoring has enabled us to identify the management which is required to reverse the downward trend in numbers and secure the population. Measures include placing more nest boxes in suitable habitats to increase breeding pairs, studying the genetics of the populations to identify if certain bird's genes need to be introduced into the other sub-population and hand-rear birds to boost population numbers and to reintroduce birds into new nesting areas. The field team will harvest eggs and/or chicks to be hand-reared at the Gerald Durrell Endemic Wildlife Sanctuary (GDEWS) in Black River. They are then moved to nest boxes in the identified release sites for a period of adaptation before leaving the box to go into the forest.

Releases have been done in Bel Ombre in the South west of the National Park from 2016 to 2018; eggs were harvested from the East Coast and were incubated and hand reared at GDEWS, and then the

chicks were released in nest boxes in Bel Ombre, and they were fed every day until they reached independence. In 2016 five birds were released, in 2017 21 birds were released and in 2018 a further 21 birds were released.

In the 2019/20 breeding season, 14 kestrels were released in to the 'Gorges' subpopulation in the North of the National Park.

The latest scientific findings illustrate that there is no room for complacency and we still need to look after the Mauritius Kestrels.

## Main Actions

- Population monitoring in the west, south and east was carried out as usual. Teams were small this season (2020/21) due to international restrictions on travel as a result of the COVID-19 pandemic preventing the recruitment of expatriate staff and volunteers.
- Releases of the 2019/20 birds were completed in February 2020. No hand-rearing and hacking from nest boxes of Kestrels was carried out in the breeding season 2020/21. This enabled the East Coast subpopulation to recover from four years of harvesting.

## Pink Pigeon



## Background

The Pink Pigeon (*Nesoenas mayeri*) is one of the world's rarest pigeons. Only nine wild birds were known at its lowest point in 1990. In the last 25-30 years, an integrated management approach of captive breeding, releases, habitat restoration and predator control has seen the population recover to approximately 470 wild birds. Whilst the conservation work to date has saved the species from imminent extinction, MWF cannot relax in its efforts and reduce the level of support. The original causes of the species' rarity, mainly restricted and degrading native habitat and introduced predators, still prevail and unless we continue to manage the effects of these limiting factors, the Pink Pigeon may face the prospect of extinction once again. There is one subpopulation of Pink Pigeons established on the

offshore island of Ile aux Aigrettes and six more in the Black River Gorges National Park. Two of these sites, Pétrin and the Lower Black River Gorges, are open to the public and the birds can easily be seen.

Additional subpopulations are planned in the future in areas of good quality native forest habitat. In 2017, 30 Pink Pigeons were released in Ferney Valley. In 2018, 50 Pink Pigeons were released in Ebony Forest. These releases will increase the area occupied by Pink Pigeons and to help increase the population size to over 600 birds, a figure believed to be the minimum viable population size for an avian species.

To provide birds for the additional subpopulations and to provide genetic diversity to the current populations, a captive population of Pink Pigeons has been set up at the Gerald Durrell Wildlife Endemic Sanctuary. The offspring of these birds will be released into the wild.

A study supported by our University partners has identified that birds from European & USA zoos have genes that are missing or underrepresented in the wild birds in Mauritius. These genes, reintroduced to the birds in Mauritius, should strengthen resilience, e.g. in fighting disease. Birds will be imported and be bred to provide fledglings to be released into all the subpopulations to increase the genetic diversity of the current population. In September 2019, three male Pink Pigeons were successfully repatriated to Mauritius from Jersey Zoo (Durrell).

The genetic management of the Pink Pigeon is an indication of success and maturity of the project, and very few conservation initiatives worldwide are at this stage of management.

The conservation work done to date has been very successful, leading to the Pink Pigeon being downlisted from endangered to vulnerable in November 2018

## Main Actions

- Populations were managed as usual at eight sites with an estimated population of some 450 birds
- The captive Pink Pigeons were not paired for captive breeding this season (2020/21) as aviaries needed were not ready as work being undertaken at GDEWS to construct aviaries by the National Parks and Conservation Service was delayed. Other factors caused by the Covid19 pandemic have also affected our ability to implement this action, overseas staff support and supply of handrearing food.



# Echo Parakeet



## Background

The Echo Parakeet (*Psittacula eques*) is the last endemic parrot of the Mascarenes and was close to extinction as the wild population numbers were estimated at around 20 birds in the mid-1970s. The Echo Parakeet is closely associated with good quality native forest, and the decline of the bird has been due to habitat decline and degradation, which cause shortage of food and tree cavities for nesting. Predators and diseases severely impact on the survival of Echo Parakeets.

The population is over 800 birds thanks to a conservation programme that has included rescue of eggs and chicks in the wild, captive breeding and rearing, releases into the wild, pest and disease control, supplementary feeding, nest site provision and habitat restoration. The Echo Parakeet is arguably the most successful parrot restoration programme and is a model for the rescue of other parrots worldwide. The immediate challenge is overcoming Psittacine Beak and Feather Disease (PBFD), a deadly viral disease, whilst long term, it is large scale habitat restoration that will provide for natural food and nest sites. Despite the disease, the population is still growing which would indicate that the current minimum management is adequate.

However, the total population was found in the Black River Gorges National Park and in order to further secure the Echo Parakeet from a localised event which could severely impact on the population, a suitable area with good quality native forest was identified in the Bambou Mountains and translocations took place from 2015 to 2017 with 73 birds released. In 2018 and 2019 translocations to a new area of suitable forest in the south west, Ebony Forest in Chamarel were carried out with 50 birds released.

Monitoring of the Echo Parakeet population is carried out to understand population dynamics and the provision of supplementary food will support general bird fitness and breeding success. Our university partners are undertaking a number of studies which look at PBFD, supplementary feeding, genetics and population dynamics all of which will inform conservation actions in the future.



PhD student Rebecca Louch, of the Durrell Institute of Conservation Ecology (University of Kent), working under the supervision of Dr Jim Groombridge, arrived in Mauritius at the end of November 2020. Rebecca's PhD study will examine the spatio-temporal dynamics of supplementary feeding and its effect on demography and reproductive fitness of the Echo Parakeet. Rebecca will stay in Mauritius until the end of March 2021, and during that time will be working as part of the Echo Parakeet team and collecting samples for her PhD study.

## Main Actions

- Monitoring and supporting the population in the Black River Gorges National Park was ongoing. The team was reduced this season (2020/21) due to international restrictions on travel as a result of the COVID-19 pandemic preventing the recruitment of expatriate staff and volunteers.
- Estimated population: over 800 birds.
- The Bambou Mountains population is not monitored but observations of birds are noted to indicate presence. Echo Parakeets are seen regularly at the 'Ferney gardens' near the visitors' centre, in a fruit plantation in Domaine de l'Etoile and in Vallée de l'Est.
- An Echo Parakeet pair made a breeding attempt in a tree cavity in Vallée de l'Est (Bambou Mountains), unfortunately it was not successful but it is a positive sign that the birds are trying to breed.

## Mauritius Olive White Eye



## Background

The Mauritius Olive White-eye (*Zosterops chloronothos*) is thought to be the rarest and most threatened of the endemic Mauritian birds. The number of Olive White-eyes has fallen drastically since the early 1970s, coinciding with the last large-scale forest clearance on Mauritius. In 2005 conservation action was considered essential to decrease the risk of extinction of this attractive small bird whose habitat had dwindled to a small known area in the Black River Gorges National Park. The aim is to save the Olive White-eye through protecting the area they live in and maintaining a population of birds on the predator free island of Ile aux Aigrettes. In Combo (Black River Gorges National Park) we identify nests and protect them from predators, as well as monitor nesting success to increase our knowledge of

threats to the species. From 2005 to 2009 eggs and chicks were rescued from failing wild nests, and brought to the GDEWS to incubate the eggs, hand raise chicks and then release the fledglings onto Ile aux Aigrettes. The population is now over 70 birds and may be approaching carrying capacity. A team of biologists monitor the progress of the birds on the island to understand the species biology and habitat requirements. It is now possible for the public to have a glimpse of the Olive White-eye, one of the most threatened birds in the world, on a visit to Ile aux Aigrettes.

Research has identified that rats are a major limiting factor for the Olive White-eye populations on the mainland. Small-scale rat management has proven to be effective at reducing this threat, but there is a need for large-scale rat management in the form of a mainland island to ensure Olive White-eye population long-term persistence. The 5.6 ha mainland island in Brise Fer was established in November 2018. If rat abundance is successfully controlled in this area of high quality native forest, the area covered will be expanded to provide a future reintroduction release site that will allow us to create more Olive White-eye subpopulations, and so further protect this Olive White-eye from the risk of extinction. In the future, we foresee that more mainland islands will be created in areas of suitable forest within their former range. This will include areas on the mainland such as Combo and Bel Ombre, but also potentially Flat Island in the future.

## Main Actions

- The population on Ile aux Aigrettes is supported by supplemental feeding which is very labour intensive. Research is ongoing to investigate minimum management and currently we are investigating to see if the birds can be fed every two days rather than daily.
- The 'Wakashio' oil spill began on the morning of the 6<sup>th</sup> of August 2020. The first day of oil spill was severe. It was agreed that a number of Olive White-eyes and Mauritius Fody should be removed off Ile aux Aigrettes due to the potential negative impacts of the oil. All staff were evacuated from the island for the same reason, though the passerine team continued to visit the island regularly. Field work was kept to a minimum due to health and safety considerations. Twelve Olive White-eyes were caught on Ile aux Aigrettes to bring to the Black River aviaries (GDEWS) as a precautionary measure. At the Black River aviaries, passerine cages were made so that each bird could be housed separately. On 23<sup>rd</sup> August, all identities were confirmed by checking ring numbers, three un-ringed Olive White-eye juveniles were ringed, and blood samples were taken from all individuals apart from one. By early September 2020, there had been extensive cleaning of the oil from the lagoon, and the oil deposits around the island had declined as a result of washing by the sea. On Monday, 14<sup>th</sup> September, the passerine team returned to living on the island normally. As a result of these factors, it was decided that the rescued passerines could now be re-released on the island – this occurred on 15<sup>th</sup> September. During the time the birds had been captive, changes had occurred on Ile aux Aigrettes. In some territories where birds had been caught and removed, new breeding Olive White-eyes had moved in. This meant that as from the day of release, there was increased aggression occurring between the released Olive White-eyes and those that had remained on the island. One adult female was seen being attacked by another pair as soon as it was released – this bird was found dead in a feeder the next day with obvious physical injuries from the attack. On 21<sup>st</sup> September, an adult male Olive White-eye (that had been released on the 15<sup>th</sup>) was found dead inside a feeding station with physical injuries from an attack. Overall the Wakashio oil spill caused a lot of extra work, a lot of field work time was lost, and emergency measures in response to the spill contributed to the death of two Olive White-eyes. Time was lost during the beginning of the breeding season, which is usually a crucial time for collecting breeding productivity data, finding nests, ringing chicks and training staff. Time will tell whether there will be any secondary negative impacts from the oil spill on the Ile aux Aigrettes ecosystem.
- It was not possible to have staff based permanently in Combo this season, but the team visited Combo regularly in order to determine the presence/absence of birds in known territories.

- By December 2020 the mainland island had been in operation for 26 months; average rat index over that time was 13% in the mainland island compared to 63% in a control grid of the same size. These results look very promising and suggest that the intensive trapping efforts in the area are effective. The coverage of the mainland island will be increased in March 2021, and this will get us closer to preparing the area for Olive White-eye reintroductions.

## Mauritius Fody



### Background

The Mauritius Fody (*Foudia rubra*) is a small charismatic weaverbird endemic to Mauritius. The number of fodies has fallen drastically since the early 1970s, coinciding with the last large-scale forest clearance on Mauritius. In 2002 conservation action was considered essential to decrease the risk of extinction of this attractive small bird whose habitat had dwindled to a small known area in the Black River Gorges National Park. We aim to save the Mauritius Fody through protecting the area they live in and maintaining a population of birds on the predator free island of Ile aux Aigrettes. Our biologists were based in Pigeon Wood (Black River Gorges National Park) to identify nests and protect them from predators, as well as monitor nesting success to increase our knowledge of threats to the species. Having, identified predators as the main threat to the species, concrete action was undertaken from 2002. From 2002 to 2006 MWF rescued eggs and chicks from failing wild nests to incubate eggs, hand raise chicks and release fledglings onto Ile aux Aigrettes. The population is now around 400 birds and may have reached carrying capacity. A team of biologists monitor the progress of the birds on the island to understand the species biology and habitat requirements. It is now possible for the public to have a glimpse of the Mauritius Fody on a visit to Ile aux Aigrettes.

### Main Actions

- The population on Ile aux Aigrettes is monitored and supported by supplemental feeding.
- Another outbreak of avian pox was recorded on Ile aux Aigrettes this season.



- The 'Wakashio' oil spill in August 2020 also impacted the Mauritius Fody. When the oil spill occurred, it was agreed that a number of Olive White-eyes and Mauritius Fody should be removed off Ile aux Aigrettes due the potential negative impacts. Six Mauritius Fody were caught on Ile aux Aigrettes to bring to the Black River aviaries as a precautionary measure. On the 23<sup>rd</sup> August, all identities were confirmed by checking ring numbers, and blood samples were taken from all individuals. The next morning, one of the Mauritius Fody was found dead in its cage – it is believed that the Fody might have injured itself while trying to escape capture in its cage. The rescued passerines were re-released on the island on the 15<sup>th</sup> September 2020.
- The 5.6 ha mainland island in Brise Fer continued to show lower rat abundance than a control area of the same size and is an option in the future for a translocation of the Mauritius Fody.

## Mauritius Cuckoo-Shrike



### Background

The three-year island wide survey of Passerines confirmed the decline of the Mauritius Cuckoo-shrike (*Coracina typica*) both in distribution and total population size. Preliminary observations indicate the decline is caused by predation of eggs and chicks. Urgent action is required to address this decline. A study has identified that there is habitat in the Ferney Valley for the Mauritius Cuckoo-shrike, which is currently absent there. The Mauritius Cuckoo-shrike is a declining endemic passerine that was once found in the valley, but it was probably extirpated in the 1950's by organochloride pesticides no longer in use. To re-introduce the cuckoo-shrikes, hand-reared birds is thought to be the best method as it will allow us to increase the probability of birds fledging. From 2014, at the start of the season, a field team of two staff have been based in the Black River Gorges National Park to locate nests and clutches of eggs and chicks. The field team harvest eggs and/or chicks from nests in very tall trees. The eggs and chicks are hand reared at the Gerald Durrell Endemic Wildlife Sanctuary (GDEWS) in Black River under the supervision of Chester Zoo (UK) staff, and then moved to the Ferney Valley for a period of adaptation in an aviary before being released into the forest. In the 2015/16 season, five birds were



translocated to Ferney Valley and two were released. In the 2016/2017 season, nine birds were released in Ferney Valley. In the 2017/18 season, five birds were released in the Ferney Valley.

This was the first time a Cuckoo-shrike had been hand-reared and released and we found a number of difficulties in doing so successfully. The project methodologies have been reviewed and researched and the resumption of the project will depend on resources being available both within MWF and from our international partners. Currently with the Covid19 pandemic these resources are not available.

## Main Actions

- There were no field staff assigned to this project this season (2020/21), but staff members from the Pink Pigeon and Echo Parakeet projects recorded Cuckoo-shrike activity in the field when observed. A number of nests were discovered and one was confirmed to have reached chick stage. This nest was accessed and the two chicks were ringed so that they could be individually identifiable as adults, and thus facilitate more effective monitoring of the species in the future.
- Discussions and preparations for a course of action for resuming hand-rearing and releases of Cuckoo-shrikes were ongoing.

## Mainland Island at Brise Fer



## Background

Research has identified that rats are a major limiting factor for the critically endangered Mauritius Olive White-eye (*Zosterops chloronothos*). Small-scale rat management has proven to be effective at reducing this threat, but there is a need for large-scale rat management in the form of a mainland island to ensure Olive White-eye population long-term persistence.

A 'Mainland Island' is an area on the mainland where predators are excluded in such a way that it benefits local native species. Brise Fer, located in the North of the Black River Gorges National Park, was chosen as the location for the first mainland island as it is an Important Bird Area, is closed to the public, is easily accessible and contains suitable habitat to support a reintroduction release of Olive White-eyes. The benefits of a mainland island for other species would also be quite significant as rats impact negatively on endangered birds, reptiles, plants and invertebrates.

The first step in the process of developing a mainland island was determining the most effective and efficient rat control method. Field experiments carried out in Brise Fer between August 2016 and August 2017 determined that Goodnature® A24 self-resetting traps (referred to as goodnature traps), arranged in a 25 x 25 m grid formation over 0.56 ha, was the best method for controlling rats when compared to poisoning and snap traps.

A second experiment was initiated in August 2017 to determine whether the goodnature traps could work as well over a larger area with bigger intervals between the traps (50 x 50 m grid over 2.25 ha). The second experiment ended in June 2018, and the results showed that the trap arrangement was not sufficient to keep rat abundance significantly lower than in a control grid where no rat reduction measures were taken.

The third experiment, the mainland island, was established in November 2018. Goodnature traps were arranged in a 25 x 25m grid formation (due to the findings of the second experiment) over an area of 5.6 ha in Brise Fer. Additional predator trapping measure were included in the form of 31 box traps (arranged in a 50 x 50 m grid formation) and five large metal box traps in order to control other invasive predator species (namely feral cats, *Felis catus*, and mongooses, *Herpestes auropunctatus*).

By December 2020 the mainland island had been in operation for 26 months; average rat index over that time was 13% in the mainland island compared to 63% in a control grid of the same size. Rat abundance in the mainland island fluctuated over time; this is thought to be linked to two factors, one is natural annual fluctuations in the Black Rat (*Rattus rattus*) population and the second is periods of time when gas canisters (that power the goodnature traps) could not be changed for various reasons.

To obtain a predator index and show its variation over time, 30 sand pits and 30 wax and chocolate chew cubes are placed randomly on the grid points in the mainland island grid every week for 24 hrs on fixed days.

A control area of the same size was also identified, 100 m away from the mainland island grid, consisting of 30 points of sandpits and 30 of chew cubes, as the predator index. In the control there was no trapping or goodnature traps. The sand pits and chew blocks had a spacing of 25 m between them. Every week, the sand pits are set and chew cubes are placed on the grid points and checked after 24 hrs on fixed days. The use of sand pits was discontinued in July 2019 as predator tracks were often too difficult to discern, and would be washed away by rain.

The goodnature traps were checked every month to see if the gas canister resetting the trap needs to be changed and that the trap is functioning correctly but from June 2020 this is now done every two weeks. The box traps, when used, are checked every morning after being set and recorded for any activity. Traps are reset, if required. These were used up to October 2020 and then removed to identify if they have any significant impact on rat density. They are also labour intensive so if traps do not have a significant control, their removal will reduce the operational cost of a large scale mainland island.

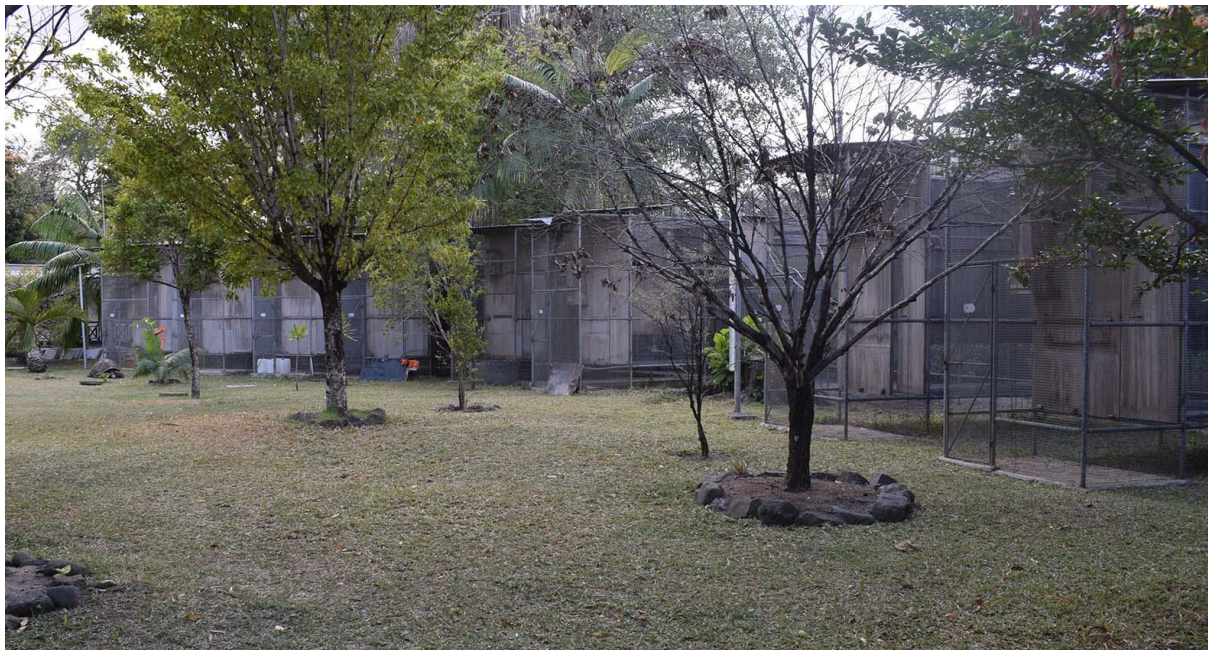
## Main Actions

- Maintain the mainland island grid with a low index of predators.
- In June 2020 one important change was made to the mainland island trapping protocol; the team started checking the goodnature trap gas canisters every two weeks rather than once a month. This change meant that the goodnature traps were functioning for a greater period of the month, which should result in a greater number of rats being killed.



- At the end of October 2020, the box traps in the mainland island were removed. This decision was made based on a review of the priorities of the mainland island project. It was determined that the team had not yet proven the efficacy of the goodnature traps as a rat control method over 5.6 ha when functioning alone – box traps can also catch rats, therefore contribute towards reducing their abundance in the mainland island. Since the discontinuation of the box traps rat abundance has remained low in the mainland island, indicating that the goodnature traps are effective, even when working as the only rat control device.
- In November 2020, an order of 85 additional goodnature traps and 315 chocolate lures arrived in Mauritius. These additional 85 goodnature traps will be used to almost double the coverage of the mainland island from 5.6 ha to 9.75 ha, and to replace existing faulty traps. Expansion of the mainland island will be completed by March 2021.

## Gerald Durrell Endemic Wildlife Sanctuary (GDEWS)



### Background

The Gerald Durrell Endemic Wildlife Sanctuary (GDEWS), also known as the Black River Aviaries, is a captive breeding centre set up for saving endangered endemic birds and bats. GDEWS is a small facility but yet has been critical for saving near extinct animals. The centre supports the fauna conservation programmes by providing facilities to captive breed, incubate and hand-rear animals to reintroduce to the wild to boost populations, providing training facilities for aspects of animal husbandry and to take care of sick animals. It also keeps captive populations of animals for research purposes to better understand their behaviour, diets and habits which in turn support efforts to maintain the wild populations and guide conservation actions. Additionally, GDEWS houses a collection of Critically Endangered endemic plants in a secure environment (e.g. palmiste blanc de l'île Ronde *Dictyosperma album* var *conjugatum*, bois puant *Foetidia mauritiana*, bois tambour *Tambourissa quadrifida*) where seeds can be collected for propagation for the MWF Rare Plants project and subsequent reintroduction to the forest.

In 2015 we started an intensive breeding programme for the Pink Pigeon where pairs of birds are kept in captivity and their offspring released into the wild to create new sub populations of birds as well as

reinforcing current populations, for example, on Ile aux Aigrettes and in the Black River Gorges National Park. In 2019 hand-rearing of cuckoo shrikes was put on hold. Three Pink Pigeons were repatriated from Jersey Zoo, Channel Islands, UK (<https://www.mauritian-wildlife.org/news/2019-10-07/rapatriement-du-pigeon-des-mares--un-nouveau-tournant-pour-la-conservation>), and after quarantine at Bras D'Eau National Park, the birds were sent to GDEWS.

In 2020, works at GDEWS were affected by the Covid-19 pandemic, the Wakashio oil spill and staff changes.

The Gerald Durrell Endemic Wildlife Sanctuary is managed collaboratively by the Mauritian Wildlife Foundation (MWF) and the National Parks and Conservation Service with specialist assistance from abroad (e.g. Chester Zoo, Durrell, Zoological Society of London, Wildlife Vets International).

## Main Actions

- New aviaries were still being built to be able to hold more Pink Pigeons pairs and other birds.
- Mauritius entered into a state of lockdown on 20<sup>th</sup> March 2020 due to the Covid-19 Coronavirus. GDEWS staffs continued to go to the aviaries even when the Work Access Permit had not been obtained so that animals are cared for. Despite the lockdowns and extensions, the GDEWS staffs continued working normally to care for the animals.
- Due to the Covid-19 situation abroad, difficulty of zoos to operate financially, lockdown, quarantine requirements, handrearsers could not be sourced from foreign zoos nor equipment and supplies available from overseas obtained. The handrearing of Pink Pigeons, Mauritius Kestrels and Mauritius Cuckoo-shrikes was put on hold.
- As from the Wakashio oil spill on 6<sup>th</sup> August 2020, it was agreed that a number of Mauritius Olive White-eyes and Mauritius Fody should be removed off Ile aux Aigrettes due to the heavy oil spill and the potential negative impacts of oil fumes, fire and hydrocarbon bioaccumulation in the ecosystem etc. On the afternoon of the oil spill, six Olive White-eyes and six Mauritius Fodies were caught on Ile aux Aigrettes to bring to the Gerald Durrell Endemic Wildlife Sanctuary (GDEWS) as a precautionary measure. The next day, 7<sup>th</sup> August, six more Olive White-eyes were captured and were brought to the GDEWS. They were all housed in separate cages but larger cages were manufactured to increase the space each bird had and reduce the stress on the birds. On the 23<sup>rd</sup> August all identities were confirmed by checking ring numbers, three un-ringed Olive White-eye juveniles were ringed, and blood samples were taken from all individuals apart from one Olive White-eye. The next morning, one of the Mauritius Fody was found dead in its cage. It was a juvenile, and it is believed that the Fody might have injured itself while trying to escape capture in its cage. The rescued passerines were re-released on Ile aux Aigrettes on 15<sup>th</sup> September.
- Overall the Wakashio oil spill caused a lot of extra work for the GDEWS staff.



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# REPTILES

## Monitoring and translocations



### Background

The small islets around Mauritius support numerous unique species that were once abundant on the main island, but are now found nowhere else in the world. Several species, particularly reptiles, are now restricted to single island populations where they are at great risk of extinction from the threats that caused their loss elsewhere. Many other threatened Mauritian animals and plants are dependent upon the unique geckos and skinks for their survival, such that their preservation is crucial for sustaining island communities and local biodiversity. Since 2006, MWF, NPCS and Durrell have been reintroducing threatened reptile species back to other islets with 2,489 reptiles from seven species released to one or more of seven different islets within their former range through translocation and captive headstarting. Furthermore, 128 individuals of five reptile species have been moved from six islets to establish captive assurance populations at Jersey Zoo or for research at Jersey Zoo and London Zoo. These actions are enhancing the conservation status and knowledge of the threatened reptile species. To date the distribution and abundance of five threatened Mauritian reptile species have been increased by an average of 6836% and 122%, respectively. A sixth species, the orange-tailed skink *Gongylomorphus cf fontenayi*, was translocated from its only known location on Flat Island to Gunner's Quoin and Gabriel Island, prior to its extinction caused by invasive species on Flat Island. These actions have led to the down-listing of the Günther's gecko *Phelsuma guentheri* and keel-scaled boa *Casarea dussumieri* through the IUCN red-list of threatened species. Major threats (e.g. introduced predators, habitat loss / degradation) continue to be addressed to lessen the risks of extinction to the reptile species and reintroductions have contributed to the rebuilding of lost Mauritian ecosystems. However, invasive species remain a serious threat. Since 2006, we have detected 35 animal invasion events on nine islets by 13 non-native species, of which early detection and removal/eradication has been possible in 23 cases. The removal of these invasive species has prevented irreversible damage to islet biodiversity. To maintain this success MWF needs to continue the high level of research and monitoring on the islands to direct appropriate conservation management decisions; detect and adapt to emergent threats and to continue to build upon what has been started for the conservation of endangered island communities.

## Günther's gecko



- The 2019-2020 breeding season was not as successful as previous years for the re-introduced population on Ile aux Aigrettes. Whilst the number of eggs found (97 eggs at 35 nest sites) was the same as the previous season, the hatching success was 71.1% compared to 87.6% in the previous year.
- The hatching success of Günther's gecko eggs on Round Island for 2019-2020, could not be calculated with confidence due to the period of COVID-19 lockdown and a lack of staff on the island to determine whether eggs failed or hatched (see Round Island section). As such, the comparison to Ile aux Aigrettes could not be made to determine whether the lower than expected hatch rate was specific to Ile aux Aigrettes. However, it is feared that with the increase in invasive crows on the island and the invasion of rats for the first six months of 2020, may have had an impact, although the evidence is lacking.
- The required number of genetic samples collected from Günther's geckos on Ile aux Aigrettes was obtained to accompany those already collected from Round Island. Once it is possible to take these samples through to the UK with the appropriate paperwork, genetic research through Cardiff University will start. The aim is to determine whether the translocated population on Ile aux Aigrettes has retained the genetic variation from the source population on Round Island and whether we need to translocate more individuals to Ile aux Aigrettes to augment the population.
- The first eggs for the 2020-2021 breeding season detected in September, with 34 eggs known by the end of December 2020, of which six had hatched.



## Telfair's skink



- Ile aux Aigrettes: There are currently too few Telfair's skinks *Leiolopisma telfairii* on the island to estimate their abundance and no surveys were conducted due to the COVID-19 lockdown, short staffing and dealing with the Wakashio oil spill. Restoration of the population will not be possible until invasive predator issues are resolved (see Invasive Alien Species section).
- Ten wild hatchling Telfair's skinks were collected on Ile aux Aigrettes during 2020 and were headstarted with five skinks from the previous year in the reptile nursery. Two of the skinks were microchipped and released in July. During the Wakashio oil spill, access to Ile aux Aigrettes was largely restricted through August and much of September. The skink nursery was therefore opened on 6<sup>th</sup> August as the oil started to spill, to allow the skinks to escape if needed, but after plentiful live cricket food was placed inside. In September, it was found that seven of the skinks had escaped. The remaining six skinks were predated by an invasive Indian Wolf Snake that gained access to the nursery in December. The likely breach of biosecurity at the nursery has since been resolved.
- Gunner's Quoin: No surveys were conducted on Gunner's Quoin for the first time in 14 years, due to limited staff capacity, dealing with the Wakashio oil spill and a five-fold increase in helicopter transport costs preventing access with NPCS staff who accompany the trip.
- Round Island: The health and body condition of Telfair's skinks were assessed in October demonstrating that all appears fine with the population.

## Keel-scaled boa



- Gunner's Quoin: No surveys were conducted on Gunner's Quoin for the first time in 14 years, due to limited staff capacity, dealing with the Wakashio oil spill and a five-fold increase in helicopter transport costs preventing access with NPCS staff who accompany the trip.
- Round Island: See Round Island section in this report.

## Southeast islet reptiles



The southeast islets support three endemic species, the Bojer's skinks *Gongylomorphus bojerii*, Bouton's skinks *Cryptoblepharus boutonii* and lesser night geckos *Nactus coindemirensis*.

Bojer's skinks were once widespread throughout Mauritius and the islets, but became restricted to a few islets in the north and the tiny islet, Ilot Vacoas in the southeast. Maintaining unique genetic variation on Ilot Vacoas, this southeastern form was translocated to Ile aux Fouquets and Ile de la Passe.

Bouton's skinks in Mauritius were previously considered as a pan-tropical native, but at the end of 2019, the IUCN's Skink Specialist Group and reassigned the Mascarene populations as unique and endemic. With the small population in the South of Reunion not being detected for the past 20 years, the skinks



are now only endemic to Mauritius and found on several islets and four small populations on the mainland coast, but once had a wide distribution.

The lesser night gecko also once had a wide distribution, but is now restricted to Gunner's Quoin and Pigeon House Rock in the north and Ilot Vacoas in the southeast. Given that the southeast population is likely to retain unique genetic variation (genetic research set to start in 2021), individuals from Ilot Vacoas were translocated to Ile Marianne in 2011.

Cyclonic weather at the start of the year, followed by the COVID-19 lockdown and then the Wakashio oil disaster, meant that planned trips to monitor the southeast islets through the year did not proceed as planned. However, with oil reaching the southeast islets, detected three days after the initial spill (6<sup>th</sup> August) prompted an emergency rescue of the three endemic reptile species, to protect against any possible irreversible loss of genetic variation. Thirty Bojer's skinks (ten each from Ile de la Passe, Ilot Vacoas and Ile aux Fouquets), six Bouton's skinks (from Ile de la Passe) and 30 lesser night geckos (15 each from Ilot Vacoas and Ile Marianne) were collected on the 13<sup>th</sup> August. The reptiles were temporarily held in a biosecure facility until they could be exported to Jersey Zoo (14<sup>th</sup> September). Owing to the use of a private jet supplied by the Jean Boule Group, all the reptiles survived the trip to Jersey.

By December, permission was granted to start monitoring the southeast islets. Over three days the invertebrate communities were sampled to obtain the relative abundances of the different taxonomic orders for comparison to pre-oil spill data. With knowledge of the reptile diets, declines in particular invertebrate groups as a result of the oil spill is likely to cause declines in the abundances of the reptiles. The invertebrate samples have yet to be sorted and identified. Additionally, University of Mauritius student Ryan Law Yu Kam joined the team to focus his research on the invertebrate species at the shoreline of the islets. The first full islet monitoring trip occurred on Ile aux Fouquets in mid-December. The abundance and health of the Bojer's skinks and Bouton's skinks were surveyed. Genetic samples were obtained from the reptiles to determine any genetic loss. Seabird, shorebird and land bird abundances were recorded. The relative abundance of each land crab species was also assessed. Once data have been processed and analysed it will be used to compare to pre-oil spill data, where available, to compare between the islets that received different levels of oil accumulation and to act as a benchmark for ongoing monitoring. Monitoring of the other three islets will occur in early 2021 and will be repeated every six months for at least two years. It may be at least two to five years before we understand what impact the oil spill may have had.

## Orange-tailed skinks



No surveys were conducted on Gunner's Quoin or Gabriel Island in 2020, due to limited staff capacity, dealing with the Wakashio oil spill and a five-fold increase in helicopter transport costs.

## Other

An overview of the work to rebuild the reptile community on Gunner's Quoin was presented at the 9<sup>th</sup> World Congress of Herpetology in Dunedin, New Zealand, in January.

At the request of the IUCN SSC Snake and Lizard Red List Authority, the following Red-list accounts were submitted: Bouton's skink (Near Threatened); burrowing boa (Extinct); Hoffstetter's worm snake (Extinct) – two separate accounts for *Cathetorhinus melanocephalus* and *Madatyphlops cariei* due to uncertainty of whether they are synonymous; lesser night gecko (Vulnerable); Liénard's giant gecko (Extinct); Macchabé and orange-tailed skink (Endangered) – currently considered as one species, but treated as separate conservation management units; Newton's day gecko (Extinct); and upland forest day gecko (Endangered). This completes the Red-list accounts for all lizards and snakes for the Mascarene species and is expected to be published in 2021.

# Tortoises



## Background

Mauritian tortoises *Cylindraspis* spp., had an important role in the native ecosystem as browsers, grazers and seed dispersers. Many native and endemic plants have evolved with, and adapted to, the presence of tortoises. Since the extinction of the Mauritian tortoises, many of the functional links were lost within the ecosystem. To remediate this, we are using a close relative of the Mauritian giant tortoises, the Aldabra tortoise *Aldabrachelys gigantea* from the Seychelles as a replacement to re-activate the lost plant-tortoise interactions on Ile aux Aigrettes and Round Island. The aim of this project is to manage adult free-roaming tortoises on Ile aux Aigrettes and on Round Island. The tortoises on both islands are closely monitored and studies have been set up to assess their impact on the ecosystem.

The work on Ile aux Aigrettes and Round Island was largely disrupted this year due to the COVID-19 lockdown in Mauritius and then the Wakashio oil spill disaster.

## Ile aux Aigrettes

- An adult tortoise was removed from Round Island and taken to a holding pen on Ile aux Aigrettes, due to a large cyst on its neck. This tortoise was taken to La Vanille Crocodile Park in May for an operation to successfully remove the cyst. After a recovery period of a month, it was moved back to the holding pen on Ile aux Aigrettes and released onto the island in August.
- The island had 27 adult free-roaming Aldabra tortoises by the end of December 2020.
- Juvenile tortoises, kept for education purposes and headstarted for release, were fed and provided water on daily basis. Morphometric measurements were carried monthly for each tortoise to assess and track their growth and health. Underweight tortoises were given supplementary feeding and were soaked in an electrolyte solution to assist their recovery.
- On the 6<sup>th</sup> August, in response to the oil spill, staff were evacuated from the island. It was unknown how long the island would be closed for and if staff would have access to care for the tortoises.

Therefore, an emergency response was taken for the tortoises in the nurseries that were reliant upon staff to care for them. They were taken to the mainland and housed either at La Vallée de Ferney in unused aviaries or with staff for the following two months until they could be returned back to the island.

## Round Island

- Daily sightings and monthly quadrat searches were carried out in the seven habitat types to obtain abundance, movement and distribution data. Through 2020, 587 individual Aldabra giant tortoises were detected. The encounters were used with previous data to estimate the population size at 683 (95%CI: 677-689) individuals on Round Island. An additional 124 encounters of tortoises that had hatched on the island were made in 2020, of which eight individuals were already microchipped and 22 were newly microchipped in 2020.
- The morphometric measurements of 121 individual Aldabra tortoises were recorded through two surveys in the year. Two individuals (1.65% of the sample), were found to have weights significantly lower than expected for their size.
- GPS locations were obtained for 1,540 tortoise observations during searches throughout the year. The range of the tortoises was calculated at 68.0 ha, thus 31.1% of the island, compared to 51.4 ha in 2019.
- Following the COVID-19 lockdown, staff returned to Round Island in June. Tortoise A0030, which was released in 2011, was found dead with its carapace cracked open on the rock slab above the palm rich habitat. It appeared to have slipped and toppled down the slope.
- 186 tortoise feeding observations were recorded. For the items consumed 72.0% consisted of the leaf litter, leaves and flowers of ten native plant species, 21.5% consisted of leaves and flowers of seven introduced plant species and 6.5% consisted of mostly leaf litter from six endemic plant species.
- 118 faecal samples were collected, which contained mostly grasses (74.6%), followed by the seeds of the endemic Latan palm (8.5%), with the remainder being a mix of introduced, endemic and native plant material.
- Whilst staff were absent from the island during the COVID-19 lockdown, the fences of the vegetation exclosures fell down giving access to the tortoises. The exclosures and control plots are used to determine the impact of the tortoises on the vegetation in relation to the findings of the feeding and faecal observations. Whilst the fences were restored, it will be at least a year until they can be surveyed again.



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# ISLANDS

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## Round Island



### Background

Round Island, 219 ha, is undeniably Mauritius' most important island for conservation with unique or significantly large remnant populations of endemic plants, reptiles and native seabirds. The island was spared from predators, such as cats and rats that have caused irreversible damage elsewhere, but goats and rabbits were introduced in the early 19<sup>th</sup> century, which caused severe loss of soil and vegetation. Poaching of seabirds was a common activity on the island. By 1986, the herbivores were eradicated, and closer management put an end to seabird poaching by 1997. A field station was built in 2002, which has allowed MWF and its partners to achieve a greater impact to protect and restore the island, control or eradicate invasive plants and replant many areas on the island. A permanent staffing of the island has supported reptile recovery, through reintroduction to other islands from 2006 (see reptile section), a greater understanding of seabirds including resolving the identity of the Round Island Petrel *Pterodroma arminjoniana*, and a host of field studies. The restoration of Round Island has been initiated, but we need to continue to restore the island, conserving its unique plants and animals, which will take decades. This will include saving from extinction two endemic plants that are in precipitous decline (*Aerva congesta* and *Phyllanthus revaughanii*), tracking of seabirds to understand where they travel to (thus identifying Marine Important Bird Areas and assessing the impact of global climate change), monitoring the response of threatened reptiles to restoration activities, curbing soil erosion and planting to restore functional communities that benefit the resident endemic animals. Round Island has been an important training and research ground for local and international restoration practitioners and scientists. Being one of very few islands in the world to have never been invaded by rats or non-native reptiles, combined with ongoing extensive restoration work and pioneering research on highly threatened and unique animals and plants, the global significance of Round Island is increasing as a leading site for conservation and scientific excellence.

The work on Round Island was largely disrupted in 2020, due to cyclones at the start of the year, followed by the COVID-19 lockdown in Mauritius, which led to restricted budgets from Government (currently and largely supplemented by Durrell and MWF), elevated costs of transport to the island and

a shortage of staff. The cyclones and the lockdown meant that no staff were present on Round Island at a critical period between the 15<sup>th</sup> March and 3<sup>rd</sup> June. Nevertheless, work has continued.

## Round Island Management Plan

- 2019 saw the launch of a six-year adaptive management plan for Round Island. This plan was developed through the Open Standards Approach to Conservation Planning and is being tracked through the software Miradi.
- There are seven Conservation Targets: Palm Savannah Mosaic, Native Mauritian Reptiles, Giant Tortoises, Invertebrate Community, Seabird Community, Marine Ecosystem and Land Birds in the plan.
- A conceptual model was developed around the conservation targets, identifying direct threats and contributory factors that influence these threats from which six Restoration Strategies, six Threat Reduction Strategies and five Enabling Strategies were created. There are 258 activities towards meeting these strategies, all of which is being tracked through Miradi with indicators of progress. However, due to the disruptions through 2020, many of these activities have been postponed.

## Red-tailed Tropicbird

- Monthly surveys of the Red-tailed Tropicbird colony in the south of the island are normally conducted, but only eight surveys were achieved in 2020, due to the disruptions mentioned above. Through the surveys, 1,087 birds (699 adults and 388 juveniles) were encountered, which consisted of 448 individual adults of which 95 were newly ringed. Only 19 chicks were ringed, which is about 60% lower than expected and caused by the lack of surveys due to the lockdown. These data will be used in the ongoing survey to estimate population growth, survival and recruitment.

## Round Island Petrel

- With the impact of the COVID-19 lockdown, Petrel surveys were not undertaken between March and July. Through the surveys that were completed, 266 individual adults were detected of which 22 were newly ringed and 36 chicks were ringed and fledged.
- 383 nest sites were active.
- One geolocator was recovered and 13 deployed as part of the tracking research conducted with ZSL.
- The annual apparent survival estimate for adults had not changed from the previous year's estimate at 96.5% (95%CL 96.2-96.7).
- The abundance of adult petrels using the island in 2020 was estimated at 2,077 (95%CL 1,942-2,221) individuals, compared to the corrected 2019 estimate of 1,972 (95%CL 1,874-2,075) individuals.
- Research on existing data collected as part of the long-term monitoring programme continues to be carried out to explore the factors influencing individual variation in non-breeding season migration movements of Round Island petrels and the implications for the viability of the petrel population. Time-lapse cameras that were set up in 2019, by University of East Anglia PhD student, Kirsty Franklin, at Petrel nest sites continue to record images to monitor egg to fledgling survival.

## Keel-scaled Boa

- A total of 88 boas (78 adults and 10 juveniles) were found during the quadrat surveys as part of the long-term study to monitor the health, survival and relative abundance of the snake. The lower number of snakes encountered compared to usual was due to the lockdown and limited staff availability to complete all of the surveys. Usually 84 quadrat surveys are completed, but in 2020, only 43 were completed. This follows for the other reptiles encountered in the surveys detailed below.

- There were 0.681 (95%CL 0.504-0.858) adult boa encounters per person hour in 2020, compared to a corrected 0.577 (95%CL 0.483-0.672) encounters in the previous year. The greater range of the 95% confidence intervals was caused by the fewer surveys conducted.
- 46 newly detected boas were microchipped in 2020.

## Günther's Gecko

- A total of 94 geckos (83 adults and 11 juveniles) were found during the monthly quadrat surveys as part of the long-term study to monitor their relative abundance.
- There were 0.596 (95%CL 0.309-0.883) adult gecko encounters per person hour in 2020, compared to a corrected 0.483 (95%CL 0.346-0.620) encounters in the previous year. The greater range of the 95% confidence intervals was caused by the fewer surveys conducted.
- Twenty Günther's Gecko nest sites were monitored when staff were present and available. Due to the lockdown it was not possible to determine the outcome (failed or hatched) of eggs during the critical hatching period. However, 259 eggs were monitored of which 71.8% were known to have hatched, 5.8% were known to have failed and 22.4% had an unknown outcome.

## Durrell's night gecko

- A total of 251 Durrell's night geckos *Nactus durrellorum* (224 adults and 27 juveniles) were found during the monthly quadrat surveys, as part of the long-term study to monitor their relative abundance.
- There were 1.876 (95%CL 1.455-2.297) adult gecko encounters per person hour in 2020, compared to a corrected 1.506 (95%CL 1.209-1.802) encounters in the previous year. The greater range of the 95% confidence intervals was caused by the fewer surveys conducted.

## Invertebrates

- A PhD study is being conducted to determine the impact of the invasive big-headed ant *Pheidole megacephala* upon Round Island's invertebrate community continued in 2020. This ambitious project will investigate the diet of the ants through genetic techniques and will lead to many of the invertebrates on Round Island being identified and described. At the start of 2020, Cardiff University PhD student, Max Tercel, undertook a second field season to collect data on the relative abundance of the invertebrate community and invertebrate samples. However, these samples were stuck on Round Island from March, due to the cyclone evacuation and subsequent COVID-19 lockdown. It was only possible to get the samples to Max in October, significantly delaying his research.

## Plant restoration work

- The COVID-19 lockdown caused major disruption to the plant restoration work in 2020. Staff were not able to be present on Round Island to care for nursery plants at a critical period. Fortunately, plants that had been placed into hardening had a relatively high survival. However, without watering for a prolonged period, all of the seedlings intended for planting in 2021 died. The timing of the lockdown also meant that the main seed collecting period was missed, which has restricted the ability to collect new material to re-start propagation for 2022.
- Approximately 50,854 seeds of seven hardwood species and twelve non-hardwood species were collected.
- Approximately 1,595 seeds from six species were sown.
- 22 seedlings, which germinated in the nursery, were potted.
- 514 of the 667 plants that were placed into hardening survived to be planted in the mixed weed, palm rich and summit habitats. The focus of planting is to enhance species communities, such as planting of Aloes *Aloe tormentorii* close to the existing adult plants on the summit, planting of the hurricane palm *Dictyosperma album* var. *conjugatum* and bottle palm *Hyophorbe lagenicaulis* close to the last existing hurricane palm in the palm rich habitat. In the mixed weed habitat the focus was



upon understory planting of hardwoods (*Diospyros egrettarum* and *Eugenia lucida*) and trial planting within one of the gullies to attain soil stability to reduce erosion.

- Additionally, trials have been started to plant small herbaceous species in suitable, but currently barren areas of coastline, lacking pioneer species. If this works then these sites could be targeted for other coastal herbs and then shrubs.
- The last wild existing hurricane palm is one of the World's rarest trees and has not produced viable fruit for the past two decades. A few hurricane palms have been identified in cultivation, but without genetic tests (which are planned from 2021) it is unknown if they are hybrids with the more common *Dictyosperma album* var. *album*. Four likely pure-bred trees in cultivation were selected and pollen was collected and transferred between them to maximize existing genetic diversity. Pollen was also collected from the wild palm and used to pollinate its female flowers when they developed, requiring a 9 m ladder suspended by ropes to gain access. Whilst no viable fruits were obtained from the wild tree in 2020, possibly due to drought, 350 viable fruits were obtained from the cultivated trees. These seeds will be propagated so that surviving saplings can be reintroduced to the wild to form a population that can cross-pollinate naturally on Round Island.
- A number of other rare plants survive on Round Island. *Aerva congesta* no longer survives in the wild on Round Island, with the last wild population now restricted to a small area of cliff face at Gris Gris on the mainland. However, the Round Island nursery maintains the majority of the remaining plants, where much work to enhance their propagation over the past few years, has allowed us to support over 300 individuals, although the entire population was nearly lost during the lockdown with only a few individuals surviving. Restoration of the nursery population started after lockdown with 44 individuals at the end of 2020. Other small rare herbs, such as *Phyllanthus revaughanii* is limited to one rock crevice on Round Island and *Phyllanthus mauritanus*, whilst very localised, has recolonised areas of the summit by itself. *Phyllanthus revaughanii* also suffered with the lack of care during lockdown, declining from over 130 to 17 individuals within the nursery, with only eight present at the end of 2020. *Phyllanthus mauritanus* also declined in the nursery during lockdown, but fared somewhat better than the other two species, with over 360 individuals in the nursery by the end of 2020. Plans are in place to enhance the nursery stock of these species and other small rare herbaceous plants for experimental planting in tortoise grazed areas.
- In December, sections of rhizome of the native fern *Phymatosorus scolopendria* were collected from numerous coastal sites in Mauritius, carefully prepared and taken to the nursery on Round Island. Following quarantine and establishment in the nursery, these ferns will be planted from 2021 in understory areas of restored habitats to help create microclimates to enhance sapling survival and reduce soil erosion. The fern was last recorded on Round Island in the 1970s.
- By the end of December, the Round Island nursery contained 760 seedlings of 29 species.

## Weed management

- The Covid-19 lockdown occurred at the worst possible time for the ongoing management of weed species, particularly *Chromolaena odorata* and *Heteropogon contortus*, which were left unchecked to flower and disperse seed during their peak reproductive period. Whilst we are unlikely to know the impact of having missed this core season of control, it may set us back considerably after two decades of intensive management to control the threat these species pose.
- Using data collected over the previous years on the location and phenology of *C. odorata*, models were developed to determine the high-risk areas and how searches could be organised in a cost effective way. This new approach will be started in full for 2021.
- It is clear that almost two decades of *H. contortus* management is unlikely to lead to its eradication, as it still vigorously persists in two locations on the island. Plans for the use of pre-emergent herbicides to target this exotic grass and remove it for good have been submitted to the National Parks and Conservation Service, but a decision on its use has not yet been obtained.

## Infrastructure and Transport

- At the start of 2020, major work was conducted for the renovation of infrastructure on the island for the construction of the office and quarantine room and enlargement of the field station. Five tons of wood were taken to Round Island in February. Many of the items were too large to fit within the helicopter and had to be slung underneath, using a clasp mechanism designed and built by the construction team. However, COVID-19 lockdown put the infrastructural work on hold. Work that was meant to have resumed in July, was prevented by a five-fold increase in helicopter costs, which was not resolved until December. The construction team managed to return to check the items that were taken in February and to secure it for any potential cyclones. Having been left exposed for a large portion of the year, some of the items were no longer suitable for construction and need replacing. The delays through 2020 have pushed the expected completion date of the renovation back by a year, with the likely completion being December 2021.
- Plans to improve the plant nursery did not go as planned for 2020. Using the wood that could no longer be used for the renovation of the field station, the outer frame of the nursery was extended in December to reduce the wear and tear on the shade netting that covers the frame and to reduce the ability for invertebrate pests to invade the nursery plants.

## Ile aux Aigrettes



## Background

Ile aux Aigrettes is a 26-hectare low coralline island, and has been declared a Nature Reserve since 1965 due to its remnant Mauritian dry coastal forest. Ecological restoration started in 1985 with the aim of restoring the coastal vegetation community and to replace the missing components of the flora and fauna. Through weeding of introduced species and planting of native species, including rare and critically endangered plants that have been propagated and reintroduced on the island, we are restoring the ecosystem. Around 30,000-40,000 plants per season/year were planted from 1998 to 2003, although the forest is now regenerating well naturally, specialised planting still continues to enhance the species diversity, to provide food for the native species reintroduced on the island and to provide habitat for seabirds and reptiles. The island is also used to conserve suitable lowland species that are critically endangered in the wild. Maintenance weeding continues through employment of a team of labourers living in the vicinity. As a part of a sustainable conservation programme, the island is open to visitors through our ecotourism and environmental education programmes. Students, tourists and the

general public learn about the habitat restoration project, in order to raise their awareness of the conservation of the threatened Mauritian flora and fauna.

## Projects on the island

- Pink Pigeon
- Mauritius Fody
- Mauritius Olive White-eye
- Günther's Gecko
- Telfair's skink
- Aldabra Tortoise
- Rare Plants
- Habitat Restoration
- Education: Learning with Nature
- Ecotourism

Details of the above project actions are included in the specific project sections in this report.

## Ile Cocos & Ile aux Sables, Rodrigues



Ile aux Cocos and Ile aux Sables, two sandbar islets to the West of Rodrigues, of 15 and 8 Ha respectively, are renowned for their breeding seabirds - water birds as well as migratory birds and occasional prospecting seabirds. Further background to this project and details of actions carried out are included in the Rodrigues section of this report.



# St Brandon



## Background

Rich in native coastal flora and fauna, St Brandon's beaches are a favourite place for sea turtles (Hawksbill Turtle *Eretmochelys imbricata* and Green Turtle *Chelonia mydas*) to lay their eggs. Coconut trees can be found on a few of the St Brandon islands as well as native trees, shrubs and grasses. The coral and outer reefs are still in good condition. This archipelago has a huge range of marine biodiversity with important global populations of seabird on the islets, and the shores are visited by migratory birds. Unfortunately, invasive alien plants and animals have reached the islets and are affecting the vegetation and breeding of seabirds. The islets are also affected by ongoing human activities. MWF's project is the first step towards encouraging all stakeholders involved in St Brandon to strive for the conservation of the archipelago. It is recognised that any actions carried out would not be effective unless Raphael Fishing Ltd, the Outer Islands Development Corporation (OIDC), and other relevant departments and Ministries of the Government of Mauritius support the actions. A St Brandon Institutional Mapping and Action Plan was developed in 2019 through discussions with the various stakeholders, and finalized in 2020.

## Main Actions

- Work is ongoing to prepare a proposal for the eradication of terrestrial invasive species following the expedition conducted in March 2019.
- Mention in paper Sumner et al (2020): Erosion studies on Mauritius: overview and research opportunities, South African Geographical Journal regarding development of a coastal vulnerability study for the Republic of Mauritius, which should include St Brandon.
- Comments were submitted by MWF on the 'Environmental and social impact assessment for a two-dimensional marine seismic survey programme proposed by CGG in the offshore waters of Mauritius', highlighting the unacceptability of risks of oil drilling in the EEZ of Mauritius, with some references to St Brandon.
- Several scientific publications were based on St Brandon (see publications list).

# Invasive Alien Species control and bio-security on Islands

## Background

Invasive alien species represent the greatest threat to island biodiversity. Whilst some invasive species, such as mice, rats and cats can be eradicated, although often at huge expense, effective methods for the control or eradication of many species, such as insectivorous mammals, birds, reptiles, invertebrates and plants have yet to be developed or where the capacity within Mauritius to deal with these species is low or absent. The long-term survival of plants and animals native to Mauritian islands depends on the implementation of strict quarantine and biosecurity measures and where possible rapid responses to remove invasive species once they are detected.

## Ile aux Aigrettes

**Bio-security checks:** Monthly checks were conducted using sooted tiles to detect footprints and cocoa wax chew cubes to detect chew marks of rodents or other potential problematic species that may have arrived on the island. Additionally pit-fall traps, cage traps and camera traps are utilized in the detection of new species incursions to the island. In May, during the COVID-19 lockdown, staff detected a ship rat *Rattus rattus* on the island.

**Rat eradication:** Rats, as predators of plant seeds, invertebrates, birds and reptiles, are one of the worst invasive species to arrive on an island, but methods for eradication are well developed, albeit not always successful. Following the detection of the rat in May and the deployment of additional traps, it became apparent that Ile aux Aigrettes had a breeding population that was widespread across the island, indicating that the invasion event had likely occurred before the lockdown started. Trapping alone was not going to remove the threat and therefore the rodenticide Brodifacoum was used. With a limited number of field staff, MWF's Ecotour Rangers were trained to assist with the eradication. Home-made bait stations, constructed from 1.5 litre plastic water bottles, were used to fasten the bait inside, allowing the bait to be protected from the elements, prevent non-target species such as crabs from dragging the bait away and permitting rats to access it. Pathways were opened across the island to create a 25x25 m grid for the placement of 394 bait stations. Each station was checked daily, recording the amount of bait consumed and replenished, what animals had left their marks on the bait, or signs in the stations, and where required moving the stations to limit non-target bait take. The stations were serviced for 21 days and then stopped nine days after the last sign of rat activity. In total, 35.8 kg of poison, of which 15.2 kg was consumed by rats and non-target species (mostly crabs, non-native land snails, cockroaches, ants and shrews), with the remainder being collected for appropriate disposal. However, not being able to detect rat signs does not necessarily mean that all the rats have been eradicated. Therefore the bait stations were left in place to repeat the baiting process six weeks later, to determine if any rats remained. Much of the timings of the operation were not dictated by rat reproductive behaviour, which is the usual process, but on staff availability and the numerous other tasks that were required at the time. However, the second phase of the eradication did not occur as planned, due to dealing with the onslaught of the Wakashio oil spill that occurred days after the initial eradication attempt. In November, a week was spent re-baiting the stations, using 8.7 kg of poison across the island, of which only 2.9 kg was consumed by non-target species. There were no sign of rats, indicating that the eradication had been successful.

**Tenrec trapping:** 37 tenrecs *Tenrec ecaudatus* were trapped in 2020, far more than in any previous year since their invasion in 2015. This increase may indicate an increase in the population size, but we

suspect it was due to increasing the number of traps and the effectiveness of the staff member operating them. In 2019, we received funding through Durrell, to attempt a tenrec eradication using tenrec hunters and a trained dog from Reunion Island. The 2019 attempt was delayed due to permit constraints in bringing the dogs to Mauritius. We then sourced the help of a local hunter and dogs within Mauritius, with support from the National Parks and Conservation Service. The trial was to begin in March 2020, but due to poor weather, the COVID-19 lockdown and that the tenrecs are in a torpor stage for the second half of the year, the trial has been delayed until 2021.

**Crows:** Crows *Corvus splendens* continue to populate Ile aux Aigrettes, with more nests being detected and destroyed and more activity on the island. With limited to no capacity to deal with the crow population in 2020, work will start in 2021 to remove individuals on the island.

**Dog:** A dog was detected on Ile aux Aigrettes in December. It was trapped and removed to the mainland within 24 hours of being detected.

## Southeast and northern islets

**Bio-security checks:** Islet surveys to the southeast islets were limited in 2020. Trapping using Sherman live traps was conducted during the weeklong trip to Ile aux Fouquets in December, nothing was detected. Additionally, during the response to the Wakashio oil spill and collection of reptiles to establish captive assurance populations, no new invasive species incursions were detected, although someone had planted a coconut tree on Ilot Vacoas, which was removed.

## Round Island

**Biosecurity:** For each trip to Round Island, all items that will be sent are subject to biosecurity checks, prior to leaving the mainland and then again, once the items arrive on Round Island. Videos were developed to guide new staff and volunteers on how to conduct biosecurity checks. All infrastructural materials for the renovation work were subject to biosecurity procedures, being fumigated within a sealed container for a week, prior to being sent to Round Island and again on arrival with thorough checks, the use of insecticide spray where needed and the vacuuming of all items. Through these checks, 348 organic items (plant seeds/material, invertebrates, dirt and other organic material) were detected and removed on Round Island.

**Plants:** During the preparation of potting soil in the nursery, a seed of the highly invasive tree *Leucaena leucocephala* was detected and removed from a sealed bag of coco-peat, highlighting this potential incursion pathway. Pests (herbivorous invertebrates, sap suckers and ants, bacteria and fungus) infected an average of 62% (range: 0 to 100 % of different plant species) of nursery plants throughout 2020. The aim is to reduce the prevalence of pests over the coming years with improved nursery infrastructure and pest proof benches. See the Round Island section above for invasive plants already on Round Island.

**Invertebrates:** In December, staff detected termites on Round Island for the first time. They were found at four locations in dead or dying *Pandanus vandermeeschii*, a highly threatened endemic screwpine. The four locations occur from the coast to below the summit on the southern side of the island, indicating that the termites have been present for some time. Samples were collected and given to the National Parks and Conservation Service for formal identification by the Department of Entomology and Mauritius Cane Industry Authority (MCIA). Its presence in dead screwpines is notable, as it is unclear if the termites are a cause or consequence for their demise.



**Red-whiskered Bulbul:** The invasive bulbul *Pycnonotus jocosus* has been detected on Round Island in the past, but has never fully established, possibly due to predation by the keel-scaled boa. However, the bulbuls have been present on Round Island since August 2019, with up to five birds being detected through 2020. The increase in vegetation on the island may now give the birds greater protection from boa predation. The birds represent a risk to the small diurnal reptiles that they predate upon, but will also be consuming invertebrates and may act as seed dispersers for exotic plants. In October, the birds were tracked and a mist net was set up for a few days in one of their commonly used flight paths, where there was little risk of netting one or more of the thousands of seabirds. No bulbuls were caught, although the net trapped many non-native Zebra Doves *Geopelia striata*, which are well established on the island. The eradication of the bulbuls will require shooting, which is currently being planned for 2021.

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# VALLEE DE FERNEY



## Background

Following the Strategic Grant obtained by the Mauritian Wildlife Foundation (MWF) from the UNDP GEF Small Grants Programme for the project «Optimising the Ferney Valley into a Mauritian biodiversity conservation and awareness hotspot», which has now been completed, MWF continues to work closely with the Vallée de Ferney Conservation Trust to monitor and manage the biodiversity and to advise on Flora restoration and ecotourism.

Under the UNDP Strategic Grant four endemic bird species were re-introduced to the Ferney Valley. Two of the species, the Echo Parakeet and the Pink Pigeon need a certain level of management which is provided from the Ferney Field Station. Supplementary feeding is provided to both species and the area around the field station protected with predator control. Nest boxes are provided for the Echo Parakeet. All species of birds are monitored.

Forest restoration of the Conservation Zone has made great advances in recent years and this needs to be maintained along with the plant nursery which supports the work. Advice, training & support for the Flora work included the plant nursery, forest restoration (weeding and planting) and rare plant monitoring.

The objective for the Eco-tours is that the guides are well informed and deliver a professional standard of tours to visitors. The Mauritian Wildlife Foundation supports this objective in two ways, by reviewing the delivery of tours including coaching and via capacity building.

A yearly training plan is prepared and agreed with Ferney to cover the key areas of conservation information for the guides as well as providing some general knowledge of conservation in Mauritius.

La Valley de Ferney is the only site in Mauritius to offer Kestrel feeding daily which is supported by MWF having trained the birds and the staff to both feed and deliver commentary. This is a unique opportunity for the public to see a Mauritius Kestrel up close.

## Fauna

### Pink Pigeons

- Translocation and release of 30 Pink Pigeons to Ferney in 2017.
- Pink Pigeons are breeding at Ferney, 24 birds were ringed since releases.
- A total of 42 birds at the end of 2020, up from 35 in 2019, in the valley.

### Echo Parakeet

- Echo Parakeets were released at Ferney for three consecutive years from 2015 to 2017, with 73 birds released in total. 16 birds returned to their site of origin; 3 birds are presumed dead: 1 fledgling ringed.
- There could be up to 55 birds living independently on the East Coast.
- Echo Parakeets are seen regularly at the 'Ferney gardens' near the visitors' centre, in Le Vallon, villages near Ferney and in Vallée de l'Est.
- The birds are not closely monitored but observations are recorded. In 2021 we will introduce 'audiomoths' which should help identify areas where the birds are present.

### Mauritius Cuckoo-shrike

- 19 birds were translocated up to March 2018.
- The species is cryptic so observations are rare, one adult male was identified within the Conservation Management Area in September 2020.

### Mauritius Paradise Flycatcher

- A total of 48 birds were hard released in the valley.
- Trials were carried out with different ages and combinations of birds: Juveniles worked best.
- Translocations were carried out in January 2019 with the hard release of 16 birds, a mix of independent juveniles or a whole family group.
- Observations have been very rare so the use of audiomoths may help us identify where these birds are present in the Bambou Mountains.

## Flora

### Weeding, Planting, Propagation of Plants

- Monthly visits are carried out by the MWF Horticulturist.
- Advice is given where required covering plant identification, plant nursery practices, propagation, weeding and planting.
- Training is given to Ferney staff.

### Ecotourism

- The Ecotourism activity was affected by the Covid-19 pandemic and the lack of tourists to the island as from 20<sup>th</sup> March 2020. In addition Mauritian visitors were not able to visit until 1<sup>st</sup> July and very few schools organized outings due to focusing on catching up on school work after the lockdown.
- A Reinforcement session was held on the Mauritius Kestrel feed presentation and on the Mauritius Kestrel project.
- Guides received a refresher training session covering both tour delivery and tour content including the history of the Valley and the conservation work that is carried out.



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# FLORA IN MAURITIUS



## Background

Mauritius is home to 671 native species of flowering plants. 311 (46%) are endemic to the island. Since human settled on Mauritius, big expanses of native forest were cleared for wood exploitation, agriculture and infrastructure. Now less than 1.3% of the land mass is under relatively good native forest cover (i.e with more than 50% native and endemic plant species). The remaining forest is highly threatened by invasive alien species, especially plant species such as Chinese guava and ravenale. Restoring the remaining forest is crucial to safeguard the endemic plants but also endemic animals such as bats, reptiles and birds, that have evolved together to form this unique ecosystem. Since the 1980's MWF is restoring the native forest in three reserves: two nature reserves, Ile aux Aigrettes and Round Island and one private reserve Mondrain. Restoration of forest is a long term process which requires dedication and long term resources. It involves the removal of invasive alien plant species and planting of native plants. On Ile aux Aigrettes, the forest restoration is supporting the whole ecosystem restoration work whereby, exotic mammalian predators were eradicated and endemic animals and ecological analogues were re-introduced reviving lost ecosystem functions. On Round Island removing goats and rabbits and replanting has increased the native forest cover and ultimately increased the population of the endemic reptile species, some of which were on the brink of extinction.

Over 90% of the 311 endemic plant species are threatened with extinction with around 100 species with less than 100 individuals remaining in the wild. Whilst restoring forest is beneficial for threatened species, those on the brink of extinction requires specific intervention to increase their wild as well as their ex-situ population. These actions involve plant search and monitoring; collection of seeds and cuttings, propagation; re-introduction in the wild and in the field gene banks; *in-situ* micro-management and sending seeds to international seed banks for long term storage. This safeguards the remaining genetic diversity of the species and will provide propagation material in later years. MWF runs plant nurseries at Pigeon Wood (Black River Gorges National Park), Ile aux Aigrettes and Round Island. Through the rare plant work, MWF has rediscovered plant species that were thought extinct and found new populations of rare plants.

MWF co-chairs the IUCN (International Union for the Conservation of Nature) Mascarene Islands Plant Specialist Group, with overview on Mauritius and Rodrigues from 2017-2020. The group brings specialists together and is working on completing the red-list of Mauritian plants.

## Rare Plants Project

### Ile aux Aigrettes

- The focal species for Rare threatened plant species for Ile aux Aigrettes are *Aerva congesta*, *Phyllanthus revaughnii*, *Ochrosia borbonica*, *Dictyosperma album* var. *conjugatum*, *Zanthoxylum heterophyllum*, *Barleria observatrix* and *Syzygium pyneei*. The following were 'first potted' in Ile aux Aigrettes nursery in 2020: 3 *Aerva congesta*, 15 *Dictyosperma album* var. *conjugatum*, 5 *Phyllanthus revaughnii*, 2 *Sideroxylon boutonianum*, 3 *Zanthoxylum heterophyllum* and 84 *Pandanus vandermeeschii*.
- 15 *Pandanus vandermeeschii* and 18 *Poupartia borbonica* were planted all over the island under the 'field gene bank' action.
- The plant nursery was badly affected by the Covid-19 lockdown when plants could not be cared for as required. The plants were watered but there were pest build ups, with the result that many plants were lost.
- Following the Wakashio oil spill in August 2020 and the experience of the Covid19 lockdown it was decided to remove all the plants from Ile aux Aigrettes. Nearly 4000 plants were removed from the nursery between 6<sup>th</sup> and 9<sup>th</sup> August, and were put in safety at the Forestry Service nursery in Mahebourg. 52 nursery plants died between August and October 2020. Some of the deaths may be due to transfer disturbance and due to greater exposure at the Forestry Service compared to Ile aux Aigrettes. 1464 plants in August and 299 in September had to be repotted due to damage to pots during transfer. 46 cuttings died as there was no dedicated facility on the mainland to maintain them. Caring for the plants to prevent further mortality was an additional and very intensive work. The plants were returned to Ile aux Aigrettes on 2<sup>nd</sup> and 7<sup>th</sup> October 2020 following bio-security procedures such as visual checks and spraying with insecticide prior to transfer.
- 21 Nursery benches were manufactured and delivered in September for the Ile aux Aigrettes nursery after funding was secured from the British High Commission. These tables were made bio-secure to help control some invertebrate pests. They have also improved conditions in the nursery as it is easier for the staff to care for the plants.
- 1488 plants from 33 species were donated to 16 institutions/schools/organisations in 2020. This included 1222 plants delivered to Omnicane for a forest creation project.

### Pigeon Wood Nursery and Field Gene Bank

- The field gene bank was maintained with circular weeding around the rare plants.
- No propagation was conducted due to a replacement not found for a staff who had left.

### Other

- A Flora Strategic Plan for MWF was planned for 2021 using the Open Standards and programme Miradi Share supported by Durrell. Durrell use it for all its field programmes, including Round Island and by using the same system the Mauritius Flora plan can be linked to that of Round Island.

- A species recovery plan for one critically endangered species, *Zanthoxylum heterophyllum* was drafted with the support of Botanical Garden Conservation International (BGCI) and we are conserving the species *ex-situ* and *in-situ*.
- Two staff followed the IUCN Red Listing on line course.
- 28 species were registered on the IUCN website in 2020 and information, data and assessments entered. Work to complete the assessments for publication will be carried out in 2021.

## Habitat Restoration

### Ile aux Aigrettes

- Western Indian Ocean Strategic Action Programme (WIOSAP) project on IAA began in December 2019 for a period of 17 months to April 2021 but with the Covid19 pandemic this will probably be extended to December 2021. The project aims to restore the native terrestrial habitat and seabird community of Ile aux Aigrettes. The main project activities include weeding of 14ha; planting; designation of a seabird area; deployment of seabird decoys and setting up seabirds play backs to attract seabirds; review and improve bio-security on Ile aux Aigrettes and provide training to staff.
- Weeding was planned for all months in 2020 but could not be conducted for 5 months due to COVID-19 lockdown and MV Wakashio oil spill around Ile aux Aigrettes. By December 2020, 13 labourers had been recruited with around 9 operational at any one time, to conduct maintenance weeding and planting. Around 4.9ha was weeded in 2020.
- Plants were propagated and grown in the Ile aux Aigrettes nursery: 8556 seeds from 17 species were sown; 371 vegetative propagation from 8 species were carried out; 267 wild seedlings from 6 species were collected and 742 nursery grown seedlings from 35 species were produced. A propagation plan for the Ile aux Aigrettes nursery was prepared in June to guide future propagation work.
- 814 plants from 30 species were planted in 2020. The GPS coordinate of the location of the plants were recorded. Planting stopped earlier because of the lockdown.
- The major seabird component of the project has been delayed due to the volunteer recruited not receiving a permit due to the Covid19 pandemic. However some of the seabird decoys were painted by MWF staff and volunteers last year. The Bio-security inspection protocol for Ile aux Aigrettes was updated as part of the project.
- The 1 ha seabird area to be designated under the WIOSAP project was identified. This area will be weeded and replanted with native grasses next year.

### Mondrain Reserve

- Funding was secured from BIOPAMA in December 2020 for 'Developing a management plan for Mondrain Reserve (Mauritius) and improving accessibility for greater PA management effectiveness and visibility' The project involved the purchase of a new vehicle to carry out conservation and education work at Mondrain reserve and the use a participatory approach for developing a management plan for Mondrain reserve.
- The Management plan actions were begun with two site visits conducted in December with 16 participants from various organisations and institutions involved in nature conservation and other relevant stakeholders. These were followed by a full day workshop. The Management plan will be completed in 2021.



- The project vehicle, a Toyota Land Cruiser, was purchased in December 2020.
- No weeding was carried out in 2020.
- Visits were made to collect propagation materials.

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# RODRIGUES

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Forest clearance, introduction of invasive plant and animal species, predators (e.g. rats and cats), over exploitation of the island's nature resources, unsustainable agricultural and farming practices and soil erosion have led to the demise of much of Rodrigues rich biodiversity. Well over 20 bird species and a host of plants are, as a result, extinct.

## Grande Montagne Nature Reserve



### Background

The Mauritian Wildlife Foundation (MWF) has been working in the Grande Montagne Nature Reserve for more than twenty years and the visitor is now able to enjoy areas of maturing forest while witnessing other more recently restored areas or view restoration underway. Around 87% of the 25.5 ha fenced area at Grande Montagne has been restored to date and the aim of MWF is to complete the initial restoration of this reserve within the next few years. Over 174,996 plants have been planted in the reserve by MWF so far and 40 rare Rodriguan plant species are successfully conserved on Grande Montagne.



The forest is a habitat to the surviving endemic animals and insects of Rodrigues. From about only 30 birds, the population of the Rodrigues Fody has reached an estimated 20,000 individuals in 2016, whilst that of the Rodrigues Warbler increased to an estimated 25,000 individuals over the same period, in part due to the habitat restoration on Grande Montagne. This project involves the local community, providing employment to restoration labourers from the nearby villages and organising 'restoration working days' with grassroots associations to sensitise and empower the local people in habitat restoration. The reserve is included in the Rodrigues Environmental Education Programme where students visit and are taught about the reserve and its importance. The reserve is also open to the public for paid guided visits. In 2018, 5 Aldabra Giant Tortoises were introduced in the Reserve and all 5 are doing extremely well, such that another 5 individuals will soon be added.

## Main Actions

- 8,225 endemic and native plants of 26 species were planted in 5 plots in the Grande Montagne Nature Reserve.
- 16 octopus fishers worked in the reserve during the 1-month summer and 2-month winter closures, doing general maintenance, cleaning, planting, weeding and assisting with all MWF activities.
- 37 persons from the RRA's Tourism Alternative Livelihood Scheme participated in restoration work in the reserve between June and December 2020.
- Tree guards were deployed around four bois puant (*Foetidia rodriguesiana*) tree trunks after a significant amount of their bark had been illegally removed for its medicinal properties.

## Anse Quitor Nature Reserve



## Background

The Anse Quitor Nature Reserve contains critically endangered plants within some of these last relics of forest on Rodrigues, although even these are highly degraded. Small-scale restoration began in Anse Quitor in the mid-1980s and the Mauritian Wildlife Foundation (MWF) began a larger scale restoration



project in 2010 with a focus on employing conservation labourers from the local community. So far, 32.3 of the 35 ha fenced reserve have been restored, with MWF planting approximately 113,005 native Rodriguan plants. By restoring this area, extremely rare plants are safeguarded and endemic and native habitat is recreated for the endangered Rodrigues Fruit Bat (*Pteropus rodricensis*) and it is hoped that the recolonisation of this area by the Rodrigues Warbler and Rodrigues Fody, both red-listed-species according to the International Union for the Conservation of Nature, may be possible thus helping increase their numbers. The restoration work is being carried out by labourers residing in the surrounding villages with a focus on supporting poverty alleviation through training and employment so they may acquire a marketable skill. Restoration working days are organized with grassroots associations to sensitise and empower local people in habitat restoration and conservation. The reserve is included in the Rodrigues Environmental Education Programme, where students visit and are taught about the reserve and its importance.

## Main Actions

- 1,500 endemic and native plants of 17 species were planted in 2 plots in the Anse Quitor Nature Reserve.
- 10 Octopus fishers worked in the reserve during the 1-month summer and 2-month winter closures, doing general maintenance, cleaning, planting, weeding and assisting with all ongoing MWF activities, but mainly concentrating on the control of the highly invasive la coqueluche (*Pongamia pinnata*) growing along the riverbed.
- Both bois pasner (*Zanthoxylum paniculatum*) trees in the reserve benefitted from retaining walls built around them and filled with soil and compost to boost their chances of producing flowers, fruit and viable seeds.
- The Agence Française de Développement (AFD) officially agreed to finance the expansion of the Rodrigues Airport and as a result, Environmental and Social Impact Assessments were carried out, identifying: 1) The entire village of Ste Marie will need to be relocated, 2) Several IUCN Critically Endangered founder Rodrigues Ebony (*Diospyros diversifolia*) and bois puant (*Foetidia rodriguesiana*) trees and other less endangered founder trees in the direct path of the project that would need transplanting, 3) the reserve would possibly be affected by dust during the construction phase and would require protection.

## Ile Cocos & Ile aux Sables, Rodrigues

### Background

Ile aux Cocos and Ile aux Sables, two sandbar islets to the West of Rodrigues, of 15 and 8 Ha respectively, are renowned for their breeding seabirds - water birds as well as migratory birds and occasional prospecting seabirds. The islets are also the last place on Rodrigues where there is natural vegetation succession (from coastal strand to shrub to tree), and despite their small size hold several ecotypes (strand, grasses, marshes, forest). Ile aux Sables also support the only known breeding population of the Roseate Tern (*Sterna dougalli*) and population of bois mapou (*Pisonia grandis*) in the Mascarenes. By virtue of the biodiversity hosted by these islets, they are classified as an 'Important Bird Area for Africa' by Birdlife International. The Mauritian Wildlife Foundation (MWF) has had a long history of involvement with these islets, and has advised the Government in formal and informal capacities for over two decades on their management, giving advice on planting, weed control and on the management of the bird populations. In February 2014, the Rodrigues Regional Assembly (RRA) approved the up-scaled role of MWF for the conservation of the two islets, in particular Ile aux Sables and discussions on future plans have been ongoing. Despite their native biodiversity, the islets have been severely modified by man and the vegetation communities have been replaced to a great extent by casuarinas and coconut plantations, damaged by invasive exotic plants and animals, coastal erosion, and by inadequately managed human visitation.

Five information boards, replacing previous ones, were deployed by MWF on the visitors centre veranda walls in 2019 covering the nesting and non-nesting seabirds as well as the restoration work done there. As a result of the reduction in tourism caused by the Coronavirus pandemic, the RRA implemented a Tourism Alternative Livelihood Scheme for those involved in the tourism sector, such that between the July and December 2020 15 persons contributed daily towards conservation actions on the ICNR, under the guidance of MWF staff.

## Main Actions

- Clean ups of the islets by MWF staff and the Tourism Alternative Livelihood Scheme workers.
- Reopening of all visitor paths was done in conjunction with the RRA Tourism Alternative Livelihood Scheme.
- 25 seedlings were symbolically planted in 2020 on World Wildlife Day and covered by the MBC.
- Seabird censuses were carried out four times in 2020 and bird populations appear stable.

# Grenade Community Forest

## Background

In 2013, a strategic project was developed by Shoals Rodrigues in collaboration with the Mauritian Wildlife Foundation, with the guidance of the Rodrigues Regional Assembly and funded by the GEF Small Grants Program. The aim of the project was to develop a sustainable alternative livelihood for 12 fishers in the Grenade area to reduce pressure on dwindling marine resources via the setting up of a 1 ha community forest. The flora planted at this site are all species with known medicinal or artisanal uses that can be harvested and sold for revenue, reducing the need to fish. Since these plants would need a considerable amount of time to reach maturity for exploitation, two small vegetable and fruit gardens were also setup to produce revenue in the short term. A tool shed, water reservoir and rainwater harvesting system were also built as part of the project. Unfortunately, since rainfall is extremely low in this area, the vegetable garden did not prove to be successful. Therefore, to obtain a steady source of water, MWF tried to set up a cooperative for the fishers so they could apply for a water connection, however this failed. MWF also tried to obtain an agricultural land lease, but this also did not prove successful. MWF is currently applying for an agricultural permit for the land to assure a water connection. To date, each year, 6 octopus fishers of the original 12 return during the seasonal octopus fishery closures to maintain the site, cutting pikan loulou (*Acacia nilotica*) regrowths and replanting in the wet season to replace mortalities in the native plant population.

## Main Actions

- 6 and 4 octopus fishers worked on this project during the 1-month summer and 2-month winter closures, respectively, doing general maintenance, cleaning, weeding and assisting with all ongoing MWF activities, but mainly concentrating on the control of the highly invasive pikan loulou (*Acacia nilotica*) growing inside the plot and along the access path.
- 210 native species seedlings were planted in 2020 at the site, replacing mortalities.
- To date, the land is still vested with the Commission for Forestry and without a fresh water connection, despite all attempts so far to obtain one with various Commissions of the RRA.

# Solitude's nursery



## Background

In the Solitude Endemic Plant Nursery Rodrigues staff propagate and grow plants for all Mauritian Wildlife Foundation's restoration projects. It also provides plants for other purposes such as endemic gardens for schools and villages and houses the Rodrigues seedbank.

## Main Actions

- 11,118 endemic and native propagated plants in stock in the nursery as at 31/12/20
- 10,637 endemic and native plants transferred from the nursery for conservation purposes in 2020
- 17 octopus fishers worked in the Solitude Endemic Nursery during the 1-month summer and 2-month winter closures, helping in all aspects of plant propagation
- 4 persons from the RRA's Tourism Alternative Livelihood Scheme participated in nursery-related work between June and December 2020



## Rare Plants



## Background

The Indian Ocean Islands is a hotspot area for threatened endemic plant species. The Conservatoire Botanique National de Brest (CBNB) and Botanical Gardens Conservation International (BGCI) have been working for several years with MWF to save and propagate rare plants, build ex-situ collections as well build capacity in Mauritius and in Rodrigues to protect these species.

CBNB and BGCI will continue work with the Mauritian Wildlife Foundation over the coming years and other partners to secure living collections and/or the reintroduction to the wild of some 15 plant species from Rodrigues assessed as Critically Endangered.

Project activities will include: working with the existing network of international botanic garden experts to establish propagation programmes for species where efforts have previously been unsuccessful, developing a seed bank and protecting threatened founder plants in the wild.

In addition, reintroduction programmes will be initiated for species such as *Zanthoxylum paniculatum* at Anse Quitor that would be more secure if established at additional sites.

CBNB and BGCI and other partners in the network will accompany in-country project teams to build capacity during survey and collecting trips, and experts from the Ecological Restoration Alliance of Botanic Gardens will be identified to support propagation and reintroduction efforts.

In addition, planning will be advanced for a native species botanic garden on Rodrigues. These activities will help build capacity for species conservation and recovery programmes in Mauritius and Rodrigues, ensuring actions can be scaled up in future.

## Main Actions

- Plant recovery plans were drafted for the following nine focal species under the ongoing Botanical Garden Conservation International Project: *Antirhea bifurcata*, *Badula balfouriana*, *Dombeya rodriguesiana*, *Eugenia rodriguesensis*, *Foetidia rodriguesiana*, *Hibiscus liliiflorus*, *Polyscias rodriguesiana*, *Pyrostria revoluta* and *Zanthoxylum paniculatum*.
- Phenological visits were carried out on the nine aforementioned focal species affording a better understanding on their flowering, fruiting and budding habits to better protect them.
- Propagation trials were also done on as many of the above species as possible, depending on the availability of propagation material.
- All founder plants of the above 4 species were visited, marked with aluminum tags, had ecological information pertaining to them collected, main threats noted and GPS locations recorded.
- The last two adult bois pasner (*Zanthoxylum paniculatum*) plants had retaining walls built around them and filled with a soil compost mix to boost their chances of producing viable fruit.
- Following the Red Listing Workshop in 2019, 33 tree species were registered on the IUCN website by 2020. The red listing accounts for 15 species were completed for review and publication.

# Rodrigues Environmental Education Program (REEP)



## Background

The Rodrigues Environmental Education Project (REEP) has been operational since 1998 and won the Philadelphia Zoo Global Conservation award in 2018. From its inception REEP has been involved with the community, changing people's attitudes towards the environment. This is achieved through awareness-raising and informal environmental education initiatives. These involve talks in schools and to the media, visits to restoration areas and environmental education campaigns including outreach to community groups in order for them to experience 'hands-on' the habitat restoration process. Volunteer's day is celebrated with activities and hand-outs of educational materials for those who have volunteered for MWF during the year. REEP also focuses on sensitising school children about environmental issues that affect Rodrigues and encourages them to take pride in their natural heritage. Work began on developing an effective and unbiased way of evaluating the education visit to Grande Montagne via a questionnaire aimed at school children of various ages with the assistance of Government and Roman Catholic Aided (RCA) schools.

## Main Actions

- 522 plants were donated to primary schools, colleges, villages and other organisations
- 1,081 students and 173 teachers participated in educational visits of the Grande Montagne Nature Reserve, Anse Quitor Nature Reserve and the Solitude Nursery
- 387 school children and 11 adults were present during educational talks
- 185 volunteer work-days helped contribute towards terrestrial conservation in Rodrigues



- 28 interviews were broadcast on TV and 7 interviews on local radio providing media coverage for conservation actions carried out by MWF
- 15 monthly blogs were published online for MWF's and Philadelphia Zoo's social media
- MWF continued to work with Reef Conservation Mauritius in parallel with Shoals Rodrigues on the Indian Ocean Eco Schools programme and 11 schools were visited to monitor their project status.
- 10 special events: World Wildlife Day, Earth Day, World Tourism Day, International Bat Weekend, World Biodiversity Day, World Environment Day, International Volunteer Day, Anti-Corruption Day, World Clean-up Day and an interactive day with Emtel staff and the Gonzague Pierre Louis Special Learning Centre, were organised, liaising with various RRA Commissions and Departments as well as other partner organisation namely: Shoals Rodrigues, Rodrigues Council of Social Services, Francois Leguat, Ecobalade

## Eco-Tours Grande Montagne



### Background

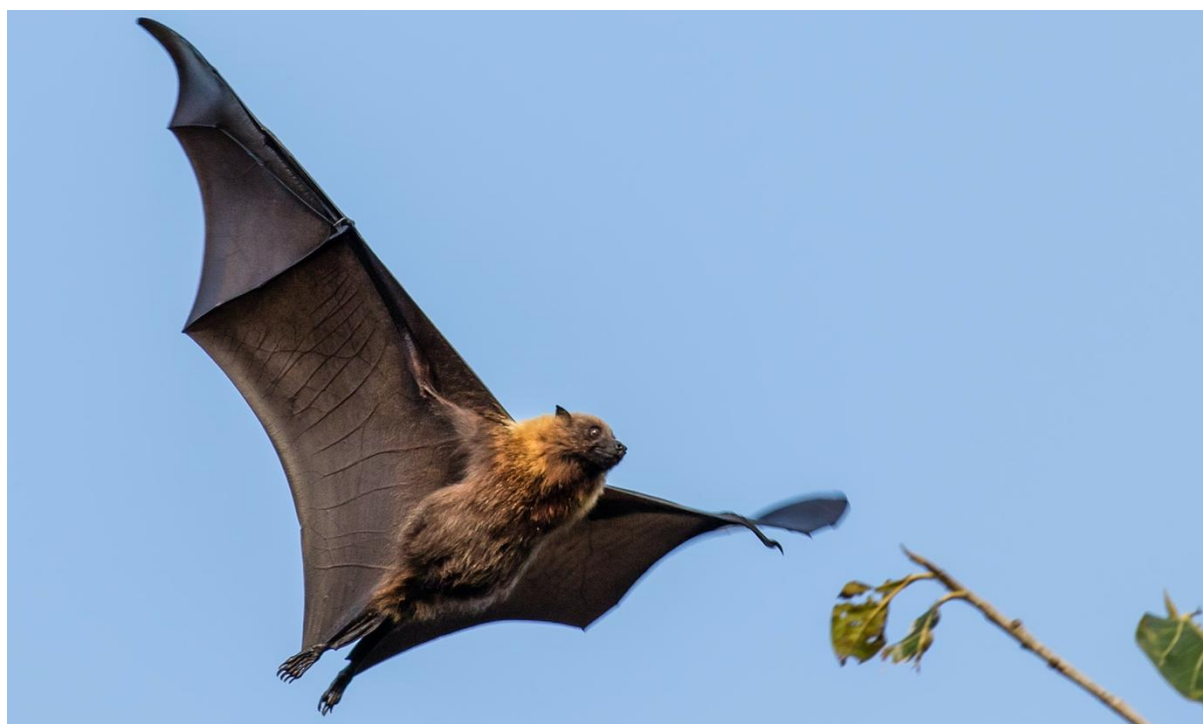
The Grande Montagne Nature Reserve is open to the public for paid guided visits. In 2013 the Rodrigues Regional Assembly approved plans for the MWF to conduct ecotourism activities in this nature reserve, which began in February 2016 with a dedicated Ecotour Ranger recruited to deliver tours.

### Main Actions

- The new signage, developed with Chester Zoo, was installed in 2020 and launched by the Commissioner for Environment, Richard Payendee on World Biodiversity Day and covered by the Mauritius Broadcasting Corporation. On the same day, the RRA-MWF Memorandum of Understanding (MoU) was signed for a duration of 5 years.
- Flyers and posters were distributed around Rodrigues and an active campaign of promotion continued to be carried out by the Ecotour Officer.

- Ecotour visitor numbers at the end of 2019 were increasing and a third dedicated member of staff was recruited in January 2020, an Administrative Assistant to join the Ecotour Officer and Ecotour Ranger.
- 942 paying customers visited the reserve in 2020, representing a drop of 271 in the number of visitors from 2019, this is a direct result of the COVID-19 lockdown closure of international borders and travel restrictions.
- Educational visits were given to 644 Rodriguan students free of charge.
- 125 access steps leading to the plateau upgraded in 2019 have significantly improved the safety when accessing the reserve and have generated very good feedback from visitors and tour operators.
- Through 2020, the Grande Montagne Ecotour was featured in a number of TV, Radio and social media reports.
- The GMNR Ecotour was awarded the Trip Advisor's 2020 Travellers' choice award, reaching 4<sup>th</sup> place in 'The things to do in Rodrigues'.

## Rodrigues Fruit Bat (RFB)



### Background

The Rodrigues Fruit Bat (RFB) has been studied since 1974 when it was considered one of the rarest of all vertebrates, with a population of less than 100 animals, and the rarest bat in the world. Since then the population has steadily increased due to habitat protection and restoration, and a decline in hunting pressure. The population reached ~5,000 animals in 2002. Cyclone Kalunde hit the island in March 2003 causing a reduction in the population of maybe as much of 50%. This was caused by post-cyclone food shortages that resulted in elevated juvenile mortality. Simultaneous counts of bats leaving from different roosts, from 2007 to 2016, show that the population has recovered, and continued to grow to the current estimated ~20,000 individuals. Since 2010, explorations have been made in search of new roosts where bat presence has been reported. The identification and monitoring of new temporary or permanent roost sites found and the search for new RFB roosts continues as this helps us understand the dispersal response to population increase. In 2018 the RFB population hit an all-time high of ~24,000 individuals, bringing some discontent amongst the population for the damage caused to backyard fruiting trees. Following two strong cyclones Gelena and Joaniha in early 2019, mortality was reported, resulting from shortage of food. A tropical depression and the COVID-19 lock-down affected the 2020 island-wide bat counts and following consultations it was agreed only one island-wide bat count would be carried out each year, in November, when the counts have produced the best figures. This population needs to be monitored to assess the impact of cyclones and future population trends. Since the RFB breeds once a year and usually produce a single baby (occasionally twins), population counts repeated annually are effective in plotting long term population trends. Regular surveying can also allow a better understanding of the factors affecting bat movement on the island. In addition, fortnightly counts are maintained at the Cascade Pigeon roost, with surveyors based at the Malabar crossroad. MWF staff are joined by a wide range of volunteers for the simultaneous island wide counts. These counts are useful since volunteers often become involved with other aspects of conservation projects in Rodrigues. The bat work has helped to inspire respect for MWF's work in Rodrigues. MWF aims to exploit the awareness and educational potential of RFB counts to the fullest.



## Main Actions

- A single simultaneous evening dispersal island-wide count was carried out in November 2020 at 15 permanent roost sites and in situ estimations done at 8 temporary sites.
- Following the low count of 5,423 in November 2019, the November 2020 resulted in 18,430 bats being counted and an estimated 20,000 to be present in Rodrigues.
- These results strongly point towards good resilience and recovery following the passage of two strong cyclones, Gelena and Joaninha in early 2019.
- Additionally, 23 fortnightly counts of the Cascade Pigeon Roost were done in 2020.
- A Management Support Officer, recruited in April, has begun the task of inputting the massive backlog of bat count data.

## Other Activities

- A birdlife funded Important Bird Area Project developed to raise awareness of Wedge-Tailed Shearwaters along the east coast was carried out in 2020, following another reporting mass mortality event affecting this species in 2020. The likely next step will be deploying a fence around their nesting area.
- On the 3<sup>rd</sup> of December 2019 the first sighting of a green Iguana (*Iguana iguana*) in the wild was reported to MWF Rodrigues staff. This first individual was collected and delivered to the RRA veterinary service for euthanasiation. It was said that 8 individuals had been released in Terre Rouge. Since 2019, another 4 individuals have been reported to MWF, caught by staff and handed over to the RRA for destruction. TV and radio coverage was done on the subject to encourage Rodriguans to report in any sightings for collection.
- The introduction of Aldabra Giant Tortoises in the GMNR was to rebalance the ecosystem, replacing the lost endemic tortoises as an analogue species based on the MWF experience of introduction in Mauritius on Ile aux Aigrettes and Round Island. They are monitored on a monthly basis by MWF staff as regards to their size, weight, location, habits and impacts of the vegetation present around them. Since their introduction, staff have observed them eating *Foetidia rodriguesiana* and *Pandanus spp* fruit amongst others and noted the sprouting of *Ixora trilocularis* seedlings in their dung, proving without a doubt that they are helping rebalance the ecosystem in this reserve.

# EDUCATION IN MAURITIUS

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The Mauritian Wildlife Foundation (MWF) recognises that the long-term survival of Mauritius' endangered biodiversity depends on the continuous education of Mauritian and Rodriguan children and raising the level of awareness among the public at large to overcome human indifference towards conservation. MWF believes that this depends on providing opportunities for everyone to appreciate strategic areas, local species, and foster education to highlight the ecological, aesthetic, cultural, spiritual, recreational and economic importance of protecting our endemic animal and plant species. MWF is conscious of the challenges involved in changing attitudes to the environment. One of the MWF's missions is: 'To share the joys and benefits of native wilderness and wildlife with the Mauritian people'. To achieve this mission, various educational initiatives are undertaken by MWF.

## Learning with Nature on Ile Aux Aigrettes



### Background

As from 2009, the MWF developed 'Learning with Nature' (LWN), a structured educational programme on Ile aux Aigrettes which supports the national school curriculum and is supported by the Ministry Education and Human Resources, Tertiary Education and Scientific Research. MWF's 'Learning with Nature' programme strives to promote greater environmental awareness and support for conservation nationwide by helping to create the next environmentally conscious citizens. Students have the opportunity to visit the islet, discover a nature reserve, and appreciate its biodiversity, witness actions undertaken to save species from decline in their restored natural habitat, obtain support towards their school curriculum, and return armed with knowledge and educational materials.

## Main Actions

- The programme was severely hit by the Covid19 pandemic lockdown from the 20<sup>th</sup> March 2020 to 31<sup>st</sup> May 2020. Schools did not resume until later and for government schools all outings were cancelled while teachers focused on delivering the curriculum.
- The programme was further hit by the Wakashio oil spill and the closure of Ile aux Aigrettes from 6<sup>th</sup> August 2020 to 7<sup>th</sup> December 2020.
- 366 students, teachers and youth groups followed the LWN trail in 2020 on 10 visits from institutions (2019: 2,882 students, teachers and youth groups on 76 visits from institutions).
- Students were reached by presentations in schools.
- A Mauritian PhD student used the Learning with Nature programme to collect data for her study 'Investigating Situational Interest and Learning about Biodiversity: A case study of how Students experience a field trip to a Nature Reserve in Mauritius'. The thesis is due in March 2021.
- Intensive and hands on training of Rangers was conducted in June and July 2020 while Ecotours was closed (June) and there were low numbers of Mauritian visitors (July). The Rangers joined Ile aux Aigrettes field staff to participate in their project activities.

## Mauritius Fruit Bat



## Background

Bats are the only mammals native to the Mascarene Islands. Three species of fruit bat were once widespread over Mauritius, but two went extinct and the population of the surviving species (*Pteropus niger*) decreased considerably due to habitat loss, cyclones and illegal hunting. This bat went extinct on Reunion Island, where it was last recorded in 1790. However it is known that Reunion Island has been recolonized by a handful of individuals over the last decade (now numbering several dozen to a hundred bats), whilst a second species (*Pteropus rodricensis*) has survived on Rodrigues Island. Due to lack of major cyclones, the population of the *Pteropus niger* (also known as the Mauritius fruit bat)



has increased over a 20 year period, shifting its IUCN status from Endangered to Vulnerable in 2014. The most recent bat surveys done by the National Parks and Conservation Service in 2020 found that the population size of the Mauritius Fruit Bat is around 100,000 individuals.

In 2009, a positive step was taken when the Government carried out a sensitization campaign for the protection of farmed fruit and promoted the use of nets to protect fruit from bats and birds, along with a grant scheme to purchase the nets, which was extended into 2017. However, the species faced a serious threat to its existence as the Mauritian Government announced it had culled 30,938 bats in 2015 and 7,380 in 2016 in order to protect the interests of fruit farmers. Further culls have been carried out in 2018, 2019 and 2020 but the official number of bats culled has not been released. The Mauritian Wildlife Foundation along with International Union for the Conservation of Nature (IUCN) and Bat Conservation International (BCI) provided scientific and management advice to the Government to convince them that the culling could have catastrophic effects on the bat population in Mauritius especially if there was a severe cyclone. The Mauritius Fruit Bat was uplisted to Endangered in 2018, the direct result of the official culling conducted in 2015 and 2016, and the parallel illegal killing of fruitbats.

## Main Actions

- Discussions and exchanges with IUCN Bat Specialist Group, Bat Conservation International, and several other international organisations, as well as the Government of Mauritius, local groups and people to share information and lobby against a cull.
- MWF was not invited to a 'Special Technical Committee' in 2020. The committee was set up under the Native Terrestrial Biodiversity and National Parks Act 2016, which discusses culling of species. MWF was the only non-government institution invited in the previous year (2019). Of the c. 12 institutions present, all except MWF voted in favour of a cull. MWF is fiercely opposed to culls and provided its views to the Minister of Agro-Industry, press and on its facebook page.
- MWF has initiated a Human/Wildlife Conflict initiative for the Mauritius Fruit Bat. Following on from the 'Netting Workshop' in August 2017 and 'Research Workshop' in May 2018, two workshops were conducted, the 'Backyard Workshop' and 'Media Workshop' on 23 and 24 October 2019. MWF regularly refers to the workshop reports and discussions in official meeting, in the media, on the MWF facebook page, and in conversations with pro and anti-cull proponents.
- Various actions are carried out under a bat education programme:
  - Communication in the media & social media
  - Promoting of tree netting: produce and distribute a Brochure, put it on MWF's website, produce a QR Code poster to share on social media and distribute posters to retailers of nets
  - Produce promotional items including a T shirt, tote bag and Bat plush toy
  - The 10 minute film "Mauritius Fruit Bats under threat" is used in presentations and accessible from the MWF website
  - Presentations given to schools & community groups
  - Creation of a bat ecotour, which is run upon request

# Islets Education Project



## Background

The project began in May 2017 funded by the European Union (EU) via the Indian Ocean Commission (IOC) until October 2018 and aimed to educate leisure boat skippers and staff, fishermen, private boat owners and coastguards in the region on how to help protect the wildlife on the southeast islets. The objective is to have a reduction in human-mediated threats such as littering, open fires, trampling and new exotic species introduction hence helping to conserve the endemic/native animals and their habitat. The islets involved were Ile aux Fouquets, Ile de la Passe, Ile aux Aigrettes, Ile Marianne, and Ilot Vacoas and are home to endemic species of skinks, birds and plants as well as native seabirds.

New funding was secured from July 2019 from the Mauritius Commercial Bank to continue the project in the southeast and start a similar project in the north where we have six islands of conservation importance namely Round Island, Gunner's Quoin, Serpent Island, Flat Island, Ilot Gabriel and Pigeon House Rock. The project in the north is now well established.

The activities include questionnaire surveys to assess change in knowledge; stakeholder meetings; participative training workshops; educational visits to islets, monitoring of the project impact on the islets and production of educational and promotional materials. The leisure boat skippers/assistant skippers who follow the programme to completion receive an 'Eco-Aware Skipper' certificate and an 'Eco-Aware' sticker for their boat, which add more value to their work.

## Main actions

- Training in the Southeast:
  - 1 private boat owners' workshop was held with 25 participants at Club Nautique in Pointe d'Esny
  - 1 stakeholder meeting was held in February 2020 with 16 participants in Mahebourg.

- 2 fishermen workshops were conducted with 32 fishermen in Mahebourg. A compassionate stipend of Rs 500 was offered to each fishermen for attending the training workshop after their loss of livelihood due to the oil spill.
- 1 islet visit with skippers was conducted in July with 22 participant. No other site visit could be conducted as the Southeast islets were closed due to the Wakashio oil spill for the second half of 2020.
- Training in the North:
  - 2 NCG workshops were conducted in Grand Baie with a total of 37 NCG officers based in the northern NCG stations.
  - 1 presentation with private boat owners at Grand Bay Yacht Club.
  - 3 skippers' workshops conducted with 30 participants from different catamaran companies.
  - 3 educational visits to Ilot Gabriel with a total of 24 skippers and catamaran company staff. Some visits were postponed because of bad weather and the islets in the north are not as easily accessible as in the southeast. Forestry staff on the islets talked about their work on the island.
  - 4 fishermen workshops were conducted with 59 fishermen from Grand Baie, Cap Malheureux and Grand-Gaube.
- 2 stakeholder meetings were conducted in the north and 1 in the southeast. A total of 47 participants from various ministries, catamaran skippers, other NGOs and fishermen attended these meetings. The purpose is to share the challenges and see how people can work together to ensure the islets are protected.
- Monitoring trips on southeast islets were carried out to assess the human-mediated impact on the islets. It was conducted only twice in 2020 because of COVID-19 lockdown and the subsequent closure of the southeast islets due to the oil spill in the Grand Port bay.
- A certificate ceremony was conducted for skippers who has finished the training in the north. 19 skippers received their Eco-Aware Skipper certificate along with caps, T-shirts, factsheet and stickers. Skippers in the southeast still need to conduct a final islets visit to Ile de la Passe and Ile aux Fouquets to complete their training. However as they were not working due to the pandemic affecting tourism and subsequently the oil spill, we were not able to finish their training. Thus no certificate ceremony was organised in the southeast in 2020.
- Presentations were conducted:
  - School presentations about islets in the north: We reached 7 schools (primary and secondary) in the northern regions with a total of 625 students.
  - Community presentation in the north: 1 presentation at Citizen Advice Bureau (CAB) Grand Baie with 20 participants
  - Annual training at Tourism Authority: Presentations were conducted on two occasions at the annual training of skippers at Tourism Authority with 80 skippers.
- Distribution of education materials in the north: Flyers and posters about northern islets were distributed to schools, community centres, NCG stations and to students.
- Education and promotion materials were designed and produced in 2020: 300 caps, 210 T-shirts, 100 posters about northern islets, 8 expo panels about islets' flora and fauna; 165 skippers factsheets for north and southeast.
- Signage is organised in key areas to communicate to the public. Design of signage at embarkation points in the north was completed. Permission from various authorities for the placement of signage is proving to be very lengthy. Maintenance was conducted on the 18 sign boards previously installed on southeast islets and mainland locations.
- 80 pre- and post-training questionnaire surveys were conducted with islets users (skippers, fishermen and NCG) in the southeast and the north. Analysis of the questionnaire survey and islets monitoring data was done during the lockdown.
- The impact of the COVID-19 pandemic has been very significant on the project and prevented us from completing our planned activities in 2020. The lockdown lasted from the 20 March to the 30 May. After the lockdown was removed, we still could not resume the training activities such as workshops, islets education visits and refresher courses as gatherings were not permitted by the government due to the risk related to spreading the virus. Activities cancelled due to Covid19 lockdown and aftermath: 3 training workshops with islet users, 5 refresher courses, 12 islets visits and 2 certificate awarding ceremonies. Even after the lockdown was removed, we could not conduct



any activities with National Coast Guard officers as they were taken up being posted at quarantine centres and we were told to postpone all activities to next year. Due to Covid19 and reduced number of tourists, a number of skippers/assistant skippers lost their job and thus we received less participants than expected in the north.

- The impact of oil spill from shipwreck MV Wakashio which began on 6<sup>th</sup> August 2020 caused a big ecological disaster in the southeast lagoons and has deeply affected the lives of two of our main target groups for islets training: leisure boat skippers/assistant and fishermen. The Grand Port bay became a restricted zone and the southeast islets were closed from 6th August 2020 until early December 2020. As such we could not complete planned workshops with skippers and NCG, islets monitoring, refresher courses with skippers and educational islets visit with skippers. Most skippers have been facing a livelihood crisis and are doing other jobs and were not available for our training activities.
- Media communication is carried out via Facebook posts. A phone interview was given by the Education Manager and ION News covered the project in February 2020.

## Connecting with nature project

### Background

Following the Education Strategy workshop facilitated by Chester Zoo and held in September 2019 a number of goals for the education project were established. One of these goals was 'Increase the connection between Mauritian people and nature'. This goal was integrated into the Education actions in July 2020 and some of the actions identified implemented.

### Main actions

- Presentation in schools and creation of endemic gardens: 7 PowerPoint presentations were delivered in schools, 6 Connecting with Nature presentations and 1 Southeast Islets presentation. Plants were donated to four schools for the creation of endemic gardens.
- Networking with teachers and religious leaders was carried out in preparation for our workshops next year to explore collaboration with these large groups. The objective is to reach a maximum number of persons and increase their connection to nature.
- We carried out presentations with teachers from 7 catholic schools in collaboration with Action for Environmental Protection (AEP). It allowed us to train teachers but also to network and make connections for the teacher's workshop and future presentations in schools.
- To develop a self-guided tour in the Black River Gorges National Park the education team conducted a first visit to identify a route and stop points to enable teachers to do a tour on their own if they wished.
- The Native Plants and Animals of Mauritius and Discovering Dodos book were reviewed and the new editions will be printed early next year. These books will be given to students attending presentations and also included in the teachers resource pack.
- An article about Biodiversity was written and published in L'Express newspaper on Biodiversity day
- The Education Assistant participated in the shooting of the Ascensia video on biodiversity and ecosystem. The video <https://www.facebook.com/watch/?v=792681684833212> is accessible to MWF to use for our education activities.
- Participation in Public exhibitions where sensitisation was carried out were:
  - Festival Ini'vert at 3 Ascensia malls in July
  - Animal day at Mauritius Society for Animal Welfare in October
  - Cathedral Saint Louis (rencontre des passionnés de la Terre et de la Mer) in October
  - Rajiv Gandhi Science Centre week for 3 days in December

- 'Expo- Vente' cum 'Foire de Solidarité des Jeunes Entrepreneurs' at the Pointe Jerome Youth Training Centre in December

## Invasive species education project

### Background

Following the Education Strategy workshop facilitated by Chester Zoo and held in September 2019 a number of goals for the education project were established. One of these goals was to 'Reduce the release of invasive species and reduce introduction of new exotic species in the country'. This goal was integrated into the Education actions in July 2020 and some of the actions identified implemented.

### Main actions

- Develop relationships and networking with pet shop owners/traders was actioned. A list of all pet shops was put together and the team visited 29 pet shops. The objective of these visits were to discuss with pet shop owners/assistants about the impacts of pets when released in the wild and to encourage responsible pet ownership. This exercise also informed us on the animals that are currently being sold as pets in Mauritius and it also allows us to understand how this trade is locally structured. We will be conducting a workshop with pet shop owners next year and design and produce educational posters and flyers.
- Awareness about invasive species was covered in all our presentations with various stakeholders such as islets users and school children.

## Mauritius Beyond the Dodo

- This Photographic Exhibition on local endemic species was displayed 6 times during the year being available on request for exposure by organisations.
- The panels are also used for public exhibitions where MWF is participating, to illustrate MWF's work.

## Other Education activities

- The report from the Education Strategy workshop facilitated by Chester Zoo and held in September 2019 was worked on in 2020 although finalisation was slow due to the Covid19 pandemic as Chester Zoo staff were regularly put on furlough. The report was complete enough for MWF to utilize it for our Education Action plan for 2020 / 2021.
- The Education programme excluding Learning with Nature was funded by the Mauritius Commercial Bank for the second year running from July 2020.
- Training sessions for education staff were carried out on the following projects to increase their knowledge:
  - plant project at Ferney
  - passerine project on Ile aux Aigrettes;
  - plant project on Ile aux Aigrettes
  - reptile project on Ile aux Aigrettes;
  - Pink Pigeon project at Brise Fer, Black River Gorges National Park
  - a visit to the Mondrain Reserve
  - tour guide training at Ferney

- tour training incorporating the Wakashio oil spill
- assisting flora staff during Wakashio oil spill crisis

## OTHER

### Staffing

#### Training

- Ms Vanousha Pillay, Conservation Biologist with the Echo Parakeet project was chosen to attend the three month Durrell Endangered Species Management Graduate Certificate course (DESMAN) 2020 course at Durrell Jersey which began at the end of January.
- Durrell Conservation Training (DCT) assisted the Fauna projects with training to develop a more structured approach. Key skills associated with Echo Parakeet, Passerine and Pink Pigeon project were identified and assessments devised and carried out.
- The four eco-tour rangers (guides) were put on intensive field training as from 3<sup>rd</sup> June to 15<sup>th</sup> July 2020 which was the period when lockdown was removed and ecotours was closed to 1<sup>st</sup> July with few visitors after that date. Each ranger was allocated to a field staff (one on one) on the following projects: Plants, Passerines, Pigeons, Reptiles spending one or two weeks on each project. They were there to assist the field staff as well as learning about the work. They also assisted for the rat eradication exercise. We received extremely positive feedback from both field staff and rangers.
- A Wilderness First Aid course, organised by Durrell Conservation Training (DCT) and run by Vertical World was held on Ile aux Aigrettes from the 21<sup>st</sup> to 26<sup>th</sup> of October. The course was an intensive introduction to the application of First Aid in a wilderness setting, with a special focus on the challenges faced on Round Island and with a maximum of 6 participants. Priority was given to staff who work on Round Island and islets.

### Movements

We had the following Senior staff movements in 2020:

- Mr Dominique Rene, HR and Office Manager, resigned and left MWF on 28<sup>th</sup> February 2020.
- Ms Martine Goder took up her role of Flora and Education Manager in March 2020.
- Mrs Amanda Maujean (née Ladkoo) returned to the Gerald Durrell Endemic Wildlife Sanctuary in Black River to supervise the MWF operations there after a career break of many years when she had worked for MWF as a handrearer.
- Tasha Chattiyeerkama joined the team as Islands Restoration Coordinator from the 1<sup>st</sup> October 2020.

### Visitors

MWF in 'normal' years receives visits from our overseas partners and collaborators regularly during the year but with the Covid19 pandemic these were severely curtailed and remote meetings were held to discuss project matters and maintain contact. One visit took place.



- Dr Andrew Wyatt, Senior Vice President, Horticulture collections from the Missouri Botanical Gardens along with his staff, Becky Sucher, Senior Manager of Living Collections and Kayla Flamm, GIS Specialist were in Mauritius from 1<sup>st</sup> to 14<sup>th</sup> March 2020. They were accompanied by a candidate who had been short listed for the Technical Advisor Position in Mauritius to show him Mauritius and see if he would accept the post, if offered. This post would support the Rare Plant work focussing on Critically endangered flora. They visited all major collaborators and also carried out some field work. The candidate initially accepted the post but with the Covid19 pandemic restrictions preventing him taking up the post in Mauritius for the foreseeable future, then stepped down.

The following visitors had planned trips to Mauritius and these had to be put on hold:

- Prof Carl Jones, MWF Scientific Director
- Dr Andrew Greenwood, International Zoological Veterinary Group
- Dr Claire Raisin along with two other Chester Zoo Education department staff as a follow up to the Education Strategic Plan
- Alex Hudson, Botanical Gardens Conservation International (BGCI)
- Jared Bosire, WIOSAP, for a preliminary visit to the funded project on Ile aux Aigrettes

## Media Coverage

Regular requests are made from the local media for MWF to comment on current affairs regarding conservation and for visits to projects. Media reports related to Mauritian Wildlife Foundation actions are filed in our library and made available on request.

## Filming

Talk Africa: Mauritius oil spill (CGTN Africa) [22 Aug 2020]

<https://www.youtube.com/watch?v=p8jeoh7v10k>

Mauritian Wildlife Foundation - Au Front ! [31 Aug 2020]

<https://www.youtube.com/watch?v=FZkV3zPwcEg>

'Little Big Whispers' - video composed by Paul Wingfield and Madeleine Cava Beale. It features many artworks from a number of children in UK following the oil spill [3 Sept 2020]

<https://www.facebook.com/MauritianWildlife/videos/1626916640820251/>

Mauritian Wildlife Foundation: Solutions to contain the oil spill in Mauritius - Ocean Innovators [13 Sept 2020] <https://www.youtube.com/watch?v=o2cOj75ojxA>

Île Maurice : cette ONG sauve la biodiversité menacée par la marée noire

[22 Sept 2020] <https://www.youtube.com/watch?v=g6aogu2lqKA>

## Online Media

The following were aired, presenting MWF'S work:

Radio				
Date	Title	Source	Link	Project
29-Jan-20	Emission: Le Dossier Radio One-Corona virus	Radio One	<a href="https://soundcloud.com/r1_maurice/emission-le-dossier-radio-one-du-mercredi-29-janvier-2020">https://soundcloud.com/r1_maurice/emission-le-dossier-radio-one-du-mercredi-29-janvier-2020</a>	Mauritius fruit bat
01-Jul-20	Déconfinement : L'Ile-aux-Aigrettes de nouveau accessible aux visiteurs	Radio One	<a href="http://www.r1.mu/actu/societe/lile-aux-aigrettes-de-nouveau-accessible-aux-visiteurs-p176308?fbclid=IwAR0ziOnVP8aFN15-IDFrk6RFJfmsBKnbW76e4yOJ_FUWSJjmWDB5vptjVAQ">http://www.r1.mu/actu/societe/lile-aux-aigrettes-de-nouveau-accessible-aux-visiteurs-p176308?fbclid=IwAR0ziOnVP8aFN15-IDFrk6RFJfmsBKnbW76e4yOJ_FUWSJjmWDB5vptjVAQ</a>	Ile aux Aigrettes
01-Jul-20	PREND KONTE NU LA TERRE	Kool FM	<a href="https://www.facebook.com/mbcmaurice/videos/285733409504842">https://www.facebook.com/mbcmaurice/videos/285733409504842</a>	
28-Sep-20	Reouverture Ile aux Aigrettes	Radio One	<a href="https://soundcloud.com/r1_maurice/emission-le-club-du-lundi-28-septembre-2020">https://soundcloud.com/r1_maurice/emission-le-club-du-lundi-28-septembre-2020</a>	Wakashio Oil Spill
Television				
Date	Title	Source	Link	Project
04-Apr-20	Nature	MBC TV	<a href="https://mbcradio.tv/article/le-journal-t%C3%A9l%C3%A9vis%C3%A9-avril-04-2020">https://mbcradio.tv/article/le-journal-t%C3%A9l%C3%A9vis%C3%A9-avril-04-2020</a>	Nature-Covid19
24-Apr-20	Earth day planting in Grande Montagne	MBC TV	<a href="https://mbcradio.tv/article/le-journal-t%C3%A9l%C3%A9vis%C3%A9-avril-24-2020">https://mbcradio.tv/article/le-journal-t%C3%A9l%C3%A9vis%C3%A9-avril-24-2020</a>	Rodrigues-Grande Montagne
11-May-20	Endangered species day	MBC TV Rodrigues	<a href="https://mbcradio.tv/article/zournal-rodrigues-may-11-2020">https://mbcradio.tv/article/zournal-rodrigues-may-11-2020</a>	Rodrigues-
22-May-20	MWF Rodrigues event on the World Biodiversity Day 2020	MBC TV Rodrigues	<a href="https://mbcradio.tv/article/zournal-rodrigues-mai-22-2020">https://mbcradio.tv/article/zournal-rodrigues-mai-22-2020</a>	World biodiversity day2020
12-Jul-20	MBC Video Grande Montagne Nature Reserve	MBC TV	<a href="https://mbcradio.tv/article/le-journal-t%C3%A9l%C3%A9vis%C3%A9-juillet-12-2020">https://mbcradio.tv/article/le-journal-t%C3%A9l%C3%A9vis%C3%A9-juillet-12-2020</a>	Fauna-Flora-Rodrigues Grande Montagne

29-Jul-20	MBC Video Wakashio Shipwreck	MBC TV	<a href="https://mbcradio.tv/article/le-journal-t%C3%A9%C3%A9vis%C3%A9-juillet-29-2020">https://mbcradio.tv/article/le-journal-t%C3%A9%C3%A9vis%C3%A9-juillet-29-2020</a>	Wakashio Oil Spill
11-Aug-11	DW interview-Oil Spill	DW	<a href="https://share.ard-zdf-box.de/s/35KBDXyAfKQnHmX">https://share.ard-zdf-box.de/s/35KBDXyAfKQnHmX</a>	Wakashio Oil Spill
13-Aug-20	Interview -Vikash Tatayah on NHK news	NHK news	<a href="https://drive.google.com/file/d/1AWR_4Lc8Xi6eHyF-2A7mcuMaT6Hln1mM/view?ts=5f43a3fc">https://drive.google.com/file/d/1AWR_4Lc8Xi6eHyF-2A7mcuMaT6Hln1mM/view?ts=5f43a3fc</a>	Wakashio Oil Spill
19-Aug-20	Ile Maurice : comment stopper la fuite de fioul ?	JT TF1	<a href="https://www.facebook.com/TF1leJT/videos/1028576227556329/?sfnsn=mo&amp;extid=ASAnTM88ldOJzBsO&amp;d=n&amp;vh=e">https://www.facebook.com/TF1leJT/videos/1028576227556329/?sfnsn=mo&amp;extid=ASAnTM88ldOJzBsO&amp;d=n&amp;vh=e</a>	Wakashio Oil Spill
17-Sep-20	ALU SOWC Webinar. Environmental, social and economic impacts of the Mauritius oil spill.	ALU	<a href="https://www.youtube.com/watch?v=W9NFx5uvunw&amp;feature=youtu.be">https://www.youtube.com/watch?v=W9NFx5uvunw&amp;feature=youtu.be</a>	
23-Oct-20	Reptiles transfer to Jersey Zoo	MBC	in Library	Reptiles translocation
06-Oct-20	MSAW-MWF	MBC	in Library	Feature Education Team
07-Dec-20	IAA-reouverture	MBC	in Library	Ile aux Aigrettes
Online Article				
Date	Title	Source	Link	Project
28-Sep-20	Post-Wakashio : La vie reprend son cours à l'île aux Aigrettes	Le Mauricien.com	<a href="https://www.lemauricien.com/actualites/post-wakashio-la-vie-reprend-son-cours-a-ile-aux-aigrettes/378038/?fbclid=IwAR1tAmztblKOVtD_9yoqpWch6IHqZzWzNQk-3styS-0ImWs3Qth6hm8Jhsc">https://www.lemauricien.com/actualites/post-wakashio-la-vie-reprend-son-cours-a-ile-aux-aigrettes/378038/?fbclid=IwAR1tAmztblKOVtD_9yoqpWch6IHqZzWzNQk-3styS-0ImWs3Qth6hm8Jhsc</a>	Post Wakashio oil spill

## Written media

- There has been a focus on Facebook in 2020 with regular posts about MWF's work or related topics.
- MWF staff in Mauritius and Rodrigues are interviewed and MWF asked for information on numerous occasions which has resulted in many local and international press articles.
- A library is kept of all the articles published in the media and is available on request.



# Local Committees, Consultations and Workshops

## National Committees

MWF continued to actively participate in various national committees: e.g. National Ramsar Committee, Marine Spatial Planning, and in policy dialogues. MWF is represented on the National Eco-School committee.

## Consultations

MWF was invited to discussions arising from the Assises de l'Environnement of 2019. The Assises is a platform for national consultative discussions on environmental issues with a view to adopt a participatory approach geared towards the elaboration of the National Environmental Strategy as well as strategic measures to scale up efforts to address environmental challenges and implement actions for a sustainable environment.

## Conferences and Workshops

These can be overseas or local. MWF receives a lot of invitations but will select to attend on various criteria which include whether it is fully funded (overseas), the relevance to MWF's work or to influence national policy. Some attended were:

- The 9th World Congress of Herpetology in Dunedin, New Zealand Jan 2020 where MWF's work on Gunners Quoin was presented
- UNDP GEF funded project 'Mainstreaming Biodiversity into the Management of Coastal Zone in the Republic of Mauritius' Validation Working Session on 'Development of Management and Action Plan for Pointe D'Esny Ramsar site and the Operational Plan for the Rivulet Terre Rouge Estuary Bird Sanctuary Ramsar site' and 'Communication and Awareness'
- Training and Validation Working Session on 'Economic evaluations of coastal and marine ecosystems for Rodrigues and one District (Black River) in Mauritius, two MPAs (SEMPA and Blue Bay) and the northern coastal wetlands project' on 20 January.
- Mauritius Commercial Bank's Klimat-Neutral 2050 table ronde "Préservation des ressources naturelles et activités économiques : quelles synergies pour demain?"
- Consultative meeting on green economy/climate change (environmental issues) organised Civil Service College Mauritius on 18 March.
- Civil Service College the Meeting on Environment/Green Economy & Climate Change.
- Technical Workshop on Marine Spatial Planning.
- IUCN launch of Nature Based Solutions remotely on the 23<sup>rd</sup> July 2020.
- The second and third committee meeting for the preparation of the sixth national report to the Convention on Biological Diversity at the Ministry of Agro Industry and Food Security in Port-Louis on 6<sup>th</sup> September and 30 November respectively.
- Conservation conference at Ebony Forest on the 3 September where MWF did a presentation about MWF's current and future work.
- Half-day Workshop on Sustaining Livelihoods of Populations Affected by the MV Wakashio Oil Spill on 24 September 2020
- Presentation at Precious Plastic Mauritius on plastic recycling on 6<sup>th</sup> November
- The BirdLife Partnership Africa meeting and workshops on line from 10<sup>th</sup> to 12<sup>th</sup> November 2020
- Workshop organized by 'Donn li so coco' organisation on 26 November: demonstration and explanation about how they make plant pots with coconut husk.

- Workshop on Climate Change and Green Economy: Integrating Learning in the Classroom on 11<sup>th</sup> December 2020.
- Future News Worldwide mini conference held by the British Council on 11<sup>th</sup> December 2020.
- Developing a Management plan for Mondrain Reserve workshop organized by MWF and held on 17<sup>th</sup> December 2020.

## Presentations

- Agence Francaise de Developpement. Journee de la biodiversite. Table ronde 1: « Quelles sont les stratégies? »
- EU-Indian Ocean Commission: Changement climatique: Quels enjeux et quelles actions concrètes en Indianocéanie.
- WIOSAP: In connection with the ongoing project. 'Restoring the integrated terrestrial native habitat and seabird community of Ile aux Aigrettes, Mauritius'.
- Brahma Kumari for World Biodiversity Day: 'Flourishing Futures Nourishing Biodiversity'
- British High Commission - COP26 Climate change Conference 2021 Glasgow, UK – One year to go function: Of Bats and Men.
- British Council: Future News Worldwide Mini Conference: The Portrayal of Bats in the Media.
- Ecole du Centre: Fauna and Flora Conference: The Portrayal of Bats in the Media.
- Director of Public Prosecution's Office conference on Anti-money laundering/Combating of terrorism and Environmental and Maritime crimes: Presented on 'Wildlife Crime in Mauritius' and participated in a round table on the Wakashio oils spill.
- BirdLife 2020 Red List Update: BirdLife, birds and the Red List: setting priorities and saving species from extinction.

## Research and Publications

There are a number of research initiatives being conducted in collaboration with overseas partners and others under development:

- Tortoise movement behaviour
- Optimal survey design and modelling to track species abundance trends
- Weather and soil erosion on Round Island
- The movement behaviour of Red-tailed Tropicbirds
- The movement behaviour of Round Island Petrels
- Impact of invasive ants on Round Island
- Modelling optimal strategies for the translocation of lesser night geckos into the predator packed system of Round Island
- Genetic management of threatened plants and reptiles on the islands
- Determine the success of invasive species eradications and species reintroductions
- Coastal invertebrate communities of the southeast islets in response to the Wakashio oil spill
- Tracking of Pink Pigeons
- Supplementary feeding of Mauritius Olive White-eyes
- PhD study 'Examining the mating strategies of the Mauritius Fody on Ile aux Aigrettes and the consequences for breeding success and population dynamics'
- Efficacy of GoodNature A24 re-setting instant kill traps for maintaining low rat abundance within the Brise Fer mainland island
- PhD study 'The spatio-temporal dynamics of supplementary feeding and its effect on demography and reproductive fitness in sympatrically occurring endangered bird species, namely the Echo Parakeet'
- Genomic research for the Mauritius Kestrel, Pink Pigeon, Echo Parakeet and Olive White-eyes

- A multi-species approach to confirm distribution of Threatened Mauritian birds in the Bambou Mountains (Mauritius) through audiomoths
- Ancient DNA research of cores from Mauritius to describe historical habitats and guide restoration

The following publications were issued in 2020 which had a connection with MWF's work or a MWF author. All publications on Mauritian species are filed in our library and made available to staff and researchers.

Hedding, D.W., Calvert, D.R., Tatayah, V., Cole, N., Ruhomaun, K., Khadun, A., Sumner, P.D., & Nel, W. (2020). A comprehensive study of erosivity and soil erosion over a small tropical islet: Round Island, Mauritius. *Land Degradation and Development*, 1-11. A comprehensive study of erosivity and soil erosion over a small tropical islet: Round Island, Mauritius. *Land Degradation & Development*. 31, 372–382. <https://doi.org/10.1002/ldr.3455>

Ferrière C, Zuël N, Ewen J G, Jones C G, Tatayah V., & Canessa S. 2020. Assessing the risks of changing ongoing management of endangered species. *Animal Conservation*. <https://doi.org/10.1111/acv.12602>

Pasnin O, Sunassee S, Tatayah V, Turner A & Ward C (2020). What will be the environmental impact of the Mauritius oil spill? *African Arguments*. <https://africanarguments.org/2020>

Humeau L, Le Corre M, Reynolds S J, Wearn C, Hennicke J C, Russell J, Gomard Y, Magalon H, Pinet P, Gelin P, Couzi F X, Bemanaja E, Tatayah V, Oussen B, Rocamora G, Talbot P, Shah N, Bugoni L, Da Silva D & Jaeger A. (2020). Genetic structuring among colonies of a pantropical seabird: Implication for subspecies validation and conservation. *Ecology and Evolution*. DOI: 10.1002/ece3.6635

Sumner P. D., Rughooputh S.D.D.V., Boojhawon R., Dhurmea K., Hedding D W, Le Roux J., Pasnin O., Tatayah V., Zaynab A and Nel W (2020, online). Erosion studies on Mauritius: overview and research opportunities. *South African Geographical Journal*. <https://doi.org/10.1080/03736245.2020.1795915>

van der Schyff, V., Yive, K.N.S.C., Polder, A., Cole, N.C., & Bouwman, H. (2020) Perfluoroalkyl substances (PFAS) in tern eggs from St. Brandon's Atoll, Indian Ocean. *Marine Pollution Bulletin*. 154, 111061. <https://doi.org/10.1016/j.marpolbul.2020.111061>

Wilson, R.P., Williams, H.J., Holton, M.D., di Virgilio, D., Börger, L., Potts, J.R., Gunner, R., Arkwright, A., Fahlman, A., Bennett, N.C., Alagaili, A., Cole, N.C., Duarte, C.M., & Scantlebury, D.M. (2020) An “orientation sphere” visualization for examining animal head movements. *Ecology and Evolution*. 2020; 00: 1– 12. <https://doi.org/10.1002/ece3.6197>

# Covid19 Pandemic

## Summary

The first cases of Covid19 in Mauritius were announced on the 18<sup>th</sup> March. Mauritius was put in a state of 'lockdown' as from 6am on Friday the 20<sup>th</sup> and Rodrigues a few days later. The lockdown lasted less than one month in Rodrigues as no cases were reported. The lockdown that was put in place in Mauritius for an initial two weeks was extended twice and by the end of April the lockdown was extended to the 15<sup>th</sup> of May for some 'services' and to 1<sup>st</sup> June generally. The lockdown was removed on 31<sup>st</sup> May 2020 as no new local COVID-19 cases had been detected in over a month. All field staff in Mauritius returned to full time field work in June. Head office was open on 1<sup>st</sup> June with a small contingent of staff with others gradually converting from 'work from home' to being based at the office.

Mauritius remained covid safe for the remainder of the year despite a small scare in November 2020 (see below). Masks were mandatory in public but not worn in smaller gatherings such as workshops or receptions in the later months of the year.

Borders were opened on 1<sup>st</sup> October 2020 with a mandatory, payable 14 day quarantine to enter Mauritius. Tourist and business visas were available.

Work and intern permits were not accepted for processing.

## Conservation Projects over lockdown

All field stations were closed on Friday the 20<sup>th</sup> of March, and the field staff returned home. A team of staff remained on Ile aux Aigrettes covering the essential work with some change of staff during April. The GDEWS staff continued working normally to care for the animals throughout the lockdown, going to work daily on a rosta.

The government established a list of 'essential services' that would be given permits to allow them to continue functioning under the lockdown. MWF made an application for permits and fortunately were successful; the permits were collected on the 6<sup>th</sup> of April. None of the mainland field sites were visited from the 21<sup>st</sup> of March to the 5<sup>th</sup> of April. Fortunately, plenty of food was provided for the birds before the staff left their sites, and there was also plenty of natural food available over that period (including guava fruits, Ravenala flowers etc). As from the 5<sup>th</sup> of April, all field sites were visited at least once a week to clean and disinfect the feeders, provide food and do feeder attendance watches when possible. The Round Island team were not able to return to the island before the end of lockdown.

## Work from Home

For those staff that could work from home, a work log was established so that tasks completed and hours of work could be tracked. All home-based fauna staff continued work on regular data entry, monthly report and annual report writing. All office staff who had laptops continued to work on their usual tasks as far as possible. All staff who had laptops were able to access the internet so this wasn't a limiting factor.

Accounts, who use Navision which is not remotely accessed, needed to be in the office so were handicapped to start with but fortunately the Head of Accounts, Martine Gebert, got a work access permit and was able to ensure some key accounting functions including payroll, funder reports and claims. Internet banking payments were set up with the same conditions and 'signatories'.

Ecotours was closed down but the Manager dealt with paperwork, future plans and working on contacts.

## Rodrigues

Rodrigues obtained their work access permits a few days after their lockdown and a core team of staff looked after the tortoises and the nursery plants.

Only the Manager and Educator were able to work from home as the work all other staff carry out is not computer based but hands on.

Rodrigues lockdown was lifted on the 16<sup>th</sup> April as no cases were registered, to start with precautions were in place such as schools closed and no gatherings of people.



## Post lockdown

The work access permits were renewed in Mid May and MWF added a few more staff to be able to open the Vacoas office and prepare it for 'the end of lockdown' with all the necessary hygiene precautions and procedures.

Head office was open on 1<sup>st</sup> June with a small contingent of staff. A system was put in place to limit numbers in the office while the hygiene precautions were tested. When all was working well staff were free to work from home or work in the office with the permission of their Manager and as long as the smooth running of MWF was not affected. By the end of the year we continued to have a number of staff who work from home for an average of 2 days per week.

Mauritius remained covid safe for the remainder of the year with no further lockdowns. There was a small scare in November 2020 when a quarantined case 'escaped' the system and infected some of his family. The test and trace system worked well with some persons put into quarantine. There was no 'spread'. One MWF staff self isolated and worked from home for 14 days as her relative had some contact with one of the cases.

Masks were mandatory in public ie shops and churches but were not worn in smaller gatherings such as workshops or receptions in the later months of the year.

Borders were opened on 1<sup>st</sup> October 2020 with a mandatory, payable 14 day quarantine in a hotel on entry. There are a number of hotels to chose from with a range of prices. Tourist and business visas were available and one student has availed themselves of this facility to spend 3 months in Mauritius. Work and intern permits were not accepted for processing which has impacted MWF staffing over the breeding season.

# Wakashio Shipwreck and Oil Spill



## The shipwreck

On Saturday July 25<sup>th</sup> 2020, MV *Wakashio*, a Panama flagged tanker carrying over 4000 tons of heavy oil, lubricants and diesel ran aground off South East Mauritius, two km away from Ile aux Aigrettes. The vessel was enroute to Brazil when it hit a coral reef, about three km off Pointe d'Esny and in the vicinity of two important Ramsar sites (Blue Bay Marine Park and Pointe d'Esny wetlands), nature reserves (eg Ile aux Aigrettes) and islets national park. The vessel was not carrying any cargo.

In the days that followed, booms were deployed at the entrance of the Blue Bay Marine Park. There were efforts made to deploy booms to protect Ile aux Aigrettes but some technical problems were encountered.

On Wednesday the 5<sup>th</sup> of August, Dr Vikash Tatayah, was informed that there was only a low probability of oil spill from the *Wakashio* ship run aground at Pointe D'Esny, the same message that had been received in the previous days. He had been convened to a number of meetings in this regard.

A three tier protocol was prepared by MWF in order to be prepared to respond to different levels of threat.

## The oil spill

On the morning of Thursday the 6<sup>th</sup> of August, Dr Tatayah received a message that there was a strong probability of an immediate oil leakage from the ship. The MWF contingency plan was put into action based on the fear that Ile aux Aigrettes would become inaccessible and the impact of the oil spill was unknown. The additional fear was that the wreck would break up further and a much greater quantity of oil would flow into the lagoon, threatening Ile aux Aigrettes, Mauritius fragile marine ecosystem and the turquoise blue pristine lagoon.

At that point, all Mauritian Wildlife Foundation senior staff involved with the island travelled to Ile aux Aigrettes (IAA) to begin emergency measures to safeguard the native and endemic species on the island.

On arrival at Pointe D'Esny it was clear that the oil leakage was substantial, and that the situation was already severe. In the event, over 1000T of oil was spilled. A serious oil leakage presents a number of threats to the native and endemic biodiversity on the island in a number of ways, including:

- Fire
- Toxic fumes from fuel
- Exposure to toxic chemicals

Due to the severity of the oil leakage that day, and the speed at which the situation was developing, the MWF contingency plan went directly to tier three. The field station was closed and all visitors and non-essential staff evacuated the island. The measures taken to protect the native and endemic biodiversity on the island were put into action.

The current took the oil past Ile aux Aigrettes and with the changing tides some of it came in contact with the island. Booms were then deployed which caught some of the oil. Within days, the oil patch moved further up north and reached the three islets overlooking the Mahebourg bay, Ile de la Passe, Ilot Vacoas and Ile au Phare, key habitats for endemic reptiles such as Bouton's and Bojer's skinks, extinct on mainland Mauritius. The oil spill impacted on the pristine lagoons, coral reefs, mangrove forests and biodiversity with shorelines covered with black sludge. An environmental disaster was announced.

While 3,000T of petroleum products remained in the ship there was a serious risk of a much worse oil spill. Pumping was too dangerous while the weather was bad with high waves but fortunately there was a week when the sea was calm and most of the oil was pumped out of the ship. Subsequently the ship broke in two, there was a further oil spill which was mainly contained, the bow was towed away and sunk off Mauritius and the rear of the boat was cleared, to the maximum possible, of toxic products. The rear section of the boat will be removed in 2021.

## Oil spill actions: Fauna

### Birds

Of the birds that were present on the island, the Mauritius Olive White-eye (*Zosterops chloronothos*), listed as Critically Endangered by the International Union for Conservation of Nature (IUCN) Red List of Threatened Species, was prioritised for removal due to its critical conservation status. 12 individuals were captured and collected from the island over two days by MWF Fauna Manager, Sion Henshaw and his team. They were transported to the Gerald Durrell Endemic Wildlife Sanctuary (GDEWS) by the National Parks and Conservation Service whose permission was required to move the birds. They were to be kept captive as a temporary measure whilst the situation on the island could be assessed. 12 individuals constitutes roughly 20% of the population on the island potentially containing important unique genetic characters to be preserved in the event that the Ile aux Aigrettes population was lost. There are populations on the mainland, but the numbers are relatively low, there are a number of existing threats, and the population may be in decline.

The Mauritius Fody (*Foudia rubra*), considered Endangered, was considered less of a priority due to its better conservation status. Populations on the mainland are relatively stable, however there are no protective measures in place for those populations currently, and so it was considered important to collect at least a sample of the island's population so that any unique genetic characters might be preserved. Six individuals were collected on the 6<sup>th</sup> of August and were brought to the GDEWS to be kept captive as a temporary measure whilst the situation on the island could be assessed.

For both passerine species it was decided that captivity was the best temporary solution, as a hard release in to the National Park, or other areas of suitable habitat, was likely to have very low levels of success: the birds would either fly back to Ile aux Aigrettes or there would be a low survival rate.

The Pink Pigeon (*Nesoenas mayeri*), listed as Vulnerable, was not collected from the island due to its more robust conservation status, the small population size on Ile aux Aigrettes and due to the fact that

there are multiple protected populations on the mainland that have good population size and are in most regions stable or increasing.

On Saturday 8<sup>th</sup> August 2020 a meeting was held to assess if further birds should be removed but as there were risks putting wild birds in captivity this was decided against. Staff wearing personal protective equipment visited Ile aux Aigrettes for short periods a few times a week to monitor the situation and feed the birds.

The birds brought into captivity at GDEWS were housed in existing cages individually but as these were small, larger cages were designed and manufactured to reduce the stress on the birds. An additional staff with prior expertise was recruited to take care of the birds. While transferring the birds to the new cages one Fody was found dead the following day. This was the only mortality in captivity.

## Reptiles

Some juvenile Aldabra Giant Tortoises (*Aldabrachelys gigantea*) from the islands of the Aldabra Atoll in the Seychelles, a species introduced to Mauritius as an analogue for the Mauritius Giant Tortoise, were removed from the island. These juveniles are kept in captivity to head start them and for education purposes and so need caring for. In the uncertainty of whether staff would later be able to access the island to look after them, they were removed and housed in several places including La Vallée de Ferney field station aviaries.

The adult individuals who are wild on the island were considered able to look after themselves. In addition, although these tortoises are extremely valuable to conservation for the ecosystem services they provide, they are not native and there are also numerous populations of these tortoises in Mauritius.

There was considerable concern for the reptile populations on the South East Islets. Dr Nik Cole, Island Restoration Manager, visited the Islets on Sunday the 9<sup>th</sup> August and noted the presence of oil and fuel on the coastline. Although we cannot predict with certainty what the long term impacts of the spill will be for these reptiles, we know it is likely to cause population decline and genetic degradation within the island populations. Therefore, permission was sought and obtained to remove a small number of reptiles from each island to capture their genetic diversity and to establish captive assurance populations. This involved setting up a biosecure captive holding facility to ensure the safety and wellbeing of the reptiles. Collection took place on Thursday 13<sup>th</sup> August 2020 during the day and night of 30 Bojer's skinks, 6 Bouton's skinks and 30 lesser night geckos. The reptiles were cared for in the captive facility while permissions and arrangements could be made to get the reptiles to Jersey Zoo for professional long-term care. This was extremely complicated as, with the COVID situation, there were hardly any commercial flights to send them and also airlines cannot adequately maintain the temperature within the animal hold during flight, which generally is not a problem for cats and dogs, but it is for small reptiles. After much planning and negotiation, these reptiles left Mauritius early on the 14<sup>th</sup> September and all arrived safely at Jersey Zoo the following evening, after an overnight stop at the border inspection post at Heathrow, UK. There were no mortalities.

## Bats

Four rehabilitated Greater Mascarene Flying Fox (*Pteropus niger*), listed as Endangered, were kept in an aviary on IAA as a means of education and awareness raising. All four bats were removed from IAA on the 8<sup>th</sup> of August due to the likelihood that access to the island might be impossible in the event of a large oil spill and they would not be able to be cared for.



## Oil Spill Actions: Flora

Native and endemic plants are propagated for restoration on IAA in our plant nursery. Around 4,000 native and endemic plants on IAA were removed over the course of three days from the 8<sup>th</sup> of August by Flora Manager Martine Goder and her team. They were removed due to the likelihood that access to the island might be impossible in the event of a large oil spill to take care of the plants and in case there are other impacts such as the fumes and particle deposits. We received three offers to house the plants, Forestry in Mahebourg, National Parks in Curepipe and Ferney. The Forestry offer was accepted as it was nearer for the staff to go to look after the plants and less transport to get them there. The rarest plant species (listed as Critically Endangered) were taken for safekeeping to a secure facility in Mahébourg.

Around 1,100 plants were delivered to Omnicane Limited for a forest restoration project. The remaining plants were taken by the Forestry service for safekeeping; space was made in their Mahébourg nursery to accommodate these extra plants and they were cared for until they were able to be taken back to Ile aux Aigrettes.

## Oil Spill Actions: Other

### Oil removal

MWF staff using *the Kestrel*, MWF's ecotour boat supported the oil pumping effort working with the National Coast Guard. Two tanks were installed on the boat and the thick oil on the waters caught in the boom near the Ile aux Aigrettes coastline was pumped into the tanks. The boat then returned to the mainland to be emptied, and the process repeated. Having removed the oil near Ile aux Aigrettes the team moved up the coast to Mahebourg water front and then Riviere des Creoles. MWF also assisted to remove contaminated booms.

### Surveys for oil pollution

Staff have participated in the surveys for oil spill damage in the lagoon and at meetings tried to ensure all the small islets were also taken into consideration to see if they needed cleaning.

### Volunteers

MWF was overwhelmed with offers to help both from individuals and corporates for their staff. We created a register. None of our actions needed large numbers of persons but we called on volunteers to help where needed, eg transfer of plants, to help carry and help transport. To look after the birds at GDEWS. At first we understood that civil society may be helpful to clean up but we dissuaded persons to go and do it before the oil had been sucked up from the lagoon and the proper protective equipment and techniques were known. Subsequently we learnt that the companies hired to clean up did not want to manage volunteers but would employ fishermen from the region who were unable to earn their normal living. We did advise helping with construction of booms although we were not involved in the organization.

### Oiled Animals

We worked with NPCS and PAWS to be able to communicate a procedure for the general public to follow if they found any oiled animals. We were contacted by a number of overseas organisations who offered assistance to clean animals. This information was passed to NPCS who set up a facility to deal with oiled seabirds at Bras d'Eau. MWF acted as a facilitator.

Fortunately, there haven't been any records of seabirds affected, with only one Green Heron which died before treatment and a hawksbill turtle.

### Communication

We communicated regularly on Facebook and gave many interviews both local and international with Dr Vikash Tatayah, Conservation Director and Mr Jean Hugues Gardenne, Fundraising and Communications Manager, granting interviews late into the evening.

We organized to take photos of the actions MWF took with dates and times for the records.

There were a series of webinars organised on the subject of the oil spill and on Tuesday 18<sup>th</sup> August 2020 Dr Vikash Tatayah participated as part of a panel of specialists discussing various aspects of the impacts of oil spills and the approaches to take.

## Staff

Our staff have been fantastic. Everyone did what was needed to be done and helped out other projects when they were able to do so. There were staff who were front line to deal with the crisis and others who ensured these staff were both supported and that all other functions of MWF continued. Mrs Deborah de Chazal, Executive Director, was key in this role along with Mrs Martine Gebert, Head of Accounts, assuring the financial functioning of MWF.

## Meetings

MWF was invited to many government meetings, at the height of the oil spill it was usually at least one per day if not several. Dr Vikash Tatayah, Conservation Director, coordinated this and delegated to Mr Danny Thisbe, Ecotour Manager mainly but also to Ms Martine Goder, Flora & Education Manager, (both living in the locality), when he was unable to attend.

These meetings also included site visits with different experts and advisors in order to assess the level of impact and to collect various samples and discussions on insurance claims, social impacts, health impacts, communications, etc.

There have been many other meetings both physical and virtual.

There are many overseas consultants and specialists who have arrived to support the effort to address the oil spillage.

Insurance Claims have been discussed and a number of options suggested. This is an issue MWF will need to make a decision on in 2021.

## Monitoring and Research

MWF is participating in the preparation of the Integrated Monitoring plan and will carry out a part of the monitoring.

With MWF monitoring so many species on Ile aux Aigrettes and the South East islands for many years, there is an excellent base for comparison with future data to identify any impacts of the oil spill on biodiversity.

## Cleaning of Ile aux Aigrettes

By 7<sup>th</sup> of September, there had been extensive cleaning of the oil from the lagoon, and the oil deposits around the island had declined as a result of washing by the sea. The smell of oil fumes on the island had decreased substantially and were no longer consider a significant direct threat to the birds on Ile aux Aigrettes. The cleaning of the Ile aux Aigrettes coastline by the 'Polyeco' contractors, with absorbent pads and low pressure water flushing, began on 7<sup>th</sup> of September.

Due to the specialist nature of cleaning we took the decision to bring in an independent consultant, Anne Reglain, to advise on the methodologies to agree to for the cleaning on Ile aux Aigrettes as well as the South East islets, as we were getting conflicting advice and opinions. Ile aux Aigrettes is especially complicated as the coral had absorbed oil and there are many holes and caves where the oil had seeped. The oil needed to be flushed out. Vegetation on the edge of the island was oiled and has needed to be trimmed. The cleaning methodology was agreed by all concerned and the cleaning of Ile aux Aigrettes was completed and signed off on 23<sup>rd</sup> November 2020.

## Return to Ile aux Aigrettes

Following the decrease in oil fumes by the 7<sup>th</sup> of September, the extensive cleaning of the oil from the lagoon and the cleaning of the Ile aux Aigrettes coastline it was decided that the staff could resume normal working on the island as from the 14<sup>th</sup> September.

The rescued passerines were re-released on the island on the 15<sup>th</sup> of September. The tortoises, bats and plants have also been brought back in stages in September and early October.

We had to wait until 4<sup>th</sup> December for permission to bring visitors onto the island mainly due to the area being restricted, the authorities waiting for the cleaning of the island to finish and the constraint that the lifting of restrictions needed to apply to a cross section of lagoon users. Ecotour activities re-opened on 7<sup>th</sup> December 2020.

## Effects of the Oil Spill on terrestrial biodiversity

An undescribed endemic cricket, the Ile aux Aigrettes cricket, has been significantly impacted, as its habitat and feeding area was the coastline which was coated with oil. Since the oil spill no crickets have been seen. There are other populations on the south east coast, but they may have all been oiled as well.

To date we haven't identified any adverse direct effects on the animals on Ile aux Aigrettes but there were indirect effects from the decision to remove some birds. One juvenile Mauritius Fody died in captivity, probably due to stress. When the passerines were reintroduced to Ile aux Aigrettes there was a lot of intraspecific aggression over feeders and territories with territories having changed significantly with different pairs having moved into vacant territories. This caused the death of two released birds.

Recent monitoring is indicating a decline in the reptile population on Ile aux Fouquets and the seabird population on Ile de la Passe.

During the oil spill, some of the overhanging vegetation found around the coast of Ile aux Aigrettes, comprising of *Pemphis acidula* and *Suriana maritima*, was splashed with oil in areas where oil has accumulated around the island. The affected plants were trimmed and the plant materials were discarded appropriately. To date we are not able to judge if the plants will survive.

## Financial

We were overwhelmed by the sympathy and support we received from Mauritius and all over the world which resulted in so many offers of help and translated into financial donations.

We had immediate costs: removal of birds and plants from the island, looking after the birds and the plants on the mainland, returning the birds and plants to Ile aux Aigrettes, protective equipment, removal of reptiles and looking after them on the mainland and sending them abroad, supporting the oil clean up, employing a consultant to advise on the cleaning of the islands, contributing to national meetings. We were immensely grateful that all these could be paid for without worry. We also recognise that we can't predict what we might face in the future but will implement monitoring to be able to identify issues arising (see above). All surplus funds will be held to enable MWF to address these future issues. All funds connected to the oil spill have been allocated to the 'Wakashio Fund' in 'Income in Advance'. This enables us to retain the funds separately and control their release as and when required.