Frégate Island Private in the 21st century:

An eco retreat yesterday, today, tomorrow – Quo Vadis?...

Frégate Island, an erratic granite block off the African mainland, a remain, a splinter of the bursting ark-continent of Gondwana hundreds of millions of years ago... Far enough away from the main evolutionary developments, the granite islands of the Seychelles for millennia stayed in the shelter and allowed the existence of secluded pockets of untouched nature. And many species of the animal kingdom and plants from long, long passed days survived almost untouched until man arrived in the late 17th century!...

In absence of better knowledge, in lack of scientific research and in sheer need of physical and economical survival, man has trampled into paradise, brought along plants, pests and rodents and jeopardised an equilibrium that Mother Nature has established and maintained since the early days of existence. The impact was immediate and irreversible upon to this very day: Rats, cockroaches, coconut trees, cats and dogs, coco plums, and many more invasive species have challenged what was the Garden of Eden.

Many creatures and plants are since lost forever, some stand or stood on the verge of extinction. Here on Frégate Island, too. And it is thanks to the initiative and the foresight of the owner of Frégate Island that the wheel of time was halted 10 years ago and the pendulum is swinging back ever since.

THE PAST

The Frégate Island Ecological program focussed initially on the rehabilitation of the surface, terrain, soil and flora after 200 years of extensive coconut and cinnamon monoculture industry which had been practiced on this island.
Why would rehabilitation be necessary one would perhaps enquire?

A quick stroll into a previous cultivation plot says it all: The coconut plantations had effectively dominated and displaced virtually all the endemic species of flora and in so doing denying essential habitat to the native fauna and particularly to the avifauna.

Consequently our first steps were to clear large swathes of the overgrown coconut jungle, leaving behind only the adult coconut palms as required by local law. Thereafter followed the set-up of the largest nursery in Seychelles, dedicated to the propagating of tens of thousands of indigenous/endemic trees which were required for the landscape and rehabilitation program here on the island.

Concurrently, we initiated a very comprehensive and detailed conservation program which has been extraordinarily successful in bringing back the various species previously adversely affected by man's activities to viable numbers on Frégate Island.

Conservation activities focused on the Seychelles Magpie Robin, currently classified the world's 7th rarest bird, of which ten years ago only 22 individuals remained alive in the world, all here on Frégate Island. Furthermore, on the Seychelles White-eye, another critically endangered species, the Aldabra Giant Tortoise program and the Seychelles Terrapin program to name but a few. All the above have required specific and intensive habitat restoration, and at the same time conservation management practices to suit each particular program.

Common themes implemented that benefited all the above programs required the undertaking of the highly complex rat eradication exercise, the complete elimination of all the feral cats on the island, and the ending of all pesticide use in the outside landscape. The results of these timeous actions now speak for themselves. The integrated approach to conservation management has produced both astounding and easily measured results and this successful conservation management formula is now widely copied around the Seychelles.

In every case, the targeted species being conserved have recovered remarkably well and in a relatively short time span.
The results:

**Seychelles Magpie Robins**  
(Copsychuss echellarum)  
up from 22 in 1995 to an amazing 160 in 2010, excluding the 4 family groups we have trans-located to other Seychelles islands to make the species less vulnerable and preserve the genetic diversity.

**Seychelles White-eye**  
(Zosterops modestus)  
up from 31 birds to over 200 and counting.

**Aldabra Giant Tortoises**  
(Aldabrachelys elephantina)  
up from 180 to over 1,500, making this the second largest population of wild tortoises left in the world, behind the Aldabra Atoll.

**Seychelles Black Mud Terrapins**  
(Pelusios subniger parietalis)  
up from just 8 individuals to over 287 today, without doubt the biggest surviving population in the archipelago.

**Endemic flora**  
Almost 80% of the surface of Frégate Island has been reset in its original status; over 80,000 endemic/indigenous trees, shrubs, flowers and bushes have been planted and have re-colonised their original habitat.

**A philosophical Question**

Irrespective of the existence of a hotel operation, all animals and plants have adapted so well that Frégate Island has become a leading example of how to establish a balanced coexistence between man and nature or nature and man and the question of mutual intrusion is merely obsolete. Whilst man enjoys the wildlife on hikes and beach walks, birds, insects and reptiles enjoy the achievements of man-made infrastructure in their very own way, thus ylang ylang thatch becomes a well sought after nesting product, paved ways along a last warm-up before bed (nest) and rubble walls the hideouts from sun and rain...

So the question is not so much why is nature intruding our spheres but far more how can we minimize our intrusion into mother nature’s garden and how can our impact be reduced?  
Nature gives its very own answer: With all necessary care, respect and sustainability provided by us, nature in return adapts, adopts and coexists in harmony and peace!
The successes above neatly illustrate how the unique Frégate Island concept of combining (intangible) luxury and nature benefits all: We depend on nature, whilst nature nurtures us.

The real Jurassic Park

Not so much computer animated T-Rex’ and Raptors are running over kitchen installations but the true survivors of a long past era are what our guests can encounter whilst visiting this little haven of tranquillity, peace and pure nature.

Among the most astounding examples of the dinosaur age is the tenebrionid beetle which occurs nowhere else on this planet than in the remote forests of Frégate Island, a maybug size creature which spends it life on tree trunks of specific trees. Totally unique!

![Tenebrionid Beetle](image)

The Seychelles giant millepede is the even more amazing relic for the dinosaur age: Its function compares to the one of the modern day earth worm which contributes to soil fertility and the prevention of widespread erosion.

THE PRESENT

During the ‘turnaround’ phase of any serious conservation program, constant and ongoing management is required to keep the specific programs on track, because successes are easily reversed by complacency in allowing the negative influences of the past to return.

This threat gradually diminishes as the target species being conserved recover and increase their numbers to sustainable, viable levels.

At the point where optimum numbers of any species fill the existing habitat, the species tends to dominate in such a way that the expansion of territory, the reproduction and the behaviour within the habitat comes natural and confident and the creature becomes much less vulnerable to negative environmental factors.
Suffice to say, that we remain very vigilant in maintaining and building on our successes. After all, so many of our guests come to Frégate Island specifically to enjoy the ‘Nature Experience’ which surrounds us here.

A particularly pleasing development has been the enthusiastic and active participation and involvement by so many of our guests in our various conservation programs:

The Juvenile Tortoise Program is a particular favourite and targets the safe nursing of baby Aldabra Tortoises from hatching to the age of about two to three years; the guest taking God-parenthood over a little tortoise directly fund the continuation of this specific conservation program here on site.

A few guests have even been moved to make substantial monetary donations specifically to have areas of the island rehabilitated in their honour. One such program is underway since spring 2007: A plot of well over 60,000 sqm is cleared from any invasive species and reconstituted in a sustainable and endemic way. In 2009 we celebrated planting the 100,000th tree since reforestation of the island began in 1998.

These caring actions by caring guests have become an obligation to uphold and we consider all this to be our rare honour and an endorsement of the work we do.

The creation of 8 hiking trails re-enforces the philosophy of making the entire island accessible to our guests. Discreetly we have enabled the discovery of the corners of Frégate Island, in combination with services provided by the hotel from organic picnics to bird watching over a glass a champagne to dinner charmed by fairy terns in a high-up tree house always remembering that it is the entire island which constitutes the resort!
Nature walks with the resident ecologist are offered daily and have proven to be among the most popular experiences with guests on the island. The perception of what Frégate and its ecological achievements are all about remarkably enhance with every guest returning from an inside trip to the island. The green jungle turns to a kaleidoscope of varied plants, trees, creatures big and small and what seemed a wilderness of barely to be penetrated, suddenly becomes the lungs of this island and the home of thousands of inhabitants where everybody relates to everybody in its unique and particular way.

The same is true for the ‘Plantation Experience’...where guests are shown around in the areas where vegetables, fruits, herbs and spices are grown, picked freshly twice daily and form the basis of the island cuisine and Spa concept.

We constantly host students as well as senior scientists on the island sharing with them the lessons learned here a great step forward in ensuring that conservation will always be the dominant theme for Frégate Island.

Consistently we are supporting charitable projects to help the less fortunate in our society. In 2008 we gave a starting kit to every first grade pupil in the entire country stationery items to state school pupils around the country. In 2009 we started to support 51 orphans of the orphanage ‘Presidents Village’ with a weekly supply of fresh fruits, vegetables and spices from our plantation (2,5-3t per
The children receive now a supply of fresh fruit, vegetables and spices every week. As this is essential for the wellbeing of the children we extended at the beginning of 2010 the supply to the other two orphanages in the Seychelles. These are orphanages of the Catholic Church, one for girls and one for boys. Now 84 orphans between 0-16 years of age receive our fresh produce weekly (4.5-5t per year).

Whereas the first decade of operation saw all efforts focussed on the creation of a unique and unrivalled ‘Nature Experience’ in the Indian Ocean, the second decade started by broadening this perspective to include the carbon negative concept as an integral part of the resort operation.

Our conventional system of diesel powered generators started to look positively outdated and old fashioned and therefore we invested a lot of research into new emerging energy technologies.

As a start all staff quarters at Frégate already have solar assisted hot water systems. Solar technology and its efficiency and possibility of its storage are improving rapidly, so the concept will be greatly expanded. All roof areas on the back of house, service buildings are covered with high efficiency solar panels that produce energy during daylight hours to be fed directly into the island energy grid mainly for the laundry and the engineering and storage area.

Furthermore, our individual guest buggies are solar assisted vehicles, too, and all diesel/petrol buggies were phased out in 2008.

Another innovation is the recycling of our used vegetable frying oil from the resort kitchens. We currently have an island tractor running on a mixture of diesel combined with used frying oil with very satisfactory results.

Our rain water collection system collects the water from about half the roof surface of our back of house/ maintenance area. With surprising results! On an average day with passing average rain falls we collect about 30,000l of water, on a heavy rainy day the collected water surpasses the total capacity which we have installed of 60,000l. Encouraged by these results we will now start to complete the 2nd half of the roof surface.

Bearing in mind that we count approx. 100 rainy days a year with an average amount of 30,000l of water, this sums up to approx. 3,000,000l of collected rain water per year. This system it dramatically reduces the need to pump and desalinate water from the island’s underground sources, reducing energy consumption by 400kwh. Over and above, rain water is very soft and contributes tremendously to a gentler handling of laundry and kitchen operation.
A Vision

In a world which is dominated by symposia targeting topics such as global warming, changing climatic patterns, the melting of the eternal ice, the destruction of the lungs of our planet and the pollution of our natural resources it may not come as a surprise that Frégate Island undertakes particular emphasises and contributions to the discussion: having led the ecology discussion in the Seychelles over the last 10 years and having been on the forefront of technology we again reach out and set the bar as high as we can possible think and are aiming for a negative carbon footprint and setting unique standards in regards to homogenous integration of a tourism operation into a natural retreat, on land, on the beach and off the beach!

THE FUTURE

This decade will further broaden the perspective to include the carbon negative concept as an integral part of the resort operation.

Frégate Island was always the innovator in the Seychelles. The present worldwide discussion on reserves but also actual market process for fossil fuels challenge us and consequently we are preparing for our upcoming revolution in our energy supply program for the resort which will follow again pioneering routes.

We will invest a lot of research into new emerging energy technologies. We do not foresee a single technology to be capable enough to replace diesel but a combination of various technologies as well as the substitution by carbon free and renewable fuel sources; working together we will progressively lessen our dependence on fossil fuels.

A further hope lies in the harnessing of sustainable, yet renewable resources and we plan to substitute diesel completely by non fossil fuels. We have millions of coconuts growing right here on the island and we have already conducted experiments on the island using pure coconut oil of food grade level to power diesel engines, with most satisfying results.

In order to validate the success and impact of all these measures on the overall eco balance of the island we decided not to pursue with any commercially motivated eco label, but rather to stick to a pure scientific approach. Therefore we prepared in cooperation with ETH Zurich a Two Phase Island Assessment a) Carbon Footprint Analysis and b) Triple Bottom Analysis.

The analysis showed that we belong to a system with many by-systems which all depend on each other. All levels of staff will be integrated more into the process of
developing and living our vision and goals. The indicators, monitoring program and management process has to be finalised, a broader sustainability needs to be collaborated and implemented. This is an ongoing process we will take care of.

One of our projects is we plant 2 additional trees for every new arrival. A rough calculation results into a guest - tree ratio of 1:17,600 trees. With an inventory of somewhat well over 700,000 trees on the island and an estimated offsetting of approx. 6 t of CO\(_2\) per tree per year, Frégate Island Private at the moment absorbs a rough 4.2 million tons on CO\(_2\) a year.

This goes hand in hand with the initiative to plant the above mentioned largest endemic tree nursery and is an ongoing process. In 2009 we celebrated planting the 100,000th tree since reforestation of the island began in 1998.

Furthermore we applied for a marine protect belt of 700m around Frégate Island. If we achieve this we can protect our coral reefs, the Hawksbill Turtle (Eretmochelys imbricata), which comes each year for breeding, and the real octopus (Octopus vulgaris) from being fished. On the other hand this belt would avoid that any rodents or other mammals predators such as rats from external boats reach and harm our island and its fragile ecosystem ever again (rats can swim over a distance of 500m).

New emerging technologies currently being investigated for possible use are contained in the very seawater that surrounds us: One possibility is to harness the latent heat in the warm, shallow water around the island, respectively the cool sea water in low depths off the island, another possibility is to exploit the weak electric current that is inherent in the osmotic pressure from sea-water to less or non-salty water.

We believe that by inventing, yet exploiting a combination of the above ideas, we will with immediate effect start to reduce our CO\(_2\) emissions and within reasonable mid terms time we shall achieve our goal of carbon negativity. Frégate Island will once again show the way forward for the Seychelles and possibly for many other islands and even cruise ships that in a very similar way depend on self generated power supply.

Our undertaking have largely been acknowledged not only internationally by our many guests, countless scientists but also by the local government; so much in fact that our Ecology Conservation Program is discussed to becoming the blueprint for the eco development of the Republic of Seychelles.

Frégate Island - the little laboratory for a better world

And albeit being in a remote little destination and operating our own little cosmos with all it needs to support and operate an entire island with a hotel and the
infrastructure that is needed to do so, we thoroughly wish that our achievements may be a leading example for any larger maxi cosmos there is out there.

It is our determined commitment to share the results of our experiences, our investigations, our successes, our hits and flops we encounter day in and day out with the rest of the world.

May the results of our work be a contribution to a better future of our planet!