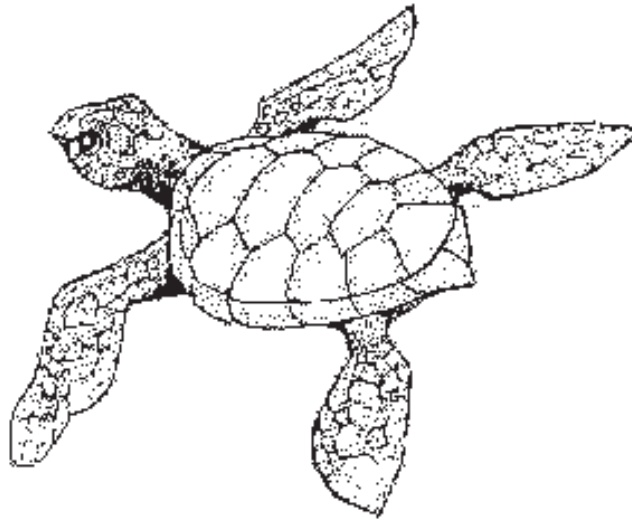


NATURE PROTECTION TRUST OF SEYCHELLES



RESEARCH AND MONITORING

ANNUAL REPORT

2010

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ACKNOWLEDGEMENTS

NPTS is grateful to Labriz in logistical support and assistance with forest restoration. We are also grateful to the Sussex University School of Geography for monitoring assistance.

A. ORGANISATION BACKGROUND AND CAPACITY

Nature Protection Trust of Seychelles was established in 1992 as a non-profit-making, non-governmental organisation dedicated to furthering the conservation of nature in the Seychelles islands, through informed scientific research to conserve species by conserving their habitats. Fulfilling its aim of promoting education, study and research in all fields of natural history the NPTS publishes two journals. The annual scientific journal, “*Phelsuma*” deals with all aspects of nature within the entire western Indian Ocean and includes reports on all NPTS projects. “Birdwatch” is a quarterly publication containing news and anecdotes concerning the natural history in the islands.

NPTS manages the Silhouette Conservation Project (ecosystem conservation and research) and the Seychelles Giant Tortoise and Seychelles Terrapin Conservation Projects (research, captive breeding and reintroduction). Within the Silhouette Conservation Project there are special research projects on Seychelles sheath-tailed bats, sooglossid frogs and climate change. In addition NPTS is investigating the conservation needs of the sheath-tailed bat on different islands in conjunction with the Ministry of Environment. In 2000-2005 NPTS managed the Indian Ocean Biodiversity Assessment researching species status and diversity on all of the Seychelles islands, results of this are being published as a series of taxonomic monographs. NPTS has capacity in taxonomy, ecological research and ecosystem conservation.

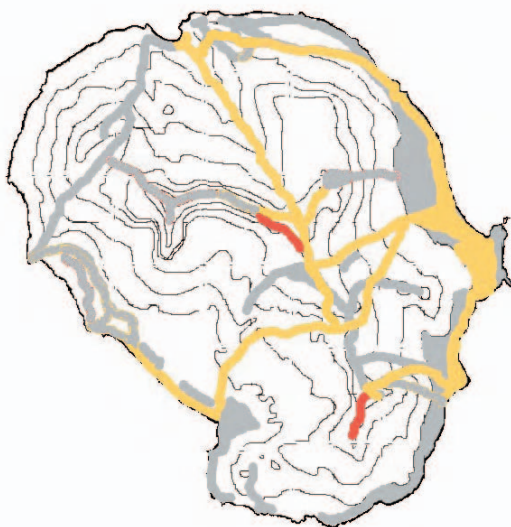
B. RESEARCH AND MONITORING

1. SUMMARY

In 2010 habitat monitoring for vegetation, invertebrates, vertebrates and climate were maintained. Ongoing deterioration of reef-flat habitat and mist forest was recorded. Seychelles sheath-tailed bats recolonised a previously occupied roost site.

In December 2010 the Islands Development Company gave NPTS notice of eviction from Silhouette. Despite appeals to the Ministry of Environment by NPTS and international supporters no support was provided by government and NPTS research and conservation projects on Silhouette had to be terminated. The NPTS office was closed down by IDC at the end of March 2011 and the NPTS Information Centre is threatened with demolition by IDC at the end of May 2011. Some projects were terminated in December 2010, others ran until March 2011. All these projects are reported on in full here, to their date of termination. Silhouette now has no research or conservation management.

Areas surveyed in 2010. Grey – visited before 2010, orange – visited in 2010, red – new areas visited in 2010-2011



2. SPECIES

2.1. Birds

2.1.1. Landbirds

Landbirds recorded in point-counts at three sites in March 2010 (La Passe, Jardin Marron, Mon Plaisir):

	La Passe		Jardin Marron		Mon Plaisir
Habitat	lowland coconut habitat		mid-altitude forest		moss forest
Altitude	30m		390m		550m
Points	5	5	5	5	3
	un-managed	managed (10 yr)	un-managed	managed	un-managed
Seychelles bulbul	0.2±0.45	0	[heard]	[heard]	6.67±5.51
Seychelles sunbird	0.2±0.45	0	[heard]	[heard]	0.33±0.58
Madagascar fody	[heard]	[heard]	0	0	0
Indian mynah	0.4±0.89	0	0	0	0
ground dove	[heard]	0	0	0	0
tropic bird	0	0	0	1	0.33±0.58
blue pigeon	0	0	0	0	0.67±1.15

2.1.2. Seabirds

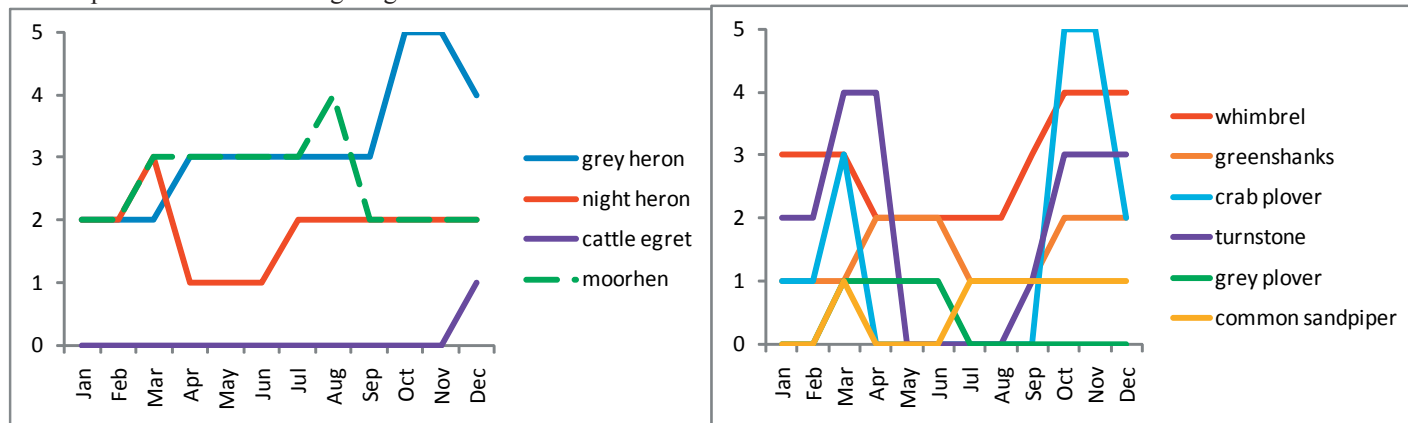
Records were kept of all seabirds on Silhouette, except for white-tailed tropic birds which are resident on the island.

Fairy terns – 2 at hotel marsh on 20-29th August, 3 on 23rd August. Nesting on 24th September for the first time on record on Silhouette. High winds on 26th September led to abandonment of breeding attempt.

Wedge-tailed shearwater - 9 killed by cat at Pointe Ramasse Tout in September.

2.1.3. Herons, rails and shorebirds

All herons, rails and shorebirds recorded weekly, except for green-backed herons which are resident in all coastal areas. Moorhens are counted on the Dauban marsh only. Grey herons bred on Silhouette for the first time in 2010 with the production of two fledgelings.



2.1.4. Migrants

Blue-cheeked bee-eaters - recorded 2-6th December, corresponding to their appearance in 2009.

2.2. Reptiles

2.2.1. Giant tortoises

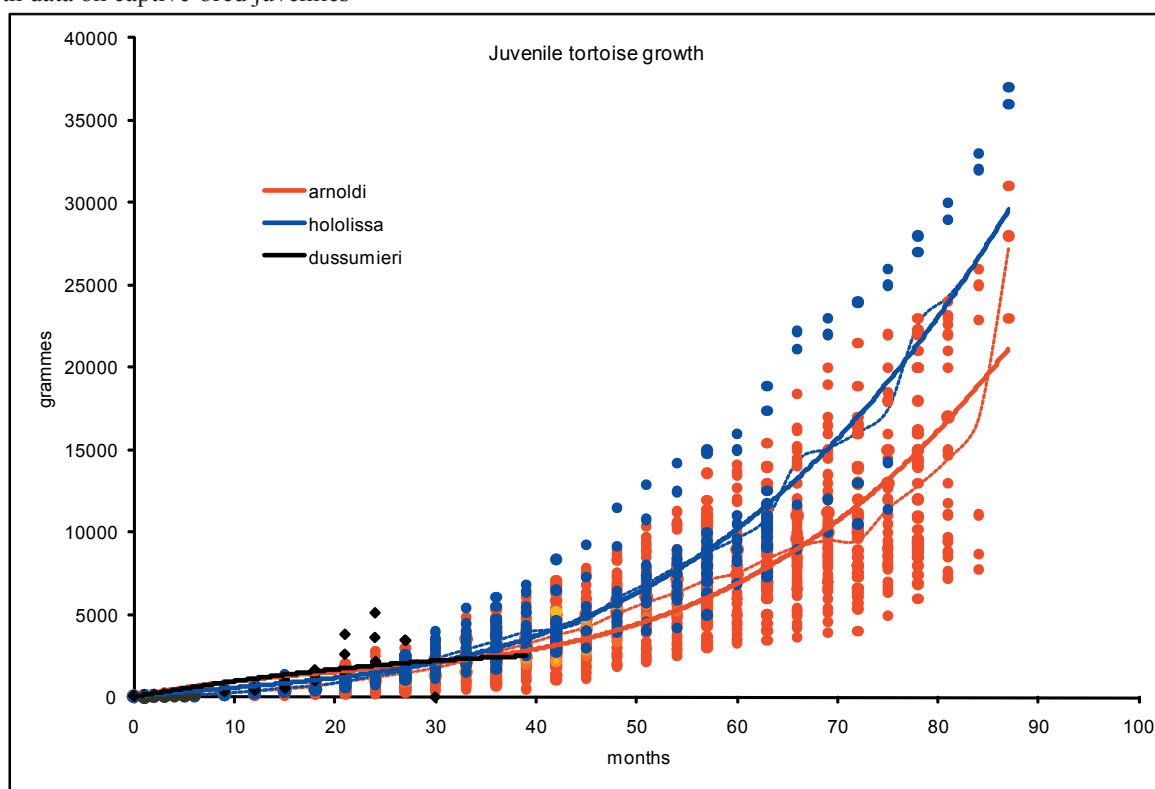
2.2.1.1. Captive population

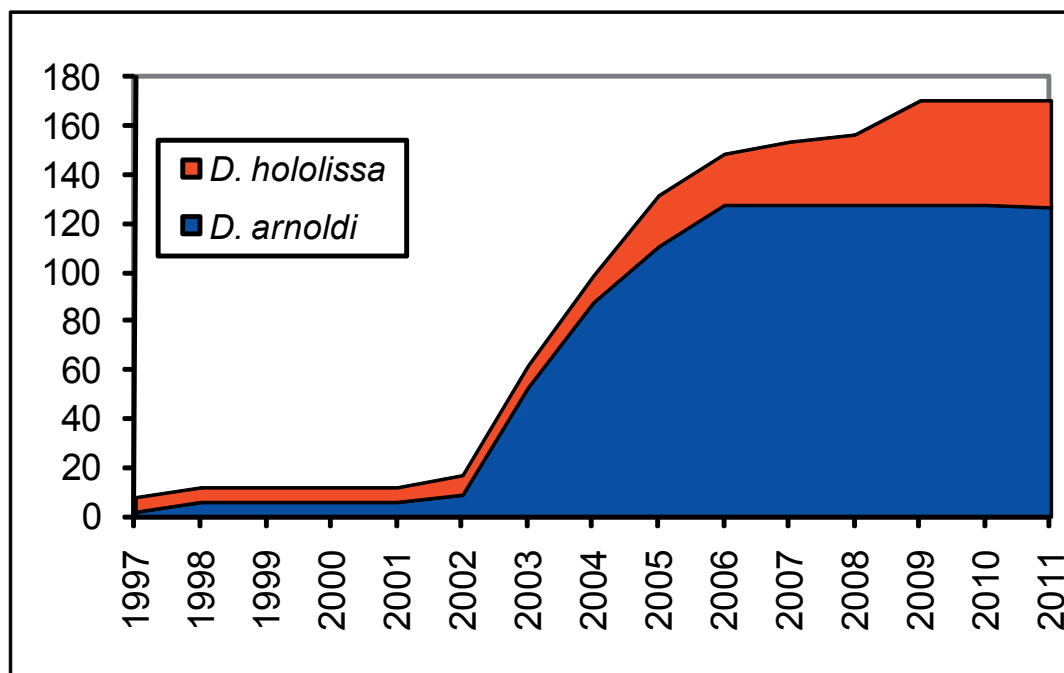
Captive tortoises maintained at La Passe are the subject of research on reproduction, growth and general ecology. The project was terminated in March 2011 due to the eviction of NPTS from Silhouette. Attempt to persuade IDC and MENR to agree to reintroduction of the tortoises to Silhouette failed despite both organisations having agreed to this aim of the project in 1997. The tortoises are now being moved to other islands. While this move to islands where the tortoises will be released into the wild is welcomed, the mixing of the Seychelles endemic forms with Aldabra tortoises is seen as a step backwards to the pre-1997 situation. They should have been released on Silhouette as planned to preserve the integrity of the taxa.

Reproduction

Only a single hatchling was produced in 2010.

Growth data on captive-bred juveniles





2.2.1.2. Released population

Adult *arnoldi* tortoises released at Grande Barbe in 2006 were monitored regularly. Distribution shown below.

male Stan
Hector
Adrian
female Alida
Clio



2.2.2. Terrapins

2.2.2.1. Captive population

No breeding recorded in 2010. Some animals were released in March and all remaining animals were released in December 2010 due to the forced closure of NPTS projects by IDC. The premature closure of the project has put an end to research into captive breeding of *Pelusios castanoides* at a point where pairing of adults was being investigated.

2.2.2.2. Wild populations

All observations recorded. *Pelusios castanoides* seen regularly in the Labriz 'lagoon' from December 2010 onwards. Sightings were made in August of terrapins numbered 2 and 5, in December (not identified), numbers 10 and 16 in January and number 2 in February.

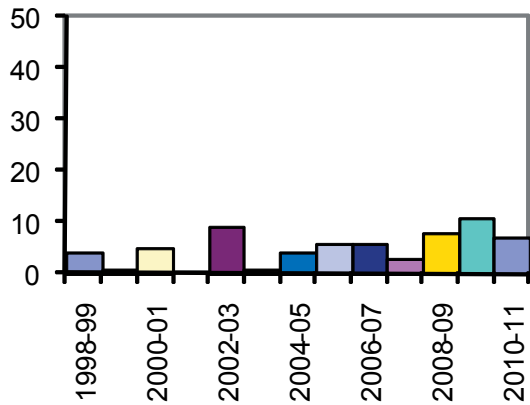
2.2.3. Turtles

Total nesting recorded for the 2010-2011 season shown in comparison with previous years.

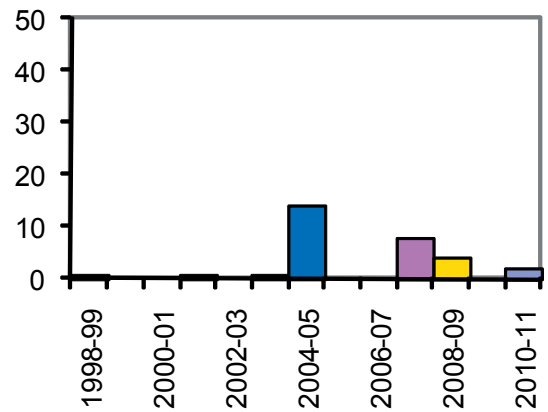
2.2.3.1. Hawksbill turtles

A productive year in 2010-11, no systematic data from Grande Barbe or Pointe Etienne this year, numbers for those localities are modelled from available data.

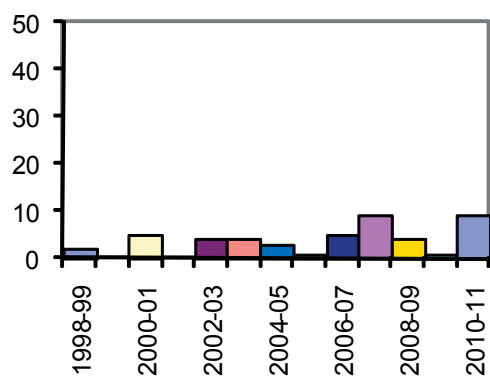
Anse Lascars



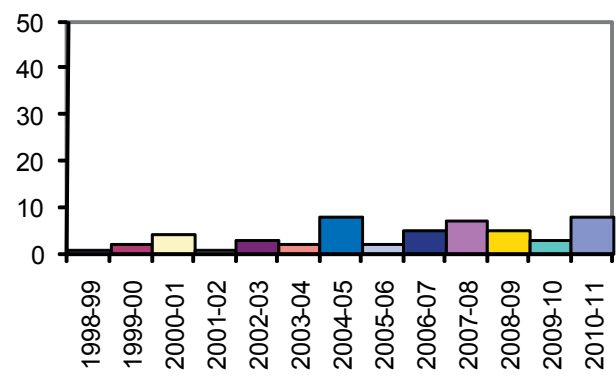
Anse Patates



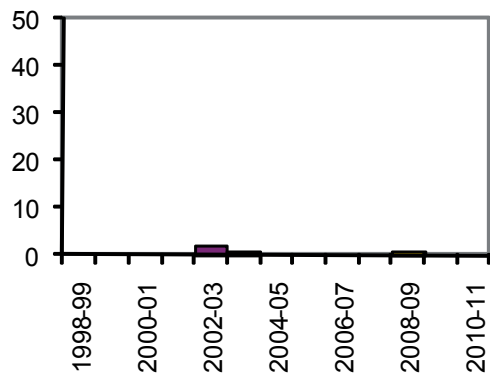
Baie Cipailles



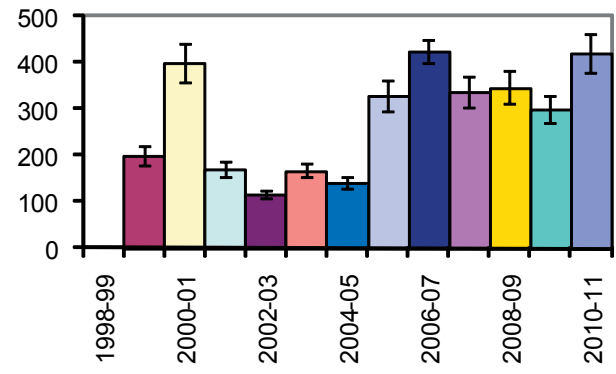
La Passe



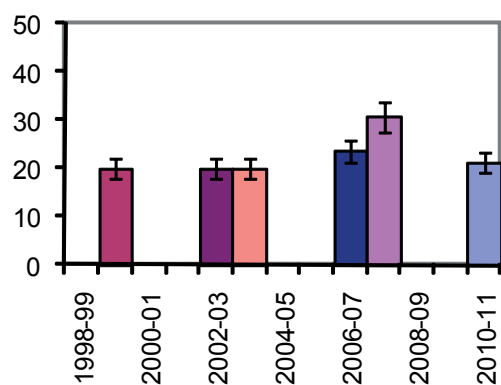
Anse Cimetiere



Grande Barbe

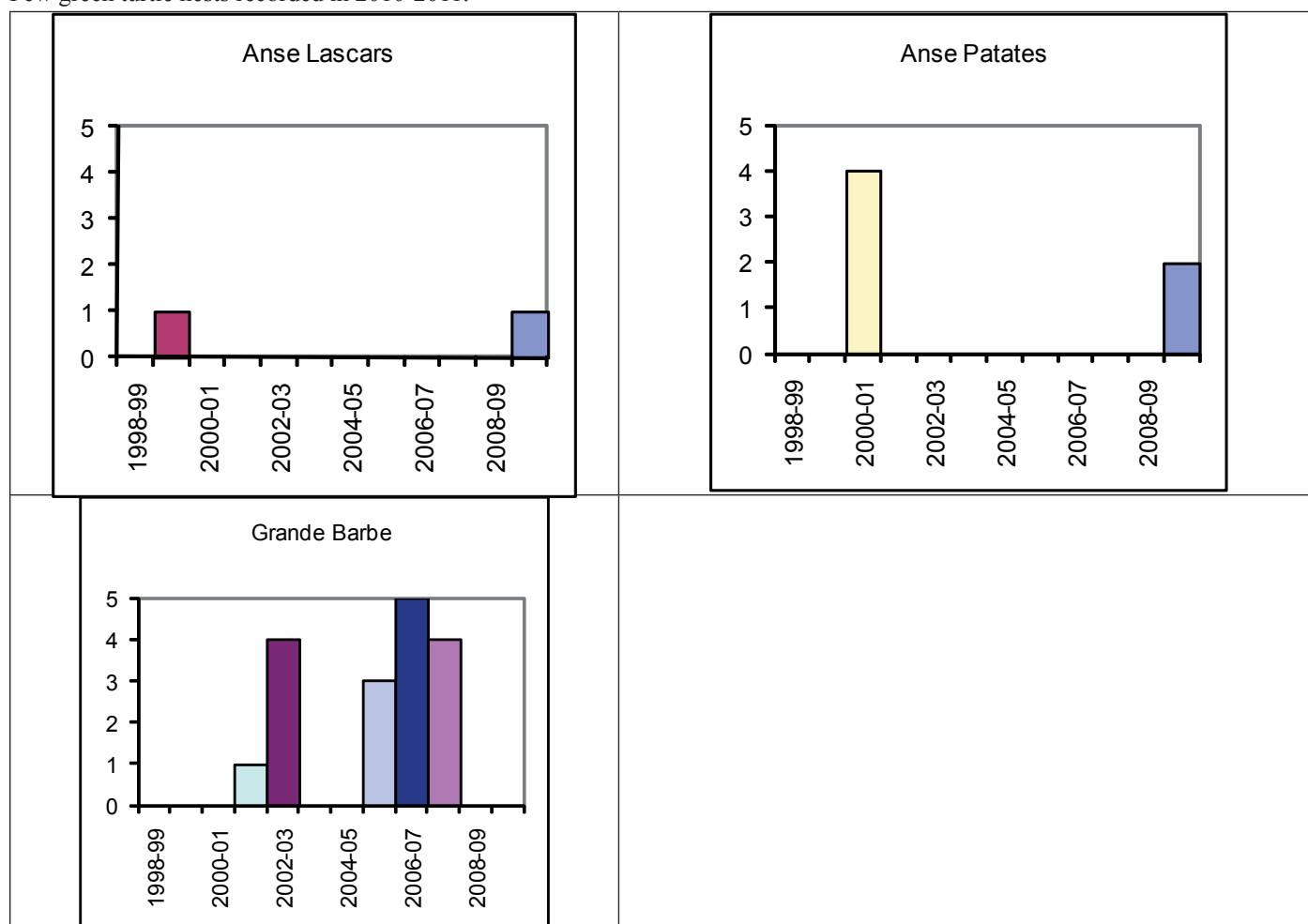


Pte. Etienne



2.2.3.2. Green turtles

Few green turtle nests recorded in 2010-2011.



2.2.3.3. Hatching success

Many nests at La Passe were washed out by high tides in 2011.

2.2.4. Reptile population monitoring

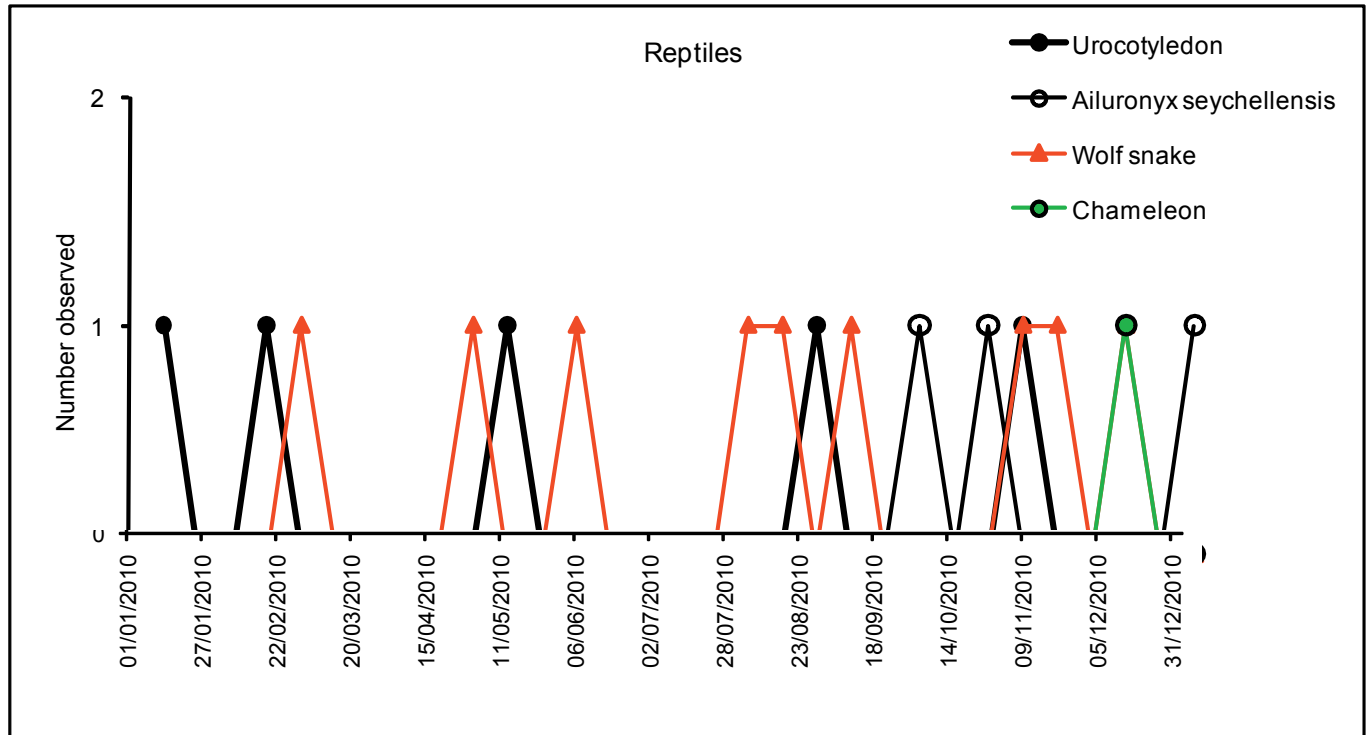
Reptile populations were monitored in two studies: point counts and transects.

Reptiles recorded in 5m radius point-counts (numbers per hectare – mean \pm sd)

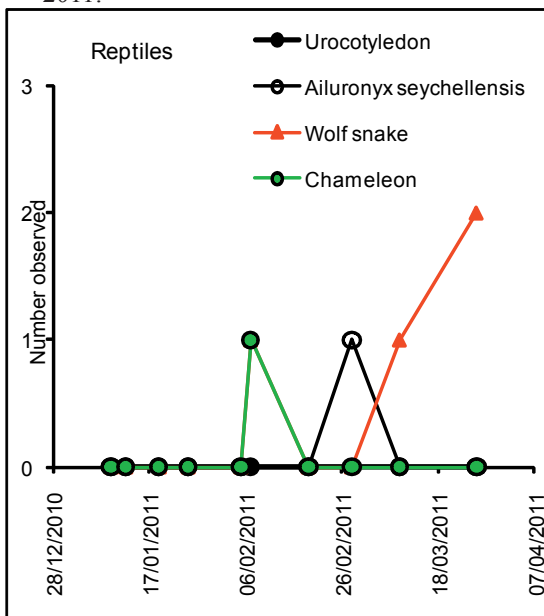
	La Passe		Jardin Marron		Mon Plaisir
Habitat	lowland coconut habitat		mid-altitude forest		moss forest
Altitude	30m		390m		550m
	un-managed	managed (10 yr)	un-managed	managed	un-managed
points	5	5	5	5	5
Seychelles skink	177.8 \pm 212.51	50.8 \pm 69.60	50.8 \pm 69.56	76.2 \pm 69.56	0
<i>Phelsuma</i> sp.	76.2 \pm 113.59	177.8 \pm 144.80	0	0	0
bronze gekco	0	25.4 \pm 56.80	0	0	0

Reptile transects: all reptiles observed along the Jardin Marron path were recorded.

2010:



2011:



2.2.5. Reptile observations

Skinks - No observations of note.

Geckos - The invasive gecko *Hemidactylus frenatus* was highly abundant throughout La Pasa by the end of 2010 (based on frequency of calls) although *Gehyra mutilata* remains the conspicuous night gecko.

Chameleons – One juveniles on 11th December on the Jardin Marron path.

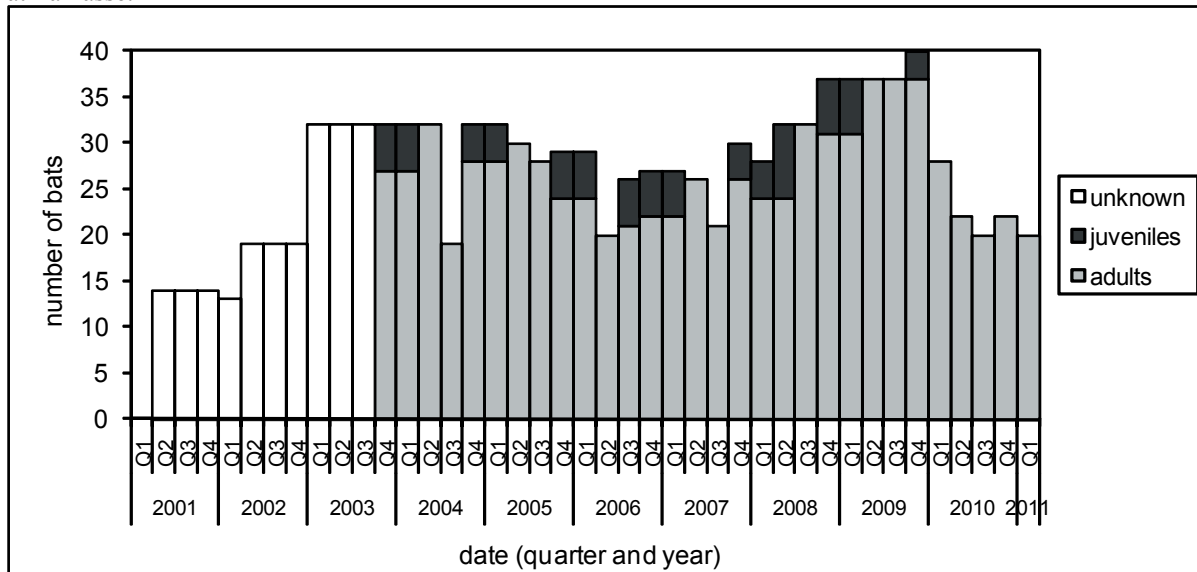
2.3. Land and Marine Mammals

2.3.1. Sheath-Tailed Bats

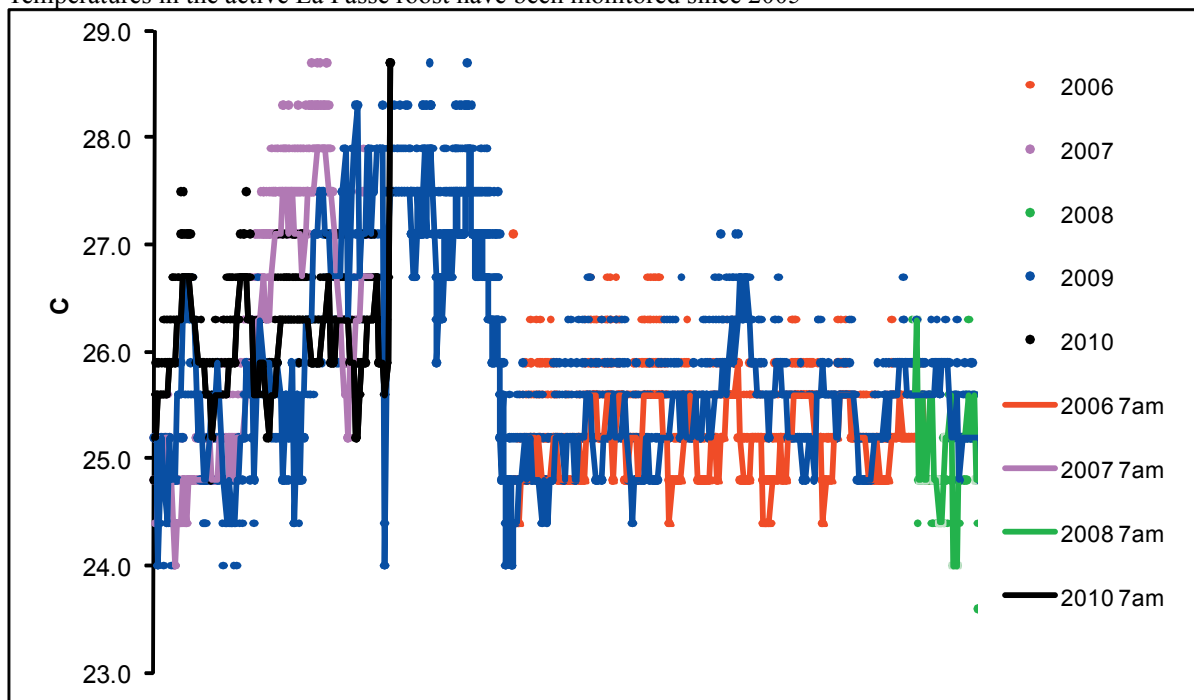
The La Pasa roost was monitored constantly using a CCTV camera. Accurate counts were made quarterly and the distribution of foraging activity recorded. In addition observations were made of disturbance factors. Surveys for bats were made near known abandoned roosts at La Pasa, Anse Lascars and Grande Barbe.

Population

The La Passe population fragmented in March, with the establishment of a new colony at Anse Lascars. Numbers were monitored at La Passe.



Temperatures in the active La Passe roost have been monitored since 2005



Disturbance factors

No feral cats observed in area of bat roost in 2010. Very dense smoke from Indian construction workers cooking fire on 24th December and on several occasions in 2011. Also smoke from a fire lit by IDC workers on 17th May carried into bat roost.

Other roosts

No evidence of any recent bat activity at Grande Barbe. Regular feeding was recorded at Anse Lascars, representing a new population formed from emigration from the La Passe roost.

2.3.2. Fruit bats

Monitoring in three field sites (La Passe, Jardin Marron and Mon Plaisir) conducted with point counts in March 2010. Bats were recorded only at Mon Plaisir (42.3 ± 73.32 per hectare).

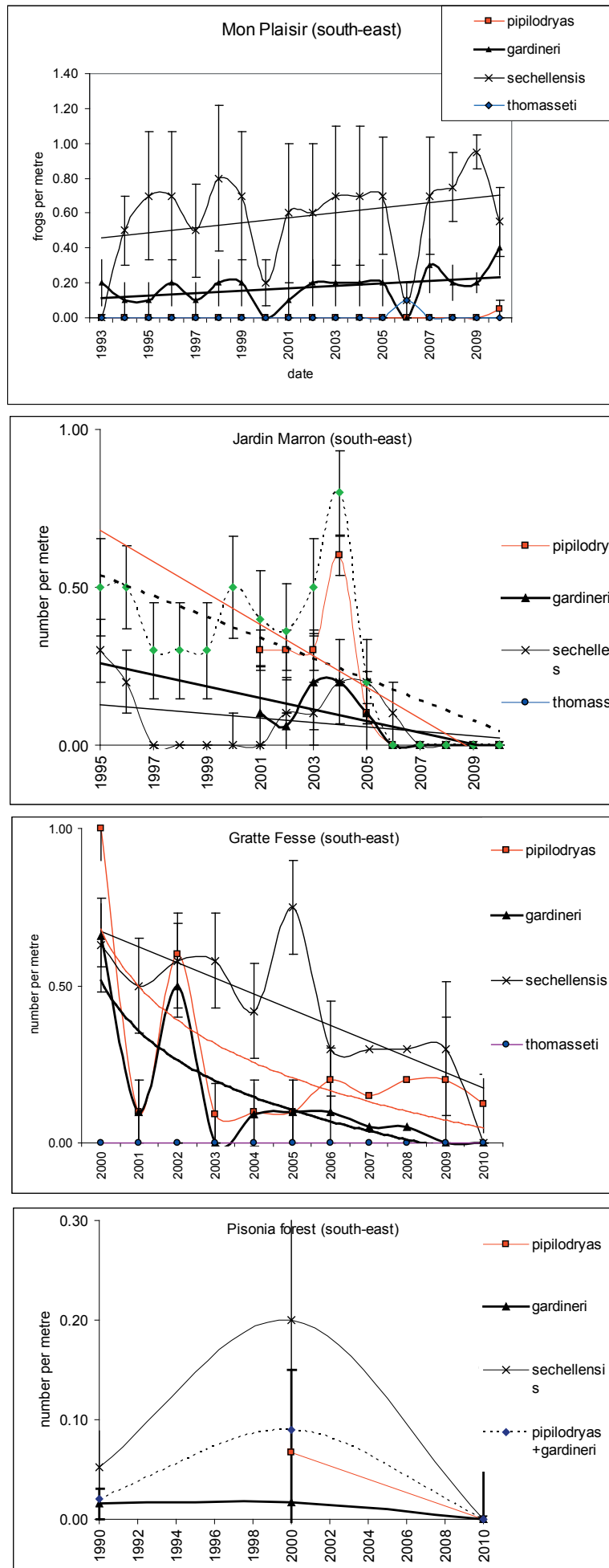
2.3.3. Introduced mammals

Rats became a problem in La Passe in late 2010 and into 2011 due to rats being feed in the Indian construction camp.

2.4. Amphibians

2.4.1. Sooglossidae

Monitored at four field sites in 2010 (Jardin Marron, Mon Plaisir, Gratte Fesse, *Pisonia* forest) and three sites in March 2011 (Jardin Marron, Mon Plaisir, Gratte Fesse).



2.4.2. Tree frog

Records kept of wild tree frogs and observations made on captive breeding.

2.4.2.1. Wild population

No data.

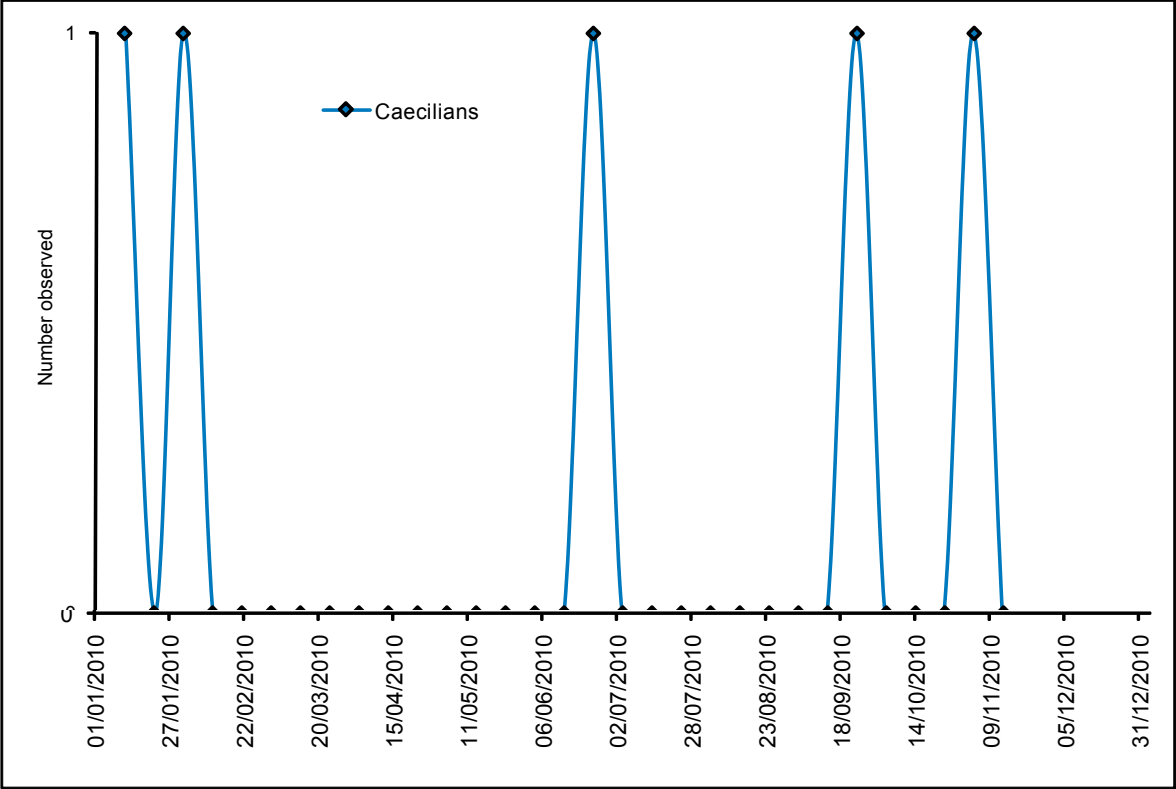
2.4.2.2. Captive tree-frogs

All captive bred frgs released at Labriz in April and July 2010.

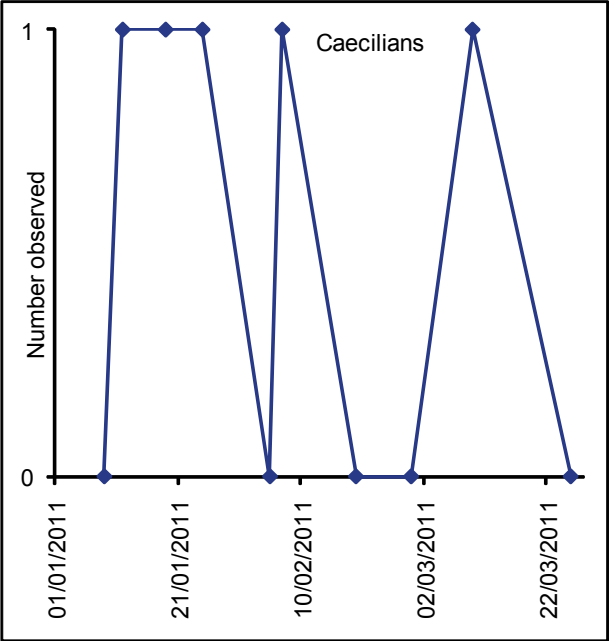
2.4.3. Caecilians

All caecilians were recorded.

2010:



2011:



2.5. Invertebrates

2.5.1. Lepidoptera

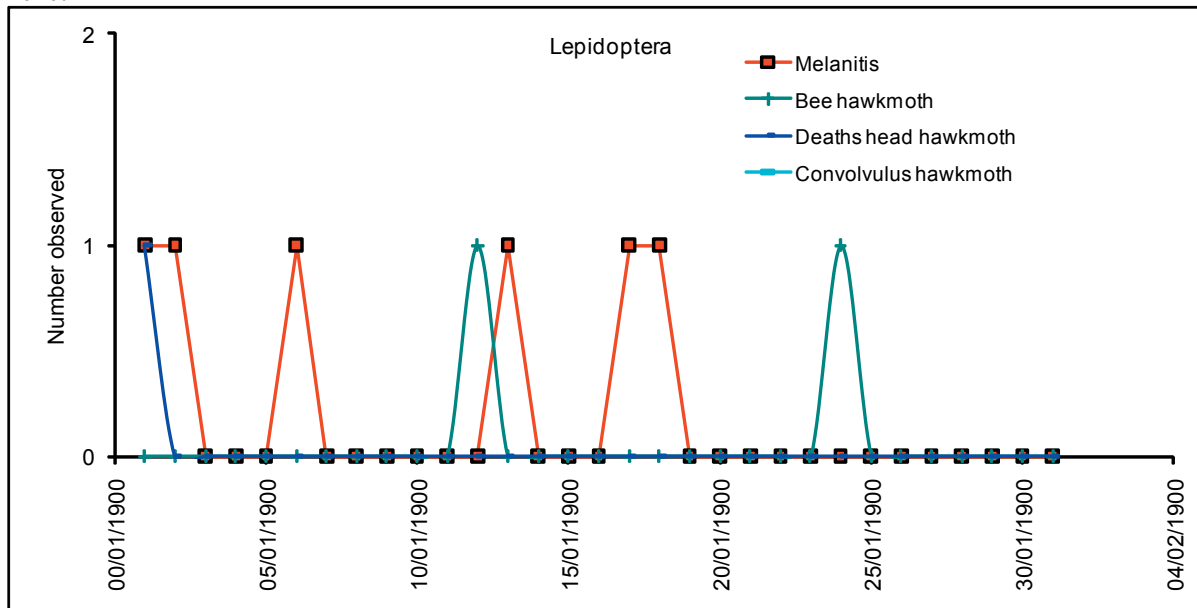
Unusual records:

Euproctis pectinata at La Passe 5th July.

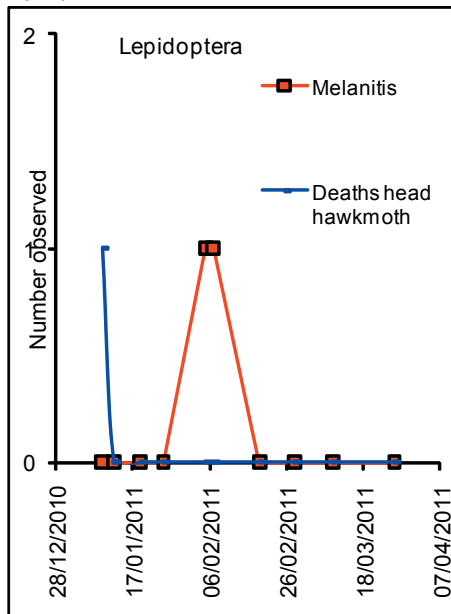
Hippotion eson at La Passe 8th December.

Monitoring of *Melanitis leda* on Jardin Marron path and Sphingidae in all areas

2010:



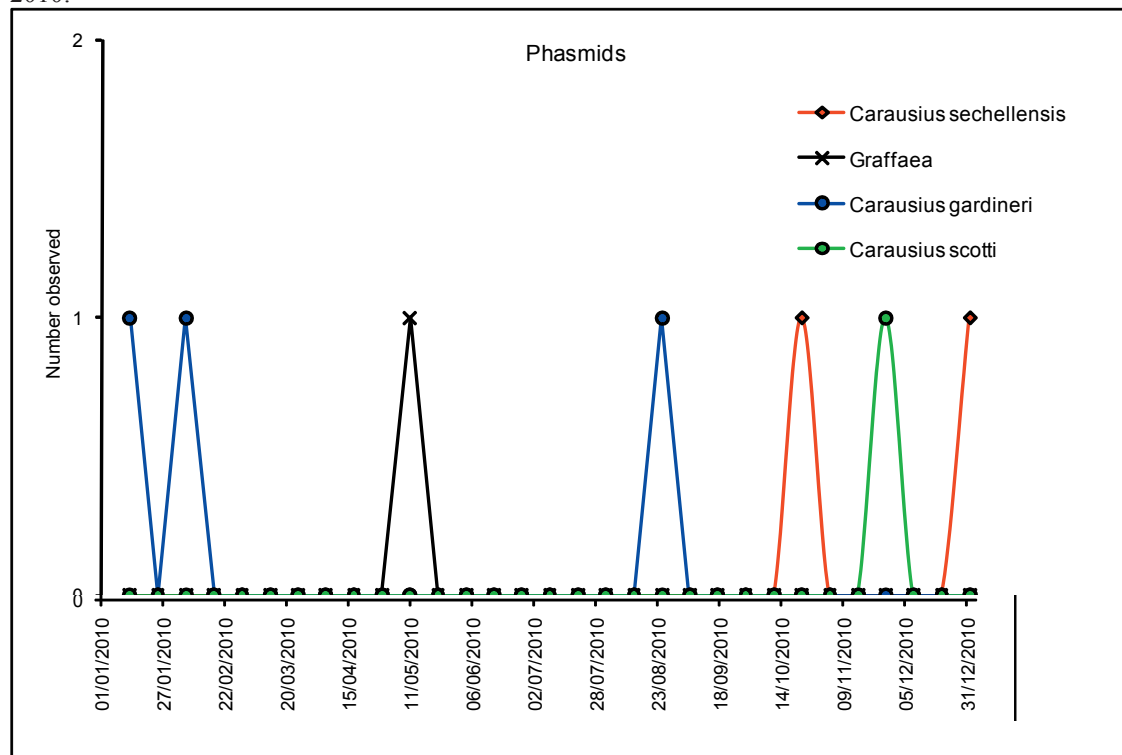
2011:



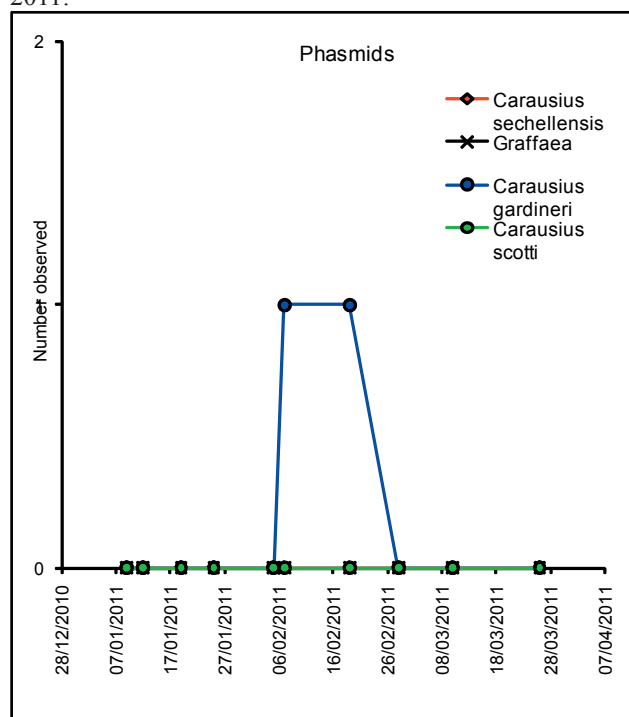
2.5.2. Phasmida

Monitoring on Jardin Marron path

2010:



2011:



2.5.3. Odonata

Dragonflies and damselflies species recorded occasionally.

Jardin Marron - *Allolestes maclachlanii* and *Leptocnemis cyanops* abundant in forest. Teneral *Allolestes* in June.

La Passe - *Tramea limbata* present all year. *Orthetrum semmale* present January - March, September - December. *Anax guttatus* present January - March.

2.5.4. Scorpiones

None located.

2.5.5. Spiders

Observations of rare species recorded - none recorded this year.

2.5.6. Hemiptera

2.5.6.1 Cicadas

No observations.

2.5.6.2 Whitefly

Whitefly were recorded in all areas when observed. Monitoring comprised recording the presence of whitefly on common plants for spiral whitefly and estimating the percentage of leaf area affected by coconut whitefly on 10 leaves of the main forest plants.

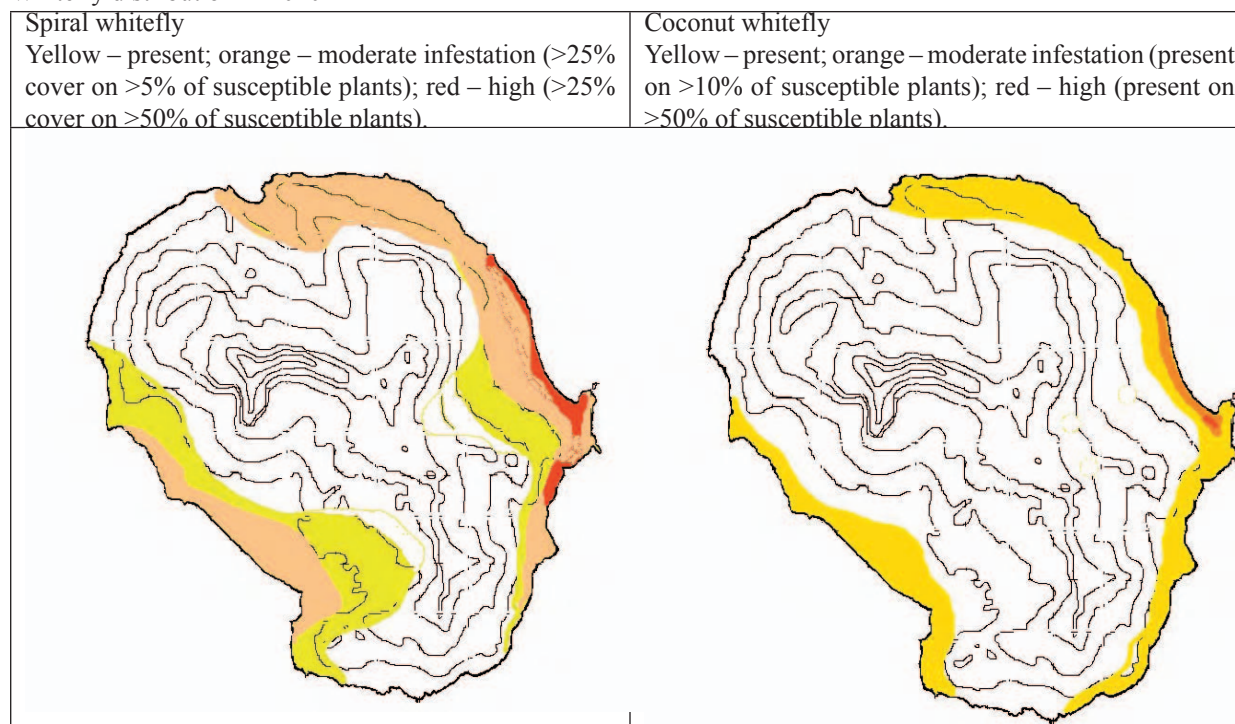
Spiral whitefly

Levels of infestation in 2010 comparable to 2009.

Coconut whitefly

Recorded infesting *Cocos nucifera* around the coast and endemic palms at La Passe forest restoration area (*Phoenixophorium borsigianum*).

Whitefly distribution in 2010

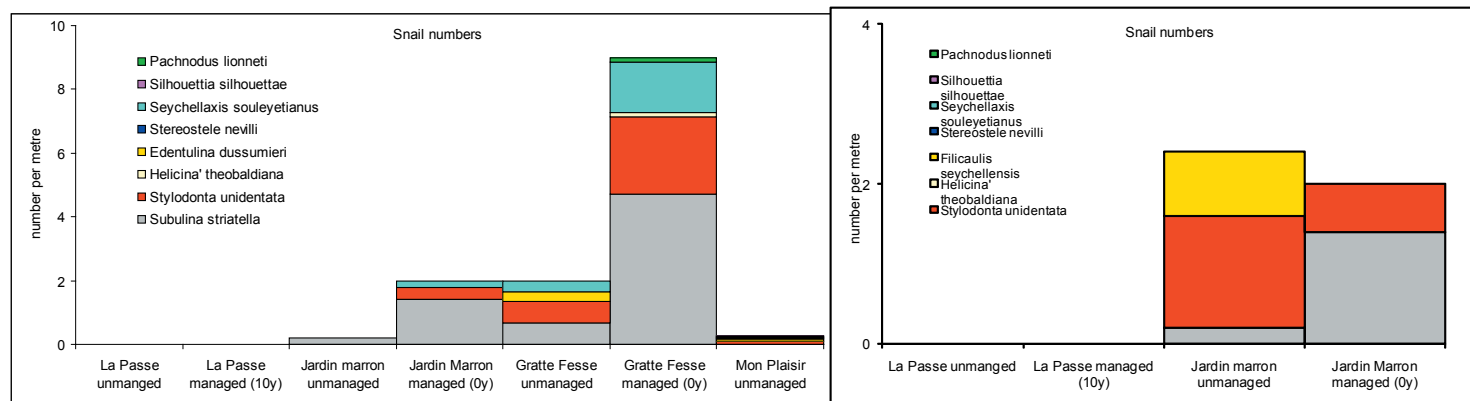


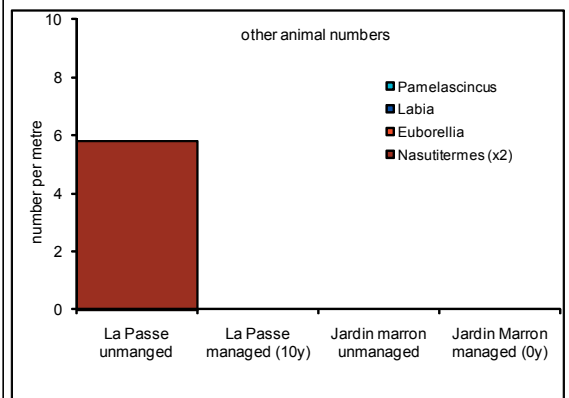
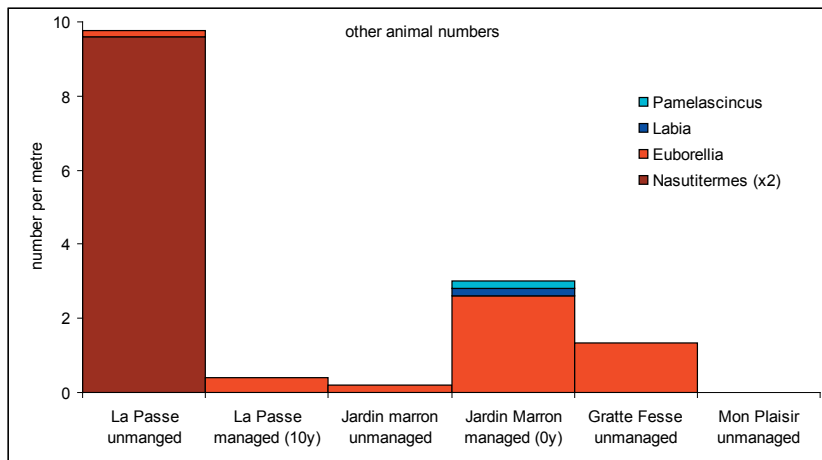
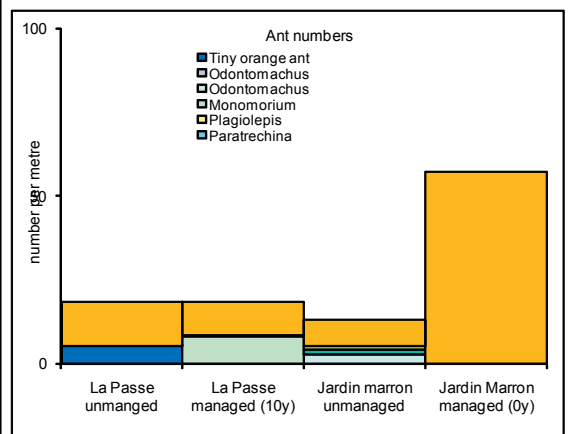
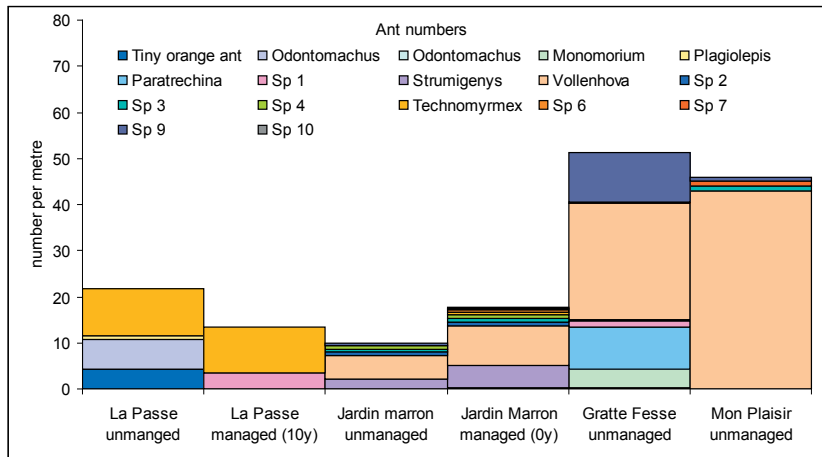
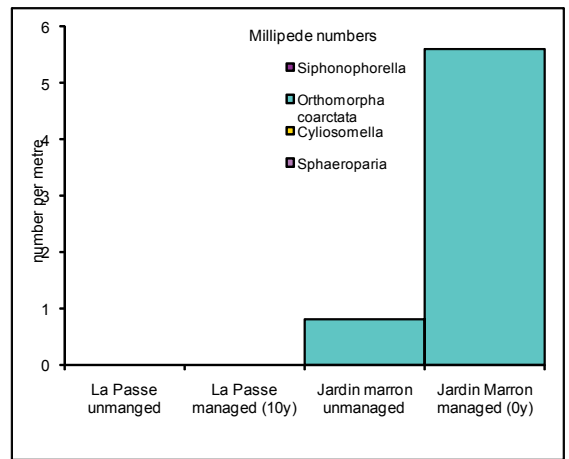
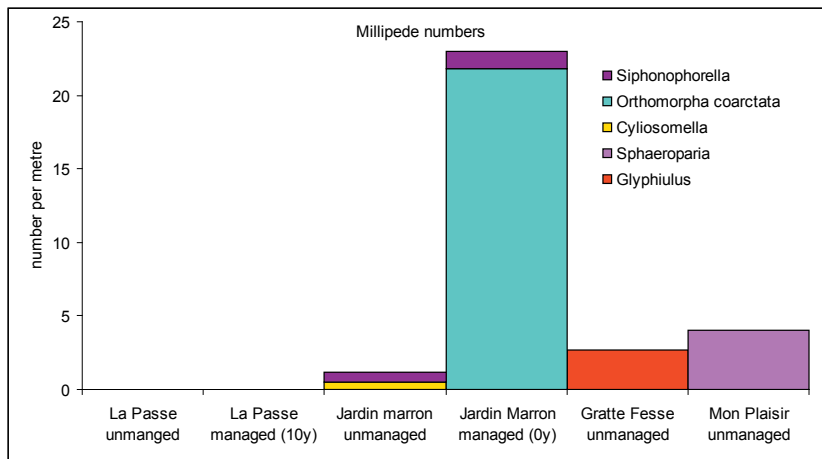
2.5.7. Coleoptera

No unusual records.

2.5.8. Monitoring

Selected invertebrate groups are monitored in permanent plots: snails, millipedes, ants, termites and earwigs. These have been selected as easily identified taxa containing endemic, indigenous and invasive species. The ants are not fully identified at present, the taxonomic revision is still ongoing. In the figures below 2009 data are shown on the left, 2010 on the right.





Results for 2010 are notably different from those for 2009, this is probably largely due to very dry conditions throughout 2010 resulting in a decrease in activity in most species.

2.6. Fish and other freshwater/marine species

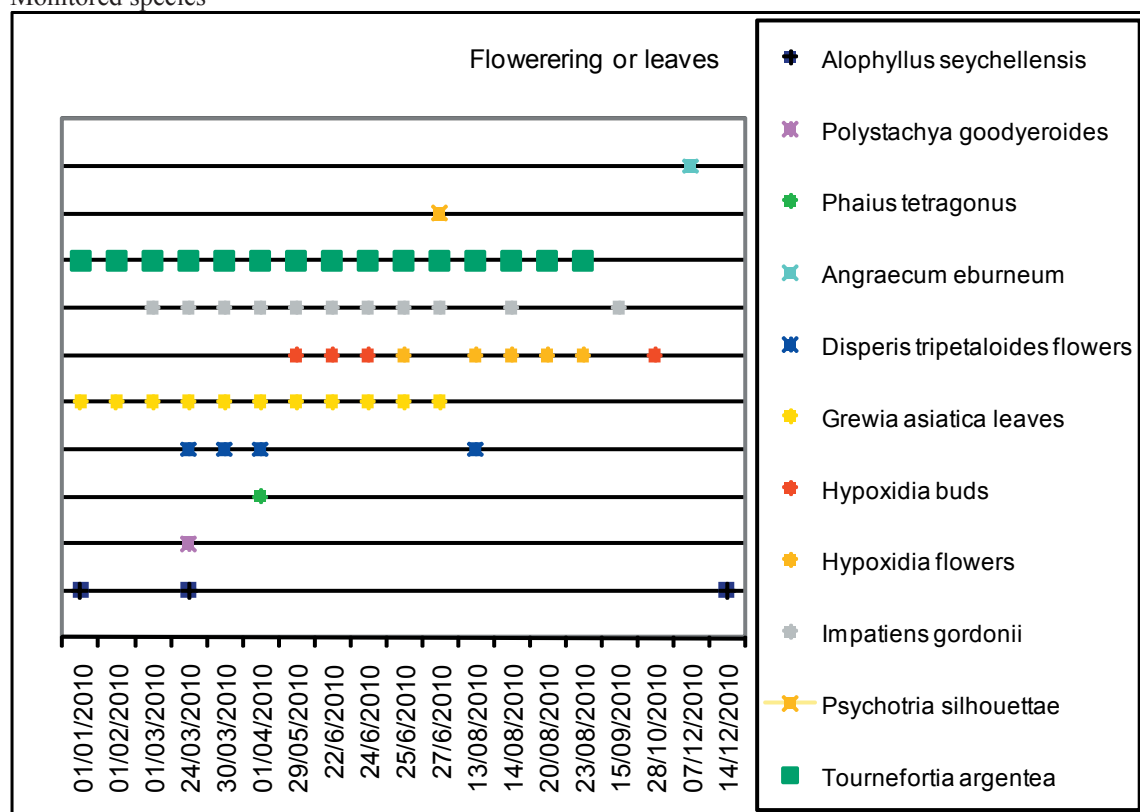
Reef-flat areas are monitored at La Passe for macroinvertebrates. In addition snorkelling surveys of lagoon fish are made. Sea cucumber populations not improving in the south. Of the *Asterropteryx* gobies only *A. semipunctata* was present. *Diadema* sea urchin population very low in the La Passe area, only common in harbour.

2.7. Plants

2.7.1 Phenology

Observations on flowering or leaf-fall are recorded for the rarer species.

Monitored species



Additional notes on monitored species:

Impatiens gordonii – the plant established at Jardin Marron was seriously damaged shortly before 23rd August and 9th December when all leaves and seed heads had been cut off. This harvesting for presumed medicinal purposes is followed by regrowth but under stressful climate conditions this may be a serious threat to the survival of this population. In December 2010 the main population in the Anse Mondon valley was found to have declined in area due to changes in light conditions.

Isolated records

Northea hornei – abundant seedlings in April, fruiting in July but most small seedlings had died due to drought conditions.

Cerbera manghas - flowering December

Platylepis goodyeroides – at Gratte Fesse flowering in March, finished by April

2.7.2. New records

Eulophium seychellarum – new plants located on Grande Barbe path and at Jardin Marron in March.

2.7.3. Observations of selected species

Observations are recorded for rare native species and selected invasives.

Invasives:

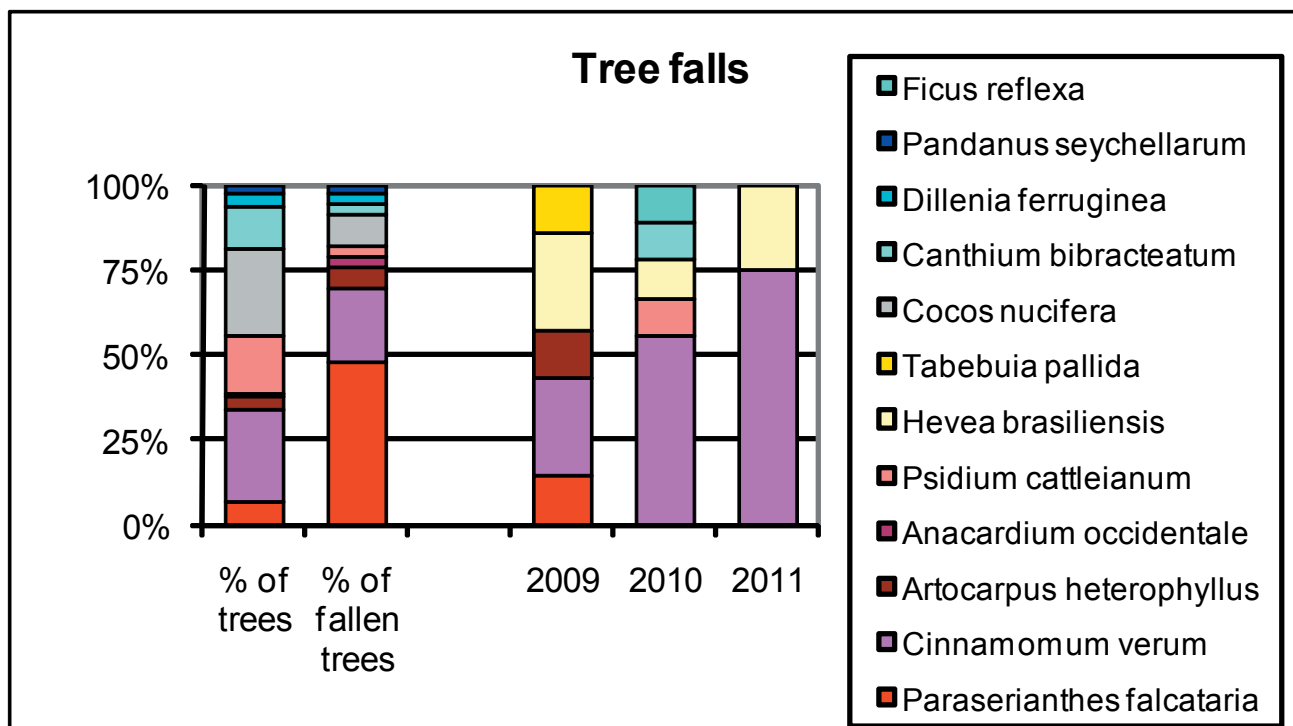
Alstonia macrophylla - 4 saplings removed from La Passe, 1 sapling and 5 seedlings, removed from Anse Lascars. 2 mature trees found at Anse Lascars (one ring barked). One found below Mare aux Cochons and 2 above La Passe. One seedling removed from peak south of Mt. Corgat.

Rare native species:

Sophora tormentosa – at the end of 2010 represented by one old plant at Grande Barbe and one sapling at La Passe.

2.7.4. Tree falls

Tree falls on the forest paths are recorded and compared to data from 1997-2007. A distinction is made between native and invasive trees.



2.7.2 Monitoring

Plant diversity is monitored in several permanent plots. These are reported under Habitats (section 3). Species monitoring was carried out for *Trilepisium gynandrum* at Gratte Fesse by recording the height of plants:



3. HABITATS

3.1. Marine

Reef-flat areas are monitored at La Passe; the extent of sea grass is estimated. This shows continuing declines at the south end of La Passe.

3.2. Forests

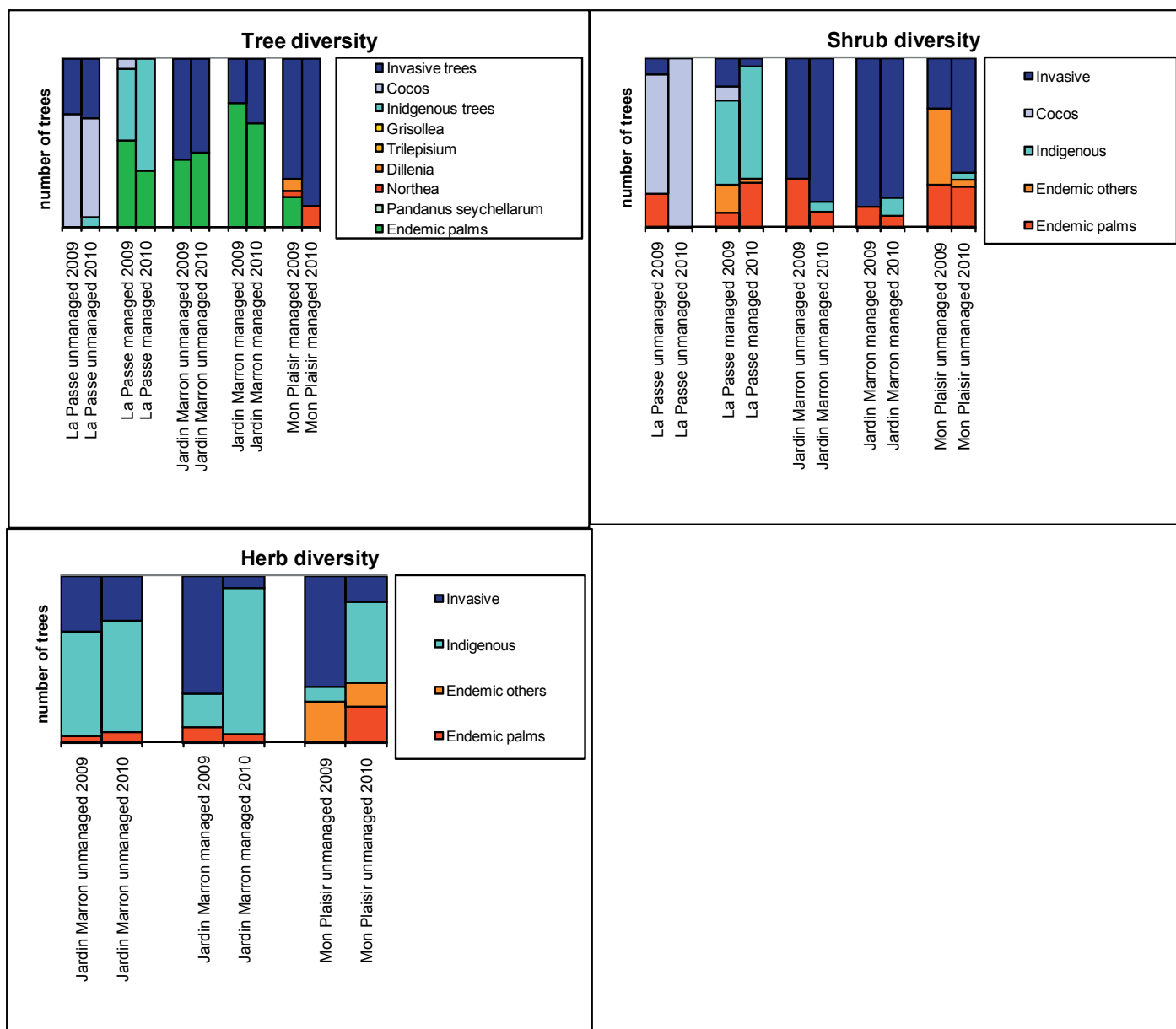
3.2.1. Monitoring

Permanent monitoring plots were resurveyed at La Passe, Jardin Marron and Mon Plaisir. Each site comprises an unmanaged area of 25x10m and a managed area of 25x10m. In the managed area invasive plants are gradually removed. Management at La Passe started in 1998, at the other sites managed plots were established in 2009 (Jardin Marron) and 2010 (Mon Plaisir). Annual or biannual monitoring of vegetation is carried out at each site, in addition the same sites are used for animal monitoring and climate recording.

In each plot all trees are identified and measured (height and dbh), all shrubs (>1m high, dbh <5cm) counted and the percentage cover of herbs recorded. The results are summarised below showing differences between endemic tree species and other categories of plants.

3.3.2. Lowland woodland

Monitoring sites established at Baie Cipailles.



3.3.3. Mid-altitude forest

Monitoring sites maintained at Jardin Marron. Surveys carried out from the peak south of Mt. Corgat to Mont Cocos Marrons (December).

3.3.4. High forest

Monitoring sites expanded at Mon Plaisir. Surveys at Mon Plaisir recorded extremely dry conditions throughout the year. Gratte Fesse and Mont Dauban visited in March 2011, *Seychellaria thomasseti* recorded at Gratte Fesse

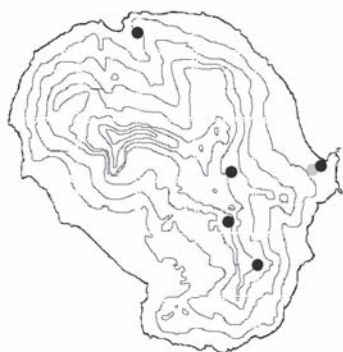
3.3. Wetland

No monitoring was carried out on wetlands in 2010.

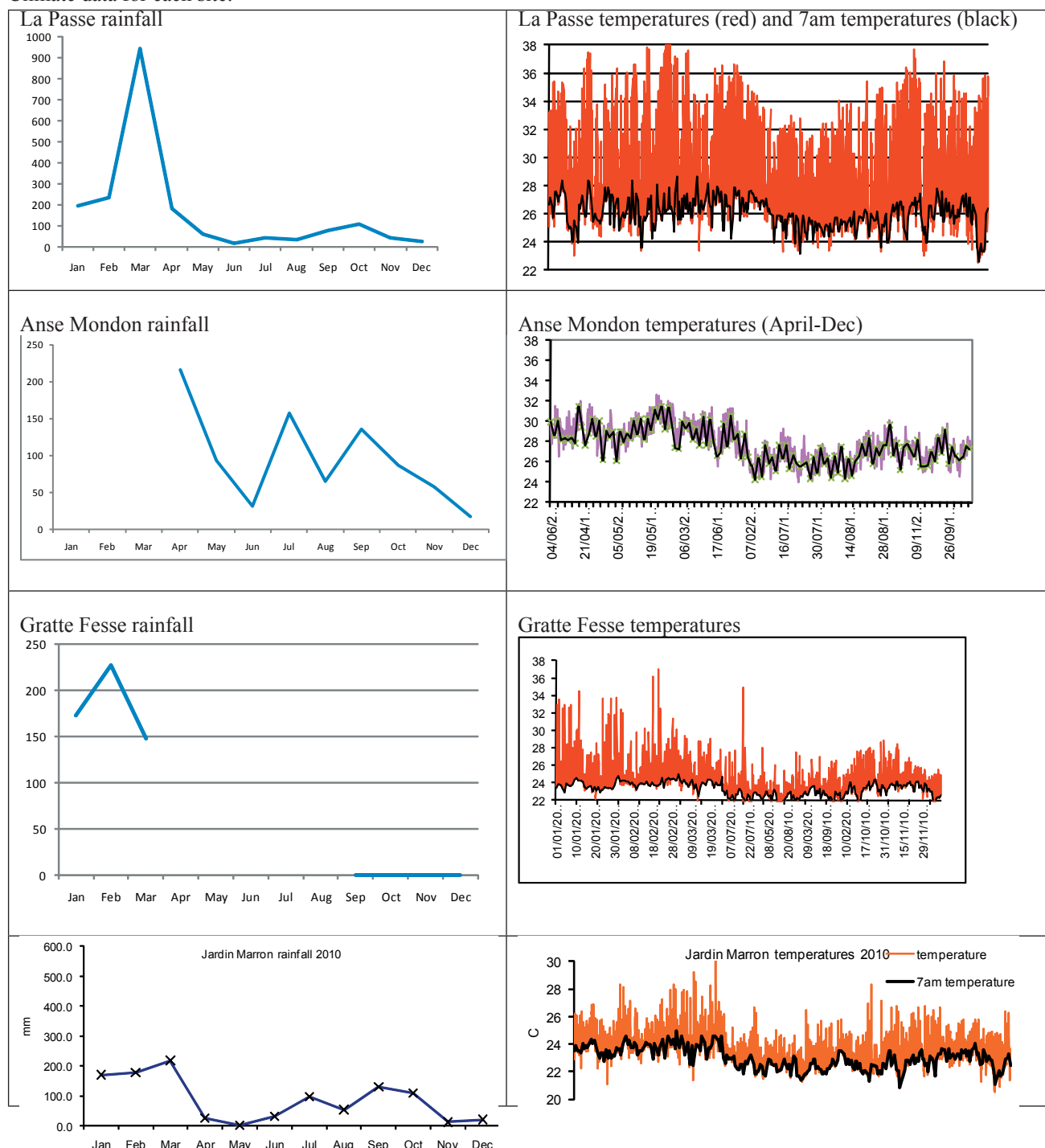
3.6. Climate

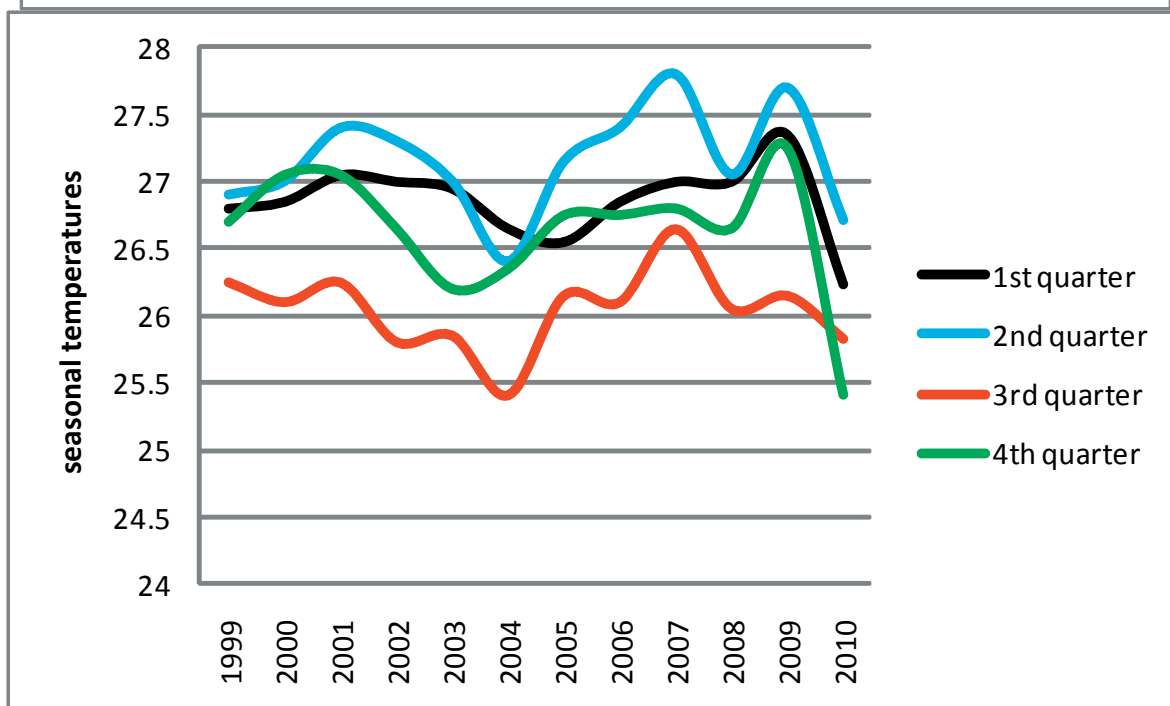
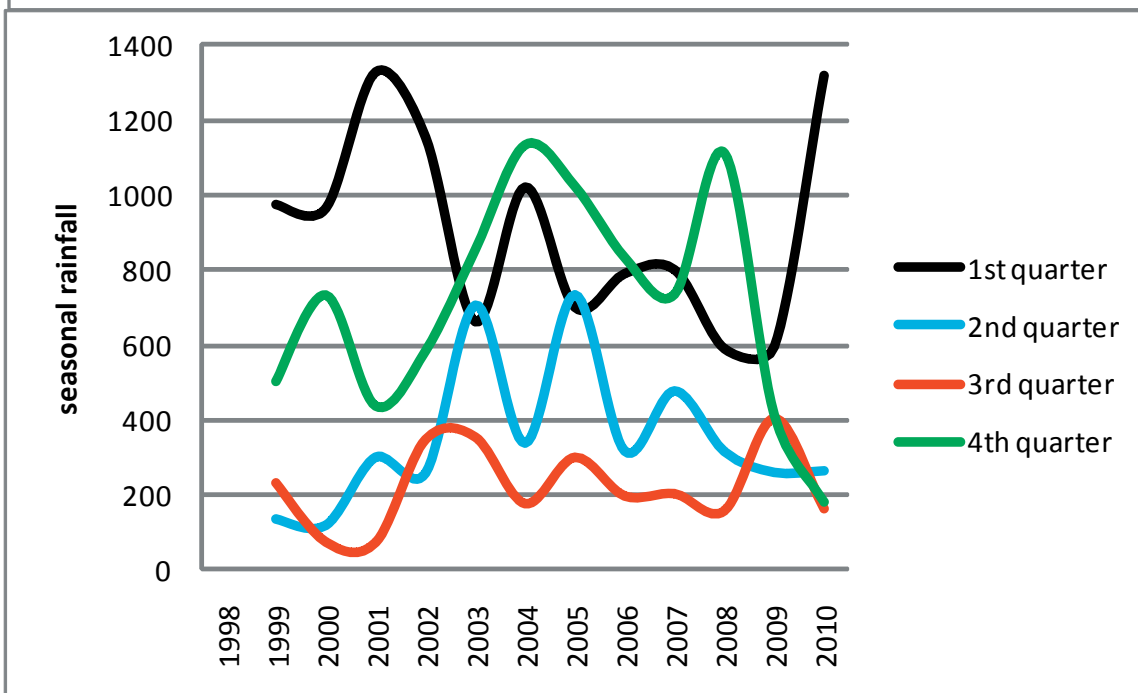
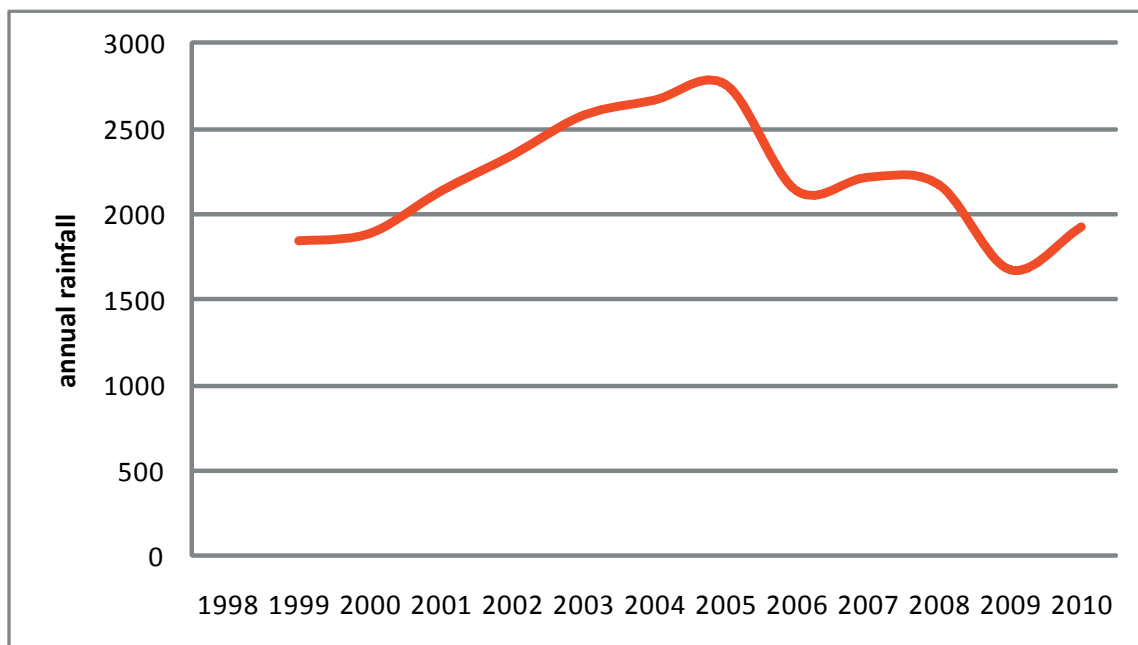
Climate data recorded at La Passe (rainfall and temperature from 1998 at sea-level and temperature from 2004 at bat roost), Jardin Marron (rainfall and temperature), Gratte Fesse (rainfall and temperature), Anse Mondon (rainfall and temperature) and the peak south of Mt. Corgat (rainfall and temperature).

Location of climate monitoring sites: black – rain & temperature, grey – temperature.



Climate data for each site:





4. ENVIRONMENTAL MANAGEMENT

Management was carried out at La Passe and Jardin Marron.

La Passe – maintenance of forest rehabilitation area started in 1998. Self-seeded *Hypoxidia rhizophylla* was found.

Jardin Marron – maintenance of area cleared of invasives, removal of *Cola nitida* allowed more vigorous growth of *Impatiens gordonii* but also facilitated invasion by *Clidemia hirta*.

Mon Plaisir - one monitoring plot managed by ring-barking of cinnamon trees.

All management undertaken by NPTS with assistance of University of Sussex field course.

