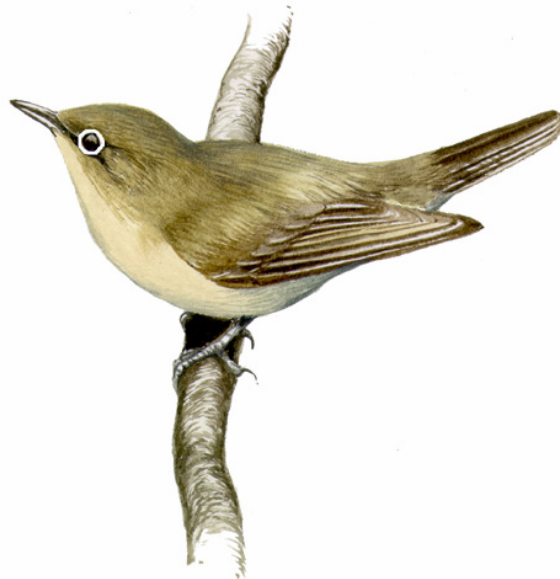




REHABILITATION OF ISLAND ECOSYSTEMS PROJECT
PROJET REHABILITATION DES ECOSYSTEMES INSULAIRES

Seychelles White-eye *Zosterops modestus*
Conservation Assessment & Action Plan 2009-2013



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Drawing on cover: Philippe Vanardois / Island Nature Pty Ltd

This Species Action Plan is an updated version of the 2001-2006 Action Plan produced by the Ministry of Environment in 2001 (Rocamora & Henriette, 2001)³⁴. It was circulated, presented, discussed and amended at a National Workshop organized by ICS as part of the FFEM Project '*Rehabilitation des Ecosystèmes Insulaires*' held at the Exile Club Training room of **Cable & Wireless (Seychelles)** on the 17th April 2009 between 0830 and 1200 hrs, and attended by the organisations and participants listed below.

Table of contents:

1. Introduction.....	
2. Family & genus.....	
3. Identification.....	
4. Range and population.....	
5. Ecology.....	
6. Socio-economic context.....	
7. Threats.....	
8. Conservation action to date.....	
9. References.....	
10. Acknowledgements	
11. Review of progress done under the 2001-2006 Action Plan.....	
12. Species Action Plan 2009-2013	

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List of Acronyms:

CEPA: Conservation des Espèces et des Populations Animales (France)
CZS : Chicago Zoological Society (USA)
DoE : Division of Environment
DNR : Division of Natural Resources
ETF : Environment Trust Fund
FFEM : Fonds Français pour l'Environnement Mondial
FIP : Frégate Island Private
GIF : Green Islands Foundation
ICS : Island Conservation Society
MENRT : Ministry of Environment, Natural Resources and Transport
MND: Ministry of National Development
MNHN : Muséum National d'Histoire Naturelle (Paris)
MoH : Ministry of Health
MoE : Ministry of Environment
MoT : Ministry of Tourism
MoU : Memorandum of Understanding
MPA UAE : Management of President's of United Arab Emirates Affairs
NI : North Island
SWE : Seychelles White-eye
SWERP : Seychelles White-eye Recovery Programme

Seychelles White-eye Conservation Assessment & Action Plan 2009-2013

Seychelles White-eye
Oiseau-lunettes des Seychelles
Zwazo linet Sesel
Zosterops modestus

Summary Conservation Assessment & Action Plan Goal and Objective	
IUCN Threat Status	Endangered ⁵⁷ (criteria B1; until 2001 also B2c ¹)
Range	Mahé & Conception (original populations), Frégate, North and Cousine Islands (introduced)
Population estimate	500-650 individuals (c.340 on Conception ⁴¹ , c.50 on Mahé ⁵⁰ ; c.130 on Frégate ³⁹ , c.40 on North Island, 13 on Cousine).
Population trend	On Mahé, decrease of 50% of range and probably numbers between 1975-77 and 1995-97 ³ , apparently stable ⁵⁰ since then. On Conception, stable / fluctuating since 1999 ^{50,51} probably increasing after 2007 ⁴¹ . Increasing on Frégate ^{38,39} & North Islands ⁴⁹ .
Altitude	0-500 m.
Habitats	Mixed woodland of broad-leaved trees (both introduced and native). Residential areas with orchards and gardens bordering with forest. ^{4,5}
Threats	Nest predation by rats, Bulbuls and Mynas on Mahé ² . Uncontrolled tree-cutting in established territories on Mahé ^{3,6} . Pesticides on commercial fruit trees on Mahé. Forest fires (destruction of nesting and feeding habitat) on Conception ⁷ . Diseases that could wipe out any of the 5 island populations.
Goal	Ensure the presence of the Seychelles White-eye on 7 islands including at least 3 viable, self-maintaining populations, and bring the species conservation status from Endangered to Vulnerable ⁸ (as a step to remove this bird from the Globally Threatened Species list).
Objective	The goal will be achieved by adding to the current species range a minimum of 2 islands, and managing the vegetation of White-eye habitats in other islands in order to increase the population to a minimum of 750 individuals (including Mahé 50; Conception 300, Frégate 200, North 100, Cousine 50).

1. INTRODUCTION

The Seychelles (Grey) White-eye is endemic to the granitic islands of Seychelles. It used to be classified as Critically Endangered due to its tiny world population and range¹, which had undergone extensive decline on Mahé between the mid-1970's and the mid-1990's. Its survival was only confirmed in 1961⁹. A national survey undertaken in 1995/1997 led to the discovery of an unknown population on Conception, which brought new hopes for the species' future⁵. Being until then one of the most poorly known birds in Seychelles¹⁰, intensive research on its biology and ecology were conducted under Phase 1 of the Seychelles White-eye Recovery Programme (SWERP), started by the Ministry of Environment in 1998. This elucidated the species' requirements and the main problems responsible for its decline. Appropriate conservation measures were then defined to improve the species conservation status, and prepare the first action plan 2001-2006 under Phase 2 of the SWERP. The first island transfers were undertaken by MoE between Conception and Frégate in 2001 and 2003. Further monitoring and research on the Frégate population was conducted by the Department of Environment (DoE) while the island management continued its intensive habitat restoration programme started in 1995. In July 2007, ICS was appointed to conduct two additional island transfers, one to North Island as part of the FFEM project 'Rehabilitation of Island Ecosystems', and one to Cousine Island as part of a GEF project focusing on high biodiversity islands in Seychelles. Monitoring of the transferred population on North Island has been conducted by ICS whereas on Cousine this has been done by their own staff. An intensive habitat restoration programme was started in year 2000 on North Island and is continuing on the basis of a detailed vegetation management plan. Cousine Island also conducted intensive woodland restoration on the plateau over the last decade. Detailed monitoring and research have also been conducted on the Frégate population as part of a two year Master in 2005 and 2006, and since 2007 in the context of a PhD focusing on the transferred populations. Monitoring of the original populations of Conception and Mahé continues to be done by ICS & DoE. Despite all the activities undertaken since 1996, it is still one of the most threatened birds in Seychelles, and it deserves continued conservation action.

The goal of this Action Plan is to ensure the presence of the Seychelles White-eye on 7 islands including at least 3 viable, self-maintaining populations, and bring the species conservation status from Endangered to Vulnerable⁸ (as a step to remove this bird from the Globally Threatened Species list).

The main objectives of this second Action Plan are:

1. Understand factors affecting and limiting the introduced White-eye populations.
2. Promote monitoring and complimentary research on all populations.
3. Evaluate and review recommended management and recovery measures.
4. Improve and manage habitats to maximise White-eye numbers.
5. Establish a minimum of two additional transfer island populations.

Knowledge on status and trends is considered adequate, although its accuracy differs between Mahé and Conception populations, as detailed in section 4. Genetic and morphological differentiation existing between these two remnant populations have led to specific population management options^{2,11}.

Status and level of biological knowledge		
Population	Size: Numbers trend Range trend	500 to 650 individuals. Increasing. Stable on Mahé since mid-1990's. Stable on Conception, and possibly increasing since 2007. Increasing on Frégate & North Islands. Increasing. Introduced on Frégate, North & Cousine, stable on Mahé & Conception .
Knowledge of	Status Trends Conservation requirements	3 (High) 3 (High) 3 (High)

2. FAMILY & GENUS

White-eyes are small woodland passerines that normally feed on insects, fruits and nectar found in trees and bushes. This pan-paleotropical family (Zosteropidae) consists of c.85 species mainly from genus *Zosterops*, present in Asia (India to Japan), Australasia, western Pacific islands, sub-saharian Africa and western Indian Ocean islands (23 sp.). More than a third are species of conservation concern since 20 are globally threatened (6 Critically endangered, 5 Endangered and 9 Vulnerable) including 16 of them in islands (10 in Australasia/western Pacific region, 3 in the gulf of Guinea, 3 in western Indian Ocean) and 4 in mainland Africa, and 13 near-threatened (all but one in Australasia/western Pacific)^{1,35}. Other threatened White-eyes in the western Indian Ocean are *Z. mouroniensis* (Grande Comore) and *Z. chloronothos* (Mauritius). Main threats reported are habitat destruction or alteration, introduced predators, small numbers and range. Declaration of protected areas, eradication of alien predators and island transfers, and research on status, biology or reasons for decline are the main recommended conservation measures.

3. IDENTIFICATION

Small bird with olive-grey head, upperparts and tail, pale underparts with brownish flanks, yellowish throat, and characteristic white-eye ring¹². Bill slightly curved (c.16mm) and legs blackish grey. Total length c.10-11 cm and wingspan c. 15cm. Mahé birds tend to be on average larger (and heavier) than Conception birds, with longer wings, beak, tarsus and tail^{2,11}. Males tend to be larger than females. However, measurement overlap prevents determination of origin or sex. Juveniles can only be identified during their period of dependence (c. 2 months) mainly from begging calls and behaviour, although bill is clearer than adults, and eye iris is grey instead of reddish-brown.

Voice: Males are very vocal during the breeding season, especially at dawn when they systematically sing for 10-15 minutes without interruption, producing varied, powerful and melodious sequences. Contact calls that can be recognized from their soft and nasal tones and alarms calls are also characteristic¹³.

4. RANGE AND POPULATION

The Seychelles White-eye was originally only found on Conception, an island of c.60 ha distant of 1.6 km from Mahé, and on a few areas of Central Mahé between sea-level and 500 meters high. Its area of occupancy appears to be less than 5 km² (1,3). There are no confirmed records from other islands, although it appears to have once occurred on Silhouette^{6,35}. Following the implementation of the 2001-06 Action Plan, the population size and range of the species have been increasing significantly from c.280-390 in 2001 to c.500-650 birds in 2008/09. Conception still hosts the majority of the species' world population, even after the species was introduced to Frégate in 2001, then to North and Cousine in 2007.

Conception is still presently the only viable population (more than 200 birds) and the main stronghold for the Seychelles White-eye². It was only discovered in 1997¹⁴, following numerous public appeals through media³ and a first unconfirmed report from 1996¹⁵. Its size was determined precisely (using mark, release and relocate methods) in 1999 (276; 241-313 birds)² then again in 2006 (230; 198-259)⁵¹ using the same method (Distance Sampling with Minta-Mangel estimator during 4 to 6 series of 51 point-counts), suggesting a possible decrease. An annual monitoring scheme based on point counts allows to calculate abundance indices and can be used to provide rough population estimates, currently c.340⁴¹ for 2008. These counts show that the population has been stable or slightly decreasing⁵¹ between 1999 and 2006, but it now appears to be clearly increasing, especially after the Norway rats were eradicated in August 2007⁴¹.

On Mahé, the species is still found mainly between Cascade, La Misère, Grande Anse and Anse Boileau^{3,50}. Early records reported the species as 'tolerably common' and 'fairly abundant' during the second half of the 19th century and the beginning of the 20th century at various locations of Central Mahé^{18,19}, but it became extremely rare during the following decades and was even reported possibly extinct²⁰ until its survival was confirmed in 1961⁹. Extensive searches coordinated between 1995-1997 by MoE and BirdLife International, with support from MoT and Glasgow University Expedition, censused only a few dozens of individuals all over Mahé^{3,4,29,30}. Results showed a strong decline of c.50% of the species range and numbers when compared to data^{10,17} collected in Central Mahé in 1975-1977. Annual censuses, conducted three times a year by MoE until 2003, then only once a year with ICS, show a stable slightly increasing trend since 1996^{2,50}.

On Frégate, where a total of 37 birds were introduced between 2001 and 2003 from Conception, the species has been increasing in numbers reaching c. 80 individuals in 2006³⁷, c.90 birds in 2007³⁸, and it is now estimated at c.130³⁹ birds. On North Island, where 25 birds were introduced in July 2007, the population was estimated at c.32-45 birds in Dec. 2008⁴⁹. On Cousine, the 20 adults transferred from Conception and 3 from Mahé in 2007 suffered heavy losses but the remaining ones continue to breed despite a high post-fledging mortality. The population currently stands at 13 birds only (April 09)^{40, 60}.

Size and location of populations		
Location	Estimated population size	Year of most recent estimate
Conception	294-385 230 (198-259) (P<0.05) ⁵¹	337 ⁴¹ ind. in Sept. 2008 (rough estimate derived from point count trends) 2006 (Noremark estimate)
Mahé	40-60 ^{3, 50}	May 2008

Frégate Island	131 (116-153; P<0.05) ³⁹	March 2009
North Island	32-45 ⁴⁹	Dec. 2008
Cousine	13 ⁶⁰	April 2009

5. ECOLOGY

The species inhabits mixed woodland dominated by broad-leaved trees (both introduced and native) on both source islands^{2,5} as well as on islands where they have been transferred^{42,43,44}. On Conception, White-eyes live in mixed forests dominated by Cinnamon, Takamaka and Cashew. On Mahé, White-eyes are found in residential or rural areas with orchards and gardens bordering with mixed forest, and also in dense woods dominated by exotic trees such as Sandragon *Pterocarpus indicus* and Albizia *Paraserianthes falcataria*^{3,4}. Invertebrates and vegetal parts both play an essential role in the Seychelles White-eye diet. A large variety of invertebrates is captured from leafs, branches and trunks^{9,22}, with a marked preference for caterpillars, crickets & grasshoppers among the bigger prey². Smaller prey includes spiders, aphids, mealy-bugs, mosquitoes, flies, termites and occasionally ants^{2,21}. Vegetal items are mainly berries from Bois dur *Canthium bibracteatum*, Bois siro *Premna serratifolia* and seeds of Bois cuillère *Tabernaemontana coffeoides*² (all native), but also berries from Cinnamon^{2,3} and Vieille fille *Lantana camara*^{21,23} (both exotic). Berries/seeds of a few other plants (e.g. Latanier feuille, or Bois zozo *Litsea glutinosa*) are also eaten as well as various flower parts and occasionally nectar^{2,9}. The introduction of the species on Frégate revealed the importance of another tree producing berries Affouche petite feuille *Ficus reflexa*⁴², and also of Bois siro and the Sandragon *Pterocarpus indicus* as a key source of invertebrates too³⁷. The introduction of the species on North revealed the importance of Kastic *Phyllanthus pervilleanus* and *Trema orientalis* as a source of small fruits^{53 to 56}. On Cousine, the species has also been observed feeding on Kastic, Bois cuillère, Affouche petite feuille and Affouche grande feuille *Ficus lutea*.

The species is also found in gardens and residential areas in the three small islands where it has been introduced. Occasionally, Seychelles White-eyes have been observed pecking on entire fruits from Cashew *Anacardium occidentale*, Jambrosa *Sizygium jamros*, Cocoplum, *Chrysobalanus icaco* & Bois merle *Aphloia theiformis*. Nectar is also taken on occasion from a variety of flowers including Coconut tree *Cocos nucifera* (all island), Jambrosa *Sizygium jamros* (Conception), and possibly ornamental Hibiscus (Frégate)⁴⁸. On Cousine Island they have also been observed taking nectar from Takamaka and Veloutier *Scaveola sericea*.

The Seychelles White-eye is an important ally for the restoration of native habitats, by dispersing the seeds and propagating native trees producing berries. This was particularly apparent on Frégate with seeds from Bois cuillère. However, it can also disperse seeds from alien invasive plants such as Vielle fille *Lantana camara*.

The species breeds between October and April^{2,22} in groups of 2 to 5 adults on Mahé^{3,23}, and up to 8 adults on Conception, where an amazingly complex co-operative breeding system has been revealed². The clutch size is normally one or two eggs^{2,23}, but clutches of 3 to 7 eggs (!) are also frequent in larger breeding groups on Conception, suggesting that several females often lay in the same nest¹⁶. Incubation lasts 13 to 15 days and nestling between 11 to 16 days². Nests normally produce one or two fledglings^{3,23,24}, although sometimes more on Conception². Interestingly, the birds continued to breed in cooperative breeding groups or similar sizes when transferred to Frégate, where suitable habitat and

food were not a limiting factor. The breeding biology and ecology of the species have remained quite similar to that on Conception although they can breed all year long, at least for certain years; this being also the case on North and Cousine. On Cousine, birds have shown an amazing capacity to use very varied materials to build their nests (strips of bark, plastics and gunny bags, strings and cotton^{45,52}). Occasionally, White-eyes can re-use of the same nest for a second breeding attempt, a phenomenon observed on Conception and all islands where these birds have now been transferred.

6. SOCIO-ECONOMIC CONTEXT

The decline of the Seychelles White-eye on Mahé and probably other islands of his historical range is mainly due to the dramatic alterations to ecosystems that followed colonization of the islands by man. The main problem has probably been and still is the extremely high failure rates observed on White-eye nests on Mahé, due to introduced predators and particularly to the arboreal rat *Rattus rattus*. The comparison of predator profiles and predation rates on artificial nests with fake eggs on Mahé, Conception and Thérèse, suggested that the arboreal rat was the most efficient predator and that its presence and abundance were the main factors limiting the distribution of the White-eye^{2,25}. The absence of *R. rattus* from Conception (where it was replaced by the much less arboreal *Rattus norvegicus*, now eradicated), the absence of the (endemic) Seychelles Bulbul *Hypsipetes crassirostris*, a confirmed predator of White-eye nests, and the lower density of introduced Indian Mynas *Acridotheres tristis*, explains the reduced rates of nest failure and the presence of a healthy White-eye population on this island^{2,5}. Widespread logging and replacement by invasive exotic trees that occurred between 50 to 150 years ago must have caused the rarefaction of indigenous fruiting trees - as well as other native trees - in Mahé forests^{2,22}. This habitat destruction or alteration probably also contributed to the decline of the White-eye. The extreme rarity of the White-eye is also viewed as the main reason for the apparent present total absence of genetic exchanges between Mahé and Conception populations¹¹.

No human activities except biodiversity monitoring and nature conservation are taking place on Conception. This small island (69ha) used to be a coconut plantation until the mid 1970's when it was abandoned and it has remained uninhabited since then. The island is private and was sold last year to a new owner. Only day visits or small scale ecotourism activities are envisaged on Conception due to difficult access (no beaches) and the steep rocky terrain. It is visited regularly by ICS and DoE staff. On Mahé, the majority of main breeding territories (9) are now grouped into two private properties (Ex-Tracking Station and Haut Barbarons) belonging to the same owner (the President of UAE) where constructions are taking place and c.50 workers are residing. The only public areas where the species is regularly present and can be seen by birdwatching groups are Upper Cascade, La Misère village and Grande Anse. The species likes open areas and is curiously present in areas with high human impact: residential areas, gardens and agricultural land, both on Mahé and in the small inhabited islands. The Seychelles White-eye being one of the rarest and most difficult birds to observe in Seychelles, birdwatching parties normally hire professional local nature guides to find and show them the species on Mahé. All other 4 islands with White-eye populations are privately owned, including 3 with exclusive high class ecotourism. On each of the three small private islands where this rare endemic species has been introduced, small scale upper class tourism (a resort with 4 to 16 luxury villas) represents the main economic activity, with some agriculture production on Frégate. The resident human population on these islands varies from c.15 (Cousine) to c.130 workers (North and Frégate), including a majority of Seychellois. The species is a key component

of the environmental restoration programmes of these islands; it is also an ecotourism attraction for clients who benefit from guided walks and presentations conducted by rangers and conservation officers. Species monitoring activities are conducted by ICS and DoE on Frégate & North, whereas on Cousine this is entirely done by their own conservation staff.

7. THREATS

Threat type	Description	Importance
Direct threats	Nest predation by rats, mynas and bulbuls on Mahé	High (Immediate)
	Poisoning of White-eyes by chemical treatments on fruit trees	Medium (Potential?)
	Introduced avian disease that could wipe out any of the populations due to their small size and confinement	Low (Potential)
	Predation by Seychelles Magpie Robin (fledglings) and probably other native species on Cousine	High (Immediate)
Indirect threats	Destruction of habitats by fires especially on Conception	High (Immediate)
	Tree felling in established White-eye territories	Medium (Immediate)

Fire is presently the main threat to the species as it could destroy immediately the entire breeding and feeding habitat present on Conception, and indirectly the majority of the Seychelles White-eye world population³. Conception can be very dry, especially during the South-East monsoon when there is a considerable amount of dried leaves on the ground including a large quantity of palms. This makes Conception very sensitive to fires⁷ and fire prevention a critical necessity.

Nest predation is a major problem for the tiny Mahé population, which has a very high rate of nest failure and a much smaller productivity compared to Conception³. The abundance in White-eye territories of nest predators like Black rats *Rattus rattus*, domestic cats *Felis catus*, Indian Mynas *Acridotheres tristis*, and Seychelles Bulbuls *Hypsipetes crassirostris* (observed twice destroying a White-eye nest^{2,3}), represent the main threat for the survival of this population. However effective predator control and nest protection is difficult to implement in residential areas where White-eyes are present. Nest predation (and predation in general) does not appear to be a major threat on Conception, where predator identity needs to be further documented². Before they were eradicated, Norway rats were confirmed as capable of preying on adult white-eyes (in an aviary). On Cousine, the transferred birds have suffered a high mortality, and nest failure and post-fledging mortality are very high. High concentrations of potential nest predators like Seychelles fodies may limit the population growth (Fodies being egg predators of Seychelles Warblers and seabirds are

also chased from Seychelles White-eye nest), and repeated evidence of Seychelles Magpie-robins preying on recently fledged White-eyes has been obtained.

Habitat destruction or alteration in established White-eye territories is another immediate threat to the White-eye population on Mahé^{3,6}. Despite some control by DoE to minimise further deterioration of White-eye habitats, housing development and consequent tree felling in residential or rural areas of La Misère, Cascade Haut Barbarons or Anse Boileau could contribute to the disappearance of the breeding territories that still survive in these areas. Individual trees known to be preferentially used by White-eyes to nest, feed or roost in the centre of their breeding territory (e.g. Clove-trees *Eugenia carryophyllata*) deserve absolute protection.

The use of pesticides is another threat to the White-eyes present in agricultural or residential areas (e.g. La Misère, Helvetia, Anse Boileau and Cascade)⁵. White-eyes may consume insects contaminated by pesticides which may poison them or reduce their fertility. Although chemical treatments on orchard and garden trees (e.g. *Citrus*) are uncommon in these areas, this threat should not be overlooked due to its potentially strong impact on the tiny Mahé population. On the 3 small islands where the species has been introduced, strict policies regarding the use of pesticides are being enforced, the only ones allowed being pyrethroids, for which secondary poisoning risks are limited.

Finally, the possibility of having a lethal and contagious avian disease introduced to Seychelles could be another threat to the survival of the Seychelles White-eye due to the small population size and range of its different populations. Creating alternative strongholds in other islands has been identified as the best way to limit risks of extinction due to disease or other stochastic events.

8. CONSERVATION ACTION TO DATE

Policy and legislative

The Seychelles White-eye is protected by the law under the ‘Wild Animals and Birds Protection Act 1961’, which prohibits its intentional killing, detention in captivity and commerce. ‘Breadfruit and Other Trees Protection Act’ 1917 protects Sandragon and Calice du pape (*Tabebuia pallida*), two important tree species for White-eyes on Mahé and Conception respectively. Albizzia, also widely used by White-eyes on Mahé, is protected as a timber species. ‘Animals Regulations 1975’ (Disease and Imports & Animals, Birds and Poultry), restricts the importation of birds and other animals, that may become potential competitors or predators of the species. A rat and cat protocol has been agreed by owners and managers of the three islands free of introduced predators where White-eyes has been translocated (Frégate, North Island and Cousine). Unfortunately there is still no specific legislation or official protocol agreed at national level to regulate landings on beaches of rat-free islands to protect them from reinvasion by rats (despite this being a target from the FFEM project).

Site Safeguard

La Misère, Souvenir and Cascade, were declared as Sensitive Areas for Environment in 1996²⁶ and later included in the IBA inventory, for being the few known breeding sites for White-eyes on Mahé. In October 2000, MoE had advertised a declaration of intent to give a protection status to Conception, which was opposed by former owner.. Although not being official nature reserves, Frégate, North and Cousine are private islands managed for the conservation of the environment including threatened species like the SWE.

Species Management & Protection

Capture and colour-ringing of White-eyes has been conducted since 1996 for monitoring and research purposes (see below). Every year, several nests found on Mahé have been protected to increase their chances of success through rat trapping, nest watches, and installment of metal protections around trunks to prevent rats from climbing^{2,3}. Since 2006, rat control is being permanently conducted on two private properties from Haut-Barbarons and La Misère (Ex-Tracking Station) totaling 16ha of woodland and hosting the majority of the known breeding territories. This seems to have very variable results as breeding success and numbers in these sub-populations fluctuate from year to year. Since 2000, DoE has been producing saplings of native trees (including those producing berries) to be planted on Conception and SWE Mahé breeding sites for the SWE. Some habitat improvement has been conducted through the planting of c. 250 young trees producing berries. Three birds (two from Haut-Barbarons and one from Ex-Tracking Station) were transferred to Cousine in Nov. 2007 but disappeared after a few weeks on the island⁴⁵.

Nest protection had also been tested on Conception but is no longer implemented. Since 2001, a first vegetation management plan 2001-2006 was prepared for this island to improve habitat quality and its carrying capacity for White-eyes²⁷. This included felling of a total of 1500 adult coconuts and as many juveniles, and planting a total of 1560 saplings of native trees (530 as part of the Phase 2 of SWERP by MENRT and 1030 during the FFEM Project by ICS^{46, 61}). In Nov. 2007, Norway rats were eradicated from the island by ICS, which seems to have generated a significant increase of the SWE population⁴¹, and a new vegetation management plan for 2009-2013 has been submitted to the new owner⁴⁶. 31 White-eyes from Conception (including 10 females) were transferred to Frégate in Nov. 2001, plus 6 adult females in August 2003. In July 2007, 25 and 20 birds were transferred to North and Cousine islands respectively.

Following the eradication of Norways rats on Frégate as part of a project led by MoE and co-funded by island owners and DTF²⁸, a conservation introduction of 31 birds was conducted by MoE in Oct-Nov 2001, followed by an additional transfer of 6 females in 2003. Frégate Island has been conducting since 1995 large scale habitat restoration totaling more than 60 ha fully or partially rehabilitated, most of it done since 2001. In total, more than 75000 saplings of native trees have been replanted by the island since 1996. Protection from heavy rains with a palm leaf was given only to the first nest. North Island conducted a successful cat eradication in 2003, then Black rats were eradicated successfully in 2005 as part of the ICS led FFEM project; and a conservation introduction of 25 SWEs from Conception was undertaken by ICS in July 2007 (with only 10 females only). On North, the island management has implemented an intensive habitat restoration programme since 2001, covering up to April 2009 a total of c.45ha fully or partially rehabilitated and c.20,000 native saplings planted. Over 30 ha were rehabilitated since 2005 and 11,000 saplings planted (including several thousands of fruiting trees for the SWE) as part of the FFEM project. Cousine, an island being already free of any introduced predators, started an important restoration programme on its plateau in 1993. In 2003 and 2004, more than 500 native trees producing berries were planted on the island in view of applying for the introduction of the SWE.

Several trials were conducted on Conception to keep White-eyes in small 8m³ aviaries for periods varying from a few hours to two entire days, when it had to be interrupted due to rat predation. These showed that the species could eat in captivity items such as honey with insects captured alive on sticks, termites freshly collected from nests, various berries, or

sugared water sprayed on foliage. After transfers, birds were held captive from half a day to two days before being released, and observations were conducted. During the Cousine transfers, birds were kept in a larger aviary and were feeding on nectar and termites from artificial feeders. This suggests that the species could be kept over longer periods and may possibly breed in captivity, alike other species of White-eyes.

Advocacy

Following the discovery of a White-eye population on Conception, the island was proposed as a future Nature Reserve in 1997. However, the former private owners opposed the idea which was subsequently dropped. Areas important for White-eyes on Mahé were proposed and integrated together with Conception into the first inventory of Important Bird Areas in Seychelles in 1998⁷; Frégate and Cousine are also IBAs and North should also meet the criteria and be added to the inventory when it will be updated. Close contacts have been developed with MPA, the company managing the properties of the President of the UAE, to get permission to continue to work there on the SWE and to set up and fund a rat control over 16ha. Advocacy to conduct habitat restoration activities and population monitoring has been conducted with the new owner of Conception.

Research and Monitoring

Limited information on the status, ecology and biology of the species was collected during the 1960's and 1970's^{9,21to24}. Significant research and population monitoring only started in 1995 as part of the rare and threatened species, sites and habitats monitoring programme, developed under the G1 Project of the EMPS³. This was undertaken by MoE and BirdLife International with contributions from Glasgow University Expedition⁴ and Ministry of Tourism (MoT). Between 1996 and 2002, a monitoring programme had been carried on by Conservation Section in all sites where White-eyes were known to be regularly present on Mahé, with 3 censuses per year (breeding and interbreeding seasons), capture and colour-ringing, annual productivity and nest monitoring in some territories. This has continued on a lower intensity as a joint activity between ICS and Conservation section between 2002 and 2005, with only one census per year at end of breeding season, and irregular monitoring in some territories. Since 2006, a more regular monitoring is being conducted at the properties of the Pdt of UAE (MPA), Haut-Barbarons and Ex-Tracting Station, which host the majority of known SWE territories on Mahé. Intensive population monitoring and research started on Conception in 1998 as part of the SWERP, Phase 1². This provided data on population estimates, feeding ecology, ecological requirements, breeding biology, factors affecting the White-eye populations, and islands potentially suitable for transfers within the Mahé group. Population monitoring was carried on under Phase 2 of SWERP, as well as some complementary research on predator identity and demographic parameters⁸. Since 2002, monitoring through point counts has been conducted annually by ICS & MENRT to determine the abundance of the species. In 2006, a mark-release and relocate study was conducted to estimate precisely the population size and calibrate point counts. No other monitoring and research have been conducted since 2002 on Conception. On Frégate, intensive monitoring was conducted during the post-release phase of the 2001 introduction. Intensive monitoring and research resumed since 2005 as part of a two year Master on the status and biology of the species by a Seychellois student (EHP, from MENRT) at the Université de la Réunion. On North Island, post-release monitoring has also been conducted by ICS since July 2007 to follow the development of the transferred population, and on Cousine a detailed monitoring of the population biology and ecology is also being conducted. Despite a dozen of well documented scientific reports and 2 master thesis describing all the work conducted over the last 12 years, some basic scientific papers on the status, biology and ecology of the species have yet to be written. This is being

addressed through a PhD currently conducted by the Seychellois student (EHP) focusing on the SWE transferred populations that will include a minimum of 5 scientific papers. Only two scientific and technical publications have been produced since 2001, one on the differentiation between Mahé and Conception populations¹¹, and one on results and lessons learnt⁴⁷ from the various species transfers as a chapter of an IUCN book on global reintroduction perspectives. One scientific communication summarizing all work conducted under the SWERP was also presented through a poster to the Congrès Francophone d'Ornithologie in Paris in 2006.

Education & Awareness

Between 1996 and 2001, several articles or broadcasts were produced every year in the newspaper 'Seychelles Nation' and local TV channel SBC (under the local news or specialized magazines) respectively^{2,3}. During Environment Week or on other occasions, members of the Wildlife Clubs or local inhabitants had been taken into White-eye territories to observe the birds in view of increasing people's awareness on the status of the species and the threats affecting it, the activities conducted on Conception or Mahé and measures that needed to be undertaken. Regular updates on activities conducted for the SWE have been published in local quarterly journal 'Birdwatch' or through short notes in island and partner websites, following transfers or as part of island reports. In addition, a dozen of popular articles^{32,33} have been published since 2001 in the local newspaper Seychelles Nation (3) the national airline magazine Silhouette (3), specialized foreign bird or conservation magazines (4) or websites (3). The work undertaken on the species SWE has also been recently described and illustrated in an article in French newspaper 'Le Monde'. Several TV programmes have also been produced in the local media to illustrate both Frégate (Nov. 2001) and North Island (2007) transfers, as well as the rat control activity taking place at Haut Barbarons MPA (UAE) properties. Several short reportages focusing on the species have also been filmed by foreign TV channels on Conception, Frégate, or North islands, including a 5mn one on TV3 (2003, Spain), one for Ushuaia TV (2005, France), one for ARTE (2009, France & Germany) and a 5mn done by SBC and broadcasted worldwide on CNN in 2004. The international conservation community has been kept informed only through short notes published by journal 'World Birdwatch'^{5,16}, or the 'African Bird Club Bulletin'³¹. A synthesis on the species was produced in the 'Handbook of the Birds of the World'⁵⁷ and a more detailed one is in preparation for 'Birds of the Malagasy region'⁵⁸. A conservation-oriented species fact-sheet is also available from the BirdLife website⁵⁹.

Co-operation & Participation

Local inhabitants on Mahé and island residents regularly provide some information on sightings, which helps to monitor the species. Such public co-operation following a public appeal on TV is actually what had led to the discovery of the Conception population in 1996. Numerous Seychellois students and staff from other local conservation organizations have participated to the White-eye conservation activities since then. During Phase 1 of SWERP, this included one HND student from Aberyswyth University (UK) and three returning BSc graduates, one student from ENSAM (University of Montpellier, France), then since 2006 one Seychellois studying a two year Master in University of La Réunion and starting a PhD at MNHN (Paris). A meeting was organised in April 2000 with members of the Bird Forum (MoE and NGO's) at the end of SWERP Phase 1, in order to present its results and plans for Phase 2. Specific meetings with other stakeholders (e.g. island owners) were also conducted to establish the first Action Plan. Between mid-2002 and mid-2005, the intensity of contacts between stakeholders and conservation action undertaken decreased significantly but resumed with the start of the FFEM project. Specific

meetings were organised by MENRT in 2006 and 2007 to discuss, prepare and organise transfers to North and Cousine islands. Since 2005, close contacts have been maintained through regular meetings and visits between the two organisations (ICS & MENRT) coordinating the conservation work undertaken on the species and other partners including islands with transferred populations.

Resources

Funding for the G1 project (1995-1997), during which conservation and research activities on the SWE were started, was obtained from European Union and Seychelles Government. Between 1998 and 2000, DTF funded US\$ 65 000 for the Phase 1 (1998-2000) of the SWERP and the Seychelles Government contributed an equivalent of SR 350 000. DTF funded c.US\$ 46 000 for Phase 2 (2000-2002) and the Seychelles Government an equivalent of SR 230 000; and private company H. Savy & Co. provided c. SR75 000 through ETF. Between 2001 and 2004, Chicago Zoological Society, CEPA and Miguel Torres Foundation provided a total of c.5.000 USD each. Between 2005 and 2008, conservation activities for the species were funded through the project 'Réhabilitation of Island Ecosystems' co-funded by FFEM (444.000 €), the Seychelles government (SR405.000) who also provided in-kind contributions for monitoring, CEPA and Miguel Torres Foundation (20.000 € each), and since 2006 two private companies: MPA (UAE) and Anonyme Island (SR72 000 each). The fraction of funds from the FFEM project spent on the SWE is difficult to assess as many activities (e.g. rat eradication, habitat restoration, etc.) will also benefit to many species but we estimate that specific SWE activities (population monitoring, reintroduction projects, species transfers, university studies) represent probably a total of c.150.000 € over 4 years. The conservation introduction on Cousine benefited from funding from a GEF project 'Improving management...for high biodiversity islands in Seychelles'. To these contributions must be added the cost of habitat restoration programmes conducted on Frégate, North and Cousine, costs incurred by these islands for monitoring activities and for helicopter during island transfers. A very significant in-kind contribution from Helicopter Seychelles was received between 1998 to 2007 to access and build a helipad on Conception. Since then, similar assistance has also been received from new helicopter company ZILAIR.

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10. ACKNOWLEDGEMENTS

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11. REVIEW OF PROGRESS DONE UNDER THE 2001-2006 ACTION PLAN

In the 2001-2006 Action Plan, it was agreed that the SWE action plan should be reviewed every 5 years. However, this did not happen until 2009, mainly because we felt that it would be more appropriate to do this exercise after the most important actions initially planned, such as island transfers, had been conducted and that their success could be better assessed. Therefore progress review has been conducted until the end of 2008, and before the start of the next Action Plan.

SEYCHELLES WHITE-EYE ACTION PLAN 2001-2006

OVERALL GOAL

Ensure the survival of the Seychelles White-eye on at least 3 islands in viable, self-maintaining populations, and bring the species conservation status from Critically endangered to Vulnerable (as a first step to remove this bird from the Globally Threatened Species List).

OBJECTIVE

The goal will be achieved by adding to the species range (Mahé and Conception) a minimum of 2 islands, and managing the vegetation of White-eye habitats in order to increase the population to a minimum of 600 individuals.

Activity	Timetable	Indicators	Lead Resp.	Priority	Progress done
Policy & Legislative					
<i>Protocols for rat & cat contingency and use of pesticides agreed in islands selected for population transfers</i>	2002	<i>MoU between govt. and island owners/managers</i>	<i>MoE/BLS & Island managers</i>	<i>High</i>	Done
<i>Reinforce existing legislation to prevent introduction of alien species in Seychelles, and implement it</i>	2003 2004-2006	<i>New draft of legislation produced and approved by Nat. Assembly</i>	<i>MoE</i>	<i>Medium</i>	Not Done
<i>Use of tape-luring by birdwatchers strictly controlled on Mahé</i>	2003-2004	<i>Integrated into new environment legislation</i>	<i>MoE</i>	<i>Medium</i>	Not Done
Site safeguard					
<i>Fire prevention measures (detailed under Vegetation Management Plan) developed on Conception</i>	<i>Permanent</i>	<i>Open fires forbidden and smoking regulated under a voluntary code of conduct. Control of undergrowth around campsites as a firebreak measure. Quantity of old bottles and broken glass collected.</i>	<i>MoE</i>	<i>High</i>	Done
<i>Declaration of protected status for one more island.</i>	2001-2006	<i>Agreement between government and island owners</i>	<i>MoE & Island owners</i>	<i>High</i>	Negotiations started but no agreement reached
<i>Use of firebreaks in breeding areas sensitive to fire on Mahé</i>	2001-2006	<i>Firebreaks in areas identified as sensitive for fire</i>	<i>MoE & land-owners</i>	<i>Medium</i>	Not done as no areas identified as such. Action to be removed

Activity	Timetable	Indicators	Lead Resp.	Priority	Progress done
<i>Control of tree-felling and housing development on Mahé SWE breeding areas.</i>	<i>Ongoing</i>	<i>Planning applications and tree-cutting permits discussed with MLUH and Forestry in these areas</i>	<i>MoE and MLUH</i>	<i>Critical</i>	Partly done. Difficult to control on private properties
<i>New WE breeding areas (since 1997) inventoried as Sensitive Areas for Environment.</i>	<i>2002-2006</i>	<i>New important areas (e.g. Haut-Barbarons) integrated in SAE and IBA Inventory.</i>	<i>MoE & BLS</i>	<i>Medium</i>	Not done (Inventory not yet updated)
Species Management & Protection					
<i>Implement rat & cat eradication on a suitable island identified as a priority for SWE</i>	<i>2003-2006</i>	<i>One more priority island for SWE free of rats & cats</i>	<i>MoE & Island managers</i>	<i>Critical</i>	Done (North Island)
<i>Implementation of habitat improvement on islands earmarked for SWE transfers through planting of fruiting trees, Coconut felling and control of regeneration</i>	<i>2001-2006</i>	<i>Nursery established Number of native fruiting trees planted Number of coconuts felled (and area with regeneration controlled)</i>	<i>Island owners & MoE</i>	<i>High</i>	Done on Frégate, North & Cousine islands
<i>First transfer of a minimum of 30 SWE from Conception to a predator free island with sufficient habitat to host viable population.</i>	<i>Sept. 2001</i>	<i>Translocation plan established Transferred birds breed successfully. Minimum population of 100 birds established by 2004-2006</i>	<i>MoE & Island managers</i>	<i>Critical</i>	Done on Frégate. (but 100 birds reached only in 2008)
<i>Investigate possibilities of captive breeding with Conception birds</i>	<i>2001-2002</i>	<i>Trial conducted and reports with conclusions produced</i>	<i>MoE & BLS</i>	<i>Medium</i>	Done before and during transfers for a maximum of 2 days
<i>Two transfers of c.15 and c.10 WEs respectively during two consecutive years from Mahé to a second predator free island with sufficient habitat to host viable population.</i>	<i>Sept. 2002 & 2003</i>	<i>Translocation plan established Transferred birds breed successfully. Minimum population of 100 birds established by 2004-2006</i>	<i>MoE & Island managers</i>	<i>Critical</i>	Not done due to unavailability of island and scarcity of birds on Mahé

Activity	Timetable	Indicators	Lead Resp.	Priority	Progress done
<i>Transfer of c.20 SWE from each original population (Mahé & Conception) to a third predator free island with sufficient habitat to host viable population</i>	<i>Sept. 2004-2006</i>	<i>Translocation plan established Transferred birds breed successfully. Minimum population of 75 birds established by 2006</i>	<i>MoE & Island managers</i>	<i>High</i>	Mixing of both populations attempted on Cousine but unsuccessful
<i>Review translocation policy after first experiences of transfer and captive breeding trial</i>	<i>2002-2003</i>	<i>Translocation policy reviewed</i>	<i>MoE & BLS</i>	<i>High</i>	Done before the 2007 SWE transfers based on experience of the 1st transfer
<i>Review use of pesticides in Seychelles and agree protocols of use in WE areas</i>	<i>2002-2003</i>	<i>Agreement established and implemented</i>	<i>MAMR</i>	<i>High</i>	Verbal agreement only with some landowners at La Misère, Cascade & Grande Anse
<i>Integrated control of potential nest predators at SWE breeding locations on Mahé, and if relevant on Conception</i>	<i>2001-2006</i>	<i>Number of rats trapped, Mynahs shot or bulbuls translocated</i>	<i>MoE</i>	<i>High</i>	Done for the two main breeding areas on Mahé (Haut Barbarons & Tracking Station), rats eradicated on Conception
<i>Nest protection measures on Mahé (and on Conception only if relevant)</i>	<i>2001-2006</i>	<i>Number of metal protections put around trees with nests. Productivity of territories improved</i>	<i>MoE</i>	<i>Critical</i>	Done on occasion at La Misère village (1-2 nests per year)
Advocacy					
<i>Seek agreement for implementation of habitat improvement on islands earmarked for SWE transfers through planting of fruiting trees, Coconut felling and control of regeneration</i>	<i>2001-2003</i>	<i>Written agreement between govt. and island owners</i>	<i>MoE</i>	<i>High</i>	Done. - Integrated into vegetation management plan of North Island (NI) - MoU between ICS and NI for FFEM project - MoU prepared but not signed between MENRT and NI & Cousine
Resources					
<i>Phase 3 of SWERP: Restoration project for another island and continued monitoring of established populations c. 150.000 USD</i>	<i>2001-2002 2003-2004</i>	<i>Fundraising Funding obtained</i>	<i>MoE</i>	<i>High</i>	Done. Funds obtained through FFEM & GEF projects

<i>Activity</i>	<i>Timetable</i>	<i>Indicators</i>	<i>Lead Resp.</i>	<i>Priority</i>	<i>Progress done</i>
Research & Monitoring					
<i>Habitat suitability measurements on additional islands</i>	2001-2004	<i>Number of islands investigated Number of vegetation/invertebrate plots done Predicted values of densities and carrying capacity produced</i>	MoE	Medium	3 islands investigated (Anonyme, North & Cousine) Done for North Island and Anonyme
<i>Prioritize islands potentially suitable for SWE for rehabilitation</i>	2002-2004	<i>Islands identified and prioritized</i>	MoE & Island managers	High	Partly done through GEF 'Management of Avian Ecosystems'
<i>Continue and improve population monitoring and surveys, and analysis of trends on Conception and Mahé</i>	2001-2006	<i>Census conducted and reported- Number of birds ringed/resighted Annual censuses completed Number of territories monitored Reports/Scientific papers produced</i>	MoE	High	Done in 2006 Done every year since 1996 on Mahé, Done since 1999 on Conception except for 2003 & 2004.
<i>Chick predators better identified using video cameras and hence protective measures improved.</i>	2001-2002	<i>Number of nests filmed Number of nests which predators were identified</i>	MoE	High	4 nests filmed in 2002, but all successful None
<i>Investigate species interactions i.e. (Seychelles Fody, Warbler) and the role of fruiting trees regarding future transfers.</i>	2001-2003	<i>Reports or scientific papers produced</i>	MoE	Medium	Partly done following transfers on Frégate and Cousine, and also on North for fruiting trees.
<i>Investigate complex co-operative breeding system on Conception</i>	2002-2006	<i>Reports and scientific papers produced</i>	Museum Paris & MoE	Medium	Not done. Project from G. Rocamora (MNH) & D. Richardson (UEA) selected by NGS in 2003 but finally rejected in 2004
Education & Awareness					
<i>Personal contact with all farmers or inhabitants likely to use pesticide treatments in orchard or garden trees, to cut or fell trees in breeding territories, and help with monitoring the species.</i>	Ongoing	<i>Number of farmers or inhabitants sensitized to the necessity of using alternative chemicals, preserving certain trees, reporting observations and protecting the species.</i>	MoE & MAMR	Medium	Done only with some landowners at La Misère, Cascade & Grande Anse

Activity	Timetable	Indicators	Lead Resp.	Priority	Progress done
<i>Media coverage and articles on WE conservation and research activities for general public and world conservation community.</i>	<i>Ongoing</i>	<i>Press articles in newspapers and magazines, TV broadcasts</i>	<i>MoE in liaison with media, and local & international organizations publishing newsletters, etc.</i>	<i>Medium</i>	Done. At least 5 TV reportage on SBC and 3 from foreign TV channels. A dozen of newspaper and popular articles
Cooperation & Participation					
<i>Island owners, managers and residents helping to maintain rat-free status on islands rehabilitated.</i>	<i>2001-2006</i>	<i>Rat abatement measures fully implemented</i>	<i>Island owners & managers</i>	<i>Critical</i>	Done on Frégate, North, Cousine & Conception
<i>Island owners and managers helping to maintain and enhance habitat suitability for WEs on transfer islands</i>	<i>2001</i>	<i>Appropriate management plans for transfer islands produced and implemented.</i>	<i>MoE and key partners</i>	<i>High</i>	Done on Frégate, North, Cousine & Conception
<i>Community participation in the species monitoring on Mahé and islands hosting WEs.</i>	<i>Ongoing</i>	<i>Observations and nest surveillance on a voluntary basis.</i>	<i>MoE & key partners</i>	<i>High</i>	Done whenever possible & appropriate
<i>Community participation for minimal use of dangerous pesticides on Mahé and islands with WEs</i>	<i>2001-2006</i>	<i>Analysis of pesticide levels in WE infertile eggs reflecting minimal use.</i>	<i>MoE, MAMR. & key partners</i>	<i>High</i>	Done
<i>Community participation to help maintain and enhance habitat quality in Mahé residential areas</i>	<i>Ongoing</i>	<i>Wooded area and important trees preserved Nursery established Number of native fruiting trees planted</i>	<i>MoE, MLUH, District Administrations</i>	<i>High</i>	Partly done. This included involvement of school children in tree planting activities.
<i>Community participation to help maintain low densities of rats on Mahé WE territories.</i>	<i>2001-2004</i>	<i>Rat trapping regularly promoted and undertaken by inhabitants and administration.</i>	<i>MoE, Pest Control Unit (MoH), District Administrations</i>	<i>High</i>	Partly Done (in areas surrounding nests)
<i>Regular stakeholder meetings on SWERP progress</i>	<i>2001-2006</i>	<i>Quarterly Bird Forum meetings & specific SWERP meetings every year</i>	<i>MoE</i>	<i>Medium</i>	Done but not regularly

12. SPECIES ACTION PLAN 2009-2013

SEYCHELLES WHITE-EYE ACTION PLAN 2009-2013

OVERALL GOAL

Ensure the presence of the Seychelles White-eye on at least 7 islands including 3 viable, self-maintaining populations, and bring the species conservation status from Endangered to Vulnerable⁸ (as a step to remove this bird from the Globally Threatened Species list).

OBJECTIVE

The goal will be achieved by adding to the species range (Mahé, Conception, Frégate, North and Cousine Islands) a minimum of 2 islands, and managing the vegetation of White-eye habitats in order to increase the population to a minimum of 850 individuals.

	Time-table	Indicators	Lead Resp.	Priority	Comments
Policy & Legislative					
Protocols for rat & cat contingency and use of pesticides agreed in islands selected for population transfers	2011	MoU between govt. and island owners/managers	MENRT/ICS & Island managers	High	As done with Frégate, North and Cousine islands.
Reinforce existing legislation to prevent introduction of alien species in Seychelles, and implement it	2009 -2013	New draft of legislation produced and approved by Nat.Assembly	MENRT	Medium	As part of current GEF Bio-security project
Protocol or legislation to control access to rat-free islands	2009-2013	- Protocol agreed between concerned Parties - Legislation adopted by National Assembly	GIF /ICS MERNT	Medium	Activity planned under current FFEM project, and also by GIF but not completed. Including awareness campaigns (general public & National Assembly).
Investigate possibilities of having specific conservation status for a group of islands to ensure continued biodiversity conservation.	2010-2011	Conservation islands identified. Regulation prepared, voted for & implemented	ICS-MERNT & Island managers	Medium	Important especially in the case of a change of ownership whereby the new owner will have to abide to conditions set under the protective status of the island.

Activity	Time-table	Indicators	Lead Resp.	Priority	Comments
Site safeguard					
Fire prevention measures developed on Conception (detailed under proposed 2009 – 2013 Vegetation Management Plan)	Permanent	Open fires forbidden and smoking regulated under a voluntary code of conduct. Control of undergrowth around campsites as a firebreak measure. Quantity of old bottles and broken glass collected.	ICS	High	Implemented since 2001
Declaration of Conception Island & other key sites as a protected area or sites of specific scientific interest.	2009-2013	Agreement between government and island owner	MENRT, ICS & Island owner	Medium	No substantial progress done since the first Action Plan.
Control of tree-felling and development on Mahé SWE breeding areas.	Ongoing	Planning applications and tree-cutting permits discussed with MND and Forestry section in these areas	MENRT	Medium	The majority of SWE territories are now on the properties of one single owner (Haut Barbarons and Ex Tracking Station)
New SWE breeding areas (since 1997) inventoried as Sensitive Areas for Environment.	Unknown	New important areas (e.g. Haut-Barbarons) integrated in SAE and IBA Inventory.	MENRT & Nature Seychelles/BidLife International	Medium	Date of the next review of the inventory unknown

Activity	Timetable	Indicators	Lead Resp.	Priority	Comments
Species Management & Protection					
Continue habitat restoration and management including preferred trees for SWE	Ongoing	Number of ha restored Number of saplings planted	Frégate Island North Island Cousine Island Conception Island MPA Pties (Mahé)	High	
Consider transferring additional adults from Conception to Cousine	2009-2010		DoE	High	- Prior better understanding of reasons for high mortality required (adults & fledglings Cousine Island to provide analysis) – Only if sufficient birds available from Conception.
Identify suitable islands for transfers taking into account the known historical range of the species	2009-2010	Suitable islands especially those of known historical range identified	ICS-MERNT	High	Historical range; Mahé and Silhouette group
Implement rat & cat eradication on at least 2 islands identified as suitable for SWE	2011-2012	Two more priority island for SWE free of rats & cats	Island managers & collaborating organisations	High	
Implementation of habitat improvement on islands earmarked for SWE transfers through planting of fruiting trees, Coconut felling and control of regeneration	2009-2013	Nurseries established Number of native fruiting trees planted Number of coconuts felled (and area with regeneration controlled)	Island owners & , ICS - MENRT	High	
Transfers of a minimum of 25-30 SWE from Conception to 2 predator free islands with sufficient habitats to host viable populations.	2012 - 2013	Translocation plan established Transferred birds breed successfully. Minimum population of 100 birds established by 2016	ICS - MENRT,& Island managers	High	Transfer of up to 5-6 individuals from Mahé in two years to be also considered to mix both populations

Activity	Timetable	Indicators	Lead Resp.	Priority	Comments
Review transfer opportunities/conservation options for Mahé birds. These will include the following options:	2010	Different conservation options reviewed and decision taken	ICS / MENRT & other interested partners	High	Undertake an assessment of the different conservation options that will be more beneficial to the species.
i) Investigate possibilities of captive breeding with Mahé birds	2010-2012	Trial conducted and reports with conclusions produced	ICS / MENRT & foreign partner experienced in captive breeding	High	Very costly, requires highly skilled personnel.. Could be done in collaboration with other regional partners with expertise in this field. Two day trials conducted during transfers and Conception rat eradication
ii) Transfer from Mahé 8-10 WEs, then if successful 4-5 additional ones 2 years later, to an island free from known nest predators and competitors, with sufficient habitat to multiply Mahé birds	2012	Transferred birds breed successfully. A population of 30-50 birds established after 3 to 5 years	ICS, MENRT & Island managers	Critical	An island as small as 10 ha could also be used to multiply Mahé birds, instead of using captive bred birds
iii) Transfer of up to 5-6 individuals from Mahé to a suitable island in addition to 25-30 SWE from Conception to mix both populations	2012 - 2013	Translocation plan established Transferred birds breed successfully. Minimum population of 100 birds established by 2018	ICS – MENRT & Island managers	High	
Encourage island partners & other organization to support the conservation of Mahé birds	2009-2013	Number of partners & organizations lobbied and supporting the conservation of Mahé birds	ICS	High	A more integrated approach to the conservation of Mahé birds will be beneficial to the species.

Activity	Timetable	Indicators	Lead Resp.	Priority	Comments
Consider establishing a new population on Cap Matoupa peninsula on Mahé by translocating a minimum of 50 birds from Conception	2009-2013		ICS-MERNT	Medium	Only if long term rat control on Cap Matoupa can be secured. This would facilitate the integration of Conception genes into the Mahé population.
Review translocation policy periodically after each transfer taking into account results from previous transferred populations	2011-2013	Translocation policy reviewed	ICS-MERNT	High	
Control of potential nest predators at SWE breeding locations	2009-2013	Number of rats trapped or Mynas killed	Island Managers & collaborating organisations	High	Permanent bait station grids exists on Pdt UAE properties (16ha) on Mahé.
Put more efforts for nest protection measures on Mahé and transfer islands at initial nesting stage.	2009-2013	Number of nests protected (days/night with rat traps or bait stations, metal protections around trees) Productivity of territories improved	ICS-MERNT & Island managers	High	New partnerships required to fund these operations
Advocacy					
Seek agreement for implementation of habitat improvement and monitoring of transferred population on islands where SWE will be transferred	2011-2012	Written agreement between govt. and island owners	MENRT	High	- through planting of fruiting trees, Coconut felling and control of regeneration - monitoring conducted by island staff or with collaborating organisation.
Private island restoration projects and population monitoring (min. 400.000 euros)	2009-2013	- continuation of present projects - environmental management plans - implementation of new projects	Island managers	High	

Activity	Timetable	Indicators	Lead Resp.	Priority	Comments
Resources					
Projects funded by International donors (e.g. FFEM regional project on island restoration) (c. 200.000 Euros)	2009-2015	- Fundraising (2009) - Funding obtained (2010)	Lead project partners (private & NGOs) and MENRT, UNDP, etc.	High	Restoration project for another island and continued monitoring of established populations
Continued support from, private partners, NGOs and Government (c.100.000 euros)	2009-2013	- Support secured, then received	- MPA UAE & Anonyme - foreign NGOs (e.g. CEPA, CZS) - local NGOs (ICS) - Government (DoE & ETF) - private sponsors	High	

Activity	Timetable	Indicators	Lead Resp.	Priority	
Research & Monitoring					
Write up basic scientific papers on the status, biology and ecology of the species, the development and dynamics of its transferred populations	2009-2010	Papers submitted and published	ICS-MHNN & MENRT, Cousine Island	Critical	Being done as part of a PhD at MNHN
Habitat suitability measurements on additional islands	2010-2011	Number of islands investigated Number of vegetation/invertebrate plots done Predicted values of densities and carrying capacity produced	ICS & MERNT	Medium	
Prioritize islands potentially suitable for SWE	2011	Islands identified and prioritized	ICS & MENRT	Medium	Conduct specific meeting to discuss the options.
Continue population monitoring and surveys, and analysis of trends on Conception and Mahé	2009-2013	Census conducted and reported- Number of birds ringed/re-sighted Annual censuses completed Number of territories monitored Reports/Scientific papers produced	ICS & MENRT	High	
Population monitoring in islands with transferred populations	2009-2013	At least 3-4 reports during first year, then one report per year afterwards	Island managers & collaborating organisations	High	Intensity will decrease as population grows.
Chick predators better identified using video cameras and hence protective measures improved.	2010-2013	Number of nests filmed Number of nests which predators were identified	Specific research programme (Master/PhD) with scientific institutions	Medium	This could be conducted on Cousine or Frégate
Investigate species interactions i.e. (Seychelles Fody, Warbler, Magpie-robin) and the role of fruiting trees regarding future transfers.	2010-2013	Reports or scientific papers produced	MoE	Medium	For e.g. on Cousine where species interaction is more obvious.
Investigate complex co-operative breeding system on Conception	2010-2013	Reports and scientific papers produced	ICS-MERNT & scientific institutions Specific research programme (Master/PhD)	Medium	Request agreement from owner. Existing proposal by MNHN/UEA

Education & Awareness					
Activity	Timetable	Indicators	Lead Resp.	Priority	
Personal contact with farmers or inhabitants using pesticides in orchards or garden trees, to cut or fell trees in breeding territories, and help with species monitoring on Mahé.	Ongoing	No. of persons sensitized to the use alternative chemicals, preserve certain trees, report observations and protect the species.	MENRT (DoE & DNR)	Medium	
Participate to local media programmes to recommend pesticides non dangerous to birds for use in SWE areas	2009-2013	Programmes broadcasted	ICS-MENRT	Medium	
Media coverage and articles on WE conservation and research activities for general public and world conservation community.	Ongoing	Press articles in newspapers and magazines, TV broadcasts	ICS-MENRT in liaison with media, and local & international organizations publishing newsletters, etc.	Medium	Important to get international funding
Use of tape-luring by birdwatchers strictly controlled on Mahé	2009-2013	Integrated into next review of environment legislation	MENRT	Medium	Particularly in SWE breeding areas of public access on Mahé. Difficult to control as available in foreign CDs
Cooperation & Participation					
Island owners, managers and residents helping to maintain rat-free status on islands rehabilitated.	2009-2013	Rat abatement measures fully implemented	Island owners & managers	Critical	
Island owners and managers helping to maintain and enhance habitat suitability for WEs on transfer islands	2009-2013	Appropriate management plans for transfer islands produced and implemented.	Island Managers & collaborating organisations	High	
Community participation in the species monitoring on Mahé and islands hosting WEs.	Ongoing	Observations and nest surveillance on a voluntary basis.	ICS-MENRT	Medium	Involvement of school children or other members from the District.
Community participation for minimal use of dangerous pesticides on Mahé and islands with WEs	2009-2013	Number of farmers and inhabitants sensitised	ICS-MENRT and island managers	High	Involvement of District Administrators. Presentations in Districts and schools.
Community participation to help maintain and enhance	Ongoing	Wooded area and important trees preserved Number of native	MENRT (Barbarons Biodiversity nurseries) &	High	Involvement of District Administrators. Presentations in

habitat quality in Mahé residential areas		fruiting trees planted	District Administrations		Districts and schools.
Government to subsidise (remove GST) on rat traps to facilitate rat control	2009-2010	Amount of subsidy obtain.	ICS-MENRT & MoH	High	In partnership with the Ministry of Health (fight against leptospirosis)
Community participation to help maintain low densities of rats on Mahé WE territories.	2009-2013	Rat trapping/poisoning regularly promoted and undertaken by inhabitants and administration. Amount of rat traps purchased. Number of homes involved in rat control operation Amount of rats trapped.	ICS-MENRT, Pest Control Unit (MoH), District Administrations	High	In partnership with the Ministry of Health (fight against leptospirosis)
Regular stakeholder meetings on SWERP progress	2009-2013	One annual meeting & specific meetings relating to transfers	ICS-MENRT	Medium	Mid-term stakeholder meetings & exceptional meetings whenever necessary.