

Project : Population status and distribution survey of the Madagascar Sacred Ibis
(*Threskiornis bernieri*) in Sahamalaza-Iles Radama National Park:
Implication for conservation



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I. Introduction

The Madagascar sacred ibis species has a limited distribution, occurring in the west coast of Madagascar, contrary its African congener which has a broad distribution. Due to its restricted range, little conservation activity about this wetland species has been undertaken. Previous studies on this species focused only on specimen collection and identification of habitat distribution. It has been reported that the current population of the Madagascar sacred ibis is about 2000 adult individuals. Anthropogenic activities including production of charcoal; tree cut for house construction; collection of eggs and trapping of adult and taking nestling for food are the main the threats of the Madagascar sacred ibis. Due to these threats, the wetland bird is red-listed as endangered species by the IUCN Red List.

The Sahamalaza-Iles Radama National Park (SIRNP), situated in the western part of Madagascar is among the distribution of the Madagascar sacred ibis. The first and the only study conducted in the SIRNP on this wetland bird by Andrianarimisa took place in 2006 and identified the habitat distribution within the Park.

This project aimed to address the lack of knowledge about the population status and distribution of the Madagascar sacred ibis within the SIRNP.

The objectives of the project are:

To estimate the population and distribution of the wetland bird by conducting survey within the park.

To identify threats of the species by carrying out questionnaires surveys

To increase local community' awareness by conducting education and outreach about the wetland bird.

Study area

The study area is the Sahamalaza-Iles Radama National Park. This protected area is a complex of terrestrial and marine Park. The terrestrial park constitutes the main habitat of the critically endangered blue-eyed black lemur and the coastal humid forest inhabits the endemic birds including the Madagascar sacred ibis and fish eagle. The marine park is the habitat of endangered marine species including sea turtles, dugong, dolphin and whale in the northwestern part of the Madagascar, in the province of Majunga and Sofia region (Figure 1).



Figure 1: Map of Sahamalaza-Iles Radama National Park (source: WCS)

II. Methodology

II.1 Survey sites

The sites visited by the previous researcher in 2006 were revisited. These sites included mangroves and estuaries in the west coast of the SIRNP which composed of 4 zones or parcelles as follow zone of Ankitsika Tanadava; zone of Ampasimbezo; zone of Sijoro Tranovy and zone of Kapany (Figure 2).

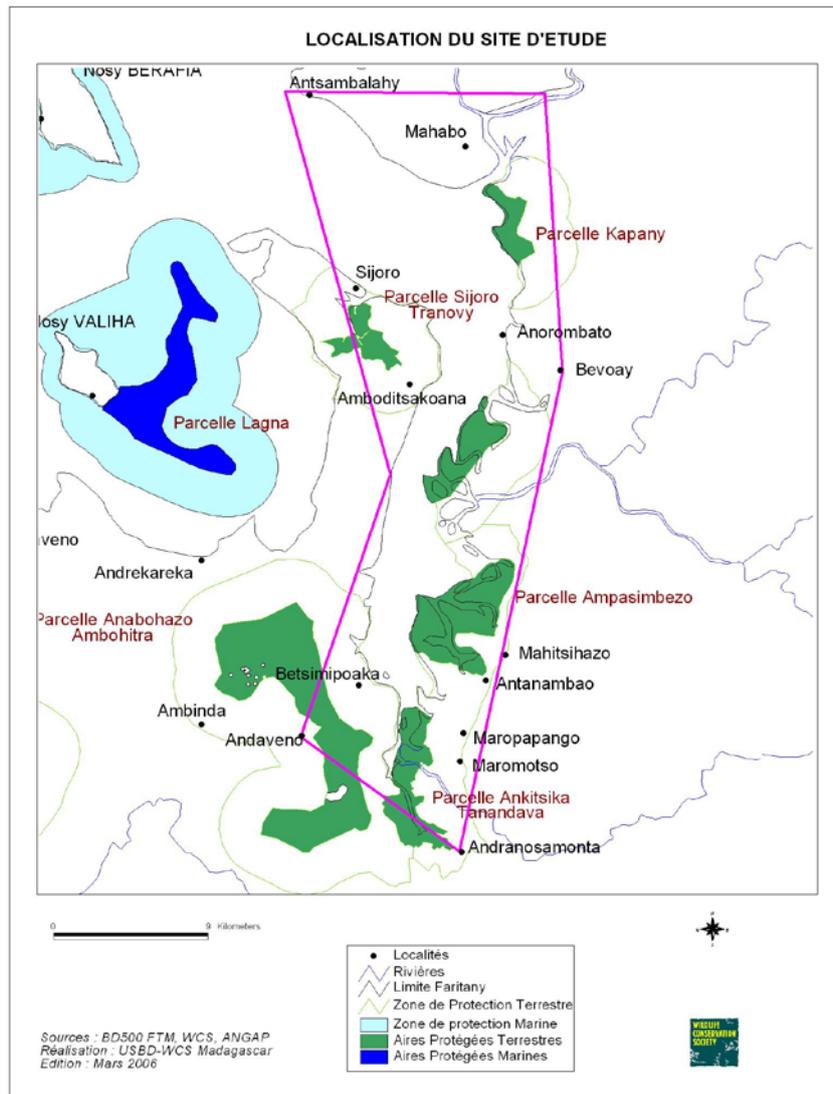


Figure 2: Location of the study sites (source: WCS)

A total of 7 sites within these 4 zones were visited including Antafiatambalaka, Nosy Telo, Betsimipoaka, Ambariomborona, Ambariondrakaka, Antsambalahy and Kapany. It is noted that each site has a village with the same name as the site.



Photo1: Mangrove habitat of the Madagascar sacred ibis in Betsimipoaka

Transport

To reach the study sites, we took a public transport (taxi-brousse) from Antananarivo to Antsohihy and then another taxi-brousse from Antsohihy to Maropapango and then a hike of one hour to reach Antsiraka coast and finally a pirogue from Antsiraka to Betsimipoaka village. A pirogue was used to travel from one site to another one.



Photo 2: The field team on the way to the Park

II.2 Survey data collection

We used the method "look see method" which consisted of counting all individuals encountered. The observations were conducted from the early morning around 6:30 am until noon (12:00pm) when the birds were still active. Binoculars were used. During the high tide, observations were conducted by pirogue, the distance between the observers and the animal was about 15m. We kept a long distance because we

avoided that the bird fly away when we approach them. During low tide we observed the animal by walking and approaching silently and slowly. Each site was visited 3 times. During the observation, the following information were noted: GPS coordinates of the place where the individuals were found; the number of individuals observed; the date and hour of observation; the sea level and activities of the individuals.



Photo 3: Observation during low tide

II.3 Questionnaires survey

Questionnaires surveys were performed person in local language which is the Sakalava and with an assistance of a local person. Prior the survey, we conducted a courtesy visit to the head of each village and informed him the objective of our survey. We conducted the questionnaires within the seven (7) villages close to sites studied. The questions were related to the information about the villagers and the threats of the Madagascar sacred ibis.

We conducted the population survey and the questionnaires over a period of 2 months from June1 until 31 July 2014.

II.4 Education and outreach

Due to funding limited we conducted only one session of education and outreach activity at the village of Betsimipoaka. We choose the Betsimipoaka village because it village contains a high population compared to the others surrounding the wetland habitat. This is also the first village that we had to pass from the mainland so and it was easy for us to transport materials for the education. The activities included PowerPoint presentation about the Madagascar sacred ibis (ecology, threats and conservation measure); water cycle, animation and song. These activities were

conducted at the primary school of Betsimipoaka. The education and outreach activity was carried out in April 2014.

III. Results and Interpretation

III.1 Population survey of the Madagascar sacred ibis

A total of 99 individuals of the Madagascar sacred ibis were recorded within the 7 sites studied. The table below showed the number of individual encountered per site.

Table 1: Number of individuals observed per site

Site	Number of individual counted
Antafiatambalaka	31
Nosy Telo	18
Betsimipoaka	7
Ambariomborona	25
Ambariondrakaka	11
Antsambalahy	0
Kapany	7

Any individual was observed in Antsambalahy. It is noted that this area is overexploited by the sea cucumber fishers which practiced the dredging of the soil surface. This might be the reason of the absence of the Madagascar sacred ibis in the area. The maximum number of individuals of the animal was observed at Antafiambalaka. A vast mangrove forest is still present in this site with several species of mangrove. This might be the reason of high number of individuals encountered there because the habitat and food are still available.

Our estimate number of the Madagascar sacred ibis in SIRNP was higher than in previous study by Andrianarimisa which counted 40 individuals. Our survey was conducted over a period of 2 months while previous survey was much shorter duration about 2 weeks. In addition the survey period was different. These factors may have influenced this increased estimate.

The main activities of the wetland bird are feeding, flying and perching on a mangrove tree. The activities of the individuals observed per site are summarized in the table below:

Table 2: Activity per site

Sites	Activity	Number of individuals	Tide condition
Antafiatambalaka	flying	13	high
	perching on a mangrove tree	11	high
	feeding on the ground	7	low
Nosy Telo	perching on a mangrove tree	8	high
	flying	10	high
Betsimipoaka	feeding on the ground	7	low
Ambariomborona	perching on a mangrove tree	10	high
	flying	6	high
	feeding on the ground	9	low
Ambariondrakaka	perching on a mangrove tree	7	high
	flying	4	high
Kapany	feeding on the ground	7	low

During the low tide the individuals were observed feeding on the mud and at high tide they were flying or perching on a mangrove. It is noted that the animal is mainly feeding on worms, small crustaceans and snails. They were able to search food on the ground when the tide is low tide.



Photo 4: A pair of the Madagascar sacred ibis feeding on the ground



Photo 5: An individual searching food on the ground



Photo 6: a colony of the Madagascar sacred ibis perching on a dead tree

III.2 Questionnaires survey about the threats of the Madagascar sacred ibis

A total of 98 persons composed of 76 males and 22 females within 7 villages were interviewed. The age of the villagers varied between 20 and 60 years old.

a) Knowledge about the Madagascar sacred ibis:

Regarding the knowledge about the wetland bird, 70% of the interviewees reported to know the existence of the bird in the area while 30 % of them ignored the presence of the species.

b) Hunting and consummation of the Madagascar sacred ibis

The majority of the persons interviewed (more than 90%) reported that they neither hunt nor eat the Madagascar sacred ibis.

c) Consideration of the Madagascar sacred ibis

The majority of the villagers replied that the species is protected (58%), about 30% noted that hunting is prohibited. Only 4 % of them reported that the bird served as food; 3% answered that it is a "tabou" to eat the bird.

d) Importance and necessity to protect the Madagascar sacred ibis

About 67% of the villagers reported that they agreed that the Madagascar sacred ibis should be legally protected. However, the majority of them are still unaware that the law about the protection of the Madagascar sacred ibis exists.

Remarks

It is noted that we always accompanied by a local villager who speak the local language during our interview. We also introduced the objective of our work prior the interview. We were not able to take pictures during the questionnaires survey because the villagers did not allow us to photograph them. In addition it was difficult for us to conduct the interview because the villagers were very suspicious when we wrote down the survey answers. They thought that we investigated them their life. Our interview survey showed that the majority of the persons interviewed replied that they neither hunt not ear the Madagascar sacred ibis. One of few villagers who answered that they already consumed the bird confirmed to us that most of the villagers consumed the animal especially chicks and eggs and meal for the New Year. We can conclude that the villagers might not tell the truth to us about the hunting and consummation of the Madagascar sacred ibis.

III.4 Education and Outreach

A PowerPoint presentation about the Madagascar sacred ibis including its ecology, habitat and threats was given to the primary school pupils of the Betsimipoaka village. The pupils were very interested and asked questions about our talk. After this presentation we taught a song about the wetland bird and did an animation. The session finished with an explanation about the water cycle.



Photo 7: Presentation about the Madagascar sacred ibis



Photo 8: Learning a song on the Madagascar sacred ibis



Photo 9: A pupil learnt the water cycle

IV. Conclusion and Recommendation

Overall the project went well. We did not receive an additional fund thus we were not able to conduct the several activities such as distribution of T-shirts, posters and leaflets mentioned on the proposal. Other villages asked us to conduct education and outreach about the Madagascar sacred ibis. The major difficulties that we encountered included the transport and the questionnaire survey. It is noted that the SIRNP is situated in a remote area and there is no public transport to reach the area. Only few villagers have pirogue, therefore we had to book in advance the pirogue to reach the sites. It was a bit difficult for us to conduct the questionnaires survey because the villagers did not understand the meaning of our work even we explained to them prior the survey the objective of our work.

Following this project, we recommend that education and outreach activities on the Madagascar sacred ibis should be continued and sustainable. The local communities need to learn taking responsibility for conserving and managing the natural resources in their vicinities. According to our colleague, the Madagascar sacred ibis is also present outside the Park close to Loza Rivière. Therefore, population surveys on the bird both within and outside the Park should be conducted regularly in order to know the population status of the bird and to evaluate the threats.

We are planning to search more grants to realize the recommendations that we suggest.

VI. Acknowledgment

We express our gratitude to the African Bird Club for providing us funding, without their support this project would not have been possible.