



**REPÚBLICA DE ANGOLA
MINISTÉRIO DO AMBIENTE
INSTITUTO NACIONAL DA BIODIVERSIDADE E
ÁREAS DE CONSERVAÇÃO**

Report

Environmental awareness and education project in Mussulo Bay



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1. Introduction

Mussulo Bay (Figure 1) is one of the most important waterbird areas in Luanda, but also in Angola. In this area one can find as many resident water birds, as migratory water birds. The latter use Mussulo Bay as a resting area during their long journeys along the East Atlantic flyway, including palearctic birds.

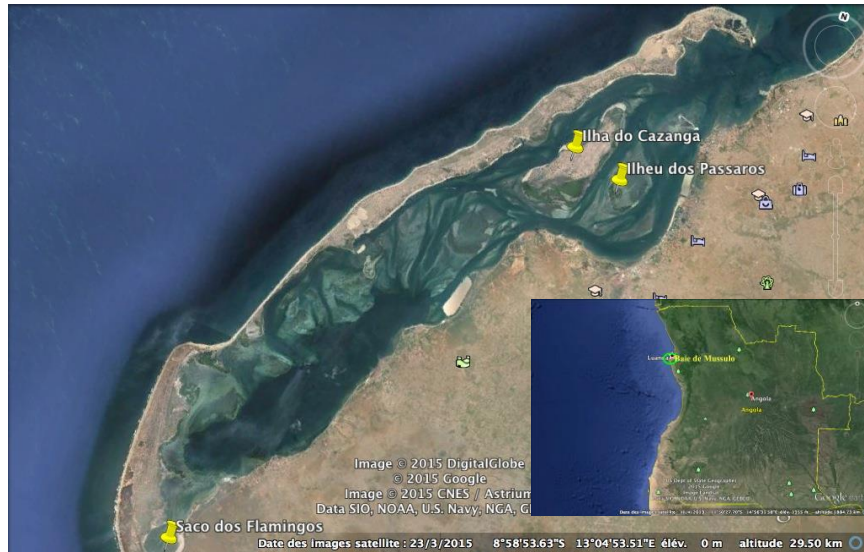


Figure 1- Localisation de la baie de Mussulo

Quite a lot of efforts have already been made to protect and conserve this vital area of Mussulo Bay. Several actions have been carried out with the support of the Wadden Sea Flyway Initiative (WSFI), including the construction of a waterbird observatory in the Ilhéu dos Pássaros Integral Nature Reserve. Considering the need to extinguish these actions on the entire surrounding area of the Nature Reserve, again with the support of WSFI and Wetlands International, bird counts are periodically carried out throughout the Bay of Mussulo.

However, the efforts made, which show certain efficiency and very good results given that the current trend is the recovery of certain lost, illegally occupied or polluted areas, cannot have any effect if there is not the contribution of the riverside population and especially the tourists who constantly frequent this area. It is within this framework that it has proved necessary to carry out activities that could take into account the need to mobilize the riparian population, students, tourists and interested persons to promote the protection and conservation of this important habitat for water birds.

The activities were carried out in Mussulo Bay where two main areas were chosen: the Integral Nature Reserve and the 'Saco dos Flamingos'. However, several awareness-raising and awareness-raising activities have also been carried out at the 'Museu da Escravatura', 'Embarcador do Mussulo' where most tourists are concentrated. Several activities were carried out between December 2017 and March 2018 in these different areas. Most of these activities

were carried out between Friday and Sunday, taking into account the availability of most of the participants, the majority of whom are students, but also the attendance of tourists.

Among the actions carried out, the collection of waste, mainly in the Integral Nature Reserve, by volunteers was one of the key actions. Indeed, waste collection has been extended to other areas of Mussulo Bay, including 'Saco dos Flamingos'. The results obtained after this campaign are very satisfactory and extremely encouraging.

2. Achievements of activities

Environmental awareness and education work was carried out practically along Mussulo Bay. However, two main areas of great interest for birds were chosen as main points: 'Ilhéu dos Pássaros', whose observatory was financed by the WSFI, and 'Saco dos Flamingos' which is a very important area, yet in a state of abandonment.



a



b

Figure 2 (a, b)- Distribution of flyers at Mussulo Bay

2.1. Activities in Ilhéu dos Pássaros and surrounding areas

The Ilhéu dos Pássaros Nature Reserve is one of the most important waterbird areas in Angola. This Reserve which has been abandoned for several years, and which has been occupied

anarchically by certain individuals, has been recovered following the efforts of the National Institute of Biodiversity of the Ministry of the Environment, but also thanks to the financial support of WSFI. The efforts made have prevented the influx of illegal occupants, mainly fishermen and seafood collectors. To a certain extent, this action has enabled the recovery of degraded areas, mainly mangroves, which constitute breeding grounds for fish and molluscs appreciated by waterbirds, both shorebirds and filter feeders.



Figure 3- Sticker stuck to the bird observatory

Indeed, with the construction of the bird observatory built in the Reserve (Figure 3), waterbird observations became more frequent, especially for the student class. However, access to the Reserve is one of the main difficulties in achieving our goal of bringing back as many volunteers as possible. With the financial support of WSFI, we were able to bring back more than 45 students from two major universities in Angola: Universidade Agostinho Neto and Universidade Metodista (Figure 4). Apart from the student class, there were also some volunteers interested (Figure 5) in bird and waterbird conservation.



Figure 4- Etudiants volontaires au 'Museu de Escravatura'



Figure 5- Jeune volontaire

One of the biggest problems of 'Ilhéu dos Pássaros' is the management of urban waste that comes from the megalopolis of Luanda. Indeed, tidal movements bring urban garbage from Luanda back to the Reserve each time, polluting this already fragile habit and reducing the distribution area of waterbirds in the Reserve. This garbage, not selected, accumulates on several points of the Reserve each day that pass, thus representing a permanent danger for waterbirds (Figure 6).



Figure 6- An ash heron near the garbage

Although this threat is present and increasingly dangerous for the survival of waterbirds in this space, no initiative has been taken, until the realization of this project. While this garbage is a direct danger to birds, it is also a problem for tourists, but also for local visitors, who avoid visiting a polluted site that gives off a nauseating odour. This garbage can also pose a threat to marine life in the long term. Indeed, two garbage collection sessions were carried out in several points of the Reserve, in order to reduce the impact of garbage on this habitat. During these two sessions, it was possible to collect over 1200 bags of garbage from 4 key waterbird areas in the Reserve. The garbage collected was brought back to the continental zone by means of canoes rented on site (Figure 7).



Figure 7- Waste transport

Mussulo Bay is one of the most important tourist areas in Luanda. The influx of foreign tourists, but also Angolans, on weekends, was one of the main reasons for organizing our work sessions during this period of the week (Figure 2). Environmental awareness rising is one of the key elements for the success of our activities. Even if the impact of this activity is not as great as the garbage, the motor boats used, the main means of transport, to transport tourists from one place to another, constitute a noise pollution that can disturb water birds. We believe that their awareness and sensitization will help to reduce the impact of motor boats, but also capitalize their interests on the conservation of waterbird habitats in Mussulo Bay.

2.2. Activities in 'Saco dos Flamingos' and surrounding areas

The latest waterbird counts have shown the interest that the 'Saco dos Flamingos' has for waterbird conservation. This interest has long been taken into account. But, unfortunately, to date this interest has declined considerably. Considering its ornithological interest, we put a lot of effort to continue monitoring this waterbird habitat. The observatory built in 2004 in this space was completely abandoned (Figure 5). The present project could not achieve the objectives set, if it could not intervene for the recovery of this important instrument waterbird observation. The recovered observatory will serve as the main waterbird observation site in the 'Saco dos Flamingos' without disrupting their activities.



Figure 8- Observatory 'Saco dos Flamingos' (Flamenco bag)

The choice of 'Saco de Flamingos' is also justified by the presence, near this site, of the training school for future primary school teachers (ADPP). Future teachers are also the key to environmental awareness and education, taking into account that they will be the future trainers and supervisors of the new generations. The support of ADPP's management is immeasurable, without which it would be difficult to carry out our activities at 'Saco dos Flamingos'. Indeed, 35 volunteer student teachers participated in our activity at the 'Saco dos Flamingos' (Figure 9).



Figure 9- ADPP students

3. Impact of the activities carried out

Activities in Mussulo Bay are extremely important to ensure the survival of waterbirds in this area. Unsustainable anthropogenic activities constitute a danger for this space for waterbirds, both African and Palearctic migratory residents, whose migratory route passes through Angola, and where Mussulo Bay represents a significant area of this corridor.

The environmental awareness and education of the people living in Mussulo Bay, but also of foreign tourists and of Angolans, is an important factor if we want to change the current situation, from threatening the waterfowl habitat to a much more favourable state for them.



Figure 10- Stickers distributed to students



Figure 11- Active student participation

The impact of the activities we have carried out can be considered very positive, so that its magnitude can be assessed in the long term. Flyers and stickers were distributed both to students (Figures 10 and 11), volunteers like some foreign tourists to motivate them and allow them to gain better knowledge of certain species of water birds. Both university students, like those of ADPP, have shown a great commitment that we think will have to push them to act a little more for the cause of waterbird conservation and especially to convey the message of environmental awareness, not only to the residents of Mussulo Bay, but also to tourists who are visiting this environment.