

Monitoring Cream-coloured cursors *Cursorius cursor exsul* on the island of Maio, Cabo Verde

Final report on the ABC-funded project



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1. Introduction

The Cream-coloured courser is a wader bird in the family *Glareolidae*, of an intermediate size between the sandpipers and plovers. The Cream-coloured courser of Cabo Verde was separated as subspecies *exsul* because of slight differences in plumage colour. This subspecies is endemic to Cape Verde (*Figure 1*), although neither the population size nor their population trends are known.



Fig 1. Map of Africa

Maio Biodiversity Foundation (FMB) is an NGO founded in 2010 in Maio, Cape Verde. FMB's mission is to preserve Maio's fauna and flora while creating opportunities and long-term benefits for its people. I am from Maio Island and I grew up in small village, Morro, and I assist FMB's bird projects since 2012 and during these years I gained much experience and skills. I never have been in the university because my parents, however, had no money. Since 2012 I have been working as field assistant in a research on the breeding ecology and reproductive success of Kentish plover (*Charadrius alexandrinus*) in the Salina do Porto Inglês, Maio. In June 2013 the FMB received the award for conservation leadership programme, CLP, by my project "Integrative conservation of Terras Salgadas". I went to a training course in Calgary, Canada. The training was on project planning, fundraising, conservation leaderships, education outreach and media.

I carried out fieldwork in 2013 to survey Cream coloured coursers in the island of Maio (*Figure 2*) that holds arguably the largest breeding population of this subspecies. A major motivation for this study was the increased intensity of tourism activities throughout the Cape Verdean Archipelago that could potentially threaten the major habitat of this bird. My project aims to create ecological knowledge in order to design a future conservation plan for the subspecies.



Fig 2. Map of Cape Verde

The preparation of the fieldwork was conducted in March 2013, the fieldwork started on April 10th, 2013 and finished on November 19th, 2013. The data analysis and writing of the report were made between December 2013 and August 2014, and this required new skills I did not have prior to the project.

2. Justification

This project stemmed from the lack of information about the population of the Cream-coloured courser, endemic subspecies *exsul* of the island of Maio of Cabo Verde as there was no specific attempt to monitor this population yet. Although the habitat of Cream-coloured Courser in Cabo Verde is generally stable, and so it is expected that the population is also fairly stable, however given the high pressure from tourism development in Cabo Verde, and especially on the island of Maio, such monitoring should be done now to be able to determine the future conservation plan for the species. In fact, as Maio is a key island for this Cream-coloured Courser subspecies conservation, it seems wise to monitor now the current population of this subspecies in order to prevent any touristic development or activity, such as hunting or quad-bike use, in sensitive areas. This study will also allow us to know the best areas where bird observation can be made by bird-watchers and thus help this kind of nature tourism. Finally, this work also aims to contribute to local residents who are beginning in research and conservation of local biodiversity.

3. Objectives

The objectives of this project were to know the population and understand the breeding ecology of the Cream-coloured Courser in the island of Maio. I planned to establish the abundance of the Cream-coloured Courser in the whole island and identify their preferred habitats in order to predict the possible future negative impacts and ensure its conservation.

The main objectives of the project were:

- (i) Know the number of individuals that exists on the island
- (ii) Identifying the habitats where the species was located
- (iii) Study the breeding ecology

Although I did not achieve these objectives in full, I made substantial progress. In addition, the project gave me the unique opportunity to develop my skills in field ornithology, and this will be a major help in my future career.

Methodology

4.1 Surveys of abundance and identification of habitats

To identify the preferred habitats of the species and to calculate their abundance, a census throughout the island was performed. For this purpose 50 transects were traced and were divided every 150 meters into observation points. In each point the number of birds was counted during five minutes in a 75 meter radius (*Figure 3*) using binoculars. The GPS coordinate of the point was recorded, temperature measured and the pictures taken in order to characterize each point and after all the information was placed in an Excel file.

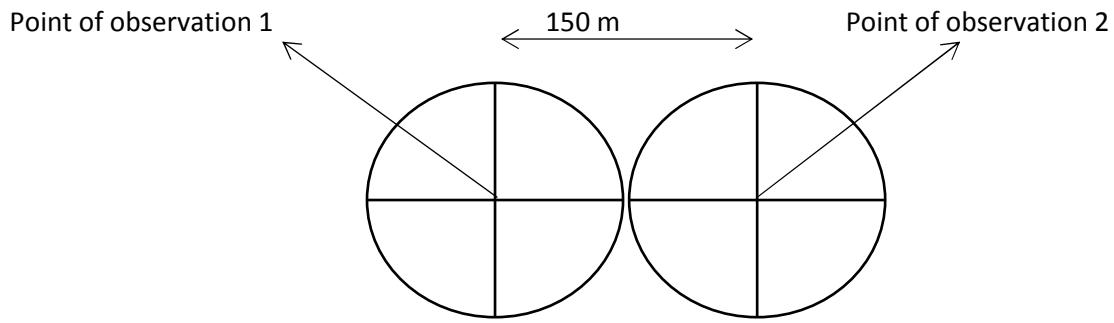


Figure 3. – Survey strategy in the field. Coursers were counted within each circle around the observation points.

4. 2 Finding nests and chicks

An area with a large number of individuals recorded during the surveys of abundance (Salina Porto Ingles principally) was chosen for the nest and families tracking. Nests began to be observed after the rain in August. With a car or mobile hide (*Figure 4*), nests were searched using binoculars and telescope. Each nest and the number of eggs present was recorded and coordinates were taken. The eggs were measured, breath and length to the nearest using a caliper, and were floated in water in order to estimate the time when the eggs would hatch (Székely et al. 2008).

Data on breeding ecology from Cream-coloured coursers are rare in the literature, and in my future project I am planning to continue data collection in Maio.



Figure 4. (a) Mobile hide used in fieldwork, (b) courser nest with 4 eggs, (c) taking egg size measurements in the field

4. 3 Captures, colour rings and blood sampling

The nests were visited by the presumed time of hatching in order to capture the recently hatched birds. With these, the parents of each nest were captured using a funnel nest trap (*Figure 5*). The parents and the chicks were individually ringed using different combinations of colour rings. Additionally, the tarsus and bill body size was measured using a caliper and wing ruler to measure the right wing. Blood samples were taken from all individuals captured. All the information recorded was registered in a notebook.

Blood samples will be used in a follow-up phylogenetic study, although this work requires additional samples from museums and field specimens across the full range of this species.



Figure 5. (a) Placing the funnel nest trap (or walk-in trap) over the nest, (b) a captured adult, (c) taking a blood sample.

5. Results

I am still carrying out statistical analyses with the help of supervisors (see below). However, the pilot results are as follows.

5.1 Surveys of abundance

The Island was covered with 50 transects and 1031 observation points covering all habitats of the Island of Maio. I recorded a total of 282 individuals in 99 points of observations. The largest number of individuals was recorded in the south and southeast of the island. The main areas of the island with the greater numbers of individuals were: The Salina do Porto Ingles until Morro, the southern areas of the island as Ponta Preta and Casas Velhas, and the eastern part of the Island at Pedro Vaz and Alcatraz (*Figure 6*).

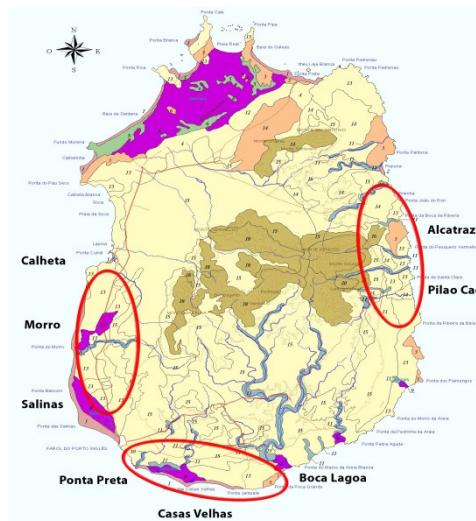


Figure 6. Map of Maio showing the place with largest Number of individuals

5.2 Nests

To search for nests we chose the Salina do Porto Ingles area and a total of 7 nests were found. Nests start to appear in the months of September and October only after the first rains. One nest hatched, 5 nests disappeared before hatching and one nest was predated by Brown-necked Raven. 6 nests found had only one or two eggs, and one nest had 4 eggs. From the only nest where the chick hatched, the chick and one adult were captured, marked with color rings and blood samples were taken. Moreover, two families with one chick were recorded. One chick of these families was captured, marked with colour rings and blood samples were taken. We also observed a predatory event by Brown-necked Ravens in nest.

5.3 Habitats

I recorded 4 different types of habitat in the island of Maio, desert with rocks, desert with little vegetation, dunes and forest. In the south and east of the island have the same type of habitat desert with rocks and desert with little vegetation and salina has dunes and a part with little rocks. The largest number of individuals was recorded in the desert zone particularly in areas with a little vegetation.



Figure 7. Breeding habitats including (a) Desert with little vegetation, (b) rocky desert and sand dunes

5.4 Altitude

Most of the birds were present below 50 meters and rarely above 100 meters, therefore it seems that the Cream-coloured courser prefers the lowlands (Figure 8).

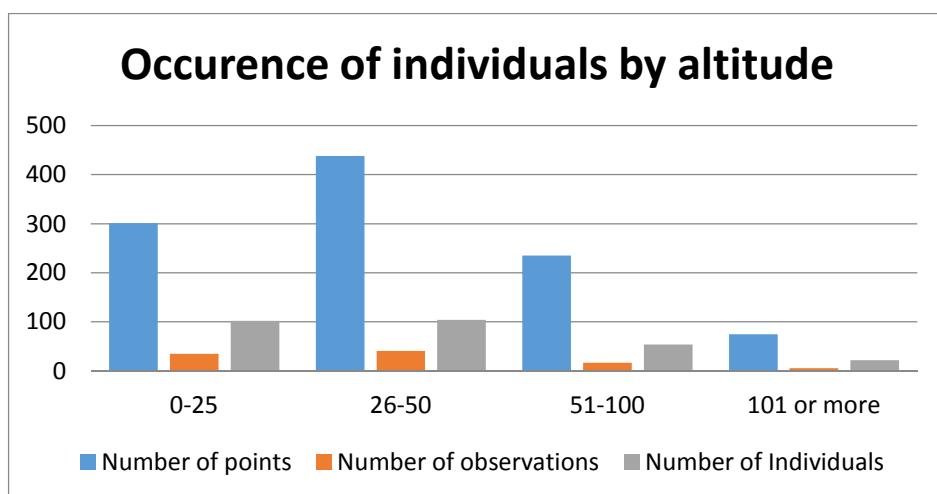


Figure 8. Frequency distribution of observations in regards to altitude (in m)

6. Discussion

6.1 Surveys of abundance

We noticed that the areas where most individuals were found are those with high human pressure, especially tourist development. So, it is necessary to act as fast as possible to avoid the negative impacts that this activity can bring to this endemic subspecies.

6.2 Nests

It seems like the Cream-coloured courser breeds after the rains the same as other endemic and resident species in Maio, like Kentish Plover (*Charadrius alexandrinus*) and Hoopoe Lark (*Alaemon alaudipes*), which started in the months of July and August. We found that the maximum clutch size of this subspecies can reach 4 eggs. We believe that the nest disappeared could have been because ravens were seen continuously around the area. The ravens are the natural predators of the nest and an increase in the number of ravens could cause concerns for this endemic subspecies.

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6.3 Habitat

We observed a clear pattern; the largest number of records was in desert zones with little vegetation which indicates that the Cream-coloured coursers prefer that kind of habitat.

6.4 Altitude

It's more easy to find the Cream-colored courser in lowlands and those are the places with more observation per habitat.

7. Future works

This project was my first detailed ornithological work, and it gave me the first opportunity to learn about birds. Much remains to be researched, and I would focus the new projects on the following topics.

- Estimate the full population size of coursers for the whole island. This is do-able based on the data I collected, although it would require GIS-based modelling using niche-suitability modelling (see Long et al. 2008).
- Identify main nesting areas used throughout the Island
- Study the dynamics of population and determine the survival rate of adults and juveniles, age at first chick and longevity of the species
- Study growth rates of offspring and reproductive success
- Identify the threats affecting the species during the reproductive phase, and assess the likely impact of tourism on this species
- Determine the main feeding areas used by the species

8. Summary

With the support of the African Bird Club it was carried out the first monitoring of the subspecies Cream-colored courser (*Cursorius cursor exsul*) on the island of Maio, Cape Verde. The fieldwork started on 10th April 2013 and finished on 19th November 2013. The objectives of this project were to create basic knowledge for the conservation of this subspecies. Fieldwork was focused on identifying the habitats with greater occurrence of individuals, surveying the abundance, finding nests, capture adults and chicks, color ringing for identification and collecting blood samples.

I carried out surveys across the island and 1031 points were taken in 50 transects. 282 individuals were seen in 99 observations. The greater numbers of individuals were observed in the southern and eastern parts of the island. In addition, I also investigated breeding ecology of this species. The first nests started appearing only in August after the rains. A total of 7 nests were found in Salina do Porto Ingles although only one was recorded as hatched. 5 nests disappeared before they hatched, presumably predated: one nest was observed being destroyed by Brown-necked Raven (*Corvus ruficollis*). The nest failures were most worrying points. Of the nests found, one had 4 eggs and the rest had 1 or 2 eggs. Additionally two families were registered.

Acknowledgements

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