

Associação Projeto Biodiversidade (Project Biodiversity)  
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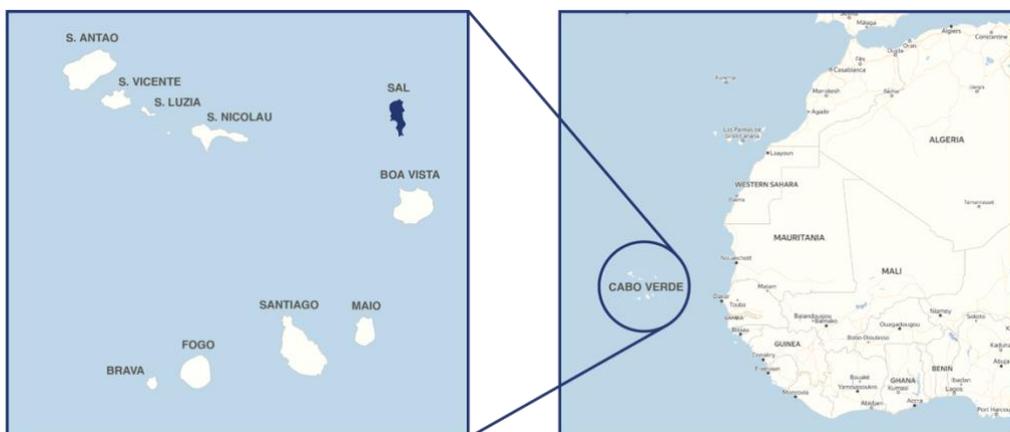
## Study and Conservation of breeding Seabirds in Rabo-de-junco Islet Sal Island, Cape Verde

### Project Biodiveristy

Project Biodiversity is a Cabo Verdean organization committed to conserving and restoring the island's unique ecosystems. Based on the island of Sal, the project implements community-based initiatives that promote conservation and better understanding of the island's natural resources while increasing economic opportunities for the growing local community. Visit [www.projectbiodiversity.org](http://www.projectbiodiversity.org) to know more about our initiatives.

### Seabird species of Sal

Cabo Verde is a volcanic archipelago of 10 island and several islets included in the Macaronesia region, and located over 570 km off the coast of West Africa. The Island of Sal is one of the nine inhabited islands and located in the northeast corner of the archipelago (**Figure 1**). It is fairly flat with an area of 216 km<sup>2</sup> and its highest point culminates at 408 meters. The southern part of the island, where sandy beaches extend, concentrates most of the touristic development, which is the main economic driver of the country, contributing to 18% of the national GDP.



**Figure 1** – Location of the Cabo Verde archipelago and Sal island as one of its 10 islands.

Cabo Verde's archipelago is an important nesting site for seabirds, with 8 different breeding species. From those, three are endemic species from the archipelago, the Cape Verde Petrel (*Pterodroma feae*), the Cape Verde Shearwater (*Calonectris edwardsii*) and the Cape Verde Storm-Petrel (*Hydrobates jabejabe*). There are also 2 endemic subspecies, the Cape Verde Little Shearwater (*Puffinus lherminieri boydi*) and the White-faced Storm-Petrel (*Pelagodroma marina eadesorum*). The remaining 3 species have a larger global distribution, they are the Red-billed Tropicbird (*Phaethon aethereus*), Bulwer's Petrel (*Bulweria bulwerii*) and Brown Booby (*Sula leucogaster*). Unfortunately, the Frigate Bird (*Fregata magnificens*) was declared extinct in the country some years ago.

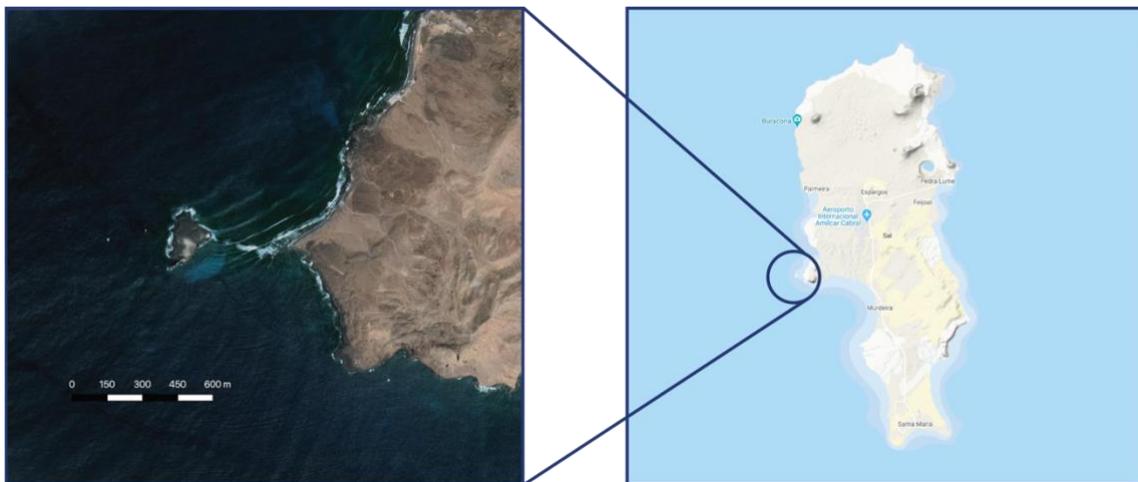
Until a few years ago, practically nothing was known about where and which seabird species nested in the Island of Sal. Because of this information gap, in 2017 Project Biodiversity started a wide survey along the island's coast. For this purpose, we partnered with the seabird's ecology group from the University of Barcelona, led by Dr. Jacob González-Solís.

During the first two years of surveys, we confirmed the presence of four different breeding seabird species, two of them endemic of Cabo Verde. The species with the largest number of individuals was the Red-billed Tropicbird, followed by Bulwer's Petrel, the Cape Verde Shearwater and, with a smaller population, the Cape Verde Little Shearwater. Although we found signs of possible breeding activity of the Cape Verde Storm-Petrel, no nests were ever discovered.

On the other side, the introduction of invasive species (essentially dogs and cats), along with illegal harvesting and habitat loss, are the most important threats these seabirds have to face in Sal Island.

### Field Work

During the surveys we also discovered that one of the hotspots of breeding seabirds in Sal Island was an islet called Ilhéu Rabo-de-Junco (the Portuguese name for Red-billed Tropicbird), a small and unoccupied islet located 270 meters offshore from the westernmost point of Sal Island (**Figure 2**). The site is an underwater volcanic mountain with 2,22 ha of surface (253 meters long x 165 meters wide). It reaches a maximum height of 18 meters, and is practically devoid of vegetation.



**Figure 2** – Close satellite look at Rabo-de-Junco islet (left) and location within Sal Island (right).

Three species were found to breed in the islet -Red-billed Tropicbird, the Cape Verde Shearwater and Bulwer's Petrel- and we suspected that the Cape Verde Storm-Petrel was also present.

In 2019, with the support of The Seabird Group, we started a thorough survey on the Rabo-de-Junco islet with the objective to improve the knowledge on the seabird colonies and its management. The specific objectives of the project were:



- Carry out population censuses for the three known breeding species, including ringing of adults and chicks.
- Confirm the presence of a breeding colony of Cape Verde Storm-Petrel.
- Assess the threats and the conservation status of all the breeding colonies.

The field work was carried from February to August, 2019. It started with occasional visits during the first months and regular visits in the summer period, when the pick of breeding occurs. Summer also brings an improvement of the meteorological and sea conditions, making the access to the islet more feasible. The trips to the islet were made by swimming from the nearest point in the shore, and by boat from Santa Maria's bay. The majority of the visits were made during the day, lasting 4 – 5 hours approximately. However, in two occasions the visits were made over night.

During these daytime visits, the Red-billed Tropicbird and the Cape Verde Shearwater nests were revised, and we made an exhaustive census in the islet, to confirm if other species were also breeding in the site. We collected the GPS coordinate positions of new nests found, as well as the ring numbers from adults ringed the previous years. All the new adults and chicks found were ringed.

On two occasions we organised a 2-day expedition to perform night work. During these expeditions we targeted two nocturnal species: the Cape Verde Shearwater and the Bulwer's Petrel. The first expedition consisted in searching for Bulwer's adults using their claim. Due to the islet's geography, it is not feasible to count the number of nests, as in most cases it is difficult to determinate it's exact position between the rocks. With the answer to the claim, we are able to find the exact location of the adult and ring it, so we can estimate the population's size despite not knowing the total amount of nests. During the daytime, we ringed some adults found between the rocks.

The second expedition consisted in using mist nets to capture and ring adults from both nocturnal species. In each night, the net was placed in different location of the islet.

## **Results**

Throughout the months of work in Rabo-de-Junco islet, we worked with the three previously identified species (*Phaethon aethereus*, *Bulweria bulwerii* and *Calonectris edwardsii*), we confirmed the presence of *Hydrobates jabejabe* and we discovered the presence *Puffinus lherminieri boydi*.

With these new discoveries, the Rabo-de-Junco islet becomes the biggest seabird biodiversity hotspot in Sal Island, and one of the largest in the archipelago. In addition to the five seabird species, the islet also hosts a breeding pair of Osprey (*Pandion haliaetus*).

| Species                           | Adults ringed | Chicks ringed | Total ringed 2019 | Adults ringed with mist net* | Recaptures | Active nests |
|-----------------------------------|---------------|---------------|-------------------|------------------------------|------------|--------------|
| <i>Phaethon aethereus</i>         | 6             | 5             | 11                | 0                            | 2          | 6            |
| <i>Bulweria bulwerii</i>          | 146           | 0             | 146               | 43                           | 6          | -            |
| <i>Calonectris edwardsii</i>      | 20            | 8             | 28                | 14                           | 18         | 16           |
| <i>Puffinus lherminieri boydi</i> | 0             | 1             | 1                 | 0                            | 0          | 1            |
| <i>Hydrobates jabejabe</i>        | 7             | 1             | 8                 | 1                            | 0          | -            |

**Table 3** – Summary of ringed adults and chicks per species. The number of adults ringed with the mist net (\*) is included in adults ringed. Recaptures are birds that were ringed in previous years and that were found in 2019.

During the census, a total of 16 active nests of *Calonectris* were registered. Adults found during the day inside the nest were ringed. In addition, numerous adults (14) were ringed using the mist net during their arrival to and departure from the nest during the night. As the nests were easily accessible, most chicks were also ringed.

A total of six active nests of *Phaethon* were found, all of them of easy access. In this case, adults and chicks were ringed during the day.

A nest of *Puffinus lherminieri boydi*, an endemic subspecies in Cabo Verde, was recorded in the islet. With only records of half a dozen nests in the north of Sal, finding a breeding pair in the islet was an unexpected result. When the nest was found, there was already a well-developed chick inside and it was impossible to ring the adults.

During the surveys we were able to identify five nests of *Hydrobates jabejabe*. We were able to ring seven adults, but most of the nests were in inaccessible cavities in the rocks and we could not confirm if there were eggs or chicks inside, and only one chick could be ringed. In addition, one of the adults could be ringed after being found in the mist net during the night field work.

As mentioned before, it was not possible to count nests of *Bulweria*. We adopted the strategy to ring as many adults as possible to know the approximate size of the population. As a consequence, no chicks of this species were ringed.

Finally, we did not detect any type of human predation during the months of field work on the islet. However we frequently saw fishermen in the vicinity of the islet or and even on it, fishing or picking up small crustaceans to use as bait. We registered a natural predation of *Bulweria*, being usual to find dead individuals of which, in most cases, only the wings remained.