

Wadden Sea Waders in West Africa

A survey of waterbirds in the Bijagos Archipelago in Guinea-Bissau in January/February 2001

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Introduction

The Dutch-German-Danish Wadden Sea is known as the most important staging and moulting area for water birds on the East Atlantic Flyway, and it is estimated that 6-7 million waders alone migrate twice a year through the area between their breeding grounds ranging from northern Canada and Greenland in the west to northern Scandinavia and Siberia in the east and their wintering areas as far south as West and South Africa. From recent studies it has been estimated that at least 3.5 million of these waders are wintering along the West African coast, and coastal wetlands in Mauritania and Guinea-Bissau are known to hold the majority of these birds.

Beside the Banc d'Arguin area in Mauritania as an important wintering site for about 2 million waders, the Bijagos Archipelago in Guinea-Bissau has been recognized to be of major importance. Every year close to one million migratory water birds of over 50 species descend in the Bijagos, finding refuge in the mangroves and feeding on the extensive tidal flats. Many of these birds also use the Wadden Sea as a key site of their flyway.

The Bijagos Archipelago

The Bijagos Archipelago consists of ten larger islands and some 40 smaller islands and islets with mudflats, shallow water and mangroves (Fig. 1). The tidal difference between high and low water is about 4 meters, and at low tide extensive mud flats – in total approx. 100,000 ha – are exposed and act as feeding grounds for a great number of water birds and in particular the Palearctic wader species.

However, the knowledge about these huge and remote areas is still relatively poor, and a monitoring program for the areas was initiated in the beginning of the 1990s, in order to gain more knowledge about the importance of these wintering grounds for the waders on the East Atlantic Flyway.

Further, a joint project between Guinea Bissau and the Trilateral Wadden Sea Cooperation has been running since 1994 (Memorandum of

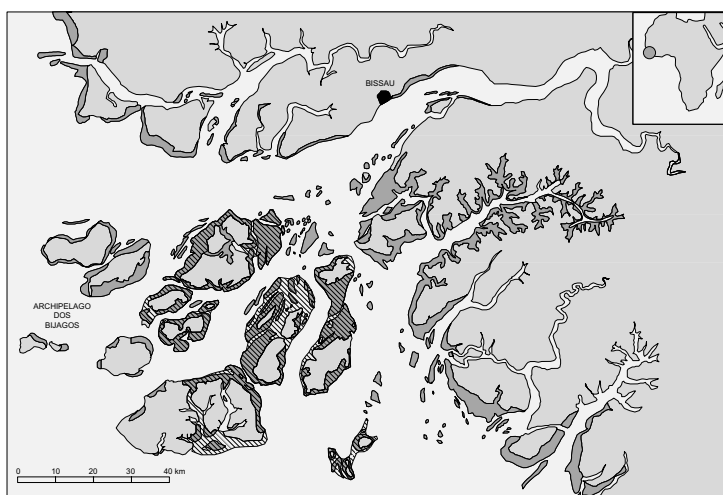


Figure 1:
Map of the Bijagos Archipelago in Guinea-Bissau in Western Africa. The light grey areas are land and the dark grey areas show the occurrence of tidal flats. The hatching shows the covered areas during the census in January and February 2001.

Intent, Leeuwarden 1994) to work jointly towards the conservation of these two ecologically linked areas. As a part of this, a common project was carried out to establish a local ornithological team and to support it in education and public awareness raising in Guinea Bissau. Because of the outbreak of the civil war in Guinea Bissau in June 1998 the work had to be stopped. In 2000, the work was resumed and a contract with the African division of "Wetlands International" was signed to act as the local consultant. A first training course, both practical and theoretical, for the local ornithological team was held in September 2000 and continued in January 2001.

Complete census 2001

During the period January to February 2001, a total count of water birds in the central part of the archipelago was carried out by a team of three local and two Danish ornithologists in cooperation with staff from "Wetlands International". The aim was to get a new estimate on the wintering waders and to encourage the local engagement in monitoring and preservation of the populations in the Bijagos Archipelago

Similar surveys were conducted in 1986/87, 1992/93 and 1994 by Dutch and/or Danish ornithological teams in co-operation with local coun-



Figure 2:
A typical situation from the census: Counting the waders on the tidal mudflats from a dry and stable sandbank.

Most often the birds were counted while feeding on the mudflats and the beaches as they hide in the mangroves during high tide. In areas with a narrow shore or where only a few birds were assembled, the count took place while sailing slowly along the shore. In areas with broad shores or where high numbers of shore-birds were gathered the count was carried out using telescopes standing in the water or on sandbanks

terparts. Monitoring of water birds has been carried out in the framework of the Trilateral Wadden Sea Co-operation since 1995. On the basis of the results from these surveys it has been estimated that close to 1 million Palearctic shore-birds (waders) are wintering on the extensive mudflats of the Bijagos Archipelago.

Hence, a part of this unique area was designated as a UNESCO Man And Biosphere Reserve in 1996.

Methods and Material

The survey was carried out from small motorboats, using binoculars and telescopes. The overall area was divided into smaller sections (in total 44), which were separately counted. The counts took place during daylight hours from 1½ hour after high tide to ½-1 hour before the next high tide. The borders of each section were indicated on maps in the field.

or mudflats (Fig. 2).

If possible all water birds in the section were counted. A day's survey included from two to six sections and a form was filled in for each section. In some cases it was not possible to survey a part of the sections – usually due to a very low water level, which did not allow us to sail close enough to enter the mudflats. In these cases the proportion of uncovered habitat was estimated on the spot and a multiplication factor was estimated for later adjustment of the figures of the different wader species. Correction factors were used only for wader species.

In some cases it was impossible to cover the whole area from the actual shoreline to the high tide shoreline equally well. Most often we had to assume that all parts of the habitat had been covered knowing that we had missed some birds in areas furthest away but in a few cases the figures were multiplied with a correction factor decided on the spot. This correction factor was often higher for the small waders than for the big ones, because it was much easier to spot and identify large birds at a distance.

In a few areas in which it was very difficult or impossible to sail and which included large mudflats, we counted the birds leaving their high tide roosts in the mangroves. Particularly in the northern part of the archipelago at the island of Formosa, this method was applied when counting the waders.

Results

In total 557,944 waders were counted or estimated on the mud flats that were surveyed.

The area covered in 2001 is shown in Fig. 1. Most of the areas covered are the same as those covered in 1992/93. However, some areas were only

Table 1:
Estimated numbers of wintering waders in the Bijagos Archipelago during four surveys. In 2001, numbers are estimated under the condition that 64% of the archipelago was covered and that the birds were randomly distributed.

Species	1986/87	1992/93	1994	2001
Sanderling	6,500	24,300	13,500	11,400
Dunlin	400	710	800	200
Ringed Plover	30,400	26,300	33,000	16,000
Kentish Plover	9,100	5,000	3,750	1,000
Grey Plover	36,500	39,100	35,250	23,500
Curlew Sandpiper	196,600	326,500	408,000	505,000
Little Stint	102,000	59,700	40,500	24,500
Knot	90,000	31,300	43,500	133,000
Ruddy Turnstone	10,800	7,900	7,500	5,400
Common Sandpiper	2,100	2,900	2,200	750
Redshank	70,400	38,400	53,250	28,000
Oystercatcher	1,600	7,100	8,250	4,500
Greenshank	2,920	1,400	2,250	2,200
Bar-tailed Godwit	115,800	108,700	75,000	97,000
Curlew	3,900	9,300	3,750	6,300
Whimbrel	18,100	22,000	19,500	13,000
Total	697,100	710,610	750,000	871,750

covered in 1992/93 and/or only in 2001. In total, we estimate that a similar amount of mud flats and beaches was covered in 2001 as in 1994. The coverage of mud flats and beaches in 1994 was calculated as 64% and the figures of all wader species were multiplied accordingly to reach estimated figures for the whole area assuming the waders were randomly distributed. The assumption of random distribution is based on the fact that there is a trend from very muddy intertidal flats nearest to the mainland coast to sandy beaches on the outermost islands in the archipelago.

In 2001, we have done likewise and the estimated total was 871,750 waders. This seems to be somewhat more than during former surveys (Tab. 1). The main species in the area were Curlew Sandpiper (*Calidris ferruginea*), Knot (*Calidris canutus*) and Bar-tailed Godwit (*Limosa lapponica*).

The species composition, however, has changed quite a lot. Only for five species the figures were between the highest and lowest results of the former surveys. For the two most numerous species, Curlew Sandpiper and Knot, the figures were much higher than during the previous surveys, whereas for most species - especially the more scarce ones such as Kentish Plover (*Charadrius alexandrinus*) and Common Sandpiper (*Actitis hypoleucos*) the figures were relatively low (Tab. 1).

Concluding remarks

The difference in figures between this survey and the former one seems larger than what would have been expected. However, the only bias to the figures that we have come across is implied in the use of counting during the birds' flight from roosting sites to foraging sites. Up to 65,000 birds have been counted during 1½ hours of such flights. Consequently, it is obvious that not each single bird has been thoroughly identified, and it is likely that the numbers of the numerous species during roost counts are too high and the numbers of scarce species are accordingly too low compared to sample counts of foraging on the mudflats.

In general the ecological status of the archipelago seemed to have changed little during the years. The daily life of the 20-30,000 inhabitants apparently has very little impact on the ecological status of the area. There is practically no industry in the archipelago and fishing is driven using traditional methods. There seem to be a more industrial type of fishing going on outside the archipelago where water level permits larger vessels to sail, but it is not known whether this could



Figure 3: Waders - mainly Grey Plovers, Knots and Curlew Sandpipers - on a sandbank near the island of Orango.

have an effect on the ecological state in the archipelago. From a superficial judgment pollution is not an issue in the archipelago though trash is found here and there.

The project underlined the value of regular censuses in the Bijagos Archipelago. Further effort will be necessary to reinforce the local team with sufficient equipment (such as identification guides, telescopes, boats e.t.c.) and to continue the exchange of working teams between the Wadden Sea and Guinea-Bissau. Further, it can be recommended that the present knowledge about the status and the importance of the Bijagos-area will lead to a designation of this unique area as a Ramsar-site as soon as possible.

Future activities will focus on continuing the work in Guinea Bissau in the framework of a sub-regional program for wetland conservation in West Africa by "Wetlands International".

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