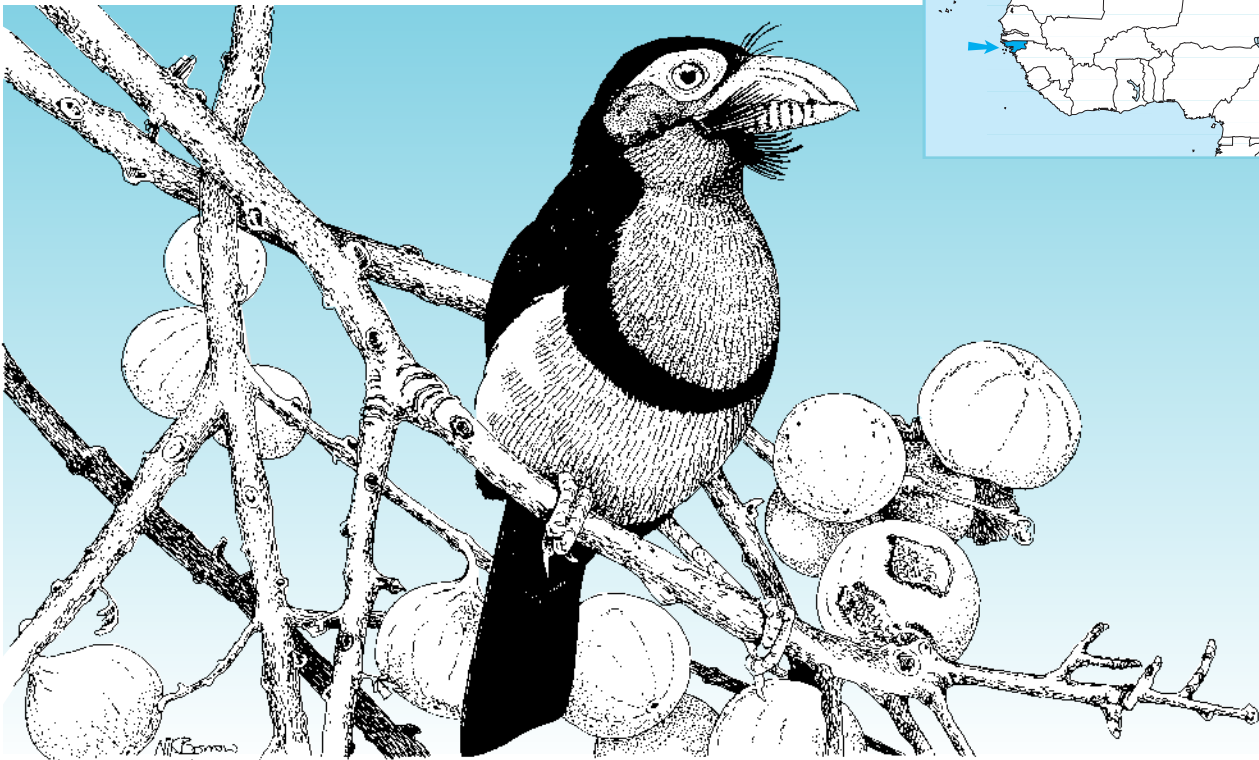


GUINEA-BISSAU

PETER ROBERTSON



Bearded Barbet *Lybius dubius*. (ILLUSTRATION: NIK BORROW)

GENERAL INTRODUCTION

The Republic of Guinea-Bissau is a small country on the coast of West Africa, bordered by Senegal to the north and the Republic of Guinea (Guinea-Conakry) to the south and east. It covers an area of 36,125 km², with a population of 1,112,000 (1997 UN estimate) and an average density of 31 people/km². The annual rate of population increase is 2%.

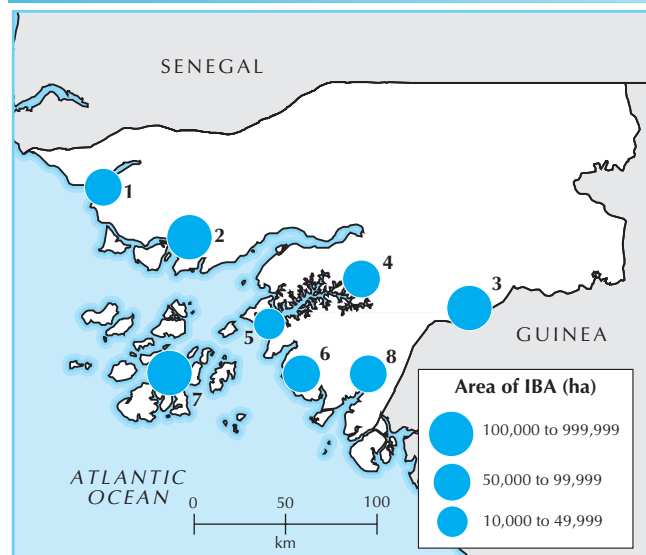
Despite the small size of the country and its population there are over 20 ethnic groups in Guinea-Bissau. The capital, Bissau, has a population of over 200,000 and is situated on the coast, on the northern bank of the estuary of the Rio Gêba, the largest of the country's rivers. Administratively, the country is divided into nine regions (regiões) and 36 districts (sectores). Much of the population (c.75%) is involved in agriculture, principally rice-growing, in mangrove or inundated inland areas or, in combination with other crops, in the forest zone. Cashew-nut production and the harvesting of palm products provide a cash income. Artisanal fishing and the collection of molluscs and crustaceans are important activities throughout the coastal zone. Mangrove wood is harvested to provide fuel for fish-drying and for building. Commercial fisheries harvest 100,000 tonnes of fish and 2,000 tonnes of prawns annually, making fisheries the second most important export industry in the country.

Most of the country receives 1,500–2,000 mm of rain annually, but the south is wetter with rainfall averaging in excess of 2,000 mm. Rainfall is highly seasonal, with a seven-month dry season from November to May. The mean temperature of the coolest month in the capital city, Bissau, is 25°C while that of the warmest month is 28°C.

The coast of Guinea-Bissau is the most geographically striking feature of the country and a significant part of the total land area is made up of the 88 islands and islets of the Arquipélago dos Bijagós. In addition, seven river systems indent the coast, forming flooded valleys or rias which extend deep inland. The whole length of the coast has a relatively wide intertidal zone, with a tidal amplitude of 3–7 m. At the northern and southern extremities of the continental

coast the tidal strip consists of sandy beaches while, in central parts, the coastline is composed of mud- and sandbanks and extensive mangrove swamps. The total surface area of mud- and sandflats at the lowest spring low-water is some 1,570 km². Historically, 11% of the country was covered with mangroves while the total area of the mangrove zone is currently estimated to be 3,560 km², including 380 km² of 'tanne' (open areas, often saltings, within mangrove swamp). The mangroves and coastal flats of Guinea-Bissau form the largest area of this type of habitat in Africa. The mangroves are predominantly composed of *Avicennia africana* and three *Rhizophora* species, *R. racemosa*, *R. harrisonii* and *R. mangle* with *Laguncularia racemosa* much less common. Exploitation of the fish populations,

Map 1. Location and size of Important Bird Areas in Guinea-Bissau.



IBA code	Site name	Administrative region	Criteria (see p. 11; for A3 codes, see Table 2)				
			A1	A3 A04	A05	A4i	A4iii
GW001	Rio Cacheu	Cacheu	✓	✓			
GW002	Rio Mansôa and Gêba estuary	Biombo, Cacheu	✓	✓		✓	✓
GW003	Dulombi	Bafatá, Tombali, Gabú	✓	✓			
GW004	Lagoa de Cufada	Quinara	✓	✓	✓		
GW005	Ilha de Bolama–Rio Grande de Buba	Bolama, Quinara				✓	✓
GW006	Rio Tombali, Rio Cumbijã and Ilha de Melo	Tombali, Quinara	✓	✓	✓	✓	✓
GW007	Arquipélago dos Bijagós	Bolama				✓	✓
GW008	Cantanhez forests	Tombali	✓	✓	✓		
Total number of IBAs qualifying:			5	6	3	4	4

Table 2. The occurrence of biome-restricted species at Important Bird Areas in Guinea-Bissau. Sites that meet the A3 criterion are highlighted in **bold**. Species of global conservation concern are highlighted in **bold blue**.

A04 – Sudan–Guinea Savanna biome (22 species in Guinea-Bissau; six sites meet the A3 criterion)							A05 – Guinea–Congo Forests biome ... continued (50 species in Guinea-Bissau; three sites meet the A3 criterion)					
IBA code:	001	002	003	004	006	008	IBA code:	001	003	004	006	008
<i>Pocephalus senegalus</i>	✓	✓	✓	✓	✓	✓	<i>Indicator maculatus</i>			✓	✓	
<i>Musophaga violacea</i>	✓		✓	✓	✓	✓	<i>Indicator willcocksi</i>		✓			
<i>Merops bulocki</i>	✓	✓	✓		✓	✓	<i>Campethera maculosa</i>			✓	✓	✓
<i>Coracias cyanogaster</i>	✓	✓	✓	✓			<i>Campethera nivosa</i>			✓	✓	✓
<i>Lybius dubius</i>			✓	✓			<i>Dendropicos gabonensis</i>			✓		
<i>Galerida modesta</i>			✓				<i>Hirundo nigrita</i>					
<i>Hirundo leucosoma</i>			✓				<i>Psalidoprocne obscura</i>		✓	✓		
<i>Corvinella corvina</i>		✓	✓	✓	✓	✓	<i>Baeopogon indicator</i>			✓	✓	✓
<i>Cossypha albicapilla</i>			✓	✓	✓	✓	<i>Ixonotus guttatus</i>				✓	✓
<i>Mymecocichla albifrons</i>		✓	✓	✓	✓	✓	<i>Chlorocichla simplex</i>		✓	✓		✓
<i>Turdoides reinwardtii</i>	✓		✓	✓	✓	✓	<i>Thescelocichla leucopleura</i>			✓		✓
<i>Hypergerus atriceps</i>			✓	✓		✓	<i>Phyllastrephus scandens</i>			✓		
<i>Eremomela pusilla</i>			✓	✓			<i>Bleda canicapilla</i>			✓	✓	✓
<i>Nectarinia coccinigaster</i>	✓		✓	✓			<i>Nicator chloris</i>		✓	✓	✓	✓
<i>Nesocharis capistrata</i>		✓	✓			✓	<i>Criniger barbatus</i>				✓	✓
<i>Pytilia phoenicoptera</i>				✓			<i>Criniger calurus</i>				✓	✓
<i>Lagonosticta larvata</i>			✓			✓	<i>Laniarius turatii</i>		✓	✓		
<i>Estrilda caerulescens</i>	✓	✓	✓	✓	✓	✓	<i>Laniarius leucorhynchus</i>				✓	
<i>Petronia dentata</i>			✓	✓	✓	✓	<i>Alethe diademata</i>			✓		
<i>Lamprotornis purpureus</i>	✓	✓	✓	✓	✓	✓	<i>Illadopsis puveli</i>			✓		
<i>Lamprotornis chalcurus</i>	✓	✓		✓	✓		<i>Phyllanthus atripennis</i>			✓		
<i>Ptilostomus afer</i>		✓	✓	✓	✓		<i>Hylia prasina</i>		✓	✓		
Number of species recorded:	9	10	19	16	11	8	<i>Fraseria cinerascens</i>			✓		
A05 – Guinea–Congo Forests biome (50 species in Guinea-Bissau; three sites meet the A3 criterion)							<i>Muscicapa ussheri</i>			✓		
IBA code:	001	003	004	006	008		IBA code:	001	003	004	006	008
<i>Accipiter erythropus</i>			✓				<i>Platysteira castanea</i>					
<i>Francolinus achantensis</i>							<i>Terpsiphone rufiventris</i>		✓	✓	✓	
<i>Sarothrura pulchra</i>							<i>Anthreptes gabonicus</i>			✓		
<i>Psittacus erithacus</i>							<i>Anthreptes rectirostris</i>				✓	✓
<i>Tauraco persa</i>	✓	✓	✓	✓	✓	✓	<i>Nectarinia adelberti</i>				✓	✓
<i>Centropus leucogaster</i>		✓		✓	✓	✓	<i>Nigrita bicolor</i>				✓	✓
<i>Alcedo leucogaster</i>		✓		✓	✓	✓	<i>Pyrenestes sanguineus</i>			✓		
<i>Eurystomus gularis</i>			✓		✓		<i>Spermophaga haematina</i>		✓	✓		
<i>Tockus albocristatus</i>			✓		✓		<i>Ploceus nigerrimus</i>				✓	
<i>Tockus fasciatus</i>		✓	✓	✓	✓	✓	<i>Malimbus nitens</i>			✓	✓	
<i>Ceratogymna fistulator</i>		✓	✓		✓		<i>Malimbus rubricollis</i>			✓	✓	✓
<i>Ceratogymna subcylindricus</i>			✓		✓		<i>Oriolus brachyrhynchus</i>			✓		
<i>Ceratogymna elata</i>			✓	✓	✓		<i>Oriolus nigripennis</i>					
Number of species recorded:								7	8	34	20	18

many of which depend upon the mangroves for their breeding and nursery areas, contributes some 30% of the country's export earnings. In addition, crabs and other shellfish are much sought after for food by villagers.

Inland, the terrain is undulating and low-lying. The highest point is only 262 m while the majority of the country lies below 100 m. The coastal fringe is bordered by bushy savanna or humid herbaceous savanna, succeeded in some places by forest but now, more commonly, by farmbrush and other secondary vegetation. The character of the forests changes from south to north with, in small

areas of the south-east, tall, closed-canopy forests, which include the commercially exploited *Khaya senegalensis*, *Pterocarpus erinaceus* and *Azizelia africana*. These are replaced by areas of drier forest and wooded savanna further inland, while in some parts of the north there are extensive stands of oil-palms (*Elaeis* spp.). Much of the interior was once covered with a mosaic of lowland forest of different types, but this has now been replaced over extensive areas by savanna woodland and secondary grassland. Inland wetlands occur in the flood-plains of all rivers and extend for 230 km along the Rio Corubal, all the way to the border with the Republic of Guinea.

ORNITHOLOGICAL IMPORTANCE

The number of species known to have been recorded from Guinea-Bissau by 1996 was 451. However, it should be noted that, other than the waterbirds of the coastal wetlands, the avifauna of Guinea-Bissau is amongst the poorest-known on the continent. It is highly likely, therefore, that many more species will be found to occur.

Four species of global conservation concern, all Near Threatened, have been recorded. These are *Phoenicopterus minor*, *Circus macrourus*, *Ceratogymna elata* and *Laniarius turatii*, of which the first-mentioned is a non-breeding visitor in variable numbers, *C. macrourus* is an uncommon visitor from the Palearctic, and *C. elata* and *L. turatii* are residents. No species of restricted range are known to occur in the country. Elements of two biome-restricted assemblages occur in Guinea-Bissau. The Guinea–Congo Forests biome (A05) reaches its western limit in the south-east corner of the country, although there are a few forest outliers further west along the coastal fringe; 50 species of this biome have been recorded nationally. The Sudan–Guinea Savanna biome (A04), along with an area of forest-savanna transition, covers the rest of the country; to date, 22 species of this biome have been recorded.

Guinea-Bissau is most important ornithologically for its coastal wetlands. Several estimates have put the total population of wintering Palearctic waders on the coast of Guinea-Bissau to be in the order of one million, with almost three-quarters of these in the Arquipélago dos Bijagós, making it the second most important area in West Africa for migrant waterbirds, after the Banc d'Arguin in Mauritania. In addition, the coastal mudflats, mangroves, rice-fields, etc. have been estimated to hold 330,000–490,000 waterbirds (Altenburg and van der Kamp 1986): 50,000–90,000 herons, cormorants and pelicans, 8,000–15,000 ducks and geese and 270,000–385,000 waders.

CONSERVATION INFRASTRUCTURE AND PROTECTED-AREA SYSTEM

Responsibility for the management of protected areas lies with the Ministério dos Recursos Naturais e Ambiente (Ministry of Natural Resources and the Environment). Two types of protected area are recognized under legislation passed on 26 May 1997 (Lei Quadro das Áreas Protegidas, Decree No. 3/97); parque nacional (National Park) and parque natural (Natural Park). Two National Parks (Orango National Park and João Vieira/Poilão Marine National Park) and two Natural Parks (Cufada Lagoon Natural Park and Rio Cacheu Mangroves Natural Park) were established by this Decree. IUCN was instrumental in the creation of these reserves and is involved in their management.

Forestry and the control of hunting is the responsibility of the Ministério da Agricultura, Florestas e Caça (Ministry of Agriculture, Forests and Hunting). Under Regulamento de Caça, Decree No. 21/80 of 12 May 1980, six Non-hunting Reserves were established (of which two now form part of other protected areas), in which all hunting was prohibited permanently. However, enforcement of this legislation is negligible and, in practice, these reserves exist only on paper. The Regulamento Florestal, Decree No. 44531 of 21 August 1963, details legislation pertaining to forest management. There are, however, no forest reserves; all forests and woodlands are communally owned and there is no legal mechanism to protect them from being felled. While their commercial exploitation for timber seems currently to be a relatively minor threat, the main cause of forest destruction is clearance of land for shifting cultivation.

SITE ACCOUNTS

Rio Cacheu

Admin region Cacheu

Coordinates 12°10'N 16°20'W

Area 54,000 ha Altitude c.0–10 m

GW001

A1, A3 (A04)

Natural Park

Site description

The Parque Natural dos Tarrefes do Rio Cacheu or Rio Cacheu Mangroves Natural Park is located on the northernmost of the

INTERNATIONAL MEASURES RELEVANT TO THE CONSERVATION OF SITES

Guinea-Bissau has ratified the Convention on Biological Diversity, the Ramsar Convention (under which one site, the Lagoa de Cufada, has been listed), the Convention on International Trade in Endangered Species, the Convention on Migratory Species, the Convention to Combat Desertification and the Convention on Climate Change. It participates in UNESCO's Man and the Biosphere Programme under which the Arquipélago dos Bijagós has been designated as a Biosphere Reserve.

OVERVIEW OF THE INVENTORY

Eight Important Bird Areas (IBAs) have been identified, covering 8,735 km² or 24% of the surface area of the country (Map 1, Table 1). The outstanding importance of Guinea-Bissau's coasts for wintering waterbirds is reflected in the five large sites identified as IBAs. Between them, these cover much of the coastal zone and, although it is unrealistic to expect that they can be managed entirely for the benefit of conservation, it is nonetheless necessary to highlight the value of the whole area and the importance of maintaining the integrity of the ecosystem. However, further work is undoubtedly required to refine further site boundaries in some cases.

Six sites qualify as being representative of the Sudan–Guinea Savanna biome (A04) and, between them, hold all 22 species of the biome known from the country (Table 2). Four of these are also wetland sites, an indication of the concentration of ornithological activities along the coastal strip. Three sites qualify for the Guinea–Congo Forests biome (A05), collectively holding 42 of the 50 species that are restricted to the biome and that are recorded from Guinea-Bissau (Table 2). It is unclear to what extent further forest sites remain to be identified and, indeed, whether other species of this biome (in particular, any of the restricted-range species of the Upper Guinea forests) are yet to be discovered in Guinea-Bissau. Surveys of remaining forest blocks in Guinea-Bissau would be valuable. Surveys are also needed in the little-known eastern parts of the country, where additional sites may yet be identified.

COMMENTS ON THE INVENTORY

Spelling of place names follows that used on the 1:500,000 map of Guinea-Bissau (IGN, Paris, 1981).

ACKNOWLEDGEMENTS

A number of people have helped in the compilation of this information by providing copies of reports and giving unpublished information. I am extremely grateful to the following for their assistance; Mr Fai Djeogó, Mr Nélson Dias (IUCN), Dr António Araújo, Dr Giacomo Dell'Omo, Mr Jørgen Peter Kjeldsen and Centre Canadian d'Etudes et de Coopération Internationale. Mr Paulo Catry and Mr Tim Dodman commented on a draft and provided additional information and El Hadj Ravane Diop supplied additional waterbird census data.

GLOSSARY

tanne open salting in mangrove swamp.

ivers which dissect Guinea-Bissau. The area of the National Park includes land on both banks of the river. On the southern side, the site includes stretches from the town of Cacheu eastwards to opposite the village of Apilho, on the northern bank. The northern part of the park is situated nearer the coast and so overlaps only partially with the southern half. It extends from a point some 10 km east of Cacheu, on the opposite bank, to the Rio de Elia, near the estuary mouth, and inland almost as far as the town of São Domingos. The area includes 30,000 ha of mangroves as well as tanne, mud- and

sandbanks, semi-dry woodland, palm forest, savanna and agricultural land.

■ Birds

See Box and Table 2 for key species. To date 140 bird species have been recorded including, in addition to those listed below, seven species of the Guinea–Congo Forests biome (A05); see Table 2. Few count data are available but, given the habitat, it is probable that the area seasonally holds significant numbers of waterbirds; 2,000 *Phoenicopterus minor* were recorded in May 2000.

Key species

A1	<i>Phoenicopterus minor</i>	<i>Laniarius turatii</i>
A3 (A04)	Sudan–Guinea Savanna biome: Nine of the 22 species of this biome that occur in Guinea-Bissau have been recorded at this site; see Table 2.	

■ Other threatened/endemic wildlife

The mammal *Trichechus senegalensis* (VU) occurs.

■ Conservation issues

The park is to be zoned such that 57% of the area will be totally or partially protected, 28% will form a transition zone and 15% will be for sustainable local use. There are 830 people in 14 villages in the south of the park and 7,284 people in 23 villages and one town in the north. However, within most of the park, away from the town in the north, the population density is only 1 per km². The inhabitants are involved in rice-growing, both in mangrove and upland areas, hunting, fishing, the collection of molluscs and crustaceans as well as products from savanna woodland, particularly palm-oil and palm-wine. In common with other coastal sites in Guinea-Bissau, clearing of mangroves for fuelwood (particularly for fish-drying) and rice cultivation are threats.

■ Further reading

Ledant (1985), Maretti and Sales (1994), Orlandi *et al.* (1994).

Rio Mansôa and Gêba estuary

GW002

Admin region	Biombo, Cacheu
Coordinates	11°55'N 15°54'W
Area	191,000 ha
Altitude	c.0–10 m
	A1, A3 (A04), A4i, A4iii Non-hunting Reserve, Unprotected

■ Site description

The site comprises much of the estuary, fringing mangrove and woodland of the Rio Mansôa, together with an area of the northern shore of the Canal do Gêba, the estuary of the larger Rio Gêba, immediately to the east. The site includes two large, predominantly mangrove-covered islands—Ilha de Jeta and Ilha de Pexice—as well as several smaller ones in the mouth of the Rio Mansôa. Eastwards the site extends along the shoreline of the Canal do Gêba as far as the Ilhéu dos Pássaros, an islet near the northern shore of the estuary of the Rio Gêba, a little way downstream of the city of Bissau. The banks of the mouth of the Rio Gêba are bordered with mangroves and soft mud, while there are sandbars and mudbanks in the channel. The site includes 175,000 ha of mudflats, 3,000 ha of mangrove and 13,000 ha of marsh.

■ Birds

See Box and Table 2 for key species. The Ilhéu dos Pássaros is an important roost-site where over 15,000 birds have been recorded. Counts only exist for the eastern parts of the site, the Rio Gêba area, which alone held over 37,000 wintering waders. A count of 1,500 *Phoenicopterus minor* were recorded in March 1990.

Key species

A1	<i>Phoenicopterus minor</i>	
A3 (A04)	Sudan–Guinea Savanna biome: 10 of the 22 species of this biome that occur in Guinea-Bissau have been recorded at this site; see Table 2.	
A4i	Breeding (pairs)	Non-breeding
	<i>Egretta ardesiaca</i>	— 1,354 (1988)
	<i>Egretta gularis</i>	— 2,244 (1988)
	<i>Glareola pratincola</i>	— 2,500 (1983)
	<i>Pluvialis squatarola</i>	— 3,200 (1986/87)
	<i>Charadrius hiaticula</i>	— 7,800 (1986/87)

A4i ... continued	Breeding (pairs)	Non-breeding
	<i>Charadrius alexandrinus</i>	— 1,500 (1986/87)
	<i>Limosa lapponica</i>	— 23,800 (1986/87)
	<i>Arenaria interpres</i>	— 700 (1986/87)
	<i>Calidris ferruginea</i>	— 10,000 (1986/87)
A4iii	More than 20,000 waterbirds have been recorded from this site.	

■ Other threatened/endemic wildlife

The mammal *Trichechus senegalensis* (VU) occurs.

■ Conservation issues

Part of the site has been classified as the Rio Mansôa Non-hunting Reserve. A considerable area of what was originally mangrove has been cleared around the city of Bissau. This practice is continuing which, with increasing population pressure, is likely to have serious consequences for coastal fisheries. Any industrial development in Guinea-Bissau is likely to be centred on Bissau and thus there is a potential threat of pollution to at least parts of this site.

■ Further reading

Altenburg and van Spanje (1989), Ledant (1985), Zwarts (1988).

Dulombi

GW003

Admin region	Bafatá, Tombali, Gabú
Coordinates	11°35'N 14°30'W
Area	177,000 ha
Altitude	20–132 m
	A3 (A04) Unprotected

■ Site description

Dulombi is situated around the junction of Gabú, Bafatá and Tombali Regions in the central-southern part of the country. The southern border of the site is formed by the international frontier with the Republic of Guinea between the towns of Contabane in the south-west and Boé in the south-east. From near Boé the boundary runs northwards along the course of the Rio Corubal to just west of the town of Ché Ché then westwards almost as far as Xitole and so south towards Contabane. The park is drained by the Rio Corubal which flows through it and forms part of the eastern boundary. Vegetation is comprised of dry, sparse woodland, patches of dense woodland and stretches of gallery forest. Mean annual rainfall is 1,500 mm.

■ Birds

See Box and Table 2 for key species. A total of 164 species have so far been recorded from the site, which has yet to be thoroughly surveyed. In addition to those listed below, eight species of the Guinea–Congo Forests biome (A05) have been recorded (see Table 2).

Key species

A3 (A04)	Sudan–Guinea Savanna biome: 19 of the 22 species of this biome that occur in Guinea-Bissau have been recorded at this site; see Table 2.	
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■ Other threatened/endemic wildlife

Mammals include *Pan troglodytes* (EN), *Loxodonta africana* (EN) (a wet season migrant from the Republic of Guinea), *Panthera leo* (VU), *Syncerus caffer* (LR/cd), *Colobus polykomos* (LR/nt), *Cephalophus dorsalis* (LR/nt), *C. sylvicultor* (LR/nt) and *Hippotragus equinus* (LR/cd) as well as the crocodile *Osteolaemis tetraspis* (VU). The last sighting in Guinea-Bissau of *Tragelaphus derbianus* (LR/nt) was from this site.

■ Conservation issues

The site as defined follows the boundaries of a proposed National Park, the plans for which have since been dropped. The population of the area is 8,200, in villages of 12–700 inhabitants. The highest concentration of people is centred around the village of Chumael in the south-west, while the central parts are sparsely populated. Clearing and burning before planting rice is an annual activity around villages. The cleared land is abandoned after only one year then left fallow for the next 6–8. This practice is a particular problem along rivers where gallery forest is cleared. Although rice is the main crop millet, maize, sorghum, cassava, sweet potatoes and groundnut are also grown together with bananas, oranges, lemons, pineapples and cashew nuts. Hunting is widespread. Wild honey is collected for local and commercial use; in the process trees are often cut down and burnt.

Further reading

DGFC-MDRA/CECI (1993).

Lagoas de Cufada

Admin region Quinara

Coordinates 11°43'N 15°20'W

Area 89,000 ha Altitude 0–40 m

GW004

A1, A3 (A04, A05)

Natural Park, Ramsar Site

Site description

The Parque Natural das Lagoas de Cufada is located in central southern Guinea-Bissau, immediately north and west of the town of Buba. The area is bordered to the north by the lower reaches of the Rio Corubal, to the south by the upper reaches of the Rio Grande de Buba and, to the west, by one of its tributaries, the Rio de Fulacunda. The proposed National Park includes the Lagoa de Cufada, two other freshwater lagoons and surrounding forest and savanna areas. Included are 37,700 ha of forest, within which are two sacred groves of primary forest, and 26,000 ha of savanna. The Lagoa de Cufada itself covers 413.5 ha and is a shallow (<1.5 m in the dry season), permanent, eutrophic freshwater lake in the flood-plain of the Rio Corubal. The site also includes two smaller freshwater lakes, Lagoa de Bionra (32.5 ha, permanent) and Lagoa de Bedasse (18.7 ha, seasonal), the seasonally flooded marshes between these lakes and the Rio Corubal and about a 14 km stretch of the south side of the river, which is fringed by a 10–30 m wide strip of mangrove and extensive mudflats. The aquatic vegetation of the lakes includes an abundance of *Nymphaea* sp. which covers most of the shallower areas. Average annual rainfall in the east of the area is 1,850–2,150 mm and in the west is 2,150–2,500 mm.

Birds

See Box and Table 2 for key species. Waterbird counts have recorded 44 species and included, in 1995, 1,195 *Nettapus auritus*.

Key species

A1 *Ceratogymna elata*

Laniarius turatii

A3 (A04) Sudan–Guinea Savanna biome: 16 of the 22 species of this biome that occur in Guinea-Bissau have been recorded at this site; see Table 2.

A3 (A05) Guinea–Congo Forests biome: 34 of the 50 species of this biome that occur in Guinea-Bissau have been recorded at this site; see Table 2.

Other threatened/endemic wildlife

The following mammals have been recorded: *Pan troglodytes* (EN), *Colobus polykomus* (LR/nt) *Procolobus badius* (LR/nt), *Kobus kob* (LR/cd), *Cephalophus dorsalis* (LR/nt) and *Trichechus senegalensis* (VU). The crocodile *Osteolaemus tetrapis* (VU) also occurs.

Conservation issues

The area was declared a Natural Park in 1997 while the Lagoa de Cufada itself and the surrounding area, covering 39,098 ha, was designated a Ramsar Site in 1991. Some 4,100 people in 34 settlements live within the reserve. Subsistence agriculture, particularly rice-growing, is a threat to the forest as some areas have been cleared and burnt for cultivation. Cash-cropping also takes place on a small-scale and parts have been cleared for banana and cashew nut production as well as timber. Hunting and fishing are common activities and there is some evidence of overfishing.

Further reading

Araújo (1994), Araújo *et al.* (1998), Jones (1993), Maretti and Sales (1994), Scott and Pineau (1990).

Ilha de Bolama–Rio Grande de Buba

Admin region Bolama, Quinara

Coordinates 11°30'N 15°30'W

Area c.30,000 ha

Altitude c.0–5 m

GW005

A4i, A4iii

Biosphere Reserve

(Unprotected)

Site description

The Ilha de Bolama is an island on the central-eastern part of the coast which lies just to the north of the mouth of the Rio Grande de

Buba. The Rio Grande de Buba is unusual in Guinea-Bissau in that it mostly merges directly into dry and semi-humid forest rather than mangrove forest. Nonetheless, there are extensive mudflats and mangroves at the river mouth and around Ilha de Bolama. Immediately to the north of Bolama, extending as far as the Ilha das Areias on the southern side of the Canal do Gêba, is a large complex of intertidal flats, mostly of mud in the south, merging gradually to sandflats in the north and with many rocks in the west. The estuary of Rio Grande de Buba contains a mixture of mud- and stoneflats. The site includes 13,000 ha of rocks and mudflats and 17,000 ha of mangroves.

Although the Ilha de Bolama is included in the Arquipélago dos Bijagós Biosphere Reserve, the remainder of which forms site GW007, it is here treated separately, since much of the extensive area of mudflats, which are almost contiguous with Bolama to the north, is excluded from the Biosphere Reserve. It seems more appropriate therefore to unite in one site these flats, those around the shoreline of Bolama itself together with the estuary of the Rio Grande de Buba, immediately to the east.

Birds

See Box for key species. The total number of wintering waders estimated at Ilha de Bolama and Rio Grande de Buba in 1988 were 46,970 and 30,940 respectively.

Key species

A4i		Breeding (pairs)	Non-breeding
Bolama	<i>Pluvialis squatarola</i>	—	4,500 (1986/87)
	<i>Charadrius hiaticula</i>	—	3,900 (1986/87)
	<i>Charadrius alexandrinus</i>	—	1,000 (1986/87)
	<i>Tringa totanus</i>	—	3,000 (1986/87)
	<i>Arenaria interpres</i>	—	1,200 (1986/87)
	<i>Calidris canutus</i>	—	10,000 (1986/87)
	<i>Calidris ferruginea</i>	—	8,400 (1986/87)
Buba	<i>Pluvialis squatarola</i>	—	2,700 (1986/87)
	<i>Tringa totanus</i>	—	3,100 (1986/87)
	<i>Arenaria interpres</i>	—	1,000 (1986/87)
	<i>Calidris ferruginea</i>	—	9,100 (1986/87)
A4iii	More than 20,000 waterbirds have been recorded from this site.		

Other threatened/endemic wildlife

The mammal *Trichechus senegalensis* (VU) occurs.

Conservation issues

Unlike the Ilha de Bolama, the banks of the estuary of the Rio Grande de Buba are relatively sparsely inhabited and there has been comparatively little clearance for agriculture.

Further reading

Zwarts (1988).

Rio Tombali, Rio Cumbijã and Ilha de Melo

Admin region Tombali, Quinara

Coordinates 11°15'N 15°20'W

Area 77,500 ha Altitude c.0–5 m

GW006

A1, A3 (A04, A05), A4i, A4iii

Unprotected

Site description

This site is situated on the south-east coast, near the town of Catió, and consists of the estuary of Rio Tombali, the coastal mudflats between the mouths of the Rio Tombali and the Rio Cumbijã and the Ilha de Melo which lies between the mouths of the Rio Cumbijã and the Rio Cacine, immediately to the east. The site includes 32,500 ha of sandflats and mudflats and c.45,000 ha of mangroves and drier woodland and forest.

Birds

See Box and Table 2 for key species. The total number of wintering waterbirds that use this area has been estimated at over 160,000.

Key species

A1 *Ceratogymna elata*

A3 (A04) Sudan–Guinea Savanna biome: 11 of the 22 species of this biome that occur in Guinea-Bissau have been recorded at this site; see Table 2.

Key species ... continued

A3 (A05) Guinea-Congo Forests biome: 20 of the 50 species of this biome that occur in Guinea-Bissau have been recorded at this site; see Table 2.

A4i		Breeding (pairs)	Non-breeding
	<i>Pelecanus rufescens</i>	—	1,250 (1983)
	<i>Pluvialis squatarola</i>	—	9,800 (1986/87)
	<i>Charadrius hiaticula</i>	—	13,400 (1986/87)
	<i>Charadrius alexandrinus</i>	—	6,400 (1986/87)
	<i>Limosa lapponica</i>	—	28,200 (1986/87)
	<i>Numenius phaeopus</i>	—	13,900 (1986/87)
	<i>Tringa totanus</i>	—	4,700 (1986/87)
	<i>Arenaria interpres</i>	—	1,200 (1986/87)
	<i>Calidris canutus</i>	—	40,600 (1986/87)
	<i>Calidris minuta</i>	—	13,600 (1986/87)
	<i>Calidris ferruginea</i>	—	25,200 (1986/87)
	<i>Anhinga rufa</i>	300 (1983)	—
	<i>Mycteria ibis</i>	300 (1983)	—
A4iii	More than 20,000 waterbirds have been recorded from this site.		

Other threatened/endemic wildlife

The mammal *Trichechus senegalensis* (VU) occurs.

Conservation issues

Main threats include clearance of mangroves for fuelwood and for rice cultivation.

Further reading

Ledant (1985), Maretti and Sales (1994), Zwarts (1988).

Arquipélago dos Bijagós

Admin region Bolama

Coordinates 11°15'N 16°00'W

Area 190,000 ha

Altitude 0–34 m

GW007

A4i, A4iii

 National Parks,
Biosphere Reserve

Site description

The Arquipélago dos Bijagós is composed of 88 islands and a large intertidal area of mudflat and mangrove. Some 20 of the islands are permanently inhabited as, seasonally, are a further 20. The archipelago is situated just off the coast, opposite the mouth of the Rio Gêba. The land area of the archipelago is some 90,000 ha while a further 100,000 ha or so are uncovered twice daily by the retreating tide, of which 76,000 ha are mudflats and 35,000 ha mangroves. The Ilhas de Orango National Park includes the most southerly group of islands, of which the main ones are Orango, Canogo, Imbone, Meneque and Orangozinho, which have a land area of 27,000 ha. The boundary of the park extends to 10 km offshore and the park includes forest, coastal wooded savanna, mangroves (17,400 ha), channels and shallow seas. The João Vieira / Poilão Marine National Park includes four small islands in the south-east of the archipelago and a large area (495 km²) of ocean (mostly excluded from the IBA). Although part of the Biosphere Reserve, the Ilha de Bolama, the island nearest the mainland, is excluded since it forms part of IBA GW005, for the reasons given in the description of that site.

Birds

See Box for key species. This area is second only in importance in West Africa to the Banc d'Arguin in Mauritania (IBA MR007) for the numbers of Palearctic waders present during the northern winter. It has been estimated that up to 700,000 birds occur in the archipelago at this time. The area also includes a number of heronries as well as breeding colonies of ibises, gulls and terns.

Key species

A4i		Breeding (pairs)	Non-breeding
	<i>Egretta ardesiaca</i>	—	2,200 (1992)
	<i>Egretta gularis</i>	870 (1994)	1,800 (1992)
	<i>Egretta garzetta</i>	553 (1994)	—
	<i>Casmerodius albus</i>	925 (1994)	—
	<i>Bubulcus ibis</i>	—	50,000 (1992)
	<i>Ardeola ralloides</i>	318 (1994)	—
	<i>Nycticorax nycticorax</i>	168 (1994)	—

A4i ... continued	Breeding (pairs)	Non-breeding
<i>Threskiornis aethiopicus</i>	742 (1994)	—
<i>Platalea alba</i>	850 (1992/93)	—
<i>Pluvialis squatarola</i>	—	39,100 (1992/93)
<i>Charadrius hiaticula</i>	—	26,300 (1992/93)
<i>Charadrius alexandrinus</i>	—	9,100 (1986/87)
<i>Limosa lapponica</i>	—	115,800 (1986/87)
<i>Numenius phaeopus</i>	—	22,100 (1992/93)
<i>Numenius arquata</i>	—	9,300 (1992/93)
<i>Tringa totanus</i>	—	70,400 (1986/87)
<i>Arenaria interpres</i>	—	10,800 (1986/87)
<i>Calidris canutus</i>	—	90,000 (1986/87)
<i>Calidris alba</i>	—	24,300 (1992/93)
<i>Calidris minuta</i>	—	102,000 (1986/87)
<i>Calidris ferruginea</i>	—	326,500 (1992/93)
<i>Larus cirrocephalus</i>	800 (1994)	—
<i>Larus genei</i>	170	—
<i>Sterna nilotica</i>	—	10,000 (1992/93)
<i>Sterna caspia</i>	1,330	—
<i>Sterna maxima</i>	7,600 (1994)	—
<i>Chlidonias niger</i>	—	2,000 (1992)
A4iii	An estimated 700,000 waterbirds occur seasonally at this site.	

Other threatened/endemic wildlife

Five species of turtle breed in the archipelago; *Chelonia mydas* (EN), *Caretta caretta* (EN), *Lepidochelys olivacea* (EN), *Eretmochelys imbricata* (CR) and *Dermochelys coriacea* (EN). The Ilhéu do Poilão is the main nesting area for *C. mydas* in the eastern Atlantic. Ilha João Vieira and Ilha Orango are also important nesting sites. The largest *Trichechus senegalensis* (VU) population in West Africa is found here. The crocodile *Osteolaemus tetrapsis* (VU) also occurs while the dolphins *Sousa teuszii* (DD) and *Tursiops truncatus* (DD) are common. Mangrove species include the rare *Laguncularia racemosa*.

Conservation issues

The archipelago was declared a Biosphere Reserve in 1996, and incorporates Ilhas de Orango National Park and part of João Vieira/Poilão Marine National Park. Some 20,000 people live in the reserve as a whole, with 2,260 in the National Park. Threats include wood-cutting for fuel and land reclamation for rice production while disturbance of breeding colonies and hunting, although not currently significant, are potential problems. However, commercial overfishing may pose the greatest threat to the area. As a result of the area becoming a Biosphere Reserve, a system of zoned management has been set up throughout the archipelago, which seeks to promote the traditional human uses of natural resources while maintaining the biodiversity of the site.

Further reading

Altenburg *et al.* (1992), Asbirk *et al.* (1994), Maretti and Sales (1994), Quadé (1994).

Cantanhez forests

Admin region Tombali

Coordinates 11°15'N 15°00'W

Area 65,000 ha

Altitude c.0–40 m

GW008

A1, A3 (A04, A05)

 Non-hunting Reserve,
Unprotected

Site description

The proposed Cantanhez (Canthenthês) Forests National Park is situated in the south-east of the country, on the international border with the Republic of Guinea. The site includes river floodplains and mangroves on the northern and western banks of the upper reaches of the Rio Cacine and areas of savanna and forest extending inland as far as the village of Cumbijã, thence south-east to the frontier. It includes the best remaining example of semi-humid forest in the country. The forest is dominated by *Azelia africana*, *Alstonia congensis*, *Antiaris africana*, *Ceiba pentandra*, *Dialium guineense*, *Ficus* spp. and *Parinari excelsa*. Rainfall is restricted to May–November and does not usually exceed 2,600 mm per annum.

Birds

See Box and Table 2 for key species. The area has yet to be properly surveyed.

Key species

- A1 *Ceratogymna elata*
 A3 (A04) Sudan–Guinea Savanna biome: Eight of the 22 species of this biome that occur in Guinea-Bissau have been recorded at this site; see Table 2.
 A3 (A05) Guinea–Congo Forests biome: 18 of the 50 species of this biome that occur in Guinea-Bissau have been recorded at this site; see Table 2.

Other threatened/endemic wildlife

Primates include *Pan troglodytes* (EN), *Procolobus badius* (LR/nt), *Colobus polykomos* (LR/nt) and *Papio papio* (LR/nt). *Trichechus senegalensis* (VU) has been recorded from the upper reaches of the Rio Cacine.

Conservation issues

Part of the forest was classified as a Non-hunting Reserve, but the regulations are not enforced and there is no effective protection for the forest habitat. The area has been proposed as the Cantanhez (Canthenthês) Forests National Park, and there is apparently general agreement between the central and local authorities and the local population of the need to take action to conserve this area. The human population within the proposed park is estimated at 4,100. Encroachment through shifting cultivation is leading to degradation and destruction, particularly in the northern sector. Hunting has, with the partial exception of primates, reduced or eliminated populations of larger mammals.

Further reading

Gippoliti and Dell’Omo (1996), Maretti and Sales (1994).

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