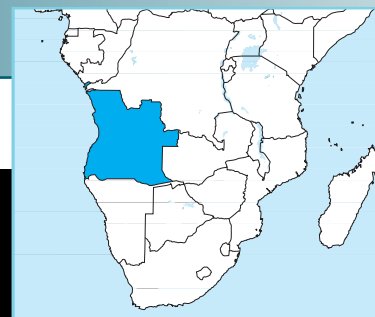


# ANGOLA

W. R. J. DEAN



Dickinson's Kestrel *Falco dickinsoni*. (ILLUSTRATION: PETE LEONARD)

## GENERAL INTRODUCTION

The People's Republic of Angola has a land-surface area of 1,246,700 km<sup>2</sup>, and is bounded by the Atlantic Ocean to the west, Republic of Congo to the north-west, the Democratic Republic of Congo (the former Zaïre) to the north, north-east, and east, Zambia to the south-east, and Namibia to the south. It is divided into 18 (formerly 16) administrative provinces, including the Cabinda enclave (formerly known as Portuguese Congo) that is separated from the remainder of the country by a narrow strip of the Democratic Republic of Congo and the Congo river.

The population density is low, c.8.5 people/km<sup>2</sup>, with a total population of 10,609,000 in 1992 (Pélissier 1995). However, large areas of the country are sparsely populated, since much of the population is clustered in major centres in central and western Angola. For example, the population of the administrative capital, Luanda, estimated at 480,613 persons in 1970, had risen to 1.3 million by 1986 (Pélissier 1995). This trend may now have been reversed with a general movement from cities to rural areas (Pélissier 1995). The post-independence strife in Angola has created problems of internal refugees (estimated at up to 650,000 people) and serious food shortages and famines have periodically affected much of the rural population since 1974.

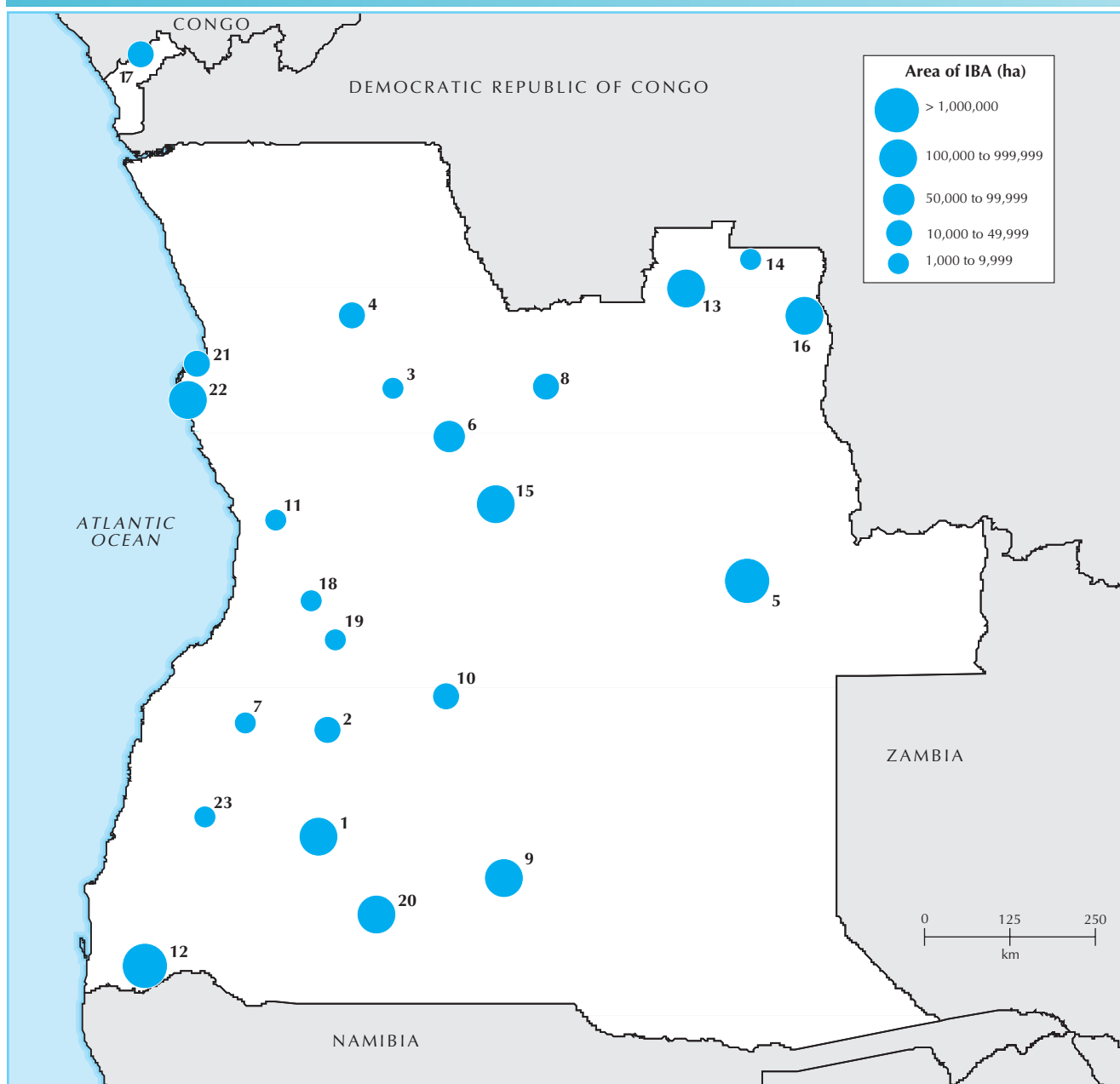
A large proportion of Angola lies within the zone of the intertropical trade winds and has a hot, wet summer and a warm, dry winter. There is an increase in rainfall with increasing distance from the sea and altitude, and with decreasing latitude, so that the wettest areas are in the north-east. Mean annual precipitation exceeding 1,600 mm occurs in the Maiombe forest region of Cabinda and other areas of the Transition Zone, higher parts of the Marginal Mountain Chain and Old Plateau. The entire Coast Belt is arid to semi-arid, with extreme aridity (less than 50 mm mean annual precipitation) found along the coast south of Namibe town. Rainfall, mostly of convective origin, is seasonal throughout Angola; in the north-east the rainy season is from August to May, while in the south-west it is considerably shorter, from about

December to March. A short dry period during the rains, in January or February, occurs in the north-west.

The cold, upwelling Benguela current system influences the climate along the south-western coast, and this region is arid in the south to semi-arid in the north (at about Benguela). Mean annual temperatures in the region, and on the plateau above 1,600 m, are below 19°C. Areas with mean annual temperatures exceeding 25°C occur on the inner margin of the Coast Belt north of the Queve river and in the Congo Basin (Huntley 1974a). The hottest months on the coast are March and April, during the period of heaviest rains, but the hottest months in the interior, September and October, precede the heaviest rains (Huntley 1974a). The coolest months are July and August. Sub-zero temperatures are frequently recorded at these times on the highland plateau.

There are six main geomorphological regions: the Coast Belt, the Transition Zone (or 'Scarp'), the Marginal Mountain Chain, the Old Plateau, the Congo Basin and the Zambezi-Cubango Basin. The Coast Belt varies from 12 km to 200 km in width and does not exceed 300 m in altitude. Some of the coast has been uplifted, so that there are high cliffs in places. Extensive sandbars fairly close inshore have formed to the north of the Cunene, Curoca, Cuanza and other large rivers. Inland of the Coast Belt, the land rises along the Scarp, sharply in the south with high, sheer cliffs in the Serra da Chela in Huíla Province, but further north in a series of gentle steps. In central west Angola a mountainous area (the Marginal Mountain Chain), restricted to a narrow belt along the margin of the Scarp, rises to 2,620 m at Mount Moco, 2,582 m at Mepo and 2,554 m on Lubangue. The highest points in the Marginal Mountain Chain are formed by residual land surfaces, possibly of Gondwanan age (King 1963, cited in Huntley 1974a). The extensive interior plateau, east of the Scarp and the Marginal Mountain Chain, ranges from 1,600 m to 1,850 m in altitude, gradually dropping down to 1,200 m in south-eastern Huíla Province. The Old Plateau includes the central highlands of Huíla, Huambo and Bié Provinces. To the east of the Old Plateau, numerous rivers of the Congo Basin drain north-east and northwards from the central mountain zone. The

Map 1. Location and size of Important Bird Areas in Angola.



plains of the Congo Basin range from 1,000 m to 1,500 m in altitude, and are fairly well incised by the river systems. The Zambezi-Cubango Basin is a very extensive gently undulating area drained eastwards by the Zambezi river, south-eastwards by the endorheic Cuando-Cubango system, and south- and south-westwards by the Cunene river.

Five major biomes can be recognized in Angola. These are the Guinea–Congo Forests biome, Afrotropical Highlands biome, Zambezi biome (incorporating woodlands dominated by *Brachystegia* and *Colophospermum mopane*), Kalahari–Highveld biome (incorporating woodlands dominated by *Acacia*) and Namib–Karoo biome. In addition, the escarpment zone includes both forest and thicket communities that have rather distinctive biotic characteristics. There are also several specialized ecosystems along the coast that do not form part of any of the major biomes, but are of biological interest (Huntley 1974a).

Cool, moist relict forests of the Afrotropical Highlands biome are restricted to isolated patches on the protected slopes of mountains in Huambo, Benguela, Cuanza Sul and Huíla Provinces. These forests are found mainly in deep ravines at altitudes of 2,000–2,500 m and have a canopy height of 10–15 m. The avifauna of these forests is characterized by a large proportion of endemic and near-endemic species and subspecies (Pinto 1960; Hall 1960b). It is striking that the combined area of these forest relicts is probably

less than 200 ha (Huntley 1974a), and yet they maintain populations of plants and animals that may be isolated by more than 2,000 km from congeners.

The best example of this forest-type is found at Mount Moco, in the Luimbale area of Huambo Province, where there are at least 15 forest patches ranging in size from one to 20 ha (Huntley and Matos 1994). A number of bird species and subspecies have been recorded only on Mount Moco or Mount Soque, or on these two inselbergs and in other relict montane forest patches in Huambo and Cuanza Sul Provinces.

The Guinea–Congo Forests biome comprises the evergreen and semi-deciduous forests of Cabinda, Zaire, Uige, Cuanza Norte and Cuanza Sul Provinces, where mean annual rainfall of about 1,300 mm occurs, spread over at least 10 months of the year, and mean annual air temperatures exceed 23°C. Fog is common, especially in winter. Guinea–Congo forest is distributed discontinuously south of Cabinda, and the majority of forests are on the well-drained slopes in the transition zone. They are characterized by a wide variety of very tall tree species which often reach 50 m in height and form a continuous multi-storied canopy.

Coffee (*Coffea robusta*) is grown in many parts of the forest biome, the undergrowth in the forest being cleared and replaced by coffee trees. Coffee-planting tends to harmonize with the natural forest, for the canopy trees are left to provide shade. The result is a

fairly evenly spaced, homogeneous, even-aged monospecific stand of ground-layer vegetation. The ground between the coffee trees is kept clear by slashing and the main herbs growing in the open areas around the coffee trees are nettles, thornless legumes and various Acanthaceae.

A discontinuous series of moister vegetation-types extends southwards from the Guinea–Congo forest, and occurs along the escarpment between the arid coastal zone and the miombo woodlands. This zone has affinities with all three adjoining biomes but also acts as a barrier between them. It is an important factor influencing the composition of the avifauna of western Angola (Hall 1960a), and contains a number of endemic or near-endemic bird species, mostly poorly known.

Within and surrounding the Guinea–Congo Forests biome are extensive areas of tall grassland interspersed with gallery forest in the valleys and isolated forest patches in favourable situations on the plateau (Huntley and Matos 1994). Gallery forests are particularly well developed in the Cuango, Luxico, Luachimo, Luia and Kassai river valleys of the Congo Basin. These forests are narrow belts along the rivers, with canopy heights of 30–40 m, and surrounded by open woodland. In the south of this zone, within the 1,100–1,500 mm isohyet, there are a variety of vegetation communities on well-drained rolling hills at 800–1,200 m altitude. The woodlands generally lack miombo (*Brachystegia*) trees and the gradients typical of miombo communities, i.e. grassy valleys and wooded hills, and are more open than typical miombo woodland. Tree species include *Cussonia angolensis*, *Entadopsis abyssinica*, *Cochlospermum angolensis*, *Sterculia quinqueloba* and *Combretum* spp., while grasses include *Panicum maximum*, *Andropogon* and *Hyparrhenia* (Huntley and Matos 1994).

Zambezian biome: most of the interior plateau of Angola is occupied by miombo woodland, particularly on the highly leached soils formed by the crystalline rocks of the Ancient Massif and the infertile Kalahari Sands. Typical miombo woodlands occupy about 47% of the surface area of Angola. Dominant tree genera of these woodlands are *Brachystegia* and *Julbernardia*, with *Brachystegia spiciformis* and *Julbernardia paniculata* widespread throughout, and other *Brachystegia* species locally dominant (Huntley and Matos 1994). These woodlands, with canopies 4–12 m in height, have little or no undergrowth, and are interspersed with grassland on seasonally waterlogged soils in narrow drainage lines (more extensively so on the Kalahari Sands). Open woodland often develops on the ecotone

between the woodland and drainage lines. In parts of the Congo river basin, the canopy of the woodland is lower (less than 8 m) and the species composition becomes fairly mixed, with miombo woodland mingled with other broadleaved species, and with a dense forb and grass undergrowth (see Dean 1988).

There are extensive areas of wide grassy plains in the Congo basin with *Landolphia parviflora* shrub savanna, and south of the Congo–Zambezi drainage divide is a very large seasonally inundated grassland dominated by *Loudetia simplex*. Small areas of *Marquesia acuminata* and *Cryptosepalum pseudotaxus* dry woodland occur mainly in the extreme east.

Dry woodlands dominated by baobab *Adansonia digitata* and *Acacia welwitschii* occur along the coastal plain north to Luanda, and dry deciduous woodlands on sands occur in the southern and south-eastern parts of Angola. Teak woodland (*Baikiaea plurijuga* and associated tree species that includes *Guibourtia coleosperma*, *Pterocarpus angolensis*, *Burkea africana* and *Dialium englerianum*) occupies a large area of south-east Cuando Cubango province. These woodlands are restricted to sands, and the grassy undergrowth is sparse and wiry, including such grasses as *Triraphis schlechteri*, *Tristachya rehmannii* and *Aristida stipitata* (Huntley and Matos 1994).

Mopane woodlands commonly occur on clayey and rocky soils throughout the southern part of Angola, interspersed with teak woodlands on sands and miombo woodlands in higher, more moist areas. Mopane communities range from those dominated almost exclusively by *Colophospermum mopane* to mixed woodlands where *C. mopane* is associated with *Terminalia prunioides*, *Spirostachys africanus*, *Balanites angolensis* and *Acacia erubescens* (Huntley and Matos 1994).

Kalahari–Highveld biome: Huntley and Matos (1994), following White (1983), show a narrow tongue of the Kalahari–Highveld transition zone extending into Angola below the escarpment on the eastern edge of the Namib Desert. This consists of sublittoral shrublands and open woodlands with species of *Acacia*, *Commiphora* and *Colophospermum mopane* trees and such wiry grasses as *Aristida*.

The Namib–Karoo biome, entirely within the 200 mm isohyet, extends north to about Benguela. The vegetation ranges from sparse perennial grasslands and shrublands on sandy and gravelly plains to dense thickets on arid hills and mountains. Grasses on the sandy plains include *Aristida prodigiosa*, *Danthoniopsis dinteri* and

Table 1. Summary of Important Bird Areas in Angola.			23 IBAs covering 73,850 km <sup>2</sup>								
IBA code	Site name	Administrative region	Criteria (see p. 11; for A2/A3 codes, see Tables 2/3)								
			A1	087	A2 s044	s045	A05	A3 A07	A10	A11	A12
AO001	Bicuari National Park	Huíla							✓	✓	
AO002	Caconda	Huíla								✓	
AO003	Calandula (Quedas de Calandula)	Malanje	✓		✓		✓	✓	✓		
AO004	Camabatela	Cuanza Norte	✓	✓			✓				
AO005	Cameia National Park	Moxico								✓	
AO006	Cangandala National Park	Malanje								✓	
AO007	Chongoroi	Benguela	✓	✓			✓				
AO008	Cuango	Lunda Norte					✓			✓	
AO009	Cueleí	Quando Cubango	✓							✓	
AO010	Cutato	Huambo, Huíla, Bié								✓	✓
AO011	Gabela	Cuanza Sul	✓	✓			✓	✓			
AO012	Iona National Park	Namibe	✓	✓		✓					✓
AO013	Lago Carumbo	Lunda Norte	✓				✓			✓	
AO014	Luachimo river (Chitato)	Lunda Norte					✓			✓	
AO015	Luando Strict Nature Reserve	Malanje	✓						✓	✓	
AO016	Luia	Lunda Norte									✓
AO017	Maiombe	Cabinda					✓				
AO018	Mombolo (Missão da Namba)	Cuanza Sul	✓	✓					✓	✓	
AO019	Mount Moco	Huambo	✓	✓					✓	✓	
AO020	Mupa National Park	Cunene	✓								✓
AO021	Mussulo	Luanda	✓								
AO022	Quiçama	Bengo	✓	✓			✓				
AO023	Tundavala	Huíla	✓	✓					✓	✓	
Total number of IBAs qualifying:			14	8	1	1	9	6	16	3	1

*Tetrapogon tenellus*. *Welwitschia mirabilis* is relatively abundant on the gravel-plains (Huntley and Matos 1994). The arid savanna and thicket communities seldom exceed a height of 4 m, and include *Acacia reficiens*, *A. detinens* and *A. tortilis*, *Terminalia prunioides*, *Catophractes alexandri*, *Rhigozum brevispinosum*, *Sesamothamnus benguellensis* and *Colophospermum mopane*. Trees of 15 m or more in height, including *Faidherbia albida*, *Acacia erioloba* and *Combretum imberbe* are found along dry riverbeds (Huntley and Matos 1994).

The mobile, almost vegetationless dunes of the Angolan Namib Desert lie between the Cunene and Curoca rivers, and the sparse vegetation includes species typical of dunes further south, i.e. *Stipagrostis salbulicola* and *Acanthosicyos horridus*.

Other vegetation communities in Angola include the extensive mangrove forests that occur at the mouths of the Chiloango, Congo, Loge and Cuanza rivers, with smaller patches at the mouths of rivers southwards to Benguela, and various types of aquatic vegetation. The margins and shores of freshwater lakes and marshes are occupied by *Typha capensis*, *Phragmites mauritanus* and *Echinochloa stagnina*. Extensive permanently wet areas on flood-plains of large rivers north of 13°S are covered with papyrus beds (*Cyperus papyrus*). Small marshes and slow-running streams in central and northern Angola may also have small but dense beds of papyrus on their margins.

## ORNITHOLOGICAL IMPORTANCE

The range of biomes and ecosystems in Angola has resulted in a rich avifauna of c.912 species, of which c.800 species breed or are assumed to breed in the country (Dean 2000). There are relatively few endemic bird species compared to the southern African subregion (13 versus 166 species; Clancey 1986), but these are characterized by small distribution ranges, mostly in a few sites on the escarpment of western Angola. The endemic species in Angola are also among the poorest known of the avifauna. Breeding data, for example (including records of young out of the nest and juveniles), are available for only five of the endemic species, and for only two endemic species are the eggs and nest known. Three more species, *Mirafra angolensis*, *Phyllastrephus fulviventris* and

*Cossypha heinrichi*, are near-endemic to Angola, with the bulk of their populations resident in the country.

Much of the bird species richness in Angola is due to the presence of the Guinea–Congo Forests biome, and a number of species have been recorded only in Cabinda or in the gallery forests along major rivers draining the Congo basin in the north-east. Similarly, a number of species occur only in the arid south-west, with a few species occurring along the arid coastal plain as far north as Luanda.

The forests at Gabela and surroundings are important on an international scale. The richest array of local endemic bird species in Angola occurs here, with no less than three species (*Sheppardia gabela*, *Laniarius amboimensis* and *Prionops gabela*) confined to the area, while the little known *Macrosphenus pulitzeri*, known only from a few sites in secondary forest on the escarpment, is likely to occur in the south of the greater Gabela forest area. All these species are rare and there is no evidence that there has been any recent change in their respective densities. The forest avifauna of Angola, in general, is poorly known (Huntley 1974a, 1978; Pinto 1983; Dean 2000).

The coastal sand-spits (keys) south of Luanda and the salt pans and wetlands south of Namibe town (Tombua (Porto Alexandre) and Baia dos Tigres) may be of international importance, as they provide stop-over places for migrant waders moving down the west of Africa and are also major non-breeding areas for *Sterna maxima albidorsalis*. The Cunene river mouth and vegetationless dunes along the coast north to about Baia dos Tigres may also be important for the globally threatened *Sterna balaenarum*, a potential breeding species in this area.

Apart from restricted-range endemic and near-endemic species, Angola supports one of the only two isolated populations of *Francolinus albogularis* south of the Equator, the most southerly population of *Phuvianus aegyptiacus* and some of the remaining southern African population of *Neophron percnopterus*. In addition, there are 80 species that have isolated populations in Angola, 21 species for which Angola contains a significant proportion of their western distribution ranges and 25 species for which Angola constitutes a significant proportion of their breeding ranges.

A total of 152 species (c.17% of the avifauna), excluding vagrants, are occasional or regular visitors from the southern oceans, southern, central and west Africa, and the Palearctic region. Most migrants to Angola are non-breeding, but about 45 species from other parts of Africa migrate to Angola to breed, and there are at least five non-breeding intra-African migrant species. The majority of migrant species are ‘resident’ for their time in Angola. Some intra-African breeding migrant species winter in southern Africa, and breed in Angola. These include *Rhinoptilus chalcopterus* and *Pinarocorys nigricans*. Several pipits (*Anthus*) show the reverse of this pattern, and breed in southern Africa, wintering in the Angolan highlands (Clancey 1990).

About 70 species are migrants to Angola from the Palearctic. Given the position of Angola on the west coast of Africa, it is likely that a number of aquatic species move south along the coast during the austral spring. No Palearctic ducks (Anatidae) are listed for Angola, though *Anas acuta*, *A. querquedula* and *A. clypeata* have been recorded in southern Africa. However, these species apparently move south through eastern Africa (Brown *et al.* 1982), and are unlikely to cross Angola on their way south. Waders are poorly represented in Angola, compared with species numbers further south (Hockey *et al.* 1986). Palearctic waders (Charadriidae and Scolopacidae) are poorly represented in the list of birds for the Kouilou basin, Congo, while no Palearctic wildfowl (Anatidae) at all were recorded (Dowsett-Lemaire and Dowsett 1991). These authors noted that Palearctic migrants in general seemed scarce in Congo, and support the idea that the lowland forests in west Africa may form an important barrier for terrestrial species on passage south.

## CONSERVATION INFRASTRUCTURE AND PROTECTED-AREA SYSTEM

Legislation providing the basic principles for the conservation of soil, flora and fauna was consolidated by the Portuguese colonial administration in 1955 (Decreto 40040) (Huntley and Matos 1994). The protection of the flora was the responsibility of the Directorate of Agriculture and Forestry at the time, but in practice only timber exploitation was regulated. Some measure of protection of the

**Table 2.** The occurrence of restricted-range species at Important Bird Areas in Angola. Sites that meet the A2 criterion are highlighted in **bold**. Species of global conservation concern are highlighted in **bold blue**.

<b>087 – Western Angola Endemic Bird Area</b> (14 species in Angola; eight sites meet the A2 criterion)								
IBA code:	002	004	007	011	012	018	019	022 023
<i>Francolinus griseostriatus</i>			✓					✓
<i>Francolinus swierstrai</i>							✓	
<i>Laniarius brauni</i>		✓						
<i>Laniarius amboimensis</i>		✓		✓				
<i>Malaconotus monteiri</i>				✓				
<i>Prionops gabela</i>				✓				
<i>Sheppardia gabela</i>				✓				
<i>Xenocopsychus ansorgei</i>				✓			✓	✓
<i>Macrosphenus pulitzeri</i>			✓					
<i>Dioptrornis brunneus</i>	✓					✓	✓	✓
<i>Platysteira albifrons</i>				✓				✓
<i>Nectarinia ludovicensis</i>				✓		✓	✓	✓
<i>Estrilda thomensis</i>			✓		✓			✓
<i>Euplectes aureus</i>								✓
Number of species recorded:	1	2	3	7	1	2	4	3 4
<b>s044 – West DR Congo and north Angola forests Secondary Area</b> (one site meets the A2 criterion)								
IBA code:	<b>003</b>							
<i>Cossypha heinrichi</i>	✓							
<b>s045 – Namibian escarpment Secondary Area</b> (one site meets the A2 criterion)								
IBA code:	<b>012</b>							
<i>Namibornis herero</i>	✓							

**Table 3.** The occurrence of biome-restricted species at Important Bird Areas in Angola. Sites that meet the A3 criterion are highlighted in **bold**. Species of global conservation concern are highlighted in **bold blue**. Any other species with a restricted range are highlighted in blue.

<b>A05 – Guinea–Congo Forests biome</b> (161 species in Angola; nine sites meet the A3 criterion)																		
IBA code:	002	003	004	006	007	008	011	013	014	015	016	017	018	019	021	022	023	
<i>Tigriornis leucolophus</i>						✓			✓		✓	✓						
<i>Bostrychia rara</i>									✓									
<i>Pteronetta hartlaubii</i>			✓						✓			✓						
<i>Dryotriorchis spectabilis</i>			✓						✓									
<i>Accipiter castanius</i>																		
<i>Accipiter erythropus</i>																		
<i>Urotriorchis macrourus</i>																		
<i>Spizaetus africanus</i>			✓															
<i>Francolinus lathamii</i>																		
<i>Francolinus finschi</i>	✓			✓					✓	✓			✓	✓				
<b><i>Francolinus griseostriatus</i></b>					✓											✓		
<i>Sarothrura pulchra</i>		✓	✓					✓	✓									
<i>Himantornis haematopus</i>												✓						
<i>Columba unicolor</i>			✓			✓			✓									
<i>Columba iriditorques</i>			✓			✓			✓									
<i>Turtur brehmeri</i>												✓						
<i>Psittacus erithacus</i>						✓			✓			✓						
<i>Tauraco persa</i>	✓		✓	✓	✓		✓			✓		✓		✓			✓	
<i>Tauraco macrorhynchus</i>												✓						
<i>Cercococcyx mechowii</i>			✓						✓									
<i>Cercococcyx olivinus</i>			✓															
<i>Centropus anelli</i>			✓									✓						
<i>Bubo poensis</i>																		
<i>Bubo leucostictus</i>																		
<i>Scotopelia bouvieri</i>																		
<i>Caprimulgus nigroscapularis</i>																		
<i>Telacanthura melanopygia</i>																		
<i>Rhaphidura sabini</i>																		
<i>Neafrapus cassini</i>																		
<i>Alcedo leucogaster</i>			✓															
<i>Ispidina lecontei</i>			✓															
<i>Halcyon badia</i>		✓							✓			✓						
<i>Merops gularis</i>			✓					✓	✓			✓						
<i>Merops breweri</i>												✓						
<i>Merops malimbicus</i>												✓						
<i>Eurystomus gularis</i>			✓						✓			✓						
<i>Tockus albocristatus</i>									✓			✓						
<i>Tockus hartlaubi</i>																		
<i>Tockus camurus</i>												✓						
<i>Tockus fasciatus</i>			✓			✓			✓		✓	✓						
<i>Ceratogymna fistulator</i>			✓									✓						
<i>Ceratogymna subcylindricus</i>						✓			✓									
<i>Ceratogymna cylindricus</i>																		
<i>Ceratogymna atrata</i>			✓						✓			✓						
<i>Gymnobucco calvus</i>			✓		✓		✓					✓	✓	✓				
<i>Gymnobucco peli</i>												✓						
<i>Pogoniulus scolopaceus</i>			✓						✓			✓						
<i>Pogoniulus atroflavus</i>												✓						
<i>Pogoniulus subsulphureus</i>												✓						
<i>Buccanodon duchaillui</i>												✓						
<i>Tricholaema hirsuta</i>			✓				✓		✓			✓						
<i>Trachyphonus purpuratus</i>			✓				✓		✓			✓						
<i>Indicator maculatus</i>												✓						
<i>Melichneutes robustus</i>												✓						
<i>Prodotiscus insignis</i>			✓						✓									
<i>Sasia africana</i>			✓						✓									
<i>Campethera nivosus</i>		✓	✓			✓	✓	✓	✓			✓						
<i>Campethera caroli</i>			✓			✓	✓		✓			✓				✓		
<i>Dendropicos gabonensis</i>												✓						
<i>Dendropicos xantholophus</i>			✓									✓						
<i>Smithornis rufofasciatus</i>			✓															

**Table 3 ... continued.** The occurrence of biome-restricted species at Important Bird Areas in Angola. Sites that meet the A3 criterion are highlighted in **bold**. Species of global conservation concern are highlighted in **bold blue**. Any other species with a restricted range are highlighted in blue.

<b>A05 – Guinea–Congo Forests biome ... continued</b> (161 species in Angola; nine sites meet the A3 criterion)																	
IBA code:	002	003	004	006	007	008	011	013	014	015	016	017	018	019	021	022	023
<i>Phedina brazzae</i>									✓								
<i>Hirundo nigrita</i>								✓	✓			✓					
<i>Psalidoprocne nitens</i>												✓					
<i>Anthus pallidiventris</i>												✓			✓		
<i>Coracina azurea</i>												✓					
<i>Campephaga petiti</i>												✓					
<i>Andropadus gracilis</i>								✓	✓			✓					
<i>Andropadus curvirostris</i>			✓						✓			✓					
<i>Calyptocichla serina</i>												✓					
<i>Baeopogon indicator</i>			✓						✓			✓					
<i>Ixonotus guttatus</i>																	
<i>Chlorocichla simplex</i>			✓						✓			✓					
<i>Chlorocichla falkensteini</i>			✓		✓		✓					✓					✓
<i>Thescelocichla leucopleura</i>									✓			✓					
<i>Phyllastrephus fulviventris</i>					✓		✓					✓	✓				✓
<i>Phyllastrephus albigularis</i>			✓				✓										
<i>Phyllastrephus icterinus</i>												✓					
<i>Bleda syndactyla</i>			✓						✓			✓					✓
<i>Bleda notata</i>												✓					
<i>Nicator chloris</i>								✓	✓			✓					
<i>Nicator vireo</i>			✓			✓	✓					✓					✓
<i>Criniger chloronotus</i>																	
<i>Criniger calurus</i>									✓			✓					
<i>Criniger ndussumensis</i>																	
<i>Dryoscopus senegalensis</i>									✓								
<i>Dryoscopus sabinii</i>						✓			✓			✓					
<b>Laniarius brauni</b>			✓														
<b>Laniarius amboimensis</b>			✓				✓										
<i>Laniarius leucorhynchus</i>									✓			✓					
<i>Telophorus bocagei</i>			✓														
<b>Malaconotus monteiri</b>							✓										
<b>Prionops gabela</b>							✓										
<i>Neocossyphus fraseri</i>			✓			✓	✓		✓		✓	✓					
<i>Neocossyphus poensis</i>			✓														
<i>Alethe diademata</i>									✓								
<b>Sheppardia gabela</b>							✓										
<b>Cossypha heinrichi</b>			✓														
<i>Cercotrichas leucosticta</i>					✓		✓										✓
<i>Illadopsis albipectus</i>			✓														
<i>Illadopsis fulvescens</i>			✓	✓			✓		✓			✓					
<i>Cisticola anonymus</i>			✓				✓					✓					
<i>Cisticola bulliens</i>			✓	✓		✓	✓					✓			✓		✓
<i>Apalis binotata</i>			✓														
<i>Apalis rufogularis</i>			✓				✓		✓								
<i>Apalis goslingi</i>									✓								
<i>Camroptera superciliaris</i>			✓									✓					
<i>Eremomela badiceps</i>			✓									✓					
<i>Sylvietta virens</i>			✓	✓			✓		✓			✓					✓
<i>Sylvietta denti</i>									✓								
<i>Macrosphenus flavicans</i>			✓									✓					
<i>Macrosphenus concolor</i>									✓								
<b>Macrosphenus pulitzeri</b>					✓												
<i>Hylia prasina</i>			✓				✓		✓			✓					
<i>Fraseria ocreata</i>									✓			✓					
<i>Fraseria cinerascens</i>									✓			✓					
<i>Muscicapa infuscata</i>			✓	✓		✓						✓					
<i>Muscicapa comitata</i>			✓									✓					
<i>Muscicapa cassini</i>			✓						✓			✓					
<i>Myioparus griseigularis</i>			✓						✓								
<i>Bias flammulatus</i>			✓			✓			✓								
<b>Platysteira albigrons</b>							✓										✓

**Table 3 ... continued.** The occurrence of biome-restricted species at Important Bird Areas in Angola. Sites that meet the A3 criterion are highlighted in **bold**. Species of global conservation concern are highlighted in **bold blue**. Any other species with a restricted range are highlighted in blue.

<b>A05 – Guinea–Congo Forests biome ... continued</b> (161 species in Angola; nine sites meet the A3 criterion)																	
IBA code:	002	003	004	006	007	008	011	013	014	015	016	017	018	019	021	022	023
<i>Platysteira castanea</i>			✓			✓	✓		✓			✓					
<i>Platysteira chalybea</i>							✓										
<i>Erythrocerus mccallii</i>												✓					
<i>Trochocercus nitens</i>			✓				✓		✓		✓	✓					
<i>Terpsiphone rufiventer</i>									✓			✓					
<i>Terpsiphone rufocinerea</i>			✓				✓		✓			✓					
<i>Parus funereus</i>							✓										
<i>Nectarinia johanna</i>																	
<i>Anthreptes fraseri</i>			✓									✓					
<i>Anthreptes gabonicus</i>																	
<i>Anthreptes aurantium</i>									✓								
<i>Anthreptes rectirostris</i>			✓									✓					
<i>Nectarinia seimundi</i>			✓						✓			✓					
<i>Nectarinia batesi</i>												✓					
<i>Nectarinia reichenbachii</i>								✓				✓					
<i>Nectarinia cyanolaema</i>			✓			✓			✓			✓					
<i>Nectarinia fuliginosa</i>			✓				✓					✓					✓
<i>Nectarinia rubescens</i>		✓	✓			✓		✓	✓	✓	✓	✓					
<i>Nectarinia superba</i>			✓		✓		✓		✓			✓					
<i>Pholidornis rushiae</i>			✓														
<i>Parmoptila woodhousei</i>									✓								
<i>Nigrita fusconota</i>			✓						✓			✓					
<i>Nigrita bicolor</i>			✓									✓					
<i>Nigrita luteifrons</i>			✓									✓					
<i>Spermophaga haematina</i>												✓					
<i>Lagonosticta landanae</i>		✓	✓		✓						✓	✓					✓
<i>Vidua obtusa</i>			✓		✓												
<b><i>Ploceus subpersonatus</i></b>																	
<i>Ploceus aurantius</i>												✓			✓		
<i>Ploceus nigerrimus</i>			✓				✓	✓	✓			✓		✓			
<i>Ploceus tricolor</i>			✓														
<i>Malimbus nitens</i>									✓			✓					
<i>Malimbus malimbicus</i>			✓									✓					
<i>Malimbus rubricollis</i>			✓				✓					✓					
<i>Poeoptera lugubris</i>			✓									✓					
<i>Onychognathus fulgidus</i>			✓			✓			✓			✓					
<i>Lamprolornis purpureiceps</i>												✓					
<i>Oriolus brachyrhynchus</i>			✓														
<i>Oriolus nigripennis</i>			✓									✓					
Number of species recorded:	2	10	79	2	11	17	32	9	65	4	4	95	4	4	3	12	1
<b>A07 – Afrotropical Highlands biome</b> (17 species in Angola; six sites meet the A3 criterion)																	
IBA code:	002	003	004	011	014	015	016	017	018	019	023						
<i>Francolinus swiertrai</i>											✓						
<i>Caprimulgus poliocephalus</i>											✓						
<i>Schoutedenapus myioptilus</i>											✓						
<i>Apaloderma vittatum</i>											✓						
<i>Pogoniulus coryphaeus</i>										✓	✓	✓					
<i>Zoothera gurneyi</i>											✓	✓					
<b><i>Xenocopsychus ansorgei</i></b>						✓					✓	✓					
<i>Pseudoalcippe abyssinica</i>					✓	✓		✓			✓	✓					
<i>Dioptornis brunneus</i>				✓						✓	✓	✓					
<i>Elminia albicauda</i>				✓	✓			✓	✓	✓	✓	✓					
<i>Nectarinia ludovicensis</i>						✓				✓	✓	✓					
<i>Nectarinia kilimensis</i>					✓			✓		✓	✓	✓					
<i>Serinus burtoni</i>											✓						
<i>Cryptospiza reichenovii</i>						✓											
<i>Euschistospiza cinereovinacea</i>					✓	✓		✓		✓	✓						
<i>Estrilda melanotis</i>								✓		✓	✓	✓					
<i>Ploceus insignis</i>						✓											
Number of species recorded:	2	4	1	5	2	4	1	1	7	15	6						

**Table 3 ... continued.** The occurrence of biome-restricted species at Important Bird Areas in Angola. Sites that meet the A3 criterion are highlighted in **bold**. Species of global conservation concern are highlighted in **bold blue**. Any other species with a restricted range are highlighted in blue.

<b>A10 – Zambezi biome</b> (49 species in Angola; 16 sites meet the A3 criterion)																						
IBA code:	001	002	003	004	005	006	007	008	009	010	011	013	014	015	016	017	018	019	020	021	022	023
<i>Falco dickinsoni</i>		✓							✓					✓				✓	✓			
<i>Tauraco erythrolophus</i>			✓	✓			✓				✓										✓	
<i>Centropus cupreicaudus</i>		✓			✓	✓		✓	✓	✓				✓								
<i>Colius castanotus</i>			✓				✓	✓			✓			✓			✓	✓		✓	✓	✓
<i>Coracias spatulata</i>		✓							✓					✓							✓	
<i>Tockus bradfieldi</i>																					✓	✓
<i>Tockus pallidirostris</i>		✓				✓		✓	✓	✓			✓	✓	✓		✓	✓	✓			
<i>Stactolaema anchietae</i>		✓	✓		✓	✓				✓		✓	✓	✓				✓				
<i>Tricholaema frontata</i>		✓										✓	✓	✓			✓					
<i>Lybius minor</i>			✓										✓	✓	✓	✓	✓	✓				
<i>Mirafra angolensis</i>		✓		✓	✓				✓					✓			✓	✓				
<i>Hirundo nigrorufa</i>		✓			✓				✓								✓	✓				
<i>Hirundo rufigula</i>		✓															✓	✓				
<i>Macronyx fuelleborni</i>	✓	✓			✓					✓		✓		✓			✓	✓				✓
<b>Macronyx grimwoodi</b>									✓			✓						✓	✓			
<i>Lanius souzai</i>		✓				✓			✓					✓				✓			✓	
<i>Monticola angolensis</i>		✓								✓			✓	✓			✓	✓				✓
<i>Turdus libonyana</i>		✓			✓	✓			✓		✓			✓	✓			✓				✓
<i>Cercotrichas barbata</i>		✓				✓		✓	✓			✓		✓								
<i>Myrmecocichla arnoti</i>		✓				✓		✓	✓					✓				✓	✓			
<i>Turdoides melanops</i>																					✓	✓
<i>Turdoides hartlaubi</i>		✓			✓	✓							✓	✓				✓	✓			
<i>Cisticola pipiens</i>		✓	✓																			
<i>Cisticola melanura</i>						✓		✓							✓							
<i>Cisticola dambo</i>					✓										✓							
<i>Calamonastes undosus</i>		✓	✓					✓						✓			✓	✓	✓			✓
<i>Eremomela atricollis</i>		✓						✓					✓	✓	✓			✓				
<i>Sylvietta ruficapilla</i>		✓			✓	✓				✓			✓	✓		✓		✓				✓
<i>Phylloscopus laurae</i>																					✓	
<i>Muscicapa boehmi</i>		✓			✓									✓							✓	
<i>Batis margaritae</i>																					✓	
<i>Parus rufiventris</i>					✓			✓					✓	✓	✓					✓		
<i>Parus griseiventris</i>		✓				✓		✓				✓	✓	✓				✓	✓			
<i>Anthreptes anchietae</i>		✓						✓						✓				✓				
<i>Nectarinia bannermani</i>				✓								✓						✓				
<i>Nectarinia talatala</i>	✓													✓				✓	✓			✓
<i>Nectarinia oustaleti</i>		✓												✓	✓			✓				
<i>Nectarinia manoensis</i>		✓																✓				✓
<i>Nectarinia bocagii</i>		✓												✓			✓	✓				
<i>Serinus mennelli</i>					✓																	
<i>Lagonosticta nitidula</i>		✓			✓															✓		
<i>Vidua obtusa</i>			✓	✓	✓	✓		✓					✓	✓								
<i>Plocepasser rufoscapulatus</i>														✓						✓		✓
<i>Ploceus temporalis</i>		✓												✓								
<i>Ploceus angolensis</i>		✓												✓								
<b>Euplectes aureus</b>																						✓
<i>Lamprotornis acuticaudus</i>		✓	✓			✓		✓	✓	✓				✓			✓	✓	✓			
<i>Lamprotornis mevesii</i>	✓																			✓		✓
<i>Neocichla gutturalis</i>	✓	✓							✓											✓		
Number of species recorded:	4	31	9	3	14	13	2	13	13	7	3	7	11	31	8	3	12	29	15	1	4	10
<b>A11 – Kalahari–Highveld biome</b> (11 species in Angola; three sites meet the A3 criterion)												<b>A12 – Namib–Karoo biome</b> (seven species in Angola; one site meets the A3 criterion)										
IBA code:	001	007	010	012	020	021	022	023														012
<i>Francolinus hartlaubi</i>				✓																		✓
<i>Pterocles burchelli</i>			✓																			✓
<i>Poicephalus rueppellii</i>				✓		✓	✓															✓
<i>Tockus monteiri</i>				✓																		✓
<i>Lanioturdus torquatus</i>	✓	✓			✓			✓														✓
<i>Cercotrichas paena</i>				✓																		✓
<i>Turdoides gymogenys</i>				✓																		✓
<i>Calamonastes fasciolatus</i>				✓																		✓
<i>Achaetops pycnopygius</i>				✓																		✓
<b>Estrilda thomensis</b>		✓		✓				✓														✓
<i>Lamprotornis australis</i>	✓		✓																			✓
Number of species recorded:	2	2	2	8	1	1	1	2														7



vegetation could only be achieved in national parks and nature reserves (totalling 68,000 km<sup>2</sup>) that were under the control of the Directorate of Veterinary Services. Very few of these protected areas were free from disturbances prior to independence in 1975. Current reports suggest that disturbances by people in protected areas have subsequently increased considerably (Huntley and Matos 1994).

There are two main categories of protected area in Angola.

- National Park: defined by Article 13 of the Regulamento de Caca as “an area subject to the direction and control of public authorities, reserved for the protection, conservation and propagation of wild animal life and indigenous vegetation, and furthermore for the conservation of objects of aesthetic, geological, prehistoric, archaeological or other scientific interest, for the benefit and enjoyment of the public” (Huntley 1974b). Subsets of national parks are:
  - Strict Nature Reserves defined under Article 14 of the above ordinance, and offering total protection to wild flora and fauna;
  - Partial Reserves, defined under Article 15, where the hunting, killing or capture of animals or the collection of plants other than for scientific or management purposes, authorized by the Governor General, is prohibited;
  - Special Reserves, defined under Article 16, where the killing of certain species, whose conservation is impossible by other means, is prohibited (Huntley 1974b).
- Regional Nature Park: defined in Diploma Legislativo 88/72 as “an area reserved for the protection and conservation of nature, in which hunting, fishing and the collection of or destruction of wild animals and plants, and the execution of industrial, commercial or agricultural activities is prohibited or conditioned” (Huntley 1974b).

The almost continuous civil war in Angola since 1974 has had a devastating impact on conservation and protected areas. Huntley and Matos (1992) concluded that few, if any, viable populations of the larger mammals had survived even in the largest protected areas, and they estimated that populations of 21 species of larger mammals, including *Gorilla gorilla* (EN), *Pan troglodytes*, *Panthera leo* (VU), *Acinonyx jubatus* (VU), *Trichechus senegalensis* (VU), *Loxodonta africana cyclotis* (EN), *Diceros bicornis* (CR) and *Hippotragus niger variani* (CR), had been reduced to the threshold of extinction. Protected areas are almost without wardens, and those areas near larger centres have been invaded by poachers and settlers, with concomitant cultivation of crops and collection of firewood (Huntley and Matos 1994).

On the positive side, legislation aimed at prohibiting the export of live animals, such as parrots and monkeys, has recently been introduced, and demobilized soldiers are being trained as park wardens through an IUCN/Ministry of Agriculture and Rural Development project (Huntley and Matos 1994).

Furthermore, there are extensive protected areas that remain relatively undisturbed and that adequately protect some vegetation-types and ultimately habitat for birds. The Namib–Karoo and Zambezi centres of plant species diversity, and desert, subdesert, semi-arid savanna and mesic woodlands in the southern parts of Angola are well represented in the present protected-area system, while evergreen and semi-deciduous forest, forest/savanna mosaics, Afromontane forest and thicket/savanna mosaics are not. Proposals and priorities for protected areas have been outlined by Huntley and Matos (1994).

## INTERNATIONAL MEASURES RELEVANT TO THE CONSERVATION OF SITES

Angola is a party to the Convention on Biological Diversity, the World Heritage Convention, the Convention to Combat Desertification and the Convention on Climate Change, and is a member of the FAO Plant Genetic Resources Commission.

## OVERVIEW OF THE INVENTORY

Twenty-three Important Bird Areas (IBAs) have been identified in Angola (Map 1, Table 1), covering 73,850 km<sup>2</sup>, equivalent to 5.9% of the land-surface area of the country. No population data are

available for any bird species in Angola and the importance of sites is judged entirely on the occurrence of species at particular sites. Information on birds for the sites is based largely on collections of birds that are housed in institutions outside Angola (Dean 2000), and the report on the collection at the Museu Dundo in Lunda Norte Province (Pinto 1973a). Field notes on birds compiled by W. R. J. Dean, B. J. Huntley, M. A. Huntley, R. Jeffery and C. J. Vernon during the early 1970s provide additional information, but since the start of the civil war in Angola in 1974 there have been virtually no studies made of the biota within the country. During 1981–1983, two East German biologists, Dr Rainer Günther and Dr Alfred Feiler, made notes on birds and subsequently published their findings (Günther and Feiler 1986). In 1992, as part of an integrated biodiversity conservation project, the ICBP (International Council for Bird Preservation, now BirdLife International) attempted to initiate a study on the status of threatened species of birds on the Angolan ‘Scarp’. A report on the brief fieldwork that was done adds little information on the birds, but does outline the major threats to the avifauna in the southernmost patches of Guinea forest at Gabela (Hawkins 1993).

Possibilities for further ornithological research in Angola are almost non-existent at present. A major hazard, for all large vertebrates and vehicles, is the presence of anti-personnel mines, restricting movement into any but heavily populated areas. Recent surveys of the biota have thus been restricted in space, and usually in time, because of transport problems and outbreaks of fighting among different factions.

Much of the information on the distribution of birds in Angola is not precise. This is due to several factors, one of which is the difficulty of exploring areas away from major roads. Secondly, although there have been many collecting expeditions to Angola, such expeditions tended to collect at one locality for several days or weeks before moving on to another, usually distant, locality with virtually no collecting en route. Even within Angola, the former Instituto de Investigação Científica de Angola (IICA) similarly tended to arrange expeditions to places where intensive collecting would be done over several days or weeks, without surveys of the birds of the surrounding areas. Ornithological fieldwork was thus limited to collecting birds, and lists of all bird species observed in any locality were seldom compiled.

Nevertheless, it has been possible to identify a suite of sites that would help to conserve Angola’s restricted-range and biome-restricted species, if and when those sites are protected or otherwise managed appropriately. All but one of Angola’s 17 restricted-range species occur at one or more of the 23 IBAs, and nine sites together hold all but one of the species, in relatively good numbers, thus meeting the A2 criterion (Table 2). The species that is not covered is the globally threatened *Ploceus subpersonatus*, which may, however, occur at a tenth site (IBA AO017), in Cabinda. For the biome-restricted species, a subset of nine sites holds most of the Guinea–Congo Forests biome (A05) species (142 of the 161 species in the country) in good numbers, so meeting the A3 criterion (Table 3). Similarly, six sites meet the A3 criterion for the Afrotropical Highlands biome (A07), together holding all 17 Angolan species in good numbers, 16 sites qualify under A3 for the Zambezi biome (A10), together holding all but one of the 49 species in the country (which species, the globally threatened *Euplectes aureus*, does, however, occur at another, non-A3-qualifying IBA), three sites qualify for the Kalahari–Highveld biome (A11), together holding all 11 species in Angola, and one site qualifies for the Namib–Karoo biome (A12), holding all seven Angolan species of this biome.

Six of the IBAs are nominally National Parks, one is a Strict Nature Reserve, and the remaining 16 sites are unprotected by law. The most vulnerable IBAs are those that are near the larger population centres or those sites that are fragments of habitat in relatively highly populated areas. Threats to the avifauna are mainly from trapping and hunting, clearing of vegetation for cultivation, firewood collection and the extraction of timber species from the forests. However, the decline in coffee production, through neglect of the plantations and the continuing civil war, has resulted in large areas of former coffee plantations reverting to secondary forest, ultimately benefiting the avifauna.

A further 21 sites were identified in Angola that may qualify as IBAs (Table 4), but at the moment there is not enough information available properly to judge their importance for bird conservation.

**Table 4.** Possible Important Bird Areas in Angola—sites proposed by Huntley (1974b) as protected sites (\*) (excluding Natural Monument sites), identified as potential IBAs during the site selection process (\*\*), or shown as protected areas (\*\*\*) in Anon. (1996), but for which there is a lack of information about the avifauna, the vegetation or the current status of the area.

Site name (and Province)	Coordinates
Ambriz Strict Nature Reserve*** (Bengo)	07°58'S 13°30'E
Andulo** (Bié)	11°29'S 16°42'E
Bolongongo** (Cuanza Norte)	08°28'S 14°15'E
Buálo Partial Nature Reserve*** (Benguela)	12°50'S 13°45'E
Cacolo** (Lunda Sul)	10°09'S 19°17'E
Canzele** (Cuanza Norte)	08°18'S 15°11'E
Chimalavera* (Benguela)	12°16'S 13°42'E
Dondo** (Bengo, Cuanza Norte)	09°41'S 14°46'E
Gambos** (Huíla)	15°46'S 14°06'E
Hanha** (Benguela)	12°16'S 13°42'E
Humbe** (Cunene)	16°41'S 14°54'E
Humpata** (Huíla)	15°01'S 13°23'E
Luiana* (Cuando Cubango)	17°23'S 23°01'E
Massabe-Cacongo** (Cabinda)	05°05'S 12°12'E
Milando Strict Nature Reserve*** (Malanje)	08°49'S 17°34'E
Namibe Strict Nature Reserve*** (Namibe)	15°30'S 12°20'E
N'Dalatando** (Cuanza Norte)	09°18'S 14°55'E
Quitondo** (Cuanza Sul)	09°51'S 14°52'E
Ruacana* (Cunene)	17°24'S 14°13'E
Tchimporo* (Cunene)	16°02'S 17°09'E
Uíge** (Uíge)	07°37'S 15°03'E

## COMMENTS ON THE INVENTORY

- The regions given in the site inventory are the names of the provinces.
- Sites were selected using an algorithm to sort sites according to the criteria.

## SITE ACCOUNTS

### Bicuari National Park

Admin region Huíla

Coordinates 15°08'S 14°56'E

Area 790,000 ha Altitude 1,200 m

AO001

A3 (A10, A11)

National Park

#### Site description

Bicuari National Park is situated in the basin of the Mucope river (a tributary of the Cunene river), with its only natural boundary formed by the Osse river, another tributary of the Cunene river, all other boundaries being artificial. The town of Mulondo and the village of Tecaza are situated in the south-east corner of the park. Mean annual rainfall is over 800 mm, and the topography is generally flat. The vegetation is a mosaic of miombo (*Brachystegia*, *Julbernardia*) and teak (*Baikiaea*) on sands, dry thickets and riverine woodland, with extensive patches of dry grassland. Poorly drained grasslands edge the Mucope river.

#### Birds

See Box and Table 3 for key species. The avifauna of the park is poorly known and the species list is based on a one-day visit to the park by WRJD in September 1973 (i.e. before the rains) and on collecting records from Mulondo. The total of 143 species of birds that have been recorded is certainly unrealistically low.

Only six biome-restricted species have been recorded from this site, but it is likely to support several more species of the Zambezan and Kalahari–Highveld biomes than are listed. This is one of the few reserves in Angola where miombo (Zambezan) bird species occur together with bird species more typical of the southern dry broadleaved woodlands (Kalahari–Highveld)—for example, the distributions of

- Most lists of bird species for specific sites have been compiled from records of collected specimens, so these lists are in general largely incomplete.
- The coverage of the country has been uneven. The south-east (Cuando Cubango Province), the east (Moxico Province) and the north-western area south of the Congo river (Zaire and Uíge Provinces) have been less well covered than the southern, western, central and north-eastern parts. This means that there may be sites important for the avifauna and currently threatened which were not selected by the algorithm. This inventory should therefore be regarded as preliminary.
- No population estimates are available for any bird species in Angola.
- Current threats to the habitat and avifauna at most of the sites are unknown.
- Most of the information that was used to compile these site accounts and bird lists dates from the 1950s and early 1970s. The information on the birds of Cabinda was compiled from reports dating back to the late 1800s, with additional information from a collecting expedition by the IICA in 1969.

## ACKNOWLEDGEMENTS

The site accounts were compiled from information in unpublished reports by Prof. Brian Huntley, formerly the ecologist at the Angolan Serviços de Veterinária, who was responsible for the survey and planning of national parks and reserves from 1971 to 1974. I thank Kostadin Loutchanski for extracting details of some of the bird specimens in the former IICA collection.

## GLOSSARY

**fazenda** farm.

**IICA** Instituto de Investigação Científica de Angola.

**inselberg** a rounded hill, rising from a surrounding plain.

**miombo** broadleaved deciduous woodland, dominated by trees of *Brachystegia* and *Julbernardia*.

**mopane** broadleaved deciduous woodland, dominated by the tree *Colophospermum mopane*.

*Lamprotornis mevesii* and *L. australis* extend north to the park, and *Neocichla gutturalis*, which has a narrow, patchy distribution in Angola, is frequent in miombo woodland in the park. *Lanioturdus torquatus*, a Kalahari–Highveld species, is almost certain to occur in the woodland, as it has been recorded to the north, south and west of the park.

Large raptors are common in the area, with *Necrosyrtes monachus*, *Torgos tracheliotus*, *Trigonoceps occipitalis*, *Terathopius ecaudatus* and *Aquila rapax* fairly commonly present at carcasses, and *A. wahlbergi* and *Lophaelus occipitalis* frequent in the woodland. No active nests of large raptors were recorded in September, but several old nests were seen, and only *Merops hirundineus* was recorded breeding. *Bucorvus cafer* are common in the open woodland and *Neotis denhami* is frequent in the dry grasslands.

Wetland habitats within the park support at least 36 species of congregatory waterbird (25% of the Angolan list), some in numbers considered at least nationally important. In Angola, this is the only locality where *Oxyura maccoa* has been recorded (M. A. Huntley, pers. comm.) and the only locality where *Sarkidiornis melanotos* has been recorded breeding (Dean *et al.* 1988). Such waders as *Himantopus himantopus* occur on the margins of ponds in poorly drained grassland. Although *Chlidonias hybridus* has not been recorded from this site, it has been collected in the general area and it is likely to breed on ponds along the Mucope river and on other seasonally flooded ponds.

#### Key species

A3 (A10) Zambezan biome: Four of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.

A3 (A11) Kalahari–Highveld biome: Two of the 11 species of this biome that occur in Angola have been recorded at this site; see Table 3.

### ■ Other threatened/endemic wildlife

Among mammals, *Hyaena brunnea* (LR/nt) and *Panthera leo* (VU) are known to occur (Cabral 1987; Cabral and Simões 1988). Large herbivores, including elephant *Loxodonta africana* (EN), were present in fair numbers in the park in the early 1970s (Huntley 1974a).

### ■ Conservation issues

The park is not fenced and cattle (from adjacent agricultural settlements) were frequently present in the park during the early 1970s (Huntley 1974b). Poaching in the park (chiefly of elephants) escalated following independence in 1974 (Huntley 1975). The present situation and threats to biodiversity in the park are unknown.

### ■ Further reading

Huntley (1974a).

## Caconda

Admin region Huíla

Coordinates 13°44'S 15°04'E

Area c.20,000 ha Altitude 1,600 m

AO002

A3 (A10)

Unprotected

### ■ Site description

The site comprises tall miombo woodland, interspersed with poorly drained grassy patches and grassy drainage lines, on the central plateau around the town of Caconda. No detailed climatic data for the area are available, but the site is situated in the 1,200 mm isohyet. The woodlands are dominated by *Brachystegia spiciformis* and *Julbernardia paniculata*, with *B. floribunda*, *B. boehmii*, *B. wangermeeana* and *B. gossweileri* locally dominant. Grasses of the genera *Andropogon*, *Trachypogon* and *Tristachya* occur in the narrow drainage lines, with *Loudetia simplex* dominant. The canopy is more or less continuous and the height varies from 4 m to 12 m. There is a sparse to moderate cover of shrubs and grass below the canopy, with wide breaks in the woodland along the drainage lines. These latter areas are generally fringed with scattered *Uapaca*, *Piliostigma* and *Erythrina* trees. Patches of nutrient-rich soil (old village sites) occur within the miombo woodland, usually with pioneer *Acacia* species and *Dichrostachys cinerea* trees. *Burkea africana* and *Monotes* species occur on sandy patches (probably previously cleared areas), further increasing the structural diversity of the woodland. There are no current data available on the condition of the woodland, or of the area generally.

### ■ Birds

See Box and Table 3 for key species. The importance of the site lies in the high species-richness of Zambezi-biome species, but the avifauna of the area is virtually unstudied, and most of the current knowledge is derived from collected specimens. Many records from the site date back to the late 1800s, although there has been relatively recent fieldwork (collecting) done in the Caconda area (Pinto 1970) and to the south of the area (Dean 1974; Dean *et al.* 1988). Nevertheless, the avifauna is rich, and includes all of the *Brachystegia* endemics listed by Benson and Irwin (1966) and at least 35 biome-restricted species, out of the total of 235 bird species that have been collected in the area (the full species list is likely to be substantially larger). *Dioptornis brunneus*, a restricted-range species, is a frequently encountered resident, and two species of the Guinea–Congo Forests biome and two of the Afrotropical Highlands biome have also been recorded from the site.

Open woodland fringing wide drainage lines provides breeding habitat for such species as *Rhinoptilus chalcopterus*, *Pinarocorys nigricans*, *Lanius souzae* and *Lagonosticta rufopicta*. The site is one of the few localities where *Coturnix chinensis* and *Anthus caffer* have been collected, and is the southernmost locality where *Tricholaema frontata* occurs (a species generally uncommon in Angola). There is a record of *Ficedula hypoleuca* from the site (Bocage 1878), but the specimen no longer exists and could have been a misidentification of the more likely *Ficedula albicollis*. Caconda is the northernmost limit of the distribution of *Phoeniculus cynamelas* and *Neocichla gutturalis* in Angola.

Wetland habitats along the Catani river support 23 or more species of waterbird (16% of the Angolan list), some in numbers considered at least nationally important. The globally threatened *Grus carunculatus* is resident and probably breeds.

### Key species

A3 (A10) Zambezi biome: 31 of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.

### ■ Other threatened/endemic wildlife

There are no current data on the status of the large carnivores, but *Lycyon pictus* (EN) and *Panthera leo* (VU) have been recorded in the past (Cabral 1987; Cabral and Simões 1988). Bats that have been collected at this site include *Epomophorus angolensis* (LR/nt) (Cabral 1989).

### ■ Conservation issues

There is no protected area at this site, nor is there any proposal to establish one. Miombo woodlands are well protected in Cameia National Park, Luando Strict Nature Reserve and Cangandala National Park, and in southern Huíla and Cunene at Bicuari and Mupa National Parks, but may not have the avifaunal species-richness of the woodland at Caconda. The area to the south and east of Caconda, bounded by the main Lubango–Huambo road, the Caconda–Lucunde road, and the Lucunde–Catata-e-Nova road, would probably be suitable for a protected area, as would the area to the south of Caconda, along the Catani river. Threats to the avifauna include clearing of vegetation for subsistence agriculture, and the total removal of woodland over quite large areas (to make charcoal, sold in towns).

### ■ Further reading

Pinto (1970).

## Calandula (Quedas de Calandula)

Admin region Malanje

Coordinates 09°06'S 15°57'E A1, A2 (s044), A3 (A05, A07, A10)

Area 1,000 ha Altitude 1,110 m

AO003

Unprotected

### ■ Site description

Calandula was formerly known as Duque de Bragança and the Quedas de Calandula (the Duque de Bragança falls) are an important tourist attraction. The site lies on the Lucala river, about 55 km north-west of the town of Malanje and within the 1,200 mm isohyet. The vegetation is diverse, with gallery forests along the river and miombo woodland in the surrounding area. Trees along the Lucala river include *Piptadeniastrum*, *Chlorophora*, *Ceiba* and *Xylopia* species, while the miombo contains all the elements of climax miombo vegetation in Angola, dominated by *Brachystegia* and *Julbernardia* species.

### ■ Birds

See Box and Tables 2 and 3 for key species. The avifauna is rich (180 species collected), with a diversity of forest and woodland species (many known in Angola only from this site) and the area is fairly well explored. The site is important for species of the Afrotropical Highlands, Zambezi and Guinea–Congo Forests biomes that are not found elsewhere in Angola, particularly *Cossypha heinrichi*, a rare species of restricted range. This species also occurs at localities in DR Congo (Harrison 1977; Keith *et al.* 1992), and its distribution defines the West DR Congo and north Angola forests Secondary Area (s044).

The site is also important for several flufftail species—*Sarothrura pulchra*, *S. elegans* and *S. rufa* have been collected here. In an Angolan context, other rare, or poorly known species that have been recorded include *Gallinago media*, *Pachycoccyx audeberti*, *Ceuthmochares aereus*, *Centropus grillii*, *C. monachus*, *Halcyon badia*, *Lybius minor*, *Lybius bidentatus*, *Illadopsis fulvescens* and *Pseudoalcippe abyssinica*. However, very little, if any, studies have been done on the biology of birds at this site and the relative abundance of species.

### Key species

A1 *Cossypha heinrichi*

A2 (s044) West DR Congo and north Angola forests Secondary Area: *Cossypha heinrichi* has been recorded at this site.

A3 (A05) Guinea–Congo Forests biome: Ten of the 161 species of this biome that occur in Angola have been recorded at this site; see Table 3.

A3 (A07) Afrotropical Highlands biome: Four of the 17 species of this biome that occur in Angola have been recorded at this site; see Table 3.

A3 (A10) Zambezi biome: Nine of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.

### Other threatened/endemic wildlife

Mammals include *Panthera leo* (VU) (Cabral 1987; Cabral and Simões 1988), and a diversity of small primates and small forest antelope are likely to occur.

### Conservation issues

Conservation of the area was proposed by Huntley (1974b), who suggested that the surroundings of the waterfall at least should be protected from vandalism and that the area should receive 'National Monument' status. Threats to the avifauna in the area are not known, but probably include hunting with dogs, trapping, and subsistence agriculture, with runaway fires from slash-and-burn cultivation an ever present danger to the birds.

### Further reading

Ripley and Heinrich (1966).

## Camabatela

Admin region Cuanza Norte

Coordinates 08°11'S 15°23'E

Area 20,000 ha Altitude 1,265 m

AO004

A1, A2 (087), A3 (A05)

Unprotected

### Site description

This is one of the few outliers of Guinea–Congo forest in Angola that occurs south of Cabinda, and the forest is probably most extensively developed in this general area (Airy Shaw 1947). Rainfall exceeds 1,400 mm per year. The dry season is from June to September, but the relative humidity remains high (at about 80%) throughout the year. Tree species include *Ceiba pentandra*, *Bombax reflexum*, at least seven species of *Ficus*, *Chlorophora excelsa*, *Pterocarpus*, *Khaya*, *Elaeis*, *Newtonia*, *Albizia*, *Entandophragma* and (surprisingly) *Adansonia digitata* in dry areas. Oil-palms *Elaeis guineensis* are common along watercourses and on the edges of clearings. According to Airy Shaw (1947), wild coffee shrubs (*Coffea canephora* and *C. welwitschii*) originally formed part of the understorey of these forests, but have long been replaced by commercial coffee cultivars. Arboreal creepers (Combretaceae and *Platyserium*) and climbing ferns (*Gleichenia*) are common in the forest. Creeping ferns on the forest floor include *Microlepis*, *Pteris*, *Tectaria* and *Marattia*.

### Birds

See Box and Tables 2 and 3 for key species. The site has a rich forest avifauna, and at least 216 species have been collected in the Camabatela area. The site is rich in species of the Guinea–Congo Forests biome. Rare, biome-restricted species collected in the Camabatela–Canzele–Bolongongo area include *Dryotriorchis spectabilis*, *Spizaetus africanus* and *Poicephalus gulielmi*, while the scarce *Agapornis pullaria*, known from only a few sites in northern Angola, is likely to occur. Other poorly known species that occur in this area include *Cercococcyx mechowi*, *Cercococcyx olivinus*, *Centropus anselli*, *Ceyx lecontei*, *Corythornis leucogaster*, *Illadopsis fulvescens* and *I. albipectus*, with *Illadopsis rufipennis*, currently known only from Cabinda and northern Cuanza Norte likely to occur. Three species of the Zambebian biome have been recorded from this site, and *Pseudoalcippe abyssinica*, a forest species of the Afrotropical Highlands biome, is present at higher elevations. Two orioles, *Oriolus brachyrhynchus* and *O. nigripennis*, occur in the lowland forest, with a third species, *O. auratus*, present in adjacent woodlands.

#### Key species

- A1 *Laniarius brauni* *Laniarius amboimensis*  
 A2 (087) Western Angola EBA: Two of the 14 species of this EBA that occur in Angola have been recorded at this site; see Table 2.  
 A3 (A05) Guinea–Congo Forests biome: 79 of the 161 species of this biome that occur in Angola have been recorded at this site; see Table 3.

### Other threatened/endemic wildlife

The antelope fauna should include such species as *Cephalophus nigrifrons* (LR/nt) and *C. sylvicultor* (LR/nt).

### Conservation issues

No current information is available on the status of the forest and threats to the avian habitats. Coffee fazendas in the Camabatela and Canzele area were in full production up to the early 1970s. No specific

information is available for the coffee plantations in the Camabatela area, but there has been a general decline in coffee production through neglect of the plantations throughout Angola, and it is quite likely that the avifauna has benefited through this to some extent.

## Cameia National Park

Admin region Moxico

Coordinates 11°43'S 20°48'E

Area 1,400,000 ha Altitude c.1,100 m

AO005

A3 (A10)  
National Park

### Site description

Cameia National Park lies within the 1,200 mm isohyet, and is triangular, with the Cameia–Luacano road forming the northern boundary, the Chifumage river the southern part of the eastern boundary and the Lumege and Luena rivers the south-western boundary. Two towns, Cameia (formerly called Lumege) and Luacano, are respectively in the north-western and north-eastern corners of the park. Much of the park consists of seasonally inundated plains that form part of the Zambezi river basin, with the northern half of the park draining into the Chifumage river. There are also extensive miombo woodlands, similar in structure to those in the Zambezi basin of western Zambia. The park is a representative sample of habitat not occurring elsewhere in Angola. Two lakes, Lago Cameia and Lago Dilolo (the largest lake in Angola) lie outside the park boundaries and both have extensive reedbeds and grassy swamps that are rich in aquatic bird species.

### Birds

See Box and Table 3 for key species. The avifauna of the park is poorly known and no species list is available. All records are of species collected or observed at localities adjacent to the park (Lago Dilolo, Lago Cameia and Sandando; Pinto 1965, 1973a). The site is important for species of the Zambebian biome, and the lakes and wetland habitats along the Chifumage, Lumege, Luena and Luvua rivers support at least 29 species of waterbird (20% of the Angolan list), some in numbers considered at least nationally important. One of the two isolated small populations of *Francolinus albigularis* south of the Equator occurs in eastern Moxico (Hall 1960b) and is likely to occur on Cameia. *Charadrius forbesi* has been collected at Cazombo, Calunda and along the Muaco river (Pinto 1973a) east of Cameia and is likely to occur in the park. Other poorly known species from the general area include *Ardeola rufiventris*, *Caprimulgus natalensis*, *Macronyx ameliae* and *Lagonosticta nitidula*. Birds identified as *Ploceus velatus*, which occur at Lago Cameia and Lago Dilolo, have recently been the subject of debate (Louette and Benson 1982; Louette 1984; Dean 1996); it is possible that this is a species new to science and that it occurs in the park.

#### Key species

- A3 (A10) Zambebian biome: 14 of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.

### Other threatened/endemic wildlife

The carnivore *Lycan pictus* (EN) has been recorded from the park (Cabral and Simões 1988), but there are no data on its current status.

### Conservation issues

Cameia National Park was established as a Game Reserve in 1938 and proclaimed a National Park in 1957 (Huntley 1974a). Huntley (1974a) noted that the immense herds of large herbivores had been severely reduced by poaching by the early 1970s. The present status of large herbivore populations in the park is unknown.

### Further reading

Huntley (1974a).

## Cangandala National Park

Admin region Malanje

Coordinates 09°47'S 16°41'E

Area 60,000 ha Altitude 1,000 m

AO006

A3 (A10)  
National Park

### Site description

The smallest National Park in Angola, situated between the Cuije river

to the north, and two unnamed tributaries of the Cuanza river to the east and west. There are two towns, Culamagia and Techongolola on the eastern edge and southern tip of the park respectively. The topography is flat or gently undulating. The vegetation is mainly woodland, dominated by *Brachystegia* and *Julbernardia*, together with other trees in places (*Piliostigma*, *Burkea*, *Monotes*, *Strychnos*, *Sterculia* and *Dombeya*). Poorly developed gallery forest occurs along some of the perennial streams and rivers. There are thickets on termitaria, and drainage lines of open grassland, indicating seasonally waterlogged soils. Scattered trees (*Uapaca*, *Piliostigma*, *Annona*, *Entadopsis* and *Erythrina*) occur in the ecotone between grassland and woodland. Fairly extensive swamps of *Cyperus papyrus* are present in permanently wet patches along the drainage lines.

### ■ Birds

See Box and Table 3 for key species. The more structured woodlands and the dense undergrowth in parts of the woodland at Cangandala National Park (as well as the lower altitude), compared to miombo woodlands on the plateau, makes the habitat generally unsuitable for typical ground-foraging miombo bird species (Benson and Irwin 1966; Dean 1988). Nevertheless, the park generally has a fairly rich avifauna, and 170 species were recorded during two weeks of fieldwork in August–September. A number of breeding records were also collected during this period (e.g. *Francolinus finschii*) (Dean 1974). Two species of the Guinea–Congo Forests biome occur at the site.

#### Key species

A3 (A10) Zambezi biome: 13 of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.

### ■ Other threatened/endemic wildlife

Large herbivores present in the park include *Hippotragus niger variandi* (CR) (Huntley 1974a).

### ■ Conservation issues

The park was established in 1963 to protect a small population of the critically endangered ungulate subspecies *Hippotragus niger variandi*. There is a large resident human population (Huntley 1974a) that poses a threat to biodiversity in the park.

### ■ Further reading

Huntley (1974a).

## Chongoroi

Admin region Benguela

Coordinates 13°34'S 13°57'E

Area 2,000 ha Altitude 700–820 m

AO007

A1, A2 (087), A3 (A05)

Unprotected

### ■ Site description

This is an area where a mosaic of undifferentiated montane plant communities occurs in deep humid ravines on the escarpment, with dry woodland below the scarp. No specific climatic data are available for the area, but Hall (1960b) gives rainfall data for Ganda, 88 km (55 miles) north-east of the site and considerably higher in elevation, as almost 1,600 mm per year. There is a steep rainfall gradient down the escarpment and the higher elevations of the site are in the 800 mm isohyet, while the rainfall in the lower elevations may be less than 400 mm per year. Tree genera include *Podocarpus*, *Pittosporum*, *Olea* and *Ilex* on the higher elevations, with *Adansonia digitata* and *Acacia welwitschii* dry woodland with thickets at the bottom of the escarpment.

### ■ Birds

See Box and Tables 2 and 3 for key species. The escarpment forests lie between the dry woodlands of the coastal plain and the miombo woodlands of the interior plateau, and are an effective barrier to both, allowing a fairly unique avifauna to develop (Hall 1960a). The avifauna of the site is almost certainly richer than suggested by the list of 99 collected species. The site supports three resident species of global conservation concern—the rare *Macrosphenus pulitzeri* has been collected at two sites at Chongoroi (Chongoroi itself, the type-locality, and Camacuio (Pinto 1962; close to Chongoroi, but precise locality not found), while *Francolinus griseostriatus* is uncommon, and *Estrilda thomensis* frequent. The site is important for several species of the

Guinea–Congo Forests biome that reach their southern distributional limits here. In addition, two species of the Zambezi biome and two Kalahari–Highveld species have been recorded. The area has a diversity of other forest and savanna species, including birds not well known elsewhere (e.g. *Telecanthura ussheri* and *Platysteira concreta*). The dry woodlands below the escarpment are about the northern limit for some birds of the southern semi-arid woodlands (e.g. *Pycnonotus nigricans*), while the forest patches are about the southern limit for *Tauraco erythrolophus*, *Gymnobucco calvus*, *Smithornis capensis*, *Cercotrichas leucosticta*, *Nectarinia superba*, *Ploceus bicolor*, *Lagonosticta landanae* and *Serinus capistratus*. Chongoroi is also the southern limit for some species of the moist savannas (e.g. *Campephaga quiscalina*).

#### Key species

A1 *Francolinus griseostriatus* *Estrilda thomensis*

*Macrosphenus pulitzeri*

A2 (087) Western Angola EBA: Three of the 14 species of this EBA that occur in Angola have been recorded at this site; see Table 2.

A3 (A05) Guinea–Congo Forests biome: 11 of the 161 species of this biome that occur in Angola have been recorded at this site; see Table 3.

### ■ Other threatened/endemic wildlife

No list of mammals is available for the area, but there are sight records of *Panthera leo* (VU) (Cabral and Simões 1988). As for the avifauna, the Escarpment Zone allows the southward extension of range by some equatorial rodents, and the northward extension of range by species typical of more arid habitats, such as *Rhabdomys pumilio* (DD), some of them represented by well-defined subspecies (Cabral 1966).

### ■ Conservation issues

The protection of samples of the biogeographically important escarpment forests is desirable for several reasons, not least for their continued survival in the face of pressure from subsistence farmers (Huntley 1974a). A protected area of c.20 km<sup>2</sup> was recommended by Huntley (1974b), but was not established (Huntley and Matos 1994). Threats to the avifauna include clearing of vegetation for subsistence farming and frequent fires through uncontrolled slash-and-burn cultivation. The steepness of the escarpment, and the difficulty of cultivating crops in deep humid ravines may provide some protection for the avifauna, but this will be a selected subset of birds and not necessarily a representative sample of escarpment bird species.

### ■ Further reading

Pinto (1970, 1983).

## Cuango

Admin region Lunda Norte

Coordinates 09°08'S 18°03'E

Area 10,000 ha Altitude 850 m

AO008

A3 (A05, A10)

Unprotected

### ■ Site description

The site lies on the Cuango river north of the town of Cuango, within the 1,400 mm isohyet. The vegetation consists of narrow belts of well-developed gallery forest along the Cuango river and tall grasslands with scattered trees on the surrounding plains. Tree genera in the gallery forest include *Piptadeniastrum*, *Chlorophora*, *Ceiba* and *Xylopia* and canopy heights are generally 30–40 m (Huntley 1974a). Grass genera include *Hyparrhenia*, *Andropogon*, *Trachypogon* and *Loudetia*, and the open woodland on the plains includes such tree genera as *Strychnos*, *Hymenocardia*, *Annona*, *Piliostigma* and *Combretum*, and patches of miombo woodland, dominated by *Brachystegia* and *Julbernardia*, occur in the general area.

### ■ Birds

See Box and Table 3 for key species. The diverse habitats support a rich avifauna, with the species list likely to be considerably higher than the 156 species collected in the area. The site is important for several species of the Guinea–Congo Forests biome that have not been recorded frequently elsewhere in Angola. A number of rare or poorly known species have been collected in the area, including *Columba iriditorques*, *Psittacus erithacus*, *Toekus fasciatus*, *Toekus pallidirostris* and *Ceratogymna subcylindricus*. This is one of the most eastern sites where the endemic *Colius castanotus* occurs. The wetland habitats along the

Cuango river support at least 12 species of congregatory waterbird (8% of the Angolan list), some in numbers considered at least nationally important. There is a single record of *Ardeola idae* from this site (Pinto 1973a).

#### Key species

- A3 (A05) Guinea–Congo Forests biome: 17 of the 161 species of this biome that occur in Angola have been recorded at this site; see Table 3.  
 A3 (A10) Zambebian biome: 13 of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.

#### Other threatened/endemic wildlife

No complete list of mammals is available. The diverse antelope fauna includes such species as *Cephalophus nigrifrons* (LR/nt), *C. sylvicultor* (LR/nt) and *Tragelaphus spekei* (LR/nt).

#### Conservation issues

The site is adjacent to the Milando National Park, for which there are no current data on the avifauna. It is extremely likely that the avifaunal species-richness of Milando NP is similar to that of the Cuango area, and if this is the case, the national park will serve to protect the avifaunal diversity in this area. Huntley (1974b) proposed a protected area for Cuango (06°16'S 16°43'E) in Uíge Province, also on the Cuango river and most probably with similar avifauna to the present site, although there may be more equatorial Guinea–Congo Forests biome elements in the avifauna. No current information is available on land-use or threats to biodiversity for any of these sites, except that surface-mining for diamonds is believed to be increasing in this general area, with concomitant threats to bird habitats.

#### Further reading

Pinto (1973a).

### Cuelei

Admin region Cuando Cubango

Coordinates 15°42'S 17°27'E

Area 450,000 ha Altitude c.1,100 m

AO009

A1, A3 (A10)  
Unprotected

#### Site description

The site lies along the Cubango river, from just south of Menongue to south of Caiundo (boundaries not specified by Huntley (1974b)) and includes the Cuchi and Cuebe rivers. It is within the 600 mm isohyet. The vegetation is mainly miombo (*Brachystegia*) woodland, and there are other broadleaved dry woodlands, dry thickets and riverine woodland (Huntley 1974b).

#### Birds

See Box and Table 3 for key species. The avifauna is virtually unstudied and only 65 species have been recorded from the area. The total species list, given the diversity of habitat, is likely to be much higher. The importance of the site is in the two globally threatened species, both of which are known to breed here, and the relative richness of species of the Zambebian biome. The general area is at the southern limit for *Stactolaema anchietae*, and is one of the few places in Angola where *Myrmecocichla tholloni* and *M. nigra* overlap in distribution. One of the isolated populations of *Mirafra angolensis* occurs in this area. Wetlands along the Cubango, Cuchi and Cuebe rivers offer a range of habitats for waterbirds, of which 30 species (21% of the Angolan list) have been recorded here, some in numbers considered at least nationally significant.

#### Key species

- A1 *Grus carunculatus* *Macronyx grimwoodi*  
 A3 (A10) Zambebian biome: 13 of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.

#### Other threatened/endemic wildlife

The large carnivores *Acinonyx jubatus* (VU) and *Panthera leo* (VU) have been recorded (Cabral and Simões 1988).

#### Conservation issues

The area was proposed as a Regional Nature Park as long ago as 1974 (Huntley 1974b), but to date there has been no further developments in

establishing this protected area (Huntley and Matos 1994). Current threats to the biodiversity in general, and to the avifauna in particular, are not known.

#### Further reading

Huntley and Matos (1994).

### Cutato

Admin region Huambo, Huíla, Bié

Coordinates 13°13'S 16°30'E

Area 30,000 ha Altitude 1,300 m

AO010

A3 (A10, A11)  
Unprotected

#### Site description

The site lies on the Cutato river, on the Huambo/Bié provincial boundary, south of Chinhama and Cachingues, and north of the town of Cutato. The vegetation consists of tracts of fairly homogeneous miombo woodland, dominated by *Brachystegia spiciformis* and *Julbernardia paniculata*, usually with a poorly developed understorey of grasses and shrubs, as well as areas of more mixed woodland, with *Brachystegia boehmii*, *B. spiciformis*, *B. floribunda* and *Julbernardia paniculata* as co-dominants, together with *Piliostigma*, *Burkea*, *Monotes*, *Strychnos*, *Sterculia* and *Dombeya* trees, with a fairly dense undergrowth of grasses and shrubs. There are drainage lines of open grassland, indicating seasonally waterlogged soils, with scattered trees (*Uapaca*, *Annona* and *Erythrina*) in the ecotone between the grassland and the woodland.

#### Birds

See Box and Table 3 for key species. The site is poorly known ornithologically and only 98 species have been recorded in the area. However, the avifauna is likely to be rich, particularly in miombo-specialist bird species and in wetland species. *Pterocles burchelli* is likely to occur in very open woodlands on sandy soils. The site supports at least 14 species of waterbird, some in numbers considered at least nationally significant. One species of global conservation concern is known from the area, *Gallinago media*, for which there are old records of specimens collected at Cuvango, about 25 km south-west of this site.

#### Key species

- A3 (A10) Zambebian biome: Seven of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.  
 A3 (A11) Kalahari–Highveld biome: Two of the 11 species of this biome that occur in Angola have been recorded at this site; see Table 3.

#### Other threatened/endemic wildlife

No list of mammals is available for the area.

#### Conservation issues

Huntley (1974b) notes that a suitable area for a Regional Nature Park has been found and examined. To date, there have been no further developments towards establishing this protected area. No threats to biodiversity in the area are currently known.

#### Further reading

Huntley (1974b).

### Gabela

Admin region Cuanza Sul

Coordinates 10°51'S 14°22'E

Area 5,000 ha Altitude 1,000 m

AO011

A1, A2 (087), A3 (A05, A07)  
Unprotected

#### Site description

The site lies on the escarpment zone where an area of about 200,000 ha of impoverished semi-deciduous moist forest (an outlier of Guinea–Congo forest) has the richest array of local endemic bird species in Angola. The rainfall is markedly seasonal, with November–December and February–April the months in which most rain falls. Tree genera in the forest include *Ficus*, *Newtonia*, *Albizia*, *Celtis*, *Ceiba* and *Pterocarpus*. Oil palms *Elaeis* are common, and epiphytes are abundant on the trees. Although the undergrowth of the forest has been cleared and the forest floor extensively planted with coffee, current coffee production is low,

and much of the forested area is relatively undisturbed by human activity. However, valley bottoms in the area are now being cleared by subsistence farmers (Hawkins 1993) and this is a matter for some concern.

### ■ Birds

See Box and Tables 2 and 3 for key species. The site is important for six species of global conservation concern—all have a restricted range, all but one are endemic to Angola, and most are uncommon at the site. *Prionops gabela* is found only at Gabela and along the road to Muxima, while *Sheppardia gabela* is virtually confined to the Gabela area. The Angolan endemic *Platysteira albifrons* has been collected at Quirimbo, just north of Gabela, and is likely to occur in thickets and woodland at lower elevations in the general area. The globally threatened *Macrosphenus pulitzeri* is highly likely to occur in secondary forest in the south of the region. The site is also important for species of the Guinea–Congo Forests biome and Afrotropical Highlands biome. The forests at Gabela are the only known locality in Angola for *Alethe poliocephala*, *Dyaphorophya blisseti*, *Parus funereus*, *Ploceus insignis* and *Cryptospiza reichenovii*, and are one of the few sites in Angola where *Stephanoaetus coronatus* is known to occur. Other poorly known species that occur in the forest include *Cercotrichas leucosticta* and *Hylia prasina*. Numerous species reach the southern limit of their Angolan distributions at Gabela, including *Campethera nivosus*, *C. caroli*, *Phyllastrephus albigularis*, *Neocossyphus fraseri*, *Muscicapa cassini*, *Trochocercus nitens*, *Batis minulla*, *Illadopsis fulvescens*, *Oriolus nigripennis* and *Spermophaga ruficapilla*.

The avifauna of the forest includes a surprising number of savanna species (including three of the Zambebian biome)—for example, *Kaupifalco monogrammicus*, *Accipiter badius* and *Turdus libonyana* are present during the dry season. The avifauna is relatively better known than other areas in Angola, but most ornithological fieldwork has been directed towards collecting. A preliminary project on the biology of selected elements of the avifauna of the escarpment in the area has been done (Hawkins 1993).

#### Key species

A1	<i>Laniarius amboimensis</i>	<i>Sheppardia gabela</i>
	<i>Malaconotus monteiri</i>	<i>Xenocopsychus ansorgei</i>
	<i>Prionops gabela</i>	<i>Platysteira albifrons</i>
A2 (087)	Western Angola EBA: Seven of the 14 species of this EBA that occur in Angola have been recorded at this site; see Table 2.	
A3 (A05)	Guinea–Congo Forests biome: 32 of the 161 species of this biome that occur in Angola have been recorded at this site; see Table 3.	
A3 (A07)	Afrotropical Highlands biome: Five of the 17 species of this biome that occur in Angola have been recorded at this site; see Table 3.	

### ■ Other threatened/endemic wildlife

Bats that have been collected include the rare *Epomops franqueti* (Cabral 1989).

### ■ Conservation issues

A protected area of 50 km<sup>2</sup> in the area was recommended by Huntley (1974b), but was not established (Huntley and Matos 1994). Threats to the avifauna include removal of 20–70% of canopy trees and all the undergrowth in the valley bottoms for planting of bananas and sweet potatoes, while up to 95% of the canopy is removed for planting cassava and maize (Hawkins 1993). Vegetation may be removed by burning. Hunting of small mammals and birds is probably common.

### ■ Further reading

Hawkins (1993).

## Iona National Park

Admin region Namibe

Coordinates 16°54'S 12°35'E A1, A2 (087, s045), A3 (A11, A12)

Area 1,592,000 ha Altitude 0–800 m National Park

AO012

### ■ Site description

This is the largest National Park in Angola and is situated in the south-western corner of Namibe, between the Curoca and Cunene rivers. The altitude ranges from sea-level to about 800 m at Posto do Iona and higher in the Tchamalinde Mountains, and there is a gradient in rainfall, from about 100 mm at the coast to 300 mm or more on the

eastern boundary of the park. The protected area includes the mouth of the Cunene river, the extensive sand-spit and bay of the Baia dos Tigres and about 200 km of Atlantic coastline. Of particular importance is that the park is contiguous with the Skeleton Coast Park in Namibia, which is itself contiguous with the Namib-Naukluft National Park so that all three protected areas form a continuous block covering some 1,200 km of Namib Desert coastline and adjacent dunes. There are a variety of desert and semi-desert ecosystems in Iona National Park, including mobile dunes along the coast, calcrete plains, desert grasslands of perennial *Aristida* and *Stipagrostis*, arid montane shrubland and open woodland and arid savanna. *Welwitschia mirabilis* is common on gravelly substrates (Huntley 1974b). As a result of the rainfall gradient, the perennial grasslands in the park lead into *Acacia–Commiphora* semi-arid savanna and, further east, to mopane (*Colophospermum mopane*) woodland.

### ■ Birds

See Box and Tables 2 and 3 for key species. Only 114 species have been recorded for the area, but the avifauna is likely to be far richer than this, with all the typical Namib Desert avifauna present. The site is important for species restricted to the Namib–Karoo and Kalahari–Highveld biomes. Among species of global conservation concern, *Namibornis herero* and *Estrilda thomensis* are frequently encountered residents, while *Spheniscus demersus*, *Morus capensis* and *Sterna balaenarum* are frequent to common non-breeding visitors along the coast. Observations of an adult *S. balaenarum* feeding young, and adults carrying fish at the mouth of the Cunene river in December (Simmons and Braine 1994), as well as specimens of *S. balaenarum* in breeding plumage (but with small gonads) at the same locality in November (Pinto 1973b), all support the suggestion by Brooke (1981) that this tern may breed in dunes along the coast of extreme south-west Namibe (i.e. at this site). The coastal parts of the park are an important part of the non-breeding range of *Sterna maxima albidorsalis*.

The bays and coastal pans, as well as the Curoca river on the northern border of the park, support at least 58 species of waterbird (40% of Angolan list), some in numbers considered at least nationally significant, e.g. *Ephippiorhynchus senegalensis*, *Ciconia nigra*, *Phoenicopterus minor* and a diversity of smaller wading species.

Large scavengers including *Leptoptilos crumeniferus*, *Gyps africanus* and *Torgos tracheliotus* are frequent to common in the park. The park is one of the few remaining places in Angola where *Struthio camelus* occurs in the wild, and is also the only locality in Angola where *Falco rupicoloides* has been recorded breeding (Dean *et al.* 1988). South-western Angola is a significant part of the breeding range of *Apus bradfieldi*. There are no records of this species breeding in the park, but birds in breeding condition have been collected just outside the park at S. João do Sul (Brooke 1971). The rare dark-rumped morph of *Apus horus toulsoni* has been collected at Tombua (Porto Alexandre), just outside the park boundary (Pinto 1973b), and is highly likely to occur within the park boundaries.

#### Key species

A1	<i>Spheniscus demersus</i>	<i>Sterna balaenarum</i>
	<i>Morus capensis</i>	<i>Namibornis herero</i>
	<i>Phoenicopterus minor</i>	<i>Estrilda thomensis</i>
A2 (087)	Western Angola EBA: One of the 14 species of this EBA that occur in Angola has been recorded at this site; see Table 2.	
A2 (s045)	Namibian escarpment Secondary Area: <i>Namibornis herero</i> has been recorded at this site.	
A3 (A11)	Kalahari–Highveld biome: Eight of the 11 species of this biome that occur in Angola have been recorded at this site; see Table 3.	
A3 (A12)	Namib–Karoo biome: All of the seven species of this biome that occur in Angola have been recorded at this site; see Table 3.	

### ■ Other threatened/endemic wildlife

Large herbivores in the park include *Diceros bicornis* (CR), *Equus zebra hartmannae* (EN) and *Aepyceros melampus petersi* (Huntley 1974a). Carnivores include *Lycaon pictus* (EN), *Hyaena brunnea* (LR/nt), *Acinonyx jubatus* (VU) and *Panthera leo* (VU) (Cabral 1987; Cabral and Simões 1988).

### ■ Conservation issues

The park was occupied by Ovahimba pastoralists up to and including the early 1970s, but the current situation and current threats to biodiversity in the park are not known.

### Further reading

Huntley (1974a), Huntley and Matos (1994).

#### Lago Carumbo

Admin region Lunda Norte

Coordinates 07°48'S 19°57'E

Area 150,000 ha Altitude 850 m

AO013

A1, A3 (A05, A10)

Unprotected

### Site description

The site lies in the scenically spectacular Lago Carumbo–Luxico area along the Luele river valley, within the 1,400 mm isohyet. The vegetation is diverse, and ranges from *Cryptosepalum pseudotaxus* and *Marquesia* dry evergreen forests, swamp-forest with *Raphia* palms dominant, gallery forest and flood-plains covered in papyrus *Cyperus papyrus* (Huntley 1974b). The area is of considerable interest biogeographically because of the interpenetration of Guinea–Congo forest with Zambezan woodland elements (Huntley 1974b), which gives rise to a wide range of habitats.

### Birds

See Box and Table 3 for key species. The area is poorly known ornithologically and, although only 67 species have been recorded, the avifauna is likely to be far richer than this, comparable to Cuango (IBA AO008) and Luachimo (AO014), which have similar plant species and structural diversity in the vegetation. A relatively high number of bird species of the Guinea–Congo Forests and Zambezan biomes have been recorded, and the gallery forests along the Luele river are particularly rich in forest bulbuls (Pycnonotidae), apalises (Sylviidae) and sunbirds (Nectarinidae), and are likely to have all the species in these families that have been recorded along the Luachimo river.

The Near Threatened *Macronyx grimwoodi* is a frequently encountered resident. Other less well-known species recorded at Lago Carumbo include *Neolestes torquatus* in thickets in open woodlands and grasslands, *Nicator chloris* in gallery forest and forest fringing the lake, and *Ploceus superciliosus* in marshes and reedbeds along streams. Wetland habitat on the lake and along the Luele river may be important for aquatic species, but only eight waterbirds have been recorded in this area in numbers which may be significant at the national level or greater.

#### Key species

A1 *Macronyx grimwoodi*

A3 (A05) Guinea–Congo Forests biome: Nine of the 161 species of this biome that occur in Angola have been recorded at this site; see Table 3.

A3 (A10) Zambezan biome: Seven of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.

### Other threatened/endemic wildlife

Among mammals, *Cephalophus sylvicultor* (LR/nt) is present in dry *Marquesia* forest (Huntley 1974b), while *Lutra maculicollis* (VU) and *Panthera leo* (VU) have been recorded along the Luele river (Cabral 1987; Cabral and Simões 1988).

### Conservation issues

The site was proposed as a conservation area in the 1970s. Surface diggings for diamonds are apparently increasing in the area (K. Loutchanski, pers. comm.), with concomitant disturbances of vegetation and fauna.

#### Luachimo river (Chitato)

Admin region Lunda Norte

Coordinates 07°22'S 20°50'E

Area 2,000 ha Altitude 870 m

AO014

A3 (A05, A10)

Unprotected

### Site description

The site lies in the valley of the Luachimo river, near the town of Dundo (specific area not identified by Huntley 1974b). The area lies within the 1,400 mm isohyet, with markedly summer rainfall. The vegetation is gallery forest along the river, surrounded by extensive grassy plains and open woodland. Canopy height of the gallery forest is 20–40 m, and the tree species composition of this habitat

includes *Piptadeniastrum africanum*, *Chlorophora excelsa*, *Ceiba pentandra*, *Musanga cecropioides*, *Allanblackia floribunda* and *Entandophragma angolensis*. Trees and shrubs are scattered through the extensive tall grassland that edges the gallery forests. Huntley and Matos (1994) suggest that this woodland contains a selected subset of fire-resistant or fire-tolerant tree species that includes *Hymenocardia acida*, *Erythrina abyssinica*, *Piliostigma thonningii* and *Cussonia angolensis*.

### Birds

See Box and Table 3 for key species. The structurally diverse vegetation supports a rich avifauna that is fairly well-known, and a total of 313 species have been collected at Dundo and along the Luachimo river. The site is rich in species of the Guinea–Congo Forests biome. This is one of the few sites (in some cases, the only site) in Angola south of the Congo river where *Caprimulgus climacurus*, *Halcyon malimbica*, *Alcedo quadribrachys*, *Gymnobucco bonapartei*, *Indicator conirostris*, *Cossypha polioptera*, *Cossypha niveicapilla*, *Ficedula albicollis*, *Fraseria ocreata*, *Fraseria cinerascens*, *Illadopsis fulvescens*, *Ptyrticus turdimus*, *Laniarius leucorhynchus*, *Ploceus superciliosus*, *Parmoptila woodhousei*, *Pyrenestes ostrinus*, *Hypargos niveoguttatus* and *Clytospiza monteiri* have been recorded. *Telacanthura melanopygia* has been collected near Dundo (Pinto 1973a) and is likely to occur in the proposed protected area on the Luachimo river. Two species of the Afrotropical Highlands biome occur at the site.

#### Key species

A3 (A05) Guinea–Congo Forests biome: 65 of the 161 species of this biome that occur in Angola have been recorded at this site; see Table 3.

A3 (A10) Zambezan biome: 11 of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.

### Other threatened/endemic wildlife

Dundo is the type-locality of the rare bat *Micropterus grandis* (Cabral 1989), and other rare bats that occur in gallery forest along the Luachimo river include *Megaloglossus woermanni* and *Hypsignathus monstrosus* (Cabral 1989). Larger mammals that have been recorded include *Aonyx congicus* (DD) and *Lycan pictus* (EN) (Cabral 1987; Cabral and Simões 1988).

### Conservation issues

This is one of the areas proposed by Huntley (1974b) and Huntley and Matos (1994) as a priority protected area to conserve a good representative sample of this unusually species-rich gallery forest habitat. Current threats to the biodiversity and the avifauna in particular include very extensive surface-diggings for diamonds by local people. No other threats are known, but are likely to include hunting and slash-and-burn cultivation.

### Further reading

Huntley (1974a), Huntley and Matos (1994).

#### Luando Strict Nature Reserve

Admin region Malanje

Coordinates 10°41'S 17°22'E

Area 828,000 ha Altitude c.1,100 m

AO015

A1, A3 (A07, A10)

Strict Nature Reserve

### Site description

This is an extensive area between the Cuanza and Luando rivers and within the 1,200 mm isohyet. The topography is gently undulating, and the both the major rivers on the edge of the park have extensive seasonally inundated flood-plains. The vegetation is typical miombo woodland dominated by *Brachystegia* and *Julbernardia*, usually with a poorly developed understorey of grasses and shrubs, and structurally diverse mixed woodlands, with *Brachystegia boehmii*, *B. spiciformis*, *B. floribunda* and *Julbernardia paniculata* as co-dominants. Poorly developed to well-developed gallery forest occurs along some of the perennial streams and rivers. There are thickets on termitaria, and drainage lines of open grassland, indicating seasonally waterlogged soils, break up the woodland. Scattered trees (of *Uapaca*, *Piliostigma*, *Annona*, *Entadopsis* and *Erythrina*) occur in the ecotone between the grassland and woodland. Fairly extensive swamps of *Cyperus papyrus* are present in permanently flooded patches.



## Birds

See Box and Table 3 for key species. The site has a rich avifauna, particularly in specialists of *Brachystegia* woodland that are characteristic of the Zambezi biome (see Benson and Irwin 1966), and 264 species in total have been collected in the park or in similar woodlands adjacent to the park. Four species of the Guinea–Congo Forests biome have also been recorded at the site. This is one of the few sites in Angola where *Hieraetus ayresii* has been recorded (Dean *et al.* 1988). *Ciconia episcopus* and *Accipiter tachiro* are known to have nested on the reserve (Dean *et al.* 1988), but generally there are few breeding records for the reserve. Wetland habitats along the Luando and Cuanza rivers support at least 37 aquatic species, some of which occur in numbers that are at least nationally important. *Grus carunculatus* is frequent and probably breeds, while *Glareola nordmanni* is a common Palearctic migrant on passage through the area in spring and late summer.

### Key species

A1	<i>Grus carunculatus</i>	<i>Glareola nordmanni</i>
A3 (A07)	Afrotropical Highlands biome: Four of the 17 species of this biome that occur in Angola have been recorded at this site; see Table 3.	
A3 (A10)	Zambezi biome: 31 of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.	

## Other threatened/endemic wildlife

The reserve was initially set up to protect about 90% of the population of the endemic ungulate subspecies *Hippotragus niger varians* (CR). Other antelope of importance in the area include *Tragelaphus spekei* (LR/nt) (Huntley 1974a). Other mammals that occur include *Lycan pictus* (EN) and *Panthera leo* (VU) (Cabral 1987; Cabral and Simões 1988).

## Conservation issues

Huntley (1974a) notes that the presence of 18,000 people, 14 trading stores, extensive rice-paddies and diamond-prospecting within the park boundaries are a threat to the protection of *Hippotragus niger varians*. Currently there are at least two settlements within the park boundaries, the town of Capunda and the village of Camongua, and there are probably a number of settlements too small to feature on the most recent maps of the area. Direct threats to avifauna are presently not known.

## Further reading

Huntley (1974a).

## Luia

Admin region Lunda Norte  
Coordinates 08°10'S 21°33'E  
Area 300,000 ha Altitude c.850 m

AO016

A3 (A10)  
Unprotected

## Site description

The site lies to the west of the town of Luia, in the Luembe river valley, within the 1,400 mm isohyet. The vegetation is a mosaic of gallery forest along the rivers, open tall grasslands, miombo woodlands and *Cryptosepalum* dry evergreen forest.

## Birds

See Box and Table 3 for key species. The avifauna is poorly known—only 109 species have been collected in the area. Given the wide range of habitats, the species-richness, particularly of birds of the Guinea–Congo Forests and Zambezi biomes, should certainly be higher. Poorly known species of the Guinea–Congo Forests biome that occur include *Tigriornis leucolophus*, and more widespread species include *Tockus fasciatus*, *Neocossyphus fraseri* and *Trochocercus nitens*. *Elminia albicauda*, a species of the Afrotropical Highlands biome, has also been recorded.

### Key species

A3 (A10)	Zambezi biome: Eight of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.
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## Other threatened/endemic wildlife

*Lutra maculicollis* (VU) has been recorded from the Luembe river (Cabral 1987), but there are no other available data on mammals.

## Conservation issues

Huntley (1974b) proposed that a reserve should be established in this area to protect a viable population of the ungulate *Kobus vardonii*, a species that is generally rare in Angola. Current threats to biodiversity at the site are not known.

## Further reading

Huntley (1974a).

## Maiombe

Admin region Cabinda  
Coordinates 04°40'S 12°30'E  
Area 40,000 ha Altitude 400 m

AO017

A3 (A05)  
Unprotected

## Site description

The site lies north and north-east of the town of Buco-Zau, in the Maiombe forest on the watershed of the Chiloango and Loémé rivers (Congo). No specific climatic data are available for the site, but it lies within the 1,200 mm isohyet. The moist forests in the area have a rich and robust flora, with a very high canopy (c.50 m) and poor undergrowth with very few grasses. Dominant trees are *Gilletiodendron*, *Librevillea*, *Tetraberlinia* and *Julbernardia*. There is an abundance of flowers and fruit throughout the year and frugivorous mammals and birds are common. The undergrowth has been replaced with coffee in the southern parts of the region, but current coffee production is likely to be low, and the forests are probably relatively undisturbed by people.

## Birds

See Box and Table 3 for key species. The site has the highest number of species in Angola that are restricted to the Guinea–Congo Forests biome but, apart from 301 specimens collected in the general area during the late 1800s (Sharpe and Bouvier 1876a, 1876b, 1877, 1878) and during the late 1960s by the IICA (Pinto 1972), the avifauna is virtually unstudied. Despite this, the bird fauna is clearly species-rich, and significantly more species probably await discovery. Three species characteristic of the Zambezi biome, and one of the Afrotropical Highlands biome, also occur.

None of the Angolan endemic bird species have as yet been recorded from the area. Rare species that are likely to occur include *Accipiter castanilius*, *Urotriorchis macrourus*, *Himantornis haematopus* (recorded widely in dry-land rainforest in the adjacent Mayombe region in Congo by Dowsett-Lemaire *et al.* 1993), *Bubo poensis*, *Bubo leucostictus*, *Scotopelia bouvieri*, *Caprimulgus nigroscapularis*, *Rhaphidura sabini*, *Neafrapus cassini*, *Tockus hartlaubi*, *Ceratogymna cylindricus*, *Nectarinia johanna* and *Anthreptes gabonicus*. *Ploceus subpersonatus* (a globally threatened species) and *Ploceus aurantius* probably occur in lowland swamps along the rivers.

The Maiombe is one of the few collecting localities in Angola for *Accipiter tachiro toussenelii* and *Anthreptes fraseri*, and several of the lesser-known forest bulbuls (*Calyptocichla serina*, *Ixonotus guttatus*, *Phyllastrephus icterinus*, *Criniger calurus*, *C. chloronotus* and *C. ndussumensis*) and barbets (*Gymnobucco peli* and *Buccanodon duchaillui*) are known from the general area (Pinto 1972). Other poorly known species that have been collected in the region include *Hieraetus ayresii*, *Agelastes niger*, *Poicephalus guielmi*, *Agapornis pullaria*, *Centropus monachus*, *Nectarinia bouvieri*, *Ploceus pelzelni*, *Pyrenestes ostrinus* and *Clytopiza monteiri*.

### Key species

A3 (A05)	Guinea–Congo Forests biome: 95 of the 161 species of this biome that occur in Angola have been recorded at this site; see Table 3.
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## Other threatened/endemic wildlife

The forest generally lacks grazing antelope, but browsers such as *Hyemoschus aquaticus* (DD), *Cephalophus sylvicultor* (LR/nt), *C. nigrifrons* (LR/nt) and *C. dorsalis* (LR/nt) occur. The primates include *Gorilla gorilla* (EN) and *Pan troglodytes* (EN).

## Conservation issues

A protected area was proposed by Huntley (1974b), but was not established (Huntley and Matos 1994). Selective logging of timber trees (*Entandophragma*, *Chlorocelta*) and clearing of forest patches for subsistence agriculture seem to be the major threats to the habitat

at present. Threats to the birds include hunting with dogs and the collection of young *Psittacus erithacus* for the pet trade.

#### Further reading

Huntley (1974b), Huntley and Matos (1994), Pinto (1972).

### Mombolo (Missão da Namba)

**AO018**

Admin region Cuanza Sul

Coordinates 11°55'S 14°51'E A1, A2 (087), A3 (A07, A10)

Area 2,000 ha Altitude c.1,300 m Unprotected

#### Site description

The site lies to the west of Mount Moco and Mount Soque, near the Cuanza Sul/Huambo provincial border, and is a mosaic of rugged, rocky hills, montane grassland, woodland and forest patches and bare open granites. No rainfall data are available for the site, but rainfall at two localities fairly close-by exceeds 1,500 mm per year. In general, the available habitats for birds and the vegetation are similar to those at Mount Moco, but the forest patches are smaller. Dominant trees in the remnant forest patches include *Podocarpus*, *Polyscias*, *Apodytes*, *Pittosporum*, *Szygium* and *Halleria*, with generally low canopies. Short grasslands with scattered trees and shrubs occur on the hills. Tree and shrub genera include *Protea*, *Cliffortia*, *Phillipia*, *Cyathea*, *Stoebe* and *Lobelia*.

#### Birds

See Box and Tables 2 and 3 for key species. The site qualifies for its assemblage of species characteristic of the Afrotropical Highlands and Zambeian biomes, but the area seems to lack the avifaunal richness of the inselbergs further east (although this may be due to less intensive sampling). Only 130 bird species have been recorded from the site, and many of the records date back to the 1920s and early 1930s, when an expedition from the American Museum of Natural History and the Lynes-Vincent tour collected there. *Grus carunculatus* is an uncommon resident, and probably breeds. The site is important as one of the few localities where *Ploceus nigrimentum* occurs—there is no information available on the current abundance and status of this species, but it probably breeds. Two restricted-range species, *Dioptornis brunneus* and *Nectarinia ludovicensis*, are frequent and probably breed.

Four species of the Guinea–Congo Forests biome also occur at the site, three of them being either uncommon or fairly localized in Angola: *Francolinus finschi*, *Gymnobucco calvus* and *Phyllastrephus fulviventris*. Species at the site that are part of isolated populations in Angola include *Columba arquatrix*, *Anthus lineiventris*, *Sheppardia bocagei*, *Myrmecocichla tholloni*, *M. nigra*, *Apalis cinerea*, *Calamonastes undosus* and *Muscicapa adusta*. Several cisticolas that appear to have isolated populations in this area include *Cisticola aberrans*, *C. lais*, *C. robustus* and *C. ayresii*. *Euplectes gierowi* has been collected at Cahata, c.50 km due south of Mombolo, and could occur in wet grassland below the forest patches and in valley bottoms in the Mombolo–Cassongue–Galanga area.

#### Key species

A1	<i>Grus carunculatus</i>	<i>Ploceus nigrimentum</i>
A2 (087)	Western Angola EBA: Two of the 14 species of this EBA that occur in Angola have been recorded at this site; see Table 2.	
A3 (A07)	Afrotropical Highlands biome: Seven of the 17 species of this biome that occur in Angola have been recorded at this site; see Table 3.	
A3 (A10)	Zambeian biome: 12 of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.	

#### Other threatened/endemic wildlife

None known to BirdLife International.

#### Conservation issues

No research projects are currently in progress in the western highlands, as far as is known, nor are there any plans to protect any part of the Mombolo area. Threats to the avifauna include logging, clearing and burning (and probably frequent runaway fires) and subsistence agriculture. Current threats to the biodiversity are not known.

#### Further reading

Lynes and Sclater (1933–1934).

### Mount Moco

**AO019**

Admin region Huambo

Coordinates 12°25'S 15°11'E A1, A2 (087), A3 (A07, A10)

Area 6,000 ha Altitude 2,000–2,500 m Unprotected

#### Site description

The highlands of west-central Angola are of great biogeographic interest as they harbour species that are relicts of past climatic conditions that favoured a wider distribution of a cool moist forest biome. Only a few patches of forest remain, isolated on the protected slopes of mountains in Benguela, Huambo and Huila Provinces. The best remaining example of these forests is on Mount Moco, in the Luimbale district, where there are at least 15 patches ranging in size from 1 ha to 15 ha in deep ravines. No specific climatic data are available for the area, but the site is within the 1,400 mm isohyet.

The dominant trees in the remnant forest patches include *Podocarpus*, *Polyscias*, *Apodytes*, *Pittosporum*, *Szygium* and *Halleria*, with canopy heights seldom exceeding 8 m. Huntley and Matos (1994) note that epiphytes are less abundant on the trees than they are on the trees of similar forest communities elsewhere. Short grasslands with scattered trees and shrubs surround the forest patches. Tree and shrub genera include *Protea*, *Cliffortia*, *Phillipia*, *Cyathea*, *Stoebe* and *Lobelia*, while grass genera include *Monocymbium* and *Festuca* (Huntley 1974a).

#### Birds

See Box and Tables 2 and 3 for key species. A total of 221 species have been collected at Mount Moco, including three species of global conservation concern—*Macronyx grimwoodi* is frequent in moist grassland, while *Francolinus swierstrai* is uncommon, and *Xenocopsychus ansorgei* is common on rocky outcrops. The latter two species have restricted ranges, as do *Dioptornis brunneus* and *Nectarinia ludovicensis*, which are both frequent in the area and probably breed.

The site qualifies for both Afrotropical Highland and Zambeian biome-restricted species, and four species of the Guinea–Congo Forests biome also occur. The Afrotropical Highland avifauna has strong affinities with the avifaunas of other remote Afromontane forests, and is characterized by numerous subspecific endemics that are restricted to Mount Moco (Huntley and Matos 1994), e.g. *Oenanthe monticola nigricauda*. At least five species—*Schoutedenapus myioptilus*, *Apus sladeniae*, *Caprimulgus poliocephalus koesteri*, *Apaloderma vittatum*, *Batis margaritae margaritae*—have been recorded in Angola only on Mount Moco, while *Pseudoalcippe abyssinica ansorgei* is known from only two other sites (Calandula and the Luachimo river).

Other species that occur, and that are part of isolated populations in Angola, include *Columba arquatrix*, *Anthus lineiventris*, *Sheppardia bocagei*, *Cisticola aberrans*, *Apalis cinerea*, *Calamonastes undosus*, *Muscicapa adusta* and *Malaconotus viridis*. Two rare and localized species, *Ploceus nigrimentum*, presumed resident in savanna woodland in the highlands of Huambo and Cuanza Sul, and *Euplectes gierowi*, that has been collected west of this site, could both occur in suitable habitats (see Mombolo, AO018).

#### Key species

A1	<i>Francolinus swierstrai</i>	<i>Xenocopsychus ansorgei</i>
	<i>Macronyx grimwoodi</i>	
A2 (087)	Western Angola EBA: Four of the 14 species of this EBA that occur in Angola have been recorded at this site; see Table 2.	
A3 (A07)	Afrotropical Highlands biome: 15 of the 17 species of this biome that occur in Angola have been recorded at this site; see Table 3.	
A3 (A10)	Zambeian biome: 29 of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.	

#### Other threatened/endemic wildlife

Mammal species may include *Cephalophus sylvicultor* (LR/nt), but is probably extinct in these forests, according to Huntley (1974b).

#### Conservation issues

A protected area of c.60 km<sup>2</sup> was proposed by Huntley (1974), but was not established (Huntley and Matos 1994). No research projects are currently in progress at Mount Moco, as far as is known. Threats to the avifauna in the 1970s included logging, clearing and burning (and probably frequent runaway fires) and the remaining forest patches were rapidly shrinking (Huntley 1974b). Current threats to the biodiversity are not known.

### Further reading

Hall (1960b), Huntley (1974a), Huntley and Matos (1994).

#### Mupa National Park

Admin region Cunene

Coordinates 16°11'S 15°45'E

Area 660,000 ha Altitude 1,150 m

AO020

A1, A3 (A10)  
National Park

### Site description

Mupa National Park is bounded by the Calongo river (a tributary of the Cunene river) on the west and by the Cuvelai river on the east, with the town of Evale (a collecting site for Eriksson; see Lundevall and Ängermark 1989) on the southern tip. There are several endorheic drainage systems within the park, and a number of small lakes in the generally poorly drained south-western section of the park. The vegetation is similar, in general, to that of Bicuari National Park, with about 40% of the northern park covered in tall dense miombo woodland on Kalahari sands. The southern part of the reserve has well-developed mopane woodland on poorly drained clayey soils.

### Birds

See Box and Table 3 for key species. The avifauna is virtually unstudied and the total species list for the park is likely to be higher than the 182 species that have been collected on the margins of the park. The importance of the site is in the relatively high species-richness of Zambezi woodland species (one species of the Kalahari–Highveld biome has also been recorded) and in the wetland habitats along the Calongo and Cuvelai rivers, where the globally threatened *Grus carunculatus* is frequent and probably breeds. The small lakes provide extensive areas for aquatic birds and these areas, together with flood-plains, support at least 31 species of waterbird (21% of Angolan list), some in numbers which are at least nationally significant. There may be regular movements of waterbirds between southern Angola and wetlands further south. The park is one of the few places in Angola where three similar-sized glossy starlings overlap—*Lamprotornis nitens* occurs in fine-leaved and broadleaved woodlands, *L. chalybaeus* occurs in miombo and other broadleaved woodlands, and *L. acuticaudus* occurs in miombo woodland.

#### Key species

A1 *Grus carunculatus*

A3 (A10) Zambezi biome: 15 of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.

### Other threatened/endemic wildlife

The park was established as a reserve in 1938 to protect a population of the mammal *Giraffa camelopardalis angolensis*, and was raised to National Park status in 1964, but by the early 1970s the resident giraffe population had apparently been exterminated (Huntley 1974a). Large herbivores present in the park include *Aepyceros melampus petersi* (Huntley 1974a), and carnivores include *Panthera leo* (VU) (Cabral 1987; Cabral and Simões 1988). Bats collected in the general area include *Epomophorus angolensis* (LR/nt) (Cabral 1989).

### Conservation issues

There is a large resident population of people within the park, which situation, together with nomadic pastoralists and mineral prospecting activities (Huntley 1974a), threatens to reduce the remaining biodiversity in the park.

### Further reading

Huntley (1974a).

#### Mussulo

Admin region Luanda

Coordinates 08°50'S 13°16'E

Area c.17,000 ha Altitude 0–2 m

AO021

A1  
Unprotected

### Site description

This is a long sand-spit, c.35 km long, lying parallel to the coast, with the northern tip about 10 km south-west of Luanda. The area includes

several small islands, one of which (the Ilha dos Passaros) lies between Mussulo and the mainland. The vegetation is dominated by mangroves (*Rhizophora mangle*, *Laguncularia racemosa* and *Avicenna germinans*), with low-growing saltmarshes (*Sesuvium portulacastrum*, *S. mesembritemoides* and *Salicornia* sp.) and intertidal flats (Loutchanski 1997).

### Birds

See Box for key species. The site is important for aquatic birds, with 61 congregatory waterbird species (42% of Angolan list) recorded, some of which occur in numbers which are at least nationally significant. *Morus capensis* and *Sterna balaenarum* are frequent to common non-breeding visitors to inshore waters. Some general studies of the avifauna have been carried out (Günther and Feiler 1986) and a project that focused on the food of two waders, *Numenius arquata* and *N. phaeopus*, was recently done by a student at the Universidade Agostinho Neto in Luanda (Loutchanski 1997).

The lagoon and intertidal flats are important foraging areas for waders from the Palearctic moving south in the austral spring and returning in the late summer. All the Palearctic wader species that have been recorded in Angola have also (or have only) been recorded at Mussulo. This is one of the few sites on the Angolan coast where *Phoenicopterus ruber* frequently forages. There are nesting colonies of a number of species of herons and egrets and *Threskiornis aethiopica* on Ilha dos Passaros. Three species characteristic of the Guinea–Congo Forests biome, one of the Zambezi biome and one of the Kalahari–Highveld biome occur at the site.

#### Key species

A1 *Morus capensis*

*Sterna balaenarum*

### Other threatened/endemic wildlife

None known to BirdLife International.

### Conservation issues

Ilha dos Passaros has been proposed as a protected area (Huntley 1974b). One of the motivations for protecting this island is that the mangrove ecosystem of Mussulo is not represented in mangrove communities elsewhere on the Angolan coast, and their botanical interest alone justifies conservation (Huntley 1974b, and see Airy Shaw 1947). Mangrove forests on Mussulo are currently being felled for housing timber (K. Loutchanski, pers. comm.) and are likely to be totally destroyed within a relatively short time.

### Further reading

Günther and Feiler (1986), Loutchanski (1997).

#### Quiçama

Admin region Bengo

Coordinates 09°19'S 13°09'E

Area 996,000 ha Altitude 0–150 m

AO022

A1, A2 (087), A3 (A05)  
National Park

### Site description

Quiçama National Park extends along 110 km of the Angolan coast, with the estuary of the Cuanza river forming the north-western boundary of the park. It holds a diversity of bird habitats, including the most southerly patch of extensive mangrove forest in the country (in the Cuanza estuary), the extensive Cuanza flood-plain, dense communities of raffia palm *Raphia* on permanently waterlogged islands in the river, lowland riverine forests, rank flooded grassy patches, reedbeds, swamps and extensive sandbars along the Cuanza river, extensive grasslands on the plateau, dry baobab-acacia (*Adansonia-Acacia*) woodland in the east of the park, and patches of broadleaved woodland. Dense thickets of *Chrysobalanus*, *Drepanocarpus*, *Dalbergia*, *Leguncularia* and *Hibiscus* occur along the river upstream from the mouth (Huntley and Matos 1994). The flood-plain of the lower Cuanza river has extensive communities of papyrus *Cyperus*, with *Typha*, *Echinochloa* and *Phragmites* on the margins.

### Birds

See Box and Tables 2 and 3 for key species. The avifauna has not been well-studied and the total number of species occurring at the site

is likely to be higher than the 186 species that have been observed and collected. However, the park is relatively rich in globally threatened and restricted-range species. *Phoenicopterus minor*, *Morus capensis* and *Sterna balaenarum* are non-breeding visitors, the latter two in winter to inshore coastal waters. *Francolinus griseostriatus*, *Platysteira albigrons* and *Euplectes aureus* are frequently encountered residents, and probably breed. The avifauna of the eastern forest and lowland riverine forest in Quiçama is poorly known, but it is thought that some restricted-range species of forest may occur there, e.g. the globally threatened *Laniarius brauni*, which is a rare resident at Dondo, just outside the park boundary.

A total of 68 species of congregatory waterbird (47% of the Angolan list) have been collected in the area, and some occur in numbers that are at least nationally significant. The mudflats along the tidal mouth of the Cuanza river are important foraging areas for Palearctic waders in the austral spring and summer. The mudflats along the higher reaches of the river in the park are important foraging areas for *Anastomus lamelligerus*, *Actophilornis africana*, *Rostratula benghalensis*, *Vanellus crassirostris* and several species of rail (Rallidae). Part of the most southerly population of *Pluvianus aegyptius*, a species generally rare in Angola, occurs on sandbanks in the lower Cuanza river. The lakes along the Cuanza river support many waterbirds, and one of the few known nests of *Ephippiorhynchus senegalensis* in Angola is situated on the edge of Cacoba Lake in the park. *Ciconia episcopus* is frequently seen on *Eragrostis* grasslands on the coastal plateau of the park and have been recorded nesting in the park (Günther and Feiler 1986; Dean *et al.* 1988).

*Scotopelia peli* roosts in gallery forest along the Cuanza river and *Machaeramphus alcinus* has frequently been observed hunting over the Cuanza river and in the park. Some species of more moist forests, e.g. *Bias musicus* and *Laniarius luehderi*, have been recorded from the dry forests on the eastern edge of the park. Four species of the Zambebian biome and one of the Kalahari–Highveld biome have been recorded in the park.

#### Key species

A1	<i>Morus capensis</i>	<i>Sterna balaenarum</i>
	<i>Phoenicopterus minor</i>	<i>Platysteira albigrons</i>
	<i>Francolinus griseostriatus</i>	<i>Euplectes aureus</i>
A2 (087)	Western Angola EBA: Three of the 14 species of this EBA that occur in Angola have been recorded at this site; see Table 2.	
A3 (A05)	Guinea–Congo Forests biome: 12 of the 161 species of this biome that occur in Angola have been recorded at this site; see Table 3.	

#### Other threatened/endemic wildlife

The mammal fauna includes *Trichechus senegalensis* (VU), which occurs in the lower course of the river, and large carnivores such as *Lycyaon pictus* (EN), *Acinonyx jubatus* (VU) and *Panthera leo* (VU) (Cabral 1987; Cabral and Simões 1988). Up to the early 1970s the park had fairly robust populations of *Loxodonta africana* (EN) (Huntley 1974a), but the current status of the large herbivore populations is not known. Marine turtles nest on the park coast (Huntley 1974a).

#### Conservation issues

Quiçama National Park was established in 1938 (Huntley and Matos 1994). Up to the early 1970s, Quiçama National Park had a long history of illegal hunting within its borders. There was also a private cattle-ranching operation with over 25,000 head of cattle, thousands of hectares of cotton fields, two oil companies in active production, diamond-prospecting, a military detention barracks and a resident indigenous population of more than 5,000 people (Huntley 1974a). It is likely that these disturbances are still present, and may even have intensified with the movement of displaced people to the Luanda area.

#### Further reading

Huntley (1974a).

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## Tundavala

Admin region Huíla

Coordinates 14°50'S 13°24'E

A1, A2 (087), A3 (A07, A10)

Area 4,000 ha Altitude 2,200 m

AO023

Unprotected

#### Site description

The site lies about 15 km north-west of the town of Lubango. Apart from the spectacular scenery, with sheer cliff-faces hundreds of metres high, the area includes patches of relict Afromontane forest in a mosaic of undifferentiated montane communities. Patches of *Podocarpus milanjensis* occur in deep humid ravines and at altitudes above 1,800 m (Huntley and Matos 1994), and there is open *Protea* savanna and montane grasslands, quartzite formations and bracken *Pteridium* on the top of the escarpment, thickets along streams, poorly drained grassy patches in valleys, and dry woodlands at the bottom of the altitudinal gradient, providing a large range of bird habitats within a relatively small area. Tree genera include *Podocarpus*, *Pittosporum*, *Olea* and *Ilex* on the higher elevations, with such species as *Adansonia digitata* and *Acacia welwitschii* at the bottom of the escarpment. There are small patches of miombo woodland (dominated by *Brachystegia* and *Julbernardia*) on sands on the plateau at the top of the escarpment.

#### Birds

See Box and Tables 2 and 3 for key species. Because of its proximity to Lubango and the bird and small-mammal collections at the former IICA, the site has been relatively well studied (in terms of species occurrence), but poorly studied in terms of the biology of the species that occur there. Among species of global conservation concern, *Xenocopsychus ansorgei* is common on rocky outcrops, *Estrilda thomensis* is frequent to locally common in dry woodlands below the escarpment, and *Francolinus swierstrai* probably occurs on the top of the escarpment (Pinto 1983), but no specimens have been collected. Two other restricted-range species, *Dioptornis brunneus* and *Nectarinia ludovicensis*, are both common in the area, and probably breed. Several poorly known species occur, including *Bradypterus lopezi* (Pinto 1970) and *Apalis cinerea* in higher altitude forest patches. There are a number of species, including *Apus bradfieldi* and *Apalis flavida*, that are restricted to dry woodlands at the bottom of the escarpment. Other species of interest include *Falco peregrinus*, *Lybius leucocephalus*, *Anthus lineiventris*, *Myrmecocichlanigra* and *Monticola brevipes* (one of the few sites in Angola where this species occurs). Two species of the Kalahari–Highveld biome have been recorded at this site, as has one species of the Guinea–Congo Forests biome.

#### Key species

A1	<i>Xenocopsychus ansorgei</i>	<i>Estrilda thomensis</i>
A2 (087)	Western Angola EBA: Four of the 14 species of this EBA that occur in Angola have been recorded at this site; see Table 2.	
A3 (A07)	Afrotropical Highlands biome: Six of the 17 species of this biome that occur in Angola have been recorded at this site; see Table 3.	
A3 (A10)	Zambebian biome: Ten of the 49 species of this biome that occur in Angola have been recorded at this site; see Table 3.	

#### Other threatened/endemic wildlife

No information is available on the mammal fauna.

#### Conservation issues

A protected area of 40 km<sup>2</sup> was proposed by Huntley (1974b), but was not established (Huntley and Matos 1994). No current research projects in the area are known. Clearing of woodland (using fire) for subsistence agriculture at the bottom of the escarpment was being done in the early 1970s and is probably still happening. The forests in the steep ravines are unlikely to be cleared, but the avifauna of the forest patches may be threatened by hunting (with dogs) and by runaway fires.

#### Further reading

Pinto (1970, 1983).

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