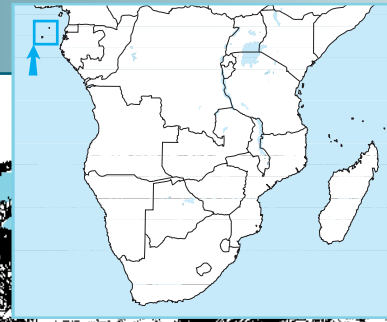


SÃO TOMÉ AND PRÍNCIPE

PATRICE CHRISTY



São Tomé Oriole *Oriolus crassirostris*. (ILLUSTRATION: NIK BORROW)

GENERAL INTRODUCTION

The Democratic Republic of São Tomé and Príncipe comprises two small islands, São Tomé (857 km²; 00°25'N–00°01'S, 06°28'E–06°45'E) and Príncipe (139 km²; 01°32'N–01°43'N, 07°20'E–07°28'E). These islands form the central pair of a line of four that lie diagonally across the Gulf of Guinea. The other two are Bioko (ex-Fernando Po) to the north-east, closest to the mainland, and Annobón (or Pagalu), the most distant, to the south-west, which together form the insular part of the Republic of Equatorial Guinea. Príncipe is located 210 km south-south-west of Bioko and 220 km west of the African mainland; São Tomé, the more remote, is a further 150 km south-south-west of Príncipe and 255 km west of Gabon. São Tomé and Príncipe, unlike Bioko, were never connected to the African continent. Both islands are of volcanic origin, the highest points of which are, respectively, 2,024 m (Pico de São Tomé) and 948 m (Pico do Príncipe). The climate of the islands is similar; equatorial, warm and humid. The mountainous parts of the centres of the two islands act as barriers to the prevailing south-westerly wind, causing heavy rainfall in the south-west and south, where annual averages are 7,000 mm on São Tomé and 5,000 mm on Príncipe. There are two dry seasons, the longer of which, from June to September, is more marked in the north and east of the islands and, in some years, may be non-existent in the south-west. The short dry season extends from December to February. Annual average temperatures range between 22°C and 33°C in coastal areas, but diminish with altitude such that above 1,000 m the minima are around 7°C.

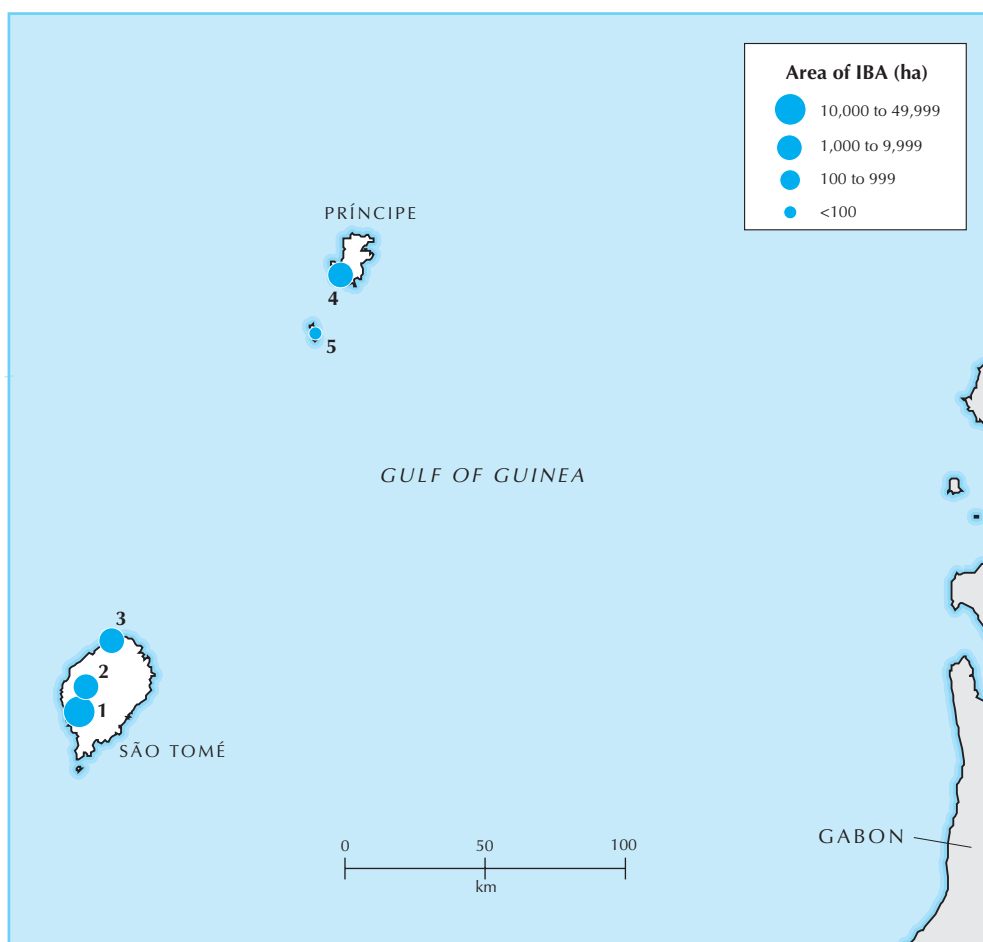
Before the arrival of man, it is probable that both islands were originally almost entirely covered with forest. On São Tomé, three types are recognized: lowland forest from sea-level to 800 m, montane forest from 800 m to 1,400 m, and mist-forest from 1,400 m to the summit, the Pico de São Tomé (2,024 m). The lowland forest was extensively cleared for cocoa plantations, but still occurs in an apparently natural state in the south-west and centre of the island. Areas of montane forest, between 800 m and 1,100 m, have also

been cleared, mainly for coffee production. At higher altitudes, the natural vegetation is intact. A total of 685 plant species have been recorded from São Tomé, of which 100 (15%) are endemic. The forests of Príncipe resemble those of lowland São Tomé, but are less diverse; the lower altitude of Príncipe has precluded the development of montane forest, but some elements, above 700 m, show montane affinities.

Native mammals are few. The largest group are bats, of which nine species have been recorded from São Tomé, including two endemics; *Myonycteris brachycephala* (EN) and *Chaerephon tomensis* (VU). Four species are known from Príncipe. Each island supports a shrew; that on São Tomé (*Crociodura thomensis*; VU), is an endemic, while that on Príncipe is an endemic subspecies of *Crociodura poensis*. Other mammals have been introduced, including feral cats, the monkey *Cercopithecus mona* (both islands) and, on São Tomé only, *Civettictis civetta* and *Mustela nivalis*. There is also a population of feral pigs on São Tomé, derived from domestic stock which, with *Cercopithecus mona*, form the main target of hunters. Accidental introductions have included *Rattus rattus*, *R. norvegicus* and *Mus musculus*.

There is one frog species, *Leptoptelis palmatus*, endemic to Príncipe and two endemic to São Tomé, *Nesionixalus thomensis* and *Ptychadena newtoni*, while two others, *Nesionixalus mollerii* and *Phrynobatrachus dispar*, occur on both islands. Remarkably, there are also, on São Tomé, endemic caecilians of the genus *Schistometopum*, but there is uncertainty as to the number of species concerned. Of the 14 species of reptile occurring on São Tomé, six are endemic; the snake *Philothamnus thomensis* to São Tomé only, the gecko *Hemidactylus greeffii*, the skink *Mabuya maculilabris*, and two burrowing snakes *Rhinotyphlops feae* and *R. newtonii* are shared with Príncipe, while the gecko *Lygodactylus thomensis* is restricted to both islands and Annobón. Príncipe has eight species of reptile including two single-island endemics, the legless skink *Feylinia polylepis* and the burrowing snake *Typhlops elegans*.

In 1991 the human population of São Tomé was estimated to be 117,000 (66% of whom lived in rural areas) and of Príncipe to be



Map 1. Location and size of Important Bird Areas in São Tomé and Príncipe.

Table 1. Summary of Important Bird Areas in São Tomé and Príncipe.

IBA code	Site name	Administrative region	5 IBAs covering 250 km ²					
			Criteria (see p. 11; for A2 codes, see Table 2)					
			A1	A2	A4i	A4ii	A4iii	
				082	083			
ST001	São Tomé lowland forests	São Tomé	✓	✓				
ST002	São Tomé montane and cloud-forests	São Tomé	✓	✓				
ST003	São Tomé northern savannas	São Tomé	✓	✓				
ST004	Príncipe forests	Príncipe	✓		✓			
ST005	Tinhosas islands	Príncipe				✓	✓	✓
Total number of IBAs qualifying:			4	3	1	1	1	1

5,500, with an annual average growth-rate of 2.4%. The northern and eastern parts of both islands are, in general, well populated because of a low and relatively flat relief, while the central mountainous regions and the more humid south-west are largely uninhabited. The islands gained their independence from Portugal in 1975. At that time, extensive parts of the islands were cultivated under a system of large farms called ‘roças’, under which cocoa and coffee crops were grown under shade trees, mostly introduced *Erythrina* sp. After independence the less productive or more remote plantations were abandoned, which enabled forest regeneration, mainly at mid-altitudes around the central mountainous massifs, but also in the south-west of São Tomé and the south-east of Príncipe. There are now, however, plans to rehabilitate some of the abandoned farms and to privatize land and give parts of the state-owned farms to people. The privatization of agricultural land, which became effective in the late 1990s is, however, having important consequences for the environment. Small farmers, on receiving title, often cut down trees on their land in order to raise sufficient capital to develop the land further. In addition, low world cocoa prices means the cultivation of this crop is currently unattractive, further discouraging the small farmer from retaining tree cover. As timber resources become scarcer, these factors may pose a future threat to the remaining primary forest. Cocoa and coffee remain, however, the main exports of the country.

ORNITHOLOGICAL IMPORTANCE

Of a total avifauna of 143 species, including 72 breeding residents, 28 species are endemic to São Tomé and Príncipe. Twelve of the endemics are species of global conservation concern, of which eight—*Bostrychia bocagei* (CR), *Columba thomensis* (VU), *Otus hartlaubi* (NT), *Lanius newtoni* (CR), *Amaurocichla bocagii* (VU), *Nectarinia thomensis* (VU), *Neospiza concolor* (CR) and *Oriolus crassirostris* (VU)—are restricted to São Tomé, two, *Speirops leucophaeus* (VU) and *Dicrurus modestus* (NT), are endemic to Príncipe and two, *Turdus olivaceofuscus* (NT) and *Zosterops ficedulinus* (VU), are common to both islands. Five other species of global conservation concern have been recorded, of which four—*Morus capensis* (NT), *Fregata aquila* (CR), *Phoenicopterus minor* (NT) and *Glareola nordmanni* (NT)—are mere vagrants while the fifth, *Euplectes aureus* (NT), is thought to have been introduced from Angola. In addition, it should be noted that the endemic subspecies of *Bostrychia olivacea* on Príncipe, *B. o. rothschildi*, is probably the rarest bird in the archipelago.

All 28 endemics are also species of restricted range, with each island constituting a separate Endemic Bird Area (EBA). São Tomé (EBA 082) holds 21 restricted-range species and Príncipe (EBA 083) twelve. The breeding avifauna is made up of forest birds (including all the endemics), savanna species and water- and seabirds. It is probable that most or all of the 16 savanna species

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

082 – São Tomé Endemic Bird Area (21 species in São Tomé and Príncipe; three sites meet the A2 criterion)			
IBA code:	001	002	003
<i>Bostrychia bocagei</i>	✓		
<i>Columba thomensis</i>	✓	✓	
<i>Columba malherbii</i>	✓	✓	✓
<i>Treron sanctithomae</i>	✓	✓	
<i>Otus hartlaubi</i>	✓	✓	
<i>Zoonavena thomensis</i>	✓	✓	✓
<i>Alcedo thomensis</i>	✓		✓
<i>Lanius newtoni</i>	✓		
<i>Turdus olivaceofuscus</i>	✓	✓	✓
<i>Prinia mollerii</i>	✓	✓	✓
<i>Amaurocichla bocagii</i>	✓		
<i>Terpsiphone atrochalybeia</i>	✓	✓	✓
<i>Nectarinia newtoni</i>	✓	✓	✓
<i>Nectarinia thomensis</i>	✓	✓	
<i>Speirops lugubris</i>	✓	✓	✓
<i>Zosterops ficedulinus</i>	✓	✓	
<i>Serinus rufo-brunneus</i>	✓	✓	✓
<i>Neospiza concolor</i>	✓		
<i>Ploceus grandis</i>	✓	✓	
<i>Ploceus sanctithomae</i>	✓	✓	✓
<i>Oriolus crassirostris</i>	✓	✓	✓
Number of species recorded:	21	16	11
083 – Príncipe Endemic Bird Area (12 species in São Tomé and Príncipe; one site meets the A2 criterion)			
IBA code:			004
<i>Columba malherbii</i>			✓
<i>Zoonavena thomensis</i>			✓
<i>Alcedo nais</i>			✓
<i>Turdus olivaceofuscus</i>			✓
<i>Horizorhinus dohrni</i>			✓
<i>Nectarinia hartlaubii</i>			✓
<i>Speirops leucophaeus</i>			✓
<i>Zosterops ficedulinus</i>			✓
<i>Serinus rufo-brunneus</i>			✓
<i>Ploceus princeps</i>			✓
<i>Lamprolaima ornatus</i>			✓
<i>Dicrurus modestus</i>			✓
Number of species recorded:			12

were originally introduced by man at least a century ago, as cage- or gamebirds. The seabird colonies, principally on the Tinhas islands, south-west of Príncipe, are the largest in the Gulf of Guinea.

Most of the endemic species have mainland counterparts. However, some forms do not. These include *Amaurocichla bocagii*, *Horizorhinus dohrni* and *Neospiza concolor*, all endemic genera, while *Nectarinia thomensis* and *Ploceus sanctithomae* are well defined species, with no obvious affinities to continental forms.

SITE ACCOUNTS

São Tomé lowland forests

Admin region São Tomé

Coordinates 00°08'N 06°32'E

Area 13,000 ha Altitude 0–1,400 m

ST001

A1, A2 (082)

Unprotected

Site description

The site is located in the south-west and extends from the Binda and Quija rivers, on the west coast, to the confluence of the Ana Chaves and Io Grande rivers and the right bank of the Io Grande. The area

CONSERVATION INFRASTRUCTURE AND PROTECTED-AREA SYSTEM

Wildlife conservation is the responsibility of the Directorate of Forests. Conservation legislation is recent; the law on forestry was adopted on 12 November 1998, while those relating to the environment and the conservation of fauna, flora and protected areas were adopted by the National Assembly on 29 December 1998. They have, however, yet to be officially promulgated, which has thus far prevented the creation of any protected area in the archipelago. An inventory of sites of conservation importance has been compiled (Juste 1994). In the absence of legislation enabling the establishment of protected areas, the sites identified in this report have been provisionally termed 'zonas ecológicas'.

INTERNATIONAL MEASURES RELEVANT TO THE CONSERVATION OF SITES

São Tomé and Príncipe has ratified the Convention to Combat Desertification, the Convention on Biological Diversity (CBD) and the Convention on Climate Change. It will ratify the Convention on International Trade in Endangered Species in November 2001.

OVERVIEW OF THE INVENTORY

The inventory includes five Important Bird Areas (IBAs), covering 250 km² or some 25% of the surface area of the country (Map 1, Table 1). Four of the five sites qualify under both the A1 and A2 criteria and, between them, hold all resident species of global conservation concern (Table 1) and of restricted range (Table 2). One site qualifies for its nesting colonies of water- and seabirds. The five sites comprise parts of all natural habitats as well as the long-established savannas of the northern coast of São Tomé, probably of human origin. None of the sites are formally protected at present, but all have been proposed as potential protected areas (Juste 1994). As a result of ornithological research in the last 10 years, which has included surveys of much of both islands, there is now a greater understanding of the status of the endemic avifauna. This has enabled a fairly accurate assessment to be made of the main areas of ornithological importance in the archipelago. The least known region is the forests of southern Príncipe, but short surveys have provided some information.

COMMENTS ON THE INVENTORY

Dicrurus modestus is treated here, following Collar *et al.* (1994), as a full species, endemic to Príncipe, and is therefore also considered as one of the restricted-range species of the Príncipe EBA. It was, however, not so treated by Stattersfield *et al.* (1998) and therefore was not included in the list of restricted-range species that make up the EBA.

ACKNOWLEDGEMENTS

Jonathan Baillie, Peter Jones, Nic Peet and Alan Tye are thanked for their comments on the inventory and for providing additional information.

comprises most of the lowland primary evergreen forests of the island as well as, in the centre, montane forest on the Cabumbe peak (1,403 m). The southern slopes of the Pico de São Tomé massif define the northern boundary of the site. Old secondary forest occurs near the coast, in the valleys of the Binda, São Miguel and Quija rivers, resulting from the regrowth of plantations abandoned in the late 1970s. Further inland the terrain is rugged and the ground broken and stoney, making walking difficult. The forests have not been fully surveyed botanically, but large trees include *Uapaca* sp. The understorey is generally open under a closed canopy, with few shrubs.

Birds

See Box and Table 2 for key species. Of the 32 bird species recorded from the area, 10 are of global conservation concern and the site is the only one known for *Bostrychia bocagei*, *Lanius newtoni*, *Amaurocichla bocagii* and *Neospiza concolor*. *B. bocagei* is silent and extremely secretive, making estimates of numbers difficult, while *L. newtoni* has been recorded regularly in the basins of the São Miguel, Xufexufe and Quija rivers and from the intervening ridges. *A. bocagii* is fairly common along forested riverbanks, but the status of *N. concolor* is unclear as there have been very few sightings. The six other species of conservation concern are more common.

Key species

A1	<i>Bostrychia bocagei</i>	<i>Amaurocichla bocagii</i>
	<i>Columba thomensis</i>	<i>Nectarinia thomensis</i>
	<i>Otus hartlaubi</i>	<i>Zosterops ficedulinus</i>
	<i>Lanius newtoni</i>	<i>Neospiza concolor</i>
	<i>Turdus olivaceofuscus</i>	<i>Oriolus crassirostris</i>
A2 (082)	São Tomé EBA: all 21 species of this EBA have been recorded at this site; see Table 2.	

Other threatened/endemic wildlife

One of the two endemic bats, *Myonycteris brachycephala* (EN), is thought to occur. The endemic snake *Philothamnus thomensis* is also present, but little is known of other reptiles and amphibians.

Conservation issues

The area has been proposed as part of the Zona Ecologica, but no legal protection has yet been given. Other than a fishing camp at São Miguel, there are no human inhabitants. Villagers from São Miguel and Santo António de Mussacavú, on the west coast, and from São Joao and Ribeira Peixe on the east, use parts of the forest for hunting wild pigs and monkeys. It is possible they may also shoot *Bostrychia bocagei*.

São Tomé montane and cloud-forests

ST002

Admin region São Tomé

Coordinates 00°16'N 06°33'E

Area 6,000 ha Altitude 1,000–2,024 m

A1, A2 (082)

Unprotected

Site description

The site comprises the highest parts of the island and includes three peaks, Pico de São Tomé (2,024 m), Calvario (1,594 m) and Pico Ana Chaves (1,630 m), as well as Lagoa Amelia, an old crater-lake and the surrounding marshy area. The area holds most of the montane and cloud-forests in the centre of the island above 1,000 m, around the Pico de São Tomé massif. The area that held montane forest between 800 m and 1,000 m on the northern edge of the massif is excluded, as it has been cleared for cultivation. Montane forests extend to 1,400 m, above which they give way to cloud-forest. Typical tree species of both forest-types include *Tabernaemontana stenosphon*, *Homalium henriquesii*, *Croton stelluliferus*, *Polyscias quintasii*, *Craterispermum montanum*, *Podocarpus mannii*, all of which are endemic to the Gulf of Guinea islands, and the more widespread *Olea capensis*, *Syzygium guineense* and *Pauridiantha floribunda*.

Birds

See Box and Table 2 for key species. Among the 21 species recorded, six are of global conservation concern. The majority of the population of *Columba thomensis* occurs here. *Otus hartlaubi* and *Oriolus crassirostris* appear not to be found above 1,600 m, as do some of the restricted-range species such as *Treron sanctithomae*, *Columba malherbii*, *Terpsiphone atrochalybeia* and *Ploceus grandis*, which are therefore not found in the Pico de São Tomé area.

Key species

A1	<i>Columba thomensis</i>	<i>Nectarinia thomensis</i>
	<i>Otus hartlaubi</i>	<i>Zosterops ficedulinus</i>
	<i>Turdus olivaceofuscus</i>	<i>Oriolus crassirostris</i>
A2 (082)	São Tomé EBA: 16 of the 21 species of this EBA have been recorded at this site; see Table 2.	

Other threatened/endemic wildlife

None known to BirdLife International.

Conservation issues

The forests of the area are not at risk, other than at their lower edges, where there has been some clearance for coffee plantations (many now abandoned) and market gardening. Most of the area has been proposed as a Zona Ecologica.

São Tomé northern savannas

ST003

Admin region São Tomé

Coordinates 00°25'N 06°38'E

Area 1,000 ha Altitude 0–50 m

A1, A2 (082)

Unprotected

Site description

The site is situated on the northern coast, between Lagoa Azul and Diogo Nunes, and includes a succession of grasslands, coconut plantations, herbaceous swamps, mangroves and estuarine waters. Around the coastal lagoon of Lagoa Azul there are also thickets and dry lowland forest along narrow gullies. Only the mangroves and dry forests appear to be natural, and the latter may represent a relict of the original vegetation of this part of the island.

Birds

See Box and Table 2 for key species. A total of 59 species have been recorded, including three species of global conservation concern, one of which is the almost certainly introduced *Euplectes aureus*. The more adaptable of the restricted-range species are well represented and include *Columba malherbii*, *Alcedo thomensis*, *Prinia mollerii*, *Speirops lugubris*, *Nectarinia newtoni* and *Ploceus sanctithomae*. Other introduced species, including *Francolinus afer*, *Coturnix delegorguei* and *Streptopelia senegalensis*, are also common.

Key species

A1	<i>Turdus olivaceofuscus</i>	<i>Oriolus crassirostris</i>
A2 (082)	São Tomé EBA: 11 of the 21 species of this EBA have been recorded at this site; see Table 2.	

Other threatened/endemic wildlife

The endemic bat, *Chaerephon tomensis* (VU), was recently described from the Lagoa Azul area.

Conservation issues

The area has been proposed as a Zona Ecologica under the name 'Praia das Conchas'. This area is probably the most amenable to formal protection in the region, since there is a large human presence elsewhere, including fishing villages along the coast. The savannas are regularly burnt.

Príncipe forests

ST004

Admin region Príncipe

Coordinates 01°35'N 07°22'E

Area 5,000 ha Altitude 0–948 m

A1, A2 (083)

Unprotected

Site description

The site covers the southern third of Príncipe and consists mainly of lowland evergreen forest, from sea-level to the summit of Pico do Príncipe at 948 m. Four other peaks higher than 500 m are included: Mesa (537 m), Pico Papagaio (680 m), Carriote (839 m) and Pico Mencerne (921 m). Deep valleys have been scoured into the whole area, producing extremely rugged terrain and, in places, the ground is littered with sharp-edged stones and rocks. There is, however, a relatively flat area in the south-west. The area is poorly known botanically. Old secondary growth occurs on the northern and eastern fringes of the massif.

Birds

See Box and Table 2 for key species. A total of 28 species have been recorded, of which 23 are forest residents. Among these are four species of global conservation concern and the seven species endemic to Príncipe: *Alcedo nais*, *Horizorhinus dohrni*, *Nectarinia hartlaubii*, *Speirops leucophaeus*, *Ploceus princeps*, *Lamprotornis ornatus* and *Dicrurus modestus*. Others present in these forests include all those considered to be subspecies endemic to Príncipe: *Bostrychia olivacea rothschildi*, *Columba larvata principalis*, *Treron calva virescens*, *Halcyon malimbica dryas*, *Turdus*

olivaceofuscus xanthorhynchus, *Zosterops ficedulinus ficedulinus* and *Serinus rufobrunneus rufobrunneus*. The status of *B. o. rothschildi* is unclear, but it seems to be very rare. In contrast to São Tomé, the endemic subspecies of *T. olivaceofuscus* and *Z. ficedulinus* do not occur in secondary growth or plantations or are, at least, rare in such habitats.

Key species

A1	<i>Turdus olivaceofuscus</i>	<i>Zosterops ficedulinus</i>
	<i>Speirops leucophaeus</i>	<i>Dicrurus modestus</i>
A2 (082)	Príncipe EBA: all 12 species of this EBA have been recorded at this site; see Table 2.	

Other threatened/endemic wildlife

The site holds the skink *Feylinia polylepis*, the burrowing snake *Typhlops elegans* and the frog *Leptoptelis palmatus*, all endemic to Príncipe, as well as an endemic subspecies of the shrew *Crocidura poensis*.

Conservation issues

The area has been proposed as a Zona Ecologica, but no protection has yet been given. Habitat destruction in the area is minimal; the forests are mainly used for the collection of young of the parrot *Psittacus erithacus* for commercial purposes. A study to evaluate the impact of this trade is under way. Recent plans to develop an Economic Free Trade Zone on the west coast, a concession which would have covered over a third of the island, have now been dropped. Interest remains, however, in the possibility of a revised proposal. Any such development would prompt serious concerns about conservation of the adjacent forest and, indeed, the region.

Tinhosas islands

Admin region Príncipe
Coordinates 01°23'N 07°17'E
Area 23 ha Altitude 0–65 m

ST005

A4i, A4ii, A4iii
Unprotected

Site description

The two islands of Tinhosa Pequena (3 ha) and Tinhosa Grande

(20 ha) lie 22 km south-west of Príncipe. They are unvegetated rocky islets that reach altitudes of 65 m (Tinhosa Pequena) and 56 m (Tinhosa Grande). Tinhosa Pequena is inaccessible because of its almost sheer slopes, but there is a small platform on Tinhosa Grande which enables landing.

Birds

See Box for key species. The Tinhosas islands shelter the largest seabird colonies in the Gulf of Guinea. In addition to the species listed below, a fifth, *Phaethon lepturus*, also breeds regularly at the site in small numbers. The status of two other species, *Sterna anaethetus* and *Oceanodroma castro*, is unclear—they are sometimes seen around the islets, but there is no proof of breeding. There are two breeding seasons, coinciding with the two dry seasons, December–January and June–August. Non-breeding visitors include, in small numbers, *Phaethon aethereus*, *Sula dactylatra*, *Sula sula* and the globally threatened *Fregata aquila*. These birds are presumed to come from colonies on Ascension Island, 2,500 km to the south-west.

Key species

	Breeding (pairs)	Non-breeding
A4i		
	<i>Sterna fuscata</i>	100,000
	<i>Anous minutus</i>	10,000–20,000
	<i>Anous stolidus</i>	4,000–8,000
A4ii	<i>Sula leucogaster</i>	1,500–3,000
A4iii	More than 20,000 waterbirds occur regularly at this site.	

Other threatened/endemic wildlife

An unidentified gecko has been found.

Conservation issues

The site is not protected, but proposals for its conservation were made as long ago as 1973. Fishermen from Príncipe regularly visit the seas around the Tinhosas, which are rich in fish. They occasionally harvest young *Sula leucogaster* from Tinhosa Grande for food or for sale in the town of Santo António, Príncipe. The construction of a lighthouse, in 1995, also resulted in birds being killed for food by workmen.

BIBLIOGRAPHY

- ATKINSON, P. W., DUTTON, J. S., PEET, N. B. AND SEQUEIRA, V. A. S. (1994) *A study of the birds, small mammals, turtles and medicinal plants of São Tomé and Príncipe*. Cambridge, UK: BirdLife International (Study Report 56).
- ATKINSON, P. W., PEET, N. B. AND ALEXANDER, J. (1991) The status and conservation of the endemic bird species of São Tomé and Príncipe, West Africa. *Bird Conservation International* 1: 255–282.
- CHRISTY, P. (1996) Ornithologie de São Tomé et de Príncipe. Agreco: Agreco-CTFT. (Unpubl. report.)
- CHRISTY, P. AND CLARKE, W. V. (1998) *Guide des oiseaux de São Tomé et Príncipe*. São Tomé: Ecofac.
- COLLAR, N. J. AND STUART, S. N. (1988) *Key forests for threatened birds in Africa*. Cambridge, UK: International Council for Bird Preservation (ICBP Monograph 3).
- COLLAR, N. J., CROSBY, M. J. AND STATTERSFIELD, A. J. (1994) *Birds to watch 2: the world list of threatened birds*. Cambridge, UK: BirdLife International (Conservation Series No. 4).
- DOWSETT, R. J. AND FORBES-WATSON, A. D. (1993) *Checklist of birds of the Afrotropical and Malagasy regions. Vol. 1. Species limits and distribution*. Liège, Belgium: Tauraco Press.
- JONES, P. J. AND TYE, A. (1988) *A survey of the avifauna of São Tomé and Príncipe*. Cambridge, UK: International Council for Bird Preservation (Study Report 24).
- JUSTE, B. J. (1994) Etudes d'appui à l'aménagement et à la gestion des zones écologiques de São Tomé et Príncipe. Rome: Agreco-CTFT. (Unpubl. report.)
- NAUROIS, R. DE (1994) *Les oiseaux des îles du golfe de Guinée (São Tomé, Príncipe et Annobon)*. Lisbon: Instituto de Investigação Científica Tropical.
- PEET, N. AND ATKINSON, P. W. (1994) The biodiversity and conservation of the birds of São Tomé and Príncipe. *Biodiversity and Conservation* 3: 851–867.
- STATTERSFIELD, A. J., CROSBY, M. J., LONG, A. J. AND WEGE, D. C. (1998) *Endemic Bird Areas of the world: priorities for biodiversity conservation*. Cambridge, UK: BirdLife International (Conservation Series 7).

