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THE BIRDS OF SAO TOME - RECORD OF A VISIT, APRIL 1987  
WITH NOTES ON THE REDISCOVERY OF BOCAGE'S LONGBILL

by Stephen D. Eccles

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#### INTRODUCTION

The island of São Tomé lies in the Gulf of Guinea, as part of a chain of islands of volcanic origin, the most southwesterly of which is Pagalu (formerly Annobon), followed by São Tomé, then Príncipe and Bioko (formerly Fernando Poo), before the volcanic chain becomes part of the mainland with Mount Cameroon as its first land-fall. São Tomé is 200 km southwest of the nearest island (Príncipe), 250 km northeast of the next nearest (Pagalu) and 250 km from the nearest point of the mainland (Cape Lopez, Gabon, to the southeast). This degree of isolation accounts for a high degree of endemism (see below), while also permitting a large number of regular migrants and vagrants.

São Tomé is about 42 km long, north/south, and about 32 km wide. It is volcanic in origin with the main peak at 2,024 m and a subsidiary peak at 1,403 m. The predominant winds blow from the southwest. As a result, the southwesterly portion of the island is extremely wet, receiving from 4,000 mm to 7,000 mm of rainfall annually. The northeast, in contrast, lies in the rain-shadow of the main massif, with annual rainfall less than 1,000 mm. This part of the island supports the only open savanna vegetation.

Most of the island with suitable topography is covered with cocoa and other tree plantations. Many of these plantations are neglected and overgrown; in any case, even those still being well cared for were planted during an era when it was considered that cocoa needed heavy shade, so that most of the island has fairly dense and high cover. It is therefore very well populated with birds. Road access is largely restricted to the areas at one time or another under plantations, so that it is virtually impossible to find any areas of primary forest which are readily accessible. There are still large areas of primary forest where the topography has prevented the opening of plantations, but because no roads cross these areas, they could not be visited in the time I had available; however, virtually all accessible areas were visited.

A review of recent references, especially Frade and Dos Santos (1977), Günther and Feiler (1985), Jones and Tye (1987), Naurois (1983) and Reinius (1985) and my own observations, indicate 103 species reported from São Tomé. Of these, 49 species are regularly reported residents, well over half (29) are endemic species (16) or sub-species (13). Of the 54 presumed visitors, only 5 appear to be reported regularly; a further 9 species are of problematic status in São Tomé, 25 have been reported recently but only by isolated observers, with the remaining 15 species not reported at all in recent years.

#### OBSERVATIONS

Intensive, but part-time, observations during a business trip from April 1-6, 1987, produced 45 species, as described in the attached annotated

checklist, not including the Feral Pigeons common in some towns, villages and estate headquarters. Nomenclature and sequence are as in Brown et al (1982) for Phaethonidae through Acciptridae; in Urban et al (1986) for Phasianidae through Columbidae; and Serle and Morel (1977) for all others. A gazetteer is given in the Appendix covering all locations mentioned in this checklist.

#### OVERVIEW

Of the 45 species observed, 38 were resident species - 10 out of the 16 endemic species; 10 out of the 13 endemic sub-species and 18 out of the other 20 resident species. Of the 7 other species observed, 3 were regularly reported visitors, along with 4 others (2 of them reported for the first time on São Tomé, and 1 confirming questionable earlier reports).

Endemic Species. Nine of the 10 endemic species observed (*Columba malherbii*, *Chaetura thomensis*, *Oriolus crassirostris*, *Turdus olivaceofuscus*, *Prinia molleri*, *Terpsiphone atrochalybeia*, *Nectarinia newtonii*, *Ploceus grandis* and *Ploceus (Thomasophanes) sanctithomae*) appeared to be flourishing. The other species observed (*Amaurocichla bocagii*) had not been reported for many years and had previously been feared to be extinct. A complete report on my observation of this bird has therefore been given in the Checklist. Of the 6 endemic birds not observed, 2 were forest pigeons which escaped me but which are nevertheless considered to be quite common (*Treron sanctithomae* and *Columba thomensis*), and I made no real efforts to locate two others: *Otus hartlaubi*, which I understand is difficult to locate, and *Nectarinia (Dreptes) thomensis*, which is confined to high altitudes. There is considerable doubt about the remaining two species which may no longer be extant - *Lanius newtoni* and *Neospiza concolor*. These two species are considered as "threatened" in the ICBP/IUCN Red Book (Collar and Stuart, 1985), along with *Amaurocichla bocagii*, all in "indeterminate" status; *Columba thomensis* is considered as "vulnerable" and *Otus hartlaubi* as "rare". Collar & Stuart (1985) define these terms. It is useful to note that the category "indeterminate" refers to taxa known to be endangered, vulnerable or rare, but where there is insufficient information to say which of those three categories is appropriate; it also applies for species most likely extinct.

Endemic Sub-Species. Nine of the 10 endemic sub-species observed (*Coturnix delegorguei histrionica*, *Apus affinis bannermani*, *Alcedo cristata thomensis*, *Oncychognathus fulgidus fulgidus*, *Speirops lugubris lugubris*, *Serinus mozambicus santhome (tando)*, *Serinus rufobrunneus thomensis*, *Ploceus velatus peixotoi* and *Estrilda astrild songae*) were also doing very well. The 10th sub-species (*Zosterops ficedulina feae*) was only seen in two groups fairly close together. Of the 3 endemic sub-species not observed, one was again a forest dove which is considered quite common (*Columba larvata simplex*), while another was not actively pursued (*Tyto alba thomensis*) but also believed to be fairly common; *Rostrichia olivacea bocagei*, however, is feared to be extinct. The ICBP/IUCN Red Data Book (Collar and Stuart, 1985) considers two of these (*Rostrichia bocagei*, considered as a full species, and *Zosterops ficedulina*) as "threatened", in "indeterminate" status.

Other Resident Species. The 18 species found are all reasonably common: Phaethon lepturus, Sula leucogaster, Phalacrocorax africanus, Bubulcus ibis, Butorides striatus, Egretta gularis, Milvus migrans, Gallinula chloropus, Streptopelia senegalensis, Agapornis pullaria, Chrysococcyx cupreus, Cypsiurus parvus, Euplectes aureus, Euplectes hordeaceus, Euplectes albonotatus, Vidua macroura, Estrilda angolensis and Lonchura cucullata. The missed species are very common on the mainland, but quite localized on São Tomé: Plcoeus cucullatus nigriceps and Quelea erythrope.

Other Regularly Reported Species. Three regularly reported visiting species were seen: Numenius phaeopus, Tringa glareola and Actitis hypoleucos. The other two regularly reported species may well be breeders, but neither were seen: Oceanodroma castro is reported to breed on São Tomé from time to time; signs of breeding have been found for Gallinula angulata, but have not been confirmed.

Other Species. Four other species were observed: Egretta garzetta, which has been reported in the past, but only during the period when E. garzetta and (the white phase of) E. gularis were considered as conspecific; Egretta alba, which has not been reported before from São Tomé; Porphyrio alleni, which has been reported only in 1915 and 1958 (Günther and Feiler, 1985); and Chrysococcyx klaas, also a species not reported before from São Tomé.

#### CHECKLIST

WHITE-TAILED TROPICBIRD Phaethon lepturus Six birds, all adults, flew close to shore, and then went inland over cliffs north of Santa Catarina. Another adult patrolled an inland cliff face opposite the power station in the Rio Contador valley. A further example was well inland over hills near Zampalma. In the southeast, one adult was seen flying over hills near Angra Toldo and a short-tailed bird inland from Colonia Açoreana.

BROWN BOOBY Sula leucogaster A single adult passed along the shore-line off Praia Micolo.

LONG-TAILED CORMORANT Phalacrocorax africanus The largest group (6 adults in full breeding plumage, 17 in adult non-breeding plumage and one bird still in juvenile plumage) was seen where the main road crosses Rio Io Grande. A pair of adults in breeding plumage flew over Praia Micolo, and another pair flew along Rio Caué, where the main road crosses it.

CATTLE EGRET Bubulcus ibis Common, in eclipse plumage, in the savanna areas of the northeast, as well as in forest clearings, often quite small. Some birds were seen in denser areas of plantations. Birds were particularly abundant where active land clearing was being undertaken.

GREEN HERON Butorides striatus Seen at most suitable locations. At Rio Caué road crossing, a pair was seen with a juvenile.

WESTERN REEF HERON Egretta gularis Three dark phase birds seen at Rio Io Grande had uncommonly noticeable white wing patches. Several were seen on rocky outcrops of the northern coast from Praia Micolo to Lemba; white-phase birds (4) slightly outnumbered dark phase birds (3). At Rio Caué there were two birds, one dark and one white phase.

LITTLE EGRET Egretta garzetta In the southeast, two birds were at Rio Io Grande and another at Rio Capitanga. In the north, one was in mangroves near Praia Micolo, another on a nearby coastal lagoon and a third on the coast at Praia das Planças. These 6 birds had distinctly thinner bills than white-phase E. gularis, with which they could be compared within a short period of time (though the two species were never seen together). These sightings confirm earlier reports, previously considered doubtful.

GREAT EGRET Egretta alba Two examples were seen - one over Monte Café moving further up the valley at dusk, the other at a coastal lagoon near Praia Micolo. This is an unmistakable first record for São Tomé.

BLACK KITE Milvus migrans Common in most locations, including offshore. All examples examined had yellow bills, indicating the resident African race.

HARLEQUIN QUAIL Coturnix delegorguei Two small groups were seen - one in a large clearing in a cocoa estate (Ubabudo) being used for food production; the other in rank herbiage near Praia Micolo. It was not possible in the field to distinguish whether these were of the darker endemic race (C. d. histrionica).

ALLEN'S GALLINULE Porphyrio alleni One was in a coastal lagoon near Praia Micolo.

COMMON MOORHEN Gallinula chloropus Seven widely spaced birds were seen, so that the description "vagrant São Tomé" (Urban et al 1986) hardly seems appropriate. Three birds were at a coastal lagoon near Praia Micolo and single birds were noted at a small lagoon near Santa Catarina, and where the main road crossed the Rios Caué, Io Grande and Martim Mendes.

WHIMBREL Numenius phaeopus Two birds were seen on the banks of the Rio Io Grande, with a third bird on the beach about 5 km further to the south.

WOOD SANDPIPER Tringa glareola 7 birds were seen, 6 of them on a coastal lagoon near Praia Micolo, the other on a neighbouring lagoon.

COMMON SANDPIPER Actitis hypoleucos Several examples (including one group of 4) were seen on beaches and along rivers throughout the island.

SAO TOME BRONZE-NAPED PIGEON Columba malherbii Quite common in cocoa estates, often foraging on the ground alongside the following species. It is reportedly a favourite food species for the local people, but remains abundant. One large group (at least 24 birds) was seen feeding in the same (unidentified) fruit tree south of Colonia Açoreana. It should be noted that Goodwin (1983) states that this species is "apparently rare (? difficult to find) on São Tomé" and that there is no information on feeding and general habitat.

LAUGHING DOVE Streptopelia senegalensis The abundant town and village dove (though Feral Pigeon predominates in the larger places), as well as throughout the estate areas.

RED-HEADED LOVEBIRD Agapornis pullaria A single example was seen flying across an area being cleared for planting oil palms, near Ribeira Peixe. (At the airport, on my departure, a small cage was being shipped which contained 8 birds of this species. Another cage contained a single Grey Parrot Psittacus erithacus, presumably being trans-shipped from Principe.)

KLAAS'S CUCKOO Chrysococcyx klaas Two birds were seen, one in low second growth on a cocoa estate (Ubabudo), the other higher up in primary growth at the edge of an area being cleared for planting (Ribeira Peixe). This is a first report for São Tomé. It was clearly seen and its immaculate white underparts clearly separate it from a female or juvenile C. cupreus (which is a common resident). No call was heard.

EMERALD CUCKOO Chrysococcyx cupreus Heard in several parts of the island, but not seen.

LITTLE AFRICAN SWIFT Apus affinis Common around towns, villages and some lowland estates.

PALM SWIFT Cypsiurus parvus Abundant at lower altitudes.

SÃO TOME SPINETAIL Chaetura thomensis Common above the area near the waterfall near São Nicolau (about 900 m altitude), but not seen elsewhere, even at higher altitudes.

MALACHITE KINGFISHER Alcedo cristata Commonly seen on most rivers and lagoon areas, often in substantial numbers. Serle and Morel (1977) and Mackworth-Praed and Grant (1970-73) considered this bird as an endemic race of the White-bellied Kingfisher A. leucogaster, but later references give A. cristata, which I am following.

SÃO TOME ORIOLE Oriolus crassirostris Only two birds, both immatures, were clearly seen, one at 600 m near Zampalma and the other at 100 m at Monte Mario. At both these locations, other birds could be heard calling. In addition, fleeting glimpses of flying adult birds were seen at São Nicolau (800 m) and where Rio Abade is crossed by the main road (about sea level). The reference in Mackworth-Praed and Grant (1970-73) is confirmed concerning habits ("apparently common but little seen" and call "described as a treble flute-like call 'woo-woyoo', with variations"), but not concerning habitat ("a bird of forest slopes at higher altitudes").

FOREST CHESTNUT-WINGED STARLING Onychognathus fulgidus Seen in pairs (and one group of 3) at several locations in lowland and highland forest areas. It was not possible, in the field, to identify the endemic race (O. f. fulgidus) on the basis of its larger size.

SÃO TOME THRUSH Turdus olivaceofuscus Quite common in cocoa estates, though usually seen flying through and difficult too approach; in forested areas, not so shy. Mackworth-Praed and Grant (1970-73) states that the nominate race, endemic to São Tomé, has "legs and feet believed to be brown" (as opposed to the yellowish feet in the Principe race); the two examples carefully observed both had brown legs and feet.

SAO TOME PRINIA Prinia molleri Abundant at all altitudes and in the capital city, with habits as described in Mackworth-Praed and Grant (1970-73). One bird had a distinctly yellow chin, a characteristic not seen on any other birds - an aberration or a juvenile plumage perhaps. The brightness of the chestnut brown on the head and forehead was extremely variable and may be a sexual characteristic?

BOCAGE'S LONGBILL Amurocichla bocagii A single bird was seen where the main road crosses Rio Caué. Since Mackworth-Praed and Grant (1970-73) notes that "no field notes are available" with call unrecorded, and as Collar and Stuart (1985) note that this species has not been seen for over 50 years but with "grounds for optimism that it may survive", I shall describe here the complete observation. I was watching an immature Malachite Kingfisher Alcedo cristata, which was perched on a low, thin, leafless stem about two feet above the water at a point where the stem was horizontal. Suddenly (the movement appeared very jerky) a small bird alighted beside the kingfisher. The two birds remained together for a few seconds only, before the kingfisher took off and flew up to the crown of a coconut palm, followed by the Longbill which appeared to be chasing it, despite being considerably smaller. The smaller bird appeared virtually tailless and totally dark brown, except for a whitish area on the upper throat. (It was not possible to see the bill carefully, nor whether the rest of the underside was "light rufous brown fading to whitish in the middle of the belly", nor whether the tail feathers ended in "hairlike tips" - Mackworth-Praed and Grant (1970-73). I could not relocate the Longbill, but a few minutes later a Giant Weaver (Ploceus grandis) flew out of the same coconut palm and crossed the river, chased by a small bird which flew very directly and fast (for its size), which I took to be the Longbill. These two birds disappeared into another coconut palm. Again I could not relocate the Longbill until it reappeared and flew to a third coconut palm, this time alone but also with very rapid, direct flight. Yet again I could not see the Longbill, though it remained for a few minutes making a distinctive call -- a repeated double whistle, each note of which was short and at the same pitch. The Longbill then flew off into the forest, again with rapid direct flight, not to be seen again. This all took place at about 5 p.m.

SAO TOME PARADISE FLYCATCHER Terpsiphone atrochalybeia About 30 different birds were seen, only 2 of which were males in adult plumage - the rest were presumably females (or perhaps juveniles - there is no description of the juvenile plumage in Mackworth-Praed and Grant (1970-73)). Mackworth-Praed and Grant (1970-73) note that the eye is yellow, but all birds I observed had very dark eyes (black or possibly very deep blue). As little has apparently been recorded of this bird's habits, the following may be of interest: (a) I never once saw this flycatcher flying out to catch prey; (b) several birds (but no adult males) were very aggressive, constantly issuing their alarm calls as they moved very rapidly around the tree/bush they occupied; (c) one bird was seen interacting with a São Tomé Weaver Ploceus (Thomasophantes) sanctithomae - this latter acts much like a nuthatch and, as it moved along branches, it was followed by the flycatcher apparently picking up insects which flew out of the way of the Weaver.

NEWTON'S YELLOW-BREASTED SUNBIRD Nectarinia newtonii Two individual birds were seen, one in an open field within a cocoa estate and another within cocoa plantings. Small groups were seen in the valley of Rio

Contadora and in a forest patch near Monte Mario. Only in a derelict cocoa area immediately below Zampalma (600 m) was the bird abundant. These sightings are in contrast with the description in Mackworth-Praed and Grant (1970-73): "an abundant species found in any type of country, and at all elevations", especially as the bird was never seen in any garden, despite a profusion of flowering plants. Mackworth-Praed and Grant (1970-73) also notes that the female "is said to lack" both the metallic throat and the bright yellow on the breast (which is pale yellow like the belly). This description can be confirmed. A juvenile was seen, still showing a markedly yellow gape, appearing like the female but lacking any yellow at all on the breast or belly.

**PRINCE'S ISLAND WHITE-EYE** Zosterops ficedulina Two groups of this bird, each comprising about 20 birds, were seen not too far apart (same birds?) in fairly closed forest at 600 m near Zampalma. Mackworth-Praed and Grant (1970-73) notes that this bird is "said to resemble a Willow Warbler in appearance and song, but no observations have ever been recorded". The birds I saw certainly looked something like Willow Warblers, but they were not singing - they were making constant twittering calls like other Zosterops. In other respects they acted like the Yellow White-eye Z. senegalensis, hunting in the tops of trees in a party associated with sunbirds (see preceding species). No other groups of this bird were found. The observation reported in Collar and Stuart (1985) that "on São Tomé their habits are the same as Speirops lugubris" was not confirmed (see following species).

**BLACK-CAPPED SPEIROPS** Speirops lugubris This readily distinguishable endemic race (S. l. lugubris) was commonly observed, but always single birds or in pairs, the "small parties" mentioned in Mackworth-Praed and Grant (1970-73) not having been found. Moreover, although "common on the higher parts of the island", it was also common in lower altitude cocoa estates, down to sea level. I was also puzzled by the reference to its feeding habits - "among trees in the same way as other White Eyes" - my observations being of a very deliberate feeder, without the restlessness of other species. One bird was seen picking off an insect from a large leaf hanging in a vertical plane, by climbing down the side of the leaf. No breeding records are quoted, so it may be of interest that I observed one pair engaged in mutual preening.

**YELLOW-FRONTED CANARY** Serinus mozambicus The readily distinguished endemic race (S. m. santhome) was common in the capital of São Tomé (and reportedly in other towns), but not observed elsewhere. Nest building was underway in several trees.

**PRINCIPE SEED-EATER** Serinus rufobrunneus Individuals were sparingly seen, but in a wide variety of locations: one in an isolated tree in a forest clearing in the lowland south (Ribeira Peixe); one in a sea-level cocoa plantation on the northwest coast; one at 900 m above Monte Café; and several (but well separated) in fairly closed woodland near Zampalma (600 m).

**VITELLINE MASKED WEAVER** Ploceus velatus The readily distinguishable race on São Tomé (P. v. peixotoi) was common around northern coastal areas, with one bird also observed in the capital city. Although Mackworth-Praed and Grant (1970-73) indicates "large colonies of several hundred pairs", no colonies seen contained more than a dozen nests. That



reference also indicates that breeding is recorded in São Tomé from August through February - active nest building was taking place in all colonies observed.

**GIANT WEAVER** Ploceus grandis Mackworth-Praed and Grant (1970-73) records no information on this species' habits, but notes that "the nest is shaped like that of the ordinary Village Weaver P. cucullatus, but is larger and made of coarser materials"; the call is "unrecorded". Birds I observed were usually in pairs, not uncommon. They were seen in a variety of habitats and locations: the west southern lowland areas (Ribeira Peixe, Rio Io Grande, Monte Mario); the west western coast (Lemba); and at 600 m (below Zampalma) -- sometimes sitting exposed in isolated trees in forest clearings, sometimes in quite densely foliated forest areas. No calls at all were heard. One nest was seen about 15 m above the ground, south of Santa Cruz, not at all like that of the Village Weaver. It was globular, about 40 cm across, arranged around a fork high up in the centre of a tree. The nest appeared old, but was being patched up with fresh grass being brought by two separate female/immature birds, while the male stood aside.

**SAO TOME WEAVER** Ploceus (Thomasophantes) sanctithomae A very common species wherever there was continuous tree cover, including cocoa estates. It was observed from sea level to 1,000 m, although Mackworth-Praed and Grant (1970-73) stressed "upper levels of the island". As noted in that reference, this species behaves like a Nuthatch (see above, under São Tomé Paradise Flycatcher) and has a call like a warbler -- quite the most un-weaver-like weaver bird I have ever observed!

**GOLDEN-BACKED WEAVER** Euplectes aureus Quite common in the lowland savanna areas in the northern part of the island; also seen at 300 m in a forest clearing in the Ubabudo cocoa estate and one in a tree in São Tomé city. Males were in full breeding plumage -- Mackworth-Praed and Grant (1970-73) notes breeding plumage only in February and March.

**FIRE-CROWNED BISHOP** Euplectes hordeaceus Less numerous than the preceding species, but usually associated with it. The males were in full breeding plumage. Mackworth-Praed and Grant (1970-73) do not mention breeding in São Tomé.

**WHITE-WINGED WIDOW-BIRD** Euplectes albonotatus About 50 or so males in full breeding plumage were seen in a single location (rank herbiage behind the coast to the west of Praia Micolo), alongside considerable numbers of the two preceding species. The examples observed closely clearly showed the long tail associated with the local race (E. a. asymmetrurus).

**PIN-TAILED WHYDAH** Vidua macroura Common in the savanna in the north of the island, males in full breeding plumage. Also seen in clearings in the centre of the island (Trindade) and the southeast (Água Izé and Ribeira Peixe).

**COMMON WAXBILL** Estrilda astrild Abundant, not only in the usual grassy areas, but also along estate tracks deep into cocoa plantations, up to at least 1,000 m. Two black-billed fledglings were seen together at 600 m near Zampalma.

CORDON BLEU Estrilda angolensis Plentiful at lower elevations, in the northern savanna and in cocoa estates, but only in the centre and north of the island.

BRONZE MANNIKIN Lonchura cucullata A few were observed in São Tomé city grassy areas. Presumably around other towns and villages as well, but not actively look for nor observed.

#### SUMMARY

Most endemic species and sub-species, and other know residents, were encountered during the week of April 1-6, 1987; and they seemed to be prospering. Of the rarer species, however, only Amaurocichla bocagii was found. This observation was important in that Bocage's Longbill had not been seen in the wild for over fifty years and by CITES criteria would have been considered extinct. Two species were reported from São Tomé for the first time: Egretta alba and Chrysococcyx klaas. Sightings of Egretta garzetta confirm this species, previous records being doubtful. Observations on some species appeared to contradict or expand upon what has been recorded by other ornithologists.

#### RESUME

Pendant un séjour d'une semaine (1-6 avril 1987) à São Tomé, on a rencontré la plupart des espèces et des sous-espèces endémiques; et elles avaient l'air de prospérer. Quant aux espèces plus rares, on n'a trouvé que l'Amaurocichla bocagii: une observation important, d'ailleurs, puisque personne n'y a vu cet oiseau depuis cinquante ans et selon le criterium de CITES il aurait passé pour disparu. Deux espèces (Egretta alba et Chrysococcyx klaas) ont été signalées à São Tomé pour la première fois. Egretta garzetta a été vue aussi et par conséquent il est maintenant permis d'ajouter cette espèce, avec les deux autres précitées, à la liste définitive pour São Tomé. Les observations sur certaines espèces semblaient ou démentir ou amplifier des informations publiées par d'autres ornithologues.

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#### APPENDIX

Gazetteer of place names mentioned in the text, with their co-ordinates

Angra Toldo	0° 09'N	6° 40'E
Água Izé	0° 13'N	6° 44'E
Colónia Açoreana	0° 11'N	6° 41'E
Lemba	0° 15'N	6° 28'E
Monte Café	0° 18'N	6° 39'E
Monte Mario	0° 04'N	6° 33'E
Praia das Planças	0° 23'N	6° 36'E
Praia Micoló	0° 24'N	6° 41'E
Ribeira Peixe	0° 05'N	6° 36'E
Santa Catarina	0° 16'N	6° 29'E
Santa Cruz	0° 08'N	6° 39'E
São Nicolau	0° 17'N	6° 38'E
São Tomé (city)	0° 21'N	6° 44'E
Trindade	0° 18'N	6° 41'E
Ubabudo (estate)	0° 16'N	6° 42'E
Zampalma	0° 16'N	6° 37'E

Points where the following rivers  
are crossed by main coastal road:

Rio Abade	0° 14'N	6° 44'E
Rio Capitanga	0° 06'N	6° 36'E

Rio Caué	0° 06' N	6° 35' E
Rio Contador	0° 21' N	6° 33' E
Rio Io Grande	0° 07' N	6° 38' E
Rio Martin Mendes	0° 06' N	6° 37' E