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BIRD OBSERVATIONS IN THE AZORES

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CANCAP-PROJECT. CONTRIBUTIONS TO THE ZOOLOGY, BOTANY AND PALEONTOLOGY OF THE CANARIAN — CAPE VERDEAN REGION OF THE NORTH ATLANTIC OCEAN, No. 10

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with 2 tables and 8 plates.

ABSTRACT

In the autumn of 1979, bird observations were made in the Azores during a marine biological expedition within the scope of the CANCAP-project of the Rijksmuseum van Natuurlijke Historie. Six out of the nine islands of the archipelago were visited: Santa Maria, São Miguel, Terceira, Faial, Pico and Flores. Apart from four unidentified species, 41 species of birds were recorded, including 18 breeding birds and 23 migrants (including possible non-breeding residents). Among the migrants were four definite American species: *Butorides virescens, Anas discors, Calidris fuscicollis* and *C. pusilla*. Of these, *Butorides virescens* had not previously been recorded from the Azores.

As regards the breeding birds, the most obvious fact noted was that the House Sparrow *(Passer domesticus)*, introduced into Terceira less than 20 years ago, has not only tremendously increased in numbers since, but has also spread over several other islands. The species has not yet reached Flores and Corvo (the westernmost islands of the archipelago) and Santa Maria (the easternmost island of the archipelago).

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Sumário

No Outono de 1979 fez-se algumas observações ornitológicas nos Açores durante a expedição biológica marinha adentro do âmbito do projecto CANCAP do Museu de História Natural de Leiden. Seis das nove ilhas do arquipélago foram visitadas: Santa Maria, São Miguel, Terceira, Faial, Pico e Flores. Além de quatro espécies não identificadas assinalou-se 41 espécies de aves, incluindo 18 aves indígenas e 23 migratórias (contendo possíveis residentes que não nidificam lá) As aves migratórias continham definitivamente quatro espécies americanas: *Butorides virescens, Anas discors, Calidris fuscicollis* e *C. pusilla.* Destes *Butorides virescens* nunca foi assinalado nos Açores anteriormente.

Quanto às aves indígenas, o facto mais notável foi que o Pardal Doméstico *(Passer domesticus),* introduzido na Ilha Terceira há menos de 20 anos, não só multiplicou abundantemente em números, como também alastrou-se sobre várias outras ilhas. Esta espécie ainda não chegou à Ilha das Flores nem Corvo (as ilhas mais para o oeste do arquipélago) e Santa Maria (a ilha mais para o leste do arquipélago).

INTRODUCTION

A comprehensive account of the avifauna of the Azores has been published by Bannerman & Bannerman (1966). Their work, although the best available, clearly shows how little known the bird fauna of the archipelago actually is, not only regarding migrant visitors, but also with regard to a residential group like e. g. the Procellariidae. The birds listed by the Bannermans comprise about 170 species, only 33 of which are recorded as breeding birds. The majority of non-breeding birds (i. e. about 140 species) has only been recorded once or a few times.

Only few additional bird records from the Azores have become available since then *, the most important ones concerning the rediscovery of the Azores Bullfinch (van Vegten, 1968: 194; Bannerman & Bannerman, 1968: 452; Bannerman, 1969: 87), thought to be extinct since 1927 (Bannerman & Bannerman, 1966: 166). Also worth mentioning is the extension of the bird-list of the Azores with a number of species (Knecht & Scheer, 1971: 280-281, *Tringa melanoleuca* — Greater Yellowlegs; the authors further mention the introduction in some of the islands of *Colinus virginianus* — Common Bobwhite and *Phasianus colchicus* — Pheasant; Bannerman & Bannerman, 1968: 451-452, *Chordeiles minor* — American Nighthawk, *Sula leucogaster*-Brown Booby,

* References of possible publications concerning the birds of the Azores published after 1974 (latest issue of the Zoological Record) may have escaped our attention.

Ardeola ibis — Cattle Egret, *Falco sparverius* — American Sparrow Hawk, *Larus canus* — Common Gull; Bannerman, 1969: 88, *Anser arvensis* — Bean Goose, *Anas rubripes* — American Black Duck; Van Vegten & Schipper, 1968: 194-195, *Troglodytes troglodytes* — Wren; Schipper & van Vegten, 1968: 195-196, *Setophaga ruticilla* — American Redstart; Van Vegten 1968(2): 196, *Gelochelidon nilotica* — Gull-billed Tern).

In the autumn of 1979, from 12 September until 1 November, we visited the Azores within the scope of the CANCAP-project of the Rijksmuseum van Natuurlijke Historie. Six islands of the archipelago were visited, viz.: Santa Maria, São Miguel, Terceira, Faial, Pico and Flores. Although our main interest was devoted to marine biological shore collecting, it was our view that any additional information concerning the bird fauna of the Azores would be worthwhile and we therefore decided, from the beginning of the expedition to make as many bird observations as possible. Considering the marine biological character of the expedition it may be obvious that our attention, also with regard to bird watching, was mainly focussed on the coastal areas.

METHODS

Observations were made with light-weight 8 × 20 binoculars. For identification in the field we used Peterson's guide of the European birds (1979). We further carried with us the book of Bannerman & Bannerman (1966) mentioned in the introduction. In critical cases field notes were made about behaviour, plumage etc., to enable later (more positive) identification in the museum. To document our observations (partly for the purpose to have our identifications confirmed), as many species as possible were photographed with a 400 mm quick-focus Novoflex telelens; initially on Ektachrome 400 slide-film, and later — having run out of this type of film — on Ilford HP4 (400 ASA) black & white film.

RESULTS

Altogether 45 species of birds were sighted, residents and migrants. 41 Species could be identified (tables 1 & 2), and representatives of the majority of these could be photographed. As, generally spoken, it is extremely difficult or actually impossible to recognize sub-species in the field, the status of those birds known both as breeding and migratory birds in the archipelago could only be guessed at. Considering the geographical situation of the Azores and added to this the fact that various American species (25 to be exact) have positively been recorded from the islands (Bannerman & Bannerman, 1966: 80; Bannerman, 1969: 88), the same holds, strictly speaking, also with regard to very similar looking European and American migratory counterparts like e. g. *Ardea herodias* — Great Blue Heron and *A. cinerea* — Grey Heron, *Egretta garzetta* — Little Egret and *E. thula* — Snowy Egret, etc.

Among the various places visited by us, beaches and rocky shores, a few, which may here be mentioned explicitly, proved to be outstanding localities for observation of migratory birds (notably waders, plovers and «peep»): 1. The rocks and tidal flats around Mosteiros, on the exposed west coast of São Miguel (pl. I fig. 1), 2. Praia da Vitória on the east coast of Terceira, especially the southern beach, 3. the rocks and marshes at the harbour and sea-front of Lajes on the south coast of Pico (pl. III) and 4. the rocks and tidal pools around Porto das Lajes on the south-east coast of Flores (pl. VII fig. 1).

All the species observed are listed and discussed below, some more extensively than others. The arrangement is in accordance with Bannerman & Bannerman (1966) (see also table 1 and 2).

A. BREEDING BIRDS. (TABLE 1).

1. *Calonectris diomedea borealis* (Cory's Shearwater) — The Cagarro, as this species is called by the inhabitants of the Azores, was the only representative of the Procellariidae observed by us. The species was noted around all the islands visited. In particular during boat-crossings of the Channel between Faial and Pico (12 and 17 October), large numbers were seen both in flight and resting on the water. During our stay in Lajes do Pico we observed and especially heard the nightly return of hundreds of birds to their nest sites on the cliffs above the village. In dark nights, according to local people, it often happens that individuals, especially fledgelings, become desorientated by the village lights and are killed or wounded by hitting obstacles in the village. We were informed that on such occasions it is a familiar phenomenon to see wounded birds desparately crawling through the streets of Lajes.

Large rafts consisting of hundreds of birds were also observed off Lajes das Flores (cf. Bannerman & Bannerman, 1966: 65). During our stay on Flores we found several dead and wounded individuals at Porto das Lajes and under the lighthouse at Ponta do Albarnaz at the north-eastern tip of the island.

2. *Buteo buteo rothschildi* (Azores Buzzard) — The Azores Buzzard was seen on all the islands visited by us, except on Flores, where it is known to be absent. Taking into account that the Buzzard is a conspicuous bird, watchful but definitely not shy, the numbers of this species in the Azores are probably not impressive. A total number of ca. 400 pairs may well be an overestimation. On the island of Santa Maria we observed only six couples, in spite of alert watching and having had very good views over the major parts of the island. On Pico too we only saw a few couples, and although the topography and vegetation of Pico is not of the kind permitting wide views (except, of course, from the top of the volcano, which we did not ascend), we found this remarkable.

On the sunny, extremely dry fields at the south-eastern tip of Santa Maria (Ponta do Castelo), we observed a couple of Buzzards preying upon large long-horned grasshoppers, which were abundant in this locality.

3. *Coturnix coturnix* (Quail) — On 6 October we observed two individuals of this species on Terceira; one in the extreme south-eastern part of the island, in the fields near Contendas, and another along the road near Praia da Vitória. Whether these birds belonged to the resident race *Coturnix c. conturbans* or to the migratory continental race *Coturnix c. coturnix* could not be determined. In spite of the fact that we only saw two examples, quails apparently are quite common in the Azores, as is clear from the account of the Bannermans (1966: 102-104). Quail served in restaurants or snack-bars in Ponta Delgada at the reasonable price of ca. 90-100 escudos for two birds, chips included, are largely derived from a local Quail-farm or even imported from Portugal according to information we have received.

4. *Charadrius alexandrinus* (Kentish Plover) — Kentish Plovers were observed in two localities. At the beach of Ribeira Grande, São Miguel we saw several individuals (23 Sept.) and during our visits to the southern part of Praia da Vitória, (2, 4 and 6 Oct.), where the species has been reported to breed (Bannerman & Bannerman, 1966: 112), we noted the presence of a group of about 100 birds, adults as well as apparent fledgelings. In both localities a few Ringed Plovers were seen among the Kentish Plovers.

5. *Larus argentatus atlantis (Herring Gull)* — The Herring Gull was commonly observed around all the islands visited by us. The largest flocks were seen at Ribeira Grande, São Miguel (23 Sept.) and on the southern beach of Praia da Vitória, Terceira. The majority of birds were immature. At Praia da Vitória we counted 65 individuals, 12 adults and 53 immatures (first and second year birds).

On 16 October, at the sea-front of Cais do Pico we observed a small flock of resting Herring Gulls which could be approached to close distance. All the first and second year individuals had flesh-coloured legs, while the older birds had either yellow or flesh-coloured legs. As the resident Herring Gull of the Azores, *Larus argentatus atlantis,* is supposed to have yellow legs, the flesh-coloured legs call for explanation. This character either indicates that a second race was involved or, more likely, that the individuals concerned were not fully mature third year birds. In this context, however, it may be mentioned that all the adult individuals observed (and photographed in colour) at Ribeira Grande, even the third year birds with some grey on the head, had distinctly yellow legs. No attention was paid to the colour of the legs of the Herring Gulls of Praia da Vitória.

6. *Sterna hirundo* (Common Tern) — This species was also commonly observed around all the islands visited, often in considerable flocks, notably at the southern beach of Praia da Vitória, Terceira and at the harbour and sea-front of Lajes do Pico. At the south-eastern tip of Santa Maria, down the lighthouse of Ponta do Castelo, on the shore and on a few isolated rocks a little off-shore we observed a group of about 40 birds, including several fledgelings still being fed by the adults. The latter were still in full summer plumage with a conspicuously red, black-tipped bill and some of them displayed a rather agressive behaviour against us, making feints at close distance of our heads.

Considering the advancing season in the course of our expedition, and the inherent changes in plumage and colour of the bill in both Common and Arctic Tern *(Sterna paradisea),* there is always the possibility that Arctic Terns were present among the many Common Terns observed by us. At this time of the year, the presence of yearlings, which are very similar to adults of both species in winter plumage, even further complicates identification in the field.

We have not seen any specimens of *Sterna dougallii* (Roseate Tern), which is a breeding bird in the Azores.

7. *Columba palumbus azorica* (Azores Wood Pigeon) — A few Wood Pigeons were sighted in the woods on the western slope of the Caldeira das Sete Cidades, São Miguel (20 Sept.) and during a crossing of the mountains of Pico via the «Estrada transversal».

8. *Columba livia atlantis* (Azores Rock Pigeon) — Rock Pigeons were seen by us in great abundance in many sites around the islands, as a rule on ledges, in holes or excavations on steep, inaccessible cliffs. On several occasions we saw the species foraging in the fields (a. o. around Lajes das Flores). Most flocks and colonies which we observed demonstrated that hybridisation with local, domesticated pigeons is of common occurrence, especially in the vicinity of well-populated areas and villages (a. o. Ilhéu de Vila Franca do Campo and Ponta de Santa Bárbara, both São Miguel; Lajes das Flores). The only colony observed by us which showed no obvious evidence of hybridisation was the one inhabiting the cliffs of Ponta do Castelo, Santa Maria.

9. *Turdus merula azorensis* (Azores Blackbird) — The Blackbird is one of the most common birds of the Azores. We were struck by the number of individuals on Flores and in particular on Faial. On Faial, along the *Hydrangea*-fringed motorway on the southern slope of the Pico Gordo, the main volcano of the island, we saw the species by the hundreds (9 Oct.); on long tracts of road we continuously noted single birds, couples and small groups seeking safety in flight from our approaching car among the *Hydrangeas* and other bushes.

10. *Erithacus rubecula* (Redbreast or Robin) — We commonly observ-

ed this species on Santa Maria, São Miguel, Terceira and Faial. Although it is reported to be rather common on Pico also (Bannerman & Bannerman, 1966: 141-142), we did not see a single specimen there. The species is absent from Flores. We had the impression that the species occurred more abundantly on Santa Maria (in particular in the western part) than on any of the other islands. This impression, however, may have been influenced by the fact that the western part of Santa Maria was suffering from long-lasting drought during our visit, being very bare and making birds more conspicuous than in bushy areas and woodlands. On the other hand, Bannerman & Bannerman (1966: 142) also mention to have been struck by the numbers of Robins in Santa Maria.

11. *Sylvia atricapilla atlantis* (Azores Blackcap) — This common Azorean bird was observed only a few times: 3 females at Fontinhas, Santa Maria, several individuals near Praia do Pópulo, São Miguel and 3 male birds on the cliffs around Porto das Lajes, Flores.

12. *Regulus regulus* (Goldcrest) — On São Miguel we watched a single Goldcrest in the park of hotel «Terra Nostra» at Furnas (subsp. *azoricus*). Several individuals of the subspecies *inermis* were seen on Faial (woods near Praia do Norte) and on Pico (southern slope of the island, along the «Estrada transversal»).

13. *Motacilla cinerea patriciae* (Azores Grey Wagtail) — One of the abundant Azorean species, to be seen everywhere. For some reason this is the only bird species in the Azores not being persecuted. Dr. Helen Rost Martins (Instituto Universitário dos Açores, Departamento de Oceanografia e Pescas, Horta, Faial), informed us (in litt. 16.I.1980): «People kill Canaries, Blackbirds, Chaffinch, Goldfinch, Blackcap etc.. The only exception seem to be Wagtails. Those are kind of sacred».

14. *Sturnus vulgaris granti* (Azores Starling) (pl. II) — Starlings were seen in abundance on all the islands visited by us, notably in the cultivated parts. At Ponta de Santa Bárbara, São Miguel (24 Sept.), we found a colony of these birds on a site on a steep sea cliff; in holes and under ledges, together with Rock Pigeons. Among them were several fledgelings still displaying begging behaviour. Feeding, however, was not observed. Many individuals were seen gliding from the cliff to and over the water surface below, without moving their spread wings. Because of this behaviour and as we viewed them from above, we initially believed to be watching some kind of swift, martin or small petrel, before we realized we were dealing with this most familiar species.

Unusual feeding behaviour of Starlings was observed at the south-eastern tip of Terceira, near Contendas (6 Oct.), where we watched a flock of about 30 individuals in a pasture among resting cattle.

These animals were lying down in the grass, quietly ruminating, while the starlings climbed and hopped over their backs and heads, especially preying upon the numerous flies attracted by their «hosts». These did not show the slightest signs of uneasiness or disturbance and they even permitted the Starlings to «clean» the immediate vicinity of their eyes. (cf. pl. II).

15. *Fringilla coelebs moreletti* (Azores Chaffinch) — The Azores Chaffinch also is an extremelly common bird throughout the islands. The largest numbers were seen by us on Santa Maria and Flores.

16. *Carduelis carduelis parva* (Madeiran Goldfinch) — According to the Bannermans (1966: 161) the Goldfinch, supposed to have been introduced into the Azores at the end of the 19th century, is rare, much rarer than it used to be in the beginning of the 20th century. Our observations do not support this view. We saw Goldfinches on several islands and on several occasions: Santa Maria (Fontinhas, 2 individuals, 14 Sept.), São Miguel (Ponta Delgada, garden near Museu Carlos Machado, on flowers of African Marigold, 5 individuals on 24 Sept. and 1 bird on 25 Sept.; Sete Cidades, 2 individuals in corn field, 25 Sept.; North coast, Capelas, 2 birds in flight, 28 Oct.), Terceira (Angra do Heroismo, Terra Chã, near Instituto de Agricultura, 2 individuals, 2 Oct.; Southern part of Praia da Vitória, three small flocks of 15, 5 and 7 birds respectively, arriving at short intervals one after another at the beach and descending into the prickly vegetation of *Salsola* spec. to forage, 6 Oct.) and Faial (In front of the Departamento de Oceanografia e Pescas, Horta, 3 birds on overblown thistle, 9 Oct.).

Finally it may be mentioned that on two occasions we came across a supposedly local bird for sale in a shop, one in Angra do Heroismo (6 Oct., price 450 escudos), the other in Ponta Delgada (26 Oct., price 1200 escudos).

17. *Serinus canarius* (Canary) — The Canary, one of the most common birds of the Azores, is to be seen especially in cultivated fields and other open terrain but the species definitely does not avoid forested areas. The species appears to be a favourite cage bird in the Azores; we saw caged specimens on all the islands and on various occasions.

18. *Passer domesticus* (European House Sparrow) — The House Sparrow deserves special attention. Agostinho (1963: 305) reported that the species was introduced into the Azores in 1960, when a few dozen birds from Portugal were released at Lajes, Terceira. In the summer of 1962 the species was already found nesting in Angra do Heroismo, situated at a distance of 18 km from Lajes. Contradictory data concerning place and date of introduction (apparently the result of carelessness) were subsequently published by Bannerman & Bannerman (1966: 172) and Knecht & Scheer (1971: 291). Bannerman &

Bannerman stated Angra to be the place of introduction, while Knecht & Scheer mention the summer of 1962 as the date of introduction. According to these authors, who visited the Azores in 1963 and 1964 respectively, the species was at that time still restricted to Terceira. The next ornithologist to make mention of the House Sparrow in the Azores is Sturhan (1973: 71), who visited the archipelago in 1969. Unfortunately Sturhan does not specify his observations. However, in a letter dated 18.IX.1980, he informed us that he had noticed the species exclusively on Terceira (stating explicitly that he did not see it in São Jorge and Santa Maria).

Le Grand (1977: 339 - 340) was the first to report the species from one of the other islands, viz. from São Miguel. According to Le Grand the species reached and settled at Ponta Delgada in 1975 or 1976. In March-April 1977 the population at Ponta Delgada appeared to consist of four colonies, altogether comprising about 60 couples of birds.

During our recent visit to the Azores, less than 20 years after its introduction into Terceira, the presence of the House Sparrow was established on four of the six islands which we visited: Terceira, Pico, Faial and São Miguel. It appeared that the species has rapidly increased in number. Where the Bannermans (1966: 172), referring to Terceira, still could state that they saw «at least ten (individuals)», we now can report to have observed them by the hundreds, in particular in the corn-fields on the southern part of the island. The fact that we established the species now to have colonized the islands of Pico and Faial as well, almost certainly implies that it has also reached «stepping stone» São Jorge, at least if we assume the spread of the species to be the result of inter-insular movements and not again as a result of human interference. Whether the species has already colonized Graciosa is more questionable. True enough, the distance between Graciosa and either Terceira or São Jorge should not be a problem for the species to cross, but taking into account the geographical position of the island and the prevalent winds in the Azores (Pilot, 1972: 29-31), there seems to be a good possibility that the island has not yet been reached. Substantial records are necessary to prove the contrary.

The westernmost islands of the Azores, Flores and Corvo, have not yet been colonized. Although we alertly looked out for the species in the cultivated parts of Flores, we did not see it. Being absent in Flores, its presence in Corvo would be quite unlikely.

As far as the eastern group of the Azores is concerned, we only saw the species in São Miguel. The numbers which we saw (few birds in Ponta Delgada, several dozens at Mosteiros and not a single bird elsewhere) substantiate the opinion of Le Grand that the colonisation of São Miguel is of very recent date. Taking into account the location of Mosteiros (north-west coast of the island) and the number of birds observed by us in this village, it seems likely that the species initially

settled there (i. e., in or prior to 1975) and spread later on to Ponta Delgada, a possibility not considered by Le Grand. The fact that the House Sparrow apparently has not yet reached Santa Maria, the easternmost island of the Azores (During our 5 - day visit to this island, we did not note the slightest evidence of the species), supports the view that the colonization of São Miguel is of very recent date (the distance between São Miguel and Santa Maria is about 80 km, between São Miguel and Terceira about 180 km).

To what extent the introduction of the House Sparrow in the Azores will affect other bird species may be worthwile investigating. Probably the introduction will not be disastrous for other fauna elements. The only indigenous bird species which have to compete with the House Sparrow are the Chaffinch and the Canary, and that only to some extent, i.e. with regard to food and not as far as the nesting sites are concerned.

B. MIGRATORY BIRDS AND POSSIBLY NON-BREEDING RESIDENTS (TABLE 2).

19. *Ardea cinerea* (Grey Heron) — This species was observed in two localities. At Lagoa das Furnas, São Miguel we sighted two immature individuals (21 and 29 Sept.), and during our stay on Pico we almost daily noticed two birds in adult plumage foraging around the harbour and the sea-front of Lajes. Especially with regard to the birds last-mentioned it may have been possible that we were dealing with the American counterpart of *Ardea cinerea,* i. e. *A. herodias,* as in the same locality and at the same time (during and after a few days of western to north-western storm) we observed at least three other, definitely American wanderers, viz.: *Calidris fuscicollis, C. pusilla* and *Anas discors.*

20. *Egretta garzetta* (Little Egret) — This conspicuous, elegant species was observed in four localities. Two birds were seen foraging together in and around rock pools of the large tidal flat just north of Mosteiros, São Miguel (25 Sept.) During the five days of our stay on Pico, two other birds, less inclined to seek each others company than the two São Miguel-specimens, were repeatedly observed at the sea-front of Lajes. Finally we also met with the species on the east coast of Flores. Here, we repeatedly observed an individual on the rocks of Porto das Lajes and another at the harbour of Santa Cruz (24 Oct.). Among the birds sighted, three were decidedly immature (Mosteiros, Lajes do Pico, Santa Cruz das Flores) with greenish yellow feet (bright yellow in adults) and greenish yellow rears of the legs (blackish in adults).

The same reasoning as for *Ardea cinerea* and *A. herodias* applies to *Egretta garzetta* and its American counterpart *E. thula,* especially with regard to the individuals seen at Lajes do Pico and Lajes das Flo-

res. The bird from Lajes das Flores was seen in company of a specimen of the American Green Heron *(Butorides virescens)* (cf. p. 11).

21. *Nycticorax nycticorax* (Night Heron) — A single immature individual, tentatively identified as this species was seen a few times on Flores, among the rocks and the tidal pools of the rock barrier at Porto das Lajes (pl. VII fig. 1). The size of the bird, its colouration and its stocky posture, with the bill held more or less horizontally when at rest, make it very likely that it was a young Night Heron indeed. As to the identity of the bird two other species might come into consideration, the Yellow-crowned Night Heron *(Nycticorax violacea)*, which has longer legs and a heavier bill than *Nycticorax nycticorax*, and in particular the American Bittern *(Botaurus lentiginosus)*, a species which has been reported several times already from the Azores, notably from Flores (Bannerman & Bannerman, 1966: 186). A point in favour of the individual not being a Night Heron was its shyness. The specimen was very watchful when being approached; stretching its neck, alertly following our moves and quickly taking wing, to settle again at considerable distance on a high look-out on the cliffs. Hence, we only succeeded to photograph the bird from a considerable distance and consequently our negatives show no more than very small silhouettes both at rest and in flight.

22. *Butorides virescens* (Green Heron) (pl. VII fig. 2) — During our stay on Flores, we daily observed a single individual of this species in exactly the same spot as the Night Heron discussed above. The bird was usually foraging in a small creek in the tidal zone, hidden from our view, behind and between stones and boulders, and hence it was very difficult to photograph, even after we had learned where its favourite spot was situated. Several times we stalked this spot without getting a glimpse of the bird and then, giving up our efforts reassuming an upright position, it several times appeared to be there after all, within a distance of a few metres only, startled, uttering one or two short, yapping screams and all of a sudden flying away, to settle down again at a distance of some 20 to 40 metres, ready to proceed its flight upon any suspicious looking move from our part. After some efforts we nevertheless succeeded in taking some pictures of the bird in its typical alarm posture (pl. VII fig. 2), though none at close distance.

On the basis of its size, posture, behaviour and colour, and knowing the species from the Caribbean (notably fom Curaçao and Bonaire, Netherlands Antilles), the senior author recognized the bird as an immature Green Heron.

The following colour notes were made with regard to the specimen: Neck and upper part of the head chestnut brown; back, including the folded wings, dark greyish; breast and belly creamy or yellowish, with conspicuous, brownish, interrupted longitudinal stripes; bill yellowish; on each side of the head two more or less distinct yellowish,

diverging stripes running from the base of the bill to the eye, and enclosing it; a crest on the head was not observed; legs dark yellow.

Butorides virescens had not previously been recorded from the Azores. The only Palearctic record of this species is from Cornwall, England and dates from 1889 (Hudson, 1972: 424-427).

23. *Anas discors* (American Blue-winged Teal) (pl. IV fig. 1) — A single, apparently immature, female was observed in a saline pool on the rocky and stony *Juncus*-covered marshes on the sea-front of Lajes do Pico (pl. III figs. 2,3). The bird was extremely tame; with some caution it could be approached to a distance of about 8-10 metres without it showing signs of uneasiness. Photographing the bird was easy and we actually had difficulties in shooing it away, in order to observe it in flight. The colour of the body was greyish brown, the underparts and cheeks conspicuously paler; forewing distinctly blue-grey, only visible in flight. Speculum very indistinct, if present at all; legs pale yellowish.

In the field we could not decide whether the specimen was a Garganey *(Anas querquedula)* or an American Blue-winged Teal, but on the basis of its tameness (Pough, 1951: 86), its yellow legs (Cramp, 1977: 536 versus 539; pl. 71 versus 72) and its conspicuous bluish forewing (Cramp, 1977: idem), it must have been a Blue-winged Teal.

24. *Charadrius hiaticula* (Ringed Plover) — Several Ringed Plovers, in company of Kentish Plovers (cf. p. 5), were seen on the principal beaches of São Miguel (Ribeira Grande; 23 Sept., not at the end of October!) and Terceira (Praia da Vitória). In addition we saw a single individual on the small beach of Porto Pim, at the foot of Monte Guia, Horta, Faial.

25, 26. *Pluvialis squaterola* (Grey Plover) and *P. apricarius* (Golden Plover) — A small group consisting of four Grey Plovers and one Golden Plover was observed on the southern beach of Praia da Vitória (Terceira; 6 Oct.). All birds were in winter plumage. One of the Grey Plovers still had some black on breast and belly.

27. *Arenaria interpres* (Turnstone) (pl. V fig. 1) — The numbers of Turnstones observed during our expedition indicate that — at least in the autumn — this species is one of the most common shore birds of the Azores. We saw Turnstones in various localities on all the islands visited. Our records are as follows: Santa Maria (Praia, beach, 13 Sept., a few; Ponta do Castelo, rocky tidal flat, 15 Sept., a few individuals), São Miguel (Ponta Delgada, sea-front, 17 Sept., 5 individuals; idem 22 Sept., 5 individuals; Mosteiros, 28 Oct., 2 individuals; Ribeira Grande, beach, 28 Oct., a few individuals; Praia do Pópulo, beach and rocks, 29 Oct., 5 individuals; São Roque, rocks with tidal pools, 30 Oct., several individuals, Terceira (Praia da Vitória, nothern, beach, a few individuals; Praia da Vitória, southern beach, 4 and 6 Oct., both

1 individual; South coast, west of Angra do Heroismo, between Baía de Vila Maria and São Miguel da Calheta, 3 Oct., several individuals; South coast, Porto Negrito, rocky shore, 4 Oct., a few individuals), Faial (Horta, small beach on west side of Porto Pim, at the foot of Monte Guia, 8 Oct., 2 individuals), Pico (Lajes, harbour, 12 Oct., ca. 10 individuals, one of which in almost full summer plumage; on both 14 and 16 Oct. we counted about 40 individuals on the marshes and rocks at the sea-front of Lajes), Flores (Porto das Lajes, rocks, 19-25 Oct., various individuals, once 6 together; Fajã Grande, 21 Oct., 3 individuals).

28. *Calidris canutus* (Knot) — The following are our records of the Knot: São Miguel (Ponta Delgada, sea-front, 17 and 22 Sept., 1 — presumably the same — individual; Ribeira Grande, beach, 23 Sept., 2 individuals), Terceira (Praia da Vitória, «marsh» bordering the southern beach, 4 and 6 Oct., 1 — possibly the same — individual), Pico (Lajes, marsh at the sea-front, 14-15 Oct., 2 individuals, one of which more or less in summer plumage).

29, 30 & 31. *Calidris fuscicollis* (White-rumped or Bonaparte's Sandpiper) (pl. V fig. 2; pl. VI), *C. pusilla* (Semipalmate Sandpiper) (pl. V) and *C. minuta* (Little Stint) (pl. VIII fig. 1) — In the field it is extremely difficult to distinguish between the various species of small sandpipers or «peep», as the Americans call them. «Peep» was observed by us on a few occasions, notably on the marsh and the boulders at the sea-front of Lajes do Pico, during and after a north-western gale. Here we daily watched a few birds in winter plumage, belonging to two different species. They were rather tame, especially in the late afternoon, with the sun quite low they could be approached as close as five or six metres (anyhow, well within the minimum focussing range of our Novoflex 400 mm telelens). Except for their slightly different size, both species were extremely similar in appearance: The under parts were whitish, the upper parts grey and more or less scaled; both species had a pale stripe above the eyes, blackish legs and a blackish bill, proportionally slighty longer in the larger species. In the larger species the tips of the wings slightly exceeded the tail, in the smaller species not. In flight the difference between the two species appeared more obvious. The larger species showed a distinct white rump and a tail edged by a broad, dark, transverse band (the centre slightly darker than the rest). Rump and tail of the smaller species were marked by a conspicuous dark longitudinal band, the rest being whitish to greyish. On the basis of these data the larger, species could positively be identified as *C. fuscicollis,* a North American migrant. The smaller species could have been either the European *C. minuta* or *C. pusilla,* another American wanderer. Mainly on the basis of its rather heavy bill (cf. pl. V fig. 1 and Glutz von Blotzheim, et al., 1975: 615, fig. 78) and because of the fact that it was seen in company

of *C. fuscicollis,* we identified this species as *C. pusilla,* the Semipalmate Sandpiper.

Two additional individuals of *C. fuscicollis* were sighted at close distance at the sea-front of Ponta Delgada, São Miguel (30 Oct.).

A single very small sandpiper tentatively identified as *C. minuta* was sighted and photographed at the harbour of Santa Cruz das Flores (pl. VIII fig. 1). The bird, rather brownish above and apparently not fully mature, was marked by a distinct double V-shaped pattern on the back (Peterson et al., 1979: 141). In flight it showed a distinct, pale wingstripe and a similar longitudinal band on rump and tail as described above for *C. pusilla.* The bill was decidedly finer than in that species (cf. pl. V fig. 1). Unfortunately we neglected to make a note on the colour of bill and legs. On the photograph these seem decidedly black. If this in fact is so, the identification of the specimen as *Calidris minuta* is plausible); otherwise the specimen may have represented another American wanderer, *C. minutilla,* the Least Sandpiper. (cf. e. g. Peterson et al., 1979: 309; Pough, 1951: 238-239, pl. 36).

32. *Calidris alpina* (Dunlin) — One example of this species was observed on the beach at the sea-front of Vila Franca, São Miguel, on 19 September. The bird, still in predominant summer plumage, could be positively identified on the basis of its black belly. Two other individuals in winter plumage, tentatively identified as Dunlins were observed at Praia da Vitória, Terceira and Ribeira Grande, São Miguel (23 Sept) respectively.

33. *Calidris ferruginea* (Curlew Sandpiper) — A single individual in winter plumage of this species, reminiscent of the former species but with a distinct white rump, was encountered and photographed at the southern beach of Praia da Vitória, Terceira, on 6 October.

34. *Calidris alba* (Sanderling) — The Sanderling appeared to be one the more common shore birds during our expedition. We saw the species on several occasions. The following are our records: Santa Maria (Praia, 13 Sept., several individuals); São Miguel (Ribeira Grande, beach, 23 Sept., several individuals; 28 Oct., 8 individuals); Terceira (Praia da Vitória, southern beach, 2 Oct., 5 individuals; 4 Oct., 3 individuals; 6 Oct., several individuals); Faial (Fajã, beach, 7 Oct., 2 individuals, small beach on west side of Porto Pim, at foot of Monte Guia, 8 Oct., 2 individuals); Flores (Santa Cruz, harbour, 21 Oct.., 2 individuals; Fajã Grande, 22 Oct., 1 individual).

35. *Tringa hypoleucos* (Common Sandpiper) (pl. I figs. 2, 3) — Two Common Sandpipers were observed during the expedition, one at Baía de São Lourenço on the east coast of Santa Maria (16 Sept.) and another in the «harbour» of Mosteiros, São Miguel (28 Oct.). The first individual was sighted at dusk and although we observed it from close dis-

tance it was actually impossible to distinguish it from the very similar American *Tringa macularia,* a species also recorded from the Azores (Bannerman & Bannerman, 1966: 215). In winter plumage the main difference between the two species is presented by the colour of the bill, yellowish in *Tringa hypoleucos,* yellowish with a black tip in *T. macularia* (cf. Peterson, 1979: pl. 67). The second individual beyond any doubt was a Common Sandpiper (pl. I figs. 2 & 3).

36. *Tringa nebularia* (Greenshank) (pl. IV fig. 2) — Two examples of this species were observed several times on the marsh at the sea-front of Lajes do Pico during the period from 14-17 October. With some patience they could be approached to a distance of about 10-12 metres.

37. *Limosa lapponica* (Bar-tailed Godwit) — Of this species also we came across two individuals, one again on the marsh at the sea-front of Lajes do Pico (14, 15 and 17 Oct.) and another at Praia do Pópulo on the south coast of São Miguel (29 Oct.).

38. *Numenius phaeopus* (Whimbrel) — One of the commoner shore birds, which was observed on all the islands visited, with the exception of Faial; invariably on rocky shores. The following are our records: Santa Maria (Maia, 14 Sept., 1 individual; Ponta do Castelo, 15 Sept., 1 individual); São Miguel (Mosteiros, 20 Sept., 2 individuals; idem, 25 Sept., 1 individual; idem, 28 Oct., 4 individuals; Praia do Pópulo, near Ponta Delgada, 24 Sept., 2 individuals; São Roque, near Ponta Delgada, 30 Oct., 1 individual); Terceira (South coast, slightly west of Angra do Heroismo, between Baía de Vila Maria and São Mateus da Calheta, 3 Oct., 2 individuals; idem, Porto Negrito, 4 Oct., 3 individuals); Pico (Lajes, sea-front, 12-17 Oct., 1 to 3 individuals daily; Cais do Pico 16 Oct., 1 individual); Flores (Lajes, 19 Oct., 1 individual; idem, 25 Oct., 3 individuals; Fajã Grande, 21 Oct., 1 individual; Santa Cruz, harbour, 21 Oct., 3 individuals).

39. *Larus ridibundus* (Black Headed Gull) — Five individuals of this species, yearlings and older birds in winter plumage, were seen on the East coast of Flores. Two birds were sighted passing by at Porto das Lajes on 19 October and another two on 25 October; the fifth bird was observed flying above the harbour of Santa Cruz. According to the Bannermans (1966: 224) the species has to be regarded as a common winter visitor of the Azores.

40. *Streptopelia turtur* (Turtle Dove) — A single, very shy individual of this species was observed on 20 September on the rocky shore just north of Mosteiros, São Miguel.

41. *Plectrophenax nivalis* (Snow Bunting) (pl. VIII fig. 2) — A single female example of this most confiding bird was observed on the bluffs

at Porto das Lajes, Flores. The bird could easily be approched to a distance of about 2 to 2½ metres. We watched it on both 24 and 25 October, altogether for at least one hour, while it was hopping around and picking at seeds from the spikes of small Cyperaceae and Gramineae. In spite of intensive searching we did not come across any additional individuals.

The Snow Bunting appears to be a regular visitor to the Azores (Bannerman & Bannerman, 1966: 243-244). The multiple records of the species (often considerable flocks) seem to indicate that the islands form part of the regular winter quarters of the species. The individual observed by us must be regarded an early winter visitor.

As mentioned on page 3, four other species were sighted in addition to the birds listed above. These species, however, were observed too briefly to allow a positive identification and they were also not photographed. An immature Jaeger *(Stercorarius* spec.) was sighted over the sea off Ponta do Castelo, Santa Maria. On 2 October, at sunset, we sighted a small duck arriving from over the sea and passing the southern beach of Praia da Vitória, Terceira. A species of *Tringa,* possibly *Tringa erythropus,* the Spotted Redshank, was seen passing by at the harbour of Porto das Lajes, Flores, in the late afternoon, in cloudy, rainy weather. Finally a sandpiper reminiscent of *Calidris fuscicollis* (cf. p. 13), but unlike this species with a distinct longitudinal band on rump and tail (cf. *C. pusilla)* was seen at Mosteiros, São Miguel. We were possibly dealing with a specimen of *Calidris bairdii* (Bairds Sandpiper).

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REFERENCES

Agostinho, J. :
1963. Variations dans l'avifauna des Açores. *Alauda* 31 (4): 305-306.

Bannerman, D. A. & W. M. Bannerman :
1966. Birds of the Atlantic Islands vol. 3. A History of the Birds of the Azores: xx, 262 pp. — Oliver & Boyd, Edinburgh & London.
1968. Birds of the Atlantic Islands vol. 4. History of the Birds of the Cape Verde Islands: xxxii, 458 pp. Appendix: Addenda to volumes 2 - 3 451 - 452.

Bannerman D. A. :
1969. Recent records new to the North Atlantic Islands. — *Bull. Brit. Orn. Club.* 89: 86 - 88.

Cramp, S. :
1977. Handbook of the Birds of Europe, the Middle East and North Africa. The Birds of the Western Palearctic. 1. Ostrich to Ducks: 722 pp. — Oxford University Press, Oxford.

Glutz von Blotzheim, U. N., K. M. Bauer & E. Bezzel :
1975. Hand-buch der Vögel Mittel-europas, vol. 6, Charadriiformes (pt. 1): 1-840. — Akademische Verlagsgesellschaft Wiesbaden.

Hudson, R. :
1972. Green Heron in Cornwall in 1889. *Br. Birds* 65 (10): 424 - 427.

Kinecht, S. & U. Scheer :
1971. Die Vögel der Azoren. *Bonn. zool. Beitr.* 22 (3/4): 275-296.

Le Grand G. :
1977. Apparition du Moineau domestique *Passer domesticus* sur l'île de São Miguel (Açores). *Alauda* 45 (4): 339 - 340.

Peterson, R. T., G. Mountfort & P.A.D. Hollom :
1979. Petersons Vogelgids van alle Europese vogels: 344 pp. — Elsevier (Dutch 14th edition by J. Kist of: A field guide to the birds of Britain and Europe. — Collins, London).

Pilot :
1972. West coast of Spain and Portugal Pilot, from Cabo Ortegal to Gibraltar. Strait of Gibraltar, North coasts of Africa from Espartel to Ceuta, and Arquipélago dos Açores: XVI, 188 pp. (fifth ed). Published by the Hydrographer of the Navy, England.

Pough, R. H. :
1951. Audubon Water Bird Guide; water, game and large land birds, Eastern and Central North America from Southern Texas to Central Greenland, xxviii, 352 pp. — Doubleday & Company. Inc., Garden City, N. Y.

Schipper, W. J. A. & J. A. van Vegten :
1968. Two American Redstarts (Setophaga ruticilla) near the Azores. — — *Ardea* 56: 195 - 196.

Sturhan, D. :
1973. Ergebnisse der Forschungsreise auf die Azoren 1969. Internationales Forschungsprojekt Makaronesischer Raum VI. Beitrag zur Avifauna der Azoren. — *Bol. Mus. Mun. Funchal* 27: 66 - 73.

Van Vegten, J. A. :
1968. The Azores Bullfinch not extinct. — *Ardea* 56: 194.
1968 (2). Gull-billed Tern on São Miguel, Azores. — *Ardea* 56: 196.

Van Vegten, J. A. & W J. A. Schipper :
1968. First observation of the Wren on São Miguel, Azores. *Ardea* 56: 194-195.

SPECIES \ ISLAND	Santa Maria (12 – 17 Sept.)	São Miguel (17 – 30 Sept.)	São Miguel (26 – 30 Oct.)	Terceira (1 – 7 Oct.)	Faial (7 – 19 Oct.)	Pico (12 – 17 Oct.)	Flores (19 – 26 Oct.)
1. *Calonectris diomedea borealis*	+	+	+	+	+	+	+
2. *Buteo buteo rothschildi*	+	+	+	+	+	+	–
3. *Coturnix coturnix*	–	–	–	+	–	–	–
4. *Charadrius alexandrinus*	–	+	–	+	–	–	–
5. *Larus argentatus atlantis*	+	+	+	+	+	+	+
6. *Sterna hirundo*	+	+	–	+	+	+	+
7. *Columba palumbus azorica*	–	+	–	–	–	+	–
8. *Columba livia atlantis*	+	+	+	+	+	+	+
9. *Turdus merula azorensis*	+	+	+	+	+	+	+
10. *Erithacus rubecula*	+	+	+	+	+	–	–
11. *Sylvia atricapilla*	+	–	+	–	–	–	+
12. *Regulus regulus*	–	+	–	–	+	+	–
13. *Motacilla cinerea patriciae*	+	+	+	+	+	+	+
14. *Sturnus vulgaris granti*	+	+	+	+	+	+	+
15. *Fringilla coelebs moreletti*	+	+	+	+	+	+	+
16. *Carduelis carduelis parva*	+	+	+	+	+	–	–
17. *Serinus canarius*	+	+	+	+	+	+	+
18. *Passer domesticus*	–	+	+	+	+	+	–

Table 1. — Survey of the breeding birds observed during the expedition (numbering as in the text); note that São Miguel was visited twice with an interval of 4 weeks.

SPECIES \ ISLAND	Santa Maria (12 – 17 Sept.)	São Miguel (17 – 30 Sept.)	São Miguel (26 – 30 Oct.)	Terceira (1 – 7 Oct.)	Faial (7 – 19 Oct.)	Pico (12 – 17 Oct.)	Flores (19 – 26 Oct.)
19. *Ardea cinerea*	–	+	–	–	–	+	–
20. *Egretta garzetta*	–	+	–	–	–	+	+
21. *Nycticorax nycticorax*	–	–	–	–	–	–	+
22. *Butorides virescens*	–	–	–	–	–	–	+
23. *Anas discors*	–	–	–	–	–	+	–
24. *Charadrius hiaticula*	–	+	–	+	+	–	–
25. *Pluvialis squaterola*	–	–	–	+	–	–	–
26. *Pluvialis apricarius*	–	–	–	+	–	–	–
27. *Arenaria interpres*	+	+	+	+	+	+	+
28. *Calidris canutus*	–	+	+	+	–	+	–
29. *Calidris fuscicollis*	–	–	+	–	–	+	–
30. *Calidris pusilla*	–	–	–	–	–	+	–
31. *Calidris minuta*	–	–	–	–	–	?	+
32. *Calidris alpina*	–	+	–	+	–	–	–
33. *Calidris ferruginea*	–	–	–	+	–	–	–
34. *Calidris alba*	+	+	+	+	+	–	+
35. *Tringa hypoleucos*	+	–	+	–	–	–	–
36. *Tringa nebularia*	–	–	–	–	–	+	–
37. *Limosa lapponica*	–	–	+	–	–	+	–
38. *Numenius phaeopus*	+	+	+	+	–	+	+
39. *Larus ridibundus*	–	–	–	–	–	–	+
40. *Streptopelia turtur*	–	+	–	–	–	–	–
41. *Plectrophenax nivalis*	–	–	–	–	–	–	+

Table 2. — Survey of the migratory birds (including possible non-breeding residents) observed during the expedition (numbering as in the text); note that São Miguel was visited twice with an interval of 4 weeks.

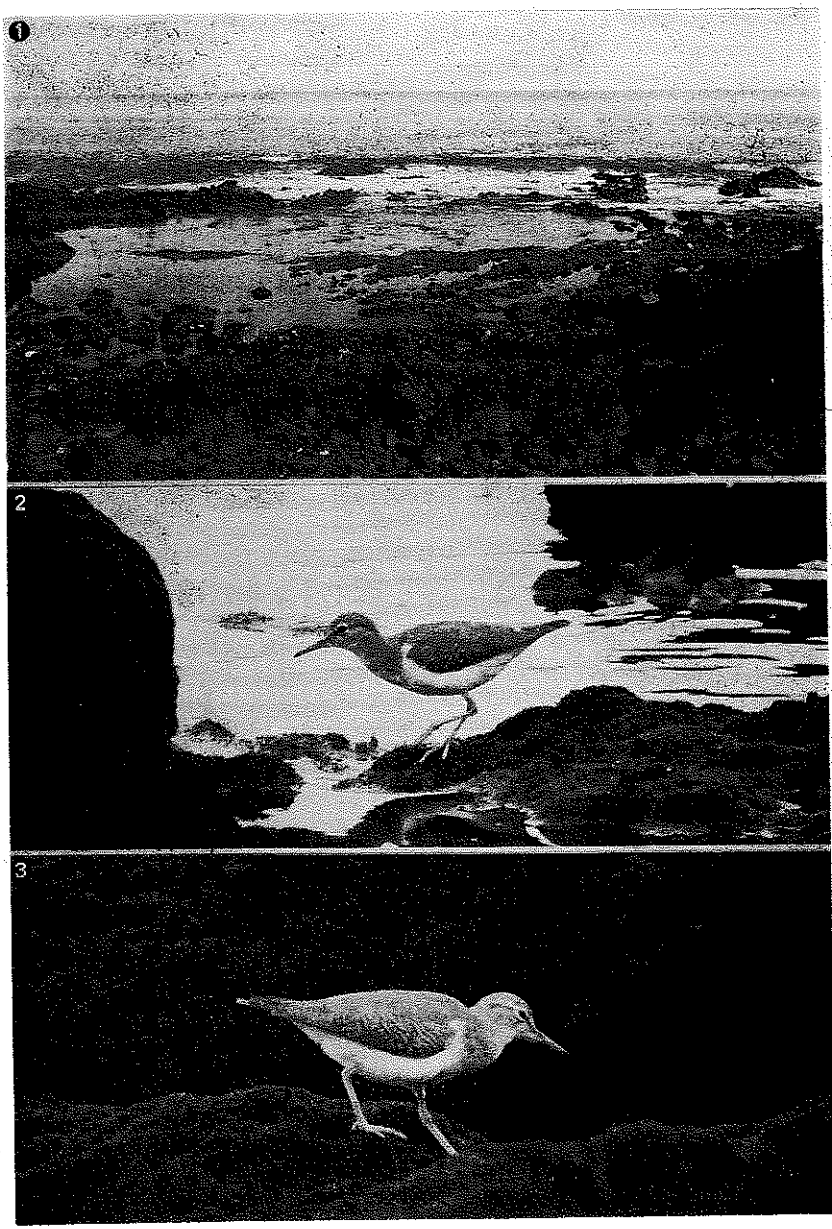

Plate I. Fig. 1. — View of the rocky sea-shore at Mosteiros, São Miguel. Figs. 2, 3. *Tringa hypoleucos* (Common Sandpiper) (Mosteiros, 28 Oct., cf. p. 14).

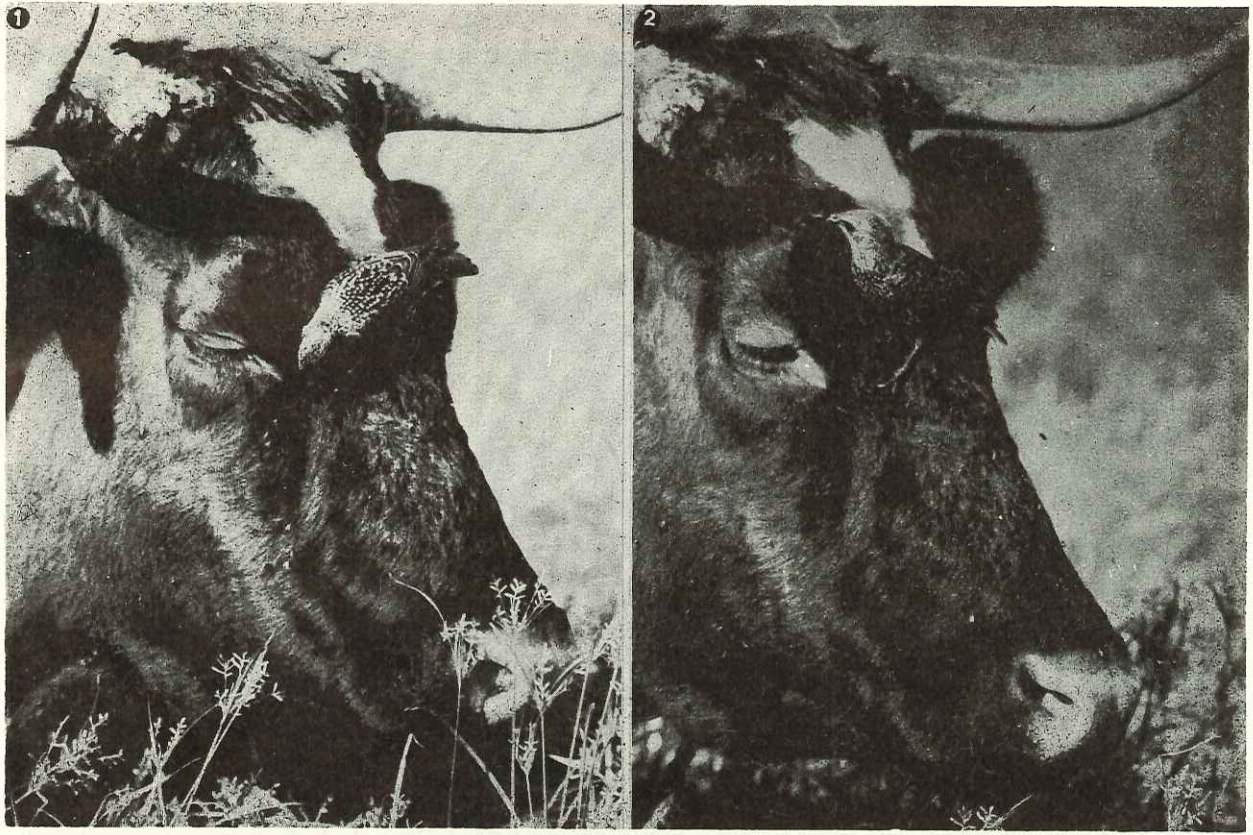

Plate III. Figs. 1, 2. — *Sturnus vulgaris granti*. (Azores Starling) (Terceira, vicinity of Contendas, 6 Oct., cf. p. 7).

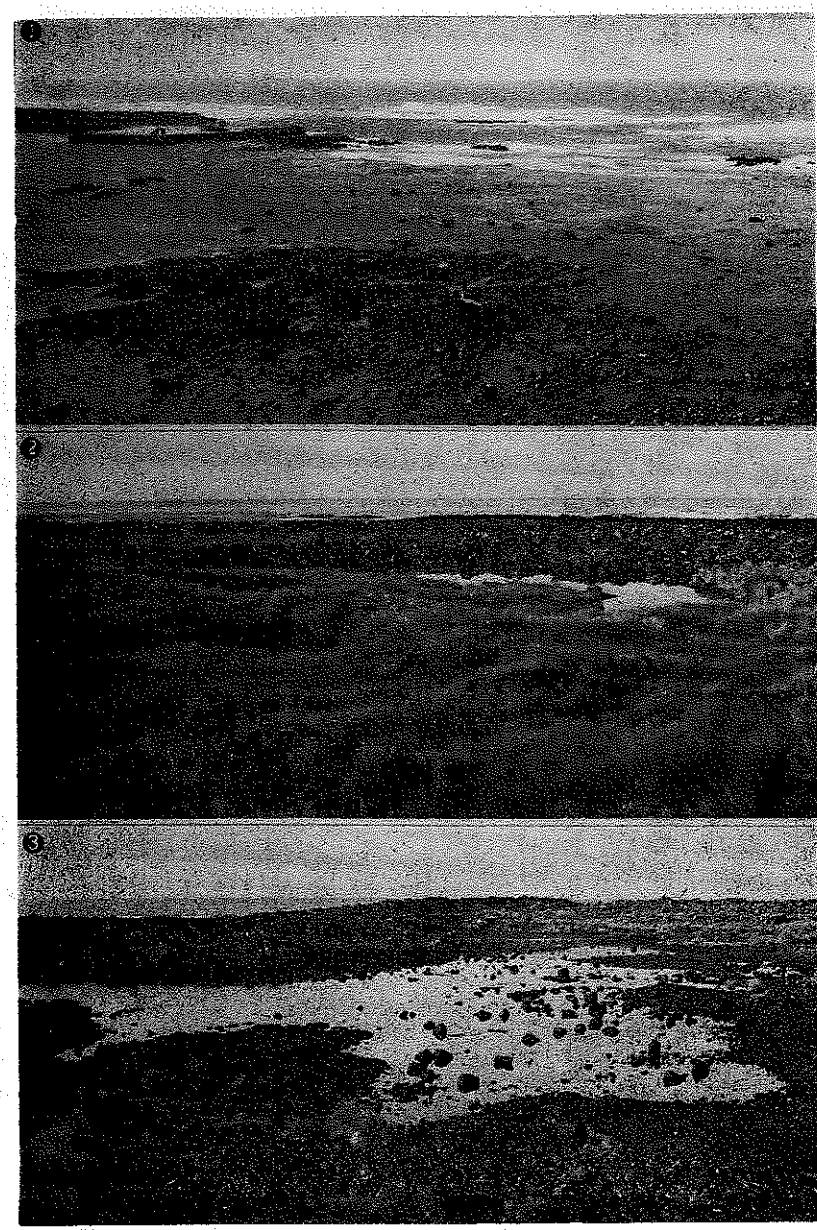

Plate III. Figs. 1 . 3. — Aspects of rocks and marshes at the harbour and sea-front of Lajes do Pico.

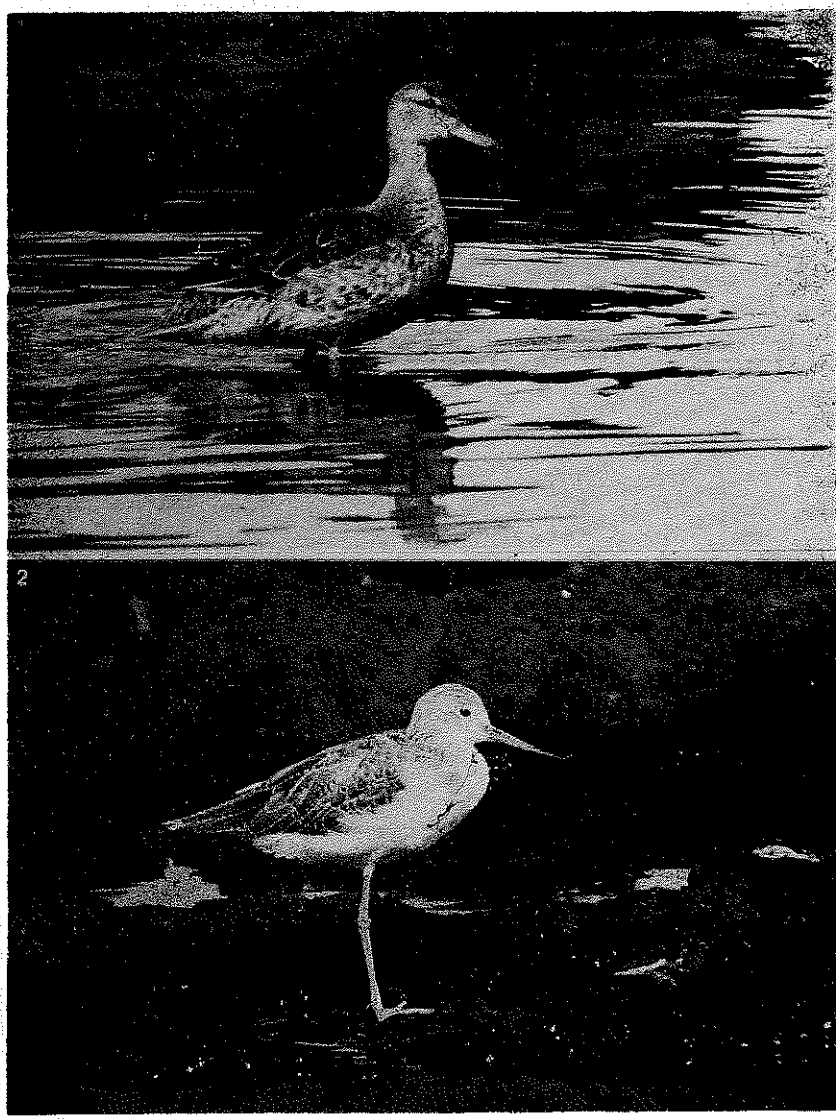

Plate IV. Fig. 1. — *Anas discors* (American Blue-winged Teal), immature female (cf. p. 12). Fig. 2. *Tringa nebularia* (Greenshank) (cf. p. 15). (Both photographs taken at Lajes do Pico, 16 Oct., cf. Plate III).

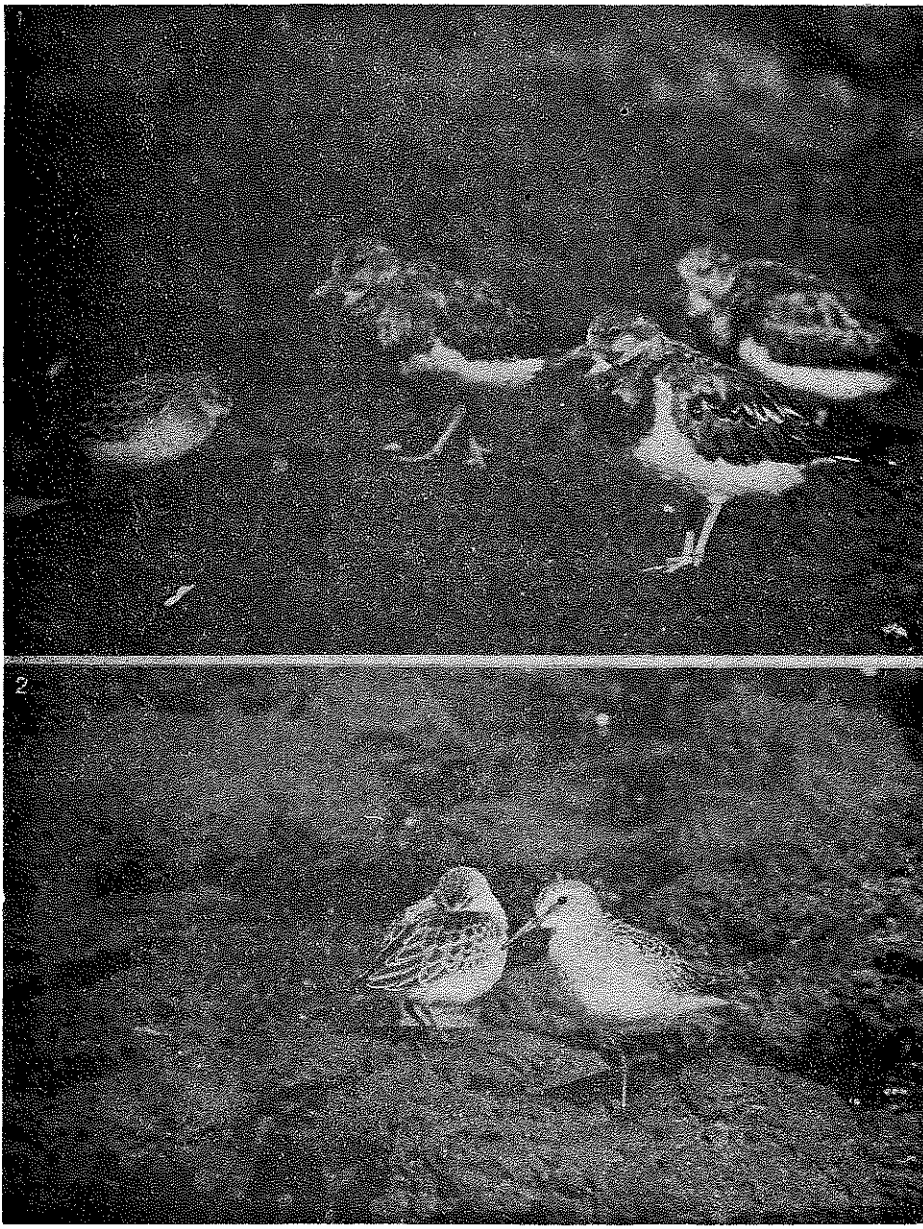

Plate V. Fig. 1. — *Calidris pusilla* (Semipalmate Sandpiper) (cf. p. 13) in company of *Arenaria interpres* (Turnstone) (cf. p. 12). Fig. 2. *Calidris pusilla* (the same specimen) in company of *C. fuscicollis* (white-rumped Sandpiper) (cf. p. 13). (Both photographs taken at Lajes do Pico, 16 Oct. cf. pl. III).

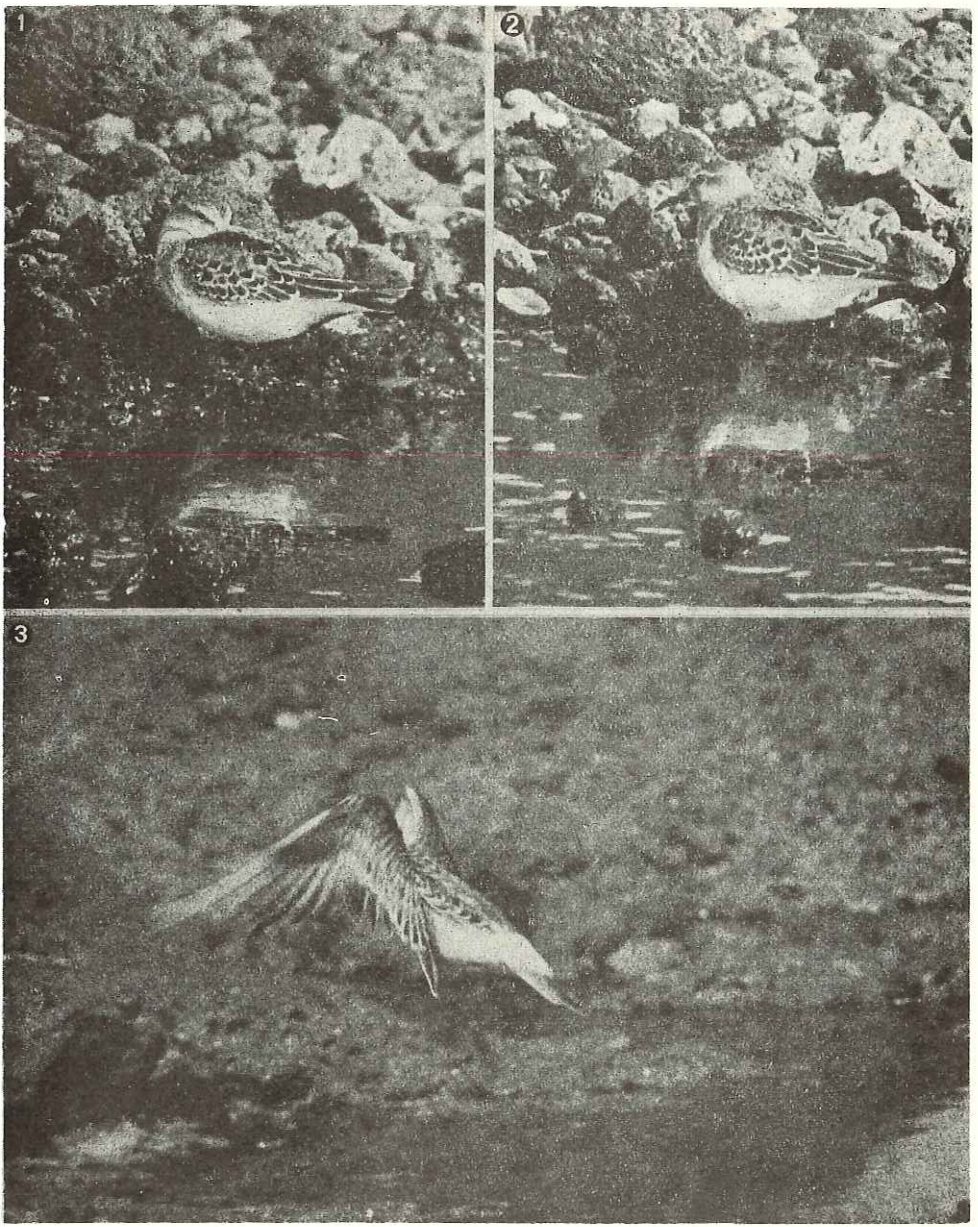

Plate VI. Figs. 1-3 — *Calidris fuscicollis* (White-rumped Sandpiper) (cf. p. 13). Fig. 1. Resting bird. Fig. 2. The same bird, disturbed. Fig. 3. The same bird flying up. (All photographs taken at Lajes do Pico, 16 Oct., cf. pl. III fig. 3).

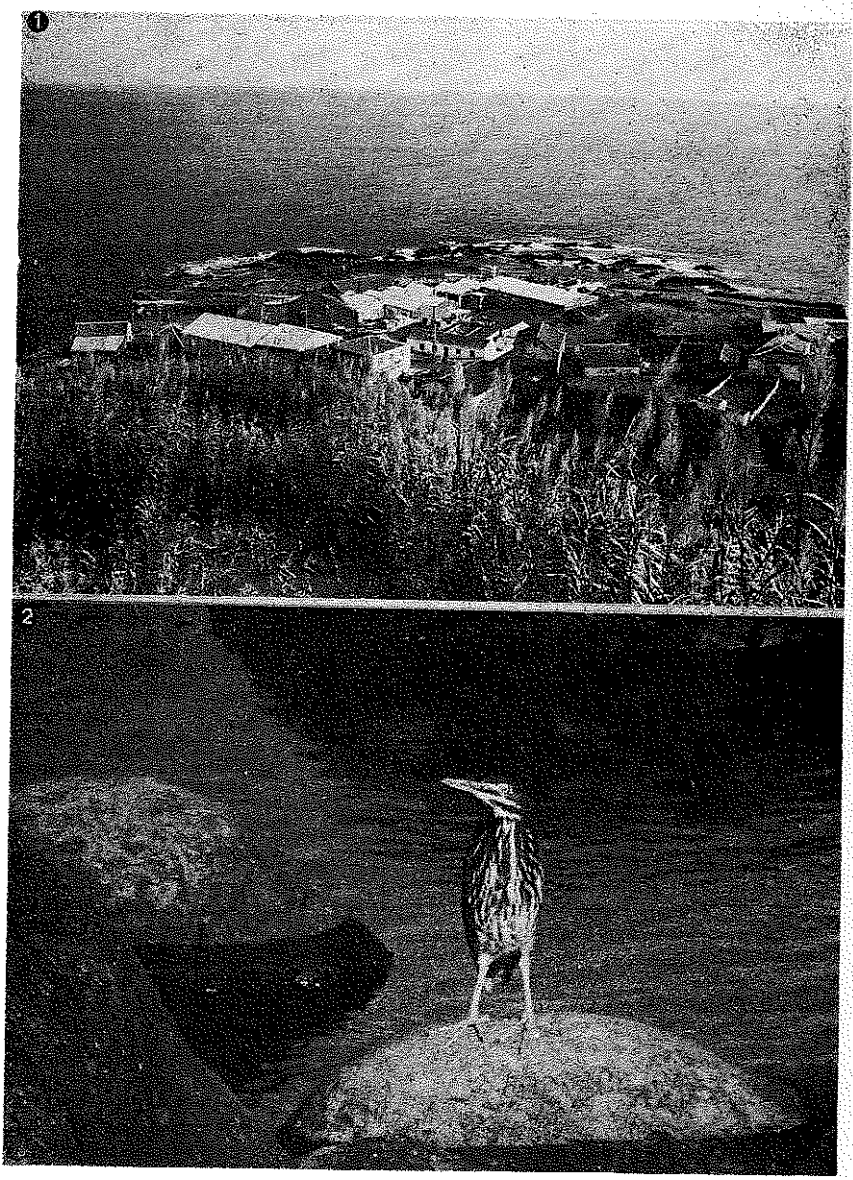

Plate VII. Fig. 1. — View of Porto das Lajes, Flores and the rock barrier in front of the village. Fig. 2. *Butoridas virescens* (Green Heron), immature bird photographed at the above locality (24 Oct.: cf. p. 11).

Plate VIII. Fig. 1. — *Calidris* minuta (Little Stint) (Harbour of Santa Cruz das Flores, 28 Oct., cf. p. 14). Fig. 2. *Plectrophenax nivalis* (Snow Bunting), female (Lajes das Flores, 25 Oct., cf. p. 15).