

SHORT NOTE

Polynesian Ground Dove (*Gallicolumba erythroptera*) discovered at Rangiroa Atoll, Tuamotu Islands (Polynesia)

ABSTRACT

In 1990-91, a previously unknown population of the Polynesian Ground Dove was discovered on Rangiroa Atoll in the Tuamotu Is, eastern Polynesia. This apparently isolated population was estimated at only 12-20 birds.

Two species of ground dove, the Polynesian Ground Dove (*Gallicolumba erythroptera*) and the Marquesas Ground Dove (*G. rubescens*) are found today in eastern Polynesia. Since the records of European naturalists at the end of the 18th century (Holyoak & Thibault 1984, Thibault 1988), their breeding range has been rapidly declining, although this process had begun when Polynesians arrived (Steadman 1988). Because of their small numbers and patchy distribution, both species are now threatened (Collar & Andrew 1988). The wide but discontinuous range, as well as the numerous recorded local extinctions, suggests that Polynesian Ground Doves were formerly widespread in the Tuamotu Is. The discovery of a new locality for *G. erythroptera* provides the opportunity to discuss its overall distribution, its variation and reasons for its decline.

Rangiroa is an atoll in the northern Tuamotu Is (15°05' S and 147°58' W). It is composed of a ring of about 200 islets with areas ranging from about 0.5 to 200 ha. The total area of Rangiroa Atoll is about 79 km². Half the islets have only sand or coral rocks and no vegetation. We visited Rangiroa in 15-21 January 1990 and 16-21 April 1991 and surveyed 20 islets in total (10%).

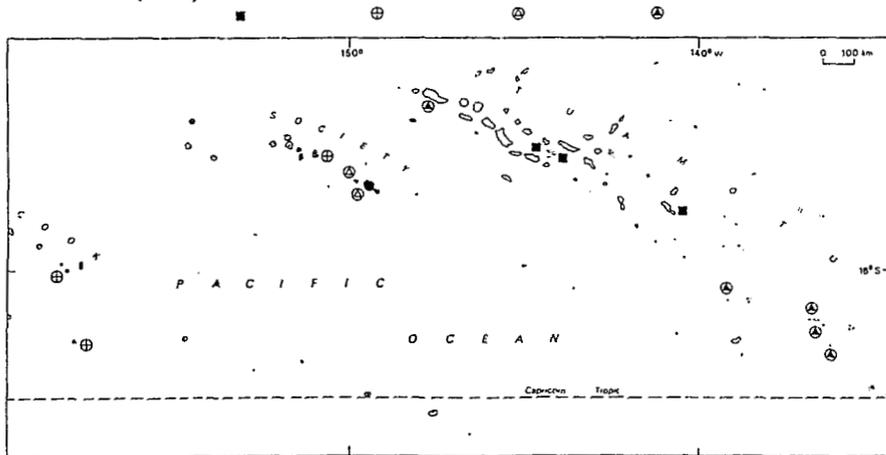


FIGURE 1 — Distribution of *Gallicolumba erythroptera* (from Holyoak & Thibault 1984, Steadman 1989 and this work). Square = *G. e. pectoralis*, solid triangle in circle = *G. e. erythroptera*, open triangle in circle = extinct population of *G. e. erythroptera*, cross in circle = extinct population known only by fossil remains.

Location and numbers

Polynesian Ground Doves were found on two islets which were 50 metres apart and relatively remote from others, the nearest being 1.4 km away. On the first (0.5 ha), one pair of adults and two immatures were seen. On the second (2.5 ha) three males and three females in adult plumage and two immature birds were noted. Thus, the total population was estimated at 12-20 birds.

Habitat and feeding

The vegetation of the two islets is typical of the atoll's primary forest. From the coast fringing the ocean to the coast along the lagoon the vegetation mainly consists of: (1) shrubs (*Pemphis acidula*, *Suriana maritima*, *Tournefortia argentea*, *Timonius polygamus*, *Guetarda speciosa* and *Leucaena insularum*) and tussocks (*Portulaca lutea*, *Digitaria stenotaphrodes*) and (2) a forest (*Pandanus tectorius*, *Pisonia grandis*) with herbs (*Achyranthes* sp.), shrubs (*Euphorbia* sp.) and ferns (*Phymatosorus*) well established under the forest where the soil is enriched by excreta of tree-nesting seabirds such as the Red-footed Booby (*Sula sula*) and Lesser Noddy (*Anous tenuirostris*).

The ground doves were seen to eat buds of *Portulaca*, leaves of *Euphorbia* and seeds of *Digitaria*. They fed while perched on shrubs as well as scratching on the ground with their feet. Seurat (1903) mentioned that birds from Marutea Atoll in the southern Tuamotu Is fed on seeds of *Tournefortia argentea* and *Morinda citrifolia*.

Origin and taxonomic status of the population

Holyoak & Thibault (1984) recognised two forms of *G. erythroptera*:

1. The nominate, with grey-headed males, distributed (i) formerly in the Society Is and (ii) in the Acteon group of the South Tuamotu archipelago.
2. *G. e. pectoralis*, with white-headed males, found in the North and Central Tuamotu archipelago, where it may still survive (Figure 1).

All males observed at Rangiroa had grey heads and the plumage of the nominate form. This is surprising because only *G. e. pectoralis*, with white-headed males, has hitherto been recorded in the northern Tuamotus. We do not know at present whether the Rangiroa form is a geographical subspecies requiring taxonomic separation or a colour morph. Lysaght (1959) discussed the apparent variability of the Society Islands birds, although samples from the northern Tuamotu Is (3 males from Hiti) and South Tuamotu (19 males from Acteon Group) show consistency in their respective colour patterns (Holyoak unpubl., Holyoak & Thibault 1984). Males photographed on Rangiroa show a constant coloration of the head.

Conservation problems and prospects for survival

Ground doves are vulnerable to introduced mammalian predators such as rats (*Rattus rattus*, *R. norvegicus*) and cats (*Felis catus*), as is shown by their distribution being now limited to predator-free islands. They can, however, coexist with *R. exulans* (e.g. *G. rubescens* at Hatuta'a in Marquesas — Thibault 1989). At the end of the 19th and beginning of the 20th centuries, when coconut groves for copra were being developed in the Tuamotu archipelago, cats were deliberately introduced to control rats (Thibault 1988).

As the largest islets with richest vegetation were cleared for coconut plantations, the ground doves could survive only on the smallest wooded islets. All islets of Rangiroa Atoll with suitable habitat were visited in 1990-91, suggesting that no other ground doves exist on this atoll. This situation has existed at least since the visit of the Whitney South Sea Expedition in August 1922, when the collectors who visited Rangiroa found no ground doves (Beck, ms). More recently Holyoak (1973) also failed to find the species. Investigations in the surrounding islands during the 20th century were also negative (Holyoak & Thibault 1984, Poulsen *et al.* 1985, Petitot & Petitot 1975) and this population thus seems to be isolated in the north of the archipelago, although continued presence of the species on remote islets of other large atolls is not impossible. Even if long-term survival of a small and isolated bird population is not rare in eastern Polynesia (see other cases in Thibault 1988), the population of the ground dove on Rangiroa seems to be very threatened.

Acknowledgements: We thank David Holyoak and Sandy Bartle, whose comments improved a first draft of the manuscript, and Cyndi Kuehler and Alan Lieberman (Zoological Society of San Diego) for their help in the field.

LITERATURE CITED

- BECK, R.H. 1922. Journal of the Whitney South Sea Expedition, vol.E. Unpub. MS. American Museum of Natural History.
- COLLAR, N.J.; ANDREW, P. 1988. Birds to watch. The ICBP World Check-list of Threatened Birds. I.C.B.P. Techn. Pub. 8, Cambridge.
- HOLYOAK, D.T. 1973. Notes on the birds of Rangiroa, Tuamotu Archipelago, and the surrounding ocean. Bull. Br. Orn. Cl. 93: 26-32.
- HOLYOAK, D.T.; THIBAUT, J.-C. 1984. Contribution à l'étude des oiseaux de Polynésie orientale. Mém. Mus. ntn. Hist. nat. Sér. A, Zool., 127: 1-209.
- LACAN, F.; MOUGIN, J.-L. 1974. Les oiseaux des îles Gambier et de quelques atolls orientaux de l'archipel des Tuamotu (Océan Pacifique). Oiseau & Rev. fr. Orn. 44: 191-280.
- LYSAGHT, A.M. 1959. Some eighteenth century bird paintings in the library of Sir Joseph Banks (1743-1820). Bull. Br. Mus. (Nat. Hist.), ser. 1 (6): 253-371.
- PETITOT, C.; PETITOT, F. 1975. Observations ornithologiques dans l'atoll de Manihi (Archipel des Tuamotu) et dans l'île de Tubuai (Australes). Ois. & Rev. fr. Orn. 45: 83-88.
- POULSEN, M.K.; INTES, A.; MONNET, C. 1985. Observations sur l'avifaune en octobre 1984. In Contribution à l'étude de Tikehau. Océanographie. O.R.S.T.O.M. Notes et documents (Pape'ete) 24: 114-124.
- SEURAT, L.G. 1903. Observations sur la structure, la faune et la flore de l'île Marutea du Sud (Archipel des Tuamotu). Papeete: 1-18.
- STEADMAN, D.W. 1988. Fossil birds and biogeography in Polynesia. Acta XIX Cong. Int. Orn., Ottawa: 1526-1534.
- STEADMAN, D.W. 1989. Extinction of birds in eastern Polynesia: a review of the records and comparisons with other Pacific Island Groups. Journal of Archeological Science 16: 177-205.
- THIBAUT, J.-C. 1988. Menaces et conservation des oiseaux de Polynésie française. Pages 87-124 in Livre rouge des oiseaux des régions françaises d'outre-mer. I.C.B.P., monographie 5.
- THIBAUT, J.-C. 1989. L'avifaune des îles Eiao et Hatuta'a (Polynésie, Pacifique Sud): modifications intervenues au XXe siècle. Ois. & Rev. fr. Orn. 59: 305-324.
- CLAUDE MONNET, *Institut Français de Recherche Scientifique pour le Développement en Coopération (ORSTOM), Centre de Tahiti, B.P. 529, Pape'ete, Tahiti, French Polynesia;*
- LOANA SANDFORD, *Rangiroa, Tuamotu, French Polynesia;*
- PHILIPPE SIU, *E.V.A.A.M., B.P. 20 Pape'ete, Tahiti;*
- JEAN-CLAUDE THIBAUT, *Antenne du Muséum National d'Histoire Naturelle et de l'École Pratique des Hautes Etudes, Centre de l'Environnement, B.P.1013, Papetoai, Mo'orea;*
- ALBERT VARNEY, *Délégation à l'Environnement. B.P. 4562, Pape'ete, Tahiti.*