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## RESULTS OF THE ARCHBOLD EXPEDITIONS. NO. 33

### A NEW RACE OF QUAIL FROM NEW GUINEA; WITH NOTES ON THE ORIGIN OF THE GRASSLAND AVIFAUNA

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The following is a description of a new quail discovered in the Snow Mountains by the 1938-1939 New Guinea expedition, with a note on the origin of grassland areas in New Guinea.

#### *Excalfactoria chinensis novaeguineae*, new subspecies

TYPE.—No. 306382, Amer. Mus. Nat. Hist.; ♂ ad.; at 1600 meters on the Balim River, Snow Mountains, Netherland New Guinea; December 15, 1938; Richard Archbold, A. L. Rand and W. B. Richardson.

DIAGNOSIS.—Intermediate between *australis* and *papuensis* in the male by having the bright varied pattern of the upperparts like *australis* and the distribution of color of the underparts as in *papuensis*. The male differs from specimens of *australis* from Queensland and New South Wales in having the chestnut area in the abdomen of lesser extent; and in its average slightly smaller size (wing—61-68 mm. against 68-76 mm.). The male differs from examples of *papuensis* from Mafulu in having both the chestnut and the blue-gray of the underparts paler; in having the pale central crown stripe prominent; in the gray-brown edgings to the rest of the crown feathers being pronounced; in the rest of the upperparts having a much brighter, varied pattern, with the lighter brown markings conspicuous and the light colored shaft streaks more evident; in the scapulars and wing coverts being much less bluish. In the female very similar to *australis*; differs from *papuensis* from Mafulu in having the brown markings of the upperparts somewhat brighter.

WING.—♂ (10) 61-68 mm. (av. 65.6); ♀ (10) 65-70 (av. 67).

RANGE.—Known only from the Balim Valley, between 1600 and 2200 meters altitude.

REMARKS.—It is interesting that while this race approaches the Australian race in the color of the upperparts, the birds examined from the lowlands of south New Guinea show no such tendency, and are very similar to typical *papuensis*.

The Balim Valley, from which this new race of a strictly grassland bird is known, contains an area of completely isolated grassland averaging about 10 miles wide by 40 long, and varies from 1200 to 2400 meters in altitude. Since six species of grassland birds are known to occur commonly in this ecologically isolated habitat, it is interesting to consider the possible origin of this area of grassland, and its birds.

Physically<sup>1</sup> this valley lies in part north of Mt. Wilhelmina, one of the highest peaks of the Snow Mountains, but it breaks through the central range and drains to the south coast of New Guinea by way of the Reiger River. An area of broken mountains separates it from the lowlands of north New Guinea. Though this area of grassland is isolated, there are, scattered over the New Guinea mountain valleys, both to the east and the west, similar areas of mid-mountain grassland, and in the lowlands of north New Guinea are swamps and other types of grass areas. In south New Guinea there are also extensive savanna areas (for references to maps and comments see Rand and Brass, 1940, Bull. Amer. Mus. Nat. Hist., LXXVII, pp. 373-376).

The savannas of south New Guinea are undoubtedly an extension to New Guinea of the "open forest" climax of Australia (Rand and Brass, *loc. cit.*). The grassy marshes are not climax, but their presence is of long standing, though their area and position are continually shifting. The rest of the more or less stable areas of grasslands (below alpine grassland) in New

<sup>1</sup> For a description of the Balim Valley see Archbold, 1941, Nat. Geog. Mag., LXXIX, pp. 315-338.

Guinea are probably the result of man's continued activities. Certainly this is true of the grasslands the Archbold Expeditions have examined in the Snow Mountains, in southeast, and in north New Guinea.

This brings us to the question as to how there are birds, some of them endemic, living in these areas of secondary grassland.

The most evident solution is that discussed by Rand and Brass (*loc. cit.*) and Archbold and Rand, 1935, *Bull. Amer. Mus. Nat. Hist.*, LXVIII, pp. 534, 556, 557. There have always been small areas of disturbed conditions, on eroded areas, on landslips, where trees have fallen, where streams have shifted their course, and in marshes. Though always changing their position they are always present. And it is in such places that examples of open ground flora and fauna exist in a virgin forest. Man, extending disturbed conditions over a larger area, simply extends the available area in which these colonizers of disturbed conditions can spread.

It may be well to consider the distribution and affinities in New Guinea of the grassland birds occurring in the Balim Valley.

The species *Lonchura terrinki* is known only from the Balim Valley; its exact relations are difficult to determine, but it is one of a group of boldly patterned New Guinea Lonchuras. *Excalfactoria chinensis novaeguineae* is known only from the Balim Valley; it is intermediate between *papuensis* from southeast and south New Guinea and the Australian *australis* (see above). *Malurus alboscapulatus balim* is also known only from the Balim Valley; its relationships are plainly with the south New Guinea races of the species.

*Saxicola caprata belensis* is known from the mountains of southeast New Guinea and the Balim Valley; another form replaces it on the Huon Peninsula and in north New Guinea near Hollandia. *Cisticola exilis diminuta* occurs in southeast and south New Guinea as well as the Balim Valley; another form occurs in north New Guinea near Hollandia. *Megalurus timo-*

*riensis macrurus* occurs in the Balim Valley and southeast New Guinea; quite different races replace it in north, south and west New Guinea.

There are also several species of grassland birds which occur at similar altitudes in southeast New Guinea, and might be expected in the Balim Valley, such as *Lonchura grandis*, *Synoicus ypsilophorus*, *Lanius schach* and *Mirafra javanica*, but which were not found there despite extensive hunting.

The main point the ornithological data bring out is that the different species of grassland birds probably have colonized the Balim Valley at different times: one has been there long enough to develop specific characters; two subspecific characters, and one of these latter definitely has closer relationship with south New Guinea, the other not; three others have not been isolated long enough to differentiate races; two of these have relationship with southeast New Guinea. There are also other species which have not yet appeared in the Balim Valley, but may be expected.

This indicates colonizing. But the question of the antiquity of this colonizing from an ornithological standpoint can only involve one in a fruitless argument as to how long it takes for a species or a subspecies to evolve. There is definite evidence from the ecological aspects, showing that man's activities are maintaining and spreading these grasslands; we have seen them in various stages of formation (Brass, *Jour. Arnold Arboretum*, in press) and the inference is fairly sure that they are secondary. Indirectly we can conclude that the grassland birds of the mid-mountains originally inhabited savannas, marshes, or small, shifting areas of disturbed conditions, and with the activities of man extending these, the birds have spread to occupy them. The endemism of some, the presence of some non-endemics and the absence of some species for which the area seems suitable, indicate a gradual colonization. It seems to have come from the east or the south, not the north or west.