

# BIRDS FROM THE SMALL ISLANDS OFF THE NORTH-EAST COAST OF DUTCH BORNEO

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Mr. Harry C. Raven, working under the support of Dr. W. L. Abbott for the United States National Museum, visited Dutch north-east Borneo in 1912. After collecting on the mainland in the vicinity of Samarinda from the latter part of May until early July, he sailed north with some Sulu natives to Pulo Derawan. On the first trip they stopped only at the islands of Kaniungan Besar, Derawan, and Maratua; on the latter for the night only. Upon arrival at Derawan, Raven purchased a native prahu and secured a native crew. With them he visited much of the neighboring coast as well as the following islands: Derawan, Pandjang, Raboe Raboe, Maratua, Bakungan, Samama, Sangalaki, Bilang Bilangan, Mataha, Balik Kukup, Marimbora, Eraban, Kaniungan Besar, and Kaniungan Ketjil.

Mr. Raven has sent me the following notes upon the islands visited:

Derawan lies just nine nautical miles east of Tandjong Batoe, which is a long, low point on the mainland of Borneo just north of the Baraoe River. Derawan is a low, sandy island about half a mile in its greatest diameter and is entirely planted with coconuts, most of which were bearing. It has a greater population than any of the other small islands off this part of the Bornean coast. The population consists of Sulu natives and Badjaoe, or seafaring Malay fishermen, in about equal numbers and three or four Chinese traders.

Pulo Pandjang is much larger than Derawan and is seven nautical miles from the nearest point on the coast. It lies eight miles northeast of Tandjong Batoe and four and one-quarter miles northwest of Derawan. It is two and one-half miles in length by about a mile in width and was owned by a Frenchman, who had cleared all the forests in order to plant coconuts. In some places along the shore there still remains a fringe of mangroves. The surface of the island is slightly undulating, though the altitude above high tide is probably nowhere more than 30 feet. The only inhabitants were natives from Derawan and the mainland, employed by the owner.

Between the nearest point on the mainland and Pulo Pandjang lies the little island of Raboe Raboe, which is partly covered with forest and almost entirely

surrounded by mangrove swamps. One small hill rises about 30 feet above sea level. A family of Malays were living on the island at the time of my visit and were responsible for clearing some of the forest in order to plant coconuts.

The next island to note is Moeara Toea (or Maratua), a large island 28 nautical miles directly east of Tandjong Batoe, which is the nearest point on the mainland. Maratua is a peculiarly shaped island, in the form of a V with the right arm about twice the length of the left and bent inward, so that it forms a rhomb with one side missing. It is about 11 miles in length on the southwestern arm and five on the northeastern side. Unlike the other islands visited, it is not low and sandy but is composed almost entirely of sharp, cavernous rock of a very dark color. This type of rock is called by the Malays "batoe bini," literally, female rock. The only place where this rock was not to be found was a narrow strip near the shore on the southwestern part of the island, where the land was flat and sandy and nowhere more than a few feet above the level of the sea. Here at the time of my visit were a few Bandjereese Malays, who were clearing the forest and planting coconuts for one of the Chinamen of Derawan. The rest of the island was covered with heavy forest. I was told by the natives that there was much hard wood, including ironwood. There were also many large cinnamon trees in this forest and I was presented with several large pieces of the cinnamon bark. In most places in the forest of Maratua no soil was to be seen, nothing but sharp, jagged rock over which the roots of the trees wound as they descended into its holes and crevices. The highest part of the island was about 400 feet.

After spending a few days near the southern tip of Maratua, we managed to work the prahu around into the bay and anchored near five tiny islands, the names of which my crew told me were Semoet, Alanga, Sangalen, Tong Toetoeop, and Loesa Koekoep. On one or two of these little islands were groves by which coconut trees had been planted. Badjaoe natives come to the islands occasionally to fish and gather shells.

From Maratua we followed southeastward along the reef to Pulo Bakungan, which is 6 miles from Maratua, the two being connected by a broad reef. Like Maratua, Bakungan is also made of sharp, dark-colored rock, resembling lava, though whether it is or not I do not know. Part of the shore of Bakungan was covered with white coral sand. The vegetation was scrubby and sparse.

I wanted to stop at the island of Kakaban, just 4 miles southwest of Maratua, but was unable to do so at the time, for it offered no shelter for my prahu. The narrow reef about Kakaban affords no protection from the wind and strong current. The island seemed to be of the same sharp rock as that on Maratua.

Pulo Samama lies 16 miles southeast of Tandjong Batoe, nearly 11 miles directly west of Kakaban, and is in line with Derawan and Pandjang to the northwest. The island is about a mile long. From the sea, as we approached, I could see that it was covered with low forest and I was surprised to find Samama to be an atoll, the lagoon of which was filling with mud and sand and a rather dense growth of mangroves. I think no part of the island was more than 2 feet above high-water mark. Samama has no human inhabitants but is occasionally visited by people from Derawan in search of fish and turtle eggs. About Samama there are very extensive reefs, of which some of the coral protrudes at very low tides.

From Pulo Samama we were unable to see toward the southeast the little island of Sangalaki, distant about four and one-half miles. Sangalaki is a beautiful island, low and sandy, covered with forest and surrounded by a wide

reef. It has no human inhabitants. Natives from Derawan sometimes visit the island to collect turtle eggs but otherwise it is seldom visited. Tandjong Batoe is the nearest point on the mainland and it is 22 miles away in a northwesterly direction.

We sailed from Sangalaki for Bilang Bilangan, 46 nautical miles away in a southeasterly direction. After getting out of sight of the island we were becalmed and as the coast is low we could see no land at all. At nightfall I suggested that the natives should row. They replied that if they did, we should pass the islands of Bilang Bilangan and Mataha during the night. They then told me that whenever they were becalmed on their way to gather turtle eggs on these islands, they furled sail, dropped anchor (so that in case they drifted near a reef the anchor would catch before the boat grounded) and went to sleep. When they awakened in the morning they were always in sight of the islands. I followed their advice but we were so many miles away I could scarcely believe that the current alone could carry us so far by morning. However, at daybreak the first thing I heard was an argument among the natives about the names of the two islands in sight. We had been carried about 20 miles during the night by the southeasterly current and were then about 5 miles from Bilang Bilangan, which we reached in an hour.

Bilang Bilangan is 23 miles from the nearest point on the mainland. It is less than a mile long and runs to a point on the northern end. This northern point is covered with grass and bushes but the rest of the island is forested. There are no permanent inhabitants but the natives from Derawan and elsewhere come to gather turtle eggs.

Mataha looked like a very small island from Bilang Bilangan, because it is very narrow and long and from that point only one end of it can be seen. In character the two islands are very much alike, though the forest on Mataha is perhaps a little more dense. Mataha has no permanent inhabitants. It is  $2\frac{1}{2}$  miles southwest of Bilang Bilangan and 20 from the mainland.

From Mataha we sailed 16 miles due west to Balik Kukup, a tiny island half a mile or less in length, nearly all of it planted with coconuts of which many were bearing. There were a few big forest trees at one end of the island and some dense growth beneath them. The inhabitants of Balik Kukup were all Badjae (seafaring Malays) and related to natives of Tandjong Boeaja Boeaja and Samoentai on the nearby mainland. Balik Kukup is just  $10\frac{1}{2}$  miles from the mainland.

After staying a short time at Balik Kukup, we sailed to Manimbora, an island even smaller than the one we had left, and located  $6\frac{1}{2}$  miles southwest of that island. Manimbora is covered with coconut trees in bearing. It had been used for a great many years as a burial ground for natives of the whole region. In fact, my boys told me that they could seldom dig a grave without unearthing the bones of a former burial.

Eraban is a small island four miles due south from Manimbora. Part of it had been for many years planted with coconut trees. The whole island is very low and almost surrounded by mangrove swamps, which almost connect it with the larger island of Tandjong Bocaja Boeaja.

Following the coast southeasterly for 24 miles, we reached the island of Kanoengan Besar, somewhat over a mile from the mainland. It was planted with coconuts and had a village populated with seafaring Malays.

Three miles northeast of Kanoengan Besar is the tiny island Kanoengan Ketjil, on which there is no vegetation except coarse grasses and little vines or creepers.

Of the islands here considered, all are within the 100-fathom line, except Maratua and Kakaban, which appear to be volcanic. These two islands are beyond the Sunda Shelf. Of the islands connected by shallow water with the mainland of Borneo, all appeared to me to be built up from coral reefs, except Pulo Pandjang and Pulo Raboe Raboe. On these two islands there were deep yellow or golden-colored soils in places, much resembling those of the nearby mainland of Borneo.

It was the original intention to have Dr. Harry C. Oberholser work up the Bornean collection as a whole, in conjunction with collections previously made in that general area by Dr. W. L. Abbott, but owing to his other duties progress in this has been slow. In view of his preoccupation in other matters I have been requested to report on the birds collected by Raven on the smaller islands separately. In a preliminary paper<sup>1</sup> I have named one form from Maratua and two forms occurring on Maratua as well as some of the other small islands of this part of the Bornean coast. Of all the islands visited Maratua is the only one that has developed a more or less peculiar avifauna. This is not remarkable, as it is the only island of any size amongst those visited by Raven and lies outside the Sunda Shelf.

Doctor Oberholser had used Raven's material in revisionary work or the description of new forms, but in the case of the kingfishers of the genus *Sauropatis*<sup>2</sup> the names of the small islands in the bay at Maratua were used and their connection with that island lost or buried.

The present paper contains a list of all the birds collected by Raven on these small Bornean islands. Outside of the novelties found on Maratua there are several records of forms that have never been taken on the main island of Borneo before to my knowledge.

All measurements in this paper are in millimeters.

I am indebted to Mr. Raven for making the map to accompany this article.

## Family MEGAPODIIDAE

### MEGAPODES

#### 1. MEGAPODIUS CUMINGII TOLUTILIS Bangs and Peters

*Megapodius cumingii tolutilis* BANGS and PETERS, Occasional Papers Boston Soc. Nat. Hist., vol. 5, 1927, p. 235 (Maratua).

One adult female, Pulo Maratua, (Alanga), May 11.

In color the above specimen closely resembles the single specimen of *Megapodius cumingii gilbertii* from Celebes, available for com-

<sup>1</sup> Proc. Biol. Soc. Washington, vol. 40, 1927, pp. 139-141.

<sup>2</sup> Proc. U. S. Nat. Mus., vol. 55, 1919, pp. 351-395.

parison, but is considerably larger. The Maratua specimen measures: wing, 225; tail, 71; culmen, 18; tarsus, 66; middle-toe, 45. The single specimen of *M. c. gilbertii* (a male): wing, 195; tail, 67.5; culmen, 16; tarsus, 60; middle-toe, 40.

When writing on the birds of Celebes I had to examine the birds from the Philippines to determine what name to use for the Celebes bird. Some notes were given as well as the measurements of all the specimens of the species available to me at that time.<sup>3</sup> There seems to be more than one form in the Philippines but what names to use for them, I can not settle with the material at my command. The specimens from Palawan are smaller and lighter than those from the other Philippine Islands, and these I have regarded as representing *Megapodius cumingii*, until material from northwest Borneo is available for comparison. Bangs and Peters<sup>4</sup> say that Sharpe fixed the type of *Megapodius cumingii* Dillwyn upon the Philippines, but they overlooked Tweeddale's remarks,<sup>5</sup> which show that Dillwyn's description and plate were founded upon a Labuan specimen and that he named the Philippine form, *Megapodius dillwyni*, the type being one of Cuming's specimens; the only specimens of Cuming listed in the Catalogue of Birds British Museum<sup>6</sup> come from Luzon and I would definitely fix this as the type locality. The specimens from Luzon and the northern islands are large and dark. In the same article cited above, on a previous page, Tweeddale proposed *Megapodius pusillus*, founded upon a young specimen from Cebu; this is indeterminable until adult specimens have been examined. *Megapodius forsteni balukensis* Oberholser<sup>7</sup> was founded upon a single adult female from Baluk Baluk Island, off Basilan, Philippines. It is a dark bird somewhat darker than the Luzon bird and measures: wing, 230; tail, 77; culmen, 18.5; tarsus, 61.5; middle-toe, 40.

The specimen of *Megapodius cumingii tolutilis* is more of a cinnamon-brown and not so dark below as the type of *M. f. balukensis*; the former has the wing coverts the same color as the back while in the latter they are chaetura drab.

From the above it will be readily seen there is considerable confusion in regard to the number of forms in the Philippines; a confusion that can only be unraveled by a study of much larger series than are available in American museums at present.

<sup>3</sup> Proc. U. S. Nat. Mus., vol. 64, art. 16, 1924, pp. 6-7.

<sup>4</sup> Occasional Papers, Boston Soc. Nat. Hist., vol. 5, p. 236.

<sup>5</sup> Proc. Zool. Soc. London, 1877, p. 766.

<sup>6</sup> Vol. 22, 1893, p. 450.

<sup>7</sup> Journ. Washington Acad. Sci., vol. 14, 1924, p. 294.

## Family TRERONIDAE

## FRUIT PIGEONS

## 2. DENDROPHASSA VERNANS PURPUREA (Gmelin)

*Columba purpurea* GMELIN, Sys. Nat., vol. 1, pt. 2, 1789, p. 784 (Java).

Two males, Pulo Maratua (Semut), May 10.

These seem to agree with specimens from eastern Borneo, which in turn do not seem to differ materially from males from Java.

## 3. HAEMATAENA MELANOCEPHALA BANGUEYENSIS (Meyer)

*Ptilopus bangueyensis* MEYER, Journ. für Orn., 1891, p. 70 (Banguey).

One male, Pulo Pandjang, May 2.

This specimen agrees fairly well with three males of *H. m. bangueyensis* from Mindanao; the crissum appears to be a little darker yellow and the longer under tail-coverts are a trifle deeper red, that is all; the wing a little longer.

The United States National Museum does not contain a specimen from Banguey, but does possess a male from Cagayan Sulu; an island in the Sulu Sea to the eastward. This specimen has been made the type of *Haemataena melanocephala enantia*,<sup>8</sup> but the characters upon which it is founded are very slight.

*H. m. melanospila* from Celebes is smaller and the throat and crissum a deeper yellow than *H. m. bangueyensis*. The Pandjang specimen agrees with Celebes specimens in the color of the crissum, but with those from Mindanao in the color of the throat, and in size is even slightly larger.

The present form does not seem to have been recorded so far south before.

## 4. MUSCADIORES PICKERINGII PICKERINGII (Cassin)

*Carpophaga pickeringii* CASSIN, Proc. Acad. Nat. Sci. Philadelphia, vol. 7, 1855, p. 228 (Mangsi, Sooloo Ids.).

Four males and two females, Pulo Sangalaki, May 26 and 28; one male, Pulo Maratua, August 28; one female, Pulo Bakungan, May 17; six males and four females, Pulo Bilang Bilangan, May 30-June 3.

There does not appear to be any difference between the specimens from the various islands listed above. Compared with the type of *pickeringii* and a female from Cagayan Sulu the above series seems to average a little lighter on the mantle and back, but the series of *pickeringii* is so small it would be unsafe to separate them. As far as the material before me goes, *pickeringii* is divisible into three forms as follows:

<sup>8</sup> Oberholser, Journ. Washington Acad. Sci., vol. 14, 1924, p. 296.

1. *Muscadivores pickeringii pickeringii* (Cassin). Sulu Islands and the coast of north Borneo.

2. *Muscadivores pickeringii langhornei* Mearns. East and West Bolod, and Loran Island, near Basilan, Philippines. Lighter on the mantle and back than *pickeringii*.

3. *Muscadivores pickeringii palmasensis* Mearns. Palmas Island, east of Mindanao, Philippines. Darker on the mantle and back than *pickeringii*.

There seems to be little or no constant difference in size between the races.

An immature male from Bilang Bilangan (No. 182279) has a considerable number of the wing-coverts drab at the tips; the forehead and throat are extensively white; the under tail coverts fawn color; and the breast and head much less tinged with vinaceous. A female from the same locality approaches it, but is nearer the adult plumage. Specimens showing an approach to the above characters are probably birds of the year, the adult having the chin and throat narrowly white, the under tail coverts drab gray, the head and chest washed with pale vinaceous drab, and the wing coverts dark olive gray without drab tips.

#### 5. MYRISTICIVORA BICOLOR (Scopoli)

*Columba bicolor* SCOPOLI, Del. Flor. et Faun. Insubr., pt. 2, 1786, p. 94 (New Guinea).

One male, Pulo Sangalaki, May 28; 2 males, Pulo Maratua, August 28; 11 males and 2 females, Pulo Bilang Bilangan, May 30–June 3.

One male, Bilang Bilangan (No. 182256), has the under tail coverts with rather large, round, subterminal black spots; the outer tail feather with the black border at the tip barely indicated and dusky rather than black; and the back and wing coverts pallid neutral gray. Evidently a bird of the year.

Judging from the above, the apparently adult specimens with the under tail coverts tipped with black are younger than those with entirely white under tail coverts.

### Family COLUMBIDAE

#### PIGEONS and DOVES

#### 6. COLUMBA GRISEOGULARIS (Walden and Layard)

*Ianthoenas griseogularis* WALDEN and LAYARD, Ibis, 1872, p. 104, pl. 6 (Guimaras, Philippines).

One male, Pulo Bilang Bilangan, May 31.

There seems to be no constant difference between the above male and specimens from the Philippines. It measures: Wing, 226; tail, 135; culmen from cere, 13.

## 7. CALOENAS NICOBARICA (Linnaeus)

*Columba nicobarica* LINNAEUS, Sys. Nat., ed. 10, 1758, p. 164 (Nicobar Islands).

One female, Pulo Maratua (a captive bird brought to Borneo from the above island, July 6; in rather bad plumage).

## Family CHARADRIIDAE

## PLOVERS

## 8. CHARADRIUS LESCHENAUETH Lesson

*Charadrius leschenaultii* LESSON, Dict. Sci. Nat. (Levrault), vol. 42, 1826, p. 36 (Pondicherry, India).

One female, Pulo Bakungan, May 17.

## 9. CHARADRIUS MONGOLUS Pallas

*Charadrius mongolus* PALLAS, Reise Russ. Reichs, vol. 3, 1776, p. 700 (Mongolia).

One male, Pulo Bakungan, May 17.

## Family ARDEIDAE

## HERONS

## 10. TYPHON SUMATRANUS SUMATRANUS (Raffles)

*Ardea sumatrana* RAFFLES, Trans. Linn. Soc. London, vol. 13, pt. 2, 1822, p. 325 (Sumatra):

One immature female, Pulo Derawan, July 23.

## 11. DEMIGRETTA SACRA (Gmelin)

*Ardea sacra* GMELIN, Syst. Nat., vol. 1, pt. 2, 1789, p. 640 (Tahiti).

Two males, two females, and one unsexed, Pulo Derawan, July 24; one female, Pulo Bakungan, May 17; two males and two females, Pulo Maratua, May 12 and 20; two males and five females, Pulo Kaniungan Ketchil, April 3.

Six of the above are adults in the dark phase; two immature in the dark phase; nine adults and immatures in the white phase.

Two immature birds in the white phase are acquiring a few dark centered feathers and evidently would eventually have acquired a dark plumage.

While the United States National Museum contains a good series of this species, it lacks good material from the southern part of its range, and I am unable, for the present, to ascertain the forms, if any, into which it is divisible.

Four adult males (dark phase) from islands off northeast Borneo measure: Wing, 282-295 (287); tail, 94-98 (96.4); culmen, 83-87 (85); tarsus, 81-83 (81.9); middle toe, 54-55 (54.5). Two adult females (dark phase): Wing, 272-275; tail, 84.5-90; culmen, 78-79; tarsus, 69-74.5; middle toe, 48-50.5.



## 12. BUTORIDES JAVANICUS, JAVANICUS (Horsfield)

*Ardea javanica* HORSFIELD, Trans. Linn. Soc. London, vol. 13, 1821, p. 190 (Java).

*Butorides javanicus carcinophonus* OBERHOLSER, Journ. Washington Acad. Sci., vol. 14, 1924, p. 294 (Pulo Alanga, eastern Borneo).

One female, Pulo Alanga, Maratua, May 12.

The above specimen is the type of *Butorides javanicus carcinophonus* (quoted above). It is subadult: the sides of the neck hair brown and the wing coverts edged with cinnamon buff. There is a slightly younger specimen in the United States National Museum (No. 181669) from east Borneo that matches it in the color of the sides of the neck, and another from Palawan (No. 160977). I believe this indicates that the Maratua bird is not fully adult.

There is not enough material of this species in the National Museum at present to work out the forms. There is a fair series from the Philippines, but from the rest of the range the material is deficient. Two specimens from Java, marked male and female, but both probably females, agree in size and color with a small series of five males and one female from Celebes. The series from the Philippines agrees with that of Celebes in size. The Philippine bird has been separated as *Butorides javanicus carcinophilus*,<sup>9</sup> but it seems to me, without examining more material than at present available, that the grounds for its separation are not sufficient.

Four adult males and one female from south China (Shanghai, Nanking, and N. W. Yunnan) are considerably larger than any from the Philippines, Celebes, or Java and, if this difference would hold in a larger series, should probably be recognized as a good race.

While there are no specimens in the National Museum that match the type of *B. j. carcinophonus*, I believe this is due to the paucity of the material rather than to a real difference; otherwise the form would have another one occurring on three sides and almost surrounding it, a possibility hardly probable in this class of birds.

The various series measure as follows:

	Wing	Culmen
4 males, South China.....	183 -198 (188. 5)	61- 67. 5 (64. 9)
8 males, Philippines.....	164 -174 (165. 6)	60- 63 (61. 9)
5 males, Celebes.....	170 -176 (173. 8)	57 -63 (59. 6)
1 female, South China.....	187. 5	63
1 female, Tonking.....	181	66
2 females, Java.....	163 -163	62. 5-63
9 females, Philippines.....	162. 5-175 (167. 7)	57. 5-63 (61)
1 female, Maratua.....	168. 5	65

<sup>9</sup> Oberholser. Journ. Washington Acad. Sci., vol. 14, 1924, p. 294.

## Family FREGATIDAE

## MAN-O'-WAR BIRDS

## 13. FREGATA ARIEL ARIEL (Gray)

*Atagen ariel* GRAY, Genera Birds, vol. 3, 1845, p. 669 (Raine Island, N. Australia).

One male and two females, Pulo Samama, April 22.

There is not enough material in the United States National Museum to correctly determine the forms of this species. A male from Celebes previously reported upon<sup>10</sup> is quite different from the Bornean male. The Celebes specimen is bluish green on the mantle with purplish reflections in certain lights and bronzy green on the lesser wing coverts, while the Samama bird is a dull black with a band of violet across the middle of the feathers of the mantle, the lesser wing coverts just dull black with a very faint bronzy tinge, hardly noticeable. The Celebes bird is in fresher, less worn plumage.

The two females are in quite distinct plumages. One with the head dusky black, the crown with a rusty tinge; the throat hair brown with some rusty feathers on the lower border; the chest and upper breast white; lower breast and belly dusky black; a light collar around hind neck. The other female from Samama has the head and throat white, with a few rusty feathers here and there; the chest hair brown, shading off into dusky black on the upper breast; the lower breast and belly white. The white-headed bird is in more worn plumage than the black-headed one. There is a difference in the color of the bills between the two also. The black-headed specimen has the base of the bill a dull pompeian red, only the nail at the tip horn color; while in the white-headed bird the bill is clay color, only the tip horn color.

The bills measure as follows: Male, 89; black-headed female, 88; white-headed female, 82; the male from Celebes, 90.

## Family FALCONIDAE

## HAWKS, EAGLES, ETC.

## 14. CUNCUMA LEUCOGASTER (Gmelin)

*Falco leucogaster* GMELIN, Syst. Nat., vol. 1, pt. 1, 1788, p. 257 (unknown; fixed by Mathews as New South Wales).

One adult male, Pulo Bilang Bilangan, May 30. Wing, 535; tail, 230; culmen from cere, 41. The measurement of the wing is much smaller than that given by Swann.<sup>11</sup> It may be that the species breaks up into several forms, but the material available is not sufficient to go into the matter. Mathews<sup>12</sup> gives three races for the area covered by his book alone.

<sup>10</sup> Proc. U. S. Nat. Mus., vol. 64 art 16, 1924, p. 36.

<sup>11</sup> Syn. Accipitres, pt. 3, 1922, p. 143.

<sup>12</sup> Sys. Av. Austral., pt. 1, 1927, pp. 254-255.

## Family PSITTACIDÆ

## PARROTS

## 15. TANYGNATHUS LUCIONENSIS HARRISONUS Bangs and Peters

*Tanygnathus lucionensis horrisonus* BANGS and PETERS, Occasional Papers of the Boston Soc. Nat. Hist., vol. 5, 1927, p. 235 (Maratua).

Three males and one female, Pulo Maratua, May 9–21.

The difference in size between this form and *T. l. lucionensis* is not great; *T. l. horrisonus* appears to have the subterminal black on the middle wing coverts more extensive. One of the males is much worn and not fully adult; the other two measure: Wing, 193–202; tail, 135–136; culmen from cere, 31–32. The female: Wing, 195; tail, 120; culmen from cere, 31.

## 16. LORICULUS GALGULUS GALGULUS (Linnaeus)

*Psittacus galgulus* LINNAEUS, Syst. Nat., ed. 10, 1758, p. 103 (India; type locality fixed by Hartert<sup>13</sup> as: Malay Peninsula, Malacca).

One immature male, Pulo Derawan, July 23; two adult males, and one female, Pulo Eraban, June 12 and 13.

The above apparently do not differ materially from specimens from the mainland or the main island of Borneo. The two males measure: Wing, 80–83; tail, 33–36; culmen from cere 11–11.5.

## Family ALCEDINIDÆ

## KINGFISHERS

## 17. SAUROPATIS CHLORIS CYANESCENS Oberholser

*Sauropatis chloris cyanescens* OBERHOLSER, Proc. U. S. Nat. Mus., vol. 52, 1917, p. 189 (Pulo Taya, southeast Sumatra).

A large series, consisting of adults of both sexes and immatures, from the following islands: Pulo Raboe Raboe, May 4 and July 27; Pulo Derawan, July 22 and 23; Pulo Samama, April 21; Pulo Sangalaki, May 26 and 27; Pulo Maratua (including the small islands in the bay: Sangalen, Lusa Kukup, and Alanga), May 12–24; Pulo Bakungan, May 17; Pulo Bilang Bilangan, May 30–June 1; Pulo Mataha, June 5; Pulo Balik Kukup, June 9–10.

Doctor Oberholser has already used part of the above specimens in his revision of this species.<sup>14</sup>

<sup>13</sup> Nov. Zool., vol. 9, 1902, p. 542.

<sup>14</sup> Proc. U. S. Nat. Mus., vol. 55, 1919, pp. 351–395.

## Family MICROPODIDAE

## SWIFTS

## 18. COLLOCALIA VESTITA MARATUA Riley

*Collocalia vestita maratua* RILEY, Proc. Biol. Soc. Washington, vol. 40, 1927, p. 141 (Maratua).

One adult male (the type), Pulo Maratua, May 21.

This specimen is similar to *Collocalia vestita mearnsi* of the Philippines but the upper parts are deeper black, less sooty; the wings showing a more purplish sheen, less greenish; the lower parts much duskier. Wing, 118; tail, 48.

While the present form was founded upon one specimen only, I had before me 14 specimens of *Collocalia vestita mearnsi* and 4 of *Collocalia vestita vestita*. From the former it differs as described, from the latter it may be told by the fact that it is a much deeper, less brownish, black above, the wings and tail more purplish, less greenish, but below the two forms are much alike. *Collocalia vestita aenigma* of Celebes resembles *Collocalia vestita maratua* above, but is lighter below, especially on the throat, and has a somewhat longer wing.

It would appear as though the birds of this genus are not great wanderers, but are more or less sedentary.

## 19. COLLOCALIA FRANCICA PERPLEXA Riley

*Collocalia francica perplexa* RILEY, Proc. Biol. Soc. Washington, vol. 40, 1927, p. 140 (Maratua).

Eight males, three females, and one unsexed, Pulo Maratua, May 21 and 24; one male and one female, Pulo Pandjang, May 2; one female Pulo Balik Kukup, June 10; one female, Pulo Raboe Raboe, July 27.

The above series is similar to *Collocalia francica germani* of Siam and the Philippines, but the wing averages longer, the back is a deeper, less brownish, black, the rump band much darker and much less pronounced, the wings and tail with more purplish and less greenish sheen. The present specimens have been compared with about an equal number from Peninsular Siam and the Philippines. There do not appear to be any differences in size and color between the sexes. The nine males from islands off northeast Borneo have wings, 119.5–125 (121.8); eight males from Peninsular Siam (4) and the Philippines (4) have wings, 109–122 (117.3). Apparently no form of *Collocalia francica* has been recorded from Borneo before. *Collocalia francica bartelsi* Stresemann<sup>15</sup> from west Java is not available for examination, but the distribution of the forms is now

<sup>15</sup> Orn. Monatsb., 1927, p. 46.

known to be more circumscribed than formerly supposed, and the form from northeast Borneo and the form from west Java will hardly prove to be the same.

## Family CUCULIDAE

### CUCKOOS

#### 20. CHALCITES MALAYANUS MALAYANUS (Raffles)

*Cuculus malayanus* RAFFLES, Trans. Linn. Soc. London, vol. 13, pt. 2, 1822, p. 286 (Malay Penin.).

Two males, Pulo Pandjang, May 2.

These measure: Wing, 90–93; tail, 61–61; culmen, 14–15.

## Family PICIDAE

### WOODPECKERS

#### 21. YUNGIPICUS MOLUCCENSIS TANTULUS Riley

*Yungipicus moluccensis tantulus* RILEY, Proc. Biol. Soc. Washington, vol. 40, 1927, p. 140 (Tangguroeng, Mahakkam River, N. E. Borneo).

One male and one female, Pulo Pandjang, May 2 and 3; one female, Pulo Eraban, June 12.

Hargitt<sup>16</sup> has shown that the name of this species should be *Yungipicus moluccensis* (Gmelin) and that the type locality is probably Java. Two males and a female before me from Java are darker above than the Bornean birds listed above; the Javan specimens have the nasal plumes and a loreal streak creamy white, while in the Bornean specimens the loreal streak is much reduced and the nasal plumes are the color of the forehead; the upper tail coverts in the Bornean birds are less heavily barred, and they average smaller. A male in the collection from the Mahakkam River, northeast Borneo, does not appear to differ from the three from the islands off the coast. The female of this species seems to be as large or larger than the males.

Two males and one female from Java, measure: Wing, 73–75 (74.3); culmen, 13–14.5 (13.8).

Two males and two females from northeast Borneo and islands off coast, measure: Wing, 66.5–74 (69.7); culmen, 12–14.5 (13).

#### 22. DINOPIUM RAVENI Riley

*Dinopium raveni* RILEY, Proc. Biol. Soc. Washington, vol. 40, 1927, p. 139 (Pulo Eraban, northeast Borneo).

One adult male (the type) and one adule female, Pulo Eraban, June 13.

<sup>16</sup> Ibis, 1882, p. 43.

Similar to *Dinopium javanensis javanensis*, but wing and tail much shorter and the feathers of the center of the chest and breast buffy brown with rather narrow cream buff centers without any black.

*Adult male*.—Pileum scarlet, the feathers blackish basally; a superciliary stripe, running from about the middle of the eye back on to the sides of the neck buffy white, bordered above anteriorly with black; rictal streak buffy white; ear-coverts black; malar stripe black; mantle and wing-coverts pyrite yellow, the feathers of the mantle fringed with light cadmium; lower back and rump chaetura drab broadly tipped with scarlet; upper tail coverts chaetura black; tail black; throat buffy white with a few small black spots down the center; jugulum buffy brown, the feathers with buffy white centers and a few of them with a blackish mark at the tip, but hardly forming a band; center of the chest and breast buffy brown, the feathers with rather narrow buffy white centers; belly buffy white, the feathers barred rather obscurely and narrowly with buffy brown; under tail coverts buffy white barred rather narrowly with chaetura drab; sides and flanks buffy white barred rather narrowly with black; primaries fuscous black with oval white spots on the inner web; secondaries fuscous-black, the outer web broadly pyrite yellow, the inner web with oval white spots. Wing, 123; tail, 71; culmen 30.5.

*Adult female*.—Like the male, except the pileum is black with narrow white shaft streaks. Wing, 126; tail, 79; culmen, 28.5.

In a large series of *Dinopium javanensis* from different parts of the range of the species there are none that match the above specimens; all have the feathers of the chest and breast heavily bordered with black. *Dinopium raveni* has a proportionally shorter wing tip than *Dinopium javanensis* and for this reason, along with the distinct color of the chest, must be ranked as a distinct species. *Dinopium javanensis* has been recorded from Borneo. *Tiga borneonensis* Dubois<sup>17</sup> was described from an unknown locality in Borneo as having the lower-parts transversely barred with black and can not very well be the present species. Hartert writes<sup>18</sup> that it is only an aberrant *Tiga javanensis*, but Dubois<sup>19</sup> dissents from this disposition of his species and points out that he had a pair. Dubois<sup>20</sup> had previously published a plate of the types, and they certainly look quite different from anything represented in the series of the United States National Museum. Aberrations are not likely to occur in pairs and it is quite likely that *Tiga borneonensis* will be rediscovered.

<sup>17</sup> Proc. Zool. Soc. London, 1897, p. 782.

<sup>18</sup> Nov. Zool., 1901, p. 50.

<sup>19</sup> Ornith., vol. 14, 1907, pp. 43 and 521.

<sup>20</sup> Syn. Av., fasc. 1, 1899, pl. 1.

To *Dinopium everetti* of the Palawan group of islands in the Philippines, *Dinopium raveni* bears a certain resemblance, but the latter is smaller, lacks the black barring on the breast, the throat is buffy-white instead of cinnamon, the chest buffy brown with buffy-white shaft streaks instead of cinnamon without shaft streaks; in the male, the malar stripe is without any red, and there are other differences.

*Dinopium raveni* is hardly confined to Eraban, an island that is separated from the main island of Borneo only at high tide, but the short wing-tip seems to indicate that it is more or less local.

Since writing the above, I have discovered an additional female of *Dinopium raveni* in the National Museum that was overlooked. It is from Tanjong Batoe, northeast Dutch Borneo, collected August 25, and is No. 181,841. The feathers of the chest are lighter than in the Pulo Eraban specimen, more of a wood brown, each feather lighter in the center and narrowly fringed with dusky at the tip and with two incipient bars separated by the lighter center along the shaft; the breast and abdomen yellowish white, washed with wood brown, each feather with one or more subterminal bars of dusky; on the middle of the breast there is a single yellowish white feather crossed by two subterminal blackish bars; otherwise it is much like the Eraban specimen. It measures: Wing, 119; tail, 81; culmen, 26.5.

## Family MUSCICAPIDAE

### FLYCATCHERS

#### 23. CYORNIS BECCARIANA BECCARIANA (Salvadori)

*Siphia beccariana* SALVADORI, Atti R. Acad. Torino, vol. 3, 1868, p. 533 (Sarawak).

One adult female and one immature female, Pulo Raboe Raboe, May 4 and July 27.

Raven took two adult males on the opposite shores of the main island of Borneo (Segah River and Sungei Ritan). The female from Raboe Raboe, belongs without much doubt, to the same form as the males.

The above female from Raboe Raboe is indigo blue above from the bill to and including the tail and the outer aspect of the closed wing; the lores whitish; the auriculars bluish black; below ochraceous-orange, belly whitish. The males are indulin blue on the head shading off into dusky blue on the back, or, in some positions, even eton blue, especially on the rump.

From the above it will be seen that the female is only a duller, duskier blue above than the male.

The immature female listed above resembles the adult female, except it still retains a few rufous spotted feathers of the immature dress on the forehead, sides of head, and mantle.

The adult female from Raboe Raboe measures: Wing, 73; culmen, 14.

24. *GERYGONE SALVADORII* Büttikofer

*Gerygone salvadorii* BÜTTIKOFER, Notes from the Leyden Mus., vol. 15, 1893, p. 175 (southern Borneo).

One male and one female, Pulo Raboe Raboe, May 4 and July 27; two males and one female Pulo Samama, April 22.

No additional specimens from Borneo of this rare form are available for comparison, but they seem to agree with the original description and the measurements are about the same as given there. The white spot on the inner web of the outer tail feathers near the tip is well marked on the three outer and occurs on the fourth as a mere dot.

25. *HYPOTHYMIS AERIA* Bangs and Peters

*Hypothymis aeria* BANGS and PETERS, Occasional Papers of the Boston Soc. Nat. Hist., vol. 5, 1927, p. 237 (Maratua).

Seven adult males, one immature male, and four adult females, Pulo Maratua, May 9-20.

Three males and two females of the above series come from the small islets of Alanga and Sangalan in the bay at the north end of Maratua.

This very distinct species needs no comparison. Judging from descriptions, it seems to be an approach towards *Hypothymis rowleyi*, which is not available for comparison. In two of the above males of *H. aeria*, the black jugular collar is very faint, practically absent; and in the majority of the males the occiput is darker than the crown, but not black.

26. *HYPOTHYMIS AZUREA PROPHATA* Oberholser

*Hypothymis azurea prophata* OBERHOLSER, Proc. U. S. Nat. Mus., vol. 39, 1911, p. 597 (Great Karimon Island).

One female, Pulo Miang Besar, September 10.

This specimen is lighter on the back and head and the tail is more tinged with bluish than in a female from Banka. The Miang Besar specimen measures: Wing, 67.5; tail, 66; culmen, 13.

27. *RHIPIDURA JAVANICA JAVANICA* (Sparrman)

*Muscicapa javanica* SPARRMAN, Mus. Carls., fasc. 3, 1788, pl. 75 (Java).

One male, Pulo Raboe Raboe, May 4; two males and one female, Pulo Derawan, July 23-25; one female, Pulo Eraban, June 13.



The above small series agrees with a small series from the main island of Borneo. An adult male from Java has the top of the head much less deeply black (more of a chaetura black) than Bornean males and the back is also lighter.

## Family CAMPEPHAGIDAE

### CATERPILLAR SHRIKES

#### 28. LALAGE NIGER MITIFICA Bangs

*Lalage niger mitifica* BANGS, Bull. Mus. Comp. Zoölogy, vol. 45, No. 4, 1922, p. 80 (Lubang, near Luzon, Philippines).

One male and one female, Pulo Derawan, July 26; one female, Pulo Samama, April 21; one immature male, Pulo Maratua, May 21; one male, Pulo Bakungan, May 18; five adult males, five immature males, five females, and one unsexed, Pulo Bilang Bilangan, May 30–June 3.

The adults of the above series do not appear to differ appreciably from Philippine specimens; in size the Bornean island birds are a trifle smaller, but the difference is not great enough to distinguish by name. Seven males from islands off northeast Borneo measure: Wing, 88–93 (91); tail, 65–70 (68.2); culmen, 14.5–16 (15.2). Six males from the Philippines: Wing, 92.5–96 (94.2); tail, 67–72.5 (69.6); culmen, 14.5–16 (15.2).

## Family PYCNONOTIDAE

### BULBULS

#### 29. AEGITHINA TIPHIA ZOPHONOTA Oberholser

*Aegithina tiphia zophonota* OBERHOLSER, Smithsonian Misc. Coll., vol. 76, No. 6, 1923, p. 8 (Laham, east-central Borneo).

Three adult females and one immature (sex?), Pulo Eraban, June 12 and 13.

These agree with the form occurring on the opposite shore of Borneo. The three measure: Wing, 57.5–61 (58.8); tail, 44–46.5 (44.8); culmen, 14.5–15 (14.7). Doctor Oberholser, in the paper cited above, gives a synopsis of the forms of the species as worked out by him.

#### 30. BRACHYPODIUS HODIERNUS (Bangs and Peters)

*Microtarsus hodiernus* BANGS and PETERS, Occasional Papers of the Boston Soc. of Nat. Hist., vol. 5, 1927, p. 238 (Maratua).

One adult female, Pulo Maratua, May 16.

This specimen agrees with the original description, except the colors of the head are reversed, purplish reflections above and

greenish on the throat; only the outer tail feather is slate color below, the others show some blackish near the middle, increasing inwardly towards the central pair. It measures: Wing, 81; tail, 74; culmen, 13.5.

31. *PYCNONOTUS GOIAVIER ANALIS* (Horsfield)

*Turdus analis* HORSFIELD, TRANS. Linn. Soc. London, vol. 13, 1821, p. 147 (Java).

Three males, two females, and one nestling, Pulo Derawan, July 26.

These agree with Java specimens in color and measurements. Birds from the opposite shores of Borneo do not appear to differ from those from Derawan. The three males from Derawan measure: Wing, 86.5–90 (88.3); tail, 79–83 (80.3); culmen 17–17.5 (17.3), and the two females, wing, 84–85; tail, 74.5–75.5; culmen, 16.5–17.

## Family TURDIDAE

### THRUSHES

32. *COPSYCHUS NIGER* Ramsay

*Copsychus niger* RAMSAY, Proc. Zool. Soc. London, 1886, p. 123 (Elopura, N. E. Borneo).

One female, Pulo Raboe Raboe, May 4.

This specimen measures: Wing, 102; tail, 87; culmen, 22.

The United States National Museum contains three forms or species of black-bellied *Copsychus* from Borneo, as follows:

(1) A wholly black bird with a black tail; only a mere trace of white on the outer web of the outer tail feather near the base and a white dot on the outer web of the two outer feathers at the tip; the under tail coverts wholly black. *Copsychus niger*.

(2) A black bird with the two outer tail feathers white except at the extreme base and the third outer tail feather white, black only basally and in a narrow border on the inner edge of the inner web; the under tail coverts black with white centers. *Copsychus amoenus*.

(3) A black bird like the last; only the outer tail feather white, except the extreme base, the second tail feather bordered with black on the inner web, the third tail feather with only a triangular white spot at the tip; the under tail coverts white and the lower belly and flanks mixed white and black.

Hartert<sup>21</sup> says no. 3 is unnamed. All three forms have white lesser wing coverts, in nos. 2 and 3 even extending on to the outer web of the inner secondaries.

*Copsychus niger* has a longer bill than *C. amoenus*; otherwise the two species are much alike, except for the white outer tail feathers, the white edging on outer web of the inner secondaries, and

<sup>21</sup> Nov. Zool., vol. 17, 1910, p. 235.

the white centers to the under tail coverts of the latter. *Copsychus amoenus* is very close to No. 3, but lacks the white under tail coverts and the white mixture on the lower belly and flanks of the latter and the tail pattern is different.

Of *Copsychus amoenus* the United States National Museum has six males and five females from southeast and north central Borneo, but of the other two only a pair of each. The male of *Copsychus niger* is from Sandakan and the female as listed above. The pair of No. 3 are from Kina Balu. *Copsychus saularis musicus* or a similar form also occurs in Borneo. It has the whole belly white.

Stresemann<sup>22</sup> has attempted to explain the differences between *Copsychus saularis musicus* and *Copsychus amoenus* on the grounds of mutation, but not very successfully, it seems to me. He does not mention *Copsychus niger* in the article.

### 33. KITTACINCLA BARBOURI Bangs and Peters

*Kittacincla barbouri* BANGS and PETERS, Occasional Papers of the Boston Soc. Nat. Hist., vol. 5, 1927, p. 239 (Maratua).

One male, Pulo Maratua, May 10.

The above specimen agrees with the original description. It measures: Wing, 104; tail, 128; culmen, 17. A male of *K. stricklandi* before me, measures: Wing, 94.5; tail, 103; culmen, 17.

## Family ARTAMIDAE

### WOOD SWALLOWS

#### 34. ARTAMUS LEUCORYNCHUS LEUCORYNCHUS (Linnaeus)

*Lanius leucorynchus* LINNAEUS, Mantissa, 1771, p. 524 (Manila).

Two males and two females, Pulo Raboe Raboe, May 6 and July 27; one male, Pulo Samama, April 22; two males, Pulo Maratua (Sangalan and Lusa Kukup), May 13 and 15. These agree with a series from the Philippines in size and color.

## Family LANIIDAE

### SHRIKES

#### 35. MUSCITREA GRISOLA SECEDENS (Stresemann)

*Pachycephala grisola secedens* STRESEMANN, Nov. Zool., vol. 20, 1913, p. 335 (Sirlhassen).

Four males and three females, Pulo Maratua, May 9-16; two males, Pulo Pandjang, May 2; two females, Pulo Raboe Raboe, July 27.

<sup>22</sup> Journ. für Orn., 1924, pp. 252-255.

This series compared with *Muscitrea grisola grisola* of the mainland averages browner on the head and has a larger, heavier bill; below, the gray of the chest comes down further and the white of the belly is more restricted. The only two specimens examined from Java are very pale, paler than either *M. g. grisola* or *M. g. secedens* and evidently represent another form. One of the males from Pandjang is very much worn, the other five males measure: Wing, 82-87.5 (85); tail, 60.5-67.5 (63.8); culmen, 15-16 (15.5). Five males of *M. g. grisola* measure: Wing, 82-87 (83.9); tail, 58-61 (59.3); culmen, 13-15 (13.9).

## Family SITTIDAE

### NUTHATCHES

#### 36. *CALLISITTA CORALLIPES* (Sharpe)

*Dendrophila corallipes* SHARPE, Ibis, 1888, p. 479 (Mount Kina Balu, Borneo).

Two males and two females, Pulo Eraban, June 12.

These are considerably lighter above and below than the only specimen available from Borneo, an unsexed female without definite locality, for comparison. I am of the opinion that only one of the specimens from Eraban is fully adult. It is a male and measures: Wing, 76; culmen, 14.5.

## Family NECTARINIIDAE

### SUNBIRDS

#### 37. *CHALCOSTETHA CALCOSTETHA PROXIMA* Riley

*Chalcostetha calcostetha proxima* RILEY. Proc Biol. Soc. Washington, vol. 40, 1927, p. 141 (Pulo Derawan, northeast Borneo).

Over 90 specimens were collected, consisting of adults of both sexes and immatures, from the following islands: Raboe Raboe, May 4, 6, and July 27; Derawan, April 25-28 and July 22-25; Samama, April 21, 22; Maratua, May 11-20; and Bakungan, May 17, 18. No constant differences in color can be detected between series from the main island of Borneo and the small islands off the coast, but the island series average larger, especially the culmen. Thirty males from the small islands given above measure: Wing, 59-65 (62.3) culmen, 18.5-21 (19.5). Six males from northeast Borneo measure: Wing, 58-62.5 (60.5); culmen, 17.5-19 (18.2). Males from the Malay Peninsula agree with those from the main island of Borneo in size, as the following will show: Seven males, wing, 60-61.5 (61); culmen, 17-19.5 (18). The males from northeast Borneo and the islands off the coast run remarkably true to type. The lower back, rump, and upper tail coverts are a shining coppery green with little

or no iridescent lilac purple. On the mainland the majority of the males have these parts with much iridescent lilac purple, but some have these parts green with little or no lilac. The most brilliantly green-rumped, specimens examined are a male from West Sumatra and one from Java. Stuart Baker<sup>23</sup> restricts the type locality of *Nectarinia calcostetha* Jardine to Borneo.

### 38. AETHOPYGA SIPARAJA OCHROPYRRHA Oberholser

*Aethopyga siparaja ochropyrrha* OBERHOLSER, Bull. U. S. Nat. Mus., No. 98, 1917, p. 65 (Pulo Rittan, Anamba Islands).

One adult male and one immature male (marked female), Pulo Raboe Raboe, May 4 and 6.

The adult male agrees fairly well with a series, consisting of four males, from the opposite shores of the main island of Borneo; it is a little more yellowish citrine on the belly, the edges of the remiges are amber brown rather than raw sienna and the reds a little darker. The series from the main island of Borneo is very close to males from the Karimata Islands that have been assigned by Doctor Oberholser<sup>24</sup> to the Anamba Island form; the reds in the Karimata specimens are just a trifle darker than in the Bornean males. The Raboe Raboe male is like the Karimata bird in the tone of the reds, but it is more yellowish citrine on the belly and the edges of the remiges are deeper in color. The four males from Borneo measure: Wing, 49–51 (49.6); culmen, 15–15.5 (15.2). The Raboe Raboe male: Wing, 50; culmen, 16. Two males from the Karimata Islands: Wing, 51.5–54; culmen, 16–16.

### 39. LEPTOCOMA SPERATA (Linnaeus)

*Certhia sperata* LINNAEUS, Syst. Nat., ed. 12, 1766, p. 186 (Philippines).

Three males, Pulo Maratua, May 13–21.

These three males are very close to specimens from the Philippines; they seem to have a little smaller wing and bill and the belly is not quite so yellow. The three measure: Wing, 47.5–48.5 (48); culmen, 13.5–14.5 (14). Ten adult males selected at random from a series from the Philippines measure: Wing 49–52 (50); culmen, 14–15.5 (15).

### 40. ANTHREPTES MALACENSIS BORNENSIS Riley

*Anthreptes malacensis bornensis* RILEY, Proc. Biol. Soc. Washington, vol. 33, 1920, p. 55 (Po Bui Island, Sandakan, British North Borneo).

One adult male, one immature male, and three females, Pulo Raboe Raboe, May 4 and July 27; two adult males, one immature male, and three females, Pulo Pandjang, May 2; one adult male and one fe-

<sup>23</sup> Fauna Brit. India, Birds, vol. 3, ed. 2, 1926, p. 373.

<sup>24</sup> Proc. U. S. Nat. Mus., vol. 64, Art. 22, 1924, p. 4.

male, Pulo Samama, April 21 and 22; five adult males, one immature male, and seven females, Pulo Derawan, April 25 and July 22-26; three adult males and one female, Pulo Eraban, June 12 and 13; one adult male, Pulo Miang Besar, September 10.

The specimens from the northern islands of the group, Raboe Raboe, Pandjang, Samama, and Derawan, seem to agree with specimens from north Borneo. The birds from Eraban and Miang Besar are somewhat smaller, especially the bill, and the cheeks are olivaceous with little or no reddish wash. Specimens from the Mahakkam River region are smaller than typical north Bornean birds and the cheeks are more olivaceous with little or no reddish wash. With the latter the Eraban specimens agree in size and color, which is only natural, Eraban being only a little more northern and barely separated from the main island at high tide.

The average measurements in millimeters of the males of the above series are as follows:

	Wing	Tail	Culmen
10 males, north Borneo.....	68. 2	47. 7	18
8 males, Derawan and adjacent islands.....	67. 9	46. 4	17. 8
7 males, east central Borneo.....	66. 9	43. 9	16. 8
4 males, Eraban and Miang Besar.....	65. 4	43	16. 7

#### 41. ANTHREPTES MALACENSIS MJOBBERGI Bangs and Peters

*Anthreptes malacensis mjobbergi* BANGS and PETERS, Occasional Papers Boston Soc. Nat. Hist., vol. 5, 1927, p. 240 (Maratua).

Three males and five females, Pulo Maratua, May 13-24; one male and two females, Pulo Bakungan, May 18.

This form is not so well differentiated from typical *A. m. bornensis* from north Borneo as the original description would lead one to infer. It averages slightly larger but the cheeks and postocular region are hardly more reddish. The male from Bakungan has a slightly smaller bill, but seems to agree, otherwise, with this form. Two of the males from Maratua are in rather worn plumage and the measurements are smaller than those given by the original describers. The four males measure: Wing 67.5-72 (69.5); tail, 45-47 (46); culmen, 17.5-19 (18.5).

## Family GRACULIDAE

## GLOSSY STARLINGS

## 42. LAMPROCORAX PANAYENSIS ALIPODIS Oberholser

*Lamprocorax panayensis alipodis* OBERHOLSER, Journ. Wash. Acad. Sci., vol. 16 1926, p. 516 (Pulo Pandjang, Borneo).

*Aplonis panayensis suggrandis* BANGS and PETERS, Occasional Papers Boston Soc. Nat. Hist., vol. 5, 1927, p. 241 (Maratua).

Two males and two females, Pulo Pandjang, May 2; one male, Pulo Derawan, July 26; two males, Pulo Maratua, May 13-24.

All the above appear to belong to one form. *L. p. alipodis* is intermediate between *L. p. panayensis* of the Philippines and *L. p. neglectus* of Celebes, but in color nearer the latter; it is somewhat larger than either. The difference is not great, however. The five males measure: Wing, 110-115.5 (113); tail, 73-82.5 (77.7); culmen, 19-21.5 (20.5). Ten males of *L. p. neglectus*: Wing, 106-112.5 (109.2); tail, 71-77.5 (74); culmen, 19-22 (20.5). *L. p. panayensis* is of about the same size as *L. p. neglectus* but it is a brighter, more coppery green above. *L. p. alipodis* is duller above possibly even than *L. p. neglectus*, but the difference is very slight.

## Family ORIOLIDAE

## ORIOLES

## 43. ORIOLUS XANTHORNUS TANAKAE Kuroda

*Oriolus xanthornus tanakae* KURODA, Tori, vol. 4, No. 19, 1925, p. 3 (Tawao, Brit. N. Borneo).

One adult male and one adult female, Pulo Raboe Raboe, May 6 and July 27; one adult male and one adult female, Pulo Eraban, June 12.

The principal difference between this form and *Oriolus xanthornus xanthornus* is the much smaller size of *tanakae*; the two males of the latter measure: Wing, 128-130; tail, 75.5-77; culmen, 28-28.5. The two males have no yellow at the tips of the primaries, but the female has a slight yellow margin at the tip from the fifth inwards. Otherwise the female is much like the male, except there is more black in the tail, the black beginning on the fourth feather instead of the fifth.