NEMOURIA

*Occasional Papers of the Delaware Museum of Natural History*

NUMBER 9 JANUARY 9, 1973

# SOUTH SULU ARCHIPELAGO BIRDS

## AN EXPEDITION REPORT

*John E. duPont*
and
*Dioscoro S. Rabor**

## INTRODUCTION

The Delaware Museum of Natural History and Mindanao State University Expedition to the south Sulu islands (see Itinerary, Table 1) recorded 147 species of birds, 33 of which represent range extensions, including the first Philippine records of *Hemiprocne longipennis harterti, Caprimulgus macrurus salvadorii, Halcyon coromanda rufa,* and one unidentified *Rhinomyias,* with the senior author being responsible for the taxonomic accounts. The junior author is responsible for the ecological accounts. The latter led the field party and has also contributed many heretofore unpublished field notes about Philippine birds.

### Acknowledgments

For their assistance, we wish to thank Dr. Dean Amadon and Mrs. Mary Le Croy of the American Museum of Natural History, Dr. Richard L. Zusi of the United States National Museum, Dr. Charles Sibley of the Yale Peabody Museum, and Ms. J. Apfelbaum of the Academy of Natural Sciences of Philadelphia. We are grateful to Dr. Kenneth C. Parkes of the Carnegie Museum and Dr. John P. Hubbard of the Delaware Museum of Natural History for reading this paper.

*Research Professor in Biology and Director, Museum of Natural Science, Mindanao State University; and Research Associate, Delaware Museum of Natural History

Library of Congress
Card No. 72-95130

**Table 1: Itinerary of the Sulu Archipelago Biological Expedition**

| | |
|---|---|
| Sept. 20, 1971 | Departure from Mindanao State University, Marawi City, for Sanga Sanga Island, where the main headquarters of the expedition party was to be established. |
| Sept. 21 | Arrival in Dumaguete City. Final preparations for expedition completed, including acquisition of more trained personnel, regular members of previous biological expeditions, and much-needed supplies. |
| Sept. 29 | Arrival in Jolo, Sulu. Conferences with provincial officials concerning operations on various islands; acquisition of necessary identification papers; departure for Bongao Municipality, Bongao Island, Tawitawi Group. |
| Sept. 30 | Arrival in Bongao. Expedition party immediately proceeds to Barrio Pag-asinan, Sanga Sanga Island, Tawitawi Group; main camp and headquarters established. |
| Oct. 1 to Dec. 24 | Sanga Sanga Island: collections and studies of Philippine terrestrial vertebrates, especially birds and mammals. |
| Oct. 9 to 14 | Bongao Island, Tawitawi Group: collections and studies. |
| Oct. 12 to 21 | Simunul Island, Tawitawi Group: collections and studies. |
| Oct. 23 to 27 | Eastern localities of Sanga Sanga Island: collections and studies. |
| Oct. 28 | Departure of main party for Sibutu Island, Sibutu Group; established main headquarters at Tandu Banak. |
| Oct. 28 to Nov. 24 | Sibutu Island: collections and studies. |
| Nov. 20 | Omapoy Island, Sibutu Group: collections and studies. |
| Nov. 21 | Sipangkot Island, Sibutu Group: collections and studies. |
| Nov. 21 to 22 | Tumindao Island, Sibutu Group: collections and studies. |
| Nov. 23 | Saluag and Sikulan Islands, Sibutu Group: collections and studies. Short field work on southernmost tip of Sibutu Island, opposite Saluag Island. |
| Nov. 24 to 29 | Sanga Sanga Island: collections and studies in the localities not yet worked. |
| Nov. 30 | Departure of main collecting party for Batu Batu, on the southern half of Tawitawi Island. |
| Dec. 1 to 23 | Southern part of Tawitawi Island, including areas around Balimbing: collections and studies. |
| Dec. 24 | Departure for main headquarters in Barrio Pag-asinan, on Sanga Sanga Island. |
| Dec. 26 | Departure for Mindanao State University. |
| Jan. 3, 1972 | Arrival at Mindanao State University. |

# THE SULU ARCHIPELAGO

## Geographic, Physiographic, and Geologic Features

The Sulu Archipelago is comprised of some 400 islands of varying sizes and shapes located between 4°30′ and 5°20′ north latitude and 119°25′ and 121°52′ east longitude. It is bounded by the Sulu and Mindanao Seas on the west and north and by the Celebes Sea on the east and south.

The islands fall into seven island groups, namely:

(1) Samales Group or Tongkil (Tongquil)–Balanguingui Group, including the main islands of Tongkil, Balanguingui, Bucutua, Bulan, Bangalao, Simisa, Tatalan, and many islets;

(2) Jolo Group, including the main islands of Jolo, Pata, Cabucan, Capual, Bubuan, Pangasinan, Kamawi, Dongdong, Patian, and many islets;

(3) Pangutaran Group, including the main islands of Pangutaran, Panducan, North Ubian, Kulassein, Usada, and many islets;

(4) Tapul Group or Siasi-Tapul Group, including the main islands of Tapul, Siasi, Lugus, Lapac (Lapak), Cabinga-an, and many islets;

(5) Tawitawi (Tawi Tawi) Group, including the main islands of Tawitawi, Sanga Sanga, Tandubatu, Baliungan, Bongao, Simunul, Belatan (Bellatan, Bilatan), Tandubas, Secubun (Sikubung), Latuan, Mantabuan, Manuk Manka, and many islets;

(6) Sibutu Group, including the main islands of Sibutu, Tumindao (Tomindao), Omapoy (Omapui), Sipangkot, and the islets of Sikulan (Siculan), Saluag, and several others; and

(7) Cagayan Sulu Group, including the main island of Cagayan Sulu and several nearby islets such as Pamelikan, Mandah, and Muligi.

The last-named island group is situated quite apart from the other main groups of islands comprising the Sulu Archipelago, being located between the Jolo Group and Palawan Island, but quite a distance from either, and being surrounded by the Sulu Sea.

A typical islet in the Sulu Archipelago is a raised, perfectly flat coral shelf just above sea level. Very rarely there may be one or two low elevations that could be called hills; these are found frequently near the center. Seen from the air, the islets appear more numerous than shown on maps of the region. Many of the formations that appear as islands and islets are actually still in the process of being built up by the coral polyps and may actually be 1 meter or more below the sea surface. Even during the lowest tides of the year, these numerous islets are never fully exposed above sea level.

Tawitawi Island has a number of high mountains, such as Mt. Sibangkai (533 meters, P.C.G.S. Chart No. 2552). Smith (1924) considered the main mountain mass on Tawitawi as possibly ". . .volcanic but old."

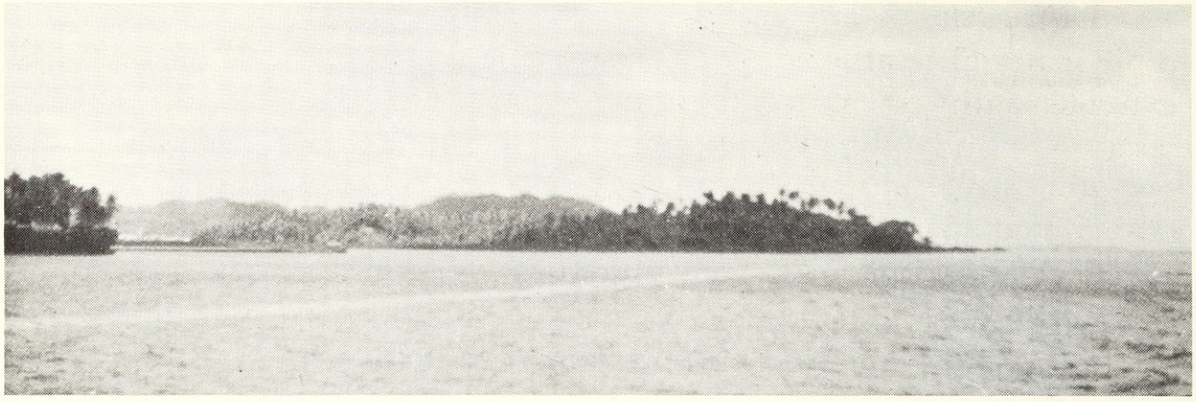

**Figure 1:** Coast of Sibutu Island, showing irregular terrain.

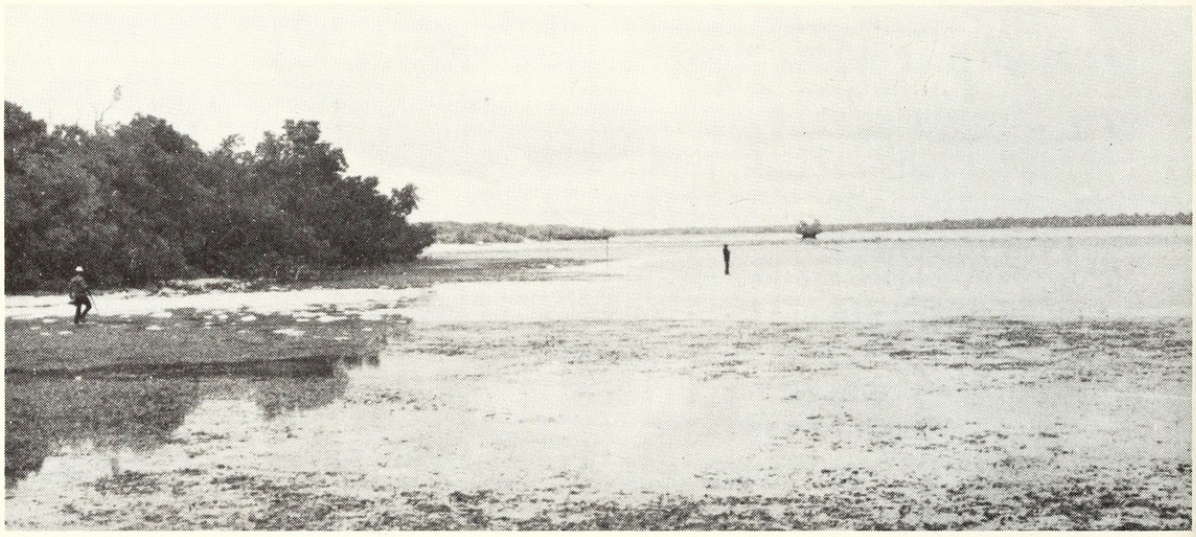

**Figure 2:** Tide flat of Tumindao Island, Sibutu Group, showing mangrove swamp and low tide flats.

In Smith's studies (1924) of the geologic features of the Sulu Archipelago, he wrote: "The striking feature about this little archipelago is of course the multitude of islets with innumerable little bays and proportionately great length of coast line. . . .In the Sulu Archipelago volcanism has played a very prominent role and for the most part is of more recent date than that in Mindanao. . . .Jolo Island, as far as I could see, is almost entirely blanketed by volcanic material, either basalt, tuff, or loose ash. . . .On Tawitawi the signs of recent volcanism are not so pronounced, and from what I have seen this island is largely made up of sedimentaries. . . .Tawitawi Mountain may be volcanic but old. . . .Siasi

and Lapac Islands are, as far as known, covered with a mantle of volcanic material weathered to a considerable depth. Bongao Island, at the extreme southwest end of Tawitawi, is made up largely of tilted beds of sandstones and conglomerate." Bongao Peak (300 meters) is at present already cultivated at its base and for about 100 meters up its slope. The top and higher elevations of the peak are still covered with a good growth of remnant forest vegetation, although it is no longer as extensive as the original forest vegetation that covered this area 30 or 40 years ago. Merrill (in Smith, 1924) noted that ". . .the long narrow island of Sibutu is merely a raised coral shelf just above sea level and is perfectly flat except for one hill in the center." Sibutu Hill (137 meters) is still covered with dense forest vegetation, especially close to and at the top.

Smith (1924) briefly summarized the geologic history of the Sulu Archipelago as follows: "A submarine bank, which may represent a mountain or an upthrust fault block, rose out of the sea, with alternate periods of submergence and elevation. Corals grew upon this platform, and at several points volcanic flows and fragmental material, such as tuff, were spread over the country. The period of greatest activity was probably in the Pliocene and Pleistocene. At this time there may have been a continuous land bridge between Mindanao and Borneo by way of the Sulu Islands. Then followed disruption due to subsidences, as indicated by atolls, and the bridge was broken. Volcanic activity in some quarters certainly continued until recently. The weathering of the volcanic formation has produced a heavy, ferruginous deposit not unlike the laterite of India."

There are a few more or less perfect atolls in the Sulu Archipelago, some of them with large lagoons in the center and others with only shallow depressions. Atolls are not common in the Philippines, but a few crater lakes are found on Jolo Island and on Cagayan Sulu.

Jolo is the largest island (624 sq. km.), followed in size by Tawitawi and Sibutu. Some of the other large islands are Siasi, Tapul, Lugus, Lapac, Bongao, Sanga Sanga, and Simunul. The rest of the islands and islets are small.

There is a lack of knowledge about the real distribution of the various forms of animals and plants in the Sulu region. This is especially true concerning the terrestrial vertebrates. The presence of shallow seas among the numerous islands and islets should not normally make it difficult for the natural dispersion of plants and animals. After all, the islands and islets, especially those that belong to a particular island group, are generally close to one another. The fact is, however, that there are quite a few terrestrial vertebrates, including birds, that have a very restricted distribution. It is possible that the restricted distribution

may be the secondary effect of the radically changed ecological conditions on most of the islands. Fifty or more years ago, when most of the islands were still covered with original vegetation and were not yet disturbed by man, these vertebrate forms might have been widely distributed; but, with the changed ecosystems, some of the forms must have become extinct.

## Ecologic and Biologic Features

Varying degrees of destruction have been wrought by man on the vegetation of the numerous islands of the Sulu Archipelago. All the larger islands, such as Jolo, Tawitawi, Sibutu, Sanga Sanga, Bongao, and many others, have their original vegetation covers already very much modified from what they must have been originally.

In spite of these varying degrees of destruction, the following original vegetation types can still be identified, especially on the larger islands: mangrove forest; beach forest; dipterocarp forest; modified dipterocarp-molave forest; and scrub forest, which is quite common on the tops and sides of hills and mountains.

***Mangrove Forest Type.*** On the larger islands of the Sulu Archipelago there are still extensive areas of mangrove forests thriving. Generally, these areas are more extensive than on other islands of the Philippines. They occur in the swampy areas off the shores, along the coasts, and well inside the islands where there are freshwater streams of some size coming from the interior and draining into the sea. In many of these

**Table 2: Dominant Plant Species Occurring in Mangrove Swamps**

| Local name | Species | Family |
|---|---|---|
| Bakauan-lalaki | *Rhizophora candelaria* DC. | RHIZOPHORACEAE |
| Bakauan-babae | *R. mucronata* Lam. | " |
| Tangal, Tungog | *Ceriops tagal* (Perr.) | " |
| Malatangal | *C. Roxburghiana* Arn. | " |
| Busain | *Bruguiera conjugata* (Linn.) | " |
| Langarai | *B. parviflora* (Roxb.) | " |
| Pototan-lalaki | *B. cylindrica* (Linn.) | " |
| Pototan | *B. sexangula* (Lour.) | " |
| Pagatpat | *Sonneratia caseolaris* (Linn.) | SONNERATIACEAE |
| Pedada | *S. acida* Linn. | " |
| Api-api | *Avicennia officinalis* Linn. | VERBENACEAE |
| Nipa | *Nypa fruticans* Würmb. | PALMAE |

swamps the mangrove trees have attained much larger sizes than those on most of the other islands in the Philippines. The plant species listed in Table 2 are the dominant forms and occur most frequently in mangrove swamps, especially on the larger islands. Table 3 shows the plant species found in the drier areas of mangrove swamps, frequently in large numbers.

***Beach Forest Type.*** Beach forests thrive close to the coastal areas, beginning with the zone along the shoreline about 5 meters from the highest tide level and extending well into the interior of the islands, but never in elevations of more than about 2 to 3 meters above sea level. In the higher elevations and in places that are moist or even well watered, where the soil is not sandy-rocky, the ecological conditions no longer favor the development of a typical beach forest.

Beach forests are still found extensively along many coastal areas of the Sulu islands, both large and small. On many islands, however, like on most of the islands in other parts of the Philippines, the native inhabitants have totally cleared the original beach forest areas and planted them to coconuts (*Cocos nucifera* Linn.) and other crops.

**Table 3: Plant Species Occurring in Drier Areas of Mangrove Swamps**

| Local name | Species | Family |
|---|---|---|
| Tabau | *Lumnitzera littorea* (Jack) | COMBRETACEAE |
| Dungon-late | *Heritiera littoralis* Dryand. | STERCULIACEAE |
| Tabigi | *Xylocarpus granatum* Koenig | MELIACEAE |
| Piagao | *X. moluccensis* (Lam.) | " |
| Gapas-gapas | *Cumingia philippinensis* Vidal | BOMBACACEAE |
| Anibong | *Oncosperma tigillaria* (Jack) | PALMAE |
| Balatbat | *Licuala spinosa* Würmb. | " |
| Tigbau | *Acanthus ebracteatus* Vahl | ACANTHACEAE |
| Diliuariu | *A. ilicifolius* Linn. | " |
| Buta-buta | *Excoecaria agallocha* Linn. | EUPHORBIACEAE |
| Lagolo | *Acrostichum aureum* Linn. | POLYPODIACEAE |
| Sapinit | *Caesalpinia nuga* (Linn.) | LEGUMINOSAE |
| Calumbibit, Balugbog | *C. crista* Linn. | " |
| Orchid, Manan-aw | *Cymbidium* spp. | ORCHIDACEAE |
| Orchid, Manan-aw | *Dendrobium* spp. | " |
| Banghai | *Hydnophytum formicarum* Jack | RUBIACEAE |
| Banghai | *Myrmecodia echinata* Gaudich. | " |

Table 4 lists plant species that occur frequently in the beach forests of the numerous islands. Several plant species that are found in the drier portions of the mangrove swamps also thrive frequently in beach forests.

***Dipterocarp Forest Type.*** On the larger islands, especially Jolo, Tawitawi, and Sibutu, there are still good-sized areas of remnant original dipterocarp forest. These remnant patches are frequently found in the interior regions of these islands and grow on the sides and tops of hills and low mountains. In general, however, the inhabitants have already cleared most of the areas that were originally covered with dense growths of original dipterocarp forests. The largest and most intact areas of dipterocarp forests, many of which have not yet been touched by man, are found in the northern half of Tawitawi Island. Those in the southern half of this island, especially the areas close to the Batu Batu area, have been logged and eventually cleared fully, then planted to various crops, including rice (*Oryza sativa* Linn.), corn (*Zea mays* Linn.), cassava (*Manihot utilissima* Pohl.), and camote or sweet potato (*Ipomoea batatas* Linn.). Other minor crops are also planted in these cleared areas.

**Table 4: Plant Species Occurring in Beach Forests**

| Local name | Species | Family |
|---|---|---|
| Botong | *Barringtonia asiatica* (Linn.) | LECYTHIDACEAE |
| Putat | *B. racemosa* (Linn.) | " |
| Sapinit | *Caesalpinia nuga* (Linn.) | LEGUMINOSAE |
| Calumbibit, Balugbog | *C. crista* Linn. | " |
| Talisai | *Terminalia catappa* Linn. | COMBRETACEAE |
| Labusei (Sulu) | *Ochrosia littoralis* Merr. | APOCYNACEAE |
| Katang-katang | *Ipomoea pes-caprae* (Linn.) | CONVOLVULACEAE |
| Lagunding-dagat | *Vitex trifolia* Linn. | VERBENACEAE |
| Tiwi | *Dolichandrone spathacea* (Linn.) | BIGNONIACEAE |
| Balibago | *Hibiscus tiliaceus* Linn. | MALVACEAE |
| Banago | *Thespesia populnea* (Linn.) | " |
| Diliuariu | *Acanthus ilicifolius* Linn. | ACANTHACEAE |
| Pandan | *Pandanus tectorius* Solander | PANDANACEAE |
| Pandan | *Pandanus* spp. | " |
| Balatbat | *Licuala spinosa* Würmb. | PALMAE |
| Tikog | *Fimbristylis ferruginea* (Linn.) | CYPERACEAE |
| Bitaog, Palo maria de la playa | *Calophyllum inophyllum* Linn. | GUTTIFERAE |

The plant species listed in Tables 5a and 5b are frequently found in the remnant patches of original dipterocarp forests on the larger islands. The vegetation follows the three-story type of forest, with the tall dipterocarps forming the dominant forms in the tallest story.

In the interior regions of Sibutu Island there are still a few patches of remnant original dipterocarp forests of varying sizes. None of these patches is really extensive enough to approach closely the state of the original dipterocarp forests that must have covered this island originally. The greater parts of the well vegetated areas on this island are covered with second growth, modified dipterocarp-molave type and

**Table 5a: Important Dipterocarp Species Found in the Sulu Archipelago***

| Official common name | Local common name | Scientific name |
|---|---|---|
| Mindanao Palosapis | Baligan | *Anisoptera mindanensis* Foxw. |
| Malahagakhak | Balau | *Dipterocarpus affinis* Brandis |
| Basilan Apitong | Hagakhak | *D. basilanicus* Foxw. |
| Apitong | Balau, Apitong | *D. grandiflorus* Blanco |
| Hasselt's Panau | Balau | *D. hasseltii* Blume |
| Broad-winged Apitong | Balau | *D. speciosus* Brandis |
| Panau | Montalina | *D. vernicifluus* Blanco |
| Manggachapui | Oliva, Sagil | *Hopea acuminata* Merrill |
| Basilan Yakal | Dalindingan, Sagil | *H. basilanica* Foxw. |
| Magasusu | Ganon, Magususu | *H. mindanensis* Foxw. |
| Gisok-gisok | Gisok-gisok | *H. philippinensis* Dyer |
| Almon | Kalingtig, Malakayan | *Shorea almon* Foxw. |
| Guijo | Kloang, Gisok | *S. guiso* (Blanco) |
| Kalunti | Kalunti | *S. kalunti* Merrill |
| Yakal | Yakal | *S. astylosa* Foxw. |
| Mayapis | Balakbalakan, Malakayan | *S. squamata* (Turcz.) |
| Red Lauan | Kulian, Tampalasha | *S. negrosensis* Foxw. |
| Malaanonang | Bahai | *S. polita* Vidal |
| Tangile | Lauan Colorado | *S. polysperma* (Blanco) |
| Malayakal | Takpang, Gisoktakpang, Yakal-batu | *S. seminis* (De Vriese) |
| Tiaong | Malakayan | *S. agsaboensis* Foxw. |
| White Lauan | Malakayan | *Parashorea plicata* Brandis |
| Mindanao Lauan | Malakayan-colorado, Malakayan-blanco | *Pentacme mindanensis* Foxw. |
| Narig | Tampasak, Tapitong | *Vatica manggachapoi* Blanco |
| Tawi Tawi Narig | Tampasak | *V. papuana* Dyer |
| Narig | Lutub, Tapasuk | *V. blancoana* Merrill |

*Data from the Forest Research Division, Bureau of Forest Development, Republic of the Philippines.

scrub forests. Most of the areas along the coasts and even extending deep into the interior have already been planted to coconuts and other food crops, including cassava, camote or sweet potato, corn, and a little rice, both the lowland wet varieties and the upland types.

In many places on Sibutu the tall first-story species of dipterocarps have already been cut down by the inhabitants and utilized in building their houses and boats.

Inside the small patches of remnant original dipterocarp forests, the soil forming the forest floor is composed mainly of decaying plant and plant products or of humus. These deep humus deposits must have been laid down and formed from thousands of years of decaying forest trees and other vegetable matter. This type of soil at one time formed the forest floor of the various vegetation types, including even the beach forest areas along the coasts and the various original forest types that were found in the deeper parts of the island. Even the forests on the hillsides and hilltops had floors of humus. Presently, the soil that forms the floor of forests on the top and sides of the highest elevation of the island is still mainly humus. In other places, as the original dense forest covers were gradually cut down or thinned out by the settlers, much of the forest floor became exposed and then suffered the erosive actions of water, winds, and other factors that gradually swept it away layer by layer, leaving only coral sand and rocks, of which the island was originally composed. During the last 40 years or so, after the protective for-

**Table 5b: Plant Species Occurring in Dipterocarp Forests**

| Group | Species | Family |
|---|---|---|
| *Vines:* | | |
| Rattan | *Calamus* spp. | PALMAE |
| Climbing bamboo | *Schizostachyum* spp. | GRAMINEAE |
| Climbing pandan | *Freycinetia* spp. and *Pandanus* spp. | PANDANACEAE |
| Amlong | *Pothos* spp. | ARACEAE |
| *Epiphytes:* | | |
| Dapo | *Phalaenopsis* spp. and numerous other species with nonshowy flowers | ORCHIDACEAE |
| *Ground coverings:* | | |
| Rattan | *Calamus* spp. | PALMAE |
| Fern | *Dryopteris* spp., *Nephrolepis* spp., *Athyrium* spp., and others | POLYPODIACEAE |
| Herb | Many species | URTICACEAE |

est covers were gradually removed, fissures and cracks of varying dimensions developed extensively in all parts of the island, from the coasts to the interior and from the lowlands to the tops of the highest elevations. At present, every time there is a hard rain on Sibutu Island, the rain water is immediately absorbed by the coral sand, or else it immediately runs into the cracks and fissures and disappears under the ground, leaving the topsoil as dry as it was before the rain. Even inside the well vegetated areas on the island, the ground is extensively crisscrossed with a complex network of cracks and fissures, and the rain does not make the forest floor truly wet. Consequently, fruits and seeds that come from the tall-tree species in a typical dipterocarp forest have a difficult time germinating, not to mention flourishing. Thus, the forest patches do not seem to grow and increase in area at all. The forest soil has already become too sandy and coralline in most places; and, as a result, most of the vegetation on this island consists of scrub forests and second growth. There is only a sparse growth of tall trees that represents remnants of the original tall-tree dipterocarp forest type.

The original dipterocarp forest vegetation on Sibutu Island, as well as the other original types of forest vegetation, will never develop again under the prevailing ecological conditions. Second-growth forests and grasslands will take the place of what used to be original forest growths. In fact, the island can become even more barren if the inhabitants ever decide to cut down the remaining scrub and second-growth forests. Present conditions on the island point toward this possibility.

***Modified Dipterocarp-molave Forest Type.*** On some of the larger islands, including Jolo, Tawitawi, Sanga Sanga, and Bongao, a modified type of original vegetation that combines the characteristics of both the dipterocarp and molave types of forest vegetations is found on the hillsides and lower slopes of mountains, where the soil type is mainly coralline limestone. Many of the dominant tree species are those that belong to the typical molave type of forest vegetation; and the wide distances between trees, characteristic of this particular forest type, is also very apparent. Some dipterocarp species grow sparsely among the molave and other hardwood types of trees and are normally found only in patches of varying sizes. There is, however, no formation of a distinct three-storied or two-storied type of vegetation. The tall dipterocarp species are found frequently as sparse growths interspersed among the much lower molave-type tree species, and this tall-tree growth is frequently found on the more level areas and in the small valleys at the bases of hills and mountains.

At first glance the area appears as if it had been once cleared and is now recovering and developing the succession of vegetation that will

eventually reach a particular climax type. Upon more detailed study, however, one finds that the area is really still untouched and that it is actually covered with mixed growths of plants of the molave and dipterocarp forest types of vegetation, representing the climax types in this particular forest area. This mixed vegetation type must have been found originally on the larger islands of the Sulu Archipelago, such as on Lugus, Siasi, Lapac, and others. At present these islands no longer possess this particular type of original forest.

Table 6 shows the plant species that are found in the patches of modified dipterocarp-molave type of original forest vegetation. Some of the shrubs, herbs and grasses, and other plant species that form the undergrowth are mainly those that are also found in typical dipterocarp and molave forest types.

***Scrub Forest Type.*** In the areas on both the large and small islands that man has not yet cleared for cultivation, dense growths of low hardwood tree species still flourish extensively. The individual trees, on the average, are not large enough for construction purposes and the soil on which they grow is not really fertile enough for growing crops. Consequently, these scrub forests are still intact in many areas. In fact, on the small islands that are just a few meters above sea level, where the soil is predominantly coral sand and rock and is generally coralline, the entire island, from the seacoasts at elevations above the reach of the highest tides deep into the interior, the land is covered with dense growths of this scrub type of forest.

**Table 6: Plant Species Occurring in Modified Dipterocarp-molave Forests**

| Local name | Species | Family |
|---|---|---|
| Molave, Molauin | *Vitex parviflora* Juss. | VERBENACEAE |
| Lagundi group | *Vitex* spp. | " |
| Alagau | *Premna odorata* Blanco | " |
| Kamagong | *Diospyros discolor* Willd. | EBENACEAE |
| Isis | *Ficus ulmifolia* Lam. | MORACEAE |
| Balete group | *Ficus* spp. | " |
| Antipolo | *Artocarpus communis* Forst. | " |
| Apitong group | *Dipterocarpus* spp. | DIPTEROCARPACEAE |
| Palosapis group | *Anisoptera* spp. | " |
| Lawan group | *Parashorea* spp. | " |
| Guijo group | *Shorea* spp. | " |
| Pili group | *Canarium* spp. | BURSERACEAE |
| Malaruhat group | *Eugenia* spp. | MYRTACEAE |
| Dao group | *Dracontomelum* spp. | ANACARDIACEAE |

On the islands, especially the larger ones with quite high elevations in the interior, scrub forests also thrive luxuriantly. On the very tops of the mountain peaks on Jolo and Tawitawi, the scrub type of forest merges imperceptibly into what should be the mossy forest type, but this latter type is not in evidence—perhaps because of the small sizes of the islands in the Sulu Archipelago, coupled with the low elevations that most of them have attained and their continued exposure to the brisk, salty winds of the seas around them. Mossy forest types are, however, extensively developed on the ridges and peaks of high mountains on the islands of Luzon, Mindanao, Samar, Negros, and Leyte.

Table 7 lists a few of the dominant species found growing frequently in the scrub type of forest vegetation.

Many species of shrubs and herbs growing among the predominant low-tree species also grow in the surrounding areas that are occupied by second growth, parang, and even grassland.

Other areas on the various islands, especially on the larger ones, are already occupied by vegetation of different types that have replaced the original forest types after man cleared them and left them to grow to one kind of vegetation or another. The following vegetation types may be identified: secondary forest or second growth, parang vegetation, grassland and open-country vegetation, and cultivated areas.

On most of the islands, but especially on the larger ones, the secondary forest or second growth merges imperceptibly with the parang type of vegetation. Moreover, it is difficult to put distinct demarcation lines between the areas with parang type of vegetation and those that are grasslands. In many cases, even the cultivated areas are so neglected that they get mixed with the grassland, parang, or second-growth patches. Only the well-cared-for cultivated areas stand out in contrast with the surrounding countryside.

***Secondary Forest or Second-Growth Vegetation Type.*** The secondary forest or second-growth vegetation type is very common on the larger and well settled islands of the Sulu Archipelago. Large areas are cov-

**Table 7: Plant Species Occurring in Scrub Forests**

| LOCAL NAME | SPECIES | FAMILY |
|---|---|---|
| Alagau | *Premna odorata* Blanco | VERBENACEAE |
| Lagundi group | *Vitex* spp. | " |
| Lantana | *Lantana camara* Linn. | " |
| Isis | *Ficus ulmifolia* Lam. | MORACEAE |
| Alibangbang | *Bauhinia malabarica* Roxb. | LEGUMINOSAE |

ered with this vegetation type on Jolo, the southern half of Tawitawi, Sibutu, Sanga Sanga, Bongao, Siasi, Lugus, Lapac, and many others in the various island groups. A typical secondary forest or second-growth vegetation starts from the seacoasts where the beach forests were cleared sometime in the past, then temporarily cultivated by man for his crops, and eventually abandoned. It then extends into the interior, occupying the lowlands that have not been cultivated recently and continuing up the hillsides to the hilltops. It extends further into the interior and occupies the slopes of mountains. It covers the slopes and occupies even the ridges and tops of the mountains if they are not very high. In places where the inhabitants have made clearings within the secondary forests, patches of cultivated areas planted to corn, cassava, camote, and upland rice may be found. After three to five seasons, these cultivated patches may again be left idle. Eventually, they will be covered with second growth. Meanwhile the slash-and-burn farmers, or kaingeros, proceed to make new clearings in some other sites that have been covered with second growth. There is really no area in any particular locality that will be covered by secondary forests permanently because from time to time the inhabitants in that locality will make clearings inside these forests. All the plants in the area selected for kaingin clearing will be cut down and, when dry enough, will be burned. This cleared area will then be planted with food crops.

The average secondary forest or second growth is not covered with uniform dense growth throughout its entire extent. The trees, which are on the average of medium or low height with sparse growths of tall species, do not grow very close together; many shrubs and bushes grow among them. These lower growths may grow close to one another, and progress through them on foot is rather difficult. However, in other areas of the same secondary forest site, the shrub and bush growths may not be dense at all; thus progress will be easy.

The plant species shown in Table 8 are frequently found growing in secondary forests.

***Parang Vegetation Type.*** This vegetation type is really a mixture of grassland areas and patches of variable dimensions of second-growth vegetation. Large areas on many islands of the Sulu Archipelago, including lowlands, hillsides and hilltops, and mountain sides and summits, are covered with parang vegetation type. Typically, the area is covered with a wide expanse of grasslands, but distributed on this wide expanse of grass are tree growths forming definite islands in a sea of grass. Most of the time the tree growths are composed of second-growth tree, shrub, and bush species. When one is inside such a patch, he is really inside secondary forest surrounded by grassland. If allowed to develop without

**Table 8: Plant Species Occurring in Secondary Forests**

| Local name | Species | Family |
|---|---|---|
| Alagau | *Premna odorata* Blanco | VERBENACEAE |
| Teak | *Tectona grandis* Linn. | " |
| Lagunding-dagat | *Vitex trifolia* Linn. | " |
| Lagundi | *V. negundo* Linn. | " |
| Molauin, Molave | *V. parviflora* Juss. | " |
| Binonga | *Macaranga tanarius* (Linn.) | EUPHORBIACEAE |
| Binayoyo | *Antidesma ghaesembilla* Gaert. | " |
| Kamagong | *Diospyros discolor* Willd. | EBENACEAE |
| Isis | *Ficus ulmifolia* Lam. | MORACEAE |
| Balete group | *Ficus* spp. | " |
| Antipolo | *Artocarpus communis* Forst. | " |
| Nangka | *A. integra* (Thunb.) | " |
| Baluno | *Mangifera caesia* Jack | ANACARDIACEAE |
| Kalumpang | *Sterculia foetida* Linn. | STERCULIACEAE |
| Katurai | *Sesbania grandiflora* (Linn.) | LEGUMINOSAE |
| Ipil-ipil | *Leucaena glauca* (Linn.) | " |
| Alibangbang | *Bauhinia malabarica* Roxb. | " |
| Pandakaki (Pandacaqui) | *Tabernaemontana pandacaqui* Poir. | APOCYNACEAE |
| Talong-punai | *Datura metel* Linn. | SOLANACEAE |
| Konti | *Solanum nigrum* Linn. | " |
| Pingka-pingkahan | *Oroxylum indicum* (Linn.) | BIGNONIACEAE |
| Kapanitulot (along streams) | *Justicia gendarussa* Burm. | ACANTHACEAE |
| Aligango | *Hymenodictyon excelsum* (Roxb.) | RUBIACEAE |
| Bangkoro | *Morinda citrifolia* Linn. | " |
| Banghai (epiphyte) | *Myrmecodia echinata* Gaudich. | " |
| Sambong | *Blumea balsamifera* (Linn.) | COMPOSITAE |
| Sorghum | *Andropogon sorghum* (Linn.) | GRAMINEAE |
| Tiguas (Sulu) | *Coix lachryma-jobi* Linn. | " |
| Pungapung | *Amorphophallus campanulatus* (Roxb.) | ARACEAE |
| Butuan, Botoan, Butuhan | *Musa errans* (Blanco) Teodoro var. *botoan* Teodoro | MUSACEAE |
| Saguing, Banana | *Musa sapientum* Linn. (many varieties) | " |
| Saguing, Banana | *Musa paradisiaca* Linn. (many varieties) | " |
| Ikmo, Buyu | *Piper betle* Linn. | PIPERACEAE |
| Bunga | *Areca catechu* Linn. | PALMAE |
| Pugahan | *Caryota Rumphiana* Mart. var. *philippinensis* Becc. | " |
| Anibong, Takipan | *Caryota cumingii* Lodd. | " |
| Balatbat | *Licuala spinosa* Würmb. | " |
| Pandan group | *Pandanus* spp. | PANDANACEAE |

man's intervention, the parang will become real secondary forest by having the tree, shrub, and bush growths gradually but eventually take over the areas once occupied by grass growths.

The same species of trees, shrubs, and bushes that are characteristic of the average secondary forest or second growth are found commonly inside the patches of trees, shrubs, and bushes that are surrounded by grass growths. Grass species commonly found in parang vegetation type are shown in Table 9. Around the edges of the tree, shrub, and bush patches, the species listed in Table 10 may be found growing densely, especially in the areas that are close to marshy parts.

***Grasslands and Open-Country Vegetation Type.*** It is difficult to place distinct demarcation lines between a typical parang vegetation area and a grassland patch. On some of the islands, such as Jolo, Tawitawi (southern half), Siasi, Lapac, Lugus, and many of the larger islands, there are

**Table 9: Grass Species Occurring in Parang Vegetation**

| Local name | Species | Family |
|---|---|---|
| Kogon | *Imperata cylindrica* (Linn.) | GRAMINEAE |
| Kogon | *I. exaltata* Brongn. | " |
| Bikad-bikad (Sulu), Sambali | *Eleusine indica* (Linn.) | " |
| Talahib | *Saccharum spontaneum var. indicum* Hack. | " |
| Anos | *Schizostachyum lima* (Blanco) | " |

**Table 10: Plant Species Growing Around the Edges of Tree, Shrub, and Bush Patches**

| Local name | Species | Family |
|---|---|---|
| Biga, Badiang | *Alocasia macrorrhiza* (Linn.) | ARACEAE |
| Palauan | *Cyrtosperma merkusii* (Hassk.) | " |
| Tangan-tangan | *Ricinus communis* Linn. | EUPHORBIACEAE |
| Pandan group | *Pandanus* spp. | PANDANACEAE |
| Saguing, Banana | *Musa sapientum* Linn. (many varieties) | MUSACEAE |
| Saguing, Banana | *M. paradisiaca* Linn. (many varieties) | " |
| Butuan, Botoan, Butuhan | *M. errans* (Blanco) Teodoro var. *botoan* Teodoro | " |
| Abaca | *M. textilis* Neé | " |

wide tracts of grasslands and open country occupying the hills and the lower slopes of the higher mountains. In the same general areas there are also tracts of varying sizes that are covered with second growth or with scrub forest vegetation types. One can see, however, that the areas are not typical parang vegetation types. In the real grassland areas there are, at most, only sparse growths of the nongrass species.

Species found in grassland areas, with the grass forms comprising the largest part in any particular site, are shown in Table 11. In grassland areas that include marshy tracts within them, the plant species

**Table 11: Plant Species Occurring in Grassland Areas**

| Local name | Species | Family |
|---|---|---|
| Kogon | *Imperata cylindrica* (Linn.) | GRAMINEAE |
| Kogon | *I. exaltata* Brongn. | " |
| Talahib | *Saccharum spontaneum* Linn. var. *indicum* Hack. | " |
| Anos | *Schizostachyum lima* (Blanco) | " |
| Bikad-bikad (Sulu), Sambali | *Eleusine indica* (Linn.) | " |
| Batad-batadan | *Andropogon halepensis* (Linn.) var. *propinquus* (Kunth) | " |
| Tangan-tangan | *Ricinus communis* Linn. | EUPHORBIACEAE |
| Binayoyo | *Antidesma ghaesembilla* Gaertn. | " |
| Binonga | *Macaranga tanarius* (Linn.) | " |
| Tuba-tuba | *Jatropha curcas* Linn. | " |
| Pandakaki | *Tabernaemontana pandacaqui* Poir. | APOCYNACEAE |
| Lantana, Kanding-kanding | *Lantana camara* Linn. | VERBENACEAE |
| Alagau | *Premna odorata* Blanco | " |
| Kapanitulot | *Justicia gendarussa* Burm. | ACANTHACEAE |
| Sambong | *Blumea balsamifera* (Linn.) | COMPOSITAE |
| Ipil-ipil | *Leucaena glauca* (Linn.) | LEGUMINOSAE |
| Alibangbang | *Bauhinia malabarica* Roxb. | " |
| Katurai | *Sesbania grandiflora* (Linn.) | " |
| Aroma | *Acacia farnesiana* (Linn.) | " |
| Madre-cacao | *Gliricidia sepium* (Jacq.) | " |
| Dapdap | *Erythrina indica* Lam. | " |
| Banaba | *Lagerstroemia speciosa* (Linn.) | LYTHRACEAE |
| Hanagdong | *Trema amboinensis* (Willd.) | ULMACEAE |
| Bagalnga | *Melia candollei* Juss. | MELIACEAE |
| Biga, Badiang | *Alocasia macrorrhiza* (Linn.) | ARACEAE |
| Palauan | *Cyrtosperma merkusii* (Hassk.) | " |
| Pandan group | *Pandanus* spp. | PANDANACEAE |

listed in Table 12 are found growing among the grass species that are characteristic of the ordinary dry-soil grasslands.

***Cultivated Areas.*** Large tracts of what used to be occupied by beach forests, dipterocarp forests, and second growth have been planted to coconut. Thus, coconut areas extend from the seacoasts up to the lower slopes of the mountains on the larger islands. Among these coconut areas the inhabitants have their houses and, in addition, their small gardens planted to vegetables and various fruit trees. There are also wet rice fields, and these are usually found in the lowlands immediately behind the areas that were originally covered with beach forests. On the hillsides and hilltops, and even on the lower slopes of the mountains on the larger islands, there are cleared areas planted to upland rice, cassava, camote, and corn.

Along the edges of the farms good growths of secondary forest species flourish. Table 13 lists species usually found growing as hedges and divisions between clearings and cultivated fields.

**Table 12: Plant Species Occurring in Grassland Areas Containing Marshy Tracts**

| Local name | Species | Family |
|---|---|---|
| Bangkal | *Nauclea junghuhnii* (Miq.) | RUBIACEAE |
| Tambo | *Phragmites vulgaris* (Lam.) | GRAMINEAE |
| Balatbat, Tikog | *Fimbristylis ferruginea* (Linn.) | CYPERACEAE |

**Table 13: Species Found Growing as Hedges or Divisions Between Clearings and Cultivated Fields**

| Local name | Species | Family |
|---|---|---|
| Madre-cacao | *Gliricidia sepium* (Jacq.) | LEGUMINOSAE |
| Dapdap | *Erythrina indica* Lam. | " |
| Ipil-ipil | *Leucaena glauca* (Linn.) | " |
| Kamachiles, Kamanchiles | *Pithecolobium dulce* (Roxb.) | " |
| Hanagdong | *Trema amboinensis* (Willd.) | ULMACEAE |
| Tuba-tuba | *Jatropha curcas* Linn. | EUPHORBIACEAE |
| Duhat, Lomboy | *Eugenia cumini* (Linn.) | MYRTACEAE |
| Datiles, Ratiles | *Muntingia calabura* Linn. | TILIACEAE |
| Pugahan | *Caryota Rumphiana* Mart. var. *philippinensis* Becc. | PALMAE |
| Balete group | *Ficus* spp. | MORACEAE |
| Kapok | *Ceiba pentandra* (Linn.) | BOMBACACEAE |

## CONCLUSION

Tawitawi Island, especially in the northern half, still possesses the original vegetation types in relatively untouched condition. This island has still the richest terrestrial animal life of all the islands in the Sulu Archipelago, including even the much larger island of Jolo. Jolo has lost the greater area of its original vegetation, and many places have been left as either grasslands or barren wastes.

It is unfortunate that biological explorations and collecting could not have been made more extensively in the northern half of Tawitawi. Roving bands of outlaws who have found sanctuary among the densely forested hills and mountains made such explorations impossible. The southern half of this island has already been logged and cleared for cultivation by a large number of settlers. The original forest types of vegetation are found only in comparatively small patches on the hills and on mountain slopes and summits.

On the whole, the terrestrial vertebrate fauna on most of the forested islands of the Sulu Archipelago is still rich. It is a pity that there had never been thorough and detailed biological explorations and collections of the fauna and flora on most of the islands and islets of the Sulu Archipelago. Whatever collections have been made were carried out only on the larger islands and in very few places by the collectors of European and American scientific expeditions that worked in the Philippines while passing through the islands. Only the Delaware Museum—Mindanao State University Biological Expedition Party has explored and collected thoroughly on the islands of the Sulu Archipelago that are still covered with original forests of one type or other, even if found at present only in remnant patches.

The islands where biological explorations and collections were conducted include Sanga Sanga, Bongao, Simunul, Sibutu, Tumindao, Sipangkot, Omapoy, Saluag, and Tawitawi (southern half). The plan being followed was to work on the islands that were closest to Borneo during the earlier part of the work, and then proceed northeastward toward the main island of Jolo, thus covering most of the main islands in the Sulu Archipelago.

## FAMILY **FREGATIDAE** FRIGATEBIRDS

***Fregata minor minor* (Gmelin, 1789) and**
***Fregata ariel ariel* (G. R. Gray, 1845)**

LOCALITY RECORDS: Sanga Sanga (1 ♀; Oct. 4), Simunul (Oct. 16).

COMMENT: Man-o'-War Birds, or Frigatebirds, of these two species were commonly seen in flight as they fed over the seas among the islands of Sanga Sanga, Simunul, and Tawitawi. On the average there were always fewer *F. minor* than the smaller species, *F. ariel.*

The numbers of these birds always seemed to increase on the dates that (and even a few days after) typhoons were reported over the more northern Philippine islands. Strong winds of northeast monsoons caused a similar increase.

Examinations of the stomachs of six birds revealed from three to six flying fishes inside them.

One *F. ariel* was taken along the coast of Sanga Sanga on October 4, 1971, when typhoon "Barang" was over the region from Mindanao to Samar and Leyte. This bird bore band number 777-56927 of the Fish and Wildlife Service, Washington, D.C. It had been banded as a nestling on Howland Island, 15 October 1966, by the USNM.

Not previously recorded from the Sulu Archipelago.

LOCAL NAME: Ling-gisan (Tao Sug and Samal).

## FAMILY **ARDEIDAE** HERONS

***Butorides striatus javensis* (Horsfield, 1821)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Simunul.

COMMENT: The Little Mangrove Heron was common on the larger islands of the Sulu Archipelago, especially in the mangrove areas along the seashores and in the marshy and swampy parts. During low tide several birds of this species could frequently be seen actively feeding on small animals on the exposed muddy or sandy bottoms of the sea close to the coast. It was observed many times flying across the narrow channel between the islands of Bongao and Sanga Sanga. Interisland flights of this and other heron species must be commonplace in this region, with its numerous islands separated from one another only by narrow seas.

***Bubulcus ibis coromandus* (Boddaert, 1783)**

LOCALITY RECORD: Sanga Sanga (1 ♂; Oct. 1).

COMMENT: On the larger islands of the Sulu Archipelago flocks of about six to a dozen Cattle Egrets were frequently observed actively flying or feeding in the marshy and swampy open areas.

LOCAL NAMES: Bug-gak (Tao Sug) and Kal-lô (Samal).

***Egretta sacra sacra* (Gmelin, 1789)**

LOCALITY RECORDS: Sibutu (1♂, 1♀; Oct. 29, Nov. 15; gray phase), Sibutu (1♂; Nov. 17; white phase), Simunul (1♂, 1♀; Oct. 16 and 17; gray phase).

COMMENT: Birds of both the gray and white phases were observed commonly feeding on the exposed rocky tide flats around many of the numerous islands of the Sulu Archipelago. They occurred singly or at most in pairs, feeding on the small animals found among the rocks and on the exposed sea bottoms.

LOCAL NAME: Kal-lô (Sibutu Samal), especially referring to birds in the white phase.

***Ardea sumatrana sumatrana* Raffles, 1822**

LOCALITY RECORD: Omapoy (1♀; Nov. 20).

COMMENT: The Giant Heron was observed singly on the exposed tide flats on the shores of several Sulu islands, including Sibutu and the small islands around it (Omapoy, Saluag, Sipangkot, and Tumindao). It was difficult to approach because during low tide it always stayed on the exposed tide flats off stretches of coasts that were densely covered with mangrove forests.

Not previously recorded from the south Sulu Archipelago.

***Nycticorax caledonicus manillensis* Vigors, 1831**

LOCALITY RECORDS: Omapoy, Saluag, Sanga Sanga, Sibutu, Simunul, Sipangkot, Tawitawi (Batu Batu).

COMMENT: The Rufous Night Heron was frequently disturbed from its daytime roosts in tall trees having thick foliage and growing in dense forest patches or heavily forested areas. Very often birds roosted singly, but once in a while several birds (six to eight) roosted together. The same phenomenon had been observed several times in a number of localities on Mindanao and the Negros islands.

Not previously recorded from the south Sulu Archipelago.

## FAMILY ANATIDAE DUCKS

***Dendrocygna arcuata arcuata* (Horsfield, 1824)**

LOCALITY RECORD: Sanga Sanga (2♀; Nov. 8 and 12).

COMMENT: The Wandering Whistling Duck was frequently observed in flight over the marshy and swampy areas on the islands of Sanga Sanga, Sibutu, and Tawitawi. They occurred in pairs or in small flocks of about five to eight members. Several birds were often seen actively feeding and swimming in the lagoons found in the extensive marshes and swamps of Sanga Sanga and Tawitawi.

Not previously recorded from the south Sulu Archipelago.

***Aythya fuligula* (Linné, 1758)**

LOCALITY RECORD: Sanga Sanga (1 ♀; Nov. 4).

COMMENT: Not previously recorded from the southern Philippines. Several migrant ducks that could not be easily distinguished from the resident species were observed occasionally feeding singly in the lagoons and marshes. Only one was collected.

## FAMILY ACCIPITRIDAE HAWKS AND EAGLES

***Pernis celebensis steerei* Sclater, 1919**

LOCALITY RECORD: Tawitawi (Batu Batu; 1 ♀; Dec. 9).

COMMENT: The Barred Honey Buzzard was rare in the localities collected in, with the single specimen taken among the branches of a tall tree in remnant dipterocarp forest among the hills. The bird was most difficult to discern in the dense foliage.

***Elanus caeruleus hypoleucus* Gould, 1859**

LOCALITY RECORD: Sanga Sanga (1 ♂; Dec. 25).

COMMENT: The Black-winged Kite was seen just once—in open country where patches of forest vegetation of various sizes were interspersed with cleared areas and isolated tall trees. When first sighted, the bird was perching on one of the top branches of a moderately tall tree that stood alone in an otherwise open area grown to tall grass.

***Haliastus indus intermedius* Blyth, 1865**

LOCALITY RECORDS: Sanga Sanga (Dec. 25), Sibutu, Simunul.

COMMENT: The Brahminy Kite was commonly seen on all the larger islands and on many of the smaller ones in the southern region of the Sulu Archipelago. Sometimes two, or even three, individuals could be seen at the same time fishing over the narrow channel between Sanga Sanga and Bongao. The species definitely preferred to feed on fish in the areas worked in.

Occasionally a bird could be observed soaring at moderate height over the open country, both cultivated and grassland, where there were still some small patches of forest vegetation and trees. These kites would perch on the higher bare branches at the top of one of the taller trees, often staying on a perch for quite some time. A pair was in the habit of perching on a bare branch close to the top of a tall tree that grew on the lower parts of the almost vertical peak (2100 feet) on the northern end of Bongao.

LOCAL NAMES: Sam'bula-an' (Tao Sug) and Bel-lê (Sibutu Samal).

***Haliaeetus leucogaster* (Gmelin, 1788)**

LOCALITY RECORDS: Sibutu, Tawitawi (Batu Batu).

COMMENT: The White-breasted Sea Eagle was frequently seen in flight over open country and along the coastal areas of Bongao, Sanga Sanga, Sibutu, and Tawitawi, as well as over the seas around these islands.

***Spilornis holospilus* (Vigors, 1830)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Serpent Eagle was seen fairly frequently in soaring flight on the larger islands; its characteristic notes could not be mistaken for those of any other bird of prey. Occasionally it was also seen perching on some tall, dead tree trunk or on a bare branch at the top of a tall tree in cleared or open country. More often than not, the bird would be feeding on a snake that it had clasped in its claws and was gradually cutting to pieces for swallowing.

***Accipiter gularis* (Temminck and Schlegel, 1845)**

LOCALITY RECORDS: Sanga Sanga, Sibutu.

COMMENT: The Asiatic Sparrow Hawk was occasionally encountered on Sanga Sanga, Sibutu, and Tawitawi. Its shy habits made it difficult to see in the foliage of the tree where it perched.

The present specimens were collected either inside the well forested areas or in the heavily foliaged trees of moderate height inside the dense patches of forest vegetation in otherwise open country.

***Accipiter soloensis* (Horsfield, 1821)**

LOCALITY RECORDS: Bongao (Oct. 19 and 25), Sanga Sanga (Oct. 7, Nov. 27), Sibutu (Nov. 1), Tawitawi (Batu Batu; Dec. 9).

COMMENT: The Gray Frog Hawk or Chinese Hawk is fairly common on the larger southern Sulu islands, including Bongao, Sanga Sanga, Sibutu, and Tawitawi.

The birds were frequently encountered in open country with good-sized patches of forests. The birds preferred to stay in the upper branches of tall trees inside these patches or among the foliage of tall trees that grew sparsely in otherwise already open country.

This winter migrant is rather rare on the more northern islands of the Philippines. Not previously recorded from the south Sulu Archipelago.

***Butastur indicus* (Gmelin, 1788)**

LOCALITY RECORDS: Sibutu (Nov. 13 and 15), Tawitawi (Batu Batu).

COMMENT: The Gray-faced Buzzard was seen occasionally as it flew from tree to tree in open country, frequently perching on the higher branches of the taller trees left standing in the area. Several birds were seen perching on the fronds of the tall coconut palms around the edges of the cultivated fields.

## FAMILY **MEGAPODIIDAE** MEGAPODES

***Megapodius freycinet pusillus* Tweeddale, 1877**

LOCALITY RECORDS: Sanga Sanga, Sibutu, Tawitawi (Batu Batu).

COMMENT: The inhabitants of the area, especially the larger southern Sulu islands, were familiar with this megapode and told the collectors about its habits. They reported digging the large eggs from inside the mounds of earth that are found on the forest floor, both inside the large tracts of virgin forests and in the remnant patches of forest vegetation.

Several adult birds were encountered by the collectors near the seashores, well into the interior, and even on the slopes of some of the hills and low mountain peaks, such as on Sibutu and Tawitawi. More often than not, the birds disappeared rapidly into the dense growth, mainly by running into the undergrowth but sometimes by flying low among the trees.

LOCAL NAME: Tambon (Samal).

## FAMILY **PHASIANIDAE** PHEASANTS

***Coturnix chinensis lineata* (Scopoli, 1786)**

LOCALITY RECORDS: Sanga Sanga, Tawitawi (Batu Batu).

COMMENT: The Painted Quail was not as common in the open grasslands and cultivated areas on the various islands as it was in similar habitat on the more northern islands of the Philippines.

## FAMILY **RALLIDAE** RAILS

***Rallina eurizonoides eurizonoides* (Lafresnaye, 1845)**

LOCALITY RECORD: Sanga Sanga.

COMMENT: The few specimens of the Philippine Banded Crake were all taken on the forest floor inside the dense patches of remnant original forest vegetation.

***Poliolimnas cinereus ocularis* Sharpe, 1894**

LOCALITY RECORD: Sanga Sanga.

COMMENT: The White-browed Rail was commonly seen walking and feeding among the grass and weeds growing along the edges of the la-

goons, in the marshy and swampy areas, and even on the muddy floor of the mangrove forests on the larger islands, including Bongao, Sanga Sanga, Sibutu, Simunul, and Tawitawi.

***Amaurornis phoenicurus javanicus* (Horsfield 1821)**

LOCALITY RECORDS: Sanga Sanga, Tawitawi (Batu Batu).

COMMENT: The White-breasted Swamphen was very common on the larger Sulu islands and could often be seen walking unhurriedly on the ground in well cultivated areas, second growth forest patches, and grasslands. It was often seen sedately crossing well used roads in the barrios, and it could always be found in the marshy and swampy areas, as well as on the beaches in the immediate vicinity of mangrove swamps and mangrove forest patches.

The bird's loud notes were frequently heard, especially during the early morning and late afternoon.

LOCAL NAME: Sai-ko-kwak (Tao Sug and Samal).

***Fulica atra atra* Linné, 1758**

LOCALITY RECORD: Sanga Sanga (1 ♀; Dec. 7).

COMMENT: To date, the Black Coot has been recorded in the Philippines only twice—once from Luzon and once from Negros. It has not been previously recorded from the south Sulu Archipelago. Our collectors encountered it only once: in a large marsh close to the seashore on the island of Sanga Sanga.

## FAMILY **CHARADRIIDAE** PLOVERS

***Pluvialis squatarola* (Linné, 1758)**

LOCALITY RECORDS: Saluag (1 ♀; Nov. 23), Simunul (2 ♀; Oct. 20).

COMMENT: During low tides, when wide areas of the tidal flats were exposed around the large and small islands in the southern part of the Sulu Archipelago, hundreds of winter migrant shore birds belonging to many species were frequently seen feeding actively on the exposed muddy and sandy sea bottoms. The Black-bellied Plover or Gray Plover was often observed in these places, usually in flocks of four to six members. More rarely it was seen singly or in pairs. The exposed tide flats around some localities of Saluag, Sikulan, and Simunul were favorite areas where thousands of winter migrants regularly fed. As the tide came in, flocks with 50 or more birds in each gradually dispersed and flew to other parts of the same island or to other islands.

Not previously recorded from the south Sulu Archipelago.

LOCAL NAMES: Paeng-peng (Tao Sug) and Pem-peng (Samal).

***Pluvialis dominica fulva* (Gmelin, 1789)**

LOCALITY RECORDS: Bongao (3♂, 3♀; Oct. 13-19), Sanga Sanga (3♂, 3♀; Oct. 2-26), Sibutu (1♂, 2♀; Nov. 5-13), Simunul (1♂, 1♀; Oct. 16-19).

COMMENT: The Pacific Golden Plover was frequently seen in flocks of about 12 to 50 or even more. The birds were very active, flying about from site to site over the broad, exposed tide flats during low tides. Flocks of this species were also met with along the seashores, in the open marshy and swampy areas, and even in newly plowed fields quite far from the coasts.

***Charadrius dubius curonicus* Gmelin, 1789**

LOCALITY RECORD: Sibutu (1♀; Nov. 3).

COMMENT: The Ring-necked Plover was not as abundant as the larger species of plovers on the islands in the southern regions of the Sulu islands. One or two birds were occasionally observed feeding on the sand or gravel tide flats where other shore birds were also feeding.

Not previously recorded from the south Sulu Archipelago.

***Charadrius alexandrinus dealbatus* (Swinhoe, 1870)**

LOCALITY RECORDS: Saluag (1♂; Nov. 6), Sibutu (1♀; Nov. 3).

COMMENT: The Kentish Plover, like *C. dubius curonicus*, was rarely seen in the localities where large numbers of other winter migrant shore birds were regularly seen. One or two birds of this species were occasionally seen on the sand and gravel beaches around the islands of Saluag, Sanga Sanga, Sibutu, and Simunul, especially during high tides.

Not previously recorded from the south Sulu Archipelago.

***Charadrius leschenaultii* Lesson, 1826**

LOCALITY RECORDS: Bongao (2♀; Nov. 13 and 19), Saluag (2♂; Nov. 23), Sibutu (3♀; Nov. 1, 3, and 12), Simunul (2♀; Oct. 16 and 17).

COMMENT: The Large Sand Plover was very common on the exposed tide flats around many islands and was seen feeding among large numbers of winter migrant shore birds of other species. These plovers usually flew about in large flocks of about 12 to 24 members.

Not previously recorded from the south Sulu Archipelago.

***Charadrius veredus* Gould, 1848**

LOCALITY RECORD: Sibutu (1♂; Nov. 13).

COMMENT: The Oriental Dotterel was seen only a few times on the exposed tide flats in parts of Sibutu and the nearby small islands of Saluag and Sikulan. It was difficult to approach and was frequently met

with singly among the usually large numbers of shore birds of many species.

Not previously recorded from the south Sulu Archipelago.

## FAMILY **SCOLOPACIDAE** SANDPIPERS

***Numenius phaeopus variegatus* (Scopoli, 1786)**

LOCALITY RECORDS: Bongao (1♂; Oct. 12), Saluag (4♂, 6♀; Nov. 23), Sanga Sanga (2♀; Oct. 2 and 7), Sibutu (2♂, 2♀; Nov. 3, 5, 7, and 13), Simunul (1♂, 2♀; Oct. 19 and 29), Sipangkot (1♂; Nov. 21).

COMMENT: The Whimbrel occurred in areas of exposed shores at low tide in flocks of about seven to 12 or more. It preferred the edges of the receding waters and frequently waded into the shallow water to feed. The flight of a flock was often accompanied by the loud calls of the members as they moved from one feeding site to another. Large numbers of Whimbrels often gathered in muddy exposed areas of the marshes, preferring those not very far from the coast. When disturbed, a solitary individual habitually took flight, soon followed by a number of nearby birds; these formed a flock that would often leave the feeding area and alight somewhere else, leaving other birds of the same species to continue their feeding activities.

Not previously recorded from the south Sulu Archipelago.

LOCAL NAME: Ko-hek (Samal).

***Numenius arquata orientalis* C. L. Brehm, 1831**

LOCALITY RECORD: Saluag (1♀; Nov. 23).

COMMENT: The Common Curlew was rarely seen on the islands visited. Solitary individuals were occasionally observed feeding on the exposed tide flats and in shallow waters at sites frequently far from the shores and without vegetation or cover of any sort nearby. The bird was difficult to approach, and it often stayed apart from the rest of the birds feeding in the same area.

Not previously recorded from the south Sulu Archipelago.

LOCAL NAME: Ko-hek (Samal).

***Numenius madagascariensis* (Linné, 1766)**

LOCALITY RECORD: Saluag (1♀; Nov. 23).

COMMENT: The Long-billed Curlew, like *N. arquata,* was rare in the islands visited, being seen only in the open tide flats of Saluag Island, far out in the open area near the sea.

The bird was actively wading in the shallow waters, running with its neck outstretched and its bill pointing downward after some prey in the water.

Not previously recorded from the south Sulu Archipelago.

LOCAL NAME: Ko-hek (Samal).

***Limosa lapponica baueri* Naumann, 1836**

LOCALITY RECORDS: Saluag (2♂, 1♀, Nov. 23), Simunul (1♀; Oct. 17).

COMMENT: The Bar-tailed Godwit was often observed feeding on the exposed tide flats, either in pairs or in small flocks of up to seven or eight birds, especially around the tiny islands of Saluag and Sikulan. Occasionally the species was met with in the marshes of Sanga Sanga and on the exposed seashores of Sibutu and Simunul.

Not previously recorded from the south Sulu Archipelago.

LOCAL NAME: Paempeng (Sibutu Samal).

***Tringa totanus eurhina* (Oberholser, 1900)**

LOCALITY RECORDS: Saluag (7♂; Nov. 6 and 23), Sibutu (1♂, 2♀; Nov. 5, 11, and 13), Simunul (2♂, 4♀; Oct. 16, 17, and 20).

COMMENT: The Redshank was common on the exposed tide flats and beaches of most of the islands, especially on Saluag, Sibutu, Simunul, and other tiny islets near Sibutu Island. This form was easily one of the most common winter migrant shore-bird species on the various islands of southern Sulu at the time.

Not previously recorded from the south Sulu Archipelago.

***Tringa nebularia* (Gunnerus, 1767)**

LOCALITY RECORD: Sibutu (1♂, 1♀; Nov. 9).

COMMENT: The Greenshank was rare among the large numbers of winter migrant shore birds that were feeding on the beaches and on the exposed tide flats of the various islands.

Not previously recorded from the south Sulu Archipelago.

***Tringa ochrophus* Linné, 1758**

LOCALITY RECORD: Sanga Sanga (1♂; Nov. 29).

COMMENT: The Green Sandpiper was rare: the single collected specimen was the only bird of this type encountered.

Not previously recorded from the south Sulu Archipelago.

LOCAL NAME: Ko-hek (Samal). All the medium-sized shore birds of the size of *T. ochrophus* were called "Ko-hek" by the Samals.

***Tringa glareola* Linné, 1758**

LOCALITY RECORD: Sanga Sanga (3♂, 2♀; Oct. 8).

COMMENT: This sandpiper was commonly encountered in the marshes and along the beaches, especially in the immediate vicinity of mangrove forests. Most of the time it went about singly among the other winter migrant shore birds.

Not previously recorded from the south Sulu Archipelago.

***Tringa hypoleucos* Linné, 1758**

LOCALITY RECORDS: Bongao (5♂, 5♀; Oct. 9, 10, 13, and 19), Sanga Sanga (3♂, 3♀; Oct. 2, 6, 22, and 25), Sibutu (4♂, 1♀; Oct. 29, Nov. 11 and 12), Simunul (1♂, 1♀; Oct. 17).

COMMENT: The Common Sandpiper was very common along beaches on all the larger islands, where it occurred singly. It was found in the marshy and swampy areas, along the banks of shallow freshwater streams quite far from the coast, on the exposed sandy patches close to the flowing water, in rivers, and even inside the dense forest stands along the shallow creeks.

Not previously recorded from the south Sulu Archipelago.

LOCAL NAME: Paemping (Sibutu Samal).

***Arenaria interpes interpes* (Linné, 1758)**

LOCALITY RECORDS: Saluag (1♂; Nov. 23), Simunul (1♂, 2♀; Oct. 18 and 19).

COMMENT: The Turnstone was frequently met with feeding on the beaches, on exposed tide flats, and in the marshes. It occurred in groups of seven to about one dozen members.

***Limnodromus semipalmatus* (Blyth, 1848)**

LOCALITY RECORD: Simunul (2♀; Oct. 17 and 20).

COMMENT: Two specimens of the Oriental Dowitcher were collected at low tide as they fed among the large numbers of winter migrant shore birds on the wide, exposed tide flats in one locality of Simunul Island. No other specimen was seen, but it is possible that this rare winter migrant shore bird also occurred along the numerous widely exposed tide flats in several localities of Bongao, Sanga Sanga, Sibutu, and the tiny islands around Sibutu.

***Calidris alba* (Pallas, 1764)**

LOCALITY RECORD: Saluag (1♂, 1♀; Nov. 6 and 23).

COMMENT: The Sanderling was rare among the large numbers of winter migrant shore birds.

Not previously recorded from the south Sulu Archipelago.

***Calidris ferruginea* (Pontoppidan, 1763)**

LOCALITY RECORD: Simunul (2♂, 1♀; Oct. 10 and 12).

COMMENT: The Curlew Sandpiper was occasionally seen feeding on the exposed tide flats during low tide. It was mixed with many species of winter migrant shore birds and was rather difficult to detect from so many other more common species, inasmuch as only one or two were seen at any one time.

Not previously recorded from the south Sulu Archipelago.

## FAMILY **GLAREOLIDAE** PRATINCOLES

***Glareola maldivarum* Forster, 1795**

LOCALITY RECORD: Sanga Sanga (1 ♀; Nov. 27).

COMMENT: The Pratincole was met only once—along the coast of Sanga Sanga.

Not previously recorded from the south Sulu Archipelago.

## FAMILY **LARIDAE** GULLS AND TERNS

***Chlidonias leucoptera* (Temminck, 1815)**

LOCALITY RECORD: Simunul (1 ♀; Oct. 17).

COMMENT: The White-winged Black Tern was not rare in the localities visited, inasmuch as several were often observed feeding with the large numbers of other terns on the schools of fish in the shallow seas around the islands of Bongao, Sanga Sanga, and Simunul.

Not previously recorded from the south Sulu Archipelago.

***Gelochelidon nilotica nilotica* (Gmelin, 1789)**

LOCALITY RECORD: Simunul (1 ♂, 3 ♀, 1?; Oct. 17 and 18).

COMMENT: Many Gull-billed Terns were regularly observed feeding over the exposed tide flats and shallow seas around Simunul. Several birds of this species were seen pouncing on the schools of fish that were common in the seas off Simunul. During low tides many terns belonging to this form could be seen perching on the exposed rocks and stranded tree trunks left by the receding tide.

Not previously recorded from the south Sulu Archipelago.

***Sterna anaethetus anaethetus* Scopoli, 1786**

LOCALITY RECORD: Sanga Sanga (1 ♂; Nov. 4).

COMMENT: The Brown-winged Tern was uncommon, being occasionally encountered mixed with larger numbers of *S. bergii cristata* flying low over the shallow seas between the islands of Sanga Sanga and Bongao and between Bongao and Simunul.

Not previously recorded from the south Sulu Archipelago.

***Sterna bergii cristata* Stephens, 1826**

LOCALITY RECORDS: Bongao (Oct. 14 and 24), Saluag (Nov. 6), Simunul (Oct. 17 and 18).

COMMENT: The Crested Tern was very common around the numerous islands of the southern Sulu Archipelago. It was easily the largest and most abundant of all the tern species in the entire sea and was often seen wheeling and flying in large numbers over parts of the seas between the islands. It pursued the schools of fish that were abundant in these areas.

## FAMILY **COLUMBIDAE** PIGEONS AND DOVES

***Treron pompadora everetti* (Rothschild, 1894)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Simunul, Tawitawi (Batu Batu).

COMMENT: The Sulu Pompadour Green Pigeon was fairly common on islands where there were still good patches of tree growth, either of remnant original vegetation or second growth. This form was often seen feeding on the fruits of tall trees growing at the edges of clearings in the interior. The birds went about in pairs or in small flocks of up to a dozen members. They usually flew in and out of the trees on which they were feeding, moving from one part to another in the same tree.

LOCAL NAME: Kangô (Tao Sug and Samal).

***Treron vernans vernans* (Linné, 1771)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Simunul, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Pink-necked Green Pigeon was common to the larger islands of the southern Sulu Archipelago. It was encountered even much more frequently than *T. pompadora everetti* and, in fact, was found more often than *T. pompadora everetti* among both the tall trees in remnant patches of tall-tree forest and in the low trees of scrub forest and second-growth vegetation, expecially those found growing at the edges of cultivations, from the coastal areas and into the interior. Occasionally a pair or a flock of these pigeons was seen in mangrove forests.

LOCAL NAME: Kangô (Tao Sug and Samal).

***Ptilinopus melanospila bangueyensis* (A. B. Meyer, 1891)**

LOCALITY RECORDS: Bongao, Omapoy, Sanga Sanga, Sibutu, Simunul, Sipangkot, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Black-winged Fruit Dove was very common in pairs

among trees both in the extensive forest stands and inside the remnant patches of forest from along the seacoast and deep into the interior, including the hills.

LOCAL NAMES: Kumof (Samal) and Manatad (Tao Sug).

***Ducula aenea aenea* (Linné, 1766)**

LOCALITY RECORDS: Bongao, Sibutu.

COMMENT: The Green Imperial Pigeon was observed on only the larger islands with good areas of dipterocarp forest or a modified dipterocarp forest type of vegetation. Unfortunately no specimens were taken on Tawitawi, although several small flocks of large pigeons, most likely of this form, were observed but never approached closely enough for collecting.

LOCAL NAME: Balud (Sibutu Samal and Visayan).

***Ducula pickeringii pickeringii* (Cassin, 1854)**

LOCALITY RECORD: Sipangkot.

COMMENT: The Gray Imperial Pigeon was rare: the single specimen taken was one of a pair and was feeding among the branches of a tall tree, one of several in a patch of remnant original dipterocarp forest on a small island still covered with good areas of this vegetation type. It was difficult to differentiate the behavior of the present form from that of the more common *D. aenea aenea.*

LOCAL NAME: Balud (Sibutu Samal).

***Ducula poliocephala nobilis* (Hachisuka, 1931)**

LOCALITY RECORD: Tawitawi (Batu Batu).

COMMENT: The Pink-bellied Imperial Pigeon was more often heard than seen, but it was not rare in the southern half of Tawitawi Island, especially in the localities where extensive dipterocarp forests were still found. It was a most difficult bird to locate, even if it called loudly among the dense foliage of the tall fruiting trees that it frequented.

LOCAL NAME: Balud (Tao Sug and Visayan).

***Ducula bicolor* (Scopoli, 1786)**

LOCALITY RECORDS: Sanga Sanga, Sibutu, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Nutmeg Imperial Pigeon was commonly observed feeding on both the tall and the low fruiting trees and flying about in flocks of a dozen or more members. This pigeon was widely distributed on the various islands, from the seacoast, into the interior, and up on the lower slopes of the mountains. The flocks, however, were more often

encountered in the lower elevations. The species was common on both the large and the small islands in the southern Sulu Archipelago.

Frequently, large flocks fed in separate regions of the larger islands and on some smaller islands. Several such flocks habitually came together late in the afternoon and stayed on small islands or islets, which usually consisted of low growths and some few trees of medium height. The pigeons, sometimes numbering 100 or more, usually roosted on a few selected trees, each tree sometimes having as many as five dozen or more birds. The birds perched on the branches close to one another, and in the resulting activities if one got disturbed and was dislodged from a branch, the others closed in immediately and the displaced bird had to look for another place.

Sometimes a few *Caloenas nicobarica* roosted among the greater numbers of *D. bicolor*. Before full daylight arrived, both pigeon species usually began to leave the roosting trees for feeding areas on the various larger islands.

LOCAL NAMES: Pifi-an (Samal) and Camasu (Visayan).

***Columba vitiensis griseogularis* (Walden and Layard, 1872)**

LOCALITY RECORDS: Sibutu, Tawitawi (Batu Batu).

COMMENT: The Metallic Wood Pigeon was not rare on Sibutu and Tawitawi, but only on rare occasions were foraging flocks of five to a dozen birds actually seen in flight; these occurred on feeding excursions over the dense dipterocarp forest stands on these islands. This pigeon was, however, disturbed rather frequently from feeding trees, especially on the island of Sibutu and particularly in the more interior regions at medium elevations on the hillsides.

LOCAL NAMES: Balud Itum (Visayan) and Balud (Sibutu Samal).

***Macropygia phasianella tenuirostris* Bonaparte, 1854**

LOCALITY RECORDS: Sanga Sanga, Tawitawi (Batu Batu).

COMMENT: The Slender-billed Cuckoo Dove was fairly common on the larger islands in the southern region of the Sulu Archipelago, especially among the patches of forest, both original and second growth, which were in the immediate vicinity of cultivated areas and other clearings. The birds usually went about in pairs and were frequently observed feeding on the fruits of both the low and high tree species.

LOCAL NAME: Tuba-on (Visayan).

***Streptopelia bitorquata dusumieri* (Temminck, 1823)**

LOCALITY RECORDS: Omapoy, Sanga Sanga, Sibutu, Sikulan, Simunul.

COMMENT: The Philippine Turtle Dove was rather common and well spread among the islands, both large and small. Its mournful call, "Tuk-m-m-m, Tuk-m-m-m," habitually repeated several times, was often heard coming from clearings and cultivated areas, from the coastal regions and well into the interior, and even among the hills.

These birds were often seen on the ground, especially among upland rice and other plants in the cultivated areas and clearings. When disturbed, they would fly to the nearest tree along the edges and stay there for some time before leaving the site.

***Streptopelia chinensis tigrina* (Temminck, 1810)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Tigrine Dove, or Spotted Dove, was more common and widespread among the islands of the Sulu Archipelago than *S. bitorquata dusumieri*. In fact, at present, *S. chinensis tigrina* has definitely become more widespread and more common in many Philippine localities, including the islands of Cebu, Mindanao, Negros, and Siquijor, where about 25 to 30 years ago it was rare and just beginning to establish itself. *S. chinensis tigrina* was originally found in the Philippines only on Palawan and on some Sulu islands (about 50 years ago). It has now replaced *S. bitorquata dusumieri* in most localities and habitat types on these islands. Where formerly *S. bitorquata dusumieri* used to be met with very commonly along the rural roads of those northern islands, *S. chinensis tigrina* is presently the more familiar sight.

In the bird banding project of the Migratory Animal Pathological Survey, sponsored originally by the U. S. Army Institute of Pathology and later by the U. S. Army Research and Development Group (Far East), the Central and Southern Philippine Bird Banding Team succeeded in recovering in southern Cebu two *S. chinensis tigrina* that were originally banded in southern Negros. These doves definitely move about widely on the islands and then fly across to close neighboring islands, especially when these islands are separated only by narrow seas. Such conditions exist between the islands of Negros and Cebu; between Negros and Siquijor; among the numerous Sulu islands; and among the northernmost Sulu islands, the island of Basilan, and the mainland of Mindanao in the southern region of the Philippines. These conditions also exist among the islands of the Dinagat and Siargao groups and the mainland of Mindanao on the Pacific Ocean side of the southern region.

It is not to be unexpected if *S. chinensis tigrina* eventually replaces *S. bitorquata dusumieri* in all the localities and habitat types on numerous islands of the Philippines.

***Chalcophaps indica indica* (Linné, 1758)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Simunul, Tawitawi (Batu Batu).

COMMENT: The Green-winged Ground Dove, although rarely seen, was fairly common on the various islands of the Sulu Archipelago, especially on those with good vegetation of various types, even if found only in patches. It frequents the ground (especially the forest floor) and the dense patches of vegetation, preferably along the sides of small, shallow creeks or even on their exposed bottoms during the dry season. It was found from near the coasts into the interior among the hills and low mountains. These doves were feeding on the fruits of the various shrubs and bushes of the undergrowth. On other Philippine islands, the birds habitually stay singly at a given feeding site, except during the breeding season from March to June when they form pairs.

LOCAL NAME: Manatad (Samal and Visayan).

***Caloenas nicobarica nicobarica* (Linné, 1758)**

LOCALITY RECORDS: Sanga Sanga, Tawitawi (Batu Batu).

COMMENT: The Nicobar Pigeon was not very rare on the islands of the Sulu Archipelago, especially on the larger ones, but the bird was most difficult to find, even if the trees were not really large. It occurred singly while feeding and often stayed on the forest floor, especially among the trees that grew in dense patches of original vegetation. On the forest floor it was very difficult to locate, even if one saw the exact site where it alighted. It was more often accidentally flushed from the forest floor, rather than intentionally located.

LOCAL NAME: Dondonai (Visayan).

## FAMILY PSITTACIDAE PARROTS

***Kakatoe haematuropygia* (P. L. S. Müller, 1776)**

LOCALITY RECORDS: Sanga Sanga, Simunul, Tawitawi (Batu Batu).

COMMENT: The Philippine Cockatoo was fairly common on the islands of the Sulu Archipelago, especially where there were still good patches of original vegetation. This species frequently flew about in flocks of six to a dozen members. The white plumage of the flock contrasted distinctly with the green of the countryside, so it was always easy to trace the whereabouts of a particular flock. The members of a flock also characteristically kept on giving out their loud, harsh and croaking notes, making it easy to locate the birds even while they foraged in dense vegetation. The flocks were observed feeding on low fruiting trees that grew in otherwise cleared and cultivated areas.

LOCAL NAME: Abucay (Visayan).

***Kakatoe moluccensis* (Gmelin, 1788)**

LOCALITY RECORD: Sibutu (1♀; Nov. 3).

COMMENT: The specimen matches specimens in the American Museum of Natural History from the Moluccas. This species should not be considered as a part of the Sulu avifauna.

The inhabitants of Sibutu Island, especially in the immediate localities of the barrio of Tandu' Banak, told us about a large cockatoo that they had seen flying among the dense vegetation in the interior. The local barrio captain later told us that in 1968 a large foreign boat, the *M/V Karina,* loaded with logs from Borneo, became stranded in shallow seas southeast of Sibutu Island. There were a number of birds of various species in this boat that were later released from their cages. For some time after the release of the birds, people reported that quite a few strange-looking birds never before seen on Sibutu Island were to be found in the interior regions. Perhaps the most distinct and interesting was this large cockatoo, which was collected by a member of the expedition.

***Prioniturus montanus verticalis* Sharpe, 1893**

LOCALITY RECORDS: Sanga Sanga, Sibutu, Tawitawi (Batu Batu).

COMMENT: The Sulu Crimson-spotted Racket-tailed Parrot was occasionally observed in pairs in high, fast flight over the densely vegetated areas of the larger islands in southern Sulu. Single birds or pairs were sometimes flushed from fruiting trees in the dense patches of remnant forests in the interior, especially on Sibutu and Tawitawi. This bird had the habit of feeding quietly in a fruiting tree and then suddenly taking off. While feeding, it climbs actively but silently among the branches, but one would not easily detect the bird from among the foliage.

LOCAL NAME: Tang-kil-lit (Sibutu Samal).

***Tanygnathus lucionensis salvadorii* Ogilvie-Grant, 1896**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Tawitawi (Batu Batu).

COMMENT: The Sulu Blue-naped Parrot was very common on the larger southern islands of the Sulu Archipelago and was frequently observed in pairs or in small flocks of up to 10 or a dozen members, which flew about as part of their feeding activities. Flocks often alighted on a tall, fruiting forest tree, while pairs or several birds would alight in a palm to feed on the young fruits. Once in a while one bird would give out with its loud, raucous notes, which would soon be answered by a similar call or calls not far away.

LOCAL NAME: Kangag si-si-kan (Sibutu Samal).

***Tanygnathus sumatranus burbidgii* Sharpe, 1879**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Tawitawi (Batu Batu).

COMMENT: The Sulu Blue-backed Parrot was just as common as *T. lucionensis salvadorii* on the larger islands of the southern Sulu Archipelago. It was frequently seen in pairs or in small flocks flying about on feeding excursions. The two species of parrots were difficult to differentiate in the field, except perhaps for the fact that the present form was more often encountered in well forested areas deeper in the interior of the islands and quite far from the coasts. Unlike *T. lucionensis salvadorii,* the Blue-backed Parrot was seldom seen in the coconut groves of the islands.

LOCAL NAMES: Kangag (Tao Sug and Samal) and Kangag Pató (Sibutu Samal).

***Loriculus philippensis bonapartei* Souance, 1856**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Tawitawi (Batu Batu).

COMMENT: The Sulu Hanging Parakeet was a common cage bird on the various islands of the Sulu Archipelago. The present form differs from the many others found in various parts of the Philippines by its black bill; the others have a red bill.

This bird was commonly seen or heard in coconut groves from the coastal areas into the interior, where it fed on the flowers of palms. It was also met with frequently in the dense patches of forest or even in trees that were still left standing in clearings. It was seen actively flying from treetop to treetop, often accompanying its flight with its characteristic musical notes.

LOCAL NAME: Ko-li-sí (Sibutu Samal).

## FAMILY **CUCULIDAE** CUCKOOS

***Clamator coromandus* (Linné, 1766)**

LOCALITY RECORDS: Sanga Sanga, Tawitawi (Batu Batu).

COMMENT: The two specimens of the Red-winged Crested Cuckoo, a rare winter visitor from China, were each taken in dense patches of remnant original vegetation in the interior of Sanga Sanga and Tawitawi.

***Cuculus micropterus micropterus* Gould, 1837**

LOCALITY RECORD: Sanga Sanga.

COMMENT: Specimens of the Short-winged Cuckoo were taken in dense brush where they were very shy and concealed themselves well.

***Cacomantis variolosus everetti* Hartert, 1925**

LOCALITY RECORDS: Sanga Sanga, Tawitawi (Batu Batu).

COMMENT: The Sulu Brush Cuckoo was not rare on the larger islands of the southern Sulu Archipelago, but its unobtrusive habits made it difficult to find except during the rare times that it gave out its loud and very characteristic notes. Nevertheless, although the bird called loudly, it was still difficult to locate, even while in full view of the observer. The notes of the Sulu bird were very closely similar to those of the other Philippine form, *C. v. sepulcralis,* found in the more northern islands of the Philippines.

***Chrysococcyx malayanus malayanus* (Raffles, 1822)**

LOCALITY RECORDS: Sanga Sanga (1♀), Tawitawi (2♀; Batu Batu).

COMMENT: Three specimens of the Malay Bronze Cuckoo were taken in densely foliaged trees of medium height growing in remnant patches of original vegetation in the interior. In each case, the bird was discovered as it moved from one branch to another in the same tree. It had very stealthy habits and would remain on a particular branch for long periods.

***Surniculus lugubris velutinus* Sharpe, 1877**

LOCALITY RECORDS: Bongao, Sanga Sanga.

COMMENT: The Drongo Cuckoo was seldom seen on the islands, but it was not really rare: its silence and its habits, like in most of the small forms of Philippine cuckoos, made it difficult to discover among the branches and dense foliage of a tree where it might be perching. It was often discovered only accidentally as it moved from one perch to another, or from one tree to another, and then it was most likely to be mistaken at first for a *Dicrurus.*

***Eudynamys scolopacea mindanensis* (Linné, 1766)**

LOCALITY RECORDS: Bongao, Omapoy, Sanga Sanga, Sibutu, Simunul, Sipangkot, Tawitawi (Batu Batu).

COMMENT: The Koel was a very common bird on all the Sulu islands, and its loud notes could be heard issuing from trees in well forested areas.

LOCAL NAMES: Bahaó, Kuahaó, and Kuhaó (Visayan).

***Centropus sinensis anonymous* Stresemann, 1913**

LOCALITY RECORD: Sanga Sanga.

COMMENT: The Common Coucal was met with frequently along the edges of clearings and on farms where there were still small patches of

original or second-growth forest. It was often observed in pairs and stayed in the low trees or in thickets.

LOCAL NAMES: Saguksuk (Tao Sug) and Kalungkong (Samal).

***Centropus bengalensis philippinensis* Mees, 1971**

LOCALITY NAMES: Bongao, Sanga Sanga.

COMMENT: The Lesser Coucal was occasionally met with in well cultivated areas, especially in the hills and at the base of the low mountain slopes. Birds were seen singly or in pairs in dense thickets or at the edges of second-growth forests with stands of tall grass distributed irregularly among them.

## FAMILY **CAPRIMULGIDAE** NIGHTJARS

***Caprimulgus macrurus salvadorii* Sharpe, 1875**

LOCALITY RECORD: Bongao (1 ♂; Nov. 26).

COMMENT: This race known from North Borneo is a new record for the Philippines. The present specimen compares favorably to near topotypical material.

A Long-tailed Nightjar was collected as it flushed from the forest floor in a dense patch of remnant original vegetation on the slope leading to the peak of Bongao Island. Nightjars were occasionally disturbed from the forest floor in the densely forested areas on Sanga Sanga and Sibutu. Nightjars in flight were also observed at times from a distance in the late afternoon as they flew over the cleared areas adjoining the well forested patches on Sanga Sanga, Sibutu, and Tawitawi.

## FAMILY **APODIDAE** SWIFTS

***Collocalia esculenta bagobo* Hachisuka, 1930**

LOCALITY RECORD: Bongao.

COMMENT: The Sulu form of the Glossy Swiftlet was frequently seen in flight over the larger southern islands of the Sulu Archipelago, including Bongao, Sanga Sanga, Sibutu, and Tawitawi. Large numbers of this swiftlet were found living and nesting inside the shallow caverns and crevices on the faces of the steep and sheer rocky cliffs of Bongao Island bordering the channel between Bongao and Sanga Sanga. Numerous likely sites for the possible roosting and breeding of this swiftlet were seen on many of the Sulu islands, both large and small.

## FAMILY **HEMIPROCNIDAE** TREE SWIFTS

***Hemiprocne comata major* (Hartert, 1895)**

LOCALITY RECORDS: Sanga Sanga, Sibutu, Tawitawi (Batu Batu).

COMMENT: The Lesser Tree Swift was not a rare bird on the larger islands in the southern Sulu Archipelago, although only a pair would frequently be found within a large area of combined clearings and patches of forest vegetation, especially in the interior. A pair would be seen perching on a bare branch of a medium-high tree growing in a clearing, but not far from the patches of forests. The pair would usually perch motionless on some bare branch, preferring the higher ones. They would fly after some insect food and then return to the same perch, or to one close by, unless disturbed. The pair would then fly to another tree, usually some distance away.

***Hemiprocne longipennis harterti* Stresemann, 1913**

LOCALITY RECORD: Sibutu (1 ♂, 1 ♀).

COMMENT: From a single observation it appears that the habits of this larger species of Tree Swift were little different from those of the Philippine form. These two were the only birds seen during the expedition.

The species is recorded for the first time in the Philippines.

## FAMILY **ALCEDINIDAE** KINGFISHERS

***Alcedo atthis bengalensis* Gmelin, 1788**

LOCALITY RECORDS: Sanga Sanga, Simunul.

COMMENT: The River Kingfisher was seen occasionally along the seashores and the banks of small freshwater streams in Sanga Sanga as it perched on low branches of shrubs or small trees and sometimes on the stilt roots of the mangrove. The species probably occurs on most of the Sulu islands, but its unobtrusive habits make it easy to miss among the vegetation.

There has never been a record of the breeding of this form anywhere in the Philippines, although the species is very widely distributed among the islands.

***Alcedo meninting verreauxii* De La Berge, 1851**

LOCALITY RECORDS: Sanga Sanga, Tawitawi (Batu Batu).

COMMENT: The Sulu form of the Malaysian Kingfisher was rare even on the two islands where it had been collected. Both specimens were taken along the banks of small freshwater streams in dense forest patches where *A. atthis bengalensis* would have been most likely to be found.

The species has a restricted distribution in the Philippines, being found only on Palawan and the small islands around it *(A. m. amadoni)* and in the Sulu Archipelago *(A. m. verreauxii).*

***Ceyx lepidus margarethae* Blasius, 1890**

LOCALITY RECORDS: Bongao, Sanga Sanga, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Variable Forest Kingfisher was fairly common in the forested areas of the larger Sulu islands, but its shy and silent habits made it difficult to discover. As on the other islands of the Philippines where this form had been found, the birds were seen in dense forests, perched often on the low branches of shrubs and bushes that formed the forest undergrowth, or on rocks, fallen tree trunks, and stumps often situated far away from any freshwater stream. When undisturbed, a bird would remain motionless on its low perch and then suddenly dart toward something moving close to or on the ground. It would then proceed to perch on another favorite branch, trunk, or stump in the area. One could find a particular bird perched on any one of its favorite perches in areas of the forest where this particular kingfisher was discovered.

***Pelargopsis capensis gigantea* Walden, 1874**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Simunul.

COMMENT: The Sulu Stork-billed Kingfisher was commonly encountered along the coastal areas of the Sulu islands, large and small, especially in the immediate vicinities of mangrove forests or beach forests. It was often seen perched motionless on the stilt roots of the mangrove trees along the seashores or along the edges of the larger streams close to or at their openings into the sea. Several individuals were seen with crabs or fish in their bills. A bird would pounce on a crab on the exposed muddy bottom and would then alight on a branch or stilt root of a mangrove tree to consume the prey there.

LOCAL NAME: Ba-kak'-ka (Samal).

***Halcyon chloris collaris* (Scopoli, 1786)**

LOCALITY RECORDS: Bongao, Omapoy, Saluag, Sanga Sanga, Sibutu, Simunul, Tawitawi, Tumindao.

COMMENT: The White-collared Kingfisher was commonly met with on the islands of the Sulu Archipelago regardless of size, especially in the cleared and cultivated areas from the seashores deep into the interior. It stayed along the beaches, inside coconut groves, on farms, and in open country with second-growth forest patches. Its loud notes were

often heard at all daylight hours, from morning until late afternoon. It was easily one of the most common bird species on any island in the Sulu Archipelago.

The birds were observed to feed on fish, crabs, shrimps, hermit crabs, snails and other mollusks, insects, and even lizards.

LOCAL NAMES: Bo'leng-bo'leng and Bo'leng (Samal).

***Halcyon coromanda rufa* Wallace, 1863**

LOCALITY RECORDS: Sanga Sanga, Tawitawi (Batu Batu).

COMMENT: Three specimens from the localities cited are referred to this race, previously unknown from the Philippines, mainly on the basis of size and, to a lesser degree, color. The wings (102, 112, and 114 mm.) and tails (55, 62, 66 mm.) are generally longer than *minor* and shorter than *sulana,* as measured by Mees (1970) in his recent description of the latter subspecies. Wing formulas of our specimens are also closer to *rufa,* as characterized by Mees, but this character complex seems variable in this suite of races and is perhaps of unsatisfactory value in subspecific diagnosis.

In color, our specimens resemble *rufa,* including having the rump azure-white, rather than essentially white as in the other two forms mentioned. On the other hand, there is an approach to *sulana* (based on its description: we have not seen specimens) in that our specimens are distinctly paler below and have bright magenta upperparts.

The Ruddy Kingfisher was rare even on the larger islands of the southern Sulu Archipelago. The three specimens were taken in large patches of dense forest, one away from any stream and the others quite close to a small freshwater creek. Strangely enough, in spite of its bright colors and large size, the bird was most likely to be overlooked in its surroundings of almost total green because of its shy and silent habits.

***Halcyon pileata* (Boddaert, 1783)**

LOCALITY RECORDS: Sanga Sanga (Pagasinan; 1♀), Sibutu (1♀).

COMMENT: The Black-capped Kingfisher was a rather rare winter migrant in the Sulu Archipelago at the time of collecting, from September to December 1971. The two collected specimens were taken in good-sized patches of original modified molave forest type of vegetation with large cleared areas nearby.

***Halcyon winchelli alfredi* Oustalet, 1890**

LOCALITY RECORDS: Bongao, Sanga Sanga, Tawitawi (Batu Batu).

COMMENT: The Sulu form of Winchell's Kingfisher was fairly common in the densely forested regions of the larger southern islands of Sulu.

From a distance, a casual observer could easily mistake a perching bird for the very common and widely distributed *H. chloris collaris,* except that the latter would not be found normally inside such dense forests.

The birds were often observed perching on the higher branches of the tall-tree species in forests and took wing immediately upon seeing someone nearby. Frequently it would move to a high branch of another tree some distance away and would then usually select a perch that was well covered with leaves.

## FAMILY **MEROPIDAE** BEE-EATERS

***Merops philippinus philippinus* Linné, 1766**

LOCALITY RECORD: Sanga Sanga (1 ♀).

COMMENT: Strangely enough, the Blue-tailed Bee-eater was met with very rarely and only on Sanga Sanga Island. In other parts of the Philippines, this bird is rather commonly seen in cultivated and open country, in the lowlands, and at medium elevations.

## FAMILY **CORACIIDAE** ROLLERS

***Eurystomus orientalis cyanocollis* Vieillot, 1819**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Tawitawi (Batu Batu).

COMMENT: The Dollar Bird was quite common on the larger southern Sulu islands and was often seen perching motionless for some time on a bare branch, usually at the top or close to the top of a tall tree in a clearing or at the edge of a forest patch. It preferred newly cleared country in low elevations. From its favorite perch it would catch insects on the wing or by hovering over or settling on the foliage of bushes, shrubs, and other lower growths in the open fields. More often than not, unless disturbed, it would return to its previous perch and consume the insect prey there.

## FAMILY **BUCEROTIDAE** HORNBILLS

***Anthracoceros montani* (Oustalet, 1880)**

LOCALITY RECORD: Tawitawi (Batu Batu; 1 ♀; Dec. 16).

COMMENT: The Sulu Hornbill was fairly common in the dipterocarp forests on Tawitawi Island, but it was most often seen at a far distance and could not be approached closely enough for collecting. A pair or more of this species would be seen feeding in tall fruiting trees inside dense original forest, typically on the slope of a mountain peak. The birds would remain there for quite some time and fly actively from one part of the tree to another. Once disturbed, the birds would fly, usually

one by one, to another part of the forest oftentimes a good distance from the former site and would then congregate again on some particular tree.

This species has not been recorded from the Sulu islands since the early 1930's (Alcasid, *in litt.*) and is thought to be extinct.

## FAMILY **PICIDAE** WOODPECKERS

***Dryocopus javensis suluensis* (W. Blasius, 1890)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Tawitawi (Batu Batu).

COMMENT: The Sulu White-bellied Black Woodpecker was fairly common on the larger and well forested southern Sulu islands. It was met with frequently in dense forests with cleared areas nearby. Occasionally it was also seen singly or in pairs pecking on the upright trunks of dead trees still left standing in the cleared patches in large areas of forest.

LOCAL NAME: Bulantok (Tao Sug and Sibutu Samal).

***Dendrocopos maculatus ramsayi* (Hargitt, 1881)**

LOCALITY RECORDS: Bongao, Tawitawi (Batu Batu).

COMMENT: The Sulu Pygmy Woodpecker was met with rarely on the larger Sulu islands, but its rarity may be more apparent than real because of its small size and unobtrusive habits. The bird, singly or in pairs, actively fed on the trunks of trees. It was met with in the clearings, cultivated areas, and forest edges on the larger islands of Bongao, Sanga Sanga, Sibutu, and Tawitawi, from the lowlands near the coasts, into the hills, and up the mountain slopes in the interior.

## FAMILY **PITTIDAE** PITTAS

***Pitta erythrogaster erythrogaster* Temminck, 1823**

LOCALITY RECORD: Sibutu.

COMMENT: The Red-breasted Pitta was met with rarely, even on Sibutu Island where two specimens were eventually collected, each on the ground in dark areas of original forest at the base of a heavily forested hill. The species was occasionally disturbed on the ground inside the dense second-growth patches, especially close to newly cleared areas. In all cases, the bird afforded the observer only momentary glimpses while it hopped actively on the forest floor prior to rapidly flying toward a darker and denser part of the forest.

The bird seemed to prefer the banks of small creeks with shallow water and with dense undergrowth growing under the tall trees border-

ing them, thus making the area really dark. The species was seen occasionally in the dense original and second-growth forests of Bongao, Sanga Sanga, and Tawitawi.

## FAMILY **HIRUNDINIDAE** SWALLOWS

***Hirundo rustica gutturalis* Scopoli, 1786**

LOCALITY RECORDS: Sibutu, Tumindao.

COMMENT: The Barn Swallow was frequently observed in flight over the islands and the sea close to the shores. It was common throughout practically all the Sulu Archipelago.

***Hirundo tahitica abbotti* (Oberholser, 1917)**

LOCALITY RECORDS: Sanga Sanga, Sibutu, Tawitawi (Batu Batu).

COMMENT: The Pacific Swallow was as common on the various islands of the Sulu Archipelago as the winter migrant, *H. rustica gutturalis.* This resident swallow was often observed actively feeding while in flight along the coastal areas and in the settlements. Occasionally, several of these swallows were also seen perching on bare branches of the low trees and shrubs that grow in the open country and at the edges of cultivated fields and clearings.

## FAMILY **CAMPEPHAGIDAE** CUCKOO-SHRIKES

***Coracina striata guillemardi* (Salvadori, 1886)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Simunul, Tawitawi (Batu Batu).

COMMENT: The Sulu Barred Graybird was common on the various southern Sulu islands, although it was not found in large numbers in any particular locality. From a distance, the harsh notes of a pair were often heard as the birds flew from treetop to treetop on well forested hillsides or in remnant forest patches. Occasionally, a pair was observed perching among the branches of the crown of some high dipterocarp tree species left growing in newly cleared areas.

***Coracina morio everetti* (Sharpe, 1893)**

LOCALITY RECORDS: Bongao, Tawitawi (Batu Batu).

COMMENT: The Sulu race of the Moluccan Graybird was only occasionally encountered on Bongao, Sanga Sanga, and Tawitawi, usually at the edges of clearings that were made in stands of original forests, especially of the dipterocarp type. When observed, the birds usually flew deeper into the dense original growth instead of out into the cultivated areas.

***Lalage nigra chilensis*** **(Meyen, 1834)**

LOCALITY RECORDS: Bongao, Omapoy, Sanga Sanga, Sibutu, Tawitawi (Batu Batu).

COMMENT: On the southern islands of the Sulu Archipelago, the Pied Triller was more frequently observed in the well cleared and cultivated areas than in the original forest. It was common even in the trees in the barrios, including coconut palms, where it fed actively on the insects that were attracted to the flowers.

LOCAL NAMES: An-jial (Tao Sug) and Achak-achak (Samal).

## FAMILY **DICRURIDAE** DRONGOS

***Dicrurus annectans*** **(Hodgson, 1836)**

LOCALITY RECORDS: Bongao (1 ♀), Sanga Sanga (1 ♂).

COMMENT: The Crow-billed Drongo was taken only once on Bongao and once on Sanga Sanga. Each bird was taken in remnant forest patches with cleared areas nearby, close to the edges of these clearings—the same type of habitat that the resident form, *D. hottentottus suluensis,* normally frequented. This migrant from the Asian mainland may not be a rare visitor, especially on the numerous islands in the southern regions of the Sulu Archipelago.

There is one previous record, Jolo 1891, for the Philippines (Parkes, 1960).

***Dicrurus hottentottus suluensis*** **Hartert, 1902**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Simunul, Tawitawi (Batu Batu).

COMMENT: The Sulu form of the Spangled Drongo was a common bird in forested areas on the larger islands of the southern Sulu Archipelago, both in the original forests and in secondary growth. Pairs of these drongos were frequently observed perching among the branches of the taller trees and actively flying from one part of a tree to another, most likely in connection with chasing their insect prey. Occasionally, pairs were encountered feeding among the branches of tall trees at the edges of clearings in the hills.

The birds, often in pairs, had the habit of suddenly appearing unexpectedly near the observer and perching on the lower branches of nearby trees with dense foliage. The birds usually kept giving out varied notes. They would usually stay for quite some time in the vicinity of the observer and act as if they were curious about his presence.

On the more northern Philippine islands of Bohol, Leyte, Mindanao, and Samar, a pair of this species of drongo was frequently observed among the members of mixed feeding flocks of small birds as they traveled in the lower portions of the forests in their daily feeding migrations. The drongos were easily the largest birds in the mixed feeding flocks, which included about 10 to 12 members and even up to 20 or 30. The members usually belonged to about six to 12, or even more, species, normally of insect-eating birds. The closely related species *D. balicassius* shows the same behavior on the islands where it occurs.

## FAMILY **ORIOLIDAE** ORIOLES

***Oriolus xanthonotus cinereogenys* Bourns and Worcester, 1894**

LOCALITY RECORD: Tawitawi (Batu Batu).

COMMENT: The Sulu race of the Dark-throated Oriole was heard more often than it was actually seen among the tall trees in dipterocarp forests. The bird was encountered in the extensive tracts of original forests as well as in remnant patches on Bongao, Sanga Sanga, and Tawitawi. Its characteristic notes were loud and were easily heard, even at a distance, but locating the bird on its perch from among the dense foliage and numerous branches in the crowns of the tall dipterocarps was difficult. A bird would keep on calling even when the observer was directly below the tree, but it would still be difficult to locate the bird.

***Oriolus chinensis chinensis* Linné, 1766**

LOCALITY RECORDS: Bongao, Saluag, Sanga Sanga, Sibutu, Simunul, Tawitawi (Batu Batu), Tumindao.

COMMENT: The Black-naped Oriole was very common on the various islands of the Sulu Archipelago, both on those where collections were made and on those that were merely visited.

The species was seen in well cultivated areas along the seacoast and deep into the interior. It was also commonly met with in second-growth forests, especially in those that were close to clearings. Several birds were always disturbed inside the coconut groves, and the very characteristic notes of the species were commonly heard.

LOCAL NAME: Ti-hing-lao (Samal).

## FAMILY **CORVIDAE** CROWS

***Corvus macrorhynchos philippinus* (Bonaparte, 1853)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Simunul.

COMMENT: The Large-billed Crow was common on all the larger islands

in the southern Sulu Archipelago. As on the other islands of the Philippines, the human inhabitants of the Sulu islands dislike the species because of its predatory effects on the young poultry and eggs. Strangely enough, the species is more than holding its own and is, in fact, one of the most common species on most islands, especially in the cultivated areas with large tracts of coconut groves.

## FAMILY **PARIDAE** TITMICE

***Parus elegans suluensis* (Mearns, 1916)**

LOCALITY RECORDS: Sanga Sanga, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Sulu Elegant Titmouse was frequently observed in tall trees in the remaining tracts of original forests, usually of the dipterocarp and modified molave types, found in the interior of the larger islands of Sanga Sanga and Tawitawi. Pairs, and occasionally up to 12 titmice, were seen feeding together among the foliage of the tall dipterocarp species inside the extensive tracts of original forests, especially in the interior of Tawitawi. After a time, the birds would fly from the crown of one tall tree to that of another close by, leaving the previous feeding tree one by one at short intervals. Rarely, a pair of these titmice was observed feeding on the lower trees inside the patches of original forest on Sanga Sanga.

On the more northern islands of the Philippines, such as Luzon, Mindanao, and Negros, this titmouse is a regular member of the mixed flocks of birds that travel inside the forests, feeding mainly on the insects found among the trees of medium height. This phenomenon was not observed on either Sanga Sanga or Tawitawi where the present species was found.

***Parus elegans bongaoensis* Parkes, 1958**

LOCALITY RECORD: Bongao.

COMMENT: The Bongao form of the Elegant Titmouse had habits similar to those of the race found on Sanga Sanga and Tawitawi. The on the slopes of the high peak on the northern end of Bongao.
birds were encountered inside the remnant patches of dipterocarp forest

## FAMILY **TIMALIIDAE** BABBLERS

***Macronous striaticeps kettlewelli* Guillemard, 1885**

LOCALITY RECORD: Tawitawi (Batu Batu).

COMMENT: The Brown Tit-babbler was occasionally encountered in the dense and tangled growths that formed the undergrowths in remnant

and second-growth forests from near the coasts deep into the interior. They were seen in flocks of five to seven members. The birds were observed as they actively and thoroughly looked for insects among the leaves of bushes and vines. Their search usually started from the lower parts of the plant, then proceeded to the top. They often flew to the nearest tree trunk, starting from near the base and gradually hopping from one small lower branch to another higher branch, then to another, and so on up the tree. One bird usually followed one of the larger horizontal branches while the others followed the other branches. After completing the search for prey among the leaves and branches in one tree, the birds usually transferred to the next tree and followed the same procedure in their search for insects.

In the more northern islands of the Philippines, these birds were frequently members of the wandering mixed flocks of small birds that travel in the lower growths of the dense forests.

## FAMILY **PYCNONOTIDAE** BULBULS

***Hypsipetes everetti haynaldi* (Blasius, 1890)**

LOCALITY RECORDS: Sanga Sanga, Sibutu, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Plain-throated Bulbul was common in the more extensive tracts of original forest and in remnant original vegetation on the larger islands in the southern Sulu Archipelago. They were usually observed in pairs on fruiting trees of the taller species growing in the dipterocarp and modified molave types of forest. They were encountered more frequently in the forests in the interior, rather than in those near the coasts. Occasionally, however, a pair of these bulbuls was observed feeding along the edges of newly cleared areas of modified molave type forest close to the coast on Sanga Sanga and Sibutu.

LOCAL NAME: Ul-ul (Tao Sug).

## FAMILY **TURDIDAE** THRUSHES

***Luscinia cyane bochaiensis* Shulpin, 1928**

LOCALITY RECORDS: Bongao (1 ♂), Sanga Sanga (1 ♀).

COMMENT: A single female specimen, No. 579872 in the bird collection of the American Museum of Natural History, was collected on February 24, 1898, in Zamboanga on Mindanao. This specimen represents the first record of the Siberian Blue Robin in the Philippines. This particular race breeds in Ussuria, Korea (rarely), and Japan (Hokkaido,

Honshu, Shikoku, and Kyushu; eggs are found only on Honshu). It winters south in the Indochinese subregion of Malaya and Borneo.

The present records of this robin on Bongao and Sanga Sanga suggest the possibility that the Sulu Archipelago, especially the islands in the southwestern region nearest to Borneo, may be part of its regular wintering range.

The birds were taken in dense, tangled vegetation representing mixed remnants of dipterocarp forest and second growth. When they were disturbed from the ground, in each instance the birds perched on a low branch of a bush. The stealthy habits of the species as it moves about on the ground make it difficult to discover, much less to collect.

***Copsychus saularis mindanensis* (Boddaert, 1783)**

LOCALITY RECORDS: Bongao, Saluag, Sanga Sanga, Sibutu, Simunul, Tawitawi (Batu Batu).

COMMENT: The Dyal Thrush, or Magpie Robin, was widely distributed on the southern Sulu islands, both large and small. It was found from the coast deep into the interior and was usually seen either singly or in pairs in the darker areas of thickets and patches of dense growths. It preferred to perch among the lower branches of bushes and other low growths, which grew under taller plant species. The bird was often seen in coconut groves and quite commonly in bamboo thickets, perching on branches close to the ground. This bird was even observed occasionally in the gardens in the barrios, especially those with bamboo groves nearby.

***Monticola solitarius philippensis* (P. L. S. Müller, 1776)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Tumindao.

COMMENT: The Blue Rock Thrush is a widespread winter migrant to the Philippines, although it is never found in large numbers in any one locality. It was met with fairly often on most of the southern islands of Sulu. Several times it was seen singly or in pairs perching motionless on top of some of the rocks of vertical cliffs that border the sea. Occasionally, the birds were observed perching on some bare branches at the tops of trees growing at the edges of clearings and cultivated areas.

***Turdus obscurus* Gmelin, 1789**

LOCALITY RECORD: Tawitawi (Balimbing, Batu Batu).

COMMENT: The Dusky Thrush was a fairly common winter migrant to dense forests on Tawitawi, where it was observed usually flying about in flocks of a dozen members or more. Occasionally, a flock was seen perching on the top branches of a tall dipterocarp tree.

Not previously recorded from the south Sulu Archipelago.

## FAMILY **SYLVIIDAE** OLD WORLD WARBLERS

***Gerygone sulphurea simplex* Cabanis, 1872**

LOCALITY RECORDS: Bongao, Omapoy, Saluag, Sanga Sanga, Sibutu, Simunul, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Yellow-breasted Wren-warbler was very common on the islands of the southern Sulu Archipelago, both large and small. The bird often revealed its presence among the foliage of a tree through its highly pleasing song. It was observed in a great variety of habitat types, including mangrove swamps, second-growth scrub forest near the coast, open country with many trees left standing, cultivated areas with trees at the edges, bamboo groves, and even gardens around the houses not far from the seashore.

***Locustella fasciolata* (J. E. Gray, 1860)**

LOCALITY RECORD: Sanga Sanga.

COMMENT: This rare winter migrant, Gray's Grasshopper Warbler, was met with once on Sanga Sanga. It was collected among a dense mixed growth of bushes and other low tangled growth along the edges of a neglected landing field close to the seashore.

***Acrocephalus arundinaceus orientalis* (Temminck and Schlegel, 1847)**

LOCALITY RECORD: Saluag.

COMMENT: The Great Reed Warbler was met with only on the small island of Saluag among the patches of tall grass toward the interior close to the edges of a coconut grove. This winter migrant was quite rare in the southern Sulu region, as well as on the other islands of the Philippines. Not previously recorded from the south Sulu Archipelago.

***Phylloscopus olivaceus* (Moseley, 1891)**

LOCALITY RECORDS: Sanga Sanga, Sipangkot, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Philippine Leaf Warbler was observed fairly frequently among the foliage of the lower growths of dipterocarp forests in both the extensive areas and the remnant patches. It was also seen occasionally in the patches of modified molave forest and in scrub forest. Like other forms of *Phylloscopus,* it is often missed because of its silent habits, although it actively moves among the branches and leaves in search of food.

***Phylloscopus borealis* ssp.**

LOCALITY RECORDS: Bongao, Omapoy, Saluag, Sanga Sanga, Sibutu, Simunul, Sipangkot, Tawitawi (Batu Batu).

COMMENT: The Arctic Willow Warbler was a very common winter migrant to the numerous islands of the Sulu Archipelago. It was observed in the barrios in gardens around houses and in coconut groves, bamboo thickets, mangrove swamps, and second-growth vegetation, as well as among the low trees and shrubs along the farms and clearings. This small bird was even seen among the foliage of the lower-story trees inside dipterocarp forest patches. It ranged from the coast deep into the interior and into the hills and mountains. Its habit of staying among the foliage makes it difficult to locate, although it keeps moving among the leaves and branches in search of insects.

***Orthotomus sericeus nuntius* Bangs, 1922**

LOCALITY RECORDS: Omapoy, Sibutu, Sipangkot, Tumindao.

COMMENT: The Rufous-crowned Tailor-bird was commonly heard, if not actually seen, among the dense bushes, shrubs, tall grass, and other tangled growths near the coasts. It was also observed inside the mangrove and beach forests along the shores and in second-growth patches a little way into the interior. Even from a distance, the characteristic loud notes of this bird could easily be heard, but locating the bird among the dense and tangled growths where the notes issued forth was quite difficult. The notes resembled the sound of "Ter-r-r . . . ter-r-r . . ., etc.," given loudly and clearly.

LOCAL NAME: Ter-ter (Samal).

## FAMILY **MUSCICAPIDAE** OLD WORLD FLYCATCHERS

***Rhipidura javanica nigritorquis* Vigors, 1831**

LOCALITY RECORDS: Bongao, Omapoy, Saluag, Sanga Sanga, Sibutu, Simunul, Sipangkot.

COMMENT: The Malaysian Fantail was very common on the islands of the southern Sulu Archipelago. As on the other islands of the Philippines, it was found around the edges of the farms and other cultivated areas, in second growth, and even in the gardens around houses in the barrios. This species ranged from the coasts, where it was quite common in the nipa and mangrove swamps, up into the hills in the interior, where there were cleared areas with second-growth vegetation around them.

***Rhinomyias* sp.**

COMMENT: Our specimen is different from all other members of this genus. The single specimen was taken inside a patch of remnant original dipterocarp forest with only the second-story vegetation left standing. The collecting site was on the slope leading toward the highest peak on

Bongao Island (2120 ft.). When collected, the bird was perching on one of the lower branches of a low tree that had heavy foliage.

More data will be published at a later date after the specimen has been identified.

***Rhinomyias ruficauda occularis* Bourns and Worcester, 1894**

LOCALITY RECORD: Tawitawi (Batu Batu; 1 ♂).

COMMENT: The Rufous-tailed Jungle Flycatcher was met with only once —on Tawitawi Island in a large tract of dipterocarp forest in the undergrowth. It could have been missed easily because it remained silent and motionless for some time on its perch before it flew and perched on another branch nearby.

***Ficedula narcissina narcissina* (Temminck, 1835)**

LOCALITY RECORDS: Bongao, Omapoy, Saluag, Sibutu, Tawitawi (Batu Batu).

COMMENT: The Narcissus Flycatcher was fairly common on the islands of southern Sulu in October, November, and December, when collections were made. The specimens were taken in dense patches of forest, usually in trees of moderate height with dense foliage.

This species has been taken rarely in the Philippines and then only on the islands of Calayan, Cebu, Luzon, Mindanao, and Negros. Students of Philippine birds consider this bird as an occasional winter visitor. The present records point to the possibility that the species may actually be a regular winter visitor to the southern region of the Philippines, especially on the islands in the southern parts of the Sulu Archipelago.

Not previously recorded from the south Sulu Archipelago.

***Ficedula mugimaki* (Temminck, 1835)**

LOCALITY RECORD: Sibutu.

COMMENT: The Black and Orange Flycatcher was seen and collected only three times—all on Sibutu Island in the lower growths of forests in the hills. This form is a rare winter migrant in the Philippines and has otherwise been taken only on Luzon, Mindanao, and Negros.

Not previously recorded from the south Sulu Archipelago.

***Cyornis rufigaster philippinensis* Sharpe, 1877**

LOCALITY RECORDS: Bongao, Omapoy, Sanga Sanga, Sibutu, Simunul, Sipangkot, Tawitawi (Batu Batu).

COMMENT: The Mangrove Blue Flycatcher was very common on the islands, both large and small, in the southern region of Sulu. It was fre-

quently met with in the dense mangrove forests. This bird was also common in the dark areas of the lower growths and undergrowths of the tracts and larger patches of original vegetation in the interior, including the dipterocarp, modified molave, and scrub forests. Occasionally, single birds and pairs were seen among the lower growths in secondary forests and even in dense bamboo groves.

LOCAL NAMES: Pi-sio-ro-din' (Tao Sug) and Ma-nok ma-mâ gam-pong (Sibutu Samal).

***Muscicapa sibirica sibirica* Gmelin, 1789**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu.

COMMENT: The Sooty Flycatcher was a common winter migrant to the larger islands in the southern Sulu Archipelago. It was usually observed in the same types of habitat as the Spotted Flycatcher.

Delacour and Mayr (1946) considered the occurrence of this form in the Philippines somewhat doubtful. Our observations of the species during October, November, and December point to the fact that this form occurs in the Philippines as a probable regular winter migrant, especially on the islands in the southern region of the Sulu Archipelago.

Not previously recorded from the south Sulu Archipelago.

***Muscicapa griseisticta* (Swinhoe, 1861)**

LOCALITY RECORDS: Bongao, Omapoy, Sibutu, Simunul, Tawitawi (Batu Batu).

COMMENT: The Spotted Flycatcher was a common winter migrant to the islands of the southern regions of Sulu, both large and small. It was frequently observed perching singly on bare branches of moderately tall trees, usually located at the edges of forest patches bordering newly cleared areas. From its perch it usually sallied forth and caught insect prey in flight; then more often than not it returned to its former perch.

This bird is a common winter migrant throughout the Philippines.

***Muscicapa cinereiceps* (Sharpe, 1889)**

LOCALITY RECORD: Sibutu (1♂, 1♀).

COMMENT: The Ferruginous Flycatcher was encountered only twice and was collected each time on Sibutu Island, the third largest island of Sulu and one that is still well forested. Of all the larger islands of the Sulu Archipelago, Sibutu is closest to Borneo.

This flycatcher has always been considered as a rare straggler to the Philippines. It is very probable that it may be a regular winter migrant on Sibutu Island and on the smaller islands around Sibutu.

Not previously recorded from the south Sulu Archipelago.

***Culicicapa helianthea mayri* Deignan, 1947**

LOCALITY RECORD: Tawitawi (Balimbing).

COMMENT: The Citrine Canary Flycatcher was seen and collected only on Tawitawi. It was never encountered on the other southern islands of Sulu, even on the larger ones. Three specimens were taken in well forested areas on the mountain slopes deep in the interior of the island.

***Hypothymis azurea azurea* (Boddaert, 1783)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Simunul, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Black-naped Blue Monarch was very common and was always encountered in dense and dark patches of vegetation, whether original or second growth. Occasionally, a bird or a pair could be met with inside the coconut groves, but usually only in the trees found along the edges near the remnant growths and patches of vegetation, original or second growth. Rarely, a bird was observed in bamboo thickets or in the gardens near the houses that were at the outskirts of a barrio.

***Pachycephala cinerea homeyeri* (Blasius, 1890)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Simunul, Sipangkot, Tawitawi (Batu Batu).

COMMENT: The Sulu race of the White-bellied Whistler was common in the large tracts of original forests and in the remnant patches. It frequently stayed in trees with heavy foliage and fed actively among the branches, but usually its activities could be noticed only by someone who stayed immediately under these particular trees. It was very seldom that a bird, or a pair of them, ever flew outside the crown when foraging in a given tree. Wherever there were still good-sized tracts or patches of original vegetation left growing on the islands, especially the larger ones, this whistler was always found.

## FAMILY MOTACILLIDAE PIPITS

***Motacilla flava simillima* Hartert, 1905**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu.

COMMENT: The Yellow Wagtail was a common winter migrant to the larger islands in the southern region of the Sulu Archipelago. As many as a dozen or more were frequently seen in marshy areas actively chasing prey among the sparse growths of herbs, grass, and low bushes that were found in the area. When disturbed, the whole group would usually

take off, more or less together, and then transfer to another part of the marshy field and resume their active foraging.

LOCAL NAMES: Po-sing Po-sing (Samal) and Pem-peng-hos' (Sibutu Samal).

***Motacilla cinerea robusta* (Brehm, 1857)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu.

COMMENT: The Gray Wagtail was a fairly common winter migrant to the larger islands of southern Sulu during the months of October, November, and December. Usually it was encountered on the ground, singly, feeding actively along the small creeks inside both the large tracts and the small remnant patches of original forest. Occasionally, this bird was observed along the edges of the marshes, especially those with good forest patches still left standing where creeks and streams opened to the sea.

LOCAL NAMES: Po-sing Po-sing (Samal) and Pem-peng-hos' (Sibutu Samal).

***Anthus novaeseelandiae lugubris* (Walden, 1875)**

LOCALITY RECORDS: Sanga Sanga, Sibutu.

COMMENT: Richard's Pipit was fairly common on the larger islands of southern Sulu where quite a few were seen on the ground in open clearings. Many birds of this species were seen feeding among the short grass and weeds in a landing field on Sanga Sanga. In the interior hill regions of the larger islands, this species was always flushed on the ground in the clearings, even when planted already with upland rice or corn and cassava or when grown to short grass.

The birds could not be mistaken for any other ground species because of their characteristic notes. Often, more than a dozen birds were seen at a time in one small clearing, but when disturbed, they always flushed singly and flew in different directions.

LOCAL NAMES: Po-sing Po-sing (Samal) and Pem-peng-hos' (Sibutu Samal).

***Anthus gustavi gustavi* Swinhoe, 1863**

LOCALITY RECORDS: Bongao, Saluag, Sanga Sanga, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Petchora Pipit was a fairly common winter migrant to the various islands of the southern Sulu Archipelago. It was often observed feeding on the ground in clearings, especially those on the hillsides and mountain slopes, with areas nearby that were still covered with original forests. Often, one or a pair of these birds was taken on the ground as it ran among the trees and bushes at the edges of clearings. More rarely, one or a pair was encountered in patches of original and second-growth vegetation.

## FAMILY **ARTAMIDAE** WOOD-SWALLOWS

***Artamus leucorhynchus leucorhynchus* (Linné, 1771)**

LOCALITY RECORDS: Saluag, Sanga Sanga, Sibutu, Simunul.

COMMENT: The White-breasted Wood-swallow was very common on most of the southern islands of Sulu. It soared on outstretched, motionless wings and rode the air currents over open fields or clearings with coconut groves and trees growing nearby. Usually a pair fed in a given area of a farm or clearing and used a favorite tall tree or coconut palm as a perch. From this perch the birds would hawk their insect prey. The feeding birds even pounced on insects crawling on the ground or on some low weed or bush.

Several times wood-swallows attacked with great ferocity birds of other species, especially crows that passed in the immediate vicinity. For courage, the wood-swallow easily ranks first among the Philippine birds.

## FAMILY **LANIIDAE** SHRIKES

***Lanius cristatus lucionensis* Linné, 1776**

LOCALITY RECORDS: Bongao, Saluag, Sanga Sanga, Sibutu, Simunul, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Brown Shrike was very common on both the small and the large islands in southern Sulu. It was seen from the coast deep into the interior, usually in the cultivated areas and clearings. It also occurred near houses, especially in gardens and in the extensive coconut groves on the islands. As on other islands of the Philippines, this species was a very common winter migrant.

## FAMILY **STURNIDAE** STARLINGS

***Aplonis panayensis panayensis* (Scopoli, 1783)**

LOCALITY RECORDS: Omapoy, Sanga Sanga, Sibutu, Simunul, Tawitawi (Batu Batu).

COMMENT: The Glossy Starling occurred in flocks of various sizes on many of the southern Sulu islands, both large and small. Large numbers fed on fruiting trees in the open fields, along the edges of farms and other clearings, in coconut groves, and even near houses in well settled communities.

The birds were frequently seen perching on the bare branches of trees, usually at the top or close to the top, or on the fronds of coconut trees, all the while sounding their characteristic notes. Then, usually

one by one or sometimes together, they left their perch and flew to another tree quite some distance away.

LOCAL NAME: Man-da-siang (Samal).

***Sturnus philippensis* (Forster, 1781)**

LOCALITY RECORDS: Sanga Sanga, Sibutu, Simunul.

COMMENT: Small flocks of the Violet-backed Starling were frequently seen flying over the cultivated and cleared areas with abundant second-growth patches. They often fed in tall fruiting trees, where they proved difficult to discover among the foliage until they flushed as a flock and left for some distant tree. Occasionally, birds could be seen perching on a high, bare branch, but never for long.

***Sarcops calvus lowii* Sharpe, 1877**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Simunul, Tawitawi (Batu Batu).

COMMENT: The Coleto was one of the most common birds in the area and was met with all over the larger islands of the southern regions of Sulu. It was frequently encountered in coastal areas and deep in the interior (including well cultivated and cleared localities), in open country with sparse trees, in coconut groves, in second-growth forest patches, and even in original forest. One bird or a pair usually selected as a perch the top of a tree, or a bare branch at or near the top, and gave out their characteristic notes from this vantage point.

In feeding, one bird, or more often a pair, usually selected a fruiting tree and then fed on the fruits by active flight from branch to branch. Occasionally, a dozen or more birds were observed feeding in the same tree, coming to the tree singly or in pairs and from different directions. When disturbed, all would leave the tree at the same time, but would proceed singly or in pairs in different directions. Rarely, several birds would form a flock and visit fruiting trees to feed.

LOCAL NAME: Tok-ling (Tao Sug and Samal).

## FAMILY NECTARINIIDAE SUNBIRDS

***Anthreptes malacensis wiglesworthi* Hartert, 1902**

LOCALITY RECORDS: Bongao, Sanga Sanga, Simunul, Tawitawi (Balimbing, Batu Batu).

COMMENT: The Plain-throated Sunbird was commonly encountered, usually in pairs, as it fed on the flowers of coconut palms growing in large groves or in open fields and along the edges. Pairs were also frequently seen feeding on flowering forest trees at the edges of extensive forest stands and remnant patches with cultivated and cleared areas in

them. The species ranged from the seacoasts to the lower slopes of the mountains. It was rarely met with inside the deep forests except where there were clearings.

On the same inflorescence of a coconut palm, one or a pair of *Nectarinia jugularis woodi* was often observed also feeding. Less commonly, especially in the interior of the larger islands, *A. malacensis* was observed feeding side by side with one or a pair of *Nectarinia sperata juliae*. Thus, within a particular coconut grove, it was not rare to see these three species of sunbirds actively feeding on the inflorescences of the coconut palms close to one another.

***Anthreptes malacensis iris* Parkes, 1971**

LOCALITY RECORDS: Omapoy, Saluag, Sibutu, Sipangkot, Tumindao.

COMMENT: This race of the Plain-throated Sunbird from the more southern islands of the Sibutu Group had habits similar to those of the one found on the islands of the Tawitawi Group. Our birds confirm Parkes' new race.

***Nectarinia sperata juliae* (Tweeddale, 1877)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Sibutu, Simunul, Tawitawi (Batu Batu).

COMMENT: Van Hasselt's Sunbird was not as common in the coconut groves, cultivated areas, and clearings as *N. jugularis woodi,* especially along the coasts, but it was more common toward the interior. At the edges of the forests, it fed on flowers of forest trees at all heights. In fact, this bird was encountered more often, singly or in pairs, than *N. jugularis* in large tracts and remnant patches of original forests, especially of the dipterocarp type, and in stands of second growth.

***Nectarinia jugularis woodi* (Mearns, 1909)**

LOCALITY RECORDS: Bongao, Omapoy, Saluag, Sanga Sanga, Simunul, Tawitawi (Batu Batu), Tumindao.

COMMENT: The Olive-backed Sunbird was easily the most common bird species encountered in the coconut groves, from the seacoast deep into the interior. The species was also found to be common in open and cultivated country and in second-growth forests, especially near clearings.

These birds were not shy, and they were frequently observed, singly or in pairs, feeding on flowers in the gardens. They were also a common sight on the bushes and shrubs growing among the houses in the barrios. Their songs could be heard from early morning to late afternoon.

LOCAL NAMES: Pao-pit (Tao Sug) and Manok-manok ma-mâ (Sibutu Samal).

***Aethopyga shelleyi arolasi* Bourns and Worcester, 1894**

LOCALITY RECORD: Tawitawi (Batu Batu; 1♂, 1♀).

COMMENT: The Lovely Sunbird was met with only on Tawitawi, in a heavily forested area on the slope of a mountain of moderate elevation. It was never observed on the other islands in southern Sulu. As on the other, more northern islands of the Philippines where the species occurs, the Sulu race was also rare.

## FAMILY **DICAEIDAE** FLOWERPECKERS

***Dicaeum trigonostigma sibutuense* Sharpe, 1893**

LOCALITY RECORDS: Omapoy, Sibutu, Sipangkot.

COMMENT: This flowerpecker was commonly encountered in fruiting trees in open country, at the edges of clearings where there were still remnant patches of original forest, and in well cultivated areas where there were good patches of second growth around and in second-growth forests. Occasionally, pairs were seen feeding on the coconut inflorescence inside groves near remnant forest patches, especially in farms in the hills.

***Dicaeum hypoleucum hypoleucum* Sharpe, 1876**

LOCALITY RECORDS: Bongao, Sanga Sanga, Simunul, Tawitawi (Balimbing, Batu Batu).

COMMENT: The White-bellied Flowerpecker was very common at the edges of and inside the heavily forested areas of the larger islands of the Tawitawi Group. As many as 10 to a dozen of this species were observed feeding among the tiny fruits of fruiting forest trees, both the tall species and those of moderate height. When disturbed, the birds usually left singly or in pairs, going in different directions. Occasionally, this flowerpecker was also observed in fruiting trees in second-growth forests.

## FAMILY **ZOSTEROPIDAE** WHITE-EYES

***Zosterops everetti mandibularis* Stresemann, 1931**

LOCALITY RECORDS: Bongao, Sanga Sanga, Tawitawi (Batu Batu).

COMMENT: Everett's White-eye was very commonly observed feeding in trees of all heights in clearings, around cultivated farms, at the edges of forest patches and forested areas, and even in the second growth. The birds usually went about in groups of five to about a dozen members. It was interesting to watch the members of a flock feed on some low, fruiting, second-growth forest trees having tiny fruits with a large num-

ber of tiny insects attracted to them. The members would keep on moving from branch to branch and would eventually fly to the next tree nearby. The others would then follow one by one, except when markedly disturbed; then the whole flock would fly to a distant tree to resume their feeding.

## FAMILY **ESTRILDIDAE** MANNIKINS

***Lonchura leucogastra palawana*** **Ripley and Rabor, 1962**

LOCALITY RECORDS: Bongao, Tawitawi (Batu Batu).

COMMENT: The White-breasted Mannikin was not as commonly seen on the larger islands in southern Sulu as *L. malacca.* It seemed to prefer the immediate vicinities of forest vegetation, either in clearings near extensive forest growths or near the remnant patches of dense forest. In fact, small flocks of about six to a dozen members were more often met with at the edges of forests in mixed tall grass and tree growth, rather than in the open clearings or in cultivated areas.

***Lonchura malacca jagori*** **(Martens, 1866)**

LOCALITY RECORDS: Bongao, Sanga Sanga, Tawitawi (Batu Batu).

COMMENT: The Chestnut Mannikin occurred around the well cultivated areas and in comparatively new clearings in the interior of the larger islands in southern Sulu, usually in pairs, family groups, or flocks of 100 members or more. Late in the afternoons large numbers, sometimes as many as several hundred birds, were observed to congregate in some localities in an open area, preferably part of an extensive marsh of tall grass and reeds, where they roosted. They usually arrived in these roosting places in separate flocks from different directions. Early the next morning the birds left their roost in flocks of various sizes and flew in all directions to the day's activities.

## BIBLIOGRAPHY

Brown, W. H.

1919 Vegetation of Philippine mountains. Dept. Agric. and Nat. Res., Bur. Sci. Pub. No. 13, Manila Bur. Printing; 434 pp., 41 pls., 30 text figs.

1920–21 Minor products of Philippine forests. Dept. Agric. and Nat. Res., Bur. Forestry Bull. No. 22, Vols. 1 and 2, Manila Bur. Printing; pls., tables.

1941–46 Useful plants of the Philippines. Dept. Agric. and Commerce, Tech. Bull. 10, Vols. 1-3, Manila Bur. Printing; text figs., tables.

Delacour, J., and E. Mayr

1946 Birds of the Philippines, pp. 1–309.

Dickerson, R. E.

1928 Distribution of life in the Philippines. Manila Bur. Printing; 322 pp., 42 pls.

duPont, J. E.

1971 Philippine Birds, pp. 1–480.

Hachisuka, M.

1931–35 The Birds of the Philippine Islands, Parts 1 and 2, pp. 1–439; Parts 3 and 4, pp. 1–469.

Irving, E. M. (ed.)

1953 A geologic map (biostratigraphic-lithologic) of the Philippines. Published cooperatively by the Philippine Bureau of Mines and the U. S. Geological Survey, Dept. of the Interior.

McGregor, R. C.

1909 A Manual of Philippine Birds, pp. 1–769.

Mees, G. F.

1970 Notes on some birds from the island of Formosa (Taiwan). Zool. Med., 44:297–302.

Merrill, E. D.

1912 A flora of Manila. Dept. of Interior, Bur. Sci. Pub. No. 5, Manila Bur. Printing; 490 pp.

1926 An enumeration of Philippine flowering plants. Manila Bur. Printing; 4 vols.

Oberholser, H. C.

1932 The birds of the Natuna Islands. USNM Bull., 159:86–90.

Parkes, K. C.
1960 A drongo new to the Philippine list. Condor, **62**:296–297.

Smith, W. D.
1924 Geology and mineral resources of the Philippine Islands. Dept. Agric. and Nat. Res., Bur. Sci. Pub. No. 19, Manila Bur. Printing; 555 pp., 31 pls.

Whitford, H. N.
1911 The forests of the Philippines. Bull. P. I. Bur. Forestry, No. 10.

Willis, B.
1937 Geologic observations in the Philippine Archipelago. Nat. Res. Council Phil., Bull. No. 13, pp. 1–54, 29 pls.