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MIGRATORY ANIMAL PATHOLOGICAL SURVEY
ANNUAL PROGRESS REPORT 1967

by

H. ELLIOTT McCLURE, Ph.D.

APPLIED SCIENTIFIC RESEARCH CORPORATION
OF THAILAND

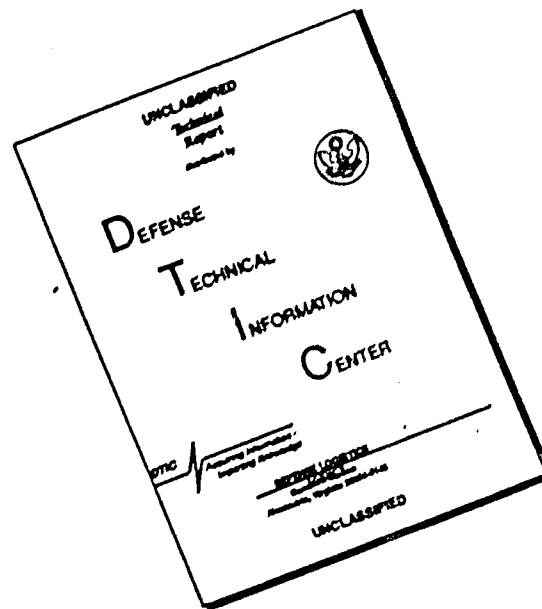
BANG KHEN, BANGKOK, THAILAND

SEPTEMBER 1968

U. S. ARMY RESEARCH AND DEVELOPMENT GROUP
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PARTICIPATING INSTITUTIONS

1. Lembaga Biologi Nasional Muzium Borgoriense
Bogor, Indonesia

Responsible Investigator: Dr. Soekarja Somadikarta
Grant No.: DA-CRD-AFE-S92-544-67-G73
DA Project No.: 3A013001A91C 00 095FE

2. Bombay Natural History Society
Hornhill House, Apollo Street, Bombay 1, India

Responsible Investigator: Dr. Salim Ali
Grant No.: DA-CRD-AFE-S92-544-68-G93
DA Project No.: 3A013001A91C 00 105FE

3. Sabah Museum
Jesselton, Sabah

Responsible Investigator: Mr. Henry Tsien
Grant No.: DA-CRD-AFE-S92-544-68-G92
DA Project No.: 3A013001A91C 00 089FE

4. Sarawak Museum
Kuching, Sarawak

Responsible Investigator: Mr. Tom Harrison
Grant No.: DA-CRD-AFE-S92-544-68-G88
DA Project No.: 3A013001A91C 00 067FE

5. University of Malaya
Kuala Lumpur, Malaysia

Responsible Investigator: Lord Medway
Grant No.: DA-CRD-AFE-S92-544-67-G80
DA Project No.: 3A013001A91C 00 082FE

6. Institute of Research, Mindanao State University
Marawi City, Philippines

Responsible Investigator: Dr. Dioscoro S. Rabor
Grant No.: DA-CRD-AFE-S92-544-67-G81
DA Project No.: 3A013001A91C 00 081FE

7. Philippines National Museum
Manila, Philippines

Responsible Investigator: Mr. Godofredo L. Alcasid
Grant No.: DA-CRD-AFE-S92-544-67-G74
DA Project No.: 3A013001A91C C0 084FE

8. Applied Scientific Research Corporation of Thailand
Bang Khen, Bangkok, Thailand

Responsible Investigator: Dr. Prasert Lohavanijaya
Grant No.: DA-CRD-AFE-S92-544-67-G84
DA Project No.: 3A013001A91C 00 086FE

9. Tunghai University
Taichung, Taiwan

Responsible Investigator: Dr. Johnson T.F. Chen
Grant No.: DA-CRD-AFE-S92-544-67-G82
DA Project No.: 3A013001A91C 00 089FE

10. Yamashina Institute of Ornithology and Zoology
Shibuya, Tokyo, Japan

Responsible Investigator: Dr. Yoshimaro Yamashina
Grant No.: DA-CRD-AFE-S92-544-68-G95
DA Project No.: 3A013001A91C 00 083FE

11. Kyung Hee University
Seoul, Korea

Responsible Investigator: Dr. Pyong-Oh Won
Grant No.: DA-CRD-AFE-S92-544-67-G83
DA Project No.: 3A013001A91C 00 080FE

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PART 1

SUMMARY OF ACTIVITIES OF COOPERATING GROUPS

INTRODUCTION

The MAPS organization continued to grow in 1967. Two new grantees were added to the active research groups which brought the total to 13 field operations supported by the central office at Bangkok. The MAPS activity is world wide in scope and touches upon many countries in Asia. The exchange of responsibilities and information is diagrammed in Figure 1. All of the information gathered by the scientists in the field and the laboratories and by taxonomists cooperating in the work is filed at the headquarters in Bangkok where it is available for examination by biologists or for loan.

HEADQUARTERS ACTIVITIES

The completion of a new laboratory building at the Applied Scientific Research Corporation permitted a general shift of laboratory activities and made two additional rooms available to the MAPS headquarters staff. One room is now set up as a laboratory for the entomologists and microscopists, one for the files and typists, and one for the director and library. This expansion has allowed a more efficient organization of the activities.

The annual MAPS conference was held at Dalton Pass and Baguio in Luzon this year during 25 October-5 November. Previous years these discussions and work demonstrations have been held at Tokyo 1966, Kuala Lumpur 1965, Hong Kong and Taichung, Taiwan 1964. Most of the responsible investigators with some of their team members attended the 1967 conference. Two days were spent at Dalton Pass where the team from the Philippine National Museum demonstrated the method of capturing birds with bright lights from the mountain tops. As is so often the case with such carefully planned occasions the weather failed to cooperate. A pretyphoon high brought clear skies and calm weather and very few birds were taken. (Figures 2, 3 and 4)

MIGRATORY ANIMAL PATHOLOGICAL SURVEY

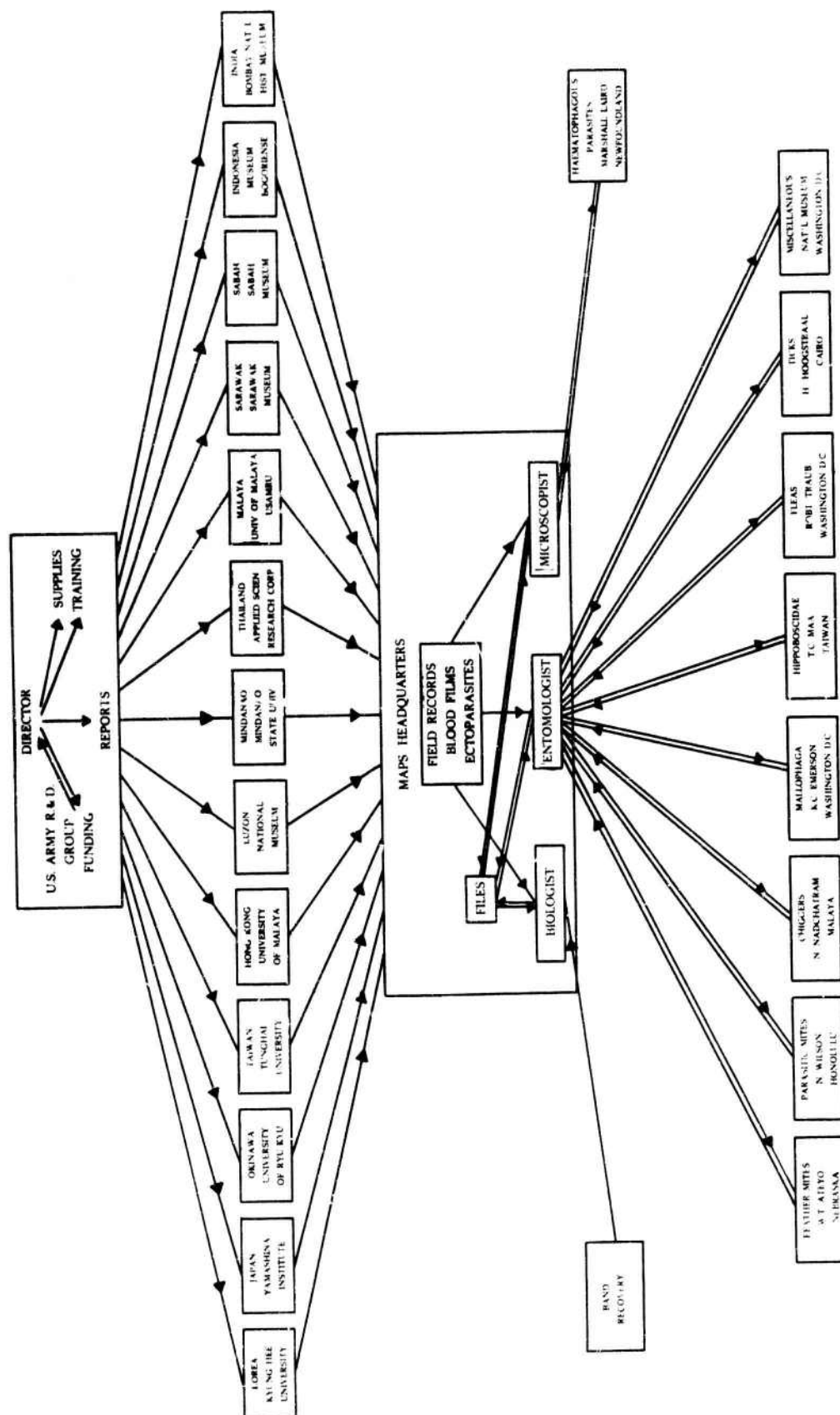


Figure 1. Organizational Chart of the Migratory Animal Pathological Survey.



Figure 2. Banders at Dalton Pass, around the table, from left hand. Col. C.W. Cook (Japan), Kitti Thonglongya (Thailand), Somtrakul Paurkpun (Thailand), Luz Castro (Philippines), Liza Ruanto (Philippines), bus driver, Chun Mi-za (Korea), Masashi Yoshii (Japan), Lord Medway (Malaya), Won Pyong-Oh (Korea), Sheldon Severinghaus (Taiwan), Warlito Sanquila (Philippines), Soekarja Somadikarta (Indonesia).



Figure 3. Godofredo Alcasid demonstrating mosquito breeding techniques to Warlito Sanquila and Soekarja Somadikarta. This was a cooperative study with the Smithsonian Institution.



Figure 4. Lord Medway and Sheldon Severinghaus conferring over a Dog-faced Fruit Bat.

The conference moved from Dalton Pass to Baguio where the Department of Education made cabins of a teachers' camp available. The conference was brought to a close by a howling typhoon which added excitement to the occasion.

At these annual meetings all of the responsible investigators report their activities and discuss their problems with the other teams. This exchange of information has contributed to the success of the programme. Having the conference in a different environment each year has given the biologists an opportunity to see and compare other avifauna with their own. (Figure 5)

As part of the publicity for this conference the Philippine National Museum opened an exhibit about bird migration and the MAPS programme. (Figures 6 and 7)

COOPERATING ORGANIZATIONS

INDONESIA

Institution: Lembaga Biologi Nasional (National Biological Institute) Muzium Bogoriense, Bogor, Indonesia.

Responsible Investigator: Dr. Soekarja Somadikarta.

Team Members: To be employed.

Location of Banding Stations: Kebun Raya, Bogor, 6.30 S, 106.45 E.

Birds Banded: 1967 Species 18 Total 68

The newest and most southern of the banding activities began in Java at Bogor in December. First field efforts were made at the beautiful botanical gardens (Kebun Raya) where the Bogor Museum is situated.

There is a great deal of interest in what banding work in this area will discover. Sumatra and Java are essentially the most southern landfall for northern migrants. There is no land south of them until Antarctica. Any movements of land birds would have to be north or south-east along the archipelago. There are known breeding colonies of herons and egrets and dispersal from these should supplement the information being gained from studies at colonies in Malaya, Taiwan, and Japan. Any exchange of birds between Indonesia and Australia remains to be demonstrated. Australian banded birds have crossed over to New Guinea, especially Egretta garzetta and E. alba. (Figure 8)



Figure 5. Participants in the 1967 MAPS conference at Baquio, Philippines. Back row: Masashi Yoshii (Japan), Sheldon Severinghaus (Taiwan), Joe Rabor (Philippines), Lord Medway (Malaya). Middle row: Soekarja Somadikarta (Indonesia), Luz Castro (Philippines), Somtrakul Paurkpun (Thailand), (Mrs. Rabor's sister), Somchit Chaipanich (Thailand), Lucy McClure (Thailand), Lina Rabor (Philippines), Nectarina Rabor (Philippines), Chun Mi-za (Korea), Liza Ruanto (Philippines), Kitti Thonglongya (Thailand). Front row: J. Gonzalez (Philippines), Ham Kyu-whong (Korea), Warlito Sanquila (Philippines), Y. Hasuo (Japan), Kabaya (Japan), Won Pyong-Oh (Korea), Godofredo Aicasid (Philippines).



Figure 6. Model of Igorot method of catching birds at mountain tops, using lights and nets. Philippine National Museum exhibition.

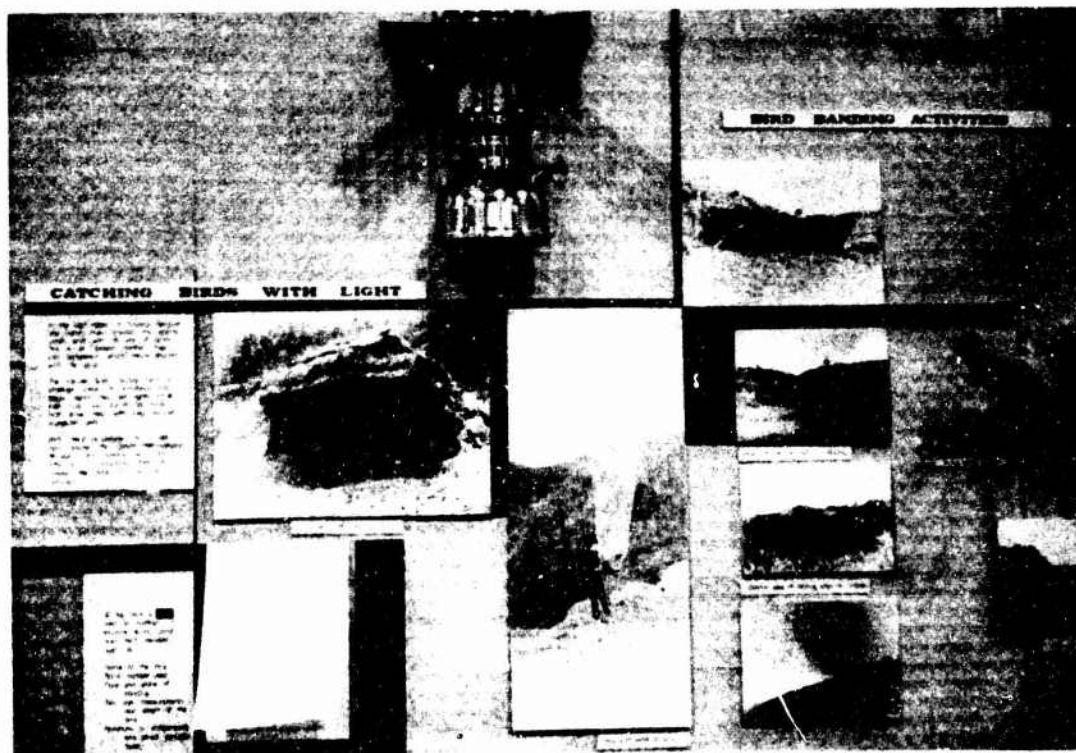


Figure 7. Part of Philippine National Museum exhibition of bird banding and the MAPS programme.

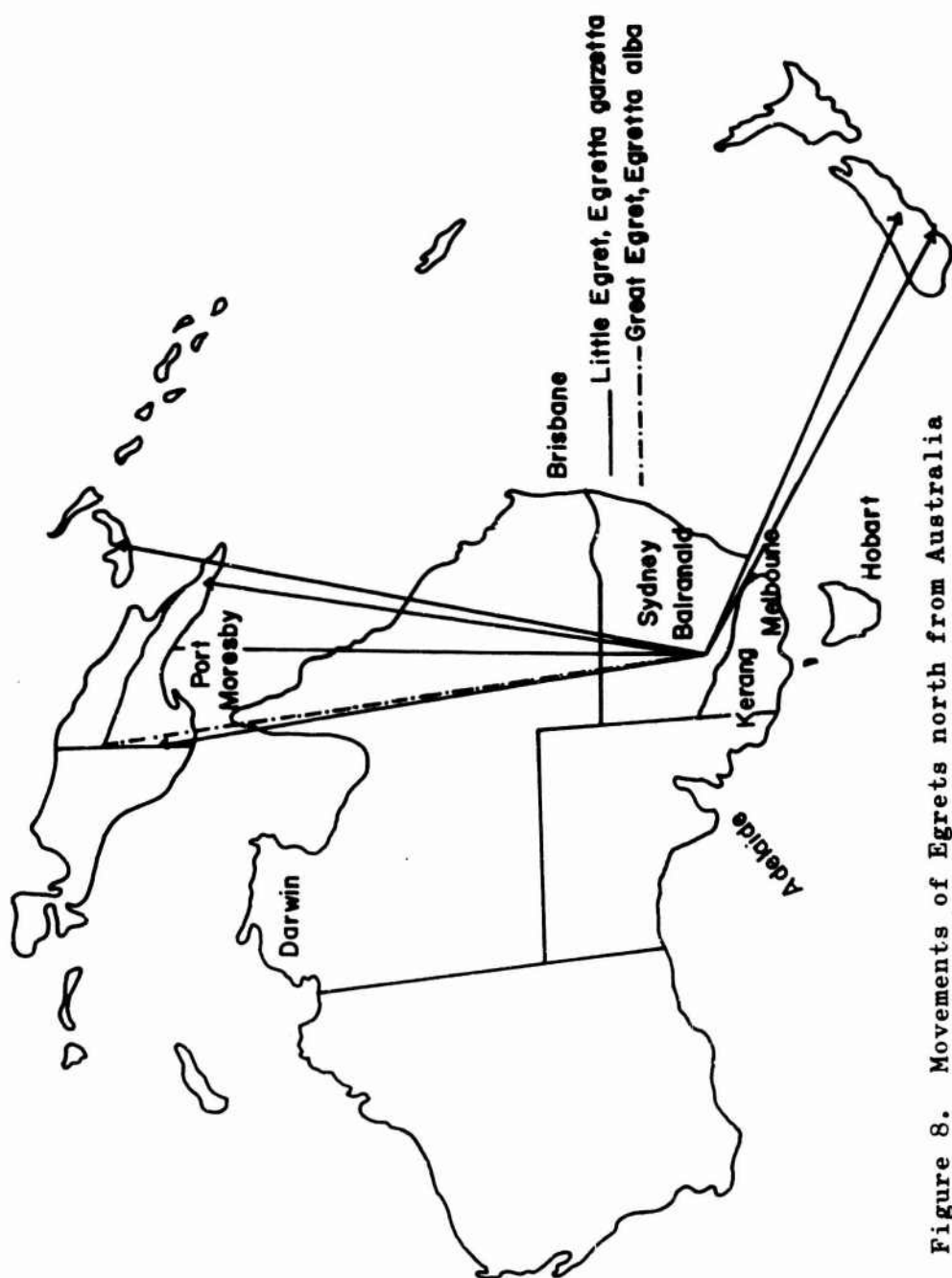


Figure 8. Movements of Egrets north from Australia into New Guinea (from tenth Annual Report Australia bird-banding scheme.)

INDIA

Institution: Bombay Natural History Society, Hornbill House, Apollo street, Bombay 1.

Responsible Investigator: Dr. Salim Ali.

Team Members: Robt. Grubb, Jamshed D. Panday, Bahir and field technicians.

Banding Locations: Ghana Bird Sanctuary, Bharatpur, India. 27.20 N, 77.15 E.

Birds Banded: 1967 species 157 total birds 21,107

The Bombay Natural History Society is the pioneer organization in the study of bird migration in India. The first efforts were in 1928 when several species of migratory ducks were ringed in the Dhar State of Central India. From 1959-1966 the society has been collaborating with the World Health Organization in a study of the role of migratory birds as disseminators of vectors or virus disease agents. This has been in conjunction with studies at the Kireskae Shosse Institute of Poliomyelitis and Virus Encephalitis, Omsk, U.S.S.R. and the Virus Research Center, Rockefeller Foundation, Poona, India. By 1966, 82,000 birds of 127 species from 26 families had been ringed, with 154 recoveries.

These recoveries apparently demonstrate a division in migration routes of passerines leaving India for the north. Some of the results from the Wagtails are shown in Figure 9. (Salim Ali Correspondence 1966) the objectives of the present studies are to band more passerines in central and eastern India to throw more light on the eastern flyway and to collect ectoparasites and blood films from both migratory and non-migratory species. (Figures 10 and 11).

SABAH

Institution: Sabah Museum, Jesselton.

Responsible Investigator: Henry Tsen.

Team Members: Local people hired as needed.

Location of Banding Stations: Papar 6.05 N 116 E and vicinity of Jesselton, 6.00 N, 115.55 E.

Birds banded:	1964	-	55 species	-	444 individuals
	1965	-	7 species	-	22 individuals
	1966	-	0 species	-	0 individuals
	1967	-	34 species	-	54 individuals (incomplete records)
	Total	-	89 species	-	520 individuals

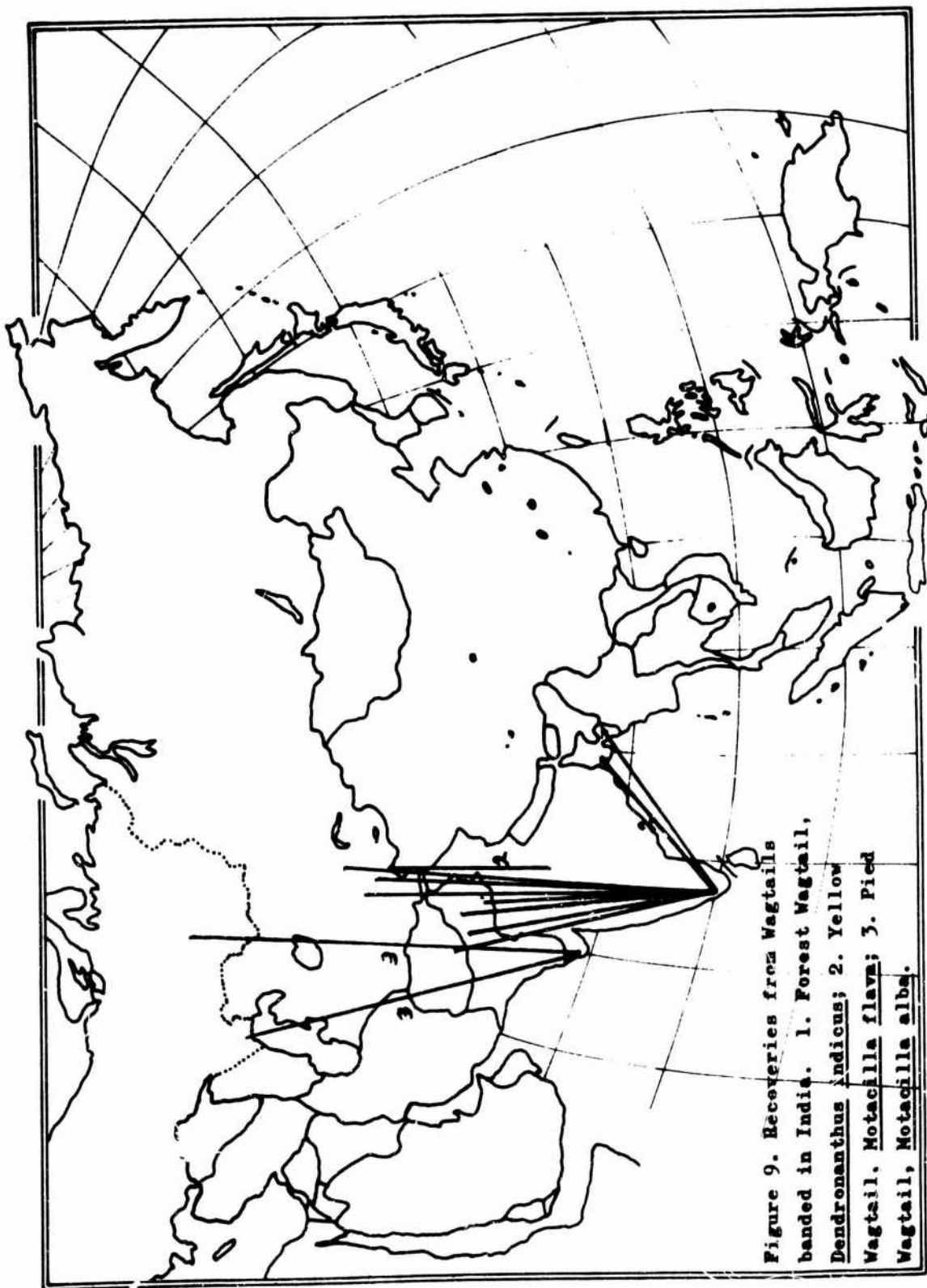




**Figure 10. Dr. Salim Ali, Panday and Bahir banding shorebirds
at Ghana Bird Sanctuary, Bharatpur, north central India.**



**Figure 11. Bombay Natural History Museum team prepering to
catch migratory ploceids at night.**

A small grant was given to the Sabah Museum to support an effort to ring birds along the coast near Papar and in other areas where there were concentrations of migrants. Since no one at the Museum had had much experience at capturing and banding birds Mr. Hussain bin Othman was sent from Kuala Lumpur to spend several weeks in February and March training the Museum staff.

In working with local people in the field Mr. Hussain was shown a remarkable method of capturing bee-eaters. Bee-eaters burrow in loose soil and nest in a small hollow at the end of the burrow. By stripping the leaflets from a coconut palm frond the catcher made a flexible wand that could be poked down this burrow. At night the wand was shoved slowly into the hole and when the tip reached the nest any occupant would bite at it or crawl upon it, the bird could then be slowly pulled out. After being banded the bird could be placed in the entrance to the hole and it would scramble back to the nest. Later, using this method, Hussain caught several hundred bee-eaters at Penang.

SARAWAK

Institution: Sarawak Museum, Kuching.

Responsible Investigator: Tom Harrisson.

Team Members: Ambrose anak Achang, Gaun anak Sureng, Muhidin bin Budin, and Saadi bin Kawi.

Location of Banding Station: Niah Cave, 4.15 N, 114.00 E; Kuching, 2.00 N, 110.30 E.

Birds Banded:	1964	-	106 species	-	1,235 individuals
	1965	-	139 species	-	1,690 individuals
	1966	-	1 species	-	48 individuals
	1967	-	79 species	-	1,245 individuals
	Total	-	150 species	-	4,218 individuals

During 1967 Mr. Harrisson retired from the Sarawak Museum and left Borneo. However he is maintaining active studies at Niah Cave and the bulk of the work for this project has been in the vicinity of the cave and near Kuching. Mr. Lucas Chin, assistant curator, has been acting as responsible investigator.

No narrative report has been received so nothing is known of the successes or problems associated with this project during 1967.

MALAYA

Institution: U.S. Army Medical Research Unit, and University of Malaya, Kuala Lumpur.

Responsible Investigator: Lord Medway, Ph.D.

Team Members: Hussain bin Othman, Leader; Dawam bin Hamzah, R.D. Soosai.

Volunteer Banders: Ken W. Scriven and I.C.T. Nisbet, Kuala Lumpur; B.D. Bond and J.B. Mitchell, Malacca.

Location of Banding Stations: Rantau Panjang, Selangor, 3.02 N, 101.25 E; Sungei Way, Selangor, 3.12 N, 101.40 E; Gombak River Valley, Selangor, 3.00 N, 100.45 E; Bentong, Pahang, 3.30 N, 101.54 E; Raub, Pahang, 3.48 N, 101.52 E; Kuala Gula, Perak, 4.55 N, 100.35 E.

Birds Banded:	1963	-	22 species	-	76 individuals
	1964	-	211 species	-	6,415 individuals
	1965	-	225 species	-	26,130 individuals
	1966	-	199 species	-	27,820 individuals
	1967	-	244 species	-	34,023 individuals
	Total	-	338 species	-	94,464 individuals

The Malayan studies have continued with emphasis on swallows, Black-crowned Night Herons, and longevity studies at Rantau Panjang. The studies of weight changes and moult of the Great Reed Warbler as related to migration were brought to a conclusion and the data have been put on punch cards for IBM tabulation. Manuscripts concerning the results of these studies are in preparation. Lord Medway reviewed this work at the annual conference and discussed the programming of such data for punch card manipulation.

Rantau Panjang is a coastal, coconut, nipah palm, mangrove habitat which has been under study for many years. Bird ringing has continued there since 1960. (Figures 12 and 13) The longest longevity known for tropical birds in Asia are now accumulating from these records. Among these are a Ruddy Kingfisher - 71 months; Zebra Dove - 73; Black and Red Broadbill - 61; Mangrove Blue Flycatcher - 69; Mangrove Whistler - 59; Blue-winged Pitta - 66; Yellow-vented Bulbul - 83; Brown-throated Sunbird - 58. This material is also being summarized for publication.

The Game Department of the Federation of Malaysia has become interested in the conservation and biological aspects of bird ringing, and has authorized the expenditure of funds to support a ringing programme. Rings were ordered with the address of the Malayan Nature Society (Box 750, Kuala Lumpur) inscribed on them and a request to write, in English, Chinese and Malay. These rings have been

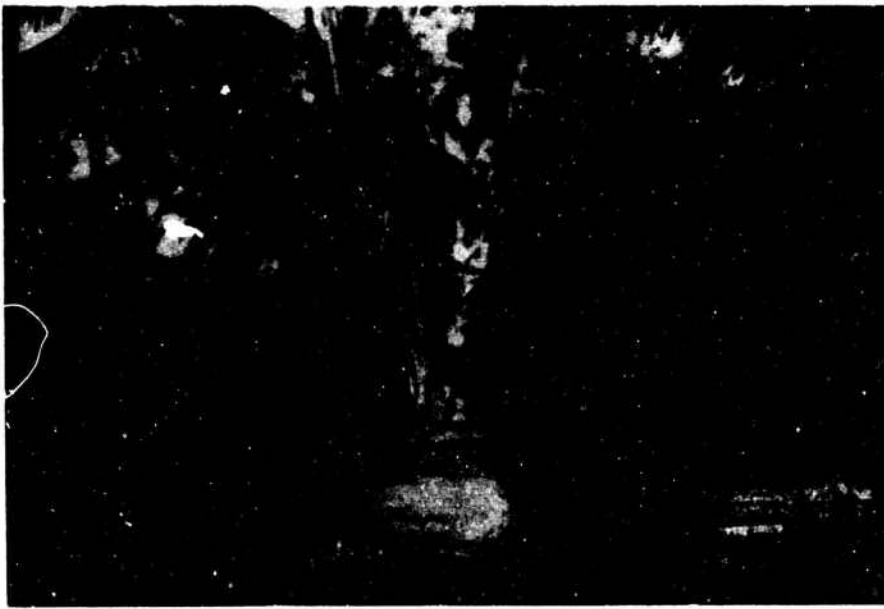


Figure 12. Rantau Panjang, Selangor, Malaya. Longevity records of birds banded here have now reached eight years.

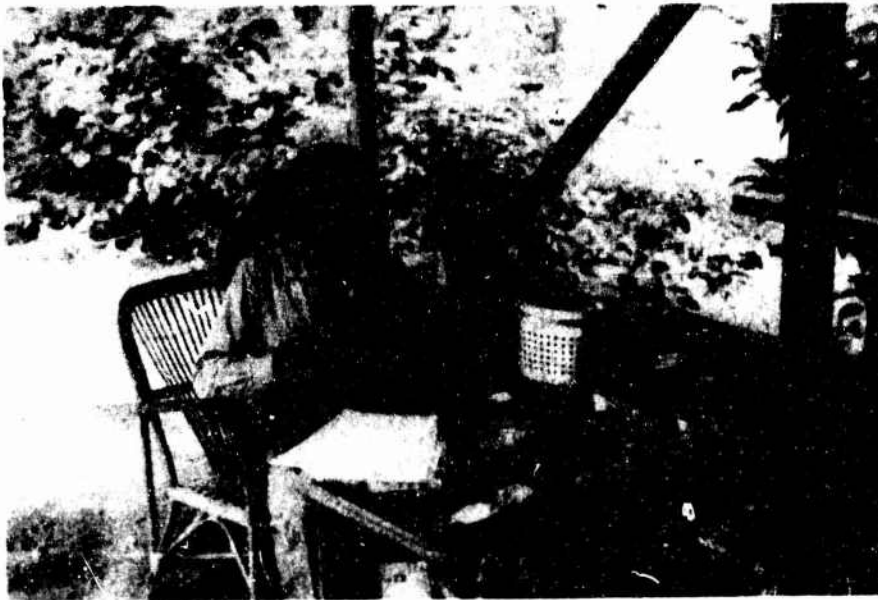


Figure 13. Dawam bin Hamzah and R.D. Soosai working with the day's catch at the Rantau Panjang banding station.

used in the work with Black-crowned Night Herons at Kuala Gula, and the reporting of ring recoveries has immediately increased, evidence either that people hesitated to attempt to write in English to Hong Kong or that they could read Malay and wrote in Malay. This language problem is, of course, present in every country where MAPS birds might be recovered.

Bird ringing activities have again become active in Singapore with the formation of the Royal Air Force Ornithological Society (Singapore Branch). This group of amateur ornithologists includes about 25 members, many of whom are or will soon be ringing. They anticipate making surveys of island birds and will include banding as part of their studies. They are working in cooperation with the Malayan Project.

SOUTHERN PHILIPPINES

Institutions: Silliman University, Dumaguete City, Negros Oriental; and Mindanao State University, Marawi, Mindanao.

Responsible Investigator: Dioscoro S. Rabor, Ph.D.

Team Members: Warlito M. Sanguila (Field Supervisor), Cresensio Lumhod, Antonio Lumhod, Felipe Macajeg, Estanislao Macajeg, Alipio Macasukit, Restituto Abo, Irineo Macapanas, Alberto Tingson.

Location of Banding Stations: Negros Oriental: Pancil Siaton, 9.02N, 123.04 E; Caticugan, Siaton, 9.05 N, 123.02 E; Lapay, Siaton, 9.06 N, 123.03 E; Bondo, Siaton, 9.04 N, 123.05 E; Maloh, Siaton, 9.03 N, 122.59 E; Candugay, Siaton, 9.08 N, 123.03 E; Himamparagon, Manjuyod, 9.42 N, 123.10 E; Nagoro, Siaton, 9.14 N, 123.06 E; Pandanon, Murcia, Negros Occidental, 10.33 N, 123.09 E. Mindanao, Lanao del Norte: Tambo, Munai, 8.05 N, 124.03 E; Bacolod, 8.09 N, 124.02 E; Marawi City, 8.00 N, 124.15 E; Kauswagan, 8.06N, 124.18 E; Dumanjug, 8.10 N, 124.05 E.

Birds Banded: Negros and Leyte

1964	-	110 species	3,623 individuals
1965	-	168 species	11,473 individuals
1966	-	107 species	6,723 individuals
1967	-	70 species	4,892 individuals
Total	-	192 species	26,711 individuals

Mindanao

1964	-	0	
1965	-	0	
1966	-	25 species	2,830 individuals
1967	-	68 species	3,491 individuals
Total	-	73 species	6,321 individuals

Dr. Rabor took the position as Research Professor of the Department of Biology of Mindanao State University, Marawi City, Lanao del Norte Province, Mindanao, in June. His objective there is to build up the University museum for teaching purposes and to carry on biological research. Mindanao State University is a new university designed to bring a higher education facility to the Muslim community of northern Mindanao. Its campus is still under construction. The MAPS grant was transferred from the institutional affiliation with Silliman University at Dumaguete City, Negros Oriental, to Mindanao State University. Most of Dr. Rabor's staff also moved to Mindanao, but after new people were hired and trained many returned to Negros. These people will maintain and intermittently operate the station at Siaton.

Dr. Rabor reports, "the transfer of personnel, equipment and other supplies needed in the banding operations from Dumaguete to Marawi and eventually to Tambo, Munai, Lanao del Norte, the site of the prospective central station of the bird banding project on Mindanao Island, took some time. The time lost in this transfer was reflected eventually in the reduced total catch of the banding team during the year."

"Another factor, and a very important one at that, which in a way was responsible for the reduced total catch of the year, was the confusion resulting from the problems which were created during the pre-election, election, and post-election activities of the people in the places where the banding operations were held." (Election of governors, mayors, and congressmen produced much violence over the islands with 90 people killed before the election ballots had been counted). "In some of the localities where we operated conditions became outright dangerous and we had to cease operations and transfer to other places which eventually proved to be also just as confused." (Since then an armed attack on one of the banding camps (Figure 14) has necessitated a move to the province of Misamis Oriental). "Lanao del Sur and Lanao del Norte are two very sensitive provinces during elections mainly due to their large Muslim populations who regard their elections in a very different light from that of the Christians." The local people were also very suspicious of the bird banding activities, not understanding the work, even though the field supervisor Warlito Sanguila is the son of the local community chieftain and town mayor.

Dr. Rabor further reports, "the following species, with status as migrants to the Philippines, were recovered within periods of six months to over one year since they were originally banded on Negros Island: Actitis hypoleucos 17, Alcedo atthis bengalensis 1, Calidris ruficollis 1, Lanius cristatus lucionensis 3, Charadrius dominicus fulvus 2, Tringa totanus eurhinus 8; total 32. The problem, however, still remains whether these migratory species ever left the Philippines for their breeding places, or they just continued to stay in



Figure 14. New banding camp in Lanao del Norte, Mindanao which had to be abandoned because of armed attack by suspicious local people.

the Philippines and in the very same localities where they were originally banded. All of them were recovered in their original localities and almost in the same banding sites. Unless some other banders recovered them in localities preferably outside the Philippines then the problem will always remain regarding the possibility that these migrant birds did not go back to their usual breeding places during 1967 and may have stayed in their autumn and winter quarters in the Philippines." (Dr. Rabor fails to tell us if there are any of these species in his area during the northern breeding season or if they are present all year round.) "The remaining 22 species that were recaptured by the MSU Bird Banding Team were generally taken in the very same places or very close to the original sites where they were netted and banded. The period ranged from one year to almost three years. This fact definitely establishes the sedentary and very local migration habits of these particular Philippine resident forms" The species recaptured included: Aplonis panayensis panayensis 1, Caprimulgus macrurus manillensis 2, Chalcophaps indica indica 10, Copsychus saularis mindanensis 1, Geopelia striata striata 3, Halcyon chloris collaris 19, Halcyon smyrnensis gularis 1, Hypsipetes philippinus quimarasensis 7, Lalage nigra nigra 1, Lanius nasutus nasutus 2, Lonchura malacca jagori 4, Megalaima haemacephala intermedia 3, Merops philippinus philippinus 12, Nectarinia jugularis jugularis 2, Oriolus chinensis suluensis 4, Phapitreron leucotis nigrorum 1, Pycnonotus goiaver goiaver 46, Pycnonotus goiaver subensis 3, Rhipidura javanica nigrirerquis 8, Saxicola caprata caprata 2, Streptopelia bitorquata dusumieri 8, Streptopelia chinensis tigrina 3, Treron vernans vernans 3; total 146."

"One Geopelia striata striata, banded in Bondo, Siaton, Negros Oriental on 31 October 1965 was recovered in Kabulihan, Toledo City, Cebu Island on 6 June 1966, definitely showing inter-island migration for this species, at least between islands that are close to each other. Within the last thirty years this dove has extended its range from Luzon to the central and southern islands of the Visayan Group, including Panay, Negros, Cebu, and Siguilor. The usual explanation for the process involved in the possible extension of range of this species from its original home range on Luzon Island to the southern islands was supposedly cage escapes. With this discovery that this species actually performs island to island migration, then one process which may actually be involved in the spread of this species from Luzon to more southern islands is now proven."

"For the last thirty years Streptopelia chinensis tigrina has also been extending its range from Palawan and the Sulu Archipelago to Mindanao, Negros, and Cebu. It is also possible that this species extended its range through island to island migrations as well as from cage bird escapes."

"Another species, Merops philippinus philippinus likewise proved its capability to perform inter-island migration, as shown by the recovery of two banded birds in Midsayap, Cotabato, Mindanao, which were originally banded in Bondo Station, Siaton, Negros Oriental."

Longevity of 153 birds of 25 species are shown in Table 1. As the team has the habit of visiting the study areas about once a year, their records are more nearly a function of their visits than survival within the bird population. In areas where they work regularly at shorter intervals, the decrease in population during the first year following banding will become more evident. The present records all refer to adult or fully grown birds, which would also effect the indicated survival for the rapid loss of the juvenile birds would not be shown.

NORTHERN PHILIPPINES

Institution: Philippine National Museum, Manila.

Responsible Investigator: Godofredo L. Alcasid, B.S.

Team Members: Pedro C. Gonzales, Field Supervisor, Dalton Pass;
T. Oane, Field Supervisor, Palawan. Field personnel employed as needed.

Location of Banding Stations: Luzon: Calatagan, Batangas, 13.48 N, 120.37 E; Paracale, Camarines Norte, 14.17 N, 122.45 E; Dalton Pass, Nueva Vizcaya, 16.08 N, 120.55 E; Sinipsips, Benquet, 16.40 N, 120.47 E. Palawan: Aborlan, 9.30 N, 118.27 E; Iwahig, 9.40 N, 118.27 E.

Birds Banded: Luzon

1963	-	12 species	371 individuals
1964	-	130 species	4,293 individuals
1965	-	150 species	10,621 individuals
1966	-	164 species	16,443 individuals
1967	-	157 species	11,020 individuals
Total	-	237 species	42,748 individuals

Palawan

1964	-	60 species	483 individuals
1965	-	115 species	3,335 individuals
1966	-	98 species	2,444 individuals
1967	-	97 species	4,417 individuals
Total	-	150 species	10,679 individuals

The studies at Palawan continued in 1967 with no major change in emphasis. In Luzon the Dalton Pass studies and those at Batangas continued and in addition a new area was opened up in Camarines Norte

TABLE 1
LONGEVITY RECORDS OF PHILIPPINE BIRDS AS REPORTED
BY THE SOUTHERN PHILIPPINE TEAM

	Months following banding									
	0-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30
Common Kingfisher										
<u>Alcedo atthis hengalensis</u>	1	1	1	1						
Philippine Glossy Starling										
<u>Aplopis panayensis panayensis</u>	1	1	1	1	1	1				
Long-tailed Nightjar										
<u>Caprimulgus macrurus manillensis</u>	2	2	2	2	2	2	2	2	2	
Emerald Dove										
<u>Chalcophaps indica indica</u>	12	12	12	12	8	5	5	5	1	
Magpie Robin										
<u>Copsychus saularis mindanensis</u>	1	1	1	1	1	1	1	1		
Zebra Dove										
<u>Geopelia striata striata</u>	3	3	3	3	2	2	2	2		
White-collared Kingfisher										
<u>Halcyon chloris collaris</u>	20	20	20	16	6	6	5	5	3	
White-breasted Kingfisher										
<u>Halcyon swinhonis gularis</u>	1	1	1	1						
Philippine Bulbul										
<u>Hypsipetes philippinus quimerasensis</u>	7	7	7	6	5	5	2	2		
Pied Triller										
<u>Lalage nigra nigra</u>	1	1	1							
Brown Shrike										
<u>Lanius cristatus lucionensis</u>	3	3	3	3						
Black-headed Shrike										
<u>Lanius nasutus nasutus</u>	2	2	2	1						
Chestnut Munia										
<u>Lonchura malacca jagori</u>	4	4	4	4	4	4	4	4	3	
Coppersmith Barbet										
<u>Megalaima haemacephala intermedia</u>	3	3	3	3	3	3	2	2	1	
Blus-tailed Bee-eater										
<u>Merops philippinus philippinus</u>	12	12	12	12						
Yellow-breasted Sunbird										
<u>Nectarinia jugularis jugularis</u>	2	2	2	2						
Black-naped Oriole										
<u>Oriolus chinensis sulcirostris</u>	4	4	3	3	2	2	2	2		
White-eared Brown Fruit Dove										
<u>Phapitreron leucotis nigrorum</u>	1	1	1	1						
Yellow-vented Bulbul										
<u>Pycnonotus goiavier goiavier</u>	46	43	36	32	20	20	19	19	11	
Yellow-vented Bulbul										
<u>Pycnonotus goiavier sulcirostris</u>	4	3	3	3	3	3	3	3	3	
Pied Fantail Flycatcher										
<u>Rhipidura javanica nigritorquis</u>	8	8	7	5	3	3	2	2	1	
Pied Chat										
<u>Saxicola caprata caprata</u>	2	2	2	2	2	2				
Javanese Turtle Dove										
<u>Streptopelia bitorquata dussumieri</u>	8	8	7	7	4	3	3	2		
Spot-necked Dove										
<u>Streptopelia chinensis tigrina</u>	2	2	2	2	1	1	1	1	1	
Pink-necked Green Pigeon										
<u>Treron verreauxi verreauxi</u>	3	3	3	2	1	1	1	1		
Total	153	149	139	125	68	64	54	53	26	1
Survival on basis of 100	100	97	91	82	44	42	35	35	17	.5

on the east coast. This should reveal movements on both the east and west coast of migratory shorebirds. One of the immediate results was an increased take in snipes. Mr. Alcasid did not report whether this increase was due to a more favourable habitat in Camarines or a lower population in Batangas.

Recoveries from Dalton Pass are discussed in Part 3 of this report. Mr. Alcasid reports that a correlation of the movements of the Blue-breasted Quail, Coturnix chinensis, in Luzon as shown by the ring recoveries, with cropping of rice suggests that the quail are crossing the mountains as they follow the southern movement of rice maturation and harvest.

It has been suggested that the movement of local birds across the pass is not migration, but an artifact resulting from the attraction of the lights to birds in the valleys beneath. This has not been corroborated by population tallies in these valleys. There are still no data to show that the immediate environs from which the birds could be attracted support an avifauna of similar speciation and population density.

The most obvious indication that the birds are moving in a continuous stream across the mountains is the fact that almost no repeats or returns are taken. Occasionally a bird released a few days before will be recaptured. The station is under operation at the dark of the moon each month for nine months out of the year intercepting both northern and southern movements. The number of birds of previous years or seasons being recaptured is very low. A premium for ringed birds is given to the netters, but still none are brought in, therefore the lack of recaptures is not a function of the method. In spite of three years of concentrated studies at this location there is much that is not understood. It is to be hoped that some energetic graduate student will work on these problems for his Ph.D. dissertation.

Mr. Alcasid and the staff of the National Museum made the arrangements for the very successful MAPS conference at Dalton Pass and Baguio as well as presented an exhibit in the museum on bird migration. The MAPS organization extends its appreciation to Director Gale B. Ocampo and Mr. Alcasid and the hard working museum staff. (Figure 15)

THAILAND

Institution: Applied Scientific Research Corporation of Thailand,
Bang Khen, Bangkok.

Responsible Investigator: Prasert Lohavanijaya Ph.D.

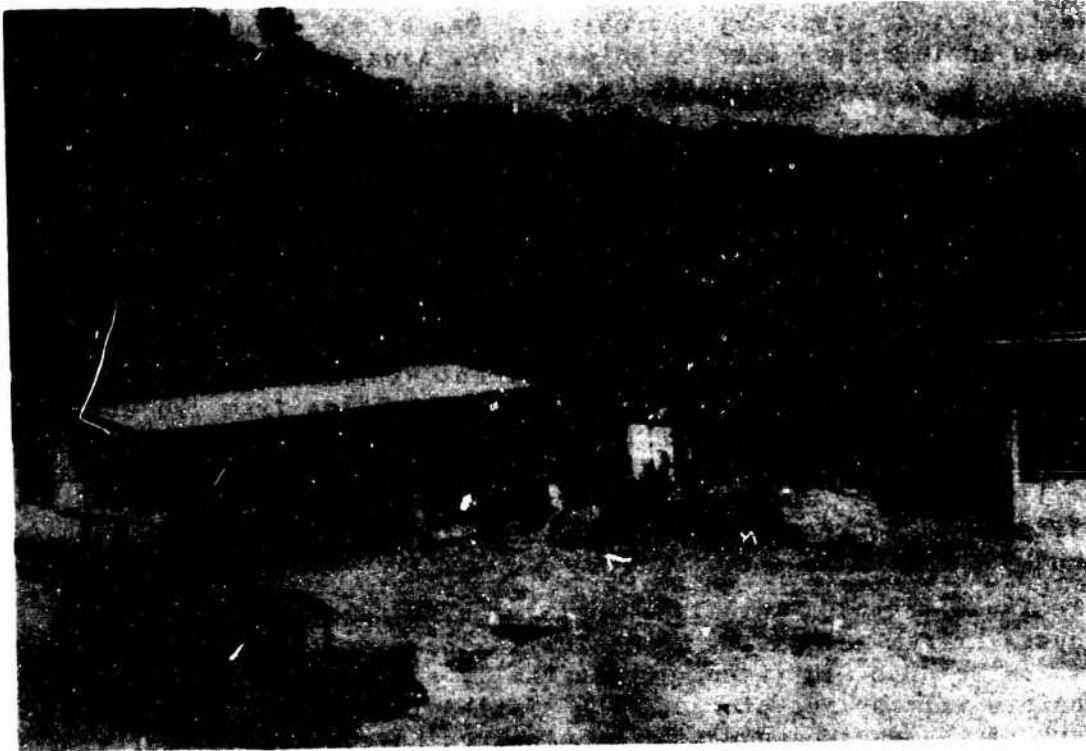


Figure 15. Improvements at the Dalton Pass biological station; additions to the station on the left and use of the abandoned store on the right.

(The bulldozer is not part of the MAPS equipment)

Team Members: Kitti Thonglongya B.S., Team Leader; Preecha Lucha, Nivesh Nadee.

Volunteer Banders: Joe T. Marshall Ph.D., Ed. Dickinson, Roger T. Nelson M.D., Somthob Chaiyaphun M.S., J.M. Anholm D.D.

Location of Banding Stations: Satur, Muang, Wang Bla Chan, 6.45 N, 100.10 E; Phatthalung, Muang, Khuan Kut, 7.30 N, 100.10 E; Ranong, Muang, Ban Bang Non, 10.00 N, 98.40 E; Bangkok vicinity, 13.45 N, 100.30 E; Pathum Thani, Sam Khok, Wat Phai Lom, 14.06 N, 100.33 E; Nakhon Ratchasima, Pak Thong Chai, Sakaerat, 14.30 N, 101.56 E; Chiang Mai, Chiang Dao, Pang Puai, 19.40 N, 98.54 E; Chiang Mai, Muang, Doi Pui, 18.49 N, 98.54 E; Chiang Mai, Muang, Ban Khi Lek, 19.00 N, 99.00 E.

Birds Banded:	1963	-	22 species	593 individuals
	1964	-	303 species	6,844 individuals
	1965	-	340 species	30,270 individuals
	1966	-	229 species	59,455 individuals
	1967	-	282 species	18,680 individuals
	Total	-	462 species	115,842 individuals

The Thai team has been busy this year, working both in new areas and at old stations where they recaptured previously banded birds. Following are excerpts from Mr. Kitti's reports:

"Satun, Muang, Wang Bla Chan is situated on the border between Thailand and Malaysia. It is a limestone valley, covered by rain forests and rubber estates. Bats are common in the area. A Horse-shoe Bat Hipposideros galeritus was a first record for Thailand. A Dog-faced Fruit Bat Cynopterus horsfieldi minor confirmed the existence of this species in Thailand, first reported by Count Nils Gyldestolpe in 1911.

Phatthalung, Muang, Khuan Kut is near the inland sea of the eastern peninsula. The area includes rice fields bounded by scrub, bushes and young trees. It was here that Muscicapa narcissina was first recorded in 1966. Also 200 Anthus novaeseelandiae were ringed in 1966 but none were seen this year.

Nakhon Ratchasima, Pak Thong Chai, Sakaerat is situated in the forested hills dividing the Nakhon Ratchasima plateau and the rain forests of east Thailand. This is a dry forest with a low bird population.

A species of flying squirrel, Berlomys pearsoni, was collected for the first time in Thailand, and this may be the southernmost record for this rare South-east Asian squirrel.

Blood films from birds in the Sakaerat area revealed a higher incidence of Microfilaria and Trypanosoma infections than has been noted in other areas of Thailand.

Chiang Mai, Chiang Dao, Pang Puai was visited for the first time. It is a valley among the east-west range dividing Chai Prakan from Chiang Mai. The Green Munia or Non-pareil, Erythrura prasina (Pin-tailed Parrot Finch), was found in this area. It is common in peninsular Thailand, but has not yet been reported this far north. Later, others of this species were collected on Doi Pui, suggesting that it is extending its range northward. The Black-browed Willow Warbler, Phylloscopus cantator, was also taken on Doi Pui, the second record for this area.

Chiang Mai, Muang, Doi Pui. Further work on this mountain not only resulted in collecting Erythrura prasina and Phylloscopus cantator but many rare birds and mammals were caught. These included: Petaurista elegans marica, the White-spotted Flying Squirrel, first reported by Osgood in 1932 from the collection by Baron de Schauensee of the Academy of Natural Sciences of Philadelphia. He records two specimens from Chiang Mai. Rattus fulvescens is a rat that has been seldom recorded from Thailand. Kerivaula hardwicki, a Woolly Bat, was also a first record for Thailand. The Brown Wood Owl, Strix leptogrammica, was known from this area by only one specimen collected by C.J. Aagaard in 1931. The Bay Owl, Phodilus badius, has also been rarely reported from this area.

Chiang Mai, Mae Rim, Ban Khi Lek is in the valley of the Mae Ping River. During the period of observation, which was in the fall, there were heavy rains, but numerous Wrynecks, Jynx torquilla, and Ruby-throats, Erithacus calliope, were in the area.

Bat banding: A programme of bat banding was started this year with the following: Eonycteris speleae 5, Megaerops ecaudatus 10, Cynopterus horsfieldi 1, Cynopterus brachyotis 269, Macroglossus minimus 10.

House Swallow banding: The number of nights of swallow netting was reduced this year because the power lines formerly used by the birds were removed. This dispersed the flock and other wires which they chose for roosting were much more difficult to approach. Heavy and fast traffic even at 0200 made working in the area very hazardous. In November the birds left the area and very few could be caught. The percentage of recaptured birds continued to be high, 23.3 per cent of 2,668 birds in January 1967 and 20 per cent of 5,621 birds in November-December. Recoveries of foreign birds are discussed in Part 3 of this report

Pathum Thani, Sam Khok, Wat Phai Lom: Only a few of the Open-billed Stork nestlings were banded in 1967. Nest building began in November. Earlier in the year the tick Argas (Persicargas) robertsi recently described from Australia (Hoogstraal, Kaiser and Kohls, 1968) was discovered feeding on juvenile storks. In December a few adult

ticks were beneath bark of the nest trees. As nestlings hatched, the tick population increased in January 1968. By February the nestling storks were well grown but had not fledged, and the ticks and a mite infestation (Dermanyssus?) was at its peak. It declined during March and by mid-April the mites had disappeared and the ticks were moulting to adults and were clustering behind loose bark of the nest trees.

Bird sales in Bangkok: On week-ends a large open air market is assembled on the Palace Plaza. Many bird and mammal shops are included. Over 300,000 birds a year are sold in this market and a year's study of these sales is reported here as an appendix to Part 1.

HONG KONG

Institution: University of Malaya, Kuala Lumpur, Malaysia.

Responsible Investigator: Lord Medway Ph.D.

Team Members: F.O.P. Hechtel, Team Leader; two assistants as available.

Location of Banding Stations: Mongtseng Peninsula, 22.28 N, 114.00E; Taidokau Forest Reserve, 22.26 N, 114.11 E; the Peak, Hong Kong Island, 22.16 N, 114.09 E; Maidu Marshes, 22.30 N, 114.03 E.

Birds Banded:	1965	-	23 species	174 individuals
	1966	-	82 species	1,972 individuals
	1967	-	57 species	882 individuals
	Total	-	95 species	3,028 individuals

The Hong Kong project has been plagued with difficulties. At first it was difficult to find reliable assistants to work in the field. Then there were endless correspondence and contacts with government officials to gain permits to work in the areas where birds occurred in some numbers. Nets had to be kept under constant watch to prevent the theft of both captured birds and nets.

Then during the summer of 1967 began the riots and uprisings that upset the economy of the entire area and made any field work extremely dangerous. Little by little, Mr. Hechtel had to withdraw until he had to give up all banding work but that in his garden. He even drove over a bomb near his office one day, and it was detonated by the bomb squad which he called to the scene.

It is highly significant that of the thousands of birds banded to the north and to the south of Hong Kong, none has been reported

from Hong Kong or the New Territories. Either the birds are not passing this way or the local people are not reporting the rings they get. In order to test this, Mr. Hechtel had some rings made, inscribed in Chinese and using a post box other than Box 3443, that of the general banding. He had hoped to learn if people would report these Chinese rings. This effort, too, was interrupted by political unrest.

That no bird has been reported from the area suggests that the major flight paths between Korea and Japan and Thailand or Malaya are inland of the coasts.

TAIWAN

Institution: Tunghai University, Taichung.

Responsible Investigator: Johnson T.F. Chen Ph.D.

Team Members: Sheldon Severinghaus B.S., Team Leader; Kang Kuo-wei B.S., Chao Mao-cheng B.S., Wang Ching-te B.S., Huang Wan-tsih B.S., Meng Hsen-chang.

Location of Banding Stations: Heronries: Kao-shuang, Tao-yuan, 24.56 N, 121.11 E; Ying-ko, Taipei, 24.57 N, 121.21 E. Mountain Station: Kun Yang, 24.09 N, 121.16 E. Sugar Cane Roosts: Chienmin, Taichung, 24.06 N, 120.43 E; Chu Shan, Nantou, 23.45N, 120.40 E; Houli, Taichung, 24.18 N, 120.42 E; Hsi-lo, Yuan Lin, 24.48 N, 120.27 E; Liunan, Taichung, 24.04 N, 120.40 E; Mingchien, Nantou, 23.49 N, 120.42 E; Nantou, Nantou, 23 52 N, 120.41 E; Puli, Nantou, 23.58 N, 120.58 E; San-I, Miao Li, 24.25 N, 120.45 E; Tai Kang, Tainan, 23.17 N, 120.19 E; Tan Tsu, Taichung, 24.13 N, 120.42 E; Tsaotun, Nantou, 23.59 N, 120.40 E; Wen Shan, Taichung, 24.09 N, 120.38 E. Other stations: Chihsin-Kang, Hwa-lien, 23.46 N, 121.16 E; Chi-tou, Nantou, 23.41N, 120.47 E; Tai-Ma Li, Taichung, 22.36 N, 120.58 E; Kuan Tau-Hsi, Nantou, 24.05 N, 121.02 E.

Birds Banded:	1964	-	42 species	802 individuals
	1965	-	69 species	20,983 individuals
	1966	-	99 species	54,192 individuals
	1967	-	83 species	54,130 individuals
	Total	-	147 species	130,107 individuals

The Tunghai report prepared by Mr. Severinghaus follows:

"The year 1967 has been the most active and successful year to date for the Tunghai University field team. All the experience and know-how gained in past years produced greatly increased numbers

banded and heightened efficiency of operations this year. A total of 54,130 individuals belonging to 85 species were banded. Of these, 94.4 per cent (51,155) were migratory birds belonging to 22 species. Twenty-one species are new to the list of birds banded between 1964 and 1966, and two new records for Taiwan were picked up. The following narrative report comments on the major species and major projects dealt with by the Tunghai team in 1967.

Since 1964, the team has been mass-banding swallows, wagtails, and buntings. With the help and cooperation of local residents and professional bird catchers, large concentrations of roosting birds are located. At night, they are driven into mistnets set around the sugar cane fields where they roost. 1967 was the culmination of the mass-banding efforts, aimed at getting as many rings flying as possible. To that end, 39,722 swallows, wagtails, and buntings were banded and released. Several species-specific problems were undertaken simultaneously and data on local movements have been gathered through multiple recaptures. Following are some brief comments about the work on each one of these species.

House Swallow (*Hirundo rustica*) - In 1967, the team banded 12,738 House Swallows, making a grand total of 29,155 banded since the inception of the programme four years ago.

House Swallows are winter visitors to Taiwan from September to May. During their overwintering period 376 swallows were studied for wing and tail moult. In this study, recaptured swallows were checked with the hope of obtaining information on plumage change and development. Results showed that there was always some part of the population moulting in every month of their residency. This raises the possibility of arrested moult. The wing moult was found to have a more precise pattern than the tail. Primaries moult from inside outward. Secondaries moult from outside inward. It is the primaries that give the signal to begin and terminate moulting. These studies will be continued with greater emphasis on body moult and plumage coloration of recaptured birds.

The Yellow Wagtail (*Motacilla flava*) - Taiwan is one of the main wintering areas of the Yellow Wagtail. Since 1965, the team has banded 28,834 Yellow Wagtails, 569 were recaptured within the same wintering season, and 175 (about 0.6 %) were recaptured one breeding season or more after banding. There have been four recoveries from abroad, listed here following:

<u>Band No.</u>	<u>Banded Date & Place</u>	<u>Recovered Date & Place</u>	<u>Distance</u>
1. 020-58306	Apr/28/66 Chupu, Tainan	Jun/26/66 Point Barrow Meade R., Alaska	4,000 mi
2. 030-17379	Apr/15/65 Taiping Taichung	Jun/? /66 Yakutian, USSR	2,800 mi
3. 014-86276	May/3/67 Houpi, Tainan	Jul/7/67 Magadan Region, USSR	3,400 mi
4. 013-81974	Apr/16/67 Nantou Nantou	Sep/20/67 Amur Region, USSR	2,000 mi

Banding has been confined to two major areas: Taichung, in central Taiwan, and Tainan, in southern Taiwan. The two localities are separated by an approximate distance of 120 kilometers (65 mi). Recapture data indicate that the Yellow Wagtail does not have a particular patch of sugar cane for roosting to which it returns every year. A Yellow Wagtail, roosting in central Taiwan this year, might roost in southern Taiwan next year, or even move between these widely separated localities within one season. Frequent disturbance of the roost will very likely cause them to move. Harvesting of the roost, of course, will necessitate a shift.

It appears that birds banded in April may have a significantly higher rate of recapture than those banded in May. Possible explanations for this observation, as well as other specific problems, will be worked on during the ensuing banding season.

The Black-faced Bunting (*Emberiza spodocephala*) - 12,040 Black-faced Buntings have been banded since the project began, 4,780 in 1967 alone. 564 have been recaptured within the same season. 431 (3.6 %) have been recaptured one or two breeding seasons after banding. There has been one recovery reported from Korea.

The recapture percentage of buntings is significantly higher than that of Yellow Wagtails and may possibly indicate a higher mortality rate in the wagtails.

The most striking example of local movement comes from four birds banded in 1965 and three birds banded in 1966. These seven birds were recaptured in central Taiwan on 10 April 1967. On the next day, 11 April, they were caught again 120 kilometers to the south.

Mountain study area

In August 1966, the team established three banding stations in the mountains of central Taiwan, a fourth one being added in January 1967. It is about 16 kilometers between the farthest two and in that distance, the elevation rises roughly 2,000 meters (1,100-3,100 m). The proximity of the three localities and the rapid rise in elevation with corresponding change in habitat make the area ideal for studying seasonal and altitudinal variations in bird life.

In 1966, the team visited this areas twice. In 1967, four major trips were made: one each in January, April, August, and December. A brief inspection tour was made in June 1967 by Dr. McClure.

Since the beginning of the mountain work, the team has banded a total of 1,185 individuals of 50 species, including 4 species of migratory thrushes and two species of migratory sylviids. There have been 208 recaptures of 22 species, a recapture rate of about 17.5 %. Twelve of the 50 species banded were timaliids, eight were turdids.

The four migratory thrushes (Tarsiger cyanurus, Turdus chrysolaus, Turdus pallidus, Zoothera dauma) have been banded and/or observed at all but the highest station, showing a wide altitudinal distribution in their winter quarters. Turdus chrysolaus and T. pallidus have been banded and observed on the university campus (100 m) as well, giving an altitudinal range of roughly 2,700 meters (8,800 ft.) for these two species.

The high recapture percentage is an indication of the highly localized, predominantly non-migratory population in the areas. Such a high rate of recapture is offering the team an excellent chance to obtain blood and parasite histories of the same individuals from season to season and year to year. The team has also gathered substantial information on seasonal plumage variations and population movements of a good number of species (through the use of numbered nets and visual observations). With time, these areas will also produce longevity records of value.

Of all species banded in the mountains, the Orange Parrotbill Paradoxornis nipalensis is the most dramatic in its movements. These tiny birds travel swiftly in large flocks through dense thickets of dwarf bamboo. It is possible to catch as many as 50 of them at one time in one 24 millimeter-mesh net set across their path. It is this species which has provided the only recapture evidence so far of altitudinal movement: two individuals that descended 500 meters and traveled a straight-line distance of 5 kilometers. Data and observations yet to be analyzed will provide further insight into flock territories, flock behavior, flock paths, flock mortality, and seasonal and daily movements of this species.

The team continues to set up net lines along the roadside with great success. It is so successful that birds cannot wait to be caught (excuse the unscientific phraseology) and sometimes fly into one net while the team is setting up the adjacent one. Furthermore, this method has, on several occasions, produced 50 birds in one 12-meter net at one time. (Figures 16 and 17)

The Brown Shrike (*Lanius cristatus*) - The annual September migration of the Brown Shrike through the southern tip of the island was studied again in 1967, 3,462 being banded. An extensive report on the biological and sociological aspects of the programme was presented at the 1967 Annual MAPS Conference in the Philippines (Severinghaus 1967). After the close of the meeting, specific requests for cooperation on the shrike study were sent out to the Philippine and Malayan teams. It is hoped that cooperation in the various countries where the shrike resides plus further work in Taiwan where it passes in such concentrated numbers will produce a broad and complete perspective of this migrant. (Figure 18)

Hérons and Egrets - From 1964-66, 4,449 Cattle Egrets were banded at 10 heronries in Taiwan. Recoveries have come from Sabah (North Borneo), the Philippines, the Caroline Islands, and Japan with the following distribution: Japan (Cape Ashizuri) 1, Caroline Islands 1, Sabah 1, Mindanao 4, Luzon 41, Batan Is. 1, other parts of the Philippines 18.

These recovery records provide a substantial amount of information about the wintering quarters of Cattle Egrets. In 1967, therefore, the team concentrated on banding Little Egrets (3526) and Black-crowned Night Herons (3581), since recovery information from these two species was still scarce. Recently reported foreign recaptures of Little Egrets and Night Herons confirm the value of the shift.

One interesting recovery is a Cattle Egret which was banded at Erchieh, Ilan (east coast) on 7 July 1965. It was recovered at Cape Ashizuri, Japan on 6 May 1967. It would appear that this individual, banded as a nestling in Taiwan, had dispersed northward to a new locality, far removed from its native heronry, to breed. At the Shihkuang heronry on the west coast, eighteen Cattle Egrets banded in the previous years were recaptured in the summer of 1967.

Cooperative virus studies:

From March through September 1967, the team cooperated in a project with the U.S. Navy Medical Research Unit (NAMRU-2). The project, under the direction of Dr. Roger Detels, was designed to determine the relative chronology of Japanese-B encephalitis infection in herons, pigs, mosquitoes, and man in the county with the highest consistent rate of infection on the island. Methods and findings are summarized by Dr. Detels as follows: "Scherer, Hammon,



Figure 16. Roadside netting at 7,000 ft in the mountains of Taiwan.



Figure 17. Kang Kuo-wei and Miss Huang Wan-tsih working from a jeep in the mountains of Taiwan.



Figure 18. Above, sisal fields of Taiwan in which thousands of migratory Brown Shrikes are caught by snares for food each year. Below, one of the snare made of bamboo.

and Buescher, working in Japan from 1952-1957, found infection of nestling herons and egrets with Japanese encephalitis virus (JEV) to occur in late July and August, coincident with or following demonstration of infection in mosquitoes and pigs. They, therefore, concluded that introduction of the JEV into Japan annually was unlikely to be due to migration northward of infected herons and egrets.

In Taiwan, Black Crowned Night Herons (BCNH) were found to have a serologic prevalence of JEV antibodies of 20-50 per cent (Wang et al., 1962). The present study was done to determine the relative chronology of infection in BCNH, mosquitoes (C. tritaenorrhynchus and C. annulus), pigs, and humans in the area of a heronry in the county with the highest annual rate of human JEV infection in Taiwan.

In late March 1967, nine sentinel pigs were placed in open and closed pens and in a Magoon trap on the floor of a heronry and bled weekly. Mosquito collections were made from one hour before dusk to one hour after dusk three times a week from the Magoon trap, from the backs of the pigs in the pens, and also from light traps. Mosquitoes were starved for two days and transported on ice to the laboratory for isolation procedures in suckling mice.

From late April serial bleedings were begun of ten new nestling BCNHs twice a week.

Infection with JEV was first demonstrated by a greater than four-fold titer rise in the hemagglutination inhibition test in a nestling BCNH in late May. Thereafter, infection was demonstrable in nestlings and runners through September. Serologic evidence of infection occurred next in the sentinel pigs in the last week in June.

Isolation from mosquitoes occurred in the first week in July. Positive isolations occurred only in C. annulus. Only one-tenth as many C. tritaenorrhynchus were collected from the pigs in pens and none were found to enter the Magoon trap.

Human infection was first reported in the county on July 9th and adjacent to the heronry on July 27th.

The finding of infection in nestling herons five to eight weeks prior to demonstrable infection in mosquitoes, pigs, and humans raises the question of their role in the early dissemination of the virus as well as the possibility that they reintroduce the virus to Taiwan annually during their northward migration.

As this study raises continuing questions regarding the role of herons in the inception of the annual encephalitis epidemic, it is intended that the study be pursued again during the coming breeding season, with special attention to nestlings and nest environment."

Additional studies:

A sustained effort in public education was begun in December 1967. Through lectures to high schools and through regular newspaper articles, it is hoped that an awareness of and an interest in the present work, as well as its future implications, will be aroused.

A year-long study on the business of mounting and selling bird and animal specimens at the Sun-Moon Lake bird shops was begun in October 1967, especially on six species placed on the "protected" list the previous September. Also, research into the status, distribution, and trade of Mikado Pheasants was initiated in August 1967. Both these projects are progressing well and will be continued, though independent of MAPS' funding."

Sheldon Severinghaus continues bird song recording for the Laboratory of Ornithology at Cornell University. Cornell University and Tunghai are further considering an exchange programme in conservation, details of which are currently being discussed.

JAPAN

Institution: Yamashina Institute of Ornithology and Zoology,
Shibuya, Tokyo.

Responsible Investigation: Yoshimaro Yamashina Ph.D.

Team Members: Masashi Yoshii M.S., Team Leader; Y. Hasuo B.S.,
Woo Han-chung Ph.D. (on loan from Korea while he completed his requirements for his Doctorate in zoology).

Volunteer Banders: N. Shiraishi, R.A. Cheke, and many members of the game refuge and national monument staffs throughout the country.

Location of Banding Stations: Kabushima, Aomori, 40.32 N, 141.33 E; Sankanshima, Iwate, 39.18 N, 141.59 E; Koshigaya, Saitama, 35.53 N, 139.48 E; Fuchu, Tokyo, 35.41 N, 139.30 E; Shinhama, Chiba, 35.40 N, 140.00 E; Yahugi, Aichi, 34.58 N, 137.09 E; Tsunoshima, Yamaguchi, 34.21 N, 130.51 E; Mikurashima, Tokyo, 33.53 N, 139.37 E; and other locations used occasionally.

Birds Banded:	1964	-	75 species	6,057 individuals
	1965	-	93 species	6,288 individuals
	1966	-	118 species	21,913 individuals
	1967	-	81 species	19,497 individuals
	Total	-	147 species	53,755 individuals

Banding was continued through 1967 on a national scale. The numbers and species banded are recorded in Part 2.

No report of the progress and results of the 1967 studies has been received.

KOREA

Institution: Kyung Hee University, Seoul.

Responsible Investigator: Won Pyong-Oh Ph.D.

Team Members: Ham Kyu-whang M.S., Yoon Moo-Boo M.S., Chun Mi-za M.S., Park Young-shik M.S., Koo Tae-hae B.S., Woo Chung-dae, Kim Kyung-tae, Lee Hee-chung, Won Too-suk.

Location of Banding Stations: Chulwon, Kangwon-do, 38.17 N, 127.13E; Pochun, Kyunggi-do, 37.49 N, 127.15 E; Kapyung, Kyunggi-do, 37.45 N, 127.18 E; Kwang nung, Kyunggi-do, 37.45 N, 127.10 E; Munsan, Kyunggi-do, 37.52 N, 126.47 E; Chinchup, Kyunggi-do, 37.45 N, 127.15 E; Taenung, Seoul, 37.38 N, 127.05 E; Yaju, Kyunggi-do, 37.15 N, 127.07 E; Kongju, Choongchungnam-do, 36.22N, 127.12 E; Yongdong, Choongchungbuk-do, 36.08 N, 127.48 E; Kimchun, Kyungsangbuk-do, 36.08 N, 128.09 E; Koryung, Kyungsangbuk-do, 35.42 N, 128.17 E; Kuze Island, Kyungsangnam-do, 34.46N, 128.38 E; Pohang, Kyungsangbuk-do, 36.03 N, 129.22 E; Tongyoung, Kyungsangnam-do, 34.52 N, 128.20 E; Samchunpo, Kyungsangnam-do, 34.52 N, 128.03 E; Haenam, Chullanam-do, 34.32 N, 126.40 E.

Birds Banded:	1964	-	70 species	18,763 individuals
	1965	-	86 species	57,205 individuals
	1966	-	80 species	49,303 individuals
	1967	-	86 species	48,617 individuals
	Total	-	125 species	173,888 individuals

General banding continued for the fourth year with emphasis on the movements of the Emberiza, Motacilla, and Hirundo. Studies in the food brought to nestlings was also continued. Dr. Won summarizes the work as follows: "Seasonal distribution and ecology of migrant bird populations were studied by mist-netting and banding primarily in the area of Kyunggi-do, Korea during 1 January to 31 December 1967."

"From 1 January to 31 December 1967 (365 days), 48,995 bird of 94 species were banded and there were 202 recoveries of 11 species, including 146 returns in Korea and 21 recoveries of 5 species from abroad."

"May 23-July 10, 1967: Banded nestlings from the nest boxes in mixed deciduous evergreen forest; Forestry Experiment Station and Kwangnung Experimental Forest. Sturnus sturninus 23, Parus major 90, Muscicapa zanthopygia 37."

"July 11-August 26, 1967: Pied Wagtail and House Swallow roosts in pear orchards, N.E. Seoul. Motacilla alba 3236, Hirundo rustica 5912."

"August 29-October 29, 1967: Cultivated fields (Millet, soy-bean and corn field) principally rural locality in Kyunggi-do. Emberiza rutila 12725, Emberiza spodocephala 388, Emberiza tristrami 682, Emberiza rustica 445, Emberiza aureola 65."

"May 9-22, 1967: Principally cultivated land (Barley and wheat field) of the foothills in Kyunggi-do. Emberiza rutila 158, Emberiza spodocephala 28, Emberiza aureola 3."

"January 1-April 15, October 20-December 31, 1967: Open fields, riverside, sparse brushy area on the foothills in the vicinity of rural areas, Kyunggi-do. Emberiza rustica 8903, Paradoxornis webbiana 965, Emberiza cioides 770, Emberiza elegans 982, Carduelis sinica 400."

"June 16-December 31, 1967: Forest of the hills and foothills, cultivated land, orchard, extending from Central Korea, South to Kuze Islet, Pohang and the breeding colonies of heron and egret at Samchunpo; Tongyung; Kimchun; Koryung; Kongjoo; Andong; Haenam; Kochang. Egretta alba modesta and 79 species 13183."

A summary of Chick Food Analysis of Some Korean Birds:

"Observation were made on the feeding habits of nestlings of ten species Alauda arvensis quelpartae, Dendronanthus indicus, Emberiza cioides castaneiceps, Eophona m. migratoria, Lanius cristatus lucionensis, Motacilla cinerea caspica, Motacilla alba leucopsis, Paradoxornis webbiana fulvicauda, Pica pica japonica, and Saxicola torquatus stejneger. The investigation was made in Kwangnung experimental forest, Kyunggi-do and the nearby open fields.

Collars were placed on the young birds so that food could be examined before they were permitted to swallow it.

Alauda arvensis quelpartae, Emberiza cioides castaneiceps, Paradoxornis webbiana and Pica pica japonica are permanent residents and the other six species are common summer residents. The following is the food that these nestlings consumed:

Alauda arvensis quelpartae:

The food they consumed was animal matter composed of: insect larvae - 44 %, insect adults - 48 %, spider - 4 %, and miscellaneous animal matter - 4 %. Since 40 % of the food items were adults of Serica sp. (Scarabaeidae) and Noctuidae - 24 %, these are the preferred foods supplied during the whole feeding period.

Dendronanthus indicus:

Insect larvae - 44.29 %, insect adults - 40 %, spiders - 14.42 %

and miscellaneous animal matter - 1.03 %. Heterocera sp. which made up 16.5 % of the adult insects and Metrioptera bonnet which made up 10.3 % of the insect larvae are the preferred foods supplied during the feeding period.

Emberiza cioides castaneiceps:

Insect larvae - 88.4 % and insect adults - 11.06 %. Metrioptera sp. which made up 34.7 % and Oxya sp. which made up 14.22 % of the insect larvae are the preferred foods supplied during the whole feeding period.

Lanius cristatus lucionensis:

Insect larvae - 27.55 %, insect adults - 58.9 %, spiders - 6.08 % and miscellaneous animal matter - 7.03 %.

Motacilla alba leucopsis:

The food they consumed was animal matter composed of; insect larvae - 42.84 %, insect adults - 41.58 % and miscellaneous animal matter - 15.12 %. Tettigidae spp. larvae made up 8.82 %, Gryllotalpa africana adult - 8.82 % and these are preferred foods.

Motacilla cinerea caspica

Insect larvae - 23 %, insect adults - 42.82 %, spiders 3.06 % and miscellaneous animal matter - 30.06 %. Plecoptera spp. adults - 22.95 % and Diptera sp. - 21.28 % are the preferred food supplied during the whole feeding period.

Paradoxornis webbiana fulvicauda

Insect larvae - 35 %, insect adults - 27.5 %, insect pupae - 17.5 % and spiders 20 %.

Pica pica japonica

Insect larvae - 26.38 %, insect adults - 36.2 %, spiders - 2.8 %. Rana n. nigromaculata - 8.5 % was a preferred food supplied during the whole feeding period.

Saxicola torquata stejneger

Insect larvae - 36.4 %, insect adults - 44.8 %, insect pupae - 2.1 %, spiders - 15.4 %. Noctuidae spp. - 16.8 % and Asemus punctulatum - 10.5 % are preferred foods supplied during the whole feeding period.

Eophona m. migratoria

Insect larvae - 86.8 %, insect adults - 13.02 %. Sphingidae spp. larvae made up 52.08 % and are a preferred food supplied during the whole feeding period."

OTHER BANDING ACTIVITIES

Vietnam:

Mr. Philip Wildash of the British Embassy at Saigon, a volunteer bander, completed his tour of duty and returned to Great Britain. His book, "Birds of South Vietnam", came off press after his departure. Dr. Bui Thi Lang of the University of Saigon is continuing bird banding. Very little can be done because of the continued fighting in and around the city.

Okinawa:

Dr. Sadao Ikehara did not renew his grant for studies of the Butastur indicus (Grey-faced Buzzard) migration through Okinawa. The final report on his studies has not yet been received.

Guam:

Dr. R.A. Ryder of Colorado State University spent a few months in Guam and banded three species while he was studying the bird populations and teaching. Mr. R. Kawamoto of Guam is continuing the work.

Publications:

All of the team leaders or responsible investigators have been busy with field work and not many papers resulting from MAPS studies were published in 1967. Following are those that have been reported to or reviewed by MAPS Headquarters.

Won Pyong-Oh, Woo Han-Chung, Ham Kyu-Whang and Yoon Moo-Boo. Seasonal distribution and ecology of migrant bird populations by mist-netting and banding in Korea. Yamashina Institute of Ornithology and Zoology, Miscellaneous Reports 4: No. 6 (No. 26), 1967 (In Japanese, English tables and summary).

Severinghaus, Sheldon. The Brown Shrike (Lanius cristatus lucionensis) in Taiwan. September 1967. (Mimeographed)

Nisbet, I.C.T. Migration and moult in Pallass' Grasshopper Warbler. Bird Study, 14 (2): 96-103, 1967.

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HITCHCOCK, W.B. (1966).--Tenth annual report of the Australian bird-banding scheme, July 1963 to June 1964. Discussion of Wildlife Research Technical Paper No. 11, CSIRO, Canberra.

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LACK, D. (1954).--"The Natural Regulation of Animal Numbers."
(Oxford University Press: London.)

SEVERINGHAUS, S. (1967): The Brown Shrike Lanius cristatus
lucionensis in Taiwan. (Mimeo.)

APPENDIX A

STUDIES OF THE SALES OF BIRDS AT THE BANGKOK

WEEK-END MARKET

Except for public holidays that fall on week-ends a large open-market is set up each Saturday and Sunday on the plaza in front of the Royal Palace at Bangkok. This is known as the "Sunday Market" and was established about ten years ago and has grown increasingly popular. It covers an area of ten acres and all types of merchandise are for sale, especially fruits, vegetables, fish, and other produce from the farms and sea. One end of this large area is devoted to pet shops: dogs, cats, tropical fish, fighting cocks, poultry, reptiles, pigeons, wild mammals, and wild birds. (Figure 19).

In order to learn what species of birds are for sale, their seasonality, and to buy birds for banding and release, a study was begun in November 1966. This report summarizes the observations for the period 1 January to 31 December 1967.

The sale of birds supplies a three-fold demand: as cage birds, for foods, and for release. One of the concepts of Buddhism is that the devout receive merit in their life after death if they release caged animals. This belief does not maintain that the creature must be treated with kindness, released in health, and released where it can survive. Unscrupulous dealers sell weakened and starved birds which they can recapture after release and resell. With an increasing economic level in Thailand more money is available, and these demands are increasing, thereby increasing the drain on the nation's wildlife resources.

Colourful birds or good singers are widely sold as cage birds. The doves, both Spotted-necked Dove (Streptopelia chinensis) and Zebra Dove (Geopelia striata), are revered as birds of good omen, and good singers bring very high prices, ranging up to 100 dollars (2,000 baht).

There is no control over, and no way of learning, the numbers of birds sold for food. These are mainly ploceids, but emberizids and shore birds are sold in season. The ploceids and emberizids are sold skinned and in bundles of five. The shore birds are skinned and sold individually.

The Sunday Market is probably one of the largest sales points for birds, but may represent the numbers and species of birds for sale in other markets and cities throughout the country. Professional trappers and netters, farmers and children who have discovered a nest or snared a bird bring their catch to the market for



Figure 19. Bird and mammal shops of the Bangkok
"Sunday-market".

sale to the shops early Saturday morning. Counts or estimates of numbers for sale and identification of the species are made at this time. Since the sales are rapid and it takes two to three hours to visit all of the shops, there is probably at least a ten per cent error in the tallies of numbers for sale, especially of those species sold in abundance.

Shopkeepers have not been resentful of the intrusion into their privacy and have been helpful in supplying information about source of birds, etc. There are no aviaries or bird farms that produce for the market. All of the exotics are shipped in except possibly budgerigars some of which may be bred locally. All of the native wild species are wild trapped and none are captive reared. This constitutes a severe drain on local birds near urban areas where they can be sold.

It has not been possible to visit the market on every week-end that it is open. During 1967, 32 observations were made, 247 species were recorded and 198,347 birds tallied. The average supply for sale each week-end included 126 species and 6,198 birds. From these figures the sale for the year would include more than 320,000 birds. Of the 247 species, 40 or 16 per cent were exotics including 35,750 birds or 18 per cent of the total. The remaining 207 species were indigenous and averaged 5,082 per week. Table 2 lists the birds tallied and shows when they appeared for sale. Many species were seasonal. In order to make this seasonality comparable and to smooth the errors in tallying, the month of greatest abundance is shown as 100 and the remaining months in ratio to this.

The market has also been a source of information concerning nesting periods for many species. Nests are robbed of young whenever found and systematically sought for among species with high sales value, i.e. the Hill Myna (Talking Myna) or *tiong*, parrots, magpie robins. Those figures in Table 2 which bear an asterisk(*) indicate that there were nestlings, fledglings, or juveniles for sale.

The economic value of this traffic in bird is high. When there is a run on such species as the emberizids, ploceids, or motacillids, the sales value is about $\frac{1}{2}$ baht ($2\frac{1}{2}$ cents) apiece. Exotics such as cockatoos cost as much as 2,000 baht (100 dollars). A sample of 100 species through the shops and seasons gave an average value of 20 baht (one dollar). Such a figure indicates that the gross value of the year's sales exceeds \$ 325,000 or 6.5 million baht. Sales in Hill Mynas (*tiong*) alone are very high and an untrained bird brings 200 baht (10 dollars). The Game Department licenses exporters and 21,000 of these birds were air freighted from the international airport during the year. Yet in many areas of Thailand the forests still ring with the whistles of this species.

Each week from 100 to 200 birds of the species in greatest num-

bers for sale were purchased and released at Bang Khen in the rural area outside the city. They were banded, sample blood smears taken, and their conditions recorded. One Ploceus philippinus, Baya Weaver, and one Ploceus manyar, Striated Weaver (Manyar Weaver) were again found for sale in the market several weeks later. These birds had returned to their roosts and been recaptured. A Yellow Wagtail (Motacilla flava) was recaptured a year later and 150 miles north by the Thai banding team working at a roost in a marsh. None of the migrant species has been reported from their breeding ranges.

TABLE 2

BIRDS FOR SALE AT THE BANGKOK VIREO-END MARKET DURING 1967

* indicates that there were juveniles among the stock.
Exotic species are marked with an E.

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
SUMMARY														
Number of observations	32	1	2	4	3	4	2	3	3	4	3	2	1	2.7
Total species	247	94	125	154	156	156	121	132	124	135	183	128	107	126
Total birds	198,347	6,044	12,834	24,194	20,298	23,707	12,437	16,464	21,205	25,972	15,699	13,428	6,041	6,198
Average banded		6,044	6,417	6,048	6,766	5,926	6,219	5,488	7,068	6,493	5,833	6,786	6,041	6,198
Ratio		85	91	85	96	84	88	78	100	92	74	95	85	86
PODICEPTIDAE														
1. Little Grebe	7				100								17	3.5
<i>Podiceps ruficollis</i>														
ARDEIDAE														
2. Cattle Egret	5											100		2.5
<i>Ardeola ibis</i>														
3. Pond Heron	14	36	100	4										3.5
<i>Ardeola khalloides</i>														
4. Purple Heron	1			100										1.0
<i>Ardea purpurea</i>														
5. Little Green Heron	20			8		73		100*		8				2.5
<i>Eurypyga striatus</i>														
6. Large Egret	1			100										1.0
<i>Ardea alba</i>														
7. Tiger Bittern	6		50							80*	30		100	1.5
<i>Colaptes melanolephus</i>														
8. Cinnamon Bittern	4			31						100*				2.0
<i>Isobrychus cinnamomeus</i>														
9. Black-crowned Night Heron	5		71	71	100									1.7
<i>Nycticorax nycticorax</i>														
ANATIDAE														
10. Pintail Duck	17		100	11										8.5
<i>Anas acuta</i>														
11. Garganey	97			100							3			19.4
<i>Anas querquedula</i>														

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
12. Whistling Tree Duck <u>Dendrocygna javanica</u>	74	20	100	18	60	30	75							10.6
ACCIPITRIDAE														
13. Shikra Goshawk	12			100	14				14	11				2.4
14. Crested Goshawk	51		31	75	35	100*	85*	14						3.6
15. Asiatic Sparrow Hawk	9		33	100		100*	85*	20	20					1.8
16. Black-crested Baza	7													3.5
17. Cinnamon-winged Bussard	17			20	12	100*	80							3.4
18. Red Warbler	1					100								1.0
19. Black-winged Kite	165	10	7	100*	81	12*	5		5	10	5			7.8
20. White-bellied Sea Eagle	1				100*									1.0
21. Black Eagle	1						100							1.0
22. Black Kite	77		44*	100*	40*	44*	6		5	6		11		4.5
23. Serpent Eagle	26				26*	100*	26	8	18		26			2.0
24. Blyth's Hawk Eagle	3			50					66			100		1.0
25. Changeable Hawk Eagle	4					100	61							2.0
26. Red-breasted Falconet	169					52*	62*	100	15	6				14.0
27. White-rumped Falcon	33				6*	56*	10				40	90	100	3.5
28. Green-legged Hill Partridge	17			35						52	100	22	43	1.9

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
29. <u>Perruginous Tree Partridge</u> <u>Calopodix ocella</u>	16						76				100	76		4.0
30. <u>Lady Amherst Pheasant</u> <u>Chrysolophus amherstiae</u> E	8	100							17	12				2.0
31. <u>Golden Pheasant</u> <u>Chrysolophus pictus</u> E	3				100	21	3	3		100				3.0
32. <u>Blue-breasted Button Quail</u> <u>Coturnix chinensis</u>	469			10			3	1			1			36.1
33. <u>Migratory Quail</u> <u>Coturnix coturnix</u>	1,948	61	3	33	4	100	53	78	29	6	81	4		74.9
34. <u>Princolin</u> <u>Princolinus pintodanus</u>	130	5	12	14	100	35	72			8			19	9.4
35. <u>Crested Fire-backed Pheasant</u> <u>Lophura ignita</u>	5				35					12			100	1.2
36. <u>Silver Pheasant</u> <u>Lophura nycthemera</u>	12		100		47			67	67			33		1.2
37. <u>Green Peafowl</u> <u>Pavo muticus</u>	25					45			21	30	100	45		3.1
38. <u>Peacock Pheasant</u> <u>Polyplacton bicalcaratus</u>	12						100		28			100		3.0
39. <u>Boulet</u> <u>Bellulus roulei</u>	263		2	4	4	3	2	10	11	100	72	87	86	13.8
TURNICIDAE														
40. <u>Barred Button Quail</u> <u>Turnix suscitator</u>	138	31			22	21	100		5	4	1			13.8
41. <u>Yellow-legged Button Quail</u> <u>Turnix tanki</u>	359			50	79	100					19			35.9
RALLIDAE														
42. <u>White-breasted Waterhen</u> <u>Amurforia phoeniceus</u>	147	23		7	7	16	100	91	7	35	15	6		6.7
43. <u>Watercock</u> <u>Gallicrex cinerea</u>	23						8		16		100			5.7
44. <u>Common Moorhen</u> <u>Gallinula chloropus</u>	20		100	12										5.0
45. <u>Purple Gallinule</u> <u>Porphyrio porphyrio</u>	13	25	100	25										2.1
46. <u>Slaty-breasted Rail</u> <u>Rallus striatus</u>	13		100					6		10				4.3

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
ROSTRATULIOAE														
47. Painted Snipe <u>Rostratula benchaleensis</u>	9			100										9.0
CHARADRIIOAE														
48. Pacific Golden Plover <u>Charadrius dominicus</u>	1			100										1.0
49. Grey-headed Lapwing <u>Vanellus cinereus</u>	7			100	58									1.7
50. Red-wattled Lapwing <u>Vanellus indicus</u>	1						100							1.0
SCOLOPACIOAE														
51. Common Sandpiper <u>Actitis hypoleucos</u>	1			100										1.0
52. Bore-tailed Godwit <u>Limosa lapponica</u>	1											100		1.6
53. Collared Pratincole <u>Glaucos ptilincola</u>	1							100*						1.0
LARIOAE														
54. Brown-headed Gull <u>Larus brunneicapellus</u>	59											100	31	19.7
COLEMBIDAE														
55. Nicobar Pigeon <u>Columba nicobarica</u>	53		14	28	45	3			9	7	100	14	55	3.8
56. Emerald Dove <u>Chalcophaps indica</u>	172	14	28	25	33	11		28	100	86	43	50	61	13.3
57. Purple Wood Pigeon <u>Columba guineensis</u>	1									100				1.0
58. Green Imperial Pigeon <u>Ducula aenea</u>	45		15	82	100			4						4.1
59. Pied Imperial Pigeon <u>Ducula bicolor</u>	3			100								100		1.0
60. Bleeding Heart Pigeon <u>Gallicolumba luzonica</u> B	2									100				2.0
61. Diamond Dove <u>Geopelia cuneata</u> F	111					15	65	47	100	52	40	50	50	5.8

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
62. Zebra Dove <u>Geopelia striata</u>	10,621	69	100	93	51	51	47	55*	60	50	48	49	62	351.9
63. Red Cuckoo-Dove <u>Macropygia phasianella</u>	12	100	50	12	18									2.4
64. Little Cuckoo-Dove <u>Macropygia ruficeps</u>	11			88	100									2.2
65. Barred Cuckoo-Dove <u>Macropygia mitchelli</u>	4		100	50										1.3
66. Spotted-necked Dove <u>Streptopelia chinensis</u>	5,857	73	94	77*	100	56	29	72	90	73	27	65	65	183.0
67. Ringed Dove <u>Streptopelia dussumieri</u>	3,272	68	52	39	50	47	71	100	99	93	95	89	81	102.2
68. Red Turtle Dove <u>Streptopelia tranquebarica</u>	469	7	1	11	51	2	14	58	100	70	50	6		18.0
69. Lesser Thick-bellied Green Pigeon <u>Treron survirata</u>	361			100	46	43		14	21	61	50	18	43	15.0
70. Yellow-footed Green Pigeon <u>Treron phoenicoptera</u>	8			12						12			100	2.0
71. Pink-necked Green Pigeon <u>Treron vernax</u>	38	100	70	44	6	4		60			26		40	2.7
PSITTACIDAE														
72. Blue-fronted Amazon <u>Amazonia aestiva</u>	8	100	50	25				33		25	100			1.0
73. Peach-faced Lovebird <u>Agapornis roseicollis</u>	66	20	100	70	40	30	20	6		56	60	30	60	2.7
74. Red Lory <u>Dicicella zeyheri</u>	315	6	55	50	76	85	17	59	35	72	51	23	100	9.8
75. White Cockatoo <u>Kakato alba</u>	29				100	30	15		9	66	39			1.8
76. Greater Sulphur-crested Cockatoo <u>Kakato galerita</u>	58	20	30	60	40	34	40	46	100			30		2.5
77. Rose-crested Cockatoo <u>Kakato moluccensis</u>	18				50	12			15	50	50	100	100	1.3
78. Lesser Sulphur-crested Cockatoo <u>Kakato sulphurea</u>	71	25	12	21	21	12	12	25	41	47	29	19	100	3.2
79. Hanging Parakeet <u>Loriculus vernalis</u>	1,255	9	1	4	2	2	5	3	51	100	32	27	12	50.2
80. Crested Cockatiel <u>Nympholophus hollandicus</u>	107	40	35	10	3			53	53	42	47	100	80	4.8

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
81. <u>Bodgerlger</u> <u>Melomittacus undulatus</u> F	15,007	54	45	42	56	59	97	100	82	74	75	90	76	471.8
82. <u>Large Indian Parakeet</u> <u>Ptilinopus</u> <u>gambelii</u>	5,009	10	41	100	32	5	6	4	3	8	2	1	1	94.0
83. <u>Mustache Parakeet</u> <u>Ptilinopus</u> <u>alexandri</u>	5,439	11	56	42	100	26	11	10	28	17	15	39	34	107.5
84. <u>Rose-ringed Parakeet</u> <u>Ptilinopus</u> <u>fraseri</u> E	191								76	100	88	82	59	15.9
85. <u>Blossum-headed Parakeet</u> <u>Ptilinopus</u> <u>ruscelli</u>	3,529	7	14	45	50	12	12	41	100	71	14	25	13	110.5
86. <u>African Grey Parrot</u> <u>Ptilinopus</u> <u>grithaus</u> E	11	100		20	64	69	13	67	1	2	70	100	100	1.1
87. <u>Slaty-headed Parakeet</u> <u>Ptilinopus</u> <u>finchii</u>	517	50	80	100	94	32	94	47		35		53	17	22.5
88. <u>Blue-rumped Parrot</u> <u>Ptilinopus</u> <u>cyanurus</u>	114		12	100	94	44	39	22	22	55	67	83	71	6.0
89. <u>Swainson's Lorikeet</u> <u>Trichoglossus</u> <u>haematus</u> E	131	39	39	80	59	44	39	22	22	55		83	100	5.2
90. <u>Ornate Lorikeet</u> <u>Trichoglossus</u> <u>ornatus</u> E	72	23	23	58	100	93	93	46	93	12		35		3.3
CUCULIDAE														
91. <u>Common Coucal</u> <u>Centropus</u> <u>sinensis</u>	37			10	6		50	100	20	40	6	30	20	2.6
92. <u>Lesser Coucal</u> <u>Centropus</u> <u>toulou</u>	29			4	•	11	100	95				33	28	2.6
93. <u>Red-winged Crested Cuckoo</u> <u>Clemator</u> <u>coromundus</u>	3			28	100									1.5
94. <u>Koel</u> <u>Eudynamis</u> <u>scelopacea</u>	364	23	35	87	47	100	65	94	23	19	23	38	23	11.8
95. <u>Large Green-billed Malcoha</u> <u>Phaenophaeus</u> <u>irialis</u>	3			100										1.5
TYTONIDAE														
96. <u>Bay Owl</u> <u>Phodilus</u> <u>bedfordi</u>	4						71		43		100			1.0
97. <u>Barn Owl</u> <u>Tyto</u> <u>alba</u>	19		18	37	100		18					74	37	1.9
STRIGIDAE														
98. <u>Spotted Owllet</u> <u>Athene</u> <u>brama</u>	16			40	100	10			35			100		2.7

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
99. <u>Pearly Eagle Owl</u> <u>Nubo zoroaster</u>	5					40*	100		60					1.0
100. <u>Ceylon Fish Owl</u> <u>Mac'um arizonensis</u>	59		8	11*	69*	100*	32	48		15		8		3.5
101. <u>Collared Scops Owl</u> <u>Otus bakkamoena</u>	15		55	100*	67*	15*					20	35		1.6
102. <u>Brown Wood Owl</u> <u>Ninox lentiginosa</u>	15			17*	58*	100*	42	85	85					1.5
CAPRINIGIDAE														
103. <u>Long-tailed Nightjar</u> <u>Caprimulgus macurus</u>	4			25	100									2.0
104. <u>Great-eared Nightjar</u> <u>Eurostoedus macrotis</u>	5				100*									5.0
ALCEDINIDAE														
105. <u>Gambon Kingfisher</u> <u>Alcedo albidia</u>	1									100				1.0
106. <u>White-collared Kingfisher</u> <u>Halcyon chloris</u>	11					7		10	100					2.2
107. <u>Black-capped Kingfisher</u> <u>Halcyon melanotos</u>	3			100							60			1.0
108. <u>White-breasted Kingfisher</u> <u>Halcyon leucostictus</u>	50		4		2	1	100		8					5.0
109. <u>Star-billed Kingfisher</u> <u>Falcaterosia caerulea</u>	10					55*		87*				100*		3.5
MEMOPTIDAE														
110. <u>Bay-headed Bee-eater</u> <u>Merops leucocinctus</u>	2	100												2.0
111. <u>Green Bee-eater</u> <u>Merops orientalis</u>	21	100						14*	80	25				3.5
112. <u>Brown-throated Bee-eater</u> <u>Merops superciliosus</u>	2			100										2.0
113. <u>Blue-bearded Bee-eater</u> <u>Myiophobus aethiops</u>	3			100	66									1.0
CORACIIDAE														
114. <u>Burmese Roller</u> <u>Coracias bhamaleensis</u>	149		4	12	46*	96*	100*	38	2	18	14	92		7.4
115. <u>Broad-billed Roller</u> <u>Barroetus orientalis</u>	12						50	100						3.0

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
UPUPIDAE														
116. Hoopoe <i>UPUPA EPUS</i>	585		54*	55*	14*	17*	52*	100*	4				5	50.7
BUCCONOTIDAE														
117. Northern Pied Hornbill <i>Anthracoceros javanicus</i>	38	28		14	8*	85*	57*	8	8	14	57	100	85	2.2
118. Dusky-crested Hornbill <i>AMORIMIA ALBERTINA</i>	1											100		1.0
119. Great Hornbill <i>BUCCO BICOLOR</i>	15				30*	55*	100*	47*		15*	67*			1.1
120. Tickell's Hornbill <i>Ptilinopus tickelli</i>	2					67		100						1.0
121. Wreathed Hornbill <i>ETHIOPICE MELANOTIS</i>	24			18	46*	100*	100*	11						2.7
CAPRINOTIDAE														
122. Brown Barbet <i>Caprimulgus fuliginosus</i>	6											50	100	2.0
123. Gold-whiskered Barbet <i>Megalaima chrysogenys</i>	5	100			50					20				1.0
124. Green-eared Barbet <i>Megalaima falcatrice</i>	4						100	70						2.0
125. Coppermouth Barbet <i>Megalaima haemorrhoidalis</i>	257	5	2	10		2	2	11	100	60	5		54	15.5
126. Blue-throated Barbet <i>Megalaima incornuta</i>	1								100					1.0
127. Gady Barbet <i>Megalaima erythrocephala</i>	72	14	14	5				45*	28*	100	57	71	45	5.6
128. Many-colored Barbet <i>Megalaima affinis</i>	9								7		7	57	100	2.2
129. Great Barbet <i>Megalaima yunnanensis</i>	25						15	100	61	30	21		50	1.6
130. Limestone Barbet <i>Megalaima albertina</i>	657	8	22	41	55*	100*	75*	47*	55	20	15	41	51	20.5
PICIDAE														
131. Golden-backed Three-toed Woodpecker <i>Picus javanicus</i>	11					10	100	40		20*				2.2
132. Great Black Woodpecker <i>EXYLAEUS JAVANICUS</i>	1							160						1.0

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
133. Great Grey Woodpecker <i>Mallerpicus pulverulentus</i>	2							100						1.0
134. Red-rumped Green Woodpecker <i>Picus arthropygia</i>	54	11	5	3	11*	11*	100*	37	8	9		44	33	3.0
135. Large Yellow-naped Woodpecker <i>Picus flavinucha</i>	2									100				1.0
MYRTALINIDAE														
136. Green Broadbill <i>Calvatomia viridis</i>	38				3	9		5		100	13	54	73	3.4
137. Black-and-Red Broadbill <i>Cymbirhynchus macrorhynchos</i>	1						100							1.0
PITTIDAE														
138. Lesser Blue Pitta <i>Pitta ornata</i>	1											100		1.0
139. Gurney's Pitta <i>Pitta gurneyi</i>	1						100							1.0
140. Blue-winged Pitta <i>Pitta moluccensis</i>	63		3			24	10	100	2					8.0
141. Hooded Pitta <i>Pitta sordida</i>	3											100		1.5
ALAUDIDAE														
142. Calandra Lark <i>Melanocephala calandra</i>	23			12	65	50	50	100	50		50			1.5
HIRUNDINIDAE														
143. House Swallow <i>Hirundo rustica</i>	1		100											1.0
144. Sand Martin <i>Pipera kipsara</i>	1		100											1.0
CAMPETHAGIDAE														
145. Black-faced Cuckoo-shrike <i>Corcia hutchinslandi</i>	2			100										2.0
DICRUVIDAE														
146. Black Drongo <i>Dicrurus adeimilla</i>	36		100	40	44*	33	44*	44						2.4
147. Hair-crested Drongo <i>Dicrurus hottentottus</i>	4		62	100										2.0

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
148. Ashy Drongo <u>Dicrurus leucophaea</u>	4		100	20		20								1.3
149. Large Macquet-tailed Drongo <u>Dicrurus perdiscaus</u>	35	25	12				12	92	32	55	25	12	100	2.3
ORIOLIDAE														
150. Black-headed Oriole <u>Oriolus chinensis</u>	138	18	15	17	9	2					1	100	57	8.1
151. Malayan Black-headed Oriole <u>Oriolus xanthornus</u>	1					100								1.0
152. Indian Black-headed Oriole <u>Oriolus xanthornus</u>	20			100	37		71	28				28	28	2.7
CORVIDAE														
153. Green Magpie <u>Cissa chinensis</u>	50		27	81	89	54		100		13		27	81	2.8
154. Red-billed Blue Magpie <u>Cissa erythrorhynchos</u>	130	50	100	87	49	55*	17*	12	16	35	12	62	62	5.1
155. Large-billed Crow <u>Corvus macrorhynchos</u>	46		25	100*	37*	2		4	4					3.8
156. Macquet-tailed Treepie <u>Cypselurus leucis</u>	104	25	60	35	21	10		96*	100	40	25	25	25	4.5
157. Rufous Treepie <u>Cypselurus vagabunda</u>	118		60	100	28*	6	3*	2	2	6		3		5.9
TIMALIIDAE														
158. Hoare's <u>Garrulus senousi</u>	44	67	33	33	43	73	83	33	57	33	23	17	100	1.6
159. Black-throated Laughing Thrush <u>Garrulus chinensis</u>	96	18	13	16	9		26	100	33	22	26	4	88	4.0
160. White-crested Laughing Thrush <u>Garrulus leucolophus</u>	706	13	76	25	24	11	9	100	92	27	32	24	38	24.8
161. Lesser Necklaced Laughing Thrush <u>Garrulus nuchalis</u>	124	38	100	96	46	4	4	15	2	6	10	23	15	6.2
162. Greater Necklaced Laughing Thrush <u>Garrulus nuchalis</u>	6											25	100	3.0
163. Pekin Robin <u>Loxia lateralis</u>	34	100	13	7	11	5				5				3.1
164. Red-headed Tree Babbler <u>Yellowish Redstart</u>	3			100										1.0

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
TYCNOTIDAE														
165. Crested White-throated Bulbul <i>Crinifer echracus</i>	31			45	100	55				5	7			4.4
166. Crestless White-throated Bulbul <i>Crinifer phaeocephalus</i>	3									100	60			1.5
167. Ashy Bulbul <i>Empidonax flavus</i>	1	100												1.0
168. Black-headed Bulbul <i>Empidonax atriceps</i>	66	20	55	10			3			30	60	40	100	4.7
169. Orange-bellied Bulbul <i>Empidonax auricapillus</i>	490	4	30	100	37	17	6	14	21	29	10	9	33	15.8
170. Blandford's Bulbul <i>Empidonax blandfordi</i>	81	35	100	55		8	61	15	20	35	27	23		3.7
171. Lesser Brown Bulbul <i>Empidonax erythrorhynchos</i>	4											100		2.0
172. Stripe-throated Bulbul <i>Empidonax finlaysoni</i>	176	5	35	56	100	10		55		8	3	5	20	7.6
173. Yellow-bellied Bulbul <i>Empidonax holosericeus</i>	38		30		100	7	45			15	5		15	3.2
174. Red-whiskered Bulbul <i>Empidonax jocosus</i>	3,128	23	4	1	7	6	32	32	44	50	29	13	100	97.7
175. Black-crowned Bulbul <i>Empidonax melanotus</i>	589	28	33	100	48	6		23	22	16	6	4	36	21.0
176. White-eyed Brown Bulbul <i>Empidonax simplex</i>	6											25	100	3.0
177. Scaly-breasted Bulbul <i>Empidonax squamatus</i>	12				17							100	50	3.0
178. Yellow-crowned Bulbul <i>Empidonax zosterops</i>	259			6	2	38	16	2	100	60	64	61	17	9.6
ALCANTHINIDAE														
179. Common Iora <i>Alcedo tithys</i>	1									100				1.0
180. Golden-fronted Leafbird <i>Chloropsis aurifrons</i>	907	24	62	60	33	5	37	39	38	100	52	31	54	28.3
181. Yellow-headed Green Leafbird <i>Chloropsis corbinianus</i>	16	22									3	22	100	3.2
182. Lesser Green Leafbird <i>Chloropsis cyanopogon</i>	22						20		100	14		20	20	3.1

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
183. Greater Green Leafbird <i>Chloroceryle coromunda</i>	46	18	9	4				18	31	100	13	27	91	2.9
184. Fairy Bluebird <i>Irena puella</i>	200	100	8	9	3	1	1	1	1	3	9	17	63	7.4
Turdidae														
185. Common Shrike <i>Coscoroba malabarica</i>	973	40	49	70	72	100	74	64*	74*	57	51	32	28	30.4
186. Magpie Robin <i>Coscoroba saularis</i>	879	30	41	59*	65*	78*	100*	61*	48*	72	59	26	9	27.5
187. Blue Whistling Thrush <i>Myophobus corallinus</i>	6		100	53										1.2
188. Grey-headed Thrush <i>Turdus obscurus</i>	31	10	33	22									100	5.1
Sylviidae														
189. Great Reed Warbler <i>Acrocephalus arundinaceus</i>	17		25	100	15	25				25		75		2.8
190. Brown Wren-Warbler <i>Prinia subflava</i>	3		100								60	100		1.0
Motacillidae														
191. Red-throated Pipit <i>Anthus cervinus</i>	1					100								1.0
192. Tree Pipit <i>Anthus hedysomi</i>	5							100				38		1.7
193. Richard's Pipit <i>Anthus novaezealandiae</i>	1		100											1.0
194. Forest Wagtail <i>Dendrocinclus indicus</i>	210		13	22	46						100	11		30.0
195. Pied Wagtail <i>Motacilla alba</i>	1		100											1.0
196. Yellow Wagtail <i>Motacilla flava</i>	4,990		93	19	79						100	6		712.8
Bombycillidae														
197. Eastern Warbling <i>Botryllus scirula</i> n	5												100	5.8
Laniidae														
198. Black-headed Shrike <i>Lanius manihua</i>	2							100	100					1.0

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
STURNIDAE														
199. Gold-crested Myna	241	100	72	25	9	12*	12*	10*	9	12	1	3	5	6.0
<u>Amphispiza coronatus</u>														
200. Philippine Starling	126	21	15	2		3		100	26	13	7	4		6.6
<u>Aplonis panayensis</u>														
201. Tioing	2,173	26	7	9	46*	51*	71*	100*	64*	40	32	26	31	67.9
<u>Gracula religiosa</u>														
202. Glossy Starling	10													
<u>Lamprolaima purpureus</u> ♀														
203. Jordon's Starling	265	17	100	32	13	4*	3*	51*	22	22	6	6		9.0
<u>Sturnus burmanicus</u>														
204. Chinese Starling	120	100	19	6	4			1	3	7	36	64	46	7.0
<u>Sturnus chinensis</u>														
205. Pied Starling	67		83	3	51	100	69	10	10					6.0
<u>Sturnus contra</u>														
206. Crested Myna	1,185	100	16	44	7	60*	85*	40*	34*	81	74	42	33	27.0
<u>Sturnus cristatellus</u>														
207. Ashy-headed Starling	17	100	6	6	9							25		2.8
<u>Sturnus malabaricus</u>														
208. Black-collared Starling	258	26	47	52	31*	47*	63*	100*	42*	31	5	10	21	8.0
<u>Sturnus nigricollis</u>														
209. Daurian Starling	8				100					25				4.0
<u>Sturnus sturninus</u>														
210. Common Myna	196	7		7*	34*	30*	100*	41	16	13	14	4		7.5
<u>Sturnus tristis</u>														
NECTARINIIDAE														
211. Brown-Throated Sunbird	34					33	22	100	10					3.8
<u>Anthracoceros malaccensis</u>														
212. Purple Sunbird	34		6			6		8		12	100			5.7
<u>Nectarinia asiatica</u>														
213. Yellow-breasted Sunbird	18		80			10	100	80	12		12			3.0
<u>Nectarinia jugularis</u>														
DICAEDAE														
214. Yellow-vented Flowerpecker	27							50	100	3				5.4
<u>Dicaeum chrysorrheum</u>														
215. Scarlet-backed Flowerpecker	1,467	9	8	70	84	44	55	90	80	26	26	100	12	45.8
<u>Dicaeum cruentatum</u>														

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
ZOSTEROPIDAE														
216. Oriental White-eye <i>Zosterops palpebrosa</i>	80	89							12	100	45	4	45	9.0
FRINGILLIDAE														
217. Yellow-breasted Bunting <i>Emberiza aureola</i>	18,320	92	80	30	20	1					1	100	32	1,221.3
218. Brazilian Cardinal <i>Paroaria cucullata</i> E	82	1	14	14	14	14			100	100	57	45	28	3.1
219. Canary <i>Serinus canaria</i> E	3,873	97	65	91	82	70	76	91	100	82	83	95	91	121.0
220. Yellow-fronted Canary <i>Serinus mombaticus</i> E	170	78	61	19	16	23	43	36	23	32	38	100	86	5.3
PLOCEIDAE														
221. Red-browed Finch <i>Agathis temporalis</i> E	982	61	3	51	80	97	75	33	63	71	100	75	68	30.7
222. Cut-Throat Finch <i>Amadina fasciata</i> E	350			12	64	75	59	64	100	68	84	64	69	13.0
223. Star Finch <i>Estrela ruficauda</i> E	1,163	28	16	15	41	63	100	79	63	29	19	30	19	36.3
224. Red-collared Whydah <i>Collinassa' ardens</i> E	15			25	65	40	100	35						1.7
225. Pin-tailed Nouporeil <i>Erythrura prasina</i>	6,762	95	50	50	14	12	3	1	1	6	24	45	100	211.3
226. Strawberry Finch <i>Estrela amandava</i>	8,803	1	1	5	12	23	46	100	64	51	16	5	5	275.1
227. Orange-checked Warbill <i>Estrela melnoda</i> E	653	47	1	1	35	49	62	50	87	97	98	97	100	20.4
228. Taba Weaver <i>Euplectes alba</i> E	99	45		32	100	97	21	54						5.8
229. Orange Bishop <i>Euplectes oryx</i> E	360	59	73	65	57	57	41	41	70	100	88	88		11.2
230. Corydon Blue Finch <i>Granatina bengalensis</i> E	271		6	30	95	100	89	93	48	40	12			9.5
231. Black Finch <i>Pyroscops</i> sp. E	175	100	8		39	29	46	8	83	77	81	80	33	7.3
232. Chestnut Munia <i>Lonchura malacca</i>	6,381	50	17	97	44	27	42	23	8	90	100	38	95	199.4
233. White-headed Munia <i>Lonchura malacca</i>	4,080	4	1	1	2	1	1	34	50	100	64	63	33	140.6

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
234. Spotted Munia <i>Lonchura punctulata</i>	28,418	6	26	16	89	100	97	73	52	37	20	4	29	888.8
235. Sharp-tailed Munia <i>Lonchura striata</i>	2,127	5			2	24	61	52	95	100	27	8		92.5
236. Benghaliese <i>Lonchura striata</i> E	4,169	32	50	96	81	100	88	91	82	82	70	52	58	130.2
237. Java Finch <i>Padda oryzivora</i>	4,025	39	77	100	88	65	46	90	60	45	18	49	31	125.7
238. Pegu House Sparrow <i>Passer flavescolus</i>	455			1		8	5	8	27	100	5	3		38.5
239. Tree Sparrow <i>Passer montanus</i>	1,151		31	64	7	17	39	17	12	67	100	22	5	57.5
240. Golden Weaver <i>Ploceus hypoxanthus</i>	265	4	1		5	11	100	10	35	35	17	2	4	11.4
241. Manyer Weaver <i>Ploceus manyal</i>	3,181			38	50	25	85	14	99	100	70		2	122.5
242. Baya Weaver <i>Ploceus philippinus</i>	22,656	1	5	50	50	64	45	29	100	64	29	12	25	708.0
243. African House Weaver <i>Ploceus 28. E</i>	51	100		37	92	80	61	67		5	25			3.0
244. Long-tailed Green Finch <i>Pseudilla guttata</i> E	592	69	17	17	20	62	72	100	64	23	17	67	59	18.5
245. Lady Gould Finch <i>Poephila gouldiae</i> E	334	20	5	9		26	58	100	61	26	11	77	53	11.9
246. Zebra Finch <i>Taeniopygia guttata</i> E	2,659	61	61	50	58	70	100	74	79	47	49	98	77	83.1
247. Pin-tailed Whydah <i>Vidua macroura</i> E	69				22				100	72	37			5.3

MIGRATORY ANIMAL PATHOLOGICAL SURVEY

ANNUAL PROGRESS REPORT

1967

PART 2

LIST OF SPECIES BANDED IN 1967

DISCUSSION

There are about 1,829 species of birds in eastern Asia and now nearly half, 893 (49 %), of the species have at least one bird wearing a MAPS ring. This is a remarkable feat on the part of the cooperating scientists and their field teams who have worked so energetically for the past five years. Their grand total now passes 646,000 birds. Forty-four species previously not banded were ringed this year, and 300 species that had been ringed before failed to be captured. In spite of this there were 637 species banded in numbers ranging from 1 to 62,000.

1967 was a good banding year. Following the MAPS conference in Tokyo in September 1966, the team leaders returned to their areas inspired to get unbanded species, but also to work more intensively with migratory forms and with those species which were yielding recovery information. Migration appeared to follow normal courses and no team reported unusual flights or delays in migration. Although the war activity in Vietnam increased in intensity, this produced no obvious changes in the numbers and species of birds seen south and west of Vietnam. Typhoons that swept along the coast from the Philippines to Japan brought heavy property damage but did not seem to affect bird populations adversely. The two typhoons striking Luzon in October and November did so at the peak of southern migration, but flights over Dalton Pass were not materially reduced. Since this is an annual phenomenon of great antiquity, research needs to be done on the effect of such storms on eastern Asian avifauna and the adaptations that migrants have made to accommodate for them.

Tables 3 and 4 list the species banded by country in 1967. Table 3 summarizes the results by family. There were 21 families banded in numbers greater than a thousand, and the total number banded this year was 201,183. The ease with which birds can be captured is reflected in the average numbers which have been banded over the five years. The average number of birds banded per species in families in which over a thousand have been ringed during the past five years has been as follows:

Diomediidae	1,911	Ardeidae	2,233	Accipitridae	186
Phasianidae	651	Rallidae	234	Charadriidae	493
Scolopacidae	266	Laridae	582	Columbidae	228
Cuculidae	44	Apodidae	369	Alcedinidae	181
Meropidae	273	Pittidae	212	Alaudidae	266
Hirundinidae	27,704	Campephagidae	697	Pycnonotidae	534
Timaliidae	87	Paradoxornithidae	66	Paridae	277
Sylviidae	234	Turdidae	128	Muscicapidae	97
Motacillidae	5,513	Laniidae	2,656	Sturnidae	165
Nectariniidae	181	Dicaeidae	63	Zosteropidae	338
Fringillidae	4,446	Ploceidae	1,962	Average	723

To make these figures meaningful it is necessary to compare the figures of the species available (Table 3) with the species which have been banded and total numbers. For example, there are 23 species of Ardeids in eastern Asia and 16 have been banded with a total of 35,730 or an average of 2,233 per species. This indicates a very good coverage of the family. However, there are 76 species of pheasants available, only 9 of which have been ringed, a total of 5,858 birds, but 5,843 of them have been one species (Coturnix chinensis), indicating a very poor coverage of this family.

As would be expected with continued intensive banding activity, the numerical groups of banded birds are changing logarithmically. These have been as follows:

Number of birds banded	Per cent of species up to		
	1965	1966	1967
1	12.9	11.7	9.7
2-10	31.1	29.8	27.0
11-100	38.7	33.4	32.8
101-1000	14.6	19.8	23.8
1001-10000	2.2	4.7	5.4
10001-over	0.4	0.6	1.1

There has been a steady increase in the higher brackets as more and more species have moved up from one level to another. There are now ten species banded in numbers greater than 10,000. These are listed in Table 5.

TABLE 5
SPECIES BANDED IN NUMBERS GREATER THAN 10,000

Species	Number banded	Per cent of total banded	Number recovered	Per cent of total recoveries	Ratio to number banded
Little Egret	12,654	1.9	63	5.3	.00497
Black-crowned Night Heron	13,138	2.0	74	6.3	.00563
House Swallow	209,294	32.4	203	17.3	.00096
Yellow-vented Bulbul	11,415	1.8	9	0.8	.00078
Pied Wagtail	22,474	3.5	27	2.3	.00120
Yellow Wagtail	28,725	4.4	13	1.1	.00045
Brown Shrike	20,086	3.1	10	0.8	.00049
Rustic Bunting	60,819	9.4	28	2.4	.00046
Chestnut Bunting	45,724	7.0	15	1.3	.00032
Black-faced Bunting	14,870	2.3	1	0.08	.00006
Total	439,199	67.8	443	37.7	.00100

These ten birds have made up 68 per cent of all banded and 38 per cent of all recoveries. The recovery rate has been as low as 6 per 100,000, for Black-faced Buntings.

Data listed in Tables 3 and 4 were prepared by Miss Somchit Chaipanich.

TABLE 3

SUMMARY OF 1967 BANDING BY FAMILIES

The numbers of species present in eastern Asia are given in the column under "Species"

S = Number of species banded; T = Total birds banded

Family	Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Borneo	Thailand	1967 Total	1968-69 Grand Total
Podicepsidae	S															
Cavidae	T															
Diomedidae	T															
Procellariidae	T															
Hydrobatidae	T															
Phaethontidae	T															
Pelecanidae	T															
Phalacrocoracidae	T															
Anhinga	T															
Sulidae	T															
Fregatidae	T															
Ardeidae	T															
Ciconiidae	T															
Threskiornithidae	T															
Phoenicopteridae	T															
Anatidae	T															
Accipitridae	T															
Pandionidae	T															
Falconidae	T															
Tetraonidae	T															
Phasianidae	T															
Turnicidae	T															
Gallinae	T															
Rallidae	T															
Helminthidae	T															
Otididae	T															
Jacaniidae	T															

Family	Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Rostratulidae	S	1				1	1	1		1					1	1
Haematopodidae	T	1				162	113			1					216	656
Charadriidae	S	16				6	6	3	2	4				2	7	8
Scelopacidae	S	44	4			136	651	23	4	9				5	628	3,945
Recurvirostridae	T	3	252		1	16	19	6	3	6	1			4	23	30
Phalaropodidae	S	2				1,081	1,338	148	109	69	5			30	3,034	7,969
Dromadidae	T	1														1
Burhinidae	S	2														53
Glareolidae	S	3														
Stercorariidae	T	4														
Laridae	T	37	1							1					1	2
Rynchopidae	T	1	1,900							7					10	31
Alcidae	T	13	125							1					4	8
Pteroclyidae	S	3								10					1,916	4,666
Columbidae	S	60	1	1	2	1	10	9	5	7				6	20	26
Psittacidae	S	23	1	2	2	460	45	677	58	573				21	1,968	5,930
Cuculidae	S	38		1		13	5	3	4	14				7	19	106
Tyrtonidae	T	30		4		280	23	8	6	10	2			14	18	32
Strigidae	T	36	2	1	1	1	1	2	1	1	5			1	361	1,036
Podargidae	T	8	2	8		10		6	1	25				6	10	20
Caprimulgidae	S	11				1	1	2		1	1			1	1	3
Apodidae	S	19		1		13	69	9		19	2			2	114	372
Hemiprocidae	T	2		91		124	74	1,678		9				9	2,186	4,893
Trogonidae	T	10							1	3				1	4	2
Alcedinidae	T	26	1	1	3	5	6	4	3	5	1			3	16	90
Meropidae	T	8	1	1	10	197	103	67	25	159	76		2	47	721	3,436
Coraciidae	T	3				4	4	90	37	1,040	6		5	4	6	7
Upupidae	S	1				1	1							86	1,363	1,912
Bucerotidae	T	17				6								2	2	2

Family	Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palaus	Leyte Negros	Mindanao	Malaya	Sarawak	Sulu	Indo-China	Thailand	1967 Total	1968-69 Grand Total
Caprimulgidae	S 22			1		1			1	2				8	9	13
Indicosteridae	T 1			6		2		17	2	3				74	103	385
Picidae	S 49	1	2	1	1		1		1	10	4			13	32	32
Eurylaimidae	T 10	1	4	1	2				2	60	35			52	158	578
Pittidae	T 16					3	2		4	9	16			11	40	188
Alaudidae	T 14	2				686	11			263	7			7	974	2,116
Elmidae	T 14	19				155								91	266	1,331
Elmidae	T 11	3	2	3	1	52	4	2	1	2	2			3	7	8
Campophagidae	T 28	14,341	5,076	14,221	3	52	892	14	4	24,102	51	1		8,419	67,505	221,630
Dicruridae	T 8	2				1	27	60	21	34				34	180	1,124
Oriolidae	T 11	1				2	6	14	51	1				60	121	877
Corvidae	T 35	6		2	2	4	1	62	3	10				1	90	587
Paridae	T 27	41		2	3	1	2				1			3	11	16
Certhiidae	T 6	852	27	163	12	12	1	1	1					14	63	274
Sittidae	T 11	1		1		1								17	1	1
Timaliidae	T 190	2		5		1				2				1	3	29
Parasomorphidae	T 17	1		13	4	1	1			4				17	28	112
Pycnonotidae	T 50	1,046		438	20	21	6		56	298	249			937	2,156	6,164
Aegithinidae	T 13			201	3	4	3	2	3	16	11			74	1,321	2,789
Cuculidae	T 2			51	407	93	237	1,043	612	1,036	229			18	34	42
Troglodytidae	T 1			1			25			43				7	1	1
Turdidae	T 104	8	1	1	14	7	4	4	1	6	4			3	15	16
Sylviidae	T 108	207	265	406	191	76	27	72	1	250	7			3	39	56
Muscicapidae	T 75	72	857	121	65	1,047	24	22	95	846	56			6	342	7,021
Pachycephalidae	T 5	46	40	32		66	27	86	29	426	95			3	574	15,706
Prunellidae	T 10	1				15				7	22			54	134	5,417
Motacillidae	T 17	34		4		3	5	2	2	2				1	1	2
Bombycillidae	T 2	3,557	1,400	21,721	37	95	225	37	7	22				6	9	90
Artamidae	T 2					1	1	1	1					701	27,802	55,127
Laniidae	T 10	3	3	2	1	4	40	6	3					1	1	40
Sturnidae	T 25	104	114	3,464	12	982	3	58	20	72	1			4	53	176
		24	41			62	227	207	34	42	10			180	615	2,642

	Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1937 Total	1933-37 Grand Total
Prionopidae	S															
	T					1	4	1	3	15	7	6	2	12	18	23
Meliphagidae	S					1	90	46	53	488	181	11	21	133	982	4,156
	T					2		1	6	6	2	1		5	15	17
Nectarinidae	S					5		3	191	46	22	1		65	336	1,077
	T					1		1	1	1			1	2	4	7
Dicaeidae	S					1		23	14	19			1	5	215	2,385
	T					2		1	1	1			1	3	28	32
Zosteropidae	S					2		2	2	3				1,386	35,575	142,259
	T					4		159	2,058	1,023	2	3	1	11	14	16
Fringillidae	S					2		8		9			9	3,095	8,425	31,400
	T					283										
Ploceidae	S															
	T															
Total species		1,829	86	85	57	156	98	68	66	233	77	34	17	280	637	893
Total Birds		48,617	19,442	54,130	982	11,020	4,431	4,882	3,491	33,866	1,233	54	67	18,671	201,183	646,000

TABLE 4
LIST OF THE BIRDS Banded IN 1967 BY AREAS

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Minchin	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
PROCELLARIIDAE															
<i>Pterodroma leucophaea</i>															2
<i>Gould's Petrel</i>															
<i>Puffinus leucmelas</i>		1,200												1,200	3,620
<i>Streaked Shearwater</i>		1/1,200												1/1,200	3/3,822
HYDROBATIDAE															
<i>Oceanodroma castro</i>															23
<i>Maclean's Storm Petrel</i>															
<i>Oceanodroma leucorhoa</i>															75
<i>Leach's Storm Petrel</i>															2/96
PHALACROCORACIDAE															
<i>Phalacrocorax pygmaeus</i>															28
<i>Pygmy Cormorant</i>															1/28
ARDEIDAE															
<i>Ardea cinerea</i>	120													120	963
<i>Gray Heron</i>					1									1	2
<i>Ardea purpurea</i>					41								31	666	5,347
<i>Purple Heron</i>	4	75	535										4	4	13
<i>Ardeola ibis</i>													2	36	170
<i>Cattle Egret</i>														2	4
<i>Ardeola ralloides</i>															
<i>Chinese Pond Heron</i>	19				3		3		8						
<i>Buzorides striatus</i>															
<i>Little Green Heron</i>					2										
<i>Dapetor flavicollis</i>															
<i>Black Bittern</i>															
<i>Egretta alba</i>	788	150												938	1,628
<i>Large Egret</i>															
<i>Egretta garzetta</i>	41	3,875	3,501		8								30	7,295	12,854
<i>Little Egret</i>															
<i>Egretta intermedia</i>		350			4									354	1,394
<i>Intermediate Egret</i>															
<i>Gorsachius gollangi</i>														9	15
<i>Japanese Night Heron</i>		1			8									1	3
<i>Gorsachius melanolephus</i>															
<i>Tiger Bittern</i>															
<i>Isobrychus cinnamomeus</i>															
<i>Cinnamon Bittern</i>					296				6				1	379	799
<i>Isobrychus eurhythmus</i>															
<i>Von Schrenck's Bittern</i>					9									9	25
<i>Isobrychus sinensis</i>															
<i>Chinese Little Bittern</i>															
<i>Nycticorax nycticorax</i>					1									85	249
<i>Rufous Night Heron</i>															
<i>Nycticorax nycticorax</i>					3									3	6
<i>Black-crowned Night Heron</i>															
Total	5,972	6,5078	3,7,817	1/1	11,453	3,80	1/3		2,175				5.68	16/16,465	1633,720

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1987 Total	1983-87 Grand Total
<i>Porzana paykulli</i>	2								1					3	3
<i>Porzana pusilla</i>					139									139	308
<i>Ballona leucotis</i>					189									190	338
<i>Porzana tuberosa</i>					288									288	627
<i>Rallus eurizonoides</i>															
<i>Philippine Banded Crane</i>															
<i>Rallus fasciatus</i>					3				15					19	27
<i>Rallus nigrificus</i>														77	160
<i>Rallus philippensis</i>					77									9	14
<i>Rallus striatus</i>														265	834
<i>Slaty-breasted Rail</i>					276				8						
<i>Rallus torquatus</i>					2									2	8
<i>Barred Rail</i>					1371, 633	6/14			5/42	2/11			1/1	14/1, 604	15/3, 979
JACANIDAE															
<i>Hydrophasianus chirurgus</i>															
<i>Pheasant-tailed Jacana</i>					3									3	6
<i>Metopidius indicus</i>															
<i>Bronze-winged Jacana</i>															
Total	1/2			1/1	1371, 633	6/14			5/42	2/11			1/1	14/1, 604	15/3, 979
ROSTRATULIDAE															
<i>Rostratula benghalensis</i>					162	113			1					276	656
<i>Painted Snipe</i>					1/162	1/113			1/1					1/276	1/656
Total					162	113			1					276	656
CHARADRIIDAE															
<i>Charadrius alexandrinus</i>					203				2				3	208	404
<i>Kentish Plover</i>															
<i>Charadrius dominicus</i>					28	34	10	2	1				1	76	457
<i>Golden Plover</i>															
<i>Charadrius dubius</i>					53	260	10	2	5				1	321	1, 041
<i>Little Ringed Plover</i>															
<i>Charadrius leschenaulti</i>					29	96	6							131	913
<i>Large Sand Plover</i>															
<i>Charadrius hiemalis</i>					6	55			1					62	316
<i>Mongolian Plover</i>															
<i>Charadrius peroni</i>					19	3	7							29	195
<i>Malay Sand Plover</i>															
<i>Charadrius placidus</i>															
<i>Long-billed Ringed Plover</i>															
<i>Gray Plover</i>					1										6
Total					6/136	6/651	3/23	2/4	4/9				3/5	7/828	6/3, 945
SCOLOPACIDAE															
<i>Actitis hypoleucos</i>					15	163	88	13	43				13	336	901
<i>Common Sandpiper</i>															
<i>Actitis interpres</i>					2									127	396
<i>Turnstone</i>															
<i>Calidris acuminatus</i>															
<i>Sharp-tailed sandpiper</i>															
<i>Calidris alpina</i>															
<i>Dunlin</i>														1	120

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
GLAREOLIDAE															
<i>Glareola lactea</i>															2
<i>Glareola maldivarum</i>						3			7					10	20
<i>Collared Pratincole</i>						1/3			1/7					1/10	2/31
Total															
LARIDAE															
<i>Chlidonias hybridus</i>															1
<i>Whiskered Tern</i>														1	1
<i>Larus argentatus</i>															1
<i>Herring Gull</i>															1
<i>Larus crassirostris</i>															1
<i>Black-tailed Gull</i>		1/900												1,901	4,475
<i>Sterna albifrons</i>															1
<i>Sterna anatheta</i>															1
<i>Bridled Tern</i>															1
<i>Sterna fuscata</i>															1
<i>Sooty Tern</i>															1
<i>Sterna hirsuta</i>						3								3	24
<i>Common Tern</i>															1
<i>Sterna sumatrana</i>															1
<i>Black-naped Tern</i>															1
Total	1/1	1/1,900				1			1/10					4/1,915	8/4,656
ALCIDAE															
<i>Cerorhinca monocerata</i>															1
<i>Hornbilled Puffin</i>		125												125	125
<i>Synhipoboraphus wumizusume</i>															1
<i>Japanese Murrelet</i>														1/125	2/126
Total		1/125													
COLUMBIDAE															
<i>Chalcophaps indica</i>															1
<i>Emerald Dove</i>															1
<i>Columba janthina</i>															1
<i>Japanese Wood Pigeon</i>										7				380	1,548
<i>Columba livia</i>															1
<i>Rock Dove</i>															4
<i>Columba pulchricollis</i>															4
<i>Ashy Wood Pigeon</i>															2
<i>Columba vitiensis</i>															1
<i>Melanic Wood Pigeon</i>															1
<i>Ducula carola</i>															1
<i>Spotted Imperial Pigeon</i>															12
<i>Geopelia striata</i>															12
<i>Zebra Dove</i>															12
<i>Macropygia phasianella</i>															12
<i>Red Cuckoo-Dove</i>															12
<i>Macropygia ruficeps</i>															12
<i>Little Cuckoo-Dove</i>															12
<i>Macropygia unchall</i>															12
<i>Barred Cuckoo-Dove</i>															12
<i>Phapitreron methyasina</i>															12
<i>Amethyst Brown Fruit Dove</i>															12
<i>Phapitreron leucotis</i>															12
<i>White-eared Brown Fruit Dove</i>															12
<i>Ptilinopus jambu</i>															12
<i>Pink-headed Fruit Dove</i>															12
Total															

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
<i>Streptopelia leucolabris</i>							2							9	41
Black-chinned Fruit Dove					7									1	1
<i>Philopous melanocephalus</i>												1		1	1
Black-naped Fruit Dove														65	92
<i>Philopous occipitalis</i>					65									300	981
Yellow-breasted Fruit Dove					3		296	1						65	198
<i>Streptopelia bitorquatus</i>														6	34
Javanese Turtle Dove														12	53
<i>Streptopelia chinensis</i>														56	85
Spotted-necked Dove														1	4
<i>Streptopelia orientalis</i>														2	2
Eastern Turtle Dove														6	25
<i>Streptopelia tranquebarica</i>														5	5
Red Turtle Dove														46	317
<i>Treron curvirostris</i>														20,168	26,5,930
Lesser Thick-billed Green Pigeon														6/31	
<i>Treron olax</i>														1	1
Little Green Pigeon														2	2
<i>Treron phaeocoptera</i>														54	54
Yellow-footed Green Pigeon														1	1
<i>Treron pompadora</i>														2	2
Pompadour Green Pigeon														6	6
<i>Treron sphenura</i>														5	5
Wedge-tailed Green Pigeon														46	317
<i>Treron vernans</i>														20,168	26,5,930
Pink-necked Green Pigeon														6/31	
Total	1/5	1/1	2/2	1/2	10/480	3/45	9/877	5/58	7/573			1/1		46	317
PSITTACIDAE															
<i>Bombopittacus lunulatus</i>														4	40
Guianero														1	1
<i>Loriculus galgulus</i>														1	1
Blue-crowned Hanging Parrot														5	5
<i>Loriculus philippensis</i>														1	1
Philippine Hanging Parrot														1	1
<i>Prioniturus discurus</i>														1	1
Blue-headed Macquet-tailed Parrot														2	2
<i>Pittacula cyanocapala</i>														9	9
Indian Blenheim-headed Parakeet														1	1
<i>Pittacula longicauda</i>														4	4
Long-tailed Parakeet														21	21
<i>Pittacula krameri</i>														5/19	9/106
Rose-ringed Parakeet														2	2
<i>Pittacus cranurus</i>														4	4
Blue-rumped Parrot														21	21
<i>Tanygnathus lucionensis</i>														5/19	9/106
Blue-naped Parrot														2	2
Total	1/5	1/1	2/2	1/2	10/480	3/45	9/877	5/58	7/573			1/1		46	317
CUCULIDAE															
<i>Oreomantis merulinus</i>														6	366
Plain-tail cuckoo														2	22
<i>Oreomantis somerai</i>														136	176
Banded Bay Cuckoo														1	5
<i>Oreomantis varicollis</i>														1	1
Fan-tailed Cuckoo														28	73
<i>Centropus silenus</i>														1	1
Common Coucal														1	1
<i>Centropus toulong</i>														1	1
Lesser Coucal														1	1

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1987 Total	1983-87 Grand Total
<i>Centropus viridis</i>						6	3	2						11	27
Philippine Cuckoo									3	1				4	13
Ciamator coromandus															3
Red-winged crested Cuckoo															
<i>Chrysococcyx maculatus</i>															
Emerald Cuckoo															
<i>Chrysococcyx malayanus</i>					9				2					11	20
Malay Cuckoo					4				3					8	9
<i>Chrysococcyx xanthyndus</i>					22									22	69
Violet Cuckoo					6			1						7	22
Common Cuckoo					1				5			1		7	8
Hawk Cuckoo															3
<i>Cuculus micropternus</i>					17									17	42
Indian Cuckoo					12									12	52
<i>Cuculus poliocephalus</i>															4
Little Cuckoo															
<i>Cuculus saturatus</i>															
Blyth's Cuckoo					11	1				1			2	15	33
<i>Cuculus sparveroides</i>						1			3					4	5
Large Hawk Cuckoo															1
<i>Cuculus vagans</i>															5
Lesser Hawk Cuckoo															5
<i>Eudynamis scolopacea</i>															
Koel															
<i>Phoenicophaeus curvirostris</i>															
Chestnut-breasted Maltcoha															
<i>Phoenicophaeus diardi</i>						1									
Lesser Green-billed Maltcoha															
<i>Phoenicophaeus superciliosus</i>					1									1	1
Rough-crested Maltcoha															
<i>Phoenicophaeus tristis</i>														1	1
Large Green-billed Maltcoha															
<i>Surniculus lugubris</i>															
Dronko Cuckoo					18	2	3/8	4/6	10/39	3/5		1/1	1	30	62
Total		1/4			13/280	5/23							7/14	19/381	23/1,025
TYTONIDAE															
<i>Phodilus badius</i>															
Bay Owl									1				1	2	10
<i>Tyto capensis</i>															
Grass Owl			1/1			1/1			1/1				1/1	2	10
Total			1/1											2/4	2/20
STRIGIDAE															
<i>Athene brama</i>															
Spotted Owlet													1	1	3
<i>Glaucidium brodiei</i>															
Pygmy Owlet													7	7	36
<i>Glaucidium cuculoides</i>													6	6	24
Barred Owlet															
<i>Ninox ketupu</i>															
Fish Owl															
<i>Ninox philippensis</i>															
Philippine Boobook Owl								1						4	4
<i>Ninox scutulata</i>															
Brown Hawk Owl					10		3						1	15	67
<i>Otus bakkamoena</i>		1													
Collared Scops Owl									12				10	22	180

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1997 Total	1992-97 Grand Total
<i>Otus brookei</i>									1					1	1
<i>Otus rufescens</i>										2				2	2
<i>Otus sagittatus</i>															1
<i>Otus scops</i>	1	1	5						10				5	22	67
<i>Otus spilocephalus</i>									2					5	47
<i>Strix aluco</i>			3												
<i>Strix uralensis</i>															1
<i>Ural Owl</i>	1/1	2/2	2/8		1/10		2/6	1/1	4/35	1/2			4/30	10/85	2
Total															14/818
PODARGIDAE															
<i>Batrachostomus javensis</i>															3
<i>Javan Frog mouth</i>															
<i>Batrachostomus septimus</i>					1									1	10
<i>Philippine Frog mouth</i>															
<i>Batrachostomus stellatus</i>															2
<i>Could's Frog mouth</i>					1/1									1/1	3/15
Total															
CAPRIMULGIDAE															
<i>Caprimulgus affinis</i>					1		5			2				6	41
<i>Savanna Nightjar</i>														2	2
<i>Caprimulgus concretus</i>														3	23
<i>Bonaparte's Nightjar</i>															
<i>Caprimulgus indicus</i>					5										
<i>Migratory Nightjar</i>															
<i>Caprimulgus macrurus</i>					2	60	4		10				2	96	295
<i>Long-tailed Nightjar</i>															
<i>Eurostopodus macrotis</i>					5		2/0		1/10	1/2			1/2	5/114	13
<i>Great-eared Nightjar</i>					4/13	1/60									5/373
Total															
APODIDAE															
<i>Agus affinis</i>									1					92	1,063
<i>House Swift</i>			91		2				6					8	10
<i>Agus pacificus</i>														1	1
<i>White-rumped Swift</i>									1					4	27
<i>Chaetura cochinchinensis</i>															
<i>White-Throated Spinetail Swift</i>															
<i>Chaetura gigantea</i>															
<i>Malaysian Spine-tail Swift</i>					4										
<i>Chaetura leucopygialis</i>															
<i>White-rumped Spinetail Swift</i>															
<i>Chaetura picina</i>															
<i>Philippine Spinetail Swift</i>															
<i>Collocalia brevirostris</i>															
<i>Himalayan Swiftlet</i>									1					1	1
<i>Collocalia esculenta</i>															
<i>White-bellied Swiftlet</i>													3	1,370	3,376
<i>Collocalia inexpectata</i>															
<i>Edible-nest Swiftlet</i>															2
<i>Collocalia troglodytes</i>					33									33	71
<i>Pygmy Swiftlet</i>															

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
<i>Collocalia vestita</i>					2		2							4	10
Brown-rumped Swiftlet					83	74								157	231
<i>Collocalia whiteheadi</i>															
Whitehead's Swiftlet													6	6	6
<i>Cypsiurus parvus</i>					5/124	1/74	2/1,878		4/9				2/9	10/3,185	13/4,803
Palm Swift		1/91													
Total															
HEMIPROCNIDAE															
<i>Hemiprocne comata</i>														-	2
White-whiskered Tree Swift														-	1/2
Total															
TROGONIDAE															
<i>Harpactes ardens</i>								3						3	8
Philippine Trogon									3					3	10
<i>Harpactes diardi</i>									1	4				5	11
Bard's Trogon									1				3	4	38
<i>Harpactes dorsalis</i>														-	4
Red-rumped Trogon														-	4
<i>Harpactes erythrocephalus</i>														-	4
Red-headed Trogon														-	4
<i>Harpactes kasumba</i>														-	4
Red-naped Trogon														-	4
<i>Harpactes oakesii</i>														-	4
Orange-breasted Trogon														-	4
<i>Harpactes whiteheadi</i>														-	4
White-head's Trogon														-	4
Total								1/3	3/5	1/4			1/3	4/15	7/80
ALCEDINIDAE															
<i>Alcedo althia</i>	8	1	1	7	24	33	3		7				12	98	910
Common Kingfisher														-	4
<i>Alcedo euryzona</i>														-	4
Blue-banded Kingfisher														-	4
<i>Alcedo meninting</i>														-	4
Deep Blue Kingfisher														-	4
<i>Ceryle lugubris</i>														-	4
Pied Kingfisher														-	4
<i>Ceryle argentatus</i>														-	4
Silvery Kingfisher														-	4
<i>Ceryx cyanopectus</i>														-	4
Dwarf River Kingfisher														-	4
<i>Ceryx erithacus</i>														-	4
Black-backed Kingfisher														-	4
<i>Ceryx melanurus</i>														-	4
Philippine Forest Kingfisher														-	4
<i>Ceryx rufidorsus</i>														-	4
Red-backed Kingfisher														-	4
<i>Balcyon chloris</i>														-	4
White-collared Kingfisher														-	4
<i>Balcyon concretus</i>														-	4
Chestnut-collared Kingfisher														-	4
<i>Balcyon coromanda</i>														-	4
Ruddy Kingfisher														-	4
<i>Balcyon cyanoventris</i>														-	4
Java Kingfisher														-	4
<i>Balcyon bombrail</i>														-	4
Blue-naped Kingfisher														-	4
<i>Balcyon lindayae</i>														-	4
Spotted Wood Kingfisher														-	4

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1987 Total	1983-87 Grand Total
<i>Balcyon ptilinix</i>									21				6	28	96
Black-capped Kingfisher				1											
<i>Balcyon aythya</i>				2	14		12	3	21				15	67	271
White-breasted Kingfisher										1					
<i>Lacedo pulchella</i>														1	20
Banded Kingfisher															
<i>Pelonyops cyaneus</i>															
Short-billed Kingfisher															
Total	1/8	1/1	1/1	3/10	5/197	6/103	4/81	2/25	10/159	5/76		2/5	7/47	13/721	19/3,436
MICROPIDAE															
<i>Myiophobus leucostictus</i>									156				9	165	179
Bay-headed Bee-eater															
<i>Myiophobus cyclotus</i>													50	50	105
Green Bee-eater															
<i>Myiophobus philippinus</i>							75	9	11					95	359
Blue-billed Bee-eater															
<i>Myiophobus superciliosus</i>															
Brown-breasted Bee-eater															
<i>Myiophobus viridis</i>															
Blue-throated Bee-eater															
<i>Myiophobus amictus</i>															
Red-headed Bee-eater															
<i>Myiophobus albertus</i>															
Blue-headed Bee-eater															
Total					1/4		2/90	2/37	4/1,040	1/6			4/86	6/1,263	7/1,912
CORACIDAE															
<i>Coracias bachelensis</i>															
Burmese Roller															
<i>Myzomela orientalis</i>															
Broad-billed Roller															
Total					6/16								1/2	2/3	2/22
UPUPTIDAE															
<i>Upupa epops</i>	1/1												5	6	9
Total													1/5	1/6	1/9
BUCCONIDAE															
<i>Asyndesmus albinotus</i>															
Southern Pied Hornbill															
<i>Pseudopodiceps pumilus</i>															
Tarctic Hornbill															
<i>Rhyticeros undulatus</i>															
Wreathed Hornbill															
Total							1/1						1	1	1
CAPTIONIDAE															
<i>Caprimulgus fuliginosus</i>															
Brown Barbet															
<i>Megalaima asiatica</i>															
Blue-throated Barbet															
<i>Megalaima australis</i>															
Little Barbet															
<i>Megalaima falcistris</i>															
Green-eared Barbet															
<i>Megalaima franklini</i>															
Golden-throated Barbet															
<i>Megalaima haemacephala</i>															
Coppermouth Barbet															
Total					2		17	2	1				19	41	211

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
<i>Megalaima henrici</i> , Yellow-crowned Barbet														-	1
<i>Megalaima lachguila</i> , Hume's Blue-throated Barbet														-	12
<i>Megalaima mystacophanes</i> , Caudy Barbet													2	2	6
<i>Megalaima oorti</i> , Muller's Barbet														5	5
<i>Megalaima virens</i> , Great Barbet			5										3	3	9
<i>Megalaima zeylanica</i> , Lineated Barbet													3	3	7
<i>Psilopogon pyrolophus</i> , Fire-tufted Barbet					1/2		1/17	1/2	2/3				3	5	8
Total		1	5		1/2								8/74	9/103	13/385
INDICATORIDAE															
<i>Indicator archipelagicus</i> , Malay Honey Guide														-	2
Total														-	1/2
PICIDAE															
<i>Blythipicus pyrrhotis</i> , Bay Wood pecker													1	1	13
<i>Blythipicus rubiginosus</i> , Maroon Wood pecker									6	7				13	31
<i>Chrysocolaptes lucidus</i> , Golden-backed 4-toed Woodpecker								2						2	21
<i>Dendrocopos atratus</i> , Striped-breasted Pied Woodpecker													2	2	10
<i>Dendrocopos canicapillus</i> , Oriental Pygmy Pied Woodpecker														-	5
<i>Dendrocopos kizuki</i> , Japanese Pygmy Woodpecker														1	6
<i>Dendrocopos leucotos</i> , White-backed Woodpecker			1											-	3
<i>Dendrocopos macul</i> , Fulvous-breasted Red Woodpecker													1	1	4
<i>Dendrocopos maculatus</i> , Philippine Pygmy Woodpecker														-	4
<i>Dendrocopos major</i> , Great Spotted Woodpecker														1	30
<i>Dendrocopos moluccensis</i> , Malaysian Pygmy Pied Woodpecker									2					2	10
<i>Dinopium javanense</i> , Golden-backed 3-toed Woodpecker									11					12	38
<i>Dinopium rafflesi</i> , Olive-backed 3-toed Woodpecker						1								-	2
<i>Dryocopus javensis</i> , White-bellied Black Woodpecker														-	5
<i>Gecinulus grantia</i> , Pale-headed Woodpecker													1	1	1
<i>Hemicircus canente</i> , Heart-spotted Woodpecker													11	16	63
<i>Jynx torquilla</i> , Wrenneck		3		2										-	4
<i>Meliglyptes tristis</i> , Rufous-rumped Woodpecker														-	33
<i>Meliglyptes tukki</i> , Buff-necked Woodpecker									1	8			6	15	

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1943-67 Grand Total
<i>Micropternus brachyurus</i>														22	48
<i>Rufous Woodpecker</i>									14	8				-	1
<i>Mulleripicus anebris</i>															
<i>Sooty Woodpecker</i>													11	12	33
<i>Picumnus innominatus</i>									1						
<i>Speckled Piculet</i>															
<i>Picus canus</i>															
<i>Black-naped Green Woodpecker</i>			1												
<i>Picus chlorophus</i>															
<i>Lesser Yellow-naped Woodpecker</i>															
<i>Picus erythropygius</i>															
<i>Red-rumped Green Woodpecker</i>															
<i>Picus flavinucha</i>															
<i>Large Yellow-naped Woodpecker</i>															
<i>Picus mentalis</i>															
<i>Checker-throated Woodpecker</i>															
<i>Picus miniaceus</i>															
<i>Banded Red Woodpecker</i>									2					2	5
<i>Picus punicus</i>									3					3	3
<i>Crimson-winged Woodpecker</i>															
<i>Picus vittatus</i>															
<i>Bamboo Green Woodpecker</i>									14					18	77
<i>Sasia abnormis</i>															
<i>Rufous Piculet</i>									6	12				19	46
<i>Sasia ochracea</i>															
<i>White-browed Rufous Piculet</i>	1/1	2/4	1/1	1/2				1/2	10/60	4/35			13/52	22/156	36
Total															32,573
EURYLAIMIDAE															
<i>Calypsona viridis</i>									6					5	56
<i>Green Broadbill</i>									1	6			2	1	18
<i>Cymbirhynchus macrorhynchos</i>															
<i>Black-and-Red Broadbill</i>										8				4	10
<i>Eurylaimus javanicus</i>															
<i>Banded Broadbill</i>									2					2	4
<i>Eurylaimus ochromalus</i>															
<i>Black-and-Yellow Broadbill</i>								4						4	9
<i>Eurylaimus steerii</i>															
<i>Waitled Broadbill</i>															
<i>Pearisomus dalhousiae</i>															
<i>Long-tailed Broadbill</i>															
<i>Serilophus lunatus</i>															
<i>Silver-breasted Broadbill</i>															
Total								1/4	3/9	2/16			3/11	7/40	65
PITTIDAE															
<i>Pitta caerulea</i>															
<i>Giant Pitta</i>															
<i>Pitta cyanea</i>															
<i>Lesser Blue Pitta</i>															
<i>Pitta erythrogastris</i>															
<i>Red-breasted Pitta</i>															
<i>Pitta granatina</i>															
<i>Garnet Pitta</i>															
<i>Pitta guineana</i>															
<i>Band i Pitta</i>															
<i>Pitta kochi</i>															
<i>Koch's Pitta</i>															
<i>Pitta moluccensis</i>															
<i>Blue-winged Pitta</i>															
Total															97

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
<i>Hemipus picatus</i> , Bar-winged Flycatcher-shrike													18	18	122
<i>Lalage melanocephala</i> , Black-and-white Triller														-	4
<i>Lalage nigra</i> , Pied Triller									30				1	140	810
<i>Pericrocotus brevirostris</i> , Scarlet-billed Minivet					1	27	60	21						-	6
<i>Pericrocotus ethologus</i> , Long-tailed Minivet													1	-	22
<i>Pericrocotus flammeus</i> , Scarlet Minivet														1	30
<i>Pericrocotus roseus/divalicatus</i> , Rusky Minivet														2	15
<i>Pericrocotus solaris</i> , Mountain Minivet													5	5	19
<i>Tephrodornis virgatus</i> , Bro-m-tailed Wood-shrike					1/1	1/27	1/60	1/21	3/34		1/1		8	9	31
Total	1/2												5/34	9/180	17/1,124
DICURIDAE															
<i>Dicurus adsimilis</i> , Black Drongo													4	4	72
<i>Dicurus aeneus</i> , Bronzed Drongo									1				5	6	56
<i>Dicurus annectans</i> , Crow-billed Drongo									49				2	51	63
<i>Dicurus balicassius</i> , Balicassiao														-	135
<i>Dicurus hottentottus</i> , Hair-crested Drongo						2		14					4	20	94
<i>Dicurus leucophaeus</i> , Ashy Drongo						4							11	15	121
<i>Dicurus paradiseus</i> , Greater Racquet-tailed Drongo									1				10	11	99
<i>Dicurus remifer</i> , Lesser Racquet-tailed Drongo						2/6		1/14	3/51				24	24	187
Total													7/60	7/151	8/827
ORIOLIDAE															
<i>Oriolus chinensis</i> , Black-naped Oriole														76	570
<i>Oriolus tenuirostris</i> , Slender-billed Oriole					4	2	62	3	10					-	2
<i>Oriolus traillii</i> , Maroon Oriole													3	3	10
<i>Oriolus xanthonotus</i> , Indian Black-headed Oriole															5
Total	1/6				1/4	1/2	1/62	1/3	1/10				1/3	2/90	4/587
CORVIDAE															
<i>Cissa chinensis</i> , Green Magpie													1	1	3
<i>Cissa erythrorhynchos</i> , Red-billed Blue Magpie														1	4
<i>Cissa thalassina</i> , Short-tailed Green Magpie														-	4
<i>Corvus corone</i> , Carrion Crow	2													2	10

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
<i>Corvus enca</i>														2	2
<i>Slender-billed crow</i>															
<i>Corvus macrorhynchos</i>															
<i>Large-billed Crow</i>															1
<i>Crypturus formosus</i>														1	1
<i>Grey Treepie</i>															
<i>Crypturus occipitalis</i>															
<i>Malaysian Treepie</i>															10
<i>Crypturus temia</i>															
<i>Racquet-tailed Treepie</i>													11	11	22
<i>Crypturus vagabunda</i>															
<i>Rufous Treepie</i>													2	2	3
<i>Cyanopica cyana</i>															
<i>Blue Magpie</i>	5													5	35
<i>Garrulus glandarius</i>	3	1												4	96
<i>Jay</i>															
<i>Nucifraga carpalactes</i>															1
<i>Nutcracker</i>															
<i>Pica pica</i>															
<i>Magpie</i>	31													33	71
<i>Platylophus galericulatus</i>				2											
<i>Crested Malay Jay</i>										1				1	7
<i>Platylophus leucopterus</i>															
<i>Black-crested Magpie</i>															
Total	4/41	2/2	2/3	2/3	1/2	1/2				1/1			3/14	11/83	16,274
PARIDAE															
<i>Aegintha lacus coeninus</i>														55	58
<i>Red-headed Tit</i>															
<i>Aegintha lacus caudatus</i>	53													53	383
<i>Long-tailed Tit</i>															
<i>Parus sinensis</i>															1
<i>Palawan Tit</i>															
<i>Parus ater</i>	41													95	183
<i>Coal Tit</i>															
<i>Parus airitcapillus</i>															
<i>Willow Tit</i>															23
<i>Parus elegans</i>														13	99
<i>Elegant Titmouse</i>															
<i>Parus major</i>															
<i>Great Tit</i>	712	27												751	2,110
<i>Parus monticolus</i>															
<i>Green-backed Tit</i>														54	59
<i>Parus palustris</i>	30													30	142
<i>Marsh Tit</i>															
<i>Parus varius</i>	18													18	199
<i>Varied Tit</i>															
<i>Parus xanthogenys</i>															
<i>Yellow-checked Tit</i>															
<i>Sylviparus modestus</i>														17	67
<i>Yellow-browed Tit</i>															
Total	5/852	1/27	3/163	1/12	1/12	1/12		1/1					1/17	9/1,084	12,325
CERTHIDAE															
<i>Certhia diolor</i>															
<i>Brown-throated Tree creeper</i>														1	19
<i>Certhia familiaris</i>															
<i>European Tree creeper</i>															2

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1987 Total	1983-87 Grand Total
<i>Rhabornis inornatus</i>														-	3
Plain-headed Creeper														-	3
<i>Rhabornis mystacalis</i>														2	5
Striped-headed Creeper					1			1					1/1	2/3	4/29
Total					1/1			1/1							
SEITIDAE															
<i>Sitta azurea</i>									3					3	3
Blue Nuthatch														3	3
<i>Sitta europaea</i>	2		5										1	8	39
European Nuthatch															
<i>Sitta frontalis</i>									1				16	17	70
Velvet-fronted Nuthatch									2/4				2/17	3/28	3/112
Total	1/2		1/5												
TIMALIIDAE															
<i>Actinodura morio</i>														9	9
Formosan Barwing			9											-	120
<i>Actinodura ramseyi</i>														-	17
Speckled Barwing														-	61
<i>Alcippe brunnea</i>														-	361
Gold's Nun Babbler														-	361
<i>Alcippe brunneicauda</i>														-	361
Brown-tailed Nun Babbler														-	361
<i>Alcippe castaneiceps</i>														-	361
Chestnut-headed Nun Babbler														-	361
<i>Alcippe cinereiceps</i>														-	361
Brown-headed Nun Babbler			36						9					45	52
<i>Alcippe morio</i>														221	745
Gray-faced Nun Babbler			2						19					152	505
<i>Alcippe nipalensis</i>			81						71					3	230
Mountain Nun Babbler														37	64
<i>Alcippe polocephala</i>									2					-	1
Common Nun Babbler														-	4
<i>Chrysomitris sinense</i>														-	1
Yellow-eyed Babbler														-	1
<i>Eupetes macrocerus</i>														-	1
Rail Babbler														-	1
<i>Camporhynchus rufulus</i>														-	1
White-headed Babbler														-	1
<i>Garrulax albigularis</i>														-	1
White-throated Laughing thrush														-	1
<i>Garrulax castaneus</i>														-	1
Swamp														-	1
<i>Garrulax chinensis</i>			1											7	17
Black-throated Laughing thrush														5	23
<i>Garrulax erythrocephalus</i>														5	23
Red-headed Laughing thrush														10	152
<i>Garrulax leucolophus</i>														2	9
White-crested Laughing thrush														-	1
<i>Garrulax lugubris</i>														-	1
Black Laughing thrush														-	1
<i>Garrulax milnei</i>														-	1
Red-tailed Laughing thrush														-	1
<i>Garrulax mitratus</i>														17	39
Chestnut-capped Laughing thrush														5	15
<i>Garrulax monilligerus</i>														5	15
Necklaced Laughing thrush														19	24
<i>Garrulax morio</i>			19											19	24
Formosan Laughing thrush														19	24

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<i>Carrulus pallidus</i>														-	4
Gray-and-Brown Laughing thrush														-	1
<i>Carrulus pedoralis</i>														-	1
Greater Necklaced Laughing thrush														-	1
<i>Carrulus perspicillatus</i>														10	16
Speckled Laughing thrush				10										10	16
<i>Carrulus poecilorhynchus</i>														2	3
Rufous Laughing thrush			2											2	3
<i>Carrulus streptopus</i>													10	10	22
Tickell's Laughing thrush														10	22
<i>Heterophasia amercens</i>														4	52
Chestnut-backed Sibia									4					4	52
<i>Heterophasia auricularis</i>														14	19
White-eared Sibia			14											14	19
<i>Heterophasia melanoleuca</i>													4	4	376
Tickell's Sibia														4	376
<i>Heterophasia pictaoides</i>														11	47
Long-tailed Sibia									11					11	47
<i>Knipia striata</i>														4	4
Striped Wren-babbler										4				4	4
<i>Leiothrix argenteauris</i>														75	309
Silver-eared Mesia									65				10	75	309
<i>Leiothrix lutea</i>														2	9
Red-billed Leiothrix														2	9
<i>Loxia rufophaea</i>														-	22
Crimson-headed Loxichia														-	22
<i>Loxia rufophaea</i>														-	22
Green's Loxichia														81	113
<i>Macronus flavicollis</i>														81	113
Gray-faced Tit Babbler														8	58
<i>Macronus gularis</i>														8	58
Striped Tit Babbler														227	682
<i>Macronus pilosus</i>													184	227	682
Puffy-backed Tit Babbler										26				13	31
<i>Macronus straticops</i>									3	9				13	31
Brown Tit Babbler														55	148
<i>Macronus straticops</i>														55	148
Brown Tit Babbler														1	44
<i>Macronus straticops</i>														1	44
Plain Babbler														-	5
<i>Macronus straticops</i>														-	5
Macropodon albopallens														59	116
<i>Macropodon albopallens</i>														59	116
White-throated Babbler														36	157
<i>Macropodon cinereum</i>														36	157
Lesser Red-headed Babbler														17	31
<i>Macropodon magnirostris</i>														17	31
Brown-headed Babbler														17	31
<i>Macropodon magnirostris</i>														17	31
Brown-headed Babbler														27	113
<i>Macropodon magnirostris</i>														27	113
Greater Red-headed Babbler														5	99
<i>Minia cyanoptera</i>														5	99
Blue-winged siva														5	99
<i>Minia strigula</i>														5	99
Chestnut-tailed Siva														5	141
<i>Minia strigula</i>														5	141
Napothera brevicaudatus														1	5
<i>Napothera brevicaudatus</i>														1	5
Streaked Wren-Babbler														1	28
<i>Napothera crassa</i>														1	28
Mountain Wren-Babbler														1	28
<i>Napothera crassa</i>														1	28
Small Wren-Babbler														1	28
<i>Napothera epipodius</i>														1	28
Napothera epipodius														1	28
<i>Napothera epipodius</i>														1	28
Large-footed Wren-Babbler														1	28
<i>Napothera epipodius</i>														1	28
Pellonum albiventer														1	28
<i>Napothera epipodius</i>														1	28
Plain Brown Babbler														1	28

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
<i>Pellorneum capistratum</i> , Black-capped Babbler									6	19			7	35	71
<i>Pellorneum ruficeps</i> , Striped Babbler													34	34	239
<i>Phoenicurus phylla</i> , Pycmy Wren-Babbler			2											2	3
<i>Pomatornis erythronyx</i> , Rusty-cheeked Scimitar Babbler														-	50
<i>Pomatornis hypoleucos</i> , Large Scimitar Babbler														-	4
<i>Pomatornis ochraceiceps</i> , Ochraceous-headed Scimitar Babbler													3	3	4
<i>Pomatornis schiacticeps</i> , Chestnut-naped Scimitar Babbler			3					1					6	10	233
<i>Pteruthius xenobarbus</i> , Chestnut-fronted Shrike-Babbler													2	2	4
<i>Pteruthius flaviscaplis</i> , Greater Shrike-Babbler													6	6	23
<i>Pteruthius melanotis</i> , Black-eared Shrike-Babbler														-	1
<i>Ptilocichia mindanensis</i> , Striped Ground Babbler														-	1
<i>Ptilocichia falcata</i> , Palated Ground Babbler														-	3
<i>Rhipophilus pekinensis</i> , Chinese Babbler														-	9
<i>Stachyris capitalis</i> , Rufous-crowned Tree Babbler														-	4
<i>Stachyris chrysaea</i> , Golden Tree Babbler									9				18	27	86
<i>Stachyris erythroptera</i> , Red-winged Tree Babbler								10		38			15	63	115
<i>Stachyris leucotis</i> , White-eared Tree Babbler								3						3	9
<i>Stachyris maculata</i> , Red-rumped Tree Babbler								3		8				11	32
<i>Stachyris nigrocapitata</i> , Black-crowned Tree Babbler														-	6
<i>Stachyris nigriceps</i> , Gray-throated Tree Babbler													41	79	512
<i>Stachyris nigricollis</i> , Black-necked Tree Babbler								38		22				22	35
<i>Stachyris plateni</i> , Pycmy Tree Babbler														-	7
<i>Stachyris poliocephala</i> , Grey-headed Tree Babbler									35	8	1		1	45	156
<i>Stachyris ruficeps</i> , Red-headed Tree Babbler			68											68	150
<i>Stachyris rufifrons</i> , Hume's Tree Babbler													5	5	8
<i>Stachyris speciosa</i> , Rough-templed Tree Babbler														-	41
<i>Stachyris striolata</i> , Spotted Tree Babbler														-	1
<i>Stachyris whiteheadi</i> , Whitehead's Tree Babbler														-	26
<i>Timalia pileata</i> , Red-capped Babbler													27	27	75
<i>Trichastoma abbotti</i> , Abbott's Jungle Babbler													68	95	156
<i>Trichastoma bicolor</i> , Ferruginous Jungle Babbler									27	5				9	22

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1987 Total	1983-87 Grand Total
<i>Trichastoma cinereiceps</i> , Ashy-headed Ground Babbler														-	13
<i>Trichastoma malaccensis</i> , Short-tailed Babbler									17	59	2		1	68	158
<i>Trichastoma pyrrhogenys</i> , Temminck's Jewel Babbler														-	1
<i>Trichastoma rostratum</i> , Blyth's Jungle Babbler									17		2		3	22	56
<i>Trichastoma sepiarium</i> , Horsfield's Jungle Babbler									3	3				6	7
<i>Trichastoma tickelli</i> , Tickell's Jungle Babbler									1				4	5	97
<i>Turdoides sariei</i> , Striated Babbler														-	1
<i>Yuhina brunneiceps</i> , Formosan Yuhina			110											110	202
<i>Yuhina sadaniceps</i> , Chestnut-headed Siva															
<i>Yuhina flavicollis</i> , Yellow-naped Yuhina													71	71	189
<i>Yuhina xanthocerca</i> , White-bellied Yuhina														-	134
Total			13/428	4/20	1/21	1/8		1/55	21/298	13/249	4/6		34	36/937	94/6,184
PARADOXORNITHIDAE															
<i>Paradoxornis gularis</i> , Gray-headed Parrotbill													74	74	151
<i>Paradoxornis guttaticollis</i> , Rufous-headed Parrotbill														-	19
<i>Paradoxornis nipalensis</i> , Orange Parrotbill			198											198	215
<i>Paradoxornis webbiana</i> , Webb's Parrotbill	1,046 1/1,046		3 2/201											1,049 3/1,321	2,404 4/2,789
Total													1/74		
PYCNONOTIDAE															
<i>Criniger bres.</i> , Olive White-throated Bulbul									23	12	2		10	47	243
<i>Criniger finchi</i> , Finch's Bulbul									1					1	3
<i>Criniger flavicollis</i> , White-throated Bulbul						23								23	23
<i>Criniger ochraceus</i> , Brown White-throated Bulbul											1		124	125	517
<i>Criniger pallidus</i> , Swinhoe's White-throated Bulbul													30	30	168
<i>Criniger phaeocephalus</i> , Crestless White-throated Bulbul									9	24			1	34	134
<i>Hypsipetes amaurotis</i> , Brown-eared Bulbul														18	120
<i>Hypsipetes chariottae</i> , Crested Olive Bulbul														1	3
<i>Hypsipetes criniger</i> , Hairy-backed Bulbul									13	24	3		5	45	137
<i>Hypsipetes flavalus</i> , Ashy Bulbul									1				14	15	87
<i>Hypsipetes madagascariensis</i> , Black Bulbul														-	44
<i>Hypsipetes malaccensis</i> , Malaccan Bulbul														-	29
<i>Hypsipetes micellelandi</i> , Mountain Streaked Bulbul													84	102	516

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<i>Hypolepis philippinus</i> , Philippine Bulbul					35		118	20						171	1,757
<i>Hypolepis propinqua</i> , Oliv. Bulbul													13	13	116
<i>Hypolepis sigulorensis</i> , Mol. Red-breasted Bulbul														-	269
<i>Hypolepis thomsoni</i> , Bir. ghan's Bulbul									1					-	37
<i>Hypolepis viridescens</i> , Streaked Bulbul														1	6
<i>Pycnonotus atriceps</i> , Black-headed Bulbul						109			10	5	1		56	183	1,241
<i>Pycnonotus aurigaster</i> , Black-capped Bulbul													63	70	266
<i>Pycnonotus blanfordi</i> , Blandford's Bulbul													364	364	1,160
<i>Pycnonotus brunneus</i> , Red-eyed Brown Bulbul									5	7	2		9	23	90
<i>Pycnonotus cafer</i> , Red-vented Bulbul												7		7	16
<i>Pycnonotus cyaniventris</i> , Gray-bellied Bulbul														-	24
<i>Pycnonotus erythrophthalmos</i> , Lesser Brown Bulbul															
<i>Pycnonotus euliotus</i> , Crested Brown Bulbul									5	2			9	16	100
<i>Pycnonotus finlaysoni</i> , St. Ipe-throated Bulbul										16				16	16
<i>Pycnonotus flavescens</i> , Pale-faced Bulbul													125	125	345
<i>Pycnonotus gularis</i> , Yellow-vented Bulbul													32	32	500
<i>Pycnonotus jocosus</i> , Red-whiskered Bulbul					50		947	549	1,392	103	1		276	3,318	11,415
<i>Pycnonotus leucogenys</i> , White-cheeked Bulbul				44					3				91	136	467
<i>Pycnonotus melanicterus</i> , Black-crested Yellow Bulbul													120	-	3
<i>Pycnonotus melanoleucos</i> , Black-and-white Bulbul									1					131	574
<i>Pycnonotus newehusii</i> , Malayan Wattled Bulbul														-	13
<i>Pycnonotus plumosus</i> , Large Olive Bulbul														-	97
<i>Pycnonotus simplex</i> , White-eyed Brown Bulbul					7	105			134	32	2			280	675
<i>Pycnonotus sinensis</i> , Chinese Bulbul									8					8	34
<i>Pycnonotus squamatus</i> , Scaly-breasted Bulbul														400	2,829
<i>Pycnonotus striatus</i> , Striated Green Bulbul														-	3
<i>Pycnonotus taivanus</i> , Siyan's Bulbul														-	28
<i>Pycnonotus urostictus</i> , Yellow-wattled Bulbul														5	7
<i>Pycnonotus xanthorrhous</i> , Anderson's Bulbul					1			43						44	103
<i>Pycnonotus zeylanicus</i> , Yellow-crowned Bulbul									4	1				-	182
<i>Setornis crinitus</i> , Hook-billed Bulbul										2	1			5	11
														3	3

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesias	Thailand	1947 Total	1943-47 Grand Total
<i>Enicurus leschenaulti</i> , White-crowned Forktail										1			15	16	40
<i>Enicurus ruficapillus</i> , Chestnut-naped Forktail									8				1	9	40
<i>Enicurus schistaceus</i> , Slaty-backed Forktail									1					1	21
<i>Enicurus scouleri</i> , Little Forktail														-	1
<i>Eritacus asahii</i> , Japanese Robin														-	18
<i>Eritacus callops</i> , Rubythroat	6	14	236	32	9								31	308	933
<i>Eritacus cyaneus</i> , Siberian Blue Robin	4	33							138				83	347	603
<i>Eritacus pectoralis</i> , Himalayan Rubythroat														-	8
<i>Eritacus sibilans</i> , Red-tailed Robin	2	4		3									1	8	26
<i>Eritacus aeneus</i> , Bluethroat				5									3	6	12
<i>Monticola fulvus</i> , White-throated Rock Thrush														3	7
<i>Monticola rubiventris</i> , Chestnut-bellied Rock Thrush														-	2
<i>Monticola solitarius</i> , Blue Rock Thrush	4	3	51		7	1								68	236
<i>Myiommela leucura</i> , White-tailed Blue Robin			7										3	10	236
<i>Myophonus coeruleus</i> , Blue Whistling Thrush				3										3	74
<i>Myophonus caucasicus</i> , Black Whistling Thrush														-	3
<i>Myophonus robinsoni</i> , Malayan Whistling Thrush														-	2
<i>Phoenicurus aureus</i> , Daurian Redstart	78	46	1	4										129	306
<i>Phoenicurus frontalis</i> , Blue-fronted Redstart														-	3
<i>Rhyacornis fuliginosus</i> , Plumbeous Redstart														-	1
<i>Caxicola caprata</i> , Pied Stonechat													20	34	100
<i>Saxicola ferrea</i> , Savanna Stonechat													1	1	100
<i>Saxicola jerdoni</i> , Jerdon's Bushchat														-	2
<i>Saxicola torquata</i> , Stonechat	112	66		14									1	127	544
<i>Tarsiger cyanurus</i> , Red-flanked Bluetail			5	16										87	313
<i>Tarsiger indicus</i> , White-browed Bush Robin			33											23	23
<i>Tarsiger johnstoniae</i> , Johnston's Bush Robin			69											60	77
<i>Turdus cardis</i> , Gray Thrush		18												26	106
<i>Turdus celanogus</i> , Seven Islands Thrush														-	19
<i>Turdus chrysolaus</i> , Brown Thrush		19	7	1	11									38	373

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1987 Total	1987-88 Grand Total
<i>Turdus dissimilis</i>															1
<i>Turdus black-breasted Thrush</i>														95	214
<i>Turdus hortulorum</i>				95											
<i>Turdus merula</i>				1										1	1
<i>Turdus naumanni</i>	1													21	108
<i>Turdus dusky</i>		17		3											
<i>Turdus obscurus</i>															
<i>Turdus grey-headed Thrush</i>		2												48	175
<i>Turdus pallidus</i>		50	8	13					7					89	208
<i>Turdus poliocephalus</i>														2	16
<i>Turdus island Thrush</i>			1												
<i>Zosterops andromedae</i>															
<i>Zosterops cinerea</i>															
<i>Zosterops citrina</i>					28									28	130
<i>Zosterops orange-headed Thrush</i>														15	47
<i>Zosterops white's Ground Thrush</i>		5	2	2	8							3		15	95
<i>Zosterops long-tailed Ground Thrush</i>															
<i>Zosterops everetti</i>															
<i>Zosterops everetti's Ground Thrush</i>															
<i>Zosterops interpres</i>															
<i>Zosterops chestnut-headed Ground Thrush</i>										1				1	1
<i>Zosterops marginalis</i>															
<i>Zosterops lesser Long-billed Ground Thrush</i>															
<i>Zosterops sibirica</i>														1	31
<i>Siberian Ground Thrush</i>															
Total	7/207	12/285	11/408	14/191	7/76	4/72	4/72	1/1	8/250	4/7	3/6	3/8	15/342	39/1,842	55/7,021
SYLVIIDAE															
<i>Acrocephalus superciliosus</i>															10
<i>Yellow-bellied Flycatcher Warbler</i>															
<i>Acrocephalus arundinaceus</i>															
<i>Great Reed Warbler</i>	2	150	21	5	242	18			185	4			12	839	3,076
<i>Acrocephalus bistrigiceps</i>															
<i>Schrenck's Reed Warbler</i>	1	138		1					2					142	488
<i>Acrocephalus concinns</i>															
<i>Brown Paddy field Warbler</i>															
<i>Acrocephalus scirpaceus</i>															
<i>Speckled Reed Warbler</i>															
<i>Acrocephalus stentorius</i>															
<i>Southern Great Reed Warbler</i>															
<i>Bradypterus caudatus</i>															
<i>Long-tailed Ground Warbler</i>															
<i>Cettia acanthizoides</i>															
<i>Yellow-bellied Bush Warbler</i>			71										3	5	962
<i>Cettia brunneifrons</i>															
<i>Rufous-capped Bush Warbler</i>															
<i>Cettia canturina</i>															
<i>Slating Bush Warbler</i>															
<i>Cettia diphone</i>															
<i>Bush Warbler</i>	18	183	2	5										205	743
<i>Cettia montana</i>															
<i>Mountain Bush Warbler</i>			4											5	16

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Minduro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sebah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
<i>Cettia pallidipes</i>														-	6
Pale-footed Bush warbler															
<i>Cettia squameiceps</i>	1	14											4	19	122
Short-tailed Bush Warbler															
<i>Cettia whiteheadi</i>														-	7
Whitehead's Bush Warbler															
<i>Cisticola exilis</i>								13						13	65
Rufous-headed Fantail Warbler								53					3	94	286
<i>Cisticola juncidis</i>		2	1				3		32					3	25
Streaked Fantail Warbler									1						
<i>Gerygone fusca</i>															
Flycatcher															
<i>Locustella certhiola</i>															
Pallas' Grasshopper Warbler						2									
<i>Locustella fasciolata</i>						4									
Gray's Grasshopper Warbler									38	3				47	704
<i>Locustella lanceolata</i>						48								48	98
Streaked Grasshopper Warbler						600			79				2	681	2,329
<i>Locustella ochotensis</i>															
Middle-dorff's Grasshopper Warbler	1	30												101	290
<i>Megaturus palustris</i>				2	68										
Megaturus palustris															
Striated Canegrass Warbler					6			9						15	107
<i>Megaturus timoriensis</i>															
Rufous-capped Canegrass Warbler							3	1						4	33
<i>Orthotomus atrogularis</i>															
Black-necked Tailorbird							12	13	9				40	74	326
<i>Orthotomus chrysiceps</i>															
White-eared Tailorbird								2						2	2
<i>Orthotomus cucullatus</i>									3					4	49
Mountain Tailorbird															
<i>Orthotomus nigriceps</i>															
Black-headed Tailorbird															
<i>Orthotomus ruficeps</i>									23					26	86
Red-headed Tailorbird															
<i>Orthotomus sericeus</i>						4			7	36		2	12	59	118
Red-tailed Tailorbird															
<i>Orthotomus aurotus</i>									4				107	116	335
Long-tailed Tailorbird				5									30	30	112
<i>Phragmatocola aedon</i>															
Thick-billed Warbler															
<i>Phylloscopus armandi</i>															
Buff-browed Willow Warbler															
<i>Phylloscopus borealis</i>		56	1		42		2	3	54	13			16	147	1,296
Arctic Willow Warbler															
<i>Phylloscopus reubens</i>															
Yellow-faced Willow Warbler															
<i>Phylloscopus coronatus</i>									88					8	91
Crowned Willow Warbler															
<i>Phylloscopus davisoni</i>															
White-tailed Willow Warbler															
<i>Phylloscopus fuscatus</i>															
Dusky Willow Warbler															
<i>Phylloscopus inornatus</i>				11									26	30	92
Yellow-browed Willow Warbler													34	65	190
<i>Phylloscopus maculipennis</i>	3														
Gray-faced Willow Warbler															
<i>Phylloscopus occipitalis</i>															
Greater Crowned Willow Warbler	44	150							18						466

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1987 Total	1963-87 Grand Total
<i>Phylloscopus olivaceus</i>														1	497
Philippine Willow Warbler														3	36
<i>Phylloscopus proregulus</i>				3										-	35
Pallas' Willow Warbler														10	53
<i>Phylloscopus pulcher</i>														3	12
Orange-barred Willow Warbler														-	1
<i>Phylloscopus reguloides</i>														10	53
Blyth's Crowned Willow Warbler														3	12
<i>Phylloscopus schwarzi</i>														-	1
Kodje's Willow Warbler														-	1
<i>Phylloscopus subaffinis</i>														-	1
Gray's Willow Warbler														76	184
<i>Phylloscopus tenellipes</i>														5	184
Pale-legged Willow Warbler														5	9
<i>Phylloscopus trivirgatus</i>									5					6	9
Green Willow Warbler														4	16
<i>Phylloscopus trochiloides</i>														4	16
Dull Green Willow Warbler														2	2
<i>Prinia alrogularis</i>														19	524
White-breasted Wren-Warbler														132	524
<i>Prinia familiaris</i>														78	90
Bar-winged Wren-Warbler														3	3
<i>Prinia flavigularis</i>														47	93
Yellow-bellied Wren-Warbler														-	1
<i>Prinia lodhami</i>														22	235
Franklin's Wren-Warbler														9	235
<i>Prinia polychroma</i>														-	2
Brown Hill Warbler														10	10
<i>Prinia rufescens</i>														55	375
Redbreasted Wren-Warbler														5	5
<i>Prinia socialis</i>														47	93
Ashy Wren-Warbler														-	1
<i>Prinia subflava</i>														22	235
Brown Wren-Warbler														9	235
<i>Prinia sylvatica</i>														-	2
Woodland Wren-Warbler														10	10
<i>Regulus ignicapillus</i>														55	375
Firecrest														5	5
<i>Regulus regulus</i>														36	209
Goldcrest														-	13
<i>Seicercus albogularis</i>	2													5	5
White-throated Flycatcher-Warbler														36	209
<i>Seicercus bairdi</i>														5	5
Yellow-eyed Flycatcher-Warber														5	22
<i>Seicercus castaneiceps</i>														2	16
Chestnut-headed Flycatcher-Warbler														-	1
<i>Seicercus montis</i>														-	1
Yellow-breasted Flycatcher-Warbler														5	22
<i>Seicercus superciliosus</i>														2	16
Yellow-bellied Flycatcher-Warbler														-	1
<i>Testa castaneocoronata</i>														-	1
Chestnut-headed Ground Warbler														-	1
<i>Testa olivacea</i>														-	1
Bright Slaty-bellied Ground Warbler														-	1
Total	8/72	10/857	9/121	10/65	10/1,047	3/24	5/22	8/95	15/648	4/58	1/3	2/3	25/562	51/3,574	67,15,706
MUSCICAPIDAE															
<i>Caliopterus cyaneus</i>														40	185
Grey-headed Flycatcher														-	6
<i>Caliopterus bellianthes</i>														-	6
Citrine Canary Flycatcher														-	6

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
<i>Hypothymis aurea</i> , Black-naped Blue Flycatcher			2		2	4		8	3	5	1		54	79	320
<i>Muscicapa banyumasa</i> , Hill Blue Flycatcher									2			1	75	78	325
<i>Muscicapa basilanica</i> , Little Slaty Flycatcher														-	1
<i>Muscicapa caerulea</i> , Large-billed Blue Flycatcher											1			1	2
<i>Muscicapa concreta</i> , White-tailed Blue Flycatcher									2					2	4
<i>Muscicapa cyanometana</i> , Japanese Blue Flycatcher	5	55												60	271
<i>Muscicapa dumetoria</i> , Orange-breasted Flycatcher										6				6	26
<i>Muscicapa grandis</i> , Nilava										30				30	175
<i>Muscicapa griselsicta</i> , Gray-spotted Flycatcher		1						3						17	57
<i>Muscicapa hainana</i> , Hainan Blue Flycatcher					13								17	17	30
<i>Muscicapa hodgsoni</i> , Rusty-breasted Blue Flycatcher														-	14
<i>Muscicapa hyperythra</i> , Rufous-breasted Flycatcher									7				2	14	115
<i>Muscicapa indigo</i> , Indigo Flycatcher			4											-	3
<i>Muscicapa latirostris</i> , Brown Flycatcher														59	157
<i>Muscicapa leucomenura</i> , Slaty-blue Flycatcher		10	1						48					-	4
<i>Muscicapa macrogoriae</i> , Small Nilava														-	30
<i>Muscicapa monticola</i> , White-gorgetted Flycatcher													12	12	95
<i>Muscicapa mugimaki</i> , Mugimaki Flycatcher		7												7	29
<i>Muscicapa narsalisina</i> , Narcisus Flycatcher					19									20	355
<i>Muscicapa panayensis</i> , Panay Flycatcher	41	20			2									2	18
<i>Muscicapa parva</i> , Red-breasted Flycatcher													43	43	102
<i>Muscicapa platanae</i> , Palawan Flycatcher														-	1
<i>Muscicapa poliopteryx</i> , Brooks Flycatcher														-	1
<i>Muscicapa rubeculoides</i> , Blue-throated Flycatcher									9				4	13	20
<i>Muscicapa ruficastra</i> , Mangrove Blue Flycatcher					6		19		20					45	336
<i>Muscicapa rufilata</i> , Ferruginous Flycatcher			24						12					36	96
<i>Muscicapa sibirica</i> , Siberian Flycatcher													2	13	24
<i>Muscicapa solitaria</i> , White-throated Flycatcher		1			10				1				2	3	52
<i>Muscicapa strophias</i> , Orange-gorgetted Flycatcher														-	25

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
<i>Muscicapa sundara</i> , Blue-and-orange Flycatcher													7	7	246
<i>Muscicapa thalassina</i> , Verdier Flycatcher														-	92
<i>Muscicapa tickelliae</i> , Tickell's Blue Flycatcher									7				16	23	54
<i>Muscicapa unicolor</i> , Pale Blue Flycatcher														-	5
<i>Muscicapa viridis</i> , Rufous-bellied Blue Flycatcher														1	2
<i>Muscicapa westermanni</i> , Little Pied Flycatcher									4				2	6	26
<i>Muscicapa zambopygia</i> , Tricolor Flycatcher									99				7	106	115
<i>Phyllonoma pyrrhoptera</i> , Chestnut-winged Flycatcher									6	20			4	30	66
<i>Phyllonoma velata</i> , Maroon-breasted Flycatcher														-	8
<i>Rhinomyias brunneata</i> , Migratory Jungle Flycatcher									97					97	102
<i>Rhinomyias gularis</i> , White-browed Jungle Flycatcher								1						1	69
<i>Rhinomyias olivaceus</i> , Olive-backed Jungle Flycatcher														-	54
<i>Rhinomyias ruficauda</i> , Rufous-tailed Jungle Flycatcher														-	5
<i>Rhinomyias umbrinilla</i> , White-throated Jungle Flycatcher										20				20	31
<i>Rhipidura albicollis</i> , White-throated Fantail Flycatcher									6				47	53	274
<i>Rhipidura cyaniceps</i> , Blue-headed Fantail Flycatcher					8									8	96
<i>Rhipidura hypoxantha</i> , Yellow-bellied Fantail Flycatcher														-	12
<i>Rhipidura javanica</i> , Pied Fantail Flycatcher					4				87	14			61	260	1,052
<i>Rhipidura nigrocinnamomea</i> , Black-and-Cinnamon Fantail Flycatcher					2									2	3
<i>Rhipidura perlata</i> , Spotted Fantail Flycatcher									1		3			4	6
<i>Rhipidura superciliosa</i> , Blue Fantail Flycatcher														-	9
<i>Terpsiphone atrocaudata</i> , Japanese paradise Flycatcher														1	74
<i>Terpsiphone cinnamomea</i> , Rufous Paradise Flycatcher														-	2
<i>Terpsiphone cyanescens</i> , Blue Paradise Flycatcher														-	2
<i>Terpsiphone paradisi</i> , Paradise Flycatcher						15								15	56
Total	2/46	6/40	5/32	9/66	3/27	2/86	4/29	18/426	0/95	4/6	2/3	18/411	34	36/1,325	59/5,417
PACHYCEPHALIDAE															
<i>Pachycephala cinerea</i> , Mangrove whistler														39	50
<i>Pachycephala hypoxantha</i> , Bornean Mountain Whistler									17	22				-	9

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Madagascar	Malaya	Sarawak	Sabah	Indonesia	Thailand	1997 Total	1993-97 Grand Total
<i>Pachycephala philippinensis</i>														13	36
Yellow-bellied Whistler														2	40
<i>Pachycephala ptilinopus</i>									1/17	1/22				3/54	4/134
White-bellied Whistler															
Total					2/15										
PRUNELLIDAE															
<i>Prunella montanella</i>														34	68
Mountain Accentor															
<i>Prunella rubida</i>														1/84	2
Japanese Accentor	1/34														
Total															
MOTACILLIDAE															
<i>Motacilla alba</i>									1					1	22
Pied Wagtail													13	286	1,730
<i>Motacilla cinerea</i>														22	166
Gray Wagtail									21						638
<i>Motacilla flava</i>														9	34
Yellow Wagtail														76	135
<i>Motacilla grandis</i>														25	5,320
Japanese Wagtail														10	1,048
<i>Motacilla madagascariensis</i>														553	21,740
Large Pied Wagtail														2	10
Total	7/3,557	4/1,400	4/21,721	4/37	3/95	5/225	2/37	2/7	2/22				6/701	9/27,802	10/55,127
BOMBICILLIDAE															
<i>Bombicilla garrula</i>															40
Warbling Vireo															1,40
Total															
ARTAMIDAE															
<i>Artamus leucorhynchus</i>															2
Ashy Wood Swallow														53	174
<i>Artamus leucorhynchus</i>														1/53	2/176
White-breasted Wood Swallow															
Total					4/4	40/1,40	6/1,6	3/1,3							
LANTIDAE															
<i>Lanius borealis</i>														123	939
Bull-headed Shrike															6
<i>Lanius collurio</i>															
Chestnut-backed Shrike															
<i>Lanius cristatus</i>															
Brown Shrike	87	3	3,463		943	3	57	20	55				45	4,621	20,086
<i>Lanius excubitorides</i>														11	55
Black-headed Shrike															
<i>Lanius schach</i>														7	62
Schach Shrike															133

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
<i>Lanius tephronotus</i> , Tibetan Shrike															6
<i>Lanius tigrinus</i> , Thick-billed Shrike	3	2							14				2	21	70
<i>Lanius validirostris</i> , Strong-billed Shrike	3/104	3/114	2/3,464	1/12	2/982	1/3	2/58	1/20	3/72				4/85	5/4,849	8/21,246
STURNIDAE															
<i>Aplonis panayensis</i> , Philippine Glossy Starling					44	226	44	9	9	10	2			344	1,433
<i>Gracula religiosa</i> , Hill Myna														-	2
<i>Sarcops calvus</i> , Colabo					2		163	25						190	423
<i>Sturnus burmanicus</i> , Jerdon's Starling												2		2	3
<i>Sturnus cineraceus</i> , Grey Starling														-	218
<i>Sturnus contra</i> , Pied Starling													73	73	77
<i>Sturnus cristatellus</i> , Crested Myna														-	22
<i>Sturnus javanicus</i> , Orange-billed Jungle Myna													51	51	59
<i>Sturnus maharattensis</i> , Jungle Myna									1					1	1
<i>Sturnus malabaricus</i> , Ashy-headed Starling													9	9	9
<i>Sturnus nigricollis</i> , Black-collared Starling														-	16
<i>Sturnus philippensis</i> , Violet-backed Starling					22	1								23	79
<i>Sturnus sericeus</i> , Silky Starling														-	1
<i>Sturnus sinensis</i> , Chinese Starling														-	11
<i>Sturnus sturnus</i> , Daurian Starling	24	41							4					69	201
<i>Sturnus tristis</i> , Common Myna	1/24	1/41			3/68	2/227	2/207	2/34	4/42	1/10	1/2		25	63	88
NECTARINIDAE														10/616	16/2,842
<i>Aethopyga boltoni</i> , Apo Sunbird														-	3
<i>Aethopyga christinae</i> , Fork-tailed Sunbird														-	1
<i>Aethopyga gouldae</i> , Gould's Sunbird													4	4	316
<i>Aethopyga myzocalis</i> , Scarlet Sunbird														1	2
<i>Aethopyga nipalensis</i> , Green-tailed Sunbird														-	30
<i>Aethopyga pulcherrima</i> , Mountain Sunbird														-	2
<i>Aethopyga saturata</i> , Black-breasted Sunbird									19				4	23	74

[illegible]

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
<i>Emberiza rustica</i>	9,376	341												9,717	90,819
<i>Rustic Bunting</i>															
<i>Emberiza rutilla</i>	12,952												24	12,976	45,724
<i>Chestnut Bunting</i>															
<i>Emberiza schoeniclus</i>	1	689												690	1,171
<i>Common Reed Bunting</i>															
<i>Emberiza spodocephala</i>	508	228	4,778	55										5,569	14,870
<i>Black-faced Bunting</i>															
<i>Emberiza sulphurata</i>															
<i>Japanese Yellow Bunting</i>	11	58	615		6									690	956
<i>Emberiza tristrami</i>															
<i>Tristram's Bunting</i>	683	1												684	1,960
<i>Emberiza variabilis</i>															
<i>Gray Bunting</i>		1												1	11
<i>Emberiza yessoensis</i>															
<i>Japanese Reed Bunting</i>	172													172	272
<i>Eophona migratoria</i>															
<i>Eophona migratoria</i>	14													15	130
<i>Migratory Chinese Grosbeak</i>															
<i>Eophona personata</i>															
<i>Japanese Grosbeak</i>															
<i>Fringilla montifringilla</i>	54	4												58	206
<i>Brambling</i>															
<i>Haematospiza sipahi</i>															
<i>Scarlet Finch</i>															
<i>Loxia curvirostra</i>															
<i>Red Crossbill</i>					24									24	30
<i>Melophus lathami</i>															
<i>Crested Bunting</i>															
<i>Pyrhula erythaca</i>			38												
<i>Beavan's Bullfinch</i>															
<i>Pyrhula apalensis</i>			1												
<i>Brown Bullfinch</i>										3					
<i>Pyrhula pyrrhula</i>															
<i>Bullfinch</i>															
<i>Uragus sibiricus</i>	4	2													
<i>Long-tailed Rose Finch</i>															
Total	22,27,136	14,1,449	5,5,513	4,53	2,30				1,3				3,1,386	28,35,57	112,255
PLOCEIDAE															
<i>Erythrura hyperythra</i>															
<i>Bamboo Parrot-Finch</i>															
<i>Erythrura prasina</i>									22						
<i>Pin-tailed Parrot-Finch</i>															
<i>Estrilda amandava</i>		5													
<i>Red Aradavat</i>															
<i>Lonchura fuscans</i>										70	2				
<i>Dusky Munia</i>															
<i>Lonchura leucogastra</i>															
<i>White-bellied Munia</i>					186										
<i>Lonchura maja</i>															
<i>White-headed Munia</i>															
<i>Lonchura malacca</i>															
<i>Chestnut Munia</i>															
<i>Lonchura punctulata</i>															
<i>Spotted Munia</i>															
<i>Lonchura striata</i>															
<i>Sharp-tailed Munia</i>															
<i>Paddy oryzivora</i>															
<i>Java Sparrow</i>															
<i>Passer flaveolus</i>															
<i>Pegu Sparrow</i>															

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
<u>Passer montanus</u> ,															
<u>Tree Sparrow</u>	84	1,500		20					462				323	2,389	9,941
<u>Passer rufinus</u> ,														-	54
<u>Russet Sparrow</u>															
<u>Ploceus hypoxanthus</u> ,															
<u>Golden Weaver</u>														6	6
<u>Ploceus manyar</u> ,															
<u>Manyar Weaver</u>														311	314
<u>Ploceus philippinus</u> ,															
<u>Baya Weaver</u>															
<u>Total</u>	1/84	2/1,505	2/36	2/24	4/263	1/8	2/159	2/2,054	9/1,023	2/139	3/4	1/9	11/3,095	14/8,425	16/31,400
Total species	88	80	65	57	156	98	68	68	233	77	34	17	280	637	893
Total birds	48,617	19,442	54,130	882	11,020	4,431	4,682	3,491	33,866	1,233	54	67	16,671	201,163	646,000

Guam: Collocalia inexpectata 6, Dicrurus adsimilis 3, Passer montanus 1 : Total 10 birds, 3 species.

MIGRATORY ANIMAL PATHOLOGICAL SURVEY

ANNUAL PROGRESS REPORT 1967

PART 3

RECOVERIES OF BANDED BIRDS

The number of recovered birds reported to MAPS headquarters totalled 1,176 by the end of 1967. These included 140 species, 45 of which travelled distances great enough to cross international boundaries. (Table 6).

As discussed in the 1966 report, a great many factors affect the release of information concerning recoveries: literacy, curiosity, politics, fear, knowledge, superstition, etc. Table 7 summarizes the band recoveries, showing from what areas rings have been returned. At present politics is one of our greatest stumbling blocks. The great void of China is affecting any analysis of the recovery data (Figure 20). For example, of the one hundred thousand migrant birds banded in Korea we have had returned only 24. Half of these have been from due south, Taiwan and the Philippines, but a fourth of them have been from Thailand. Since the great bulk of the birds banded in Korea have been emberizids or finches which do not penetrate as far south as Thailand, this suggests that they have entered some part of China from which no records have been reported. This factor may also be involved in the analysis of the recovery of the Japanese banded birds. Of one hundred recoveries, 57 have gone north, Siberia, Kamchatka, and the Aleutians; and 42 have gone south, Taiwan and the Philippines. Since none have been reported from Thailand or Vietnam, there is no suggestion as to how many may have crossed into China.

Swallow recoveries from Siberia and North Korea of Malaya and Thailand banded birds indicates a vast movement across eastern China. The Grey-headed Thrush, Siberian Thrush, Siberian Blue Robin, Great Reed Warbler, Arctic Warbler, Common Kingfisher, and a host of others may also use this or other routes into and across China. The complete absence of recoveries from Hong Kong suggests that the migration routes used by these birds are inland of the coast and may cut off the bulge of the continent occupied by Hong Kong.

Recoveries from the Philippines are numerous enough, 217, that some relationships to human population and land area are evident. Table 8 lists these data for the major islands. Apparently the mass of migrants moving into Luzon tend to remain there for the winter. Hunting pressure is great for the island has 35 per cent of the land mass of the Philippines and 47.5 per cent of the population, and the

TABLE 6

SPECIES THAT HAVE BEEN RECOVERED AND
THE MAXIMUM TIME IN MONTHS SINCE ONE WAS BANDED

	Number reported		Time months
	1967	1963-1967	
<i>Diomedea immutabilis</i>	5	7	Table 11
<i>Diomedea nigripes</i>		3	115
<i>Puffinus leucomelas</i>		2	6
<i>Puffinus tenuirostris</i>		1	1
<i>Puffinus carneipes</i>	2	10	Table 11
<i>Fregata ariel</i>		4	8
<i>Ardea cinerea</i>		5	3
<i>Ardea purpurea</i>		1	6
<i>Ardeola ibis</i>	27	100	Table 11
<i>Dupetor flavicollis</i>		1	11
<i>Egretta alba</i>	3	13	Table 11
<i>Egretta garzetta</i>	32	63	Table 11
<i>Egretta intermedia</i>	9	30	Table 11
<i>Gorsachius goisagi</i>		1	8
<i>Ixobrychus cinnamomeus</i>	6	11	Table 11
<i>Ixobrychus sinensis</i>	1	4	12
<i>Nycticorax nycticorax</i>	26	74	Table 11
<i>Anastomus oscitans</i>	1	4	30
<i>Anas acuta</i>	4	6	36
<i>Anas clypeata</i>		4	12
<i>Anas crecca</i>	15	50	Table 11
<i>Anas falcata</i>		1	1
<i>Anas formosum</i>		1	3
<i>Anas penelope</i>	1	9	22
<i>Anas platyrhynchos</i>	5	21	Table 11
<i>Aythya ferina</i>		1	7
<i>Aythya fuligula</i>		1	4
<i>Butastur indicus</i>	22	68	Table 11
<i>Coturnix chinensis</i>	4	16	Table 11
<i>Fulica atra</i>		1	4
<i>Gallicrex cinerea</i>	1	1	20
<i>Gallinula chloropus</i>	2	4	11
<i>Porzana cinerea</i>	8	12	Table 11
<i>Porzana fusca</i>	5	5	15
<i>Rallina eurizonoides</i>	2	5	15
<i>Rallus striatus</i>	15	20	Table 11
<i>Rostratula benghalensis</i>	1	3	11
<i>Charadrius alexandrinus</i>	2	3	25

	Number reported		Time months
	1967	1963-1967	
Charadrius dominicus	1	5	27
Charadrius leschenaulti	2	4	7
Actitis hypoleucos		1	1
Arenaria interpres	17	46	Table 11
Calidris alpina		1	5
Capella gallinago	2	2	13
Capella megala	10	17	Table 11
Heteroscelus incanus		3	24
Numenius phaeopus	4	7	17
Tringa glareola		2	8
Tringa totanus		5	50
Catharacta skua		1	27
Larus crassirostris	4	25	Table 11
Sterna fusca		4	6
Chalcophaps indica	1	4	31
Geopelia striata	5	11	Table 11
Streptopelia bitorquata		6	6
Streptopelia chinensis	2	3	18
Streptopelia tranquebarica	1	1	9
Treron curvirostra		4	18
Treron vernans		1	5
Cacomantis merulinus		1	1
Ninox scutulata	1	1	2
Otus bakkamoena		1	1
Otus scops		2	11
Caprimulgus macrurus	2	2	3
Chaetura gigantea	1	1	2
Alcedo atthis	1	3	13
Halcyon chloris	3	4	19
Halcyon coromada		2	71
Halcyon smyrnensis		1	16
Merops philippinus	2	3	7
Merops superciliosus		1	13
Merops viridis	2	5	15
Cymbirhynchus macrorhynchos		3	61
Upupa epops		1	1
Pitta brachyura		1	66
Delichon urbica		2	23
Hirundo rustica	101	203	Table 11
Hirundo tahitica	2	10	Table 11
Dicrurus balicasius	1	1	41
Dicrurus paradiseus		1	10
Dicrurus remifer		1	13
Oriolus chinensis		2	5

	Number reported		Time months
	1967	1963-1967	
<i>Alcippe morrisonia</i>		1	13
<i>Alcippe nipalensis</i>	3	4	89
<i>Garrulax erythrocephalus</i>	1	1	50
<i>Leiothrix argenteus</i>	2	3	66
<i>Malacopteron cinereum</i>		1	49
<i>Pellorneum capistratum</i>		3	49
<i>Stachyris maculata</i>		1	43
<i>Stachyris nigriceps</i>	1	2	4
<i>Trichastoma malaccensis</i>		1	37
<i>Paradoxornis webbiana</i>	3	4	13
<i>Criniger pallidus</i>	2	3	34
<i>Criniger phaeocephalus</i>		1	50
<i>Hypsipetes amaurotis</i>	1	1	3
<i>Hypsipetes criniger</i>		2	20
<i>Hypsipetes gularis</i>	1	1	18
<i>Pycnonotus aurigaster</i>		1	13
<i>Pycnonotus blanfordi</i>		2	24
<i>Pycnonotus goiavier</i>	4	9	Table 11
<i>Pycnonotus sinensis</i>		1	1
<i>Copsychus luzoniensis</i>		1	12
<i>Turdus chrysolaus</i>		1	8
<i>Acrocephalus arundinaceus</i>		1	3
<i>Cettia diphone</i>		1	12
<i>Locustella certhiola</i>		1	25
<i>Orthotomus sericeus</i>		1	46
<i>Seicercus montis</i>	1	1	1
<i>Muscicapa narcissina</i>		1	10
<i>Muscicapa rufigaster</i>		1	69
<i>Pachycephala cinerea</i>		1	59
<i>Anthus hodgsoni</i>		1	5
<i>Motacilla alba</i>	13	27	Table 11
<i>Motacilla cinerea</i>		1	1
<i>Motacilla flava</i>	11	13	Table 11
<i>Artamus leucorhynchus</i>	2	3	14
<i>Lanius cristatus</i>	4	10	Table 11
<i>Aplonis panayensis</i>	1	7	Table 11
<i>Sarcops calvus</i>	2	3	4
<i>Sturnus cineraceus</i>	1	1	25
<i>Sturnus tristis</i>	1	1	6
<i>Aethopyga gouldiae</i>		1	1
<i>Arachnothera longirostris</i>	2	3	50
<i>Zosterops palpebrosa</i>	1	2	10
<i>Carduelis sinica</i>		1	15
<i>Coccothraustes coccothraustes</i>		1	7
<i>Emberiza cioides</i>		5	15

	Number reported		Time months
	1967	1963-1967	
<i>Emberiza elegans</i>		1	1
<i>Emberiza rustica</i>	9	28	Table 11
<i>Emberiza rutila</i>		15	Table 11
<i>Emberiza schoeniclus</i>		1	13
<i>Emberiza spodocephala</i>		1	17
<i>Emberiza tristrami</i>		1	1
<i>Eophona migratoria</i>		2	9
<i>Uragus sibiricus</i>		2	18
<i>Lonchura malacca</i>	3	3	31
<i>Lonchura striata</i>	1	1	1
<i>Padda oryzivora</i>	1	1	9
<i>Passer montanus</i>	1	16	Table 11
<i>Ploceus philippinus</i>	1	1	3
Total	437	1,176	
Species	71	140	

TABLE 7
SUMMARY OF BAND RECOVERY REPORT FOR PERIOD 1963-1967

	Korea	Japan	Okinawa	Taiwan	Philippines	Thailand	Malaya	Borneo	Siberia	Pacific project	Australia	Total from another country
Approximate number birds ringed	174,000	54,000	2,500	130,000	87,000	116,000	95,000	4,800	?	?	?	
Number of birds recovered in												
Korea	52											
Japan		149		12	1	4	1			1	3	9
Okinawa			2				1			23	2	43
Taiwan	3	1	4	47	2				3	1		1
Philippines	9	41	65	100	133				1			10
Thailand	6			1		35	5			1		217
Malaya						3	78					12
Borneo								6				3
Siberia	1	27		1								1
North Korea	4			6	2	26	3					65
Australia		1				45	8					35
Caroline Island												1
Laos				2		1						2
Cambodia						1						1
Vietnam						1						1
East Pakistan	1					1						1
Assam							1					1
Alaska and Pribilof Island		30		1								31
Total	76	249	71	170	138	116	95	5	4	26	6	
Total that were taken outside country of origin	24	100	69	123	5	81	17	0				



TABLE 8

**RELATIONSHIPS BETWEEN HUMAN POPULATION,
LAND MASS, AND RECOVERY RATES IN THE PHILIPPINES.**

Major Islands	% of human population	Ratio	% of area	Ratio	% of recov- eries
Batanes	.03	6.7	.07	2.8	2.0
Luzon	47.5	1.6	35.0	2.1	74.9
Mindoro	1.1	.9	3.2	.3	1.0
Romblon	.5	1.0	.4	1.2	.5
Masbate	1.2	.4	1.3	.4	.5
Samar	3.2	.8	4.5	.5	2.5
Leyte	4.3	.6	2.1	1.2	2.5
Panay	6.4	.5	3.8	.9	3.4
Negros	6.9	.4	4.2	.6	2.5
Cebu	4.4	.4	1.8	1.1	2.0
Bohol	1.9		1.3		0
Mindanao	19.8	.2	31.6	.1	4.9
Palawan	.4	6.2	3.9	.6	2.5

hunters reported 74.9 per cent of the recoveries. In moving south along the archipelago, the migrants tend to stay to the east for Samar and Leyte with only 6.4 per cent of the area and 7.5 per cent of the population took 5 per cent of the recoveries while Mindoro yielded only 1 per cent of the recoveries. Mindanao with an area almost as great as Luzon, 31.6 per cent of the land mass but with a lower human population (19.8 %), reported only 4.9 per cent of the recoveries and they were mainly from the north and east. There also appears to be a flow along Palawan for with a human population only 0.4 per cent of the whole the recoveries reported made up 2.5 per cent. Areawise the ratio of land area to recoveries reported was greatest in Batanes and Luzon, and almost equal in Ramblan, Leyte, and Cebu. The ratio in Mindanao was only 5 per cent of that for Luzon. Figure 21 illustrates this distribution.

Distribution from Dalton Pass, Luzon

An additional 47 recoveries in 1967 of birds intercepted at Dalton Pass (Table 9) further substantiates their distribution throughout Luzon. Figure 22 illustrates this distribution. Only one bird has been reported outside of Luzon. Twenty per cent of the recoveries have been within a 30-mile radius of the Pass and 47 per cent from 30- to 60-mile radius. The numbers taken beyond 60 miles rapidly diminished, the remaining 32 per cent being taken from 60 to 150 miles. Luzon has eastern and western mountain ranges with central valleys between, and the general movement was north or south along these valleys. There appeared to be much less movement east and west; however, human distribution follows this pattern also and may account for the distribution of recoveries.

Annotated list of recoveries

Table 10 lists the recoveries for 1967. Previous recoveries were reported in MAPS Annual Report 1966. Significant information concerning the species involved is discussed below. Maps illustrating the movements of 49 species were printed in the 1966 report. Additional information is shown in maps for 17 species in the present report. Figure 23 gives distances in miles in eastern Asia. All listings of recoveries were prepared by Miss Somchit Chaipanich.

DIOMEDEIDAE: Five additional recoveries of Laysan Albatrosses banded at Midway Island indicate movements west to the continental shelf of the western Pacific. They were reported from the thirtieth to the fiftieth parallel. (Figure 24).

PROCELLARIDAE: Two records of the Pale-footed Shearwater from Lord Howe Island of southern Australia taken off shore of Korea and Japan corroborate previous data from this species.

ARDEIDAE: There were 27 additional recoveries of the Cattle Egret, and these did not change the previous migration pattern.

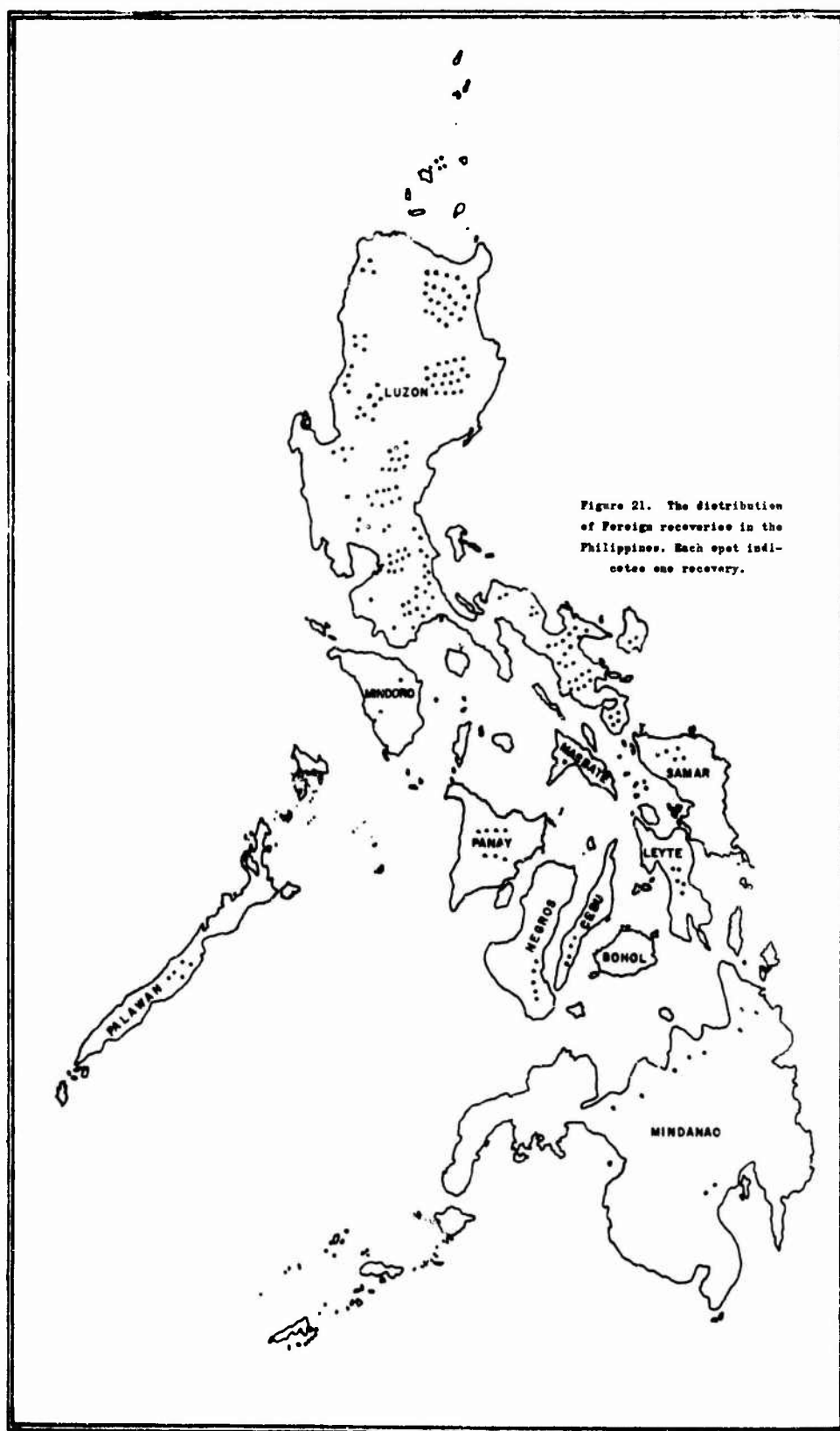


TABLE 9
RECOVERY IN 1987 OF BIRDS BANDED IN DALTON PASS, ALL FROM LUZON

Banded no.	Banded date	Recovery date	Time (months)	Recovered		Direction	Dist.
				Place	Co-ordinate		
APODIDAE: <u>Chactura gigantea</u>, Malaysian Spine-tailed Swift							
010-18997	6 Feb. 67	15 Mar. 67	2	Artibao, N. Vizcaya	16.10 N x 121.00 E	N	12 mi
ARDEIDAE: <u>Ixobrychus cinnamomeus</u>, Cinnamon Bittern							
070-06806	15 Sep. 66	14 Mar. 67	6	Villa-verde, N. Vizcaya	16.25 N x 121.15 E	NE	35 mi
070-06394	24 May 66	25 May 67	12	Balungao, Pangasinan	15.55 N x 120.40 E	SW	25 mi
070-06399	25 May 66	21 Jun. 67	13	Cabiao, N. Ecija	15.10 N x 120.55 E	S	60 mi
070-06108	26 Nov. 65	15 Jun. 67	19	Malasiqui, Pangasinan	15.55 N x 120.30 E	SW	35 mi
070-08469	11 Jun. 67	25 Oct. 67	5	Munoz, N. Ecija	15.35 N x 120.50 E	S	25 mi
070-07811	11 Feb. 67	15 Jun. 67	4	Bayombong, N. Vizcaya	16.50 N x 121.10 E	N	45 mi
<u>Ixobrychus sinensis</u>, Little Bittern							
070-15920	16 Dec. 66	7 Apr. 67	4	Bangabon, N. Ecija	15.35 N x 121.10 E	SE	35 mi
COLUMBIDAE: <u>Chalcophaps indica</u>, Emerald Dove							
060-16242	10 Dec. 66	10 Dec. 67	12	Baliuag, N. Ecija	15.00 N x 120.55 E	S	60 mi
<u>Sireptopella tranquebarica</u>, Red Turtle Dove							
060-16571	13 Dec. 66	1 Sep. 67	9	Rizal, N. Ecija	15.40 N x 121.05 E	S	30 mi
PHASIANIDAE: <u>Coturnix chinensis</u>, Blue-breasted Quail							
040-58802	8 Mar. 67	9 May 67	2	Lupao, N. Ecija	16.00 N x 120.50 E	S	18 mi
030-68401	17 Jan. 67	11 Feb. 67	1	Bayombong, N. Vizcaya	16.30 N x 121.15 E	NE	20 mi
030-69008	11 Jan. 67	18 May 67	4	Bangabon, N. Ecija	15.40 N x 121.10 E	SE	33 mi
030-89232	13 Jan. 67	5 Mar. 67	2	Dipaculao, Aurora	15.40 N x 121.35 E	SE	45 mi
RALLIDAE: <u>Gallinix cinerea</u>, Water Cock							
090-03017	23 Oct. 65	Jun. 67	20	Gulimba, N. Ecija	15.40 N x 120.50 E	S	35 mi
<u>Callinula chloropus</u>, Moorhen							
080-03296	13 Dec. 66	Apr. 67	4	Solana, Cagayan	17.45 N x 121.45 E	NE	115 mi
080-03706	14 Dec. 66	4 Nov. 67	11	Talavera, N. Ecija	15.30 N x 121.00 E	S	35 mi
<u>Porzana cinerea</u>, White-browed Rail							
080-16023	12 Nov. 66	8 Feb. 67	3	Dipaculao, Quezon	15.45 N x 121.35 E	SE	45 mi
060-16067	14 Nov. 66	20 Feb. 67	3	San Luis, Quezon	15.45 N x 121.35 E	SE	45 mi
060-03165	29 Jan. 65	22 Mar. 67	26	Concepcion, Tarlac	15.20 N x 120.50 E	SW	50 mi
060-16021	12 Nov. 66	2 Apr. 67	5	San Jose, N. Ecija	15.45 N x 120.55 E	S	21 mi
060-16539	12 Dec. 66	10 Apr. 67	4	Marla, Quezon	15.50 N x 121.30 E	SE	40 mi
060-16580	14 Dec. 66	24 Apr. 67	4	Dipaculao, Quezon	15.55 N x 121.30 E	E	45 mi
060-16987	14 Jan. 67	13 Mar. 67	2	Bangabon, N. Ecija	15.35 N x 121.05 E	SE	35 mi
070-07775	21 Dec. 65	3 Apr. 67	16	Solano, N. Vizcaya	16.45 N x 121.05 E	NE	35 mi
<u>Porzana fusca</u>, Ruddy Crane							
050-21117	16 Dec. 66	24 Jul. 67	7	Cabantuan city, N. Ecija	15.30 N x 121.06 E	S	40 mi
050-21166	7 Jan. 67	7 Jan. 67	0	Solano, N. Vizcaya	16.30 N x 120.10 E	NE	35 mi

Banded no.	Banded date	Recovery date	Time (months)	Recovered		Direction	Distance
				Place	Co-ordinate		
070-06758 050-21176 050-21171	24 Nov. 65 8 Jan. 67 8 Jan. 67	25 Feb. 67 21 Jan. 67 22 Jan. 67	15 0 0	Bagabag, N. Vizcaya San Juan, La Union Aritao, N. Vizcaya	16. 30 N x 120. 10 E 16. 40 N x 120. 25 E 16. 10 N x 121. 00 E	NE NW N	20 mi 50 mi 12 mi
<i>Rallina eurizonoides</i> , Philippine Banded Crane							
070-06314 050-21134	31 Dec. 65 19 Dec. 66	1 Mar. 67 25 Dec. 67	15 12	Aritao, N. Vizcaya Taraao, Pangasinan	16. 10 N x 150. 55 E 15. 58 N x 120. 52 E	NE SW	10 mi 12 mi
<i>Rallus sinatus</i> , Slaty-breasted Rail							
060-16705 060-16718 060-16652 070-06714 060-16219 060-16287 060-16599 060-16556 060-17825 060-16755 060-16719 060-03417 060-16665 060-17633	7 Jan. 67 7 Jan. 67 16 Dec. 66 27 Nov. 65 18 Nov. 66 11 Dec. 66 14 Dec. 66 13 Dec. 66 11 Jan. 67 8 Jan. 67 7 Jan. 67 30 May 65 5 Jan. 67 11 Jun. 67	Feb. 67 12 Feb. 67 11 Feb. 67 26 Feb. 67 26 Feb. 67 26 Mar. 67 17 Mar. 67 10 Jun. 67 24 Jun. 67 6 May 67 15 Sep. 67 Aug. 67 30 Nov. 67 25 Dec. 67 23 Dec. 67	1 1 2 15 3 4 3 6 0 4 8 7 30 12 7	Bayombong, N. Vizcaya Famy, Laguna Solano, N. Vizcaya Buguey, Cagayan Bayombong, N. Vizcaya Cabanatuan city, N. Ecija Lasam, Cagayan Asingan, Pangasinan San Manuel, Tarlac Buguey, Cagayan Burgos, Pangasinan Rizal, N. Ecija San Quintin, Abra San Miguel, Bulacan Santa Cruz, Cagayan	16. 30 N x 121. 15 E 14. 25 N x 121. 35 E 16. 30 N x 121. 10 E 18. 25 N x 121. 50 E 16. 30 N x 121. 10 E 15. 30 N x 121. 00 E 18. 05 N x 121. 45 E 16. 00 N x 120. 45 E 15. 30 N x 120. 25 E 18. 20 N x 121. 50 E 16. 05 N x 119. 55 E 15. 40 N x 121. 05 E 17. 35 N x 120. 30 E 15. 10 N x 121. 00 E 18. 25 N x 121. 30 E	NE SE N N N S NE E SW N W SE N S N	30 mi 120 mi 30 mi 160 mi 20 mi 45 mi 185 mi 20 mi 55 mi 160 mi 70 mi 30 mi 100 mi 85 mi 165 mi

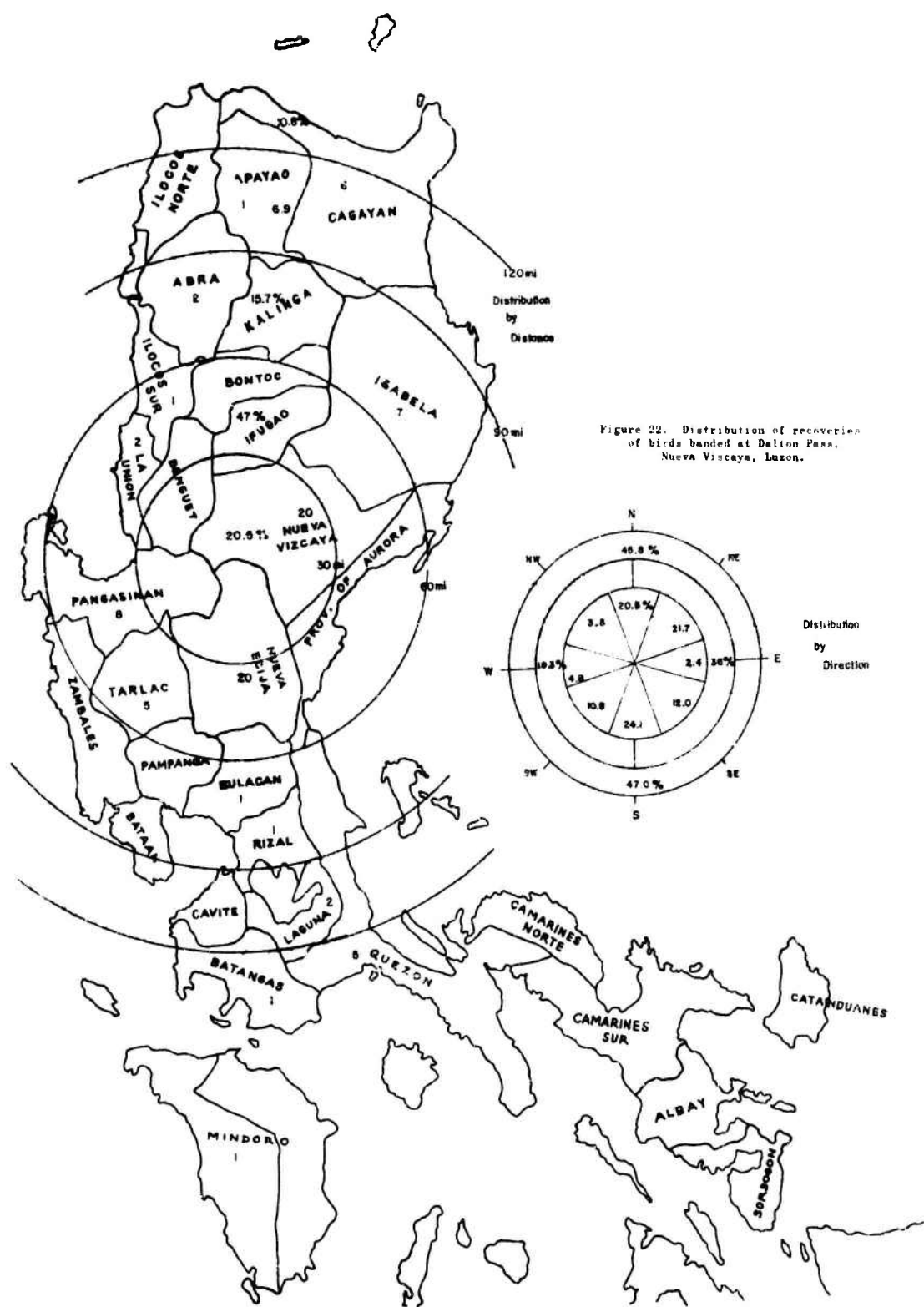


Figure 22. Distribution of recoveries of birds banded at Dalton Pass, Nueva Vizcaya, Luzon.

TABLE 10
RECOVERY RECORDS FOR 1967

Band no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
DIOMEDEIDAE: <i>Diomedea immutabilis</i> , Laysan Albatross									
676-86747	7 Mar. 66	16 Jan. 67	11	Mitway Is.	26.00 N x 177.00 W	Pacific ocean	30.20 N x 147.40 E	W	2,000 mi
667-34283	7 Jan. 61	21 Jan. 67	73	"	"	"	31.34 N x 142.09 E	W	2,500 mi
737-11730	6 Jul. 63	12 Jun. 67	47	"	"	"	44.55 N x 165.30 E	NW	1,400 mi
737-96614	16 Mar. 66	15 Mar. 67	12	"	"	"	30.24 N x 142.08 E	W	2,300 mi
737-03109	6 Mar. 65	20 Jul. 67	26	Hawaiian Is.	26.00 N x 172.00 W	Japan	42.00 N x 146.00 E	NW	2,500 mi
PROCELLARIIDAE: <i>Puffinus carneipes</i> , Flesh-footed Shearwater									
160-59177	12 Sep. 63	29 May 67	45	Lord Howe Is.	31.31 S x 179.04 E	South Korea	37.03 N x 129.36 E	NW	4,000 mi
160-47989	25 Nov. 62	27 Jun. 67	55	"	"	Japan	42.59 N x 140.30 E	E	5,000 mi
ARDEIDAE: <i>Ardeola ibis</i> , Cattle Egret									
100-04850	6 Jul. 66	6 May 67	20	Taiwan	24.47 N x 121.43 E	Japan	32.10 N x 133.50 E	NE	1,000 mi
100-36519	16 Jul. 67	25 Oct. 67	4	"	24.41 N x 121.40 E	Luzon, N Eclja	15.15 N x 120.55 E	S	600 mi
100-15671	6 Jun. 66	1 Feb. 67	6	"	"	Luzon, Quizon	13.55 N x 121.35 E	S	600 mi
100-36176	19 Jul. 67	16 Oct. 67	3	"	"	Luzon, Ilocos Norte	16.20 N x 120.35 E	S	900 mi
100-36165	19 Jul. 67	24 Oct. 67	4	"	24.37 N x 121.21 E	Samar, Philippines	12.45 N x 125.00 E	SE	900 mi
100-33681	16 Jun. 67	29 Nov. 67	6	"	24.49 N x 121.07 E	Isabela, Luzon	17.00 N x 121.35 E	S	550 mi
100-17047	7 Jul. 66	25 Sep. 67	15	"	"	Luzon, Cagayan	17.50 N x 121.30 E	S	450 mi
100-17363	6 Jul. 66	6 Nov. 67	16	"	"	Luzon, Albay	13.25 N x 123.40 E	S	850 mi
100-16770	26 Jun. 66	6 Jul. 67	13	"	"	Batane, Philippines	20.45 N x 121.50 E	S	225 mi
100-17553	19 Jul. 66	25 Mar. 67	9	"	"	Luzon, Cagayan	16.25 N x 121.30 E	S	450 mi
100-17387	6 Jul. 66	Mar. 67	6	"	"	Luzon, Isabela	17.05 N x 121.50 E	S	600 mi
100-17050	7 Jul. 66	Feb. 67	7	"	"	Luzon, Isabela	15.00 N x 122.00 E	S	600 mi
100-16906	26 Jun. 66	14 Jan. 67	7	"	"	Luzon, Cagayan	17.35 N x 121.40 E	S	450 mi
100-16966	25 Jun. 66	Apr. 67	10	"	"	Taiwan	13.55 N x 121.35 E	S	650 mi
100-13545	13 Jun. 66	26 Mar. 67	10	"	"	Luzon, Quizon	10.40 N x 122.00 E	S	600 mi
100-16204	25 Jun. 66	4 Jan. 67	7	"	"	Panay, Philippines	16.00 N x 121.30 E	S	435 mi
100-16290	26 Jun. 66	23 Mar. 67	9	"	"	Luzon, Cagayan	7.10 N x 125.30 E	SE	1,200 mi
100-16506	27 Jun. 66	2 Apr. 67	10	"	"	Mindanao, Davao	15.50 N x 121.35 E	E	600 mi
100-16323	26 Jun. 66	Mar. 67	9	"	"	Luzon, Quizon	7.00 N x 124.50 E	SE	1,500 mi
100-16181	25 Jun. 66	6 Jan. 67	7	"	"	Negrosabanan Is.	9.50 N x 125.30 E	SE	1,100 mi
100-16007	25 Jun. 66	6 Jan. 67	7	"	"	Mindanao, Surigao Norte	17.10 N x 121.50 E	S	550 mi
100-16357	26 Jun. 66	2 Feb. 67	8	"	"	Luzon, Isabela	16.20 N x 121.58 E	S	450 mi
100-17530	19 Jul. 66	4 Jan. 67	6	"	"	Luzon, Cagayan	16.25 N x 121.58 E	S	400 mi
100-17055	7 Jul. 66	31 Jan. 67	7	"	"	Luzon, Cagayan	17.50 N x 121.45 E	S	500 mi
100-13087	25 May 66	4 Apr. 67	11	"	"	Luzon, Cagayan	35.51 N x 140.19 E	NE	26 mi
100-55149	5 Jul. 67	10 Oct. 67	3	Japan	35.40 N x 139.55 E	Japan	17.05 N x 123.30 E	SW	1,700 mi
100-20259	13 Jul. 67	10 Nov. 67	4	"	35.41 N x 139.55 E	Luzon, Isabela			
Egretta alba, Large Egret									
110-23366	27 Jun. 67	16 Aug. 67	2	Korea	35.01 N x 126.31 E	Korea	36.40 N x 127.20 E	NE	150 mi
100-54200	6 Jun. 67	20 Aug. 67	3	Japan	35.40 N x 139.55 E	Japan	35.39 N x 139.54 E	SW	1 mi
110-02671	6 Jul. 67	23 Nov. 67	5	"	35.40 N x 130.55 E	Luzon, Ilocos Sur	17.30 N x 120.30 E	SW	1,800 mi

Band no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
<i>Egretta garzetta</i> , Little Egret									
100-27936	6 Jun. 67	Dec. 67	6	Taiwan	24.49 N x 121.07 E	Luzon, Cagayan	17.40 N x 121.45 E	S	500 mi
100-27619	3 Jun. 67	13 Dec. 67	7	"	"	Luzon, Quezon	15.55 N x 122.15 E	S	800 mi
100-35445	18 Jun. 67	16 Sep. 67	3	"	"	Taiwan	25.00 N x 121.10 E	NE	12 mi
100-36143	19 Jul. 67	13 Dec. 67	5	"	24.37 N x 121.11 E	Panay, Philippines	11.30 N x 122.45 E	S	950 mi
100-37415	16 Aug. 67	4 Nov. 67	3	"	"	Taiwan	25.03 N x 121.23 E	NE	7 mi
100-37420	16 Aug. 67	10 Oct. 67	2	"	"	"	25.00 N x 121.20 E	NE	4 mi
100-23135	20 May 67	22 Jun. 67	2	Japan	35.40 N x 139.55 E	Japan	35.44 N x 139.49 E	NW	6 mi
100-23558	20 May 67	17 Jun. 67	1	"	"	"	35.47 N x 139.53 E	N	7 mi
100-21269	19 May 67	19 Jul. 67	2	"	"	"	35.41 N x 139.54 E	NW	2 mi
100-21000	12 Jul. 66	3 Jan. 67	6	"	"	"	35.41 N x 140.22 E	SE	50 mi
100-20516	12 Jul. 66	17 Feb. 67	8	"	"	"	35.49 N x 140.12 E	NE	25 mi
100-19114	21 Jan. 66	14 Feb. 67	13	"	"	"	35.23 N x 139.56 E	NE	20 mi
100-08532	29 Jun. 85	12 Feb. 67	20	"	"	"	35.32 N x 140.37 E	S	45 mi
100-20889	12 Jul. 86	3 Mar. 67	8	"	"	"	35.41 N x 140.00 E	NE	25 mi
100-18341	28 May 66	23 Jan. 67	8	"	"	"	35.41 N x 139.55 E	-	90 mi
100-09327	28 May 66	20 Feb. 67	10	"	"	Mindanao, Misamis Oriental	35.30 N x 138.30 E	SW	2,500 mi
100-11114	27 May 66	16 Feb. 67	11	"	"	Japan	6.30 N x 124.30 E	E	5 mi
100-09370	28 May 66	17 Mar. 67	10	"	"	Japan	35.42 N x 140.00 E	E	5 mi
100-18004	25 May 68	17 Mar. 67	10	"	"	"	36.35 N x 139.05 E	SW	60 mi
100-23929	20 May 67	3 Aug. 67	3	"	"	"	35.41 N x 139.50 E	E	3 mi
100-23546	20 May 67	22 Jun. 67	2	"	"	"	35.42 N x 139.53 E	NW	3 mi
100-24428	8 Jun. 67	23 Jun. 67	0	"	"	"	35.19 N x 140.20 E	SE	12 mi
100-20750	12 Jul. 66	19 Jun. 67	12	"	"	"	35.41 N x 140.04 E	E	6 mi
100-54200	9 Jun. 67	28 Jun. 67	0	"	"	"	35.41 N x 139.44 E	W	10 mi
100-54608	5 Jun. 67	26 Sep. 67	4	"	"	"	36.37 N x 139.36 E	NW	60 mi
100-24610	20 May 67	3 Aug. 67	3	"	"	"	35.55 N x 139.47 E	N	15 mi
100-24818	"	Jul. 67	2	"	"	"	33.31 N x 133.35 E	SW	400 mi
100-53968	8 Jun. 37	14 Nov. 67	5	"	"	"	35.42 N x 140.52 E	E	63 mi
100-54439	9 Jun. 67	27 Sep. 67	4	"	"	"	35.45 N x 139.56 E	N	5 mi
100-24777	20 May 67	11 Jul. 67	2	"	"	"	"	N	5 mi
100-53686	8 Jun. 67	8 Jul. 67	1	"	"	"	"	N	5 mi
100-19829	22 Jun. 68	26 Oct. 67	17	"	"	Luzon, Camarines Norte	13.10 N x 123.40 E	SW	1,850 mi
<i>Egretta intermedia</i> , Intermediate Egret									
100-18671	21 Jun. 68	Apr. 67	10	Japan	35.41 N x 139.55 E	Luzon, Cagayan	18.15 N x 121.40 E	SW	1,800 mi
100-18772	21 Jun. 66	11 Apr. 67	10	"	"	Luzon, Ibabella	16.35 N x 121.40 E	SW	1,000 mi
100-19918	22 Jun. 86	18 May 67	11	"	"	Luzon, Pampanga	14.50 N x 120.50 E	SW	2,200 mi
100-10133	20 Jul. 65	9 Nov. 67	28	"	"	Luzon, Albay	13.30 N x 123.30 E	SW	2,000 mi
100-19976	22 Jun. 68	23 Nov. 67	17	"	"	Luzon, Camarines Sur	13.30 N x 123.20 E	SW	1,800 mi
100-19974	22 Jun. 88	23 Nov. 67	17	"	"	"	13.30 N x 123.30 E	SW	1,900 mi
100-55222	5 Jul. 87	18 Oct. 87	5	"	"	Cebu, Philippines	8.50 N x 123.20 E	SW	2,000 mi
100-10881	30 Jul. 85	11 Jul. 87	24	"	"	Japan	35.40 N x 139.55 E	-	90 mi
100-24264	27 May 87	2 Sep. 87	4	"	38.23 N x 140.32 E	"	36.23 N x 139.01 E	W	
<i>Nycticorax nycticorax</i> , Black-crowned Night Heron									
100-19070	21 Jun. 88	29 Aug. 67	14	Japan	35.40 N x 139.55 E	Japan	35.53 N x 140.40 E	NE	7 mi
100-10345	29 Jul. 85	14 Dec. 87	29	"	"	"	35.53 N x 140.22 E	SE	28 mi
100-12487	19 May 87	10 Nov. 87	8	"	"	"	35.51 N x 140.18 E	NE	25 mi
100-21442	"	2 Aug. 87	3	"	"	"	35.50 N x 140.03 E	NE	15 mi
100-53340	8 Jun. 87	19 Jul. 87	1	"	"	"	35.42 N x 140.00 E	NE	7 mi
100-19787	22 Jun. 86	8 Oct. 87	16	"	"	"	35.29 N x 139.32 E	NW	15 mi
100-19247	"	6 Jan. 67	7	"	"	"	35.53 N x 140.23 E	NE	23 mi

Band no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
100-09271	17 Jun. 65	10 Jan. 67	19	Japan	35.40 N x 139.55 E	Japan	35.46 N x 140.38 E	NE	40 ml
100-23272	20 May 67	11 Jun. 67	1	"	"	"	35.40 N x 139.55 E	0	0 ml
100-18806	21 Jun. 66	29 Feb. 67	8	Taiwan	24.56 N x 121.11 E	Luzon, Pangasinan	25.40 N x 120.30 E	SW	1,800 ml
100-36998	18 Jul. 67	25 Dec. 67	6	"	24.57 N x 121.21 E	Taiwan	25.05 N x 121.30 E	E	20 ml
100-37345	16 Aug. 67	15 Sep. 67	1	"	24.49 N x 121.07 E	"	25.05 N x 121.23 E	NE	8 ml
100-04458	24 May 66	6 Aug. 67	15	"	24.49 N x 121.15 E	"	25.05 N x 120.50 E	SW	50 ml
100-17294	9 Jul. 66	31 May 67	6	Malaya	4.55 N x 100.35 E	"	23.05 N x 120.15 E	SW	140 ml
110-05795	29 Sep. 66	11 Jan. 67	9	"	"	Malaya	5.15 N x 100.25 E	N	15 ml
110-05299	"	21 Jan. 67	4	"	"	"	5.30 N x 100.40 E	N	35 ml
110-05770	24 Nov. 68	20 Feb. 67	4	"	4.52 N x 100.35 E	"	5.15 N x 100.25 E	N	15 ml
110-06627	14 Oct. 66	6 Feb. 66	3	"	"	"	4.45 N x 100.40 E	SE	25 ml
110-07191	30 Nov. 66	4 Jan. 67	2	"	4.55 N x 100.35 E	"	5.15 N x 100.30 E	N	25 ml
110-07471	"	6 Jan. 67	2	"	"	"	5.45 N x 100.30 E	N	50 ml
110-07479	30 Sep. 66	6 Jan. 67	2	"	4.52 N x 100.35 E	"	5.40 N x 100.25 E	N	20 ml
110-03542	17 Nov. 67	19 Dec. 67	1	"	4.52 N x 100.31 E	"	3.41 N x 101.09 E	S	75 ml
x-001057	2 Nov. 67	14 Nov. 67	0	"	"	"	5.01 N x 100.32 E	N	10 ml
x-000302	1 Nov. 67	1 Dec. 67	1	"	"	"	5.09 N x 100.30 E	N	10 ml
110-12918	1 Nov. 67	1 Dec. 67	1	"	"	"	5.25 N x 100.25 E	N	25 ml
110-12964	1 Nov. 67	16 Dec. 67	2	"	4.55 N x 100.25 E	"	5.07 N x 100.25 E	N	10 ml
CICONIIDAE: <u>Anastomus oscitans</u> , Open-billed Skink									
110-00879	9 Feb. 65	Aug. 67	30	Thailand	14.08 N x 100.33 E	Cambodia	11.00 N x 105.00 E	SE	325 ml
ANATIDAE: <u>Anas acuta</u> , Pintail									
100-09206	6 Apr. 65	4 Apr. 67	24	Japan	35.42 N x 139.47 E	USSR, Siberia	44.20 N x 132.35 E	NW	800 ml
100-09156	14 Jan. 66	20 Jan. 67	13	"	35.54 N x 139.47 E	Japan	38.28 N x 141.19 E	NE	200 ml
100-09153	8 Jan. 66	4 Apr. 67	15	"	"	USSR, Siberia	43.05 N x 131.53 E	NW	700 ml
100-09107	25 Jan. 65	30 Dec. 67	38	"	35.53 N x 139.48 E	Japan	35.40 N x 139.55 E	SE	15 ml
<u>Anas crecca</u> , Teal									
080-05030	25 Nov. 66	8 Jan. 67	2	Japan	35.40 N x 139.55 E	Japan	35.40 N x 139.55 E	0	0 ml
327942	19 Dec. 66	10 Jan. 67	1	"	35.53 N x 149.40 E	"	35.47 N x 140.40 E	S	6 ml
328054	11 Nov. 66	3 Jan. 67	2	"	"	"	35.46 N x 140.40 E	S	7 ml
327935	19 Dec. 66	5 Jan. 67	1	"	"	"	35.50 N x 140.40 E	S	3 ml
327971	19 Dec. 66	12 Jan. 67	1	"	"	"	35.49 N x 149.18 E	SW	5 ml
327921	24 Oct. 66	23 Jan. 67	3	"	"	"	35.45 N x 140.28 E	SW	10 ml
328125	24 Oct. 66	5 Feb. 67	4	"	"	"	35.54 N x 140.38 E	NW	4 ml
328002	19 Dec. 66	9 Feb. 67	2	"	35.54 N x 140.38 E	"	35.54 N x 148.38 E	0	6 ml
328130	25 Oct. 66	10 Jan. 67	3	"	35.53 N x 140.40 E	"	35.57 N x 140.07 E	W	35 ml
328153	26 Oct. 66	11 Feb. 67	4	"	"	"	35.53 N x 140.38 E	W	4 ml
327944	19 Dec. 66	14 Feb. 67	2	"	"	"	35.48 N x 140.40 E	S	7 ml
328038	19 Dec. 66	14 Feb. 67	2	"	"	"	35.45 N x 140.34 E	SW	7 ml
328019	20 Dec. 66	14 Feb. 67	2	"	35.53 N x 140.40 E	"	35.54 N x 140.30 E	W	10 ml
328169	28 Oct. 66	14 Feb. 67	4	"	35.54 N x 139.47 E	"	35.53 N x 139.44 E	SW	3 ml
080-05138	1 Mar. 65	28 Nov. 67	33	"	"	"	"	"	"
<u>Anas penelope</u> , Widgeon									
100-09076	6 Dec. 86	8 Feb. 87	2	Japan	35.41 N x 140.05 E	Japan	35.38 N x 140.05 E	SE	10 ml
<u>Anas platyrhynchos</u> , Mallard									
326959	28 Oct. 66	14 Feb. 67	4	Japan	35.53 N x 140.40 E	Japan	38.02 N x 140.20 E	NE	25 ml
326962	11 Nov. 66	11 Feb. 67	3	"	"	"	35.53 N x 140.36 E	W	4 ml
327193	25 Oct. 67	1 Nov. 67	0	"	"	"	36.02 N x 140.22 E	N	53 ml
110-04151	28 Feb. 66	19 Jan. 67	11	"	35.54 N x 139.47 E	"	36.08 N x 139.42 E	NW	15 ml
110-04125	22 Nov. 65	29 Jan. 67	15	"	"	"	36.09 N x 139.40 E	N	10 ml

Band no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
ACCIPITRIDAE: <u>Butastur indicus</u> . Gray-faced Buzzard									
100-05796	26 Oct. 64	3 Jan. 67	27	Ryukyu	24.45 N x 125.45 E	Luzon, Nueva Ecija	15.15 N x 121.00 E	S	700 mi
100-14223	15 Oct. 66	26 Jan. 67	4	"	24.45 N x 125.20 E	Luzon, Isabella	17.25 N x 121.40 E	SW	550 mi
100-14586	16 Oct. 66	9 Feb. 67	4	"	24.45 N x 125.20 E	Luzon, Isabella	16.50 N x 121.50 E	SW	600 mi
100-14375	22 Oct. 66	13 Feb. 67	4	"	"	Luzon, Rizal	14.30 N x 121.00 E	SW	600 mi
100-14497	16 Oct. 66	22 Feb. 67	4	"	"	Luzon, Quezon	15.30 N x 121.35 E	S	700 mi
100-11330	16 Oct. 65	27 Feb. 67	16	"	"	Luzon, Nueva Ecija	15.20 N x 120.90 E	S	600 mi
100-14497	16 Oct. 66	22 Feb. 67	4	"	"	Luzon, Quezon	15.50 N x 121.35 E	S	600 mi
100-05919	15 Oct. 64	4 Mar. 67	29	"	24.45 N x 125.45 E	Luzon, Bulacan	15.00 N x 120.45 E	S	700 mi
100-14504	14 Oct. 66	17 Mar. 67	6	"	24.45 N x 125.20 E	Luzon, Nueva Vizcaya	16.45 N x 121.10 E	S	650 mi
100-14764	20 Oct. 66	19 Mar. 67	6	"	24.45 N x 120.45 E	Taiwan	22.01 N x 120.44 E	SW	350 mi
100-14968	13 Oct. 66	21 Mar. 67	6	"	24.45 N x 125.20 E	"	24.10 N x 120.30 E	W	300 mi
100-14269	15 Oct. 66	25 Mar. 67	5	"	24.45 N x 125.45 E	Luzon, Rizal	14.35 N x 121.05 E	S	750 mi
100-14492	16 Oct. 66	Mar. 67	6	"	"	Luzon, Nueva Vizcaya	16.15 N x 121.00 E	SW	650 mi
100-14907	11 Oct. 66	5 Apr. 67	6	"	24.25 N x 125.20 E	Panay Phil.	15.35 N x 121.15 E	S	700 mi
100-11589	20 Oct. 66	8 Apr. 67	6	"	24.45 N x 125.45 E	Luzon, Nueva Vizcaya	16.30 N x 121.10 E	S	500 mi
100-14902	11 Oct. 66	6 Oct. 67	12	"	24.45 N x 125.20 E	Batanes, Phil.	20.30 N x 122.90 E	SW	350 mi
100-14822	13 Oct. 66	16 Oct. 67	13	"	"	Luzon, Cagayan	18.30 N x 121.35 E	SW	550 mi
100-14706	14 Oct. 66	11 Nov. 67	13	"	24.45 N x 125.45 E	Negros, Phil.	10.40 N x 122.55 E	S	1,000 mi
100-14813	13 Oct. 66	10 Dec. 67	14	"	24.45 N x 125.20 E	Luzon, Nueva Ecija	16.05 N x 120.35 E	S	700 mi
100-14681	17 Oct. 66	13 Dec. 67	14	"	24.45 N x 125.45 E	Bitran Is., Phil.	11.30 N x 124.30 E	S	950 mi
080-04111	12 Oct. 67	27 Dec. 67	3	Taiwan	22.15 N x 120.50 E	Mindanao, Phil.	8.35 N x 123.45 E	S	700 mi
ROSTRATULIDAE: <u>Rostratula benghalensis</u> . Painted Snipe									
060-05199	8 Jun. 66	3 May 67	11	Japan	34.21 N x 130.51 E	Japan	34.21 N x 130.51 E	N	0 mi
CHARADRIIDAE: <u>Charadrius alexandrinus</u> . Kentish Plover									
030-15284	27 Nov. 65	Dec. 67	25	Palawan	9.40 N x 118.27 E	Palawan, Phil.	9.41 N x 118.27 E	N	1 mi
020-69121	9 Nov. 66	Jan. 67	2	"	"	"	"	N	1 mi
<u>Charadrius dominicus</u> . Golden Plover									
050-22647	3 Sep. 67	25 Dec. 67	4	Luzon, Camarines Sur	13.37 N x 123.10 E	Luzon, Camarines Sur	13.37 N x 123.10 E	S	0 mi
<u>Charadrius leschenaulti</u> . Large Sand Plover									
040-36102	25 Feb. 67	19 Apr. 67	2	Sabah	6.15 N x 116.15 E	Sabah	6.20 N x 116.20 E	SW	10 mi
040-32060	9 Nov. 64	2 Jan. 68	2	Palawan	9.40 N x 118.27 E	Palawan, Phil.	9.41 N x 118.27 E	SW	1 mi
SCOLOPACIDAE: <u>Arenaria interpres</u> . Ruddy Turnstone									
050-05876	6 May 66	16 Aug. 67	15	Japan	35.41 N x 139.55 E	Pribilof Islands	56.40 N x 169.30 E	NE	3,000 mi
050-05868	6 May 66	5 Aug. 67	15	"	"	"	"	NE	3,000 mi
050-05853	6 May 66	14 Aug. 67	15	"	35.41 N x 139.55 E	"	"	NE	3,000 mi
050-05818	5 May 66	1 Aug. 67	15	"	"	"	"	NE	3,000 mi
050-05795	5 May 66	11 Aug. 67	15	"	"	"	"	NE	3,000 mi
C-3086	7 May 63	13 Aug. 67	51	"	35.40 N x 139.55 E	"	56.30 N x 169.30 E	NE	3,100 mi
B-0592	6 May 63	2 Aug. 67	31	"	"	"	"	NE	3,100 mi
050-17052	8 May 67	11 Aug. 67	3	"	"	"	56.40 N x 169.30 E	NE	3,000 mi
050-17134	9 May 67	1 Aug. 67	3	"	"	"	"	NE	3,000 mi
050-17036	8 May 67	25 Sep. 67	5	"	"	"	21.10 N x 172.15 W	SE	3,000 mi
050-17125	9 May 67	30 Jul. 67	3	"	"	"	37.40 N x 169.30 E	SE	3,000 mi
712-03586	3 Aug. 65	8 May 67	21	Pribilof Islands	56.40 N x 169.30 E	Japan	34.21 N x 130.51 E	SW	2,100 mi

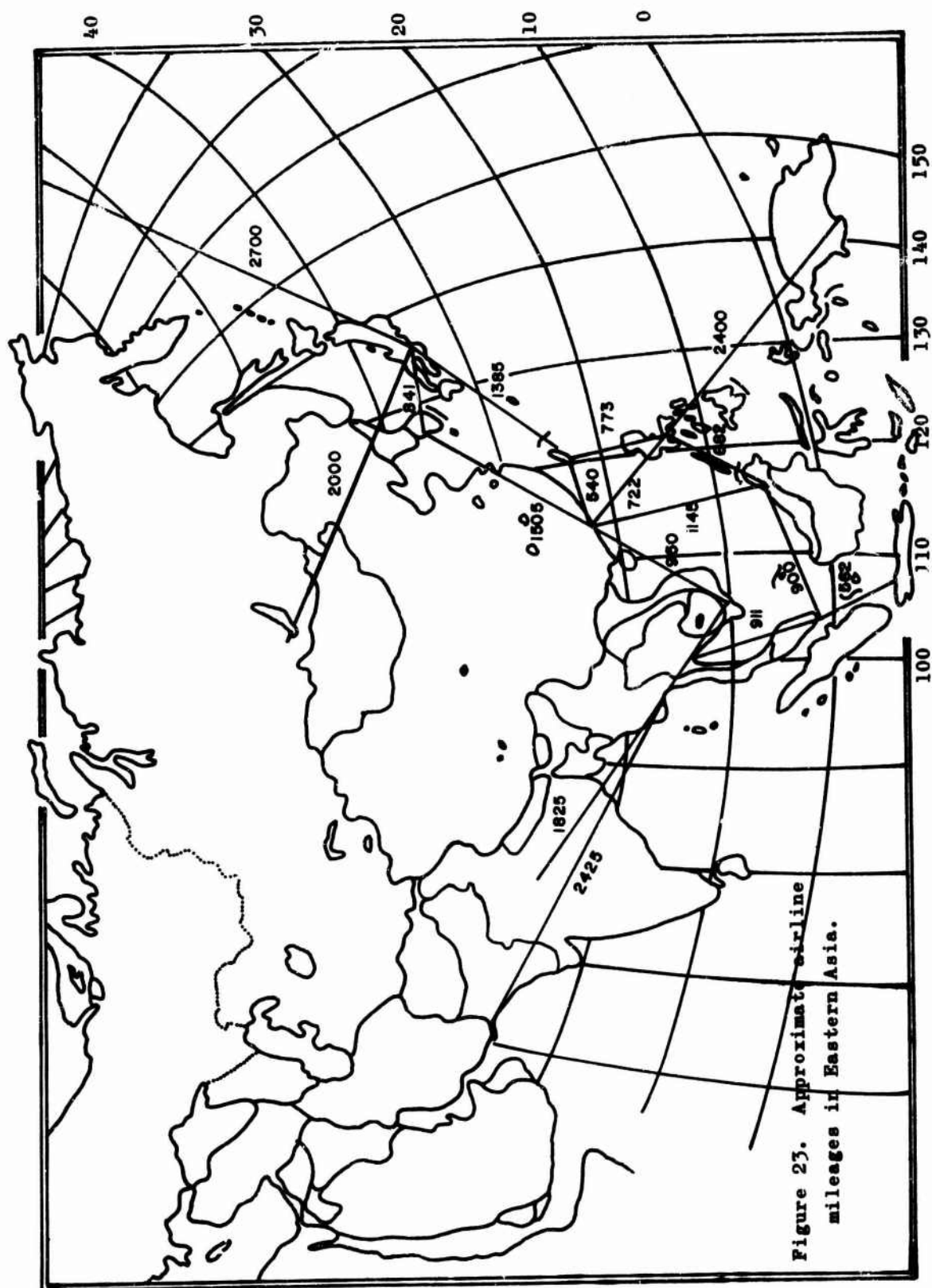
Band no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
712-03433	4 Aug. 65	8 May 67	21	Pribilof Islands	56.40 N x 169.30 E	Japan	35.41 N x 139.55 E	SW	2,100 mi
722-11155	7 Aug. 66	8 May 67	9	"	"	"	"	SW	2,100 mi
722-10078	5 Aug. 66	8 May 67	9	"	"	"	"	SW	2,100 mi
722-16386	26 Aug. 66	8 May 67	9	"	"	"	35.40 N x 139.55 E	SW	2,100 mi
722-17046	26 Aug. 66	4 May 67	9	"	"	"	"	SW	2,100 mi
<u>Capella gallinago, Common Snipe</u>									
040-15323	12 Dec. 65	7 Jan. 67	13	Luzon, Batangas	13.48 N x 120.37 E	Japan	35.40 N x 140.40 E	NE	2,000 mi
060-37201	1 Dec. 67	Dec. 67	0	Luzon, Camarines Norte	14.17 N x 122.45 E	Luzon, Camarines Norte	14.12 N x 122.50 E	SE	11 mi
<u>Capella megala, Swinhoe's Snipe</u>									
060-03801	26 Oct. 65	11 Sep. 67	23	Palawan	9.40 N x 118.27 E	Luzon, Camarines Sur	13.40 N x 123.15 E	NZ	350 mi
060-38232	4 Sep. 67	11 Dec. 67	3	Luzon, Camarines Sur	13.37 N x 123.10 E	Luzon, Camarines Sur	13.42 N x 123.11 E	NE	5 mi
050-21822	23 Sep. 67	20 Nov. 67	2	Luzon, Batangas	13.48 N x 121.37 E	Luzon, Laguna	14.10 N x 121.20 E	NE	55 mi
060-38425	9 Sep. 67	19 Oct. 67	1	Luzon, Camarines Norte	14.10 N x 122.50 E	Luzon, Albay	13.10 N x 123.40 E	SE	65 mi
060-38131	31 Aug. 67	3 Sep. 67	0	Luzon, Camarines Norte	14.12 N x 122.50 E	Luzon, Camarines Norte	14.12 N x 122.50 E	0	0 mi
060-38939	30 Aug. 67	30 Aug. 67	0	"	"	"	"	0	0 mi
060-38127	31 Aug. 67	30 Aug. 67	0	"	"	"	"	0	0 mi
060-38134	"	"	0	"	"	"	"	0	0 mi
060-38141	"	"	0	"	"	"	"	0	0 mi
060-37096	26 Nov. 67	Dec. 67	0	"	14.17 N x 122.45 E	"	"	SE	11 mi
<u>Numenius phaeopus, Common Whimbrel</u>									
070-11560	11 Oct. 65	21 Mar. 67	17	Negros Oriental	9.36 N x 123.06 E	Negros, Phil.	9.30 N x 123.00 E	S	8 mi
070-11564	14 Oct. 65	8 Jan. 67	15	"	"	"	9.35 N x 123.05 E	S	3 mi
070-11592	14 Oct. 65	6 Jan. 67	15	"	"	"	"	S	3 mi
<u>Tringa glareola, Wood Sandpiper</u>									
040-55099	26 Jan. 67	18 May 67	4	Luzon, Batangas	13.48 N x 120.37 E	USSR, Siberia	51.30 N x 142.46 E	NE	3,500 mi
<u>LARIDAE: Larus crassirostris, Black-tailed Gull</u>									
060-08602	17 Jul. 66	11 Jun. 67	6	Japan	40.32 N x 141.33 E	Japan	33.30 N x 122.30 E	SW	700 mi
060-11750	14 Jan. 67	26 Aug. 67	3	"	"	"	42.13 N x 140.20 E	NW	125 mi
060-08772	11 Jun. 66	1 Apr. 67	10	"	"	"	35.44 N x 140.40 E	S	400 mi
060-08053	10 Jun. 66	26 Sep. 67	15	"	"	USSR, Siberia	47.22 N x 142.48 E	E	600 mi
<u>COLUMBIDAE: Geopelia striata, Zebra Dove</u>									
060-03506	11 Oct. 65	Jul. 67	21	Luzon, Batangas	13.48 N x 120.37 E	Luzon, Batangas	13.48 N x 121.37 E	0	0 mi
060-08711	26 Nov. 65	27 Dec. 67	25	Negros Oriental	9.8 N x 123.3 E	Negros, Phil.	9.13 N x 123.06 E	NE	15 mi
050-08310	3 Sep. 66	Apr. 67	7	"	9.04 N x 123.02 E	"	9.20 N x 122.50 E	NW	20 mi
050-08310	3 Sep. 66	Feb. 67	5	"	"	"	"	NW	20 mi
050-08017	20 Jun. 65	11 May 67	23	Singapore	1.25 N x 101.52 E	Malaysia	4.28 N x 101.23 E	N	270 mi
<u>Streptopelia chinensis, Spotted-necked Dove</u>									
070-20518	5 Feb. 67	Jun. 67	4	Negros Oriental	9.06 N x 123.03 E	Cebu, Phil.	9.50 N x 123.25 E	S	90 mi
070-01105	13 Aug. 67	20 Sep. 67	1	Singapore	1.40 N x 103.70 E	Singapore	1.42 N x 103.70 E	0	0 mi

Band no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
STRIGIDAE: Ninox scutulata, Brown Hawk Owl									
080-05251	17 Sep. 67	17 Nov. 67	2	Japan	37.24 N x 138.35 E	Luzon, Nueva Ecija	15.35 N x 121.20 E	SW	2,000 mi
CAPRIMULGIDAE: Caprimulgus macrurus, Long-tailed Nightjar									
040-33179	21 Sep. 66	24 Nov. 66	2	Palawan	9.40 N x 118.27 E	Palawan, Phil.	9.40 N x 118.27 E	0	0 mi
050-22032	10 Sep. 67	21 Nov. 67	3	"	"	"	9.20 N x 116.20 E	SW	25 mi
ALCEDINIDAE: Alcedo althia, Common Kingfisher									
030-25981	10 Aug. 67	18 Oct. 67	3	Korea	37.45 N x 127.15 E	Luzon, La Union	16.35 N x 120.15 E	S	1,000 mi
HALCYONIDAE: Halcyon chloris, White-collared Kingfisher									
060-12647	30 Jun. 66	10 May 67	11	Luzon, Batangas	13.48 N x 120.37 E	Luzon, Batangas	14.05 N x 120.35 E	N	20 mi
070-03836	13 Oct. 65	19 Jun. 67	19	Luzon, Batangas	13.48 N x 120.37 E	Luzon, Batangas	13.50 N x 121.37 E	N	10 mi
050-09151	24 Jan. 66	22 Jul. 67	18	Siquilor, Phil.	9.13 N x 123.40 E	Siquilor, Phil.	9.15 N x 123.35 E	W	7 mi
MEROPIIDAE: Merop philippinus, Blue-tailed Bee-eater									
040-30252	29 Apr. 67	4 Nov. 67	7	Negros Oriental	9.04 N x 123.05 E	Mindanao	7.15 N x 124.30 E	SE	160 mi
040-30280	30 Apr. 67	5 Nov. 67	7	"	"	"	"	SE	160 mi
MEROPIIDAE: Merops viridis, Blue-throated Bee-eater									
040-16893	10 Jun. 67	2 Aug. 67	2	Malaya	3.16 N x 101.19 E	Malaya	3.02 N x 101.25 E	SE	15 mi
040-66050	11 Jun. 67	19 Jul. 67	1	"	"	"	"	SE	15 mi
HIRUNDINIDAE: Hirundo rustica, House Swallow									
020-07545	9 Apr. 65	18 Apr. 67	24	Thailand	13.45 N x 100.30 E	Thailand	13.45 N x 100.30 E	0	0 mi
011-87238	25 Jan. 66	18 Apr. 67	15	"	"	"	"	0	0 mi
020-05838	26 Mar. 65	18 Apr. 67	25	"	"	"	"	0	0 mi
012-14125	6 Jan. 66	18 Apr. 67	15	"	"	"	"	0	0 mi
011-88974	6 Jan. 66	11 Jan. 67	12	"	"	"	"	0	0 mi
011-94262	26 Jan. 66	4 Jan. 67	12	"	"	"	"	0	0 mi
012-33556	16 Jan. 66	28 Feb. 67	13	"	"	"	"	0	0 mi
012-25339	13 Jan. 66	4 Jan. 67	12	"	"	"	"	0	0 mi
012-36167	19 Jan. 66	18 Apr. 67	15	"	"	"	"	0	0 mi
012-50092	10 Feb. 66	18 Apr. 67	14	"	"	"	13.45 N x 100.30 E	0	0 mi
012-56869	10 Jan. 67	5 May 67	4	"	"	"	"	0	0 mi
015-70391	22 Mar. 65	18 Apr. 67	25	"	"	South Korea	35.10 N x 126.05 E	NE	2,200 mi
011-89491	26 Jan. 66	22 Jan. 67	12	"	"	Thailand	13.45 N x 100.30 E	0	0 mi
010-60809	9 Apr. 65	4 Jan. 67	21	"	"	"	13.40 N x 100.25 E	SW	5 mi
010-94340	9 Nov. 67	21 Nov. 67	0	"	"	"	13.50 N x 100.35 E	N	5 mi
012-01557	3 Feb. 66	1 Feb. 67	12	"	"	Malaya	3.30 N x 101.54 E	NW	40 mi
012-23913	12 Jan. 66	7 Mar. 67	14	"	"	"	3.31 N x 101.55 E	S	700 mi
012-22534	12 Jan. 66	8 Mar. 67	14	"	"	"	3.31 N x 101.55 E	S	770 mi
012-23404	12 Jan. 66	1 Jun. 67	17	"	"	"	36.00 N x 100.30 E	NE	2,400 mi
012-12141	4 Jan. 66	22 Apr. 67	16	"	"	South Korea	35.10 N x 126.40 E	NE	2,500 mi
012-15866	6 Jan. 66	18 Jun. 67	18	"	"	"	37.37 N x 127.05 E	SW	2,300 mi
012-38594	20 Jan. 66	7 Mar. 67	7	"	"	North Korea	?	?	?
011-66791	6 Feb. 66	2 Mar. 67	7	"	"	"	?	?	?
010-70824	22 Mar. 65	2 Mar. 67	2	"	"	"	?	?	?
012-22223	12 Jan. 66	7 Mar. 67	7	"	"	"	?	?	?
011-91070	27 Jan. 66	7 Mar. 67	7	"	"	"	?	?	?
011-84477	7 Feb. 66	7 Mar. 67	7	"	"	"	?	?	?

Band no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
012-85072	23 Aug. 66	Apr. 67	6	Korea	37.38 N x 127.05 E	Taiwan	24.01 N x 120.42 E	SW	1,000 mi
012-85077	12 Aug. 66	25 Apr. 67	6	"	"	"	23.27 N x 126.28 E	SW	1,000 mi
011-80075	13 Jan. 66	15 Oct. 67	16	"	"	"	23.23 N x 126.21 E	SW	1,000 mi
012-77648	18 Oct. 66	20 Nov. 67	13	Malaya	3.30 N x 101.54 E	Thailand	13.50 N x 102.35 E	N	1,500 mi
012-23075	15 Dec. 66	?	6	"	3.25 N x 102.05 E	South Korea	38.15 N x 126.25 E	N	2,000 mi
012-84950	14 Dec. 66	1 Dec. 67	12	"	3.30 N x 101.34 E	Thailand	13.50 N x 100.35 E	N	700 mi
012-83345	20 Oct. 66	30 Nov. 67	13	"	3.45 N x 101.52 E	"	"	N	700 mi
012-83323	16 Nov. 66	28 Nov. 67	12	"	3.25 N x 102.03 E	"	"	N	700 mi
010-87268	4 Aug. 65	7 Jan. 67	17	"	3.30 N x 101.54 E	Malaya	3.25 N x 102.30 E	N	770 mi
012-81383	17 Oct. 66	20 Oct. 67	12	"	3.16 N x 101.30 E	North Korea	?	N	30 mi
012-11541	13 Mar. 66	?	7	"	3.12 N x 101.40 E	"	?	N	?
010-57725	20 Jan. 65	7 Feb. 67	7	"	3.30 N x 101.54 E	Malaya	3.30 N x 101.54 E	N	?
010-66605	6 Oct. 66	3 Feb. 67	4	"	3.40 N x 101.45 E	Malaya	4.13 N x 140.30 E	SE	15 mi
012-84865	20 Oct. 66	5 May 67	7	"	3.48 N x 101.52 E	Japan	1.30 N x 110.20 E	SE	3,400 mi
010-28651	30 Oct. 66	1 Apr. 67	6	Sarawak	1.30 N x 110.20 E	Sarawak	?	0	0 mi
<i>Hirundo tahitica</i> , Pacific Swallow									
012-75727	14 Dec. 66	16 Apr. 67	4	Malaya	3.30 N x 101.54 E	Malaya	3.25 N x 102.30 E	E	36 mi
010-68923	28 Jul. 66	15 Apr. 67	9	"	3.46 N x 101.52 E	"	3.48 N x 101.52 E	?	0 mi
<i>Dicrurus baicalicus</i> , Baikal Thrush									
010-68923	24 Jul. 64	24 Dec. 67	41	Luzon, Rizal	14.07 N x 121.11 E	Luzon, Rizal	14.07 N x 121.11 E	0	0 mi
<i>Alcedo nipalensis</i> , Mountain Nun Tanager									
BA-81658	17 Feb. 60	18 Jul. 67	89	Malaya	4.30 N x 101.22 E	Malaya	4.30 N x 101.22 E	0	0 mi
020-39117	1 Jun. 67	23 Jul. 67	2	"	4.30 N x 101.30 E	"	4.30 N x 101.30 E	0	0 mi
020-01240	6 Jan. 66	21 May 67	16	"	3.40 N x 101.45 E	"	3.40 N x 101.45 E	0	0 mi
<i>Garrulax erythrocephalus</i> , Red-headed Laughing Thrush									
CK-05310	16 Mar. 63	11 May 67	50	Malaya	4.30 N x 101.25 E	Malaya	4.30 N x 101.25 E	0	0 mi
<i>Leiothrix argentauris</i> , Silver-eared Mesia									
BA-14815	20 Nov. 61	11 May 67	66	Malaya	4.30 N x 101.25 E	Malaya	4.30 N x 101.25 E	0	0 mi
BA-28721	15 Mar. 63	11 May 67	50	"	"	"	"	0	0 mi
<i>Stachytis nigricaps</i> , Gray-throated Tree Baulier									
020-33146	6 Jul. 67	22 Jul. 67	1	Malaya	4.30 N x 101.30 E	Malaya	4.30 N x 101.30 E	0	0 mi
<i>Paradoxornis webbiana</i> , Webb's Parrotbill									
013-18996	5 Jan. 67	14 Apr. 67	3	Korea	37.49 N x 127.15 E	South Korea	37.49 N x 127.15 E	0	0 mi
013-19879	28 Mar. 67	15 Apr. 67	1	"	"	"	"	0	0 mi
013-19991	31 Mar. 67	24 Apr. 67	1	"	"	"	37.45 N x 127.10 E	SE	7 mi
<i>Crinifer patellus</i> , Pale Whiskered Bulbul									
040-08015	26 Feb. 66	3 Jan. 67	11	Thailand	18.48 N x 98.53 E	Thailand	18.48 N x 98.53 E	?	0 mi
040-04499	14 Jan. 65	22 Oct. 67	34	"	14.24 N x 101.09 E	"	14.00 N x 99.33 E	SW	90 mi
<i>Hypsipetes amaurotis</i> , Browned eared Bulbul									
D-7155	12 Nov. 66	22 Jan. 67	3	Japan	34.21 N x 130.51 E	Japan	33.50 N x 130.30 E	SW	75 mi

Bann. no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
SYLVIIDAE: <i>Seiurus motacilla</i> , Yellow-breasted Flycatcher-warbler									
030-34943	<i>Hypsipetes guilaria</i> , Philippine Bulbul	10 Jun. 66	20 Nov. 67	18	Luzon, Laguna	Luzon, Laguna	14. 24 N x 121. 30 E	0	0 mi
030-30019	<i>Pycnonotus goiavier</i> , Yellow-vented Bulbul	24 Jan. 66	19 Apr. 67	15	Malaya	Malaya	5. 21 N x 100. 17 E	0	0 mi
BA-04057		24 Sep. 60	2 Aug. 67	82	"	"	3. 02 N x 101. 25 E	0	0 mi
040-50198		2 Jan. 65	1 Jan. 67	24	Singapore	Singapore	1. 23 N x 103. 52 E	0	0 mi
040-50124		2 Jun. 65	15 Jan. 67	19	"	"	"	0	0 mi
SYLVIIDAE: <i>Seiurus motacilla</i> , Yellow-breasted Flycatcher-warbler									
010-91718		1 Jun. 67	16 Jul. 67	0	Malaya	Malaya	4. 30 N x 101. 30 E	0	0 mi
MOTACILLIDAE: <i>Motacilla alba</i> , Pied Wagtail									
020-27946		1 Jul. 66	17 Apr. 67	10	Korea	South Korea	37. 38 N x 127. 05 E	0	0 mi
020-53588		11 Jul. 66	9 Apr. 67	9	"	"	"	0	0 mi
020-26892		4 Jul. 66	9 Apr. 67	9	"	"	"	0	0 mi
020-26136		4 Jul. 66	9 Apr. 67	9	"	"	"	0	0 mi
010-55181		29 May 66	25 Mar. 67	22	"	"	37. 45 N x 127. 15 E	SW	10 mi
012-89283		22 Aug. 66	5 Apr. 67	8	"	"	37. 38 N x 127. 05 E	0	0 mi
020-54471		17 Jul. 66	16 Mar. 67	8	"	"	"	0	0 mi
011-80863		27 Jul. 66	28 Apr. 67	10	"	"	37. 36 N x 127. 10 E	E	5 mi
011-81664		24 Jun. 66	25 Mar. 67	9	Japan	USSR, Sakhalin	34. 58 N x 137. 07 E	NE	15 mi
012-73629		10 Dec. 66	May 67	5	"	"	48. 56 N x 142. 57 E	S	3 mi
E-3972		12 Dec. 66	30 Apr. 67	5	"	"	48. 38 N x 142. 44 E	NE	1,000 mi
010-21503		13 Mar. 66	11 Apr. 67	13	"	"	47. 11 N x 142. 32 E	NE	900 mi
E-7959		5 Feb. 67	17 Apr. 67	3	"	Japan	42. 17 N x 141. 02 E	N	550 mi
MOTACILLIDAE: <i>Motacilla flava</i> , Yellow Wagtail									
020-62589		16 Oct. 66	19 Nov. 67	13	Taiwan	Taiwan	23. 23 N x 120. 21 E	0	0 mi
012-70909		13 Oct. 66	19 Nov. 67	13	"	"	"	0	0 mi
012-70810		13 Oct. 66	19 Nov. 67	13	"	"	"	0	0 mi
012-69520		9 Oct. 66	19 Nov. 67	13	"	"	"	0	0 mi
012-69513		9 Oct. 66	19 Nov. 67	13	"	"	"	0	0 mi
012-68352		9 Oct. 66	19 Nov. 67	13	"	"	"	0	0 mi
013-81974		10 Apr. 67	20 Sep. 67	5	"	USSR, Siberia	53. 08 N x 132. 56 E	NE	2,000 mi
014-83563		29 Apr. 67	5 Nov. 67	7	"	"	58. 03 N x 125. 31 E	N	2,000 mi
014-83278		3 May 67	7 Jul. 67	2	"	USSR, Siberia	58. 40 N x 150. 04 E	N	3,400 mi
020-58643		2 Apr. 66	15 Oct. 67	19	"	Taiwan	23. 23 N x 121. 21 E	E	70 mi
020-58416		2 Apr. 66	20 Oct. 67	18	"	"	23. 23 N x 120. 21 E	NE	10 mi
ARTAMIDAE: <i>Artamus leucorhynchus</i> , White-breasted Wood Swallow									
040-15925		24 Nov. 65	26 Jan. 67	14	Palawan	Palawan, Phil.	9. 30 N x 118. 25 E	SW	10 mi
040-33366		26 Oct. 66	10 Jan. 67	3	"	"	9. 40 N x 118. 35 E	E	10 mi
LANIIDAE: <i>Lanius cristatus</i> , Brown Shrike									
030-41965		23 Sep. 65	23 Apr. 67	19	Taiwan	Luzon, Batangas	13. 55 N x 121. 10 E	S	550 mi
040-45363		19 Sep. 66	21 May 67	"	"	Luzon, Cagayan	17. 45 N x 121. 30 E	S	325 mi
040-45324		19 Sep. 66	27 Sep. 67	13	"	Luzon, mountain Province	17. 10 N x 120. 45 E	S	350 mi
030-25936		2 Jul. 67	Nov. 67	4	Korea	"	37. 00 N x 127. 00 E	SW	1,400 mi

Band no.	Banded date	Recovery date	Time (months)	Recovered		Direction	Distance
				Place	Co-ordinate		
STURNIDAE: <i>Aplonis panayensis</i>, Philippine Starling							
040-15734	16 Jun. 65	5 Feb. 67	20	Palawan	9.30 N x 118.27 E	0	0 mi
060-18869 <i>Sarcops calvus</i>, Coloto							
060-18869	22 May 67	11 Jun. 67	1	Negros	10.33 N x 123.09 E	N	2 mi
060-18834	21 May 67	30 Sep. 67	4	"	10.33 N x 123.09 E	S	2 mi
050-10012 <i>Sturnus cineraceus</i>, Grey Starling							
050-10012	13 Jun. 65	23 Jun. 67	25	Korea	27.35 N x 127.00 E	NE	25 mi
060-01422 <i>Sturnus tristis</i>, Common Myna							
060-01422	5 Sep. 66	Mar. 67	6	Thailand	13.12 N x 100.50 E	NE	9 mi
NECTARINIDAE: <i>Arachnothera longirostris</i>, Little Spiderhunter							
N-19888	20 Mar. 63	11 May 67	50	Malaya	4.30 N x 101.35 E	0	0 mi
020-39114	6 Jun. 67	19 Jul. 67	1	"	4.30 N x 101.30 E	0	0 mi
ZOSTEROPIDAE: <i>Zosterops palpebrosa</i>, Oriental White-eye							
010-23780	9 Oct. 66	30 Jul. 67	10	Japan	37.20 N x 138.35 E	0	0 mi
FRINGILLIDAE: <i>Emberiza rustica</i>, Rustic Bunting							
013-13913	31 Dec. 66	13 Jan. 67	1	Korea	37.49 N x 127.15 E	0	0 mi
011-37892	31 Oct. 65	24 Feb. 67	16	"	37.00 N x 127.35 E	SE	50 mi
013-13163	23 Nov. 66	5 Feb. 67	3	"	36.37 N x 127.31 E	S	60 mi
013-19884	15 Mar. 67	16 Mar. 67	0	"	37.36 N x 127.10 E	S	10 mi
013-11306	24 Oct. 66	32 Jan. 67	3	"	37.38 N x 127.05 E	SW	15 mi
011-60840	15 Dec. 65	27 Jan. 67	13	"	37.45 N x 127.10 E	W	5 mi
011-74890	17 Feb. 66	19 Feb. 67	12	"	37.38 N x 127.08 E	SW	15 mi
013-46053	3 Apr. 67	16 Apr. 67	0	"	37.49 N x 127.15 E	N	5 mi
015-25346	15 Nov. 67	19 Nov. 67	0	"	37.40 N x 127.10 E	SW	7 mi
POCEIDAE: <i>Lonchura malacca</i>, Chestnut Munia							
011-17025	14 Sep. 66	23 May 67	8	Luzon, Camarines Norte	14.17 N x 132.45 E	SW	100 mi
010-12152	9 Sep. 64	Apr. 67	31	Mindoro	13.7 N x 131.18 E	NW	5 mi
011-50013	20 May 67	15 Jul. 67	2	Subah	6.00 N x 116.00 E	0	0 mi
013-72921 <i>Lonchura striata</i>, Sharp-tailed Munia							
013-72921	19 Aug. 67	16 Sep. 67	1	Thailand	13.45 N x 100.30 E	0	0 mi
030-44432 <i>Paddy oryzivora</i>, Java Sparrow							
030-44432	11 Dec. 66	7 Sep. 67	9	Malaya	2.15 N x 102.15 E	0	0 mi
020-09163 <i>Passer montanus</i>, Tree Sparrow							
020-09163	3 Oct. 65	39 Oct. 67	24	Negros	9.21 N x 133.19 E	N	60 mi
030-64604 <i>Ploceus philippinus</i>, Baya Weaver							
030-64604	6 May 67	15 Aug. 67	3	Thailand	13.45 N x 100.30 E	0	0 mi



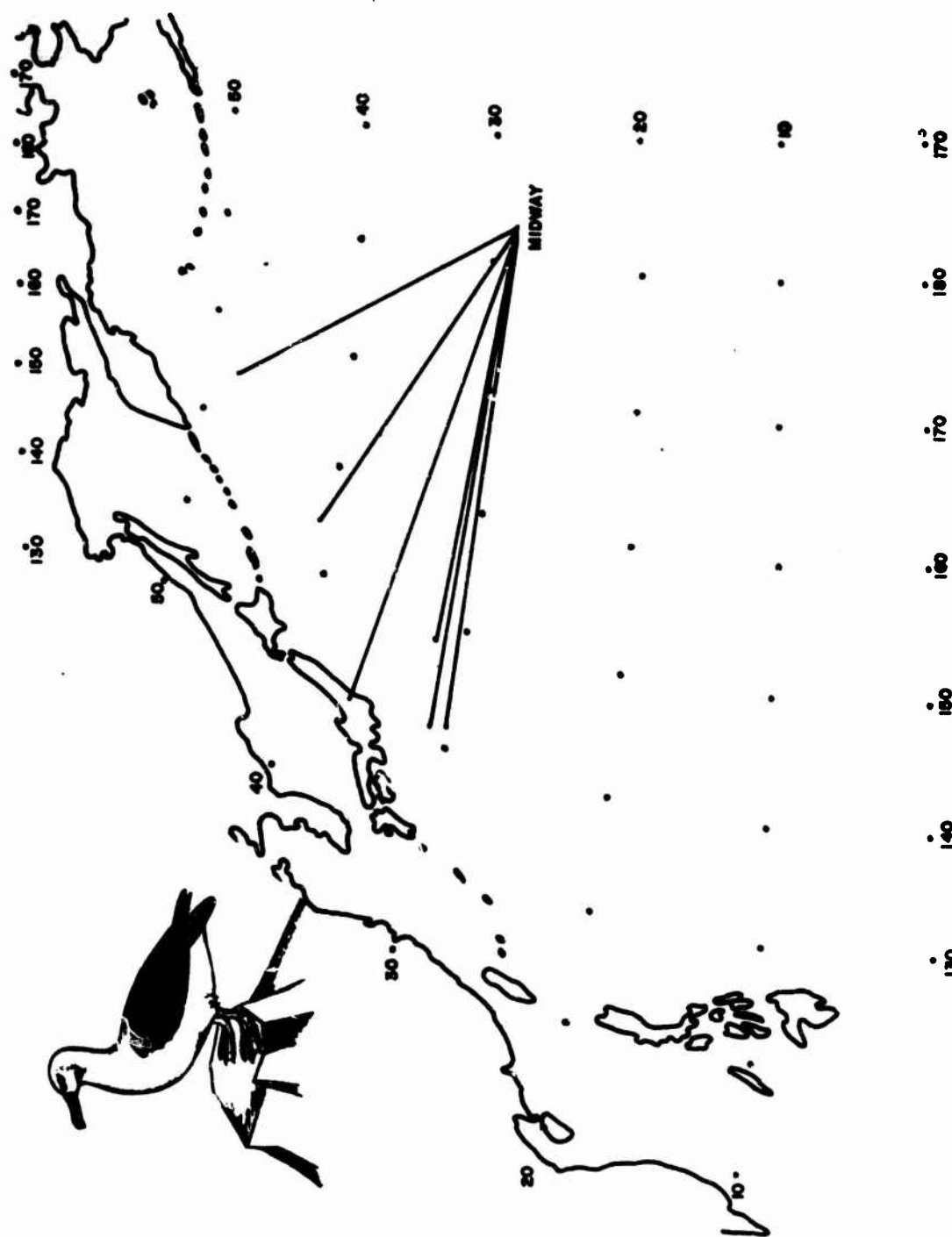


Figure 24. Laysan Albatross, *Diomedea immutabilis*.

Three Great Egret recoveries added no new information. Thirty-two Little Egret recoveries were mainly local, but several corroborated the 1966 data that a segment of the population migrates for long distances. This year 4 (12 %) were taken outside their country of origin (Figure 25). There were 26 records from the Black-crowned Night Heron, 12 from Malaya recovered locally. Another long-distance recovery of a Japanese bird from Luzon supports previous information. (Figures 26 and 27).

CICONIIDAE: A recovery from Cambodia of an Open-billed Stork added significantly to the information about this species. The dispersal of juveniles from the Wat Phai Lom colony just outside of Bangkok is now shown to cover 180 degrees, Cambodia, Laos, north Thailand, East Pakistan. (Figure 28).

ANATIDAE: Two more recoveries of the Pintail from eastern Siberia corroborates earlier work with this species. The east Siberian population winters in Japan (Figure 29). Eleven teal recoveries were all within Japan. One Widgeon and five Mallard recoveries were also within Japan.

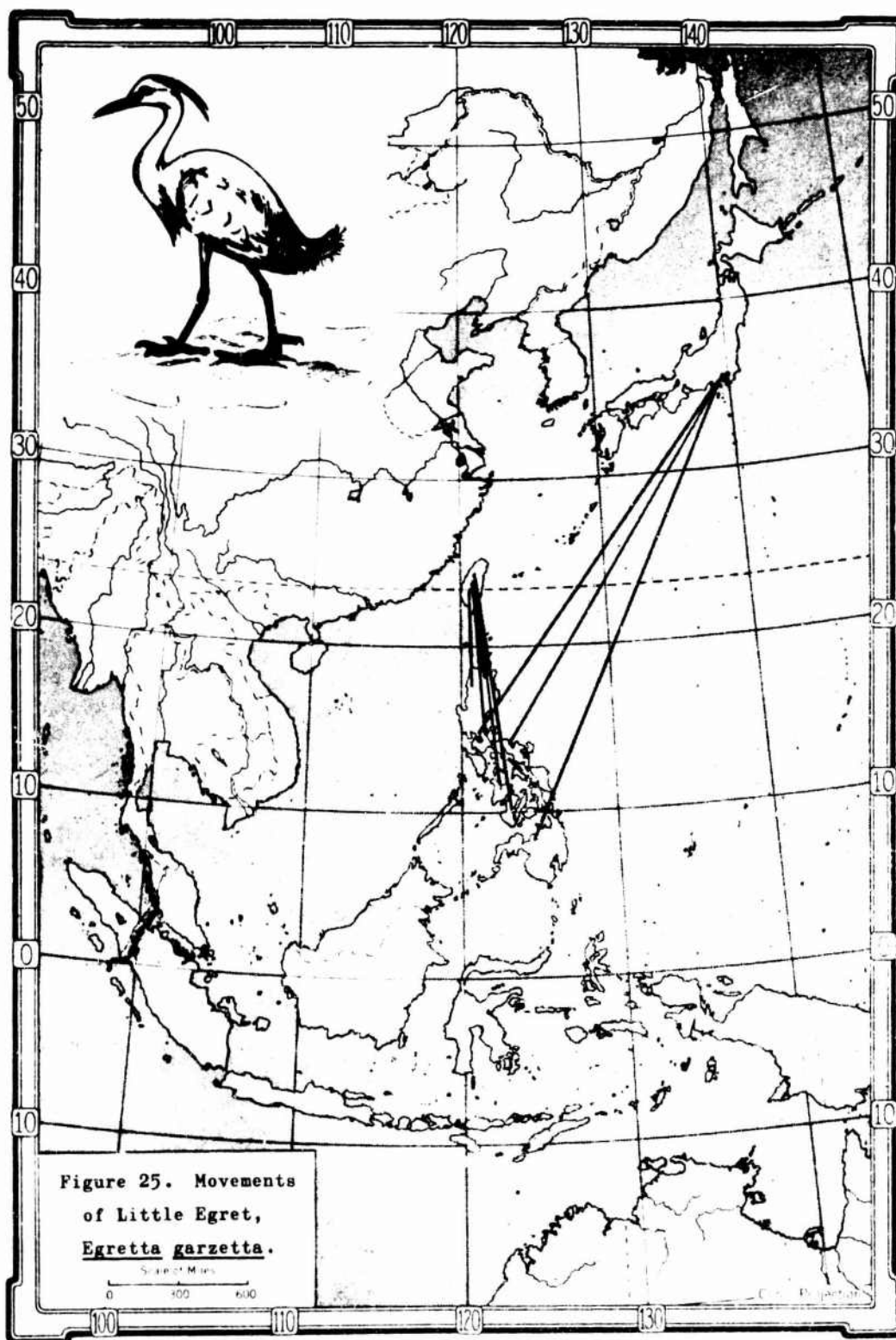
ACCIPITRIDAE: Dr. Ikehara discontinued ringing the Grey-faced Buzzard at Miyako in the Ryu Kyus but 13 more of his birds were recovered. These continued to be from the Philippines. The pattern of these recoveries, Figure 30, is similar to that of the recovery of all birds in the Philippines, the bulk of the information coming from Luzon. There are still no reports of these birds from their breeding territories, so no information about their points of origin.

ROSTRATULIDAE: A single Painted Snipe banded and recovered in Japan.

CHARADRIIDAE: Two Kentish Plover banded and recovered in Palawan. One Golden Plover banded and recovered in Luzon. Two Large Sand Plovers banded and recovered respectively in Sabah and Palawan.

SCOLOPACIDAE: Seventeen recoveries of Ruddy Turnstone continue to demonstrate the movement of birds through Japan to the Pribilofs. There are now 24 records of birds banded in May in Japan and taken in August or September in the Pribilofs; and 12 records of birds banded in the Pribilof in August and recovered in May in Japan. The route is obviously a one-way road with Turnstones going north through Japan to their breeding grounds and returning via the Pribilofs and some other flyway to the east. The only other records are two from Kamchatka taken in the spring, each a few days after having been banded in Japan. No records to the south show at what point these birds enter the flyway taking them north into Japan.

A single recovery of a Common Snipe showed a movement from Luzon to Japan (Figure 31). Ten recoveries of Swinhoe's Snipe banded in the Philippines were from the Philippines. Three recoveries of the





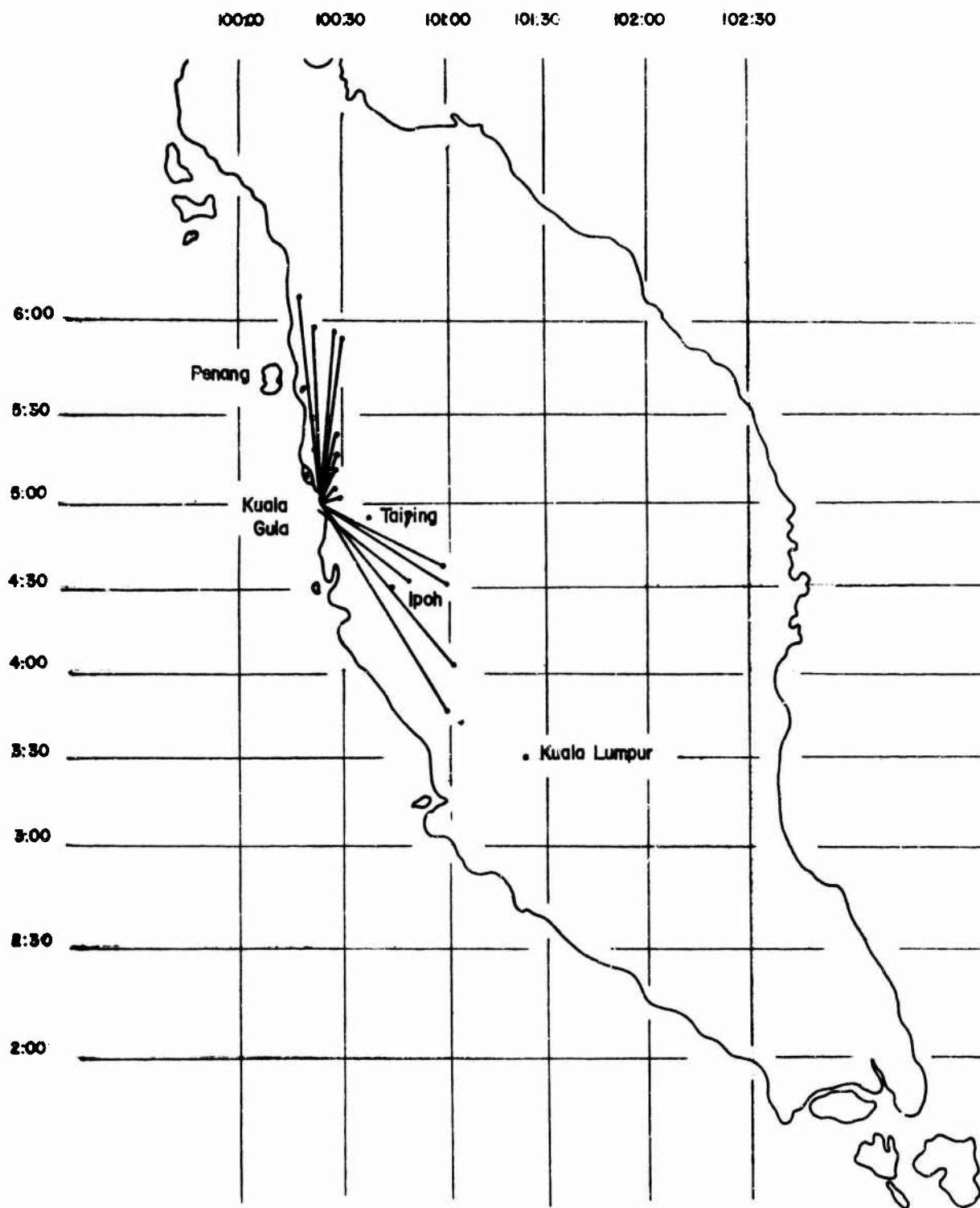
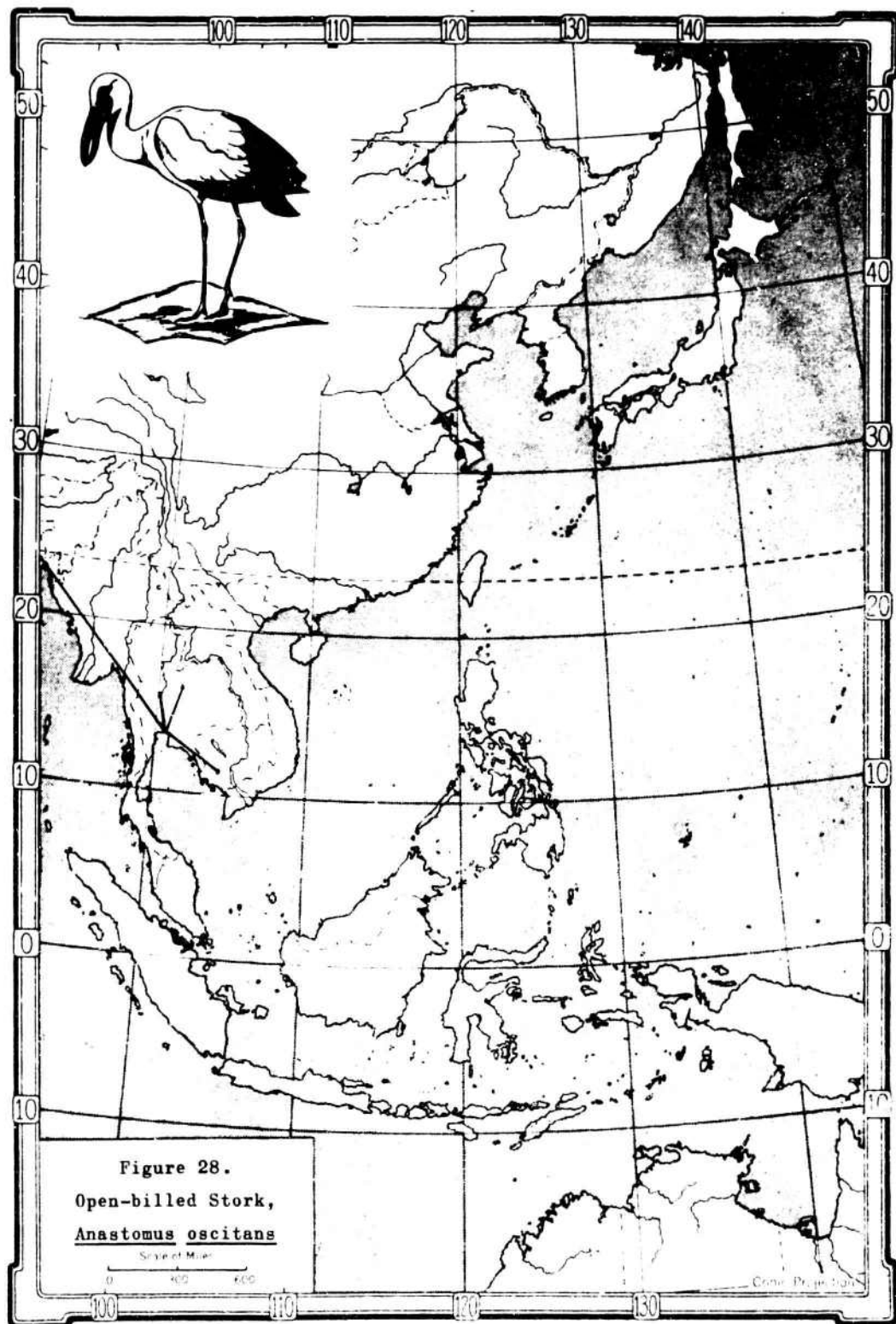
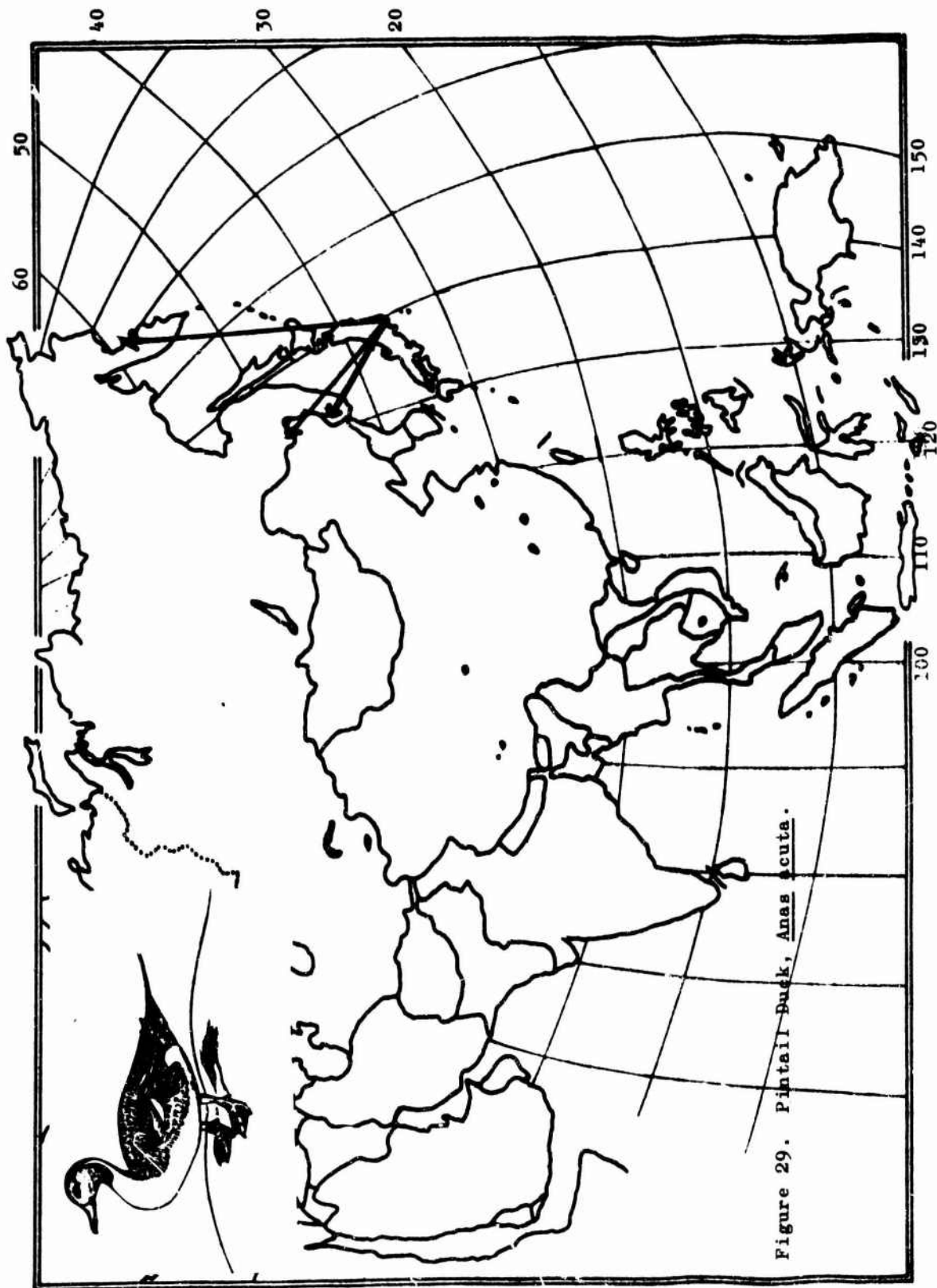
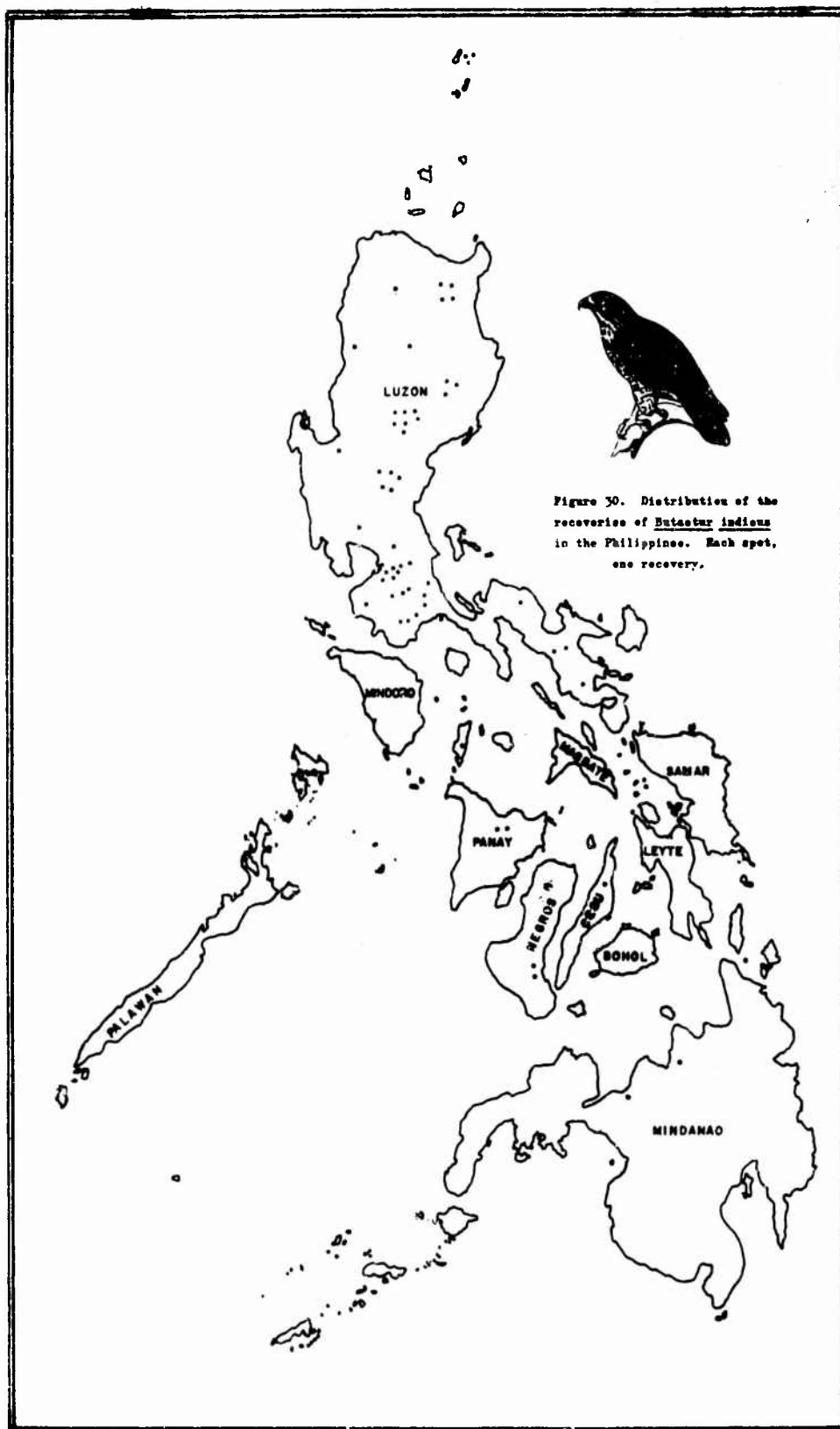
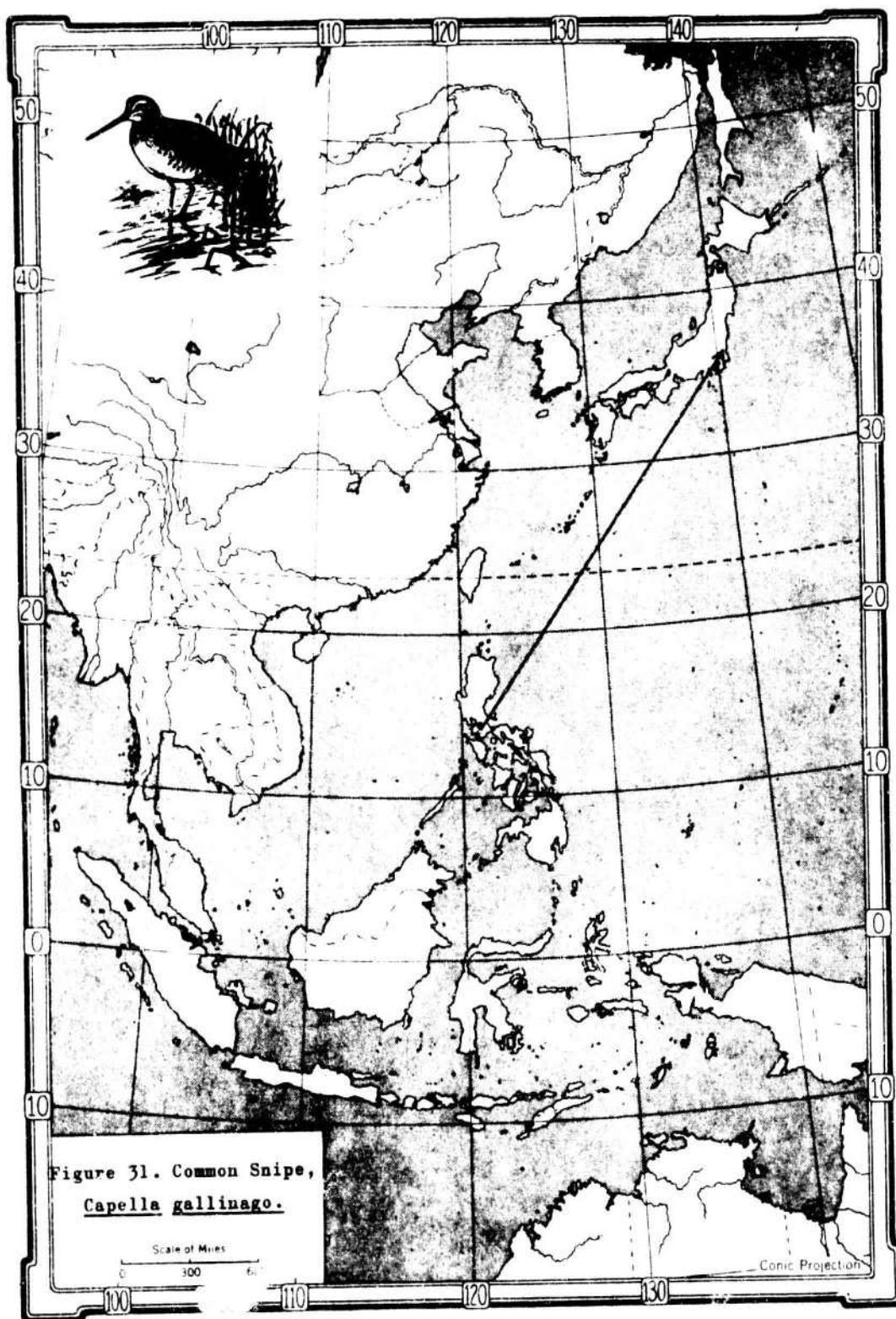


Figure 27. Local movements of Black-crowned Night Herons in Malaya.









Whimbrel were local within the Philippines. A single recovery of a Wood Sandpiper banded in Luzon was from eastern Siberia, again indicating this vast area as the nesting grounds of Philippine wintering birds. (Figure 32).

LARIIDAE: Four recoveries of the Black-tailed Gull nestlings from Kabushima showed distribution over Japan and into Sakhalin as demonstrated by earlier recoveries.

COLUMBIDAE: Four recoveries of the Zebra Dove were all local in the Philippines and a fifth went from Singapore 270 miles north into Malaya. One recovery of the Spotted-necked Dove was a Negros bird that crossed the channel into Cebu. At least some individuals of both species of these doves apparently move around more than has been previously believed. (Figure 33).

STRIGIDAE: The first owl recovery that has been received from a distance is a very significant recovery of a Brown Hawk Owl banded in Japan and recovered in Luzon two months later. (Figure 34).

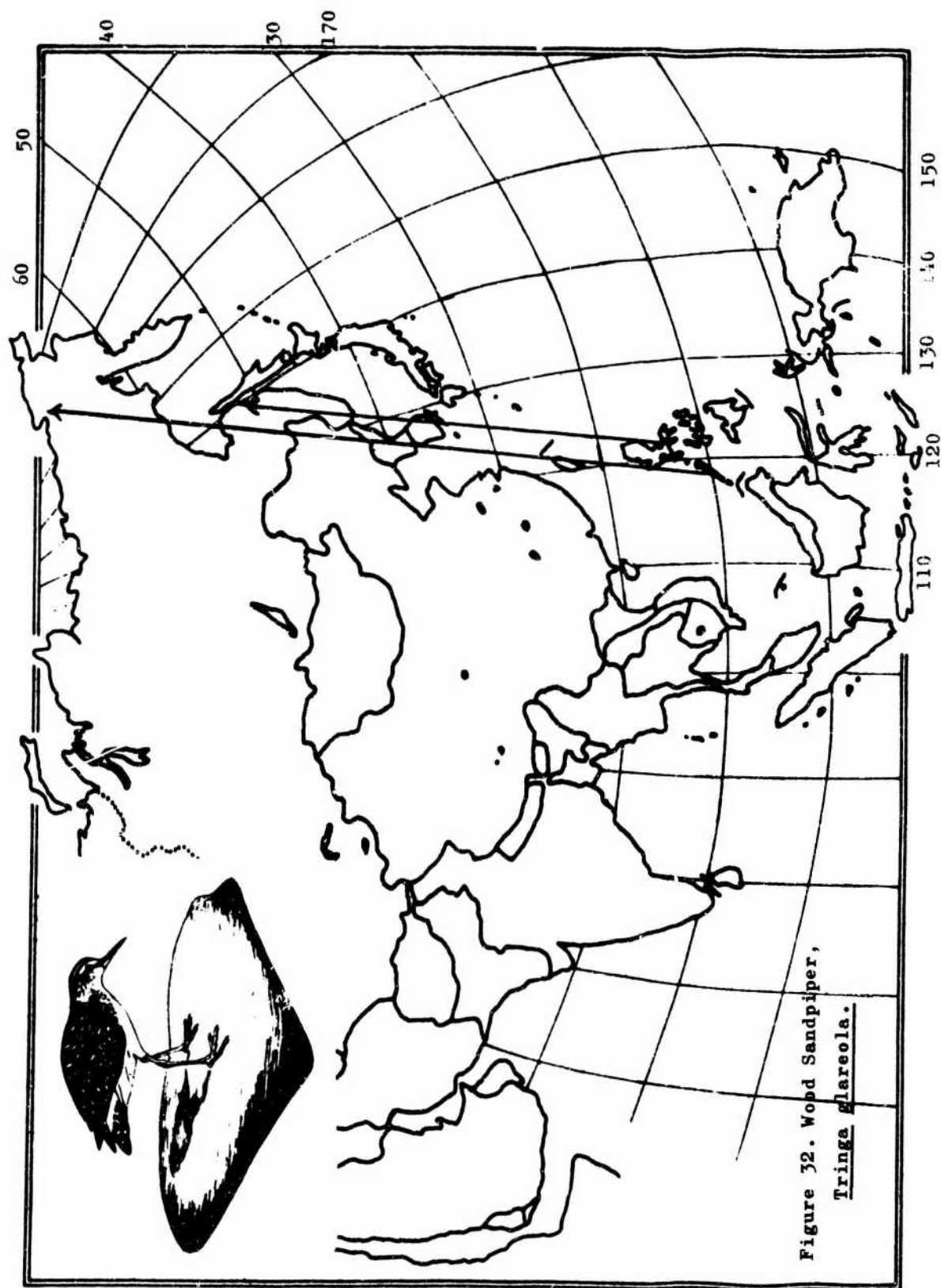
CAPRIMULGIDAE: Two recoveries of the Long-tailed Nightjar locally in Palawan.

ALCEDINIDAE: A Common Kingfisher banded in August in Korea was taken in Luzon in October. Because of the positions of the land masses the question arises: do such migrants cross from Korea to Honshu and then island-hop along the Ryu Kyus, Taiwan, Batanes group to Luzon, or do they cross to the China coast then back to Taiwan and south? Probably shorter intervals of water must be crossed in the island-hopping. (Figure 35).

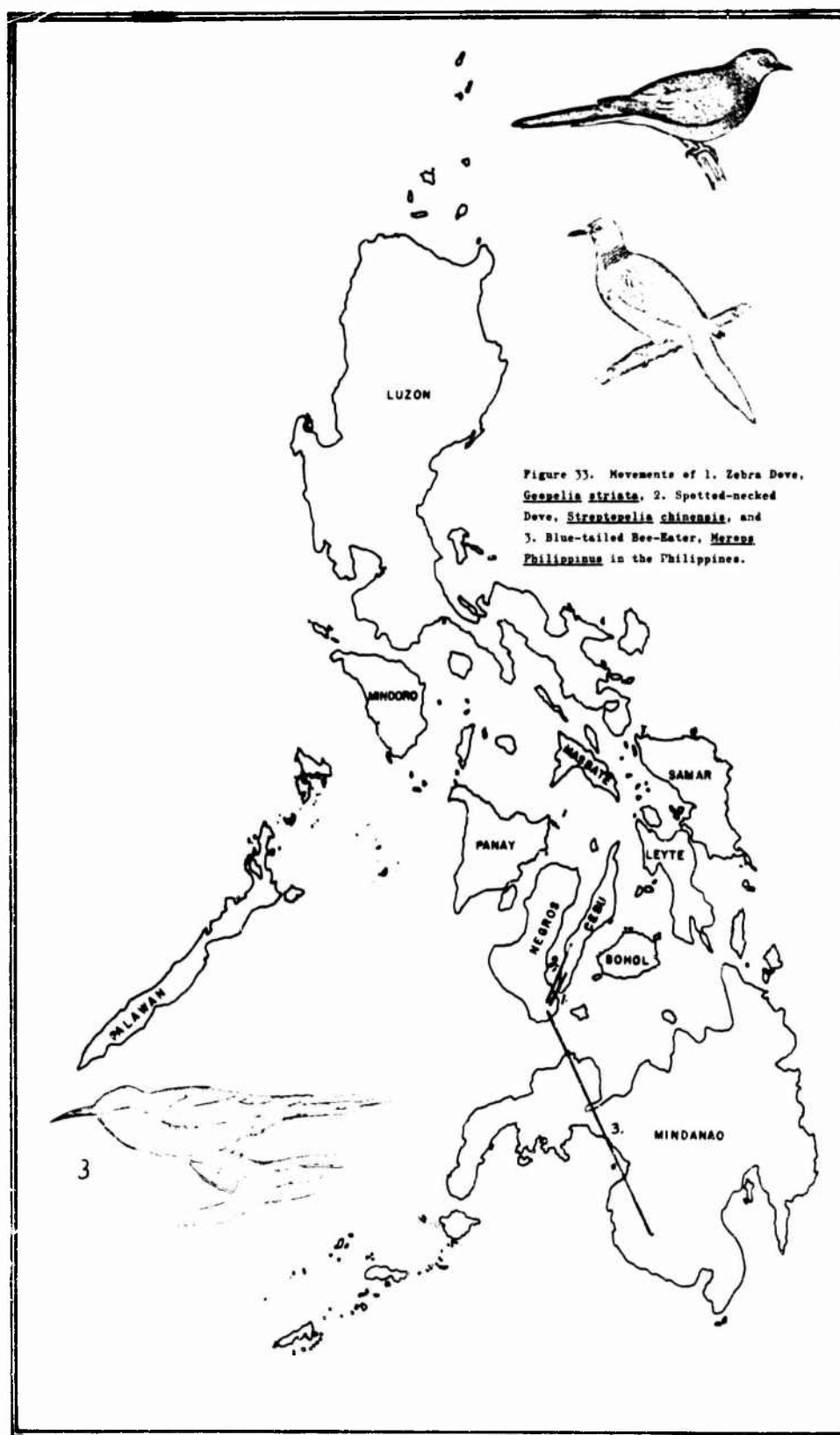
Three White-collared Kingfishers were reported locally in Luzon and Siquijor Island in the Philippines.

MEROPIIDAE: Two Blue-tailed Bee-eaters banded on successive days in Negros Oriental were captured in Cotabato province on successive days five months later. This species has been considered non-migratory, but others of this genus do migrate and so this one may also move around more than suspected. (Figure 33). Two Blue-throated Bee-eaters were recovered locally in Malaya.

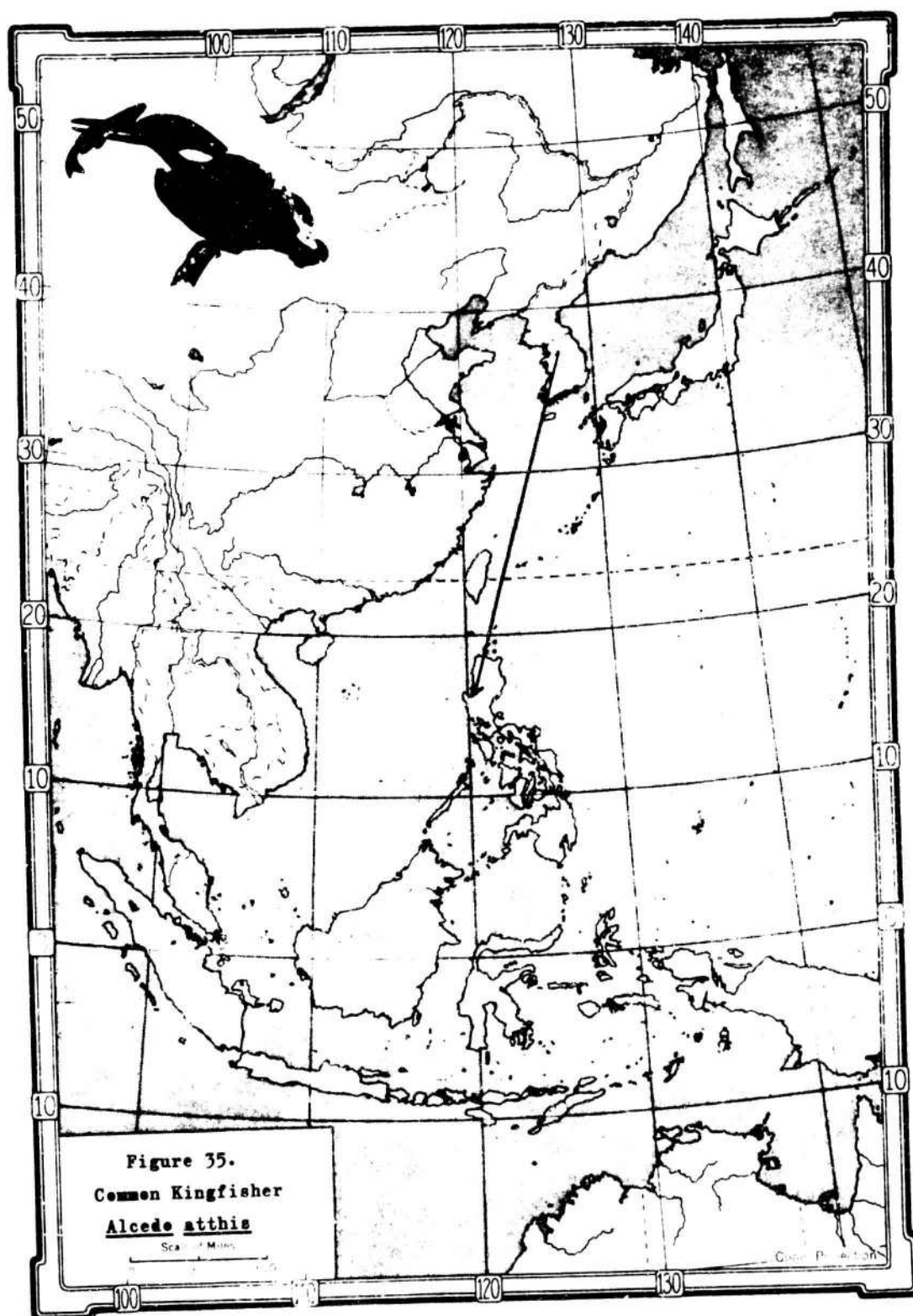
HIRUNDINIDAE: One hundred and one more recoveries of the House Swallow continue to demonstrate the magnitude of circulation that goes on within the populations of this species. Even allowing for the occasional misreading of the numbers on a ring, the total effect is a movement in all directions and throughout the vast continental area. There may be discreet population segments that move from one area to another but these have not yet been identifiable. Figure 36 illustrates these movements. The figures indicate the number ringed in a country which have gone to the area identified by the arrow. For example: birds from a single flock in Bangkok have been taken in

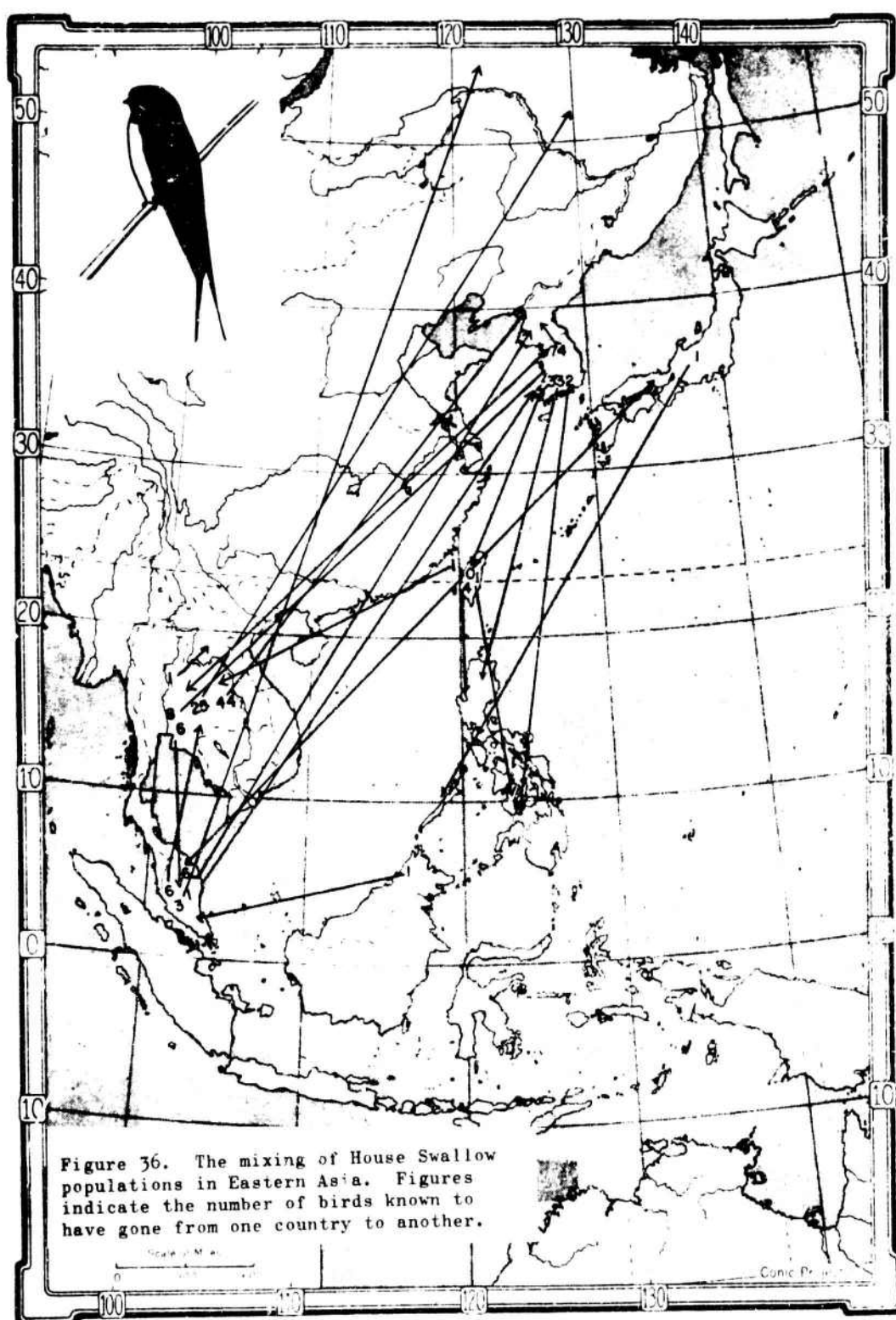


PACAF, TAB. JAPAN









Siberia, North Korea, South Korea, Malaya, and birds have been picked up from South Korea, Malaya, and Taiwan.

Two Pacific Swallows have been reported locally in Malaya.

DICRURIDAE: One Balicassio was recovered locally in Luzon.

TIMALIIDAE: The babblers are mainly tropical sedentary species with very limited individual ranges. Recoveries are bearing this out; locally in Malaya, 3 Mountain Nun Babblers, one seven years old and still in the same place; one Red-headed Laughing Thrush, four years in the same area; Silver-eared Mesia, two four and five years in the same area; Grey-throated Tree Babbler, one recovered in one month.

PARADOXORNITHIDAE: Three Webb's Parrotbills recovered locally in South Korea.

PYCNONOTIDAE: Two Pale White-throated Bulbuls recovered locally in Thailand. One Brown-eared Bulbul recovered locally in Japan. One Philippine Bulbul recovered in Luzon. Four Yellow-vented Bulbuls recovered locally in Malaya and Singapore.

SYLVIIDAE: One Yellow-breasted Flycatcher-warbler recovered locally in Malaya.

MOTACILLIDAE: Nine Pied Wagtails were recovered locally in Korea. Four banded in Japan moved north and north-east into northern Japan and Sakhalin. (Figure 37). Eleven Taiwan banded Yellow Wagtails were recovered, eight locally and three in eastern Siberia. These further establish the vast regions of eastern Siberia and into Alaska as the breeding territory of Taiwan wintering wagtails. (Figure 38).

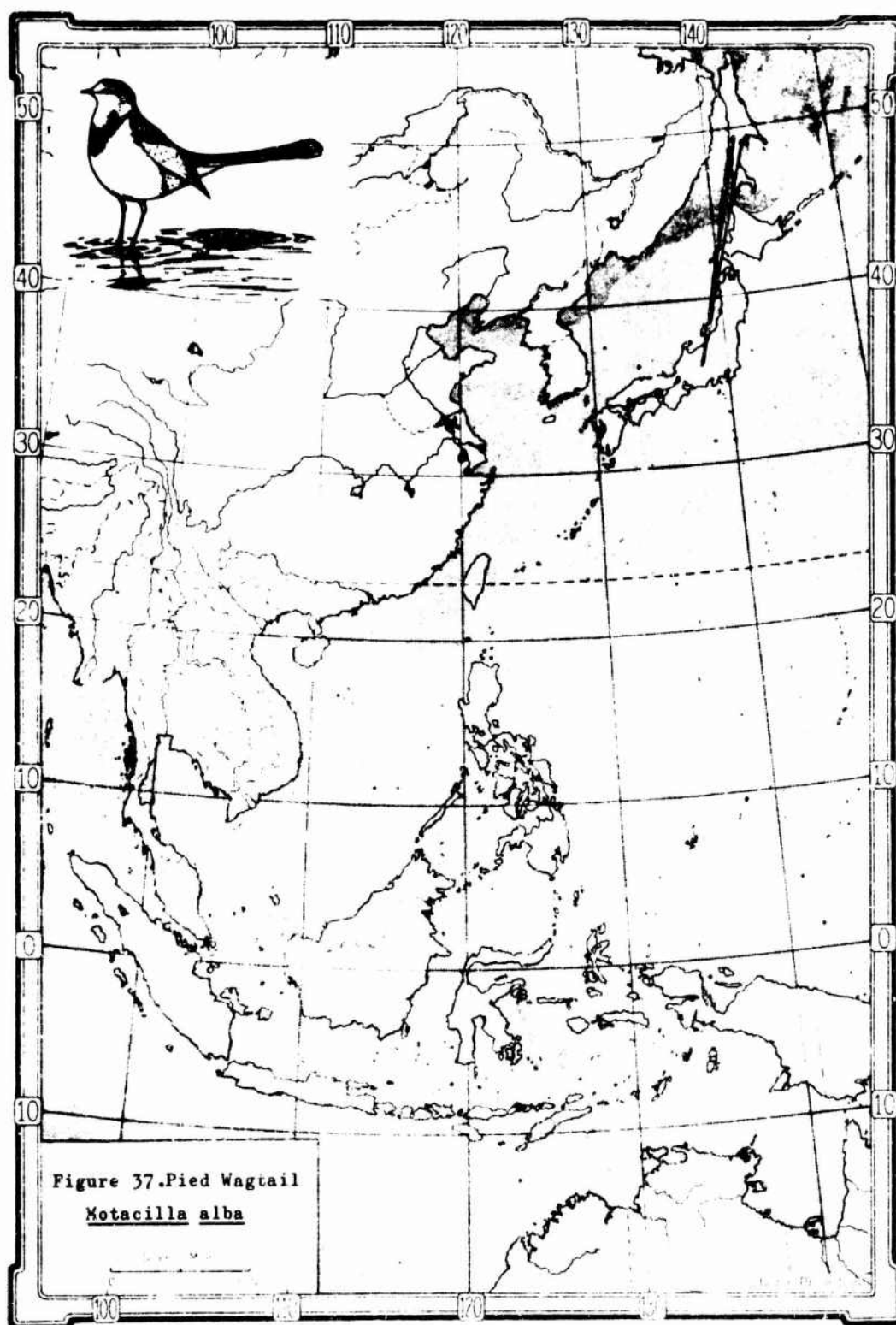
ARTAMIDAE: Two White-breasted Wood Swallows reported locally in Palawan.

LANIIDAE: In spite of the large number of Brown Shrike ringed (20,000) and the numbers caught for food, very few recoveries have been reported. Three were recovered this year in Luzon from Taiwan and one in Luzon from Korea. No information has come concerning the origins of the vast flights that cross to Taiwan from mainland China and then south. (Figure 39).

STURNIDAE: One Philippine Starling recovered locally in Palawan. Two Coletos recovered locally in Negros. One Grey Starling recovered locally in Korea. One Common Myna recovered locally in Thailand.

NECTARINIIDAE: Two Little Spiderhunters recovered locally in Malaya, one four years old.

ZOSTEROPIDAE: One Oriental White-eye recovered locally in Japan. Australian White-eyes have been shown to migrate long distances, but there have been no long-distance recoveries in the



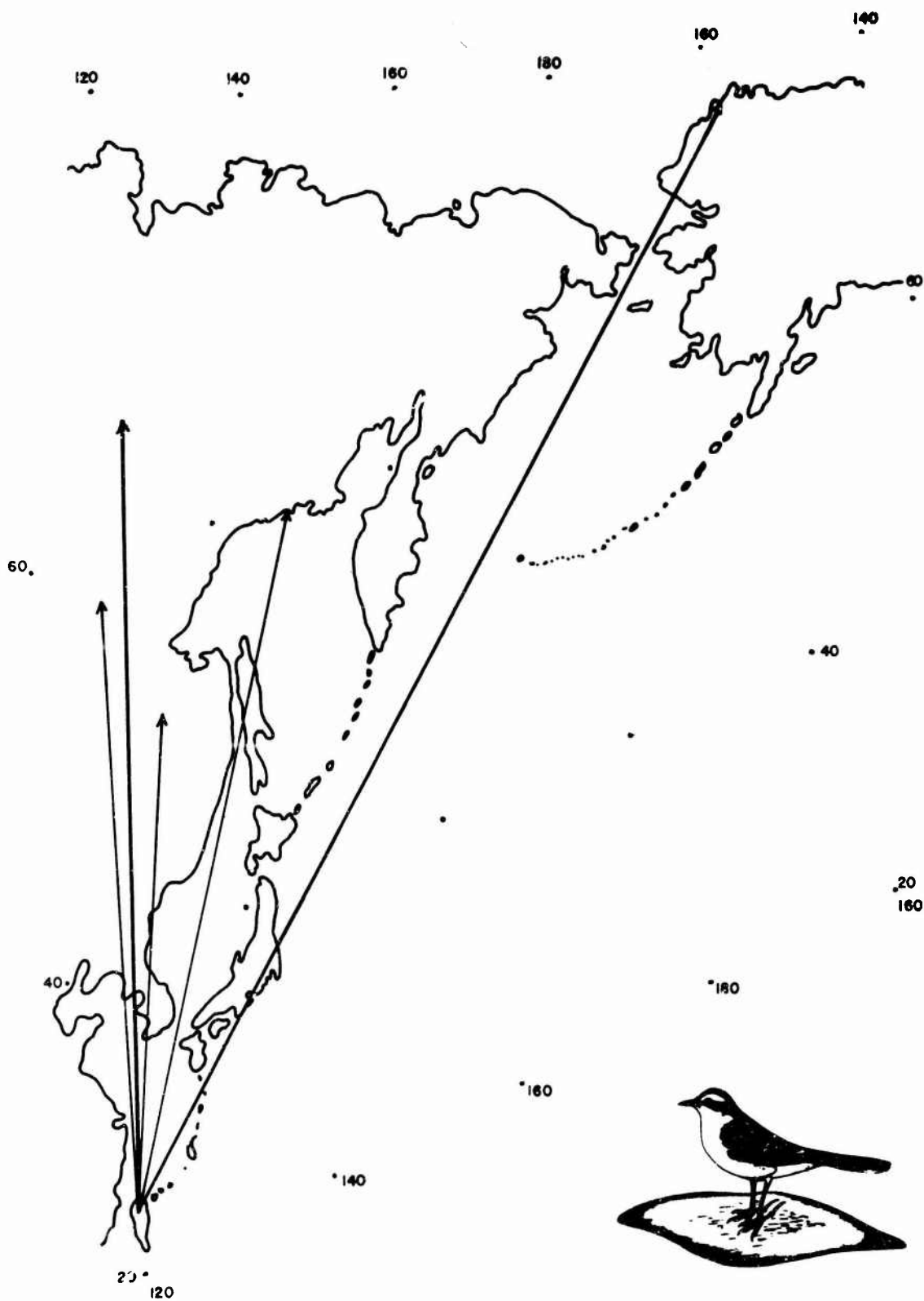
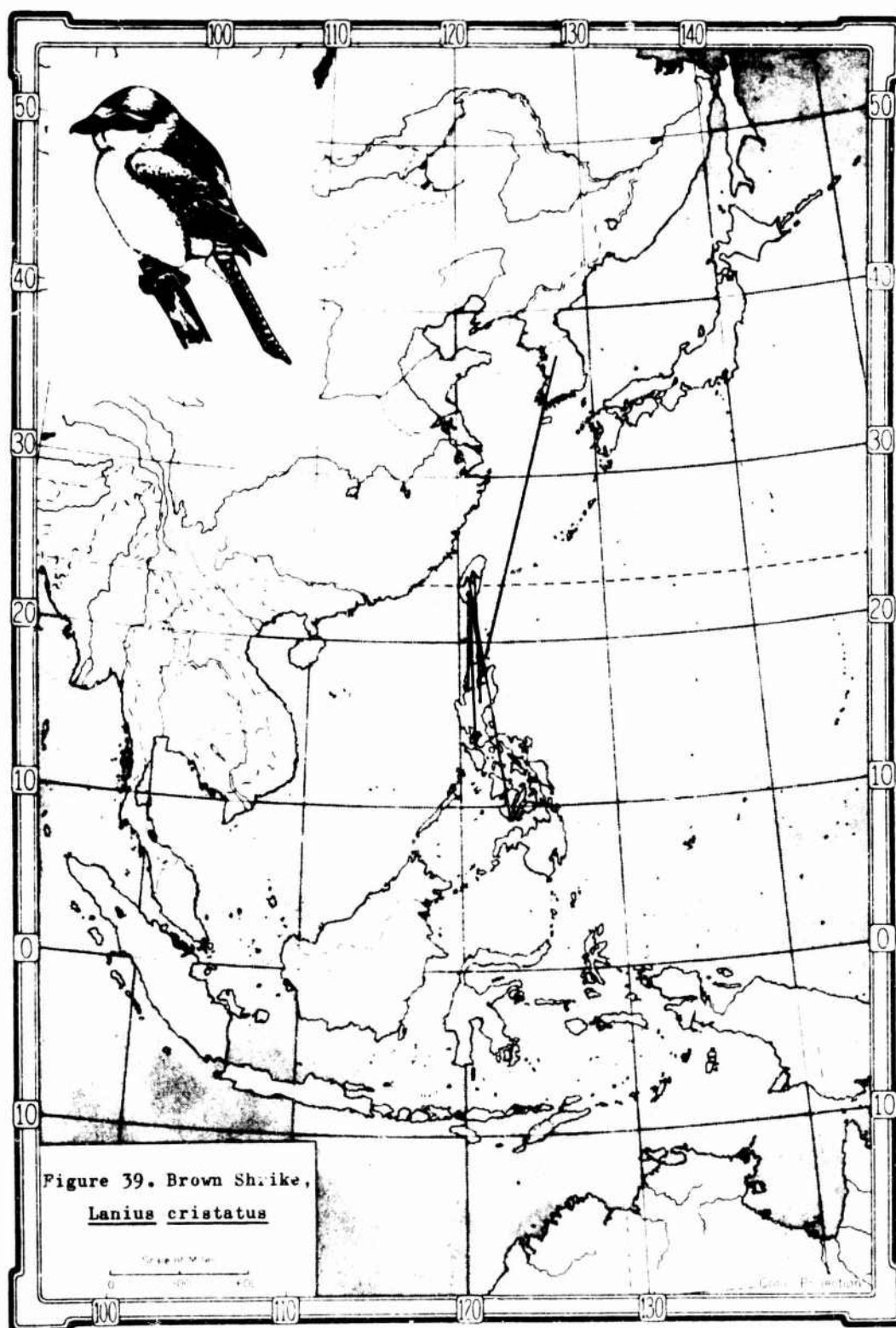


Figure 38. Yellow Wagtail, *Motacilla flava*.



Northern Hemisphere. Large numbers are caught each year for the cage bird traffic, but no reports have come from these sources.

FRINGILLIDAE: Nine Rustic Buntings have been reported locally in Korea.

PLOCEIDAE: Three Chestnut Munias have been reported locally from Luzon, Mindanao, and Sabah. One Sharp-tailed Munia and a Baya Weaver were reported locally in Thailand, and one Java Sparrow locally in Malaya. A Tree Sparrow moved 80 miles in Negros. This species has migrant populations in India, but in eastern Asia it is much more sedentary.

Survival records

Data are gradually accumulating concerning the survival of Asian birds. A summary of records from areas where repetitive banding has been going on will be prepared for publication. Lord Medway and his group are already analysing the survival data from Malayan birds, some now known to be eight years old.

Table 6 lists the greatest age in months of recaptured species, and Table 11 presents an analysis of survival for 27 species for which there are several records. This Table does not consider the total banded but only refers to those birds reported. It supports information from many other studies (Lack 1954, and others) that when a bird has survived a year its survival chances remain high.

TABLE 11
THE SURVIVAL OF 27 SPECIES OF BIRDS RECOVERED IN EASTERN ASIA

	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	Oid-et recov- ery
<i>Diomedea immutabilis</i>	7	7	7	7	5	5	4	3	3	3	2	2	2	2	2	2	1	1	1	1	73
<i>Puffinus carneipes</i>	10	8	7	7	7	7	7	7	5	5	5	3	3	3	2	1	1	1	1		
<i>Ardeola ibis</i>	97	81	33	12	7	3	2	1	1	1	1										
<i>Egretta garzetta</i>	60	35	20	14	8	8	3	3	4	3	1										
<i>Egretta intermedia</i>	30	29	18	14	8	8	1	1	1	1											
<i>Ixobrychus cinnamomeus</i>	10	8	4	4	3	1	1	1	1	1											
<i>Nycticorax nycticorax</i>	71	42	17	8	8	4	2	1	1	1											
<i>Anas crecca</i>	50	19	16	11	9	6	4	3	3	3	3	2	2	1	1	1	1	1	1		
<i>Anas platyrhynchos</i>	20	10	5	3	2	1	1	1	1	1											
<i>Butastur indicus</i>	68	41	12	11	9	3	3	3	3	1											
<i>Coturnix chinensis</i>	18	4	1	1	1	1	1	1	1												
<i>Porzana chinensis</i>	12	6	3	3	3	3	2	2	2												
<i>Rallus atriatius</i>	19	11	7	4	2	1	1	1	1	1											
<i>Actitis interpres</i>	45	31	26	16	15	11	11	9	9	8	5	5	5	3	2	2	2				
<i>Actitis megala</i>	10	3	1	1	1	1	1	1	1												
<i>Larus crassirostris</i>	25	14	3	2	1	4	4	3	2	1	1	1	1	1	1	1	1	1	1	1	73
<i>Geopelia striata</i>	10	10	9	4	4	4	4	4	3	2											
<i>Hirundo rustica</i>	192	142	83	65	40	23	15	5	3	2											
<i>Pycnonotus goiavier</i>	10	9	8	6	3	3	4	3	1	1	1	1	1	1	1	1	1	1	1	1	82
<i>Motacilla alba</i>	27	24	20	9	4	1	1	1	1												
<i>Motacilla flava</i>	13	11	10	9	9	2	1	1	1												
<i>Lanius cristatus</i>	10	7	5	3	3	1	1	1	1												
<i>Aplonis panayensis</i>	7	6	6	6	5	3	2	1	1												
<i>Emberiza rustica</i>	20	10	9	9	4	2	2														
<i>Emberiza rutila</i>	10	10	9	9	2	2	2														
<i>Passer montanus</i>	16	11	6	5	4	3	2	1													
Total	874	597	355	251	169	103	77	49	41	30	18	14	14	11	9	8	7	5	5	3	
Survival %		68	59	71	87	81	75	64	83	73	60	78	100	78	82	89	87	71	100	60	

MIGRATORY ANIMAL PATHOLOGICAL SURVEY

ANNUAL PROGRESS REPORT

1967

PART 4

ECTOPARASITE SURVEY

The MAPS files have now accumulated a list of thousands of ectoparasites collected from more than 10,600 birds of 690 species. The 1967 collections included specimens from 1,300 birds of 306 species. Numerous species of ectoparasites have been identified and many remain to be identified or described. Taxonomists receiving and reporting these have been listed in the 1966 Annual Report.

The total identified species and their hosts were listed in the 1966 Annual Report, and anyone wishing to see a copy of this list revised to date may contact the MAPS headquarters.

The numbers of hosts examined are shown in Table 15. During 1967, 55 species not reported before were examined and parasites collected. Of the total species, 460 or 67 per cent have had parasites collected from fewer than 10 individuals. Much more work needs to be done in the field in the capturing and examination of host species not well represented. Some hosts are definitely rare or hard to obtain, but others have simply been overlooked. Data concerning these ectoparasite studies have been prepared by Miss Puntipa Puangpong.

Among the unusual finds of the year was a new tick, Argas (Persicargas) robertsi Hoogstraal, Kaiser and Kohls 1968, which was discovered in chicken houses in Queensland. No sooner had the description been prepared than the same species was also discovered in the nests and on the juveniles of the Open-billed Stork at a colony (Wat Phai Lom) near Bangkok. Further search may reveal that this species is widespread in South-east Asia. The Nyamanini virus found in North and South Africa has also been isolated from these ticks at the Bangkok colony.

COMPARATIVE PARASITISM IN SELECTED AVIAN FAMILIES

Three large families of birds are well represented in the fauna of the habitats in which the various banding teams have worked, and the collections from them have been fairly representative. These are: the Turdidae or thrushes, the species of which are predominantly

migratory, which breed mainly in the temperate zone, and which migrate to warmer areas; the Pycnonotidae or bulbuls which are mainly tropical with some northern representatives and some migrant forms; the Timaliidae or babblers which are essentially tropical with no migrants. Data concerning the ectoparasites of these families are three dimensional relating to host species, host geographical positions, and ectoparasite geographical distribution. In the following discussions and tables only parasites identified to species are discussed. There are numerous other collections as yet identified only to genera.

Turdidae

Representatives of 54 species of thrushes have been banded and parasites identified from 22 of these. The geographical distribution of these hosts and their parasites is given in Table 12. In this table a question mark (?) beneath the host name indicates that collections of the identified parasites have not been made. This does not mean that the parasites do not occur there, for in many instances the series of collections have been inadequate and the parasites may have been missed. Further searching may show that some of the parasites do range further north than these records show.

The data shown strongly suggest that the tropically distributed trombiculid mites, several species of which are known vectors of rickettsial infections (scrub typhus), do not survive the trip north with their hosts. By the same token, they show that the thrushes are regular hosts to these mites and must be efficient in transporting them over wide areas.

The mallophaga (Myrsidea, Brueelia, Ricinus), are closely host specific and all life stages live on the host; therefore it is to be expected that they would be found throughout the range of the host. This was true of Myrsidea thoracica found from Thailand and the Philippines to Japan.

The louse fly, Ornithomya avicularia, has been collected from both Turdus obscurus and Zoothera sibiricus in Japan and Thailand. This is a remarkable range for a parasite that spends part of its life off of the host, and suggests that the larvae pupate during summer months in the north and that the adults may all leave the temperate zone with their migrating hosts. Other hosts of this species are also migrant (Otus scops, Hypsipetes amaurotis, Emberiza spodocephala, Emberiza rutilla, Emberiza tristrami) and it remains to be learned if adult O. avicularia overwinter in the north or if they are reintroduced each spring. It also remains to be determined if there are generations of the fly in the south and the north and if the production of larvae is related to the host movements.

Pycnonotidae

Forty-six species of bulbuls have been banded and identified ectoparasites collected from 19. These include species with divergent habits from the migratory Hypsipetes amaurotis to the very sedentary Pycnonotus blanfordi. Some species such as Pycnonotus goiavier are wide ranging to sub-migratory.

Leptotrombiculid mites were found infesting nine species. Bulbuls do not habitually feed on the ground as do the thrushes but they go to the ground and low vegetation often enough to pick up the larvae of the mites. Since many bulbuls move around extensively, they may be important as locally dispersing agents for these mites.

The mallophagan Myrsidea pycnonoti was widely distributed among the bulbuls, infesting nine species and occurring on them from Malaya to Hong Kong.

Hippoboscid flies of five species were present. Icosta sensilis was taken from Thailand to Hong Kong and Ornithomya avicularia again appeared on a migrant. Other parasite species were distributed mainly in the tropics. (Table 13).

Timaliidae

The babblers are a heterogenous group of tropical and sub-tropical species, of which 94 have been banded. Recoveries and recaptures suggest that the bulk of these species have very limited daily to seasonal ranges. Most are forest species and fill all niches from the ground into the canopy. Ectoparasites have been collected from 74 species but the bulk of these parasites have been identifiable only to genus. Recognized species of ectoparasites have been taken from 19 host species. These were distributed geographically as shown in Table 14.

Previous studies in Malaya (unpublished) demonstrated that the ground and low shrubbery representatives of this family were important hosts to the Leptotrombidium mites. Fourteen species of babblers in one forest were infested with L. deliense.

In Table 14 the hosts are listed in those countries where they have been captured. Many occur in other countries but have not been caught. Question mark beneath the host indicates that no parasites of the species listed have been taken and so it is not known if it occurs on this host in this area.

GEOGRAPHICAL DISTRIBUTION OF ECTOPARASITES AS RELATED TO THE GEOGRAPHICAL DISTRIBUTION OF THEIR THRUSS HOSTS

(?) - indicates no ectoparasite collections have been made or the parasites have not been found
(Ch) = Chigger; (Fm) = Feather mites; (H) = Hippoboscidae; (Ma) = Mallophaga, (T) = Ticks

Korea Latitude: 36-39°N	Japan 45-30°N	Taiwan 25-22°N	Hong Kong 22°N	Philippines 18-5°N	Thailand 20-6°N	Malaya 6-1°N
ERITHACUS CALLIOPE ?	ERITHACUS CALLIOPE ?	ERITHACUS CALLIOPE ?	COPSYCHUS SAULARIS Ornithophila metallica (H)	BRACHYPTERYX MONTANA Icosa sensilis (H) COPSYCHUS SAULARIS ?	BRACHYPTERYX LEUCOPHRYS Neoschoengastia solitus (Ch) BRACHYPTERYX MONTANA ? COPSYCHUS MALABARICUS Leptotrombidium dellense (Ch) Slaeca rara (Ch) COPSYCHUS SAULARIS Ornithophila metallica (H)	BRACHYPTERYX LEUCOPHRYS ? COPSYCHUS MALABARICUS Leptotrombidium dellense (Ch) ? COPSYCHUS SAULARIS Ornithophila metallica (H) Haemaphysalis wellingtoni (T) Proctophyllodes cotyledon (FM)
ERITHACUS CYANE ?	ERITHACUS CYANE ?	MONTICOLA SOLITARIS ?	ERITHACUS CALLIOPE ?	MONTICOLA SOLITARIS ?	ERITHACUS CALLIOPE dellense (Ch) Leptotrombidium elliabergi (Ch) Leptotrombidium scutellare (Ch) Neoschoengastia longiceps (Ch) ERITHACUS CYANE Neoschoengastia longiceps (Ch) Neoschoengastia solitus (Ch) Odontacarus audyi (Ch) Ornithomyia fuscipennis (H) Ornithoica biastiva (H) HODGSONIUS PHOENICUROIDES Leptotrombidium scutellare (Ch) Ornithoica biastiva (H) MONTICOLA SOLITARIS Leptotrombidium scutellare (Ch) MYOMEIA LEUCTRA Leptotrombidium scutellare (Ch) Ornithophila metallica (H)	ERITHACUS CYANE Leptotrombidium dellense (Ch) Leptotrombidium lanceolata (Ch) Proctophyllodes rubiculus (FM)

Korea Latitude: 38-35°N	Japan 45-30°N	Taiwan 25-22°N	Hong Kong 22°N	Philippines 18-5°N	Thailand 20-6°N	Malaya 6-1°N
			MYOPHONUS COERULEUS ?		MYOPHONUS COERULEUS Ornithoica bistativa (H) Ornithomya avicularia (H) SAXICOLA FERREA Leptotrombidium scutellare (Ch) TARSIGER CHRYSAEUS Leptotrombidium scutellare (Ch) TARSIGER CYANURUS Leptotrombidium scutellare (Ch)	
	TURDUS CARDIS ?	TARSIGER CYANURUS ?	SAXICOLA FERREA ?			
	TURDUS CHRYSOLOUS Myrsidea thoracica (Ma) TURDUS HORTULORUM		TARSIGER CYANURUS ?	TURDUS CHRYSOLOUS Myrsidea thoracica (Ma)		
			TURDUS CARDIS Haemaphysalis wellingtoni (T)			
			TURDUS HORTULORUM Haemaphysalis wellingtoni (T) Ornithophila metallica (H) Ornithoica tridens (H) TURDUS NAUMANNI Ricinus elongatus (Ma)			
TURDUS NAUMANNI ?	TURDUS NAUMANNI Loxia turdus (T) TURDUS OBSCURUS Myrsidea thoracica (Ma) Ornithomya avicularia (H)	TURDUS OBSCURUS ?		TURDUS OBSCURUS Myrsidea thoracica (Ma)	TURDUS OBSCURUS Leptotrombidium scutellare (Ch) Myrsidea thoracica (Ma) Ornithomya avicularia (H)	TURDUS OBSCURUS Leptotrombidium scutellare (Ch) Myrsidea thoracica (Ma) Leptotrombidium dellensis (Ch) Leptotrombidium akamushi (Ch) Leptotrombidium krekenachrii (Ch) Bicentrifolus leptophyllus (FM) Proctophyllodes wagidi (FM)
TURDUS PALLIDUS ?	TURDUS PALLIDUS Myrsidea thoracica (Ma)	TURDUS PALLIDUS ?	TURDUS PALLIDUS ?			
ZOOTHERA DAUMA ?	ZOOTHERA DAUMA Brueelia daumae (Ma) Myrsidea (shizawa) (Ma) ZOOTHERA SIBIRICUS Myrsidea thoracica (Ma) Ornithomya avicularia (H)			ZOOTHERA DAUMA ?	ZOOTHERA CITRINA Neoschoengastia solitus (Ch) Loxia fenestella (H) ZOOTHERA DAUMA ?	ZOOTHERA CITRINA Leptotrombidium dellensis (Ch) Toritrombidium vorca (Ch) ZOOTHERA SIBIRICUS Proctophyllodes rebeculus (FM) Leptotrombidium dellensis (Ch)

TABLE 13

GEOGRAPHIC DISTRIBUTION OF ECTOPARASITES AS RELATED TO THE GEOGRAPHICAL DISTRIBUTION OF THEIR BULBUL HOSTS

(?) - indicates no collections of parasites made or this species not occurring

(Ch) - Chigger; (FM) - Feather mites; (H) - Hippoboscidae; (M) - Mites; (Ma) - Mallophaga; (T) - Ticks

Area Latitude: 38-35°N	Japan 45-30°N	Taiwan 25-22°N	Hong Kong 22°N	Philippines 18-5°N	Thailand 20-8°N	Malaya 8-1°N
HYPISIPETES AMAUIROTIS ?	HYPISIPETES AMAUIROTIS Ornithomya auricularia (H)	HYPISIPETES AMAUIROTIS ?	PYCNONOTUS SINENSIS Myrsidea pynonoti (Ma) Icosia senilis (H) PYCNONOTUS AURIGASTER ?	HYPISIPETES SICULORENSIS Myrsidea pynonoti (Ma)	PYCNONOTUS AURIGASTER Leptotrombidium scutellare (Ch) PYCNONOTUS COLAVIER Myrsidea pynonoti (Ma) Ornithophila metallica (H) Icosia senilis (H) CRINIGER OCHRACEUS Leptotrombidium deliensae (Ch) CRINIGER PALLIDUS Leptotrombidium scutellare (Ch)	PYCNONOTUS COLAVIER Myrsidea pynonoti (Ma) Ornithophila metallica (H) CRINIGER OCHRACEUS ?
		PYCNONOTUS SINENSIS ?				CRINIGER FINSCHII Bicentrages miscellus (FM) HYPISIPETES CRINIGER Myrsidea pynonoti (Ma) HYPISIPETES FLAVALA Leptotrombidium scutellare (Ch) Ornithophila metallica (H) HYPISIPETES MCCLELLANDII Leptotrombidium scutellare (Ch) PYCNONOTUS FLAVESCENS Leptotrombidium scutellare (Ch) Myrsidea pynonoti (Ma)

Korea Latitude: 38-35°N	Japan 45-30°N	Taiwan 25-22°N	Hong Kong 22°N	Philippines 18-5°N	Thailand 20-5°N	Malaya 6-1°N
					PYCNONOTUS FINLAYSONI Myrsidea pyncnonoti (Ma) PYCNONOTUS JOCOSUS Myrsidea pyncnonoti (Ma) Ornithophila metallica (H) Leptotrombidium scutellare (Ch) PYCNONOTUS MELANICTERUS Icosta sensilla (H)	PYCNONOTUS FINLAYSONI 7 PYCNONOTUS JOCOSUS Myrsidea pyncnonoti (Ma) Ornithophila metallica (H)
			PYCNONOTUS JOCOSUS Myrsidea pyncnonoti (Ma)		PYCNONOTUS XANTHORRHYSIS Leptotrombidium scutellare (Ch) PYCNONOTUS ZEYLANICUS Myrsidea pyncnonoti (Ma) SPIZIXOS CANIFRONS Leptotrombidium scutellare (Ch)	PYCNONOTUS ZEYLANICUS Myrsidea pyncnonoti (Ma)
	SPIZIXOS CANIFRONS ?					

DISTRIBUTION OF ECTOPARASITES AMONG THE BABBLERS

(?) = None collected; (Ch) = Chigger; (FM) = Feather mites; (H) = Hippoboscidae; (M) = Mites; (Ma) = Mallophaga

Taiwan Latitude: 25-22°N	Thailand 20-6°N	Malaya 6-1°N	Taiwan 25-22°N	Malaya 6-1°N	Thailand 20-6°N	Malaya 6-1°N
ALCIPPE MORRISONIA ?	ACTINODURA RAMSAYI Ornithophila metallica (H) ALCIPPE CASTANICEPS Leptotrombidium dellense (Ch) ?	ALCIPPE CASTANICEPS Leptotrombidium dellense (Ch) Leptotrombidium bodenais (Ch)	POMATORHINUS SCHISTICEPS ?	ALCIPPE CASTANICEPS Leptotrombidium dellense (Ch) Leptotrombidium bodenais (Ch)	PELLORNEUM CAPSTRATUM POMATORHINUS SCHISTICEPS Ornithoica bistativa (H) STACHYRIS POLIOCEPHALA Ornithonyssus bursa (M) STACHYRIS LEUCOTE ?	PELLORNEUM CAPSTRATUM Leptotrombidium dellense (Ch) STACHYRIS POLIOCEPHALA Leptotrombidium dellense (Ch) STACHYRIS LEUCOTIS Echinonyssus nasutus (M) Leptotrombidium dellense (Ch) Leptotrombidium bodenais (Ch)
ALCIPPE NIPALENSIS ?	ALCIPPE NIPALENSIS Ornithonyssus bursa (M) ALCIPPE POICEPHALA ?	ALCIPPE NIPALENSIS Ornithonyssus bursa (M) ALCIPPE POICEPHALA ?	STACHYRIS RUFIPEPS Bicentrages caudatus (FM)	GARRULAX ERYTHROCEPHALUS ? ?	STACHYRIS NIGRICEPS Bicentrages caudatus (FM) Leptotrombidium dellense (Ch)	STACHYRIS MACULATA Bicentrages caudatus (FM) Leptotrombidium dellense (Ch) TRICHASTOMA ABBOTTI Leptotrombidium dellense (Ch) TRICHASTOMA MALACCENSE Leptotrombidium dellense (Ch)
	MACRONUS GULARIS NAPOTHERA BREVICAUDATA ?	MACRONUS GULARIS Ornithonyssus sylviarum NAPOTHERA BREVICAUDATA ?				
	MACRONUS GULARIS NAPOTHERA BREVICAUDATA Ornithophila metallica (H) Ornithoica bistativa (H)	MACRONUS GULARIS Ornithonyssus sylviarum NAPOTHERA BREVICAUDATA ?				

TABLE 15

LIST OF AVIAN HOSTS FROM WHICH ECTOPARASITES HAVE BEEN
COLLECTED DURING THE PERIOD JULY 1963 THROUGH DECEMBER 1967

Species	Collections in 1967	Total collection 1963-1967
PROCELLARIIDAE	0	10
<u>Puffinus leucomelas</u>	-	10
PHALACROCORACIDAE	0	4
<u>Phalacrocorax carbo</u>	-	4
ARDEIDAE	17	112
<u>Ardeola ibis</u>	-	50
<u>Butorides striatus</u>	2	4
<u>Dupetor flavicollis</u>	-	1
<u>Egretta garzetta</u>	4	21
<u>Gorsachius melanolophus</u>	1	1
<u>Ixobrychus cinnamomeus</u>	1	11
<u>Ixobrychus sinensis</u>	1	4
<u>Nycticorax nycticorax</u>	8	20
CICONIIDAE	22	29
<u>Anastomus oscitans</u>	22	29
ANATIDAE	0	6
<u>Anas sp.</u>	-	1
<u>Anas crecca</u>	-	1
<u>Dendrocygna javanica</u>	-	3
<u>Nettapus coromandelianus</u>	-	1
ACCIPITRIDAE	3	37
<u>Accipiter badius</u>	-	2
<u>Accipiter gentilis</u>	1	1
<u>Accipiter nisus</u>	-	1
<u>Accipiter soloensis</u>	-	1
<u>Accipiter trivirgatus</u>	-	2
<u>Accipiter virgatus</u>	-	6
<u>Aquila nipalensis</u>	-	2
<u>Aviceda jerdoni</u>	-	1
<u>Butastur indicus</u>	1	11
<u>Butastur teesa</u>	-	1
<u>Buteo buteo</u>	-	1
<u>Circus melanoleucos</u>	1	1
<u>Haliastur indus</u>	-	4
<u>Ictinaetus malayensis</u>	-	1
<u>Milvus migrans</u>	-	1
<u>Spilornis cheela</u>	-	1
PANDIONIDAE	0	1
<u>Pandion haliaetus</u>	-	1
FALCONIDAE	0	7
<u>Falco tinnunculus</u>	-	1
<u>Microhierex caerulescens</u>	-	1
<u>Microhierex erythrogenys</u>	-	5

Species	Collections in 1967	Total collection 1963-1967
PHASIANIDAE	40	77
<u>Arborophila cambodiana</u>	-	3
<u>Arborophila charltoni</u>	-	1
<u>Arborophila rufogularis</u>	-	4
<u>Bambusicola fytchii</u>	-	1
<u>Coturnix chinensis</u>	38	58
<u>Coturnix coturnis</u>	-	1
<u>Gallus gallus</u>	-	1
<u>Lophura leucomelana</u>	-	6
<u>Polyplectron emphanum</u>	2	2
TURNICIDAE	3	26
<u>Turnix suscitator</u>	3	15
<u>Turnix sylvatica</u>	-	5
<u>Turnix tanki</u>	-	6
RALLIDAE	30	94
<u>Amaurornis olivaceus</u>	-	1
<u>Amaurornis phoenicurus</u>	2	10
<u>Gallicrex cinerea</u>	1	6
<u>Gallinula chloropus</u>	5	9
<u>Porzana cinerea</u>	2	5
<u>Porzana fusca</u>	1	16
<u>Porzana pusilla</u>	2	8
<u>Porzana tabuensis</u>	3	7
<u>Rallina eurizonoides</u>	11	19
<u>Ballus mirificus</u>	1	2
<u>Ballus philippensis</u>	1	1
<u>Ballus striatus</u>	-	8
<u>Ballus torquatus</u>	1	2
HELIORNITHIIDAE	0	3
<u>Heliopais personata</u>	-	3
JACANIDAE	1	1
<u>Hydrophasianus chirurgus</u>	1	1
ROSTRATULIDAE	5	24
<u>Rostratula benghalensis</u>	5	24
CHARADRIIDAE	19	185
<u>Charadrius alexandrinus</u>	-	9
<u>Charadrius dominicus</u>	1	9
<u>Charadrius dubius</u>	11	80
<u>Charadrius leschenaulti</u>	2	44
<u>Charadrius mongolus</u>	2	25
<u>Charadrius peroni</u>	2	15
<u>Charadrius squatarolus</u>	1	1
<u>Vanellus indicus</u>	-	2
SCOLOPACIDAE	14	198
<u>Actitis hypoleucos</u>	1	51
<u>Arenaria interpres</u>	1	3

Species	Collections in 1967	Total collection 1963-1967
<u>Calidris alpina</u>	-	12
<u>Calidris canutus</u>	-	1
<u>Calidris ferruginea</u>	-	5
<u>Calidris ruficollis</u>	3	24
<u>Calidris subminuta</u>	1	23
<u>Calidris temminckii</u>	-	7
<u>Calidris tenuirostris</u>	-	1
<u>Capella gullinago</u>	1	1
<u>Capella hardwickii</u>	1	1
<u>Capella megala</u>	2	6
<u>Capella solitaria</u>	-	1
<u>Capella stenura</u>	-	2
<u>Heteroscelus incanus</u>	-	17
<u>Limicola falcinellus</u>	-	2
<u>Numenius minutus</u>	-	1
<u>Scolopax rusticola</u>	-	1
<u>Tringa glareola</u>	4	11
<u>Tringa nebularis</u>	-	8
<u>Tringa ochropus</u>	-	2
<u>Tringa stagnatilis</u>	-	7
<u>Tringa totanus</u>	-	9
<u>Xenus cinereus</u>	-	2
RECURVIROSTRIDAE	0	1
<u>Himantopus himantopus</u>	-	1
GLAREOLIDAE	2	11
<u>Glareola pratincola</u>	2	11
LARIDAE	6	33
<u>Anous stolidus</u>	-	1
<u>Chlidonias hybridus</u>	-	2
<u>Chlidonias leucopterus</u>	-	6
<u>Gelochelidon nilotica</u>	-	2
<u>Hydroprogne caspia</u>	-	1
<u>Larus brunneicephalus</u>	2	2
<u>Larus ridibundus</u>	3	3
<u>Sterna anetheta</u>	-	2
<u>Sterna aurantia</u>	-	1
<u>Sterna bergii</u>	-	3
<u>Sterna dougalli</u>	1	4
<u>Sterna hirundo</u>	-	3
<u>Sterna sumatrana</u>	-	3
COLUMBIDAE	16	68
<u>Chalcophaps indica</u>	6	18
<u>Columba livia</u>	-	1
<u>Columba pulchricollis</u>	-	1
<u>Ducula carola</u>	1	2
<u>Geopelia striata</u>	1	4

Species	Collections in 1967	Total collection 1963-1967
<u>Macropygia phasianella</u>	2	3
<u>Phapitreron leucotis</u>	1	15
<u>Ptilinopus leclancheri</u>	-	1
<u>Ptilinopus occipitalis</u>	1	3
<u>Streptopelia bitorquata</u>	2	6
<u>Streptopelia chinensis</u>	1	7
<u>Streptopelia orientalis</u>	-	4
<u>Streptopelia tranquebarica</u>	1	1
<u>Treron sphenura</u>	-	2
PSITTACIDAE	1	8
<u>Bolbopsittacus lunulatus</u>	-	5
<u>Cacatua haematuropygia</u>	-	1
<u>Loriculus vernalis</u>	1	1
<u>Tanygnathus lucionensis</u>	-	1
CUCULIDAE	23	80
<u>Cacomantis merulinus</u>	5	14
<u>Cacomantis sonnerati</u>	1	3
<u>Cacomantis variolosus</u>	2	8
<u>Carpococcyx renaudi</u>	-	1
<u>Centropus sinensis</u>	-	4
<u>Centropus teulou</u>	4	22
<u>Centropus viridis</u>	2	6
<u>Chrysococcyx malayanus</u>	-	2
<u>Cuculus canorus</u>	1	2
<u>Cuculus saturatus</u>	5	6
<u>Cuculus sparveroides</u>	1	5
<u>Cuculus vagans</u>	-	1
<u>Eudynamys scolopacea</u>	2	2
<u>Phaenicophaeus superciliosus</u>	-	1
<u>Phaenicophaeus tristis</u>	-	1
<u>Surniculus lugubris</u>	-	2
TYTONIDAE	2	5
<u>Phodilus badius</u>	1	4
<u>Tyto capensis</u>	1	1
STRIGIDAE	20	119
<u>Asio otus</u>	-	2
<u>Glaucidium brodiei</u>	1	8
<u>Glaucidium cuculoides</u>	2	7
<u>Ketupa ketupu</u>	-	1
<u>Ninox philippensis</u>	-	2
<u>Ninox scutulata</u>	2	6
<u>Otus bakkamoena</u>	9	38
<u>Otus scops</u>	5	13
<u>Otus spilocephalus</u>	1	41
<u>Strix leptogrammica</u>	-	1

Species	Collections in 1967	Total collection 1963-1967
PODARGIDAE	0	2
<u>Batrachostomus hodgsoni</u>	-	1
<u>Batrachostomus javensis</u>	-	1
CAPRIMULGIDAE	3	17
<u>Caprimulgus affinis</u>	-	6
<u>Caprimulgus indicus</u>	1	1
<u>Caprimulgus macrurus</u>	1	8
<u>Eurostopodus macrotis</u>	1	2
APODIDAE	32	206
<u>Apus acuticaudus</u>	-	1
<u>Apus affinis</u>	4	49
<u>Apus pacificus</u>	-	35
<u>Chaetura cochinchinensis</u>	-	1
<u>Chaetura gigantia</u>	5	24
<u>Collocalia brevirostris</u>	-	14
<u>Collocalia esculenta</u>	-	30
<u>Collocalia inexpectata</u>	1	1
<u>Collocalia troglodytes</u>	8	21
<u>Collocalia vestita</u>	2	2
<u>Collocalia whiteheadi</u>	12	27
<u>Cypsiurus parvus</u>	-	1
TROGONIDAE	0	9
<u>Harpactes ardens</u>	-	4
<u>Harpactes diardii</u>	-	1
<u>Harpactes duvauceli</u>	-	1
<u>Harpactes erythrocephalus</u>	-	3
ALCEDINIDAE	22	106
<u>Alcedo atthis</u>	2	21
<u>Alcedo euryzona</u>	-	1
<u>Alcedo meninting</u>	2	2
<u>Ceyx cyanopectus</u>	-	1
<u>Ceyx erithacus</u>	1	6
<u>Ceyx rufidorsus</u>	-	4
<u>Halcyon chloris</u>	1	16
<u>Halcyon concreta</u>	-	8
<u>Halcyon coromanda</u>	6	11
<u>Halcyon hombroni</u>	-	1
<u>Halcyon lindsayi</u>	-	2
<u>Halcyon pileata</u>	2	14
<u>Halcyon smyrnensis</u>	8	20
<u>Lacedo pulchella</u>	-	4
<u>Pelargopsis capensis</u>	-	1
MEROPIDAE	40	69
<u>Merops leschenaulti</u>	5	10
<u>Merops orientalis</u>	5	11
<u>Merops philippinus</u>	-	4

Species	Collections in 1967	Total collection 1963-1967
<u>Merops superciliosus</u>	-	3
<u>Merops viridis</u>	30	39
<u>Nyctiornis amictus</u>	-	1
<u>Nyctiornis athertoni</u>	-	1
CORACIIDAE	3	8
<u>Coracias benghalensis</u>	1	1
<u>Eurystomus orientalis</u>	2	7
BUCEROTIDAE	5	9
<u>Anthracoceros albirostris</u>	2	4
<u>Buceros bicornis</u>	1	2
<u>Penelopides panini</u>	-	1
<u>Ptilolaemus tickelli</u>	1	1
<u>Rhyticeros undulatus</u>	1	1
CAPITONIDAE	12	41
<u>Calorhamphus fuliginosus</u>	-	3
<u>Megalaima asiatica</u>	-	14
<u>Megalaima australis</u>	1	2
<u>Megalaima faiostricta</u>	2	2
<u>Megalaima franklini</u>	4	11
<u>Megalaima mystacophanes</u>	1	3
<u>Megalaima oorti</u>	1	1
<u>Megalaima virens</u>	2	4
<u>Megalaima zeylanica</u>	1	1
INDICATORIDAE	0	3
<u>Indicator archipelagicus</u>	-	3
PICIDAE	23	111
<u>Blythipicus pyrrhotis</u>	-	8
<u>Blythipicus rubiginosus</u>	1	5
<u>Chrysocolaptes lucidus</u>	-	4
<u>Dendrocopos atratus</u>	-	4
<u>Dendrocopos kizuki</u>	-	1
<u>Dendrocopos macei</u>	1	2
<u>Dendrocopos maculatus</u>	-	1
<u>Dendrocopos major</u>	-	1
<u>Dinopium javanese</u>	-	3
<u>Dryocopus javensis</u>	1	1
<u>Gecinulus grantia</u>	-	2
<u>Jynx torquilla</u>	-	3
<u>Meiglyptes tukki</u>	2	8
<u>Microptenus brachyurus</u>	1	3
<u>Picumnus innominatus</u>	-	2
<u>Picus canus</u>	7	18
<u>Picus chlorolophus</u>	-	2
<u>Picus erythropygius</u>	-	1
<u>Picus flavinucha</u>	-	1
<u>Picus mentalis</u>	-	1

Species	Collections in 1967	Total collection 1963-1967
<u>Picus miniaceus</u>	-	1
<u>Picus vittatus</u>	8	22
<u>Sasia abnormis</u>	1	9
<u>Sasia ochracea</u>	1	8
EURLAIMIDAE	6	64
<u>Calyptomena viridis</u>	-	22
<u>Cymbirhynchus macrorhynchus</u>	4	9
<u>Eurylaimus javanicus</u>	1	7
<u>Eurylaimus ochromalus</u>	-	1
<u>Eurylaimus steerii</u>	-	2
<u>Psarisomus dalhousiae</u>	-	4
<u>Serilophus lunatus</u>	1	19
PITTIDAE	20	70
<u>Pitta brachyura</u>	-	8
<u>Pitta caerulea</u>	-	1
<u>Pitta cyanea</u>	-	6
<u>Pitta erythrogaster</u>	6	23
<u>Pitta granatina</u>	1	4
<u>Pitta moluccensis</u>	3	3
<u>Pitta oatesi</u>	-	4
<u>Pitta phayrei</u>	-	1
<u>Pitta sordida</u>	8	15
<u>Pitta soror</u>	-	3
ALAUDIDAE	8	44
<u>Alauda arvensis</u>	-	19
<u>Alauda gulgula</u>	-	2
<u>Galerida cristata</u>	-	1
<u>Mirafra assamica</u>	-	1
<u>Mirafra javanica</u>	8	21
HIRUNDINIDAE	43	802
<u>Delichon dasypus</u>	-	3
<u>Delichon urbica</u>	-	23
<u>Hirundo daurica</u>	8	13
<u>Hirundo rustica</u>	24	671
<u>Hirundo striolata</u>	-	8
<u>Hirundo tahitica</u>	10	72
<u>Riparia paludicola</u>	1	11
<u>Riparia riparia</u>	-	1
CAMPEPHAGIDAE	4	46
<u>Coracina striata</u>	-	1
<u>Hemipus picatus</u>	-	8
<u>Lalage nigra</u>	1	10
<u>Pericrocotus brevirostris</u>	-	1
<u>Pericrocotus ethologus</u>	-	9
<u>Pericrocotus flammeus</u>	-	3

Species	Collections in 1967	Total collection 1963-1967
<u>Pericrocotus roseus</u>	1	3
<u>Pericrocotus solaris</u>	-	2
<u>Tephrodornis virgatus</u>	2	9
DICRURIDAE	16	138
<u>Dicrurus adsimilis</u>	1	5
<u>Dicrurus aeneus</u>	2	6
<u>Dicrurus annectans</u>	-	2
<u>Dicrurus balicassius</u>	-	28
<u>Dicrurus hottentotus</u>	2	31
<u>Dicrurus leucophaeus</u>	2	23
<u>Dicrurus paradiseus</u>	6	25
<u>Dicrurus remifer</u>	3	18
ORIOOLIDAE	2	12
<u>Oriolus chinensis</u>	1	8
<u>Oriolus traillii</u>	1	3
<u>Oriolus xanthornus</u>	-	1
CORVIDAE	2	40
<u>Cissa thalassina</u>	-	3
<u>Corvus corone</u>	-	1
<u>Corvus enca</u>	-	2
<u>Corvus macrorhynchos</u>	-	15
<u>Crypsirina formosae</u>	1	1
<u>Crypsirina occipitalis</u>	-	4
<u>Crypsirina temia</u>	-	3
<u>Cyanopica cyanae</u>	-	3
<u>Garrulus glandarius</u>	1	7
<u>Platylophus galericulatus</u>	-	1
PARIDAE	23	108
<u>Aegithaliscus concinnus</u>	6	9
<u>Aegithaliscus caudatus</u>	-	16
<u>Parus ater</u>	-	8
<u>Parus atricapillus</u>	-	1
<u>Parus elegans</u>	2	4
<u>Parus major</u>	5	25
<u>Parus monticola</u>	7	10
<u>Parus palustris</u>	-	6
<u>Parus varius</u>	-	8
<u>Parus xanthogenys</u>	3	20
<u>Sylviparus modestus</u>	-	1
CERTHIIDAE	1	4
<u>Certhia discolor</u>	-	1
<u>Certhia familiaris</u>	-	1
<u>Rhabdornis mystacalis</u>	1	2

Species	Collections in 1967	Total collection 1963-1967
SITTIDAE	4	19
<u>Sitta europaea</u>	3	13
<u>Sitta frontalis</u>	1	6
TIMALIIDAE	145	1,538
<u>Actinodura morrisoniana</u>	4	4
<u>Actinodura ramsayi</u>	-	60
<u>Alcippe brunnea</u>	-	4
<u>Alcippe brunneicauda</u>	1	19
<u>Alcippe castaneiceps</u>	-	65
<u>Alcippe cinereiceps</u>	6	8
<u>Alcippe morrisonia</u>	1	148
<u>Alcippe nipalensis</u>	9	32
<u>Alcippe poiocephala</u>	-	80
<u>Chrysomma sinense</u>	1	12
<u>Gampsorhynchus rufulus</u>	-	2
<u>Garrulax albogularis</u>	-	1
<u>Garrulax canorus</u>	-	3
<u>Garrulax erythrocephalus</u>	-	65
<u>Garrulax leucolophus</u>	-	2
<u>Garrulax merulinus</u>	-	3
<u>Garrulax milnei</u>	-	1
<u>Garrulax mitratus</u>	-	8
<u>Garrulax moniligerus</u>	3	3
<u>Garrulax morrisonianus</u>	3	3
<u>Garrulax poecilorhynchus</u>	2	3
<u>Garrulax strepitans</u>	4	4
<u>Heterophasia annectens</u>	1	7
<u>Heterophasia auricularis</u>	6	10
<u>Heterophasia melanoleuca</u>	-	131
<u>Heterophasia picaoides</u>	-	1
<u>Leiothrix argentauris</u>	1	34
<u>Liocichla ripponi</u>	-	21
<u>Liocichla steerei</u>	15	17
<u>Macronous gularis</u>	4	67
<u>Macronous ptilosus</u>	-	4
<u>Macronous striaticeps</u>	-	5
<u>Malacopteron affine</u>	-	4
<u>Malacopteron cinereum</u>	2	12
<u>Malacopteron magnirostre</u>	-	19
<u>Malacopteron magnum</u>	1	3
<u>Minla cyanouroptera</u>	1	36
<u>Minla strigula</u>	-	28
<u>Napothera brevicaudatus</u>	1	9
<u>Napothera epilepidotus</u>	-	7

Species	Collections in 1967	Total collection 1963-1967
<u>Napothera macrodactylus</u>	-	2
<u>Pellorneum albiventre</u>	-	11
<u>Pellorneum capistratum</u>	1	11
<u>Pellorneum ruficeps</u>	21	49
<u>Pomatorhinus erythrogeus</u>	-	25
<u>Pomatorhinus ferruginosus</u>	-	3
<u>Pomatorhinus hypoleucos</u>	-	1
<u>Pomatorhinus ochraceiceps</u>	1	4
<u>Pomatorhinus ruficollis</u>	1	1
<u>Pomatorhinus schisticeps</u>	2	48
<u>Pteruthius flavicapit</u>	1	2
<u>Pteruthius melanotis</u>	-	1
<u>Ptilocichla falcata</u>	-	1
<u>Rhopophilus pekinensis</u>	-	2
<u>Stachyris chrysaea</u>	-	22
<u>Stachyris erythroptera</u>	3	13
<u>Stachyris leucotis</u>	-	3
<u>Stachyris maculata</u>	2	11
<u>Stachyris nigriceps</u>	3	120
<u>Stachyris nigricollis</u>	3	8
<u>Stachyris poliocephala</u>	4	36
<u>Stachyris ruficeps</u>	12	29
<u>Stachyris rufifrons</u>	-	3
<u>Stachyris whiteheadi</u>	1	1
<u>Timilia pileata</u>	-	5
<u>Trichastoma abbotti</u>	0	17
<u>Trichastoma bicolor</u>	-	4
<u>Trichastoma malaccense</u>	-	18
<u>Trichastoma rostratum</u>	-	9
<u>Trichastoma tickelli</u>	-	32
<u>Yuhina brunneiceps</u>	12	14
<u>Yuhina castaniceps</u>	-	10
<u>Yuhina flavicollis</u>	-	64
<u>Yuhina zantholeuca</u>	1	13
PARADOXORNITHIDAE	17	46
<u>Paradoxornis gularis</u>	5	8
<u>Paradoxornis guttaticollis</u>	-	6
<u>Paradoxornis nipalensis</u>	5	7
<u>Paradoxornis webbiana</u>	7	25
PYCNONOTIDAE	80	1,146
<u>Criniger bres</u>	-	16
<u>Criniger ochraceus</u>	3	46
<u>Criniger pallidus</u>	1	33
<u>Criniger phaeocephalus</u>	-	19
<u>Hypsipetes amaurotis</u>	-	16
<u>Hypsipetes charlottae</u>	-	6

Species	Collections in 1967	Total collection 1963-1967
<u>Hypsipetes criniger</u>	-	17
<u>Hypsipetes flavala</u>	2	31
<u>Hypsipetes madagascariensis</u>	-	12
<u>Hypsipetes malaccensis</u>	-	6
<u>Hypsipetes maclelandii</u>	4	82
<u>Hypsipetes philippinus</u>	8	51
<u>Hypsipetes propinguus</u>	2	20
<u>Hypsipetes siquejorensis</u>	-	11
<u>Hypsipetes thompsoni</u>	-	18
<u>Pycnonotus atriceps</u>	7	47
<u>Pycnonotus aurigaster</u>	17	79
<u>Pycnonotus blanfordi</u>	1	5
<u>Pycnonotus brunneus</u>	-	3
<u>Pycnonotus cyaniventris</u>	-	2
<u>Pycnonotus erythropthalmus</u>	-	12
<u>Pycnonotus eutilotus</u>	1	5
<u>Pycnonotus finlaysoni</u>	2	16
<u>Pycnonotus flavescens</u>	-	118
<u>Pycnonotus goiavier</u>	6	112
<u>Pycnonotus jocosus</u>	5	64
<u>Pycnonotus melanicterus</u>	9	65
<u>Pycnonotus melanoleucos</u>	1	1
<u>Pycnonotus plumosus</u>	-	4
<u>Pycnonotus simplex</u>	-	2
<u>Pycnonotus sinensis</u>	9	91
<u>Pycnonotus striatus</u>	-	1
<u>Pycnonotus urostictus</u>	-	16
<u>Pycnonotus xanthorrhous</u>	-	37
<u>Pycnonotus zeylanicus</u>	-	2
<u>Spizixos canifrons</u>	-	73
<u>Spizixos semitorques</u>	2	7
AEGITHINIDAE	2	48
<u>Aegithina tiphia</u>	1	4
<u>Chloropsis aurifrons</u>	1	16
<u>Chloropsis cochinchinensis</u>	-	6
<u>Chloropsis hardwickii</u>	-	4
<u>Irena puella</u>	-	18
CINCLIDAE	0	4
<u>Cinclus pallasii</u>	-	4
TROGLODYTIDAE	1	1
<u>Troglodytes troglodytes</u>	1	1
TURDIDAE	134	755
<u>Brachypteryx leucophrys</u>	-	22
<u>Brachypteryx montana</u>	-	8
<u>Copsychus luzoniensis</u>	-	4
<u>Copsychus malabaricus</u>	21	98
<u>Copsychus niger</u>	3	7

Species	Collections in 1967	Total collection 1963-1967
<u>Copsychus pyrrropygus</u>	2	2
<u>Copsychus saularis</u>	8	69
<u>Enicurus leschenaulti</u>	4	10
<u>Enicurus ruficapillus</u>	2	19
<u>Enicurus schistaceus</u>	-	2
<u>Erithacus akahige</u>	-	1
<u>Erithacus calliope</u>	11	50
<u>Erithacus cyane</u>	20	105
<u>Erithacus sibilans</u>	-	2
<u>Erithacus svecicus</u>	-	1
<u>Hodsonius phoenicuroides</u>	-	1
<u>Monticola rufiventris</u>	-	2
<u>Monticola solitaria</u>	3	11
<u>Myiomela leucura</u>	3	22
<u>Myophonus caeruleus</u>	1	18
<u>Phoenicurus aureus</u>	4	20
<u>Phoenicurus frontalis</u>	-	2
<u>Rhyacornis fuliginosus</u>	-	1
<u>Saxicola caprata</u>	2	3
<u>Saxicola ferrea</u>	-	25
<u>Saxicola jerdoni</u>	-	3
<u>Saxicola torquata</u>	1	12
<u>Tarsiger chrysaeus</u>	-	2
<u>Tarsiger cyanurus</u>	3	64
<u>Tarsiger indicus</u>	2	2
<u>Tarsiger johnstoniae</u>	9	12
<u>Turdus cardis</u>	-	8
<u>Turdus celaenops</u>	-	1
<u>Turdus chrysolaus</u>	9	28
<u>Turdus hortulorum</u>	5	14
<u>Turdus merula</u>	1	1
<u>Turdus naumanni</u>	-	20
<u>Turdus obscurus</u>	-	37
<u>Turdus pallidus</u>	11	27
<u>Turdus poliocephalus</u>	1	1
<u>Zoothera cinerea</u>	-	2
<u>Zoothera citrina</u>	3	7
<u>Zoothera dauma</u>	3	20
<u>Zoothera dixonii</u>	-	3
<u>Zoothera everetti</u>	-	1
<u>Zoothera interpres</u>	-	1
<u>Zoothera marginata</u>	2	5
<u>Zoothera sibirica</u>	-	8

Species	Collections in 1967	Total collection 1963-1967
SYLVIIDAE	88	758
<u>Abroscopus superciliaris</u>	-	5
<u>Aerocephalus arundinaceus</u>	49	345
<u>Aerocephalus bistrigiceps</u>	1	8
<u>Aerocephalus concinens</u>	-	2
<u>Aerocephalus sorghophilus</u>	-	3
<u>Aerocephalus stentoreus</u>	1	4
<u>Bradypterus thoracicus</u>	-	2
<u>Cettia acanthizoides</u>	8	10
<u>Cettia canturians</u>	-	3
<u>Cettia diphone</u>	3	15
<u>Cettia montanus</u>	2	2
<u>Cettia pallidipes</u>	-	2
<u>Cettia squamiceps</u>	-	9
<u>Cisticola exilis</u>	-	1
<u>Cisticola juncidis</u>	-	7
<u>Locustella certhiola</u>	1	19
<u>Locustella fasciolata</u>	1	24
<u>Locustella lanceolata</u>	14	35
<u>Locustella ochotensis</u>	-	5
<u>Megalurus palustris</u>	-	1
<u>Megalurus timoriensis</u>	-	3
<u>Orthotomus atrogularis</u>	-	6
<u>Orthotomus cucullatus</u>	-	2
<u>Orthotomus nigriceps</u>	-	2
<u>Orthotomus ruficeps</u>	-	1
<u>Orthotomus sericeus</u>	-	1
<u>Orthotomus sutorius</u>	1	9
<u>Phragmaticola aedon</u>	-	10
<u>Phylloscopus armandii</u>	-	1
<u>Phylloscopus borealis</u>	-	25
<u>Phylloscopus davisoni</u>	-	26
<u>Phylloscopus fuscatus</u>	1	10
<u>Phylloscopus inornatus</u>	-	26
<u>Phylloscopus maculipennis</u>	-	2
<u>Phylloscopus occipitalis</u>	3	9
<u>Phylloscopus proregulus</u>	-	3
<u>Phylloscopus pulcher</u>	-	16
<u>Phylloscopus reguloides</u>	-	2
<u>Phylloscopus schwarzi</u>	-	1
<u>Phylloscopus subaffinis</u>	-	1
<u>Phylloscopus tenellipes</u>	-	4
<u>Prinia atrogularis</u>	-	3
<u>Prinia flaviventris</u>	-	36

Species	Collections in 1967	Total collection 1963-1967
<u>Prinia hodgsoni</u>	-	2
<u>Prinia inornata</u>	-	16
<u>Prinia rufescens</u>	-	6
<u>Prinia subflava</u>	3	7
<u>Regulus regulus</u>	-	4
<u>Seicerus burkii</u>	-	16
<u>Seicerus castaniceps</u>	-	4
<u>Tesia olivea</u>	-	2
MUSCICAPIDAE	55	644
<u>Culicicapa ceylonensis</u>	-	23
<u>Hypothymis azurea</u>	12	54
<u>Muscicapa banyumas</u>	3	53
<u>Muscicapa basilanica</u>	-	1
<u>Muscicapa concreta</u>	1	1
<u>Muscicapa cyanomelana</u>	-	10
<u>Muscicapa dumetoria</u>	-	4
<u>Muscicapa grandis</u>	-	27
<u>Muscicapa griseisticta</u>	-	2
<u>Muscicapa hainana</u>	1	1
<u>Muscicapa hodgsoni</u>	-	2
<u>Muscicapa hyperythra</u>	-	6
<u>Muscicapa latirostris</u>	-	5
<u>Muscicapa leucomelanura</u>	-	4
<u>Muscicapa macgrigoriae</u>	-	2
<u>Muscicapa moniliger</u>	1	26
<u>Muscicapa mugimaki</u>	-	1
<u>Muscicapa narcissina</u>	-	3
<u>Muscicapa panayensis</u>	-	3
<u>Muscicapa parva</u>	-	9
<u>Muscicapa rubeculoides</u>	1	1
<u>Muscicapa rufigastrea</u>	2	14
<u>Muscicapa rufilata</u>	1	2
<u>Muscicapa solitaria</u>	-	32
<u>Muscicapa strophiiata</u>	-	13
<u>Muscicapa sundara</u>	-	66
<u>Muscicapa thalassina</u>	-	11
<u>Muscicapa tickelliae</u>	7	16
<u>Muscicapa unicolor</u>	-	2
<u>Muscicapa venusta</u>	1	1
<u>Muscicapa vivida</u>	1	2
<u>Muscicapa westermanni</u>	-	2
<u>Muscicapa zanthopygia</u>	1	2
<u>Philentoma pyrrhoptera</u>	-	6
<u>Philentoma velata</u>	-	2

Species	Collections in 1967	Total collection 1963-1967
<u>Rhynomyias gularis</u>	-	3
<u>Rhynomyias olivacea</u>	-	42
<u>Rhynomyias ruficauda</u>	-	1
<u>Rhynomyias umbratilis</u>	1	5
<u>Rhipidura albicollis</u>	2	44
<u>Rhipidura cyaniceps</u>	4	8
<u>Rhipidura javanica</u>	6	70
<u>Rhipidura nigrocinnamomea</u>	2	2
<u>Rhipidura superciliaris</u>	-	6
<u>Terpsiphone atrocaudata</u>	-	5
<u>Terpsiphone cyanescens</u>	3	5
<u>Terpsiphone paradisi</u>	5	44
PACHYCEPHALIDAE	1	12
<u>Pachycephala cinerea</u>	-	4
<u>Pachycephala philippinus</u>	-	7
<u>Pachycephala plateni</u>	1	1
PRUNELLIDAE	0	3
<u>Prunella montanella</u>	-	3
MOTACILLIDAE	46	249
<u>Anthus gustavi</u>	-	1
<u>Anthus hodgsoni</u>	15	91
<u>Anthus novaeseelandiae</u>	1	14
<u>Anthus spinoletta</u>	2	2
<u>Dendronanthus indicus</u>	2	10
<u>Motacilla alba</u>	15	78
<u>Motacilla caspica</u>	-	1
<u>Motacilla cinerea</u>	2	27
<u>Motacilla flava</u>	9	25
ARTAMIDAE	0	2
<u>Arthamus fuscus</u>	-	1
<u>Arthamus leucorhynchus</u>	-	1
LANIIDAE	29	95
<u>Lanius bucephalus</u>	2	19
<u>Lanius colluriodes</u>	1	2
<u>Lanius cristatus</u>	23	59
<u>Lanius nasutus</u>	-	7
<u>Lanius schach</u>	-	2
<u>Lanius tephronotus</u>	-	3
<u>Lanius tigrinus</u>	3	3
STURNIDAE	46	146
<u>Aplonis panayensis</u>	26	81
<u>Gracula religiosa</u>	-	1
<u>Sarcops calvus</u>	-	26
<u>Sturnus cineraceus</u>	-	2
<u>Sturnus contra</u>	-	7
<u>Sturnus cristatellus</u>	-	2
<u>Sturnus grandis</u>	-	1

Species	Collections in 1967	Total collection 1963-1967
<u>Sturnus ginginianus</u>	-	1
<u>Sturnus mahrattensis</u>	4	4
<u>Sturnus philippensis</u>	6	7
<u>Sturnus sinensis</u>	1	3
<u>Sturnus sturninus</u>	-	2
<u>Sturnus tristis</u>	9	9
NECTARINIIDAE	4	343
<u>Acthopyga gouldiae</u>	-	137
<u>Acthopyga nipalensis</u>	-	19
<u>Acthopyga saturata</u>	-	7
<u>Acthopyga sipiraja</u>	-	1
<u>Anthreptes malacensis</u>	-	23
<u>Anthreptes rhodolaema</u>	-	1
<u>Anthreptes simplex</u>	-	4
<u>Anthreptes singalensis</u>	-	2
<u>Arachnothera affinis</u>	-	29
<u>Arachnothera chrysogenys</u>	-	1
<u>Arachnothera longirostris</u>	3	98
<u>Arachnothera magna</u>	-	7
<u>Arachnothera robusta</u>	1	1
<u>Hypogramma hypogrammica</u>	-	13
DICAETIDAE	2	34
<u>Dicaeum agile</u>	-	1
<u>Dicaeum chrysorrheum</u>	-	4
<u>Dicaeum concolor</u>	1	1
<u>Dicaeum cruentatum</u>	-	2
<u>Dicaeum ignipectus</u>	-	3
<u>Dicaeum trigonostigma</u>	-	4
<u>Prionochilus johannae</u>	1	2
<u>Prionochilus maculatus</u>	-	13
<u>Prionochilus percussus</u>	-	3
<u>Prionochilus olivaceus</u>	-	1
ZOSTEROPIDAE	5	350
<u>Zosterops erythropleura</u>	-	166
<u>Zosterops japonica</u>	4	96
<u>Zosterops nigrorum</u>	-	1
<u>Zosterops palpebrosa</u>	1	87
FRINGILLIDAE	105	969
<u>Carduelis sinica</u>	13	84
<u>Carduelis spinus</u>	-	6
<u>Carpodacus erythrinus</u>	-	89
<u>Carpodacus nipalensis</u>	-	2
<u>Carpodacus roseus</u>	-	11
<u>Carpodacus vinaceus</u>	8	9

Species	Collections in 1967	Total collection 1963-1967
<u>Coccothraustes coccothraustes</u>	-	4
<u>Emberiza aureola</u>	12	30
<u>Emberiza chrysophrys</u>	1	2
<u>Emberiza cioides</u>	9	30
<u>Emberiza elegans</u>	2	48
<u>Emberiza fucata</u>	3	26
<u>Emberiza leucocephalos</u>	-	4
<u>Emberiza pusilla</u>	-	8
<u>Emberiza rustica</u>	4	50
<u>Emberiza rutila</u>	18	391
<u>Emberiza spodocephala</u>	22	103
<u>Emberiza sulphurata</u>	1	1
<u>Emberiza tristami</u>	-	11
<u>Emberiza variabilis</u>	-	3
<u>Emberiza vessoensis</u>	-	10
<u>Eophona migratoria</u>	-	13
<u>Fringilla montifringilla</u>	3	14
<u>Haematospiza sipahi</u>	-	2
<u>Loxia curvirostra</u>	3	3
<u>Melophus lathami</u>	-	1
<u>Mycerobras melanozanthos</u>	-	1
<u>Pyrrhula erythaca</u>	6	6
<u>Pyrrhula nipalensis</u>	-	1
<u>Uragus sibiricus</u>	-	6
PLOCEIDAE	62	405
<u>Erythrura prasina</u>	1	11
<u>Estrilda amandava</u>	-	1
<u>Lonchura leucogaster</u>	19	38
<u>Lonchura maja</u>	-	60
<u>Lonchura malacca</u>	3	30
<u>Lonchura punctulata</u>	19	71
<u>Lonchura striata</u>	11	51
<u>Padda oryzivora</u>	1	3
<u>Passer flaveolus</u>	-	1
<u>Passer montanus</u>	7	27
<u>Ploceus philippinus</u>	1	62
Total species	306	690
Total collections	1,314	10,607

IMIGRATORY ANIMAL PATHOLOGICAL SURVEY

ANNUAL PROGRESS REPORT

1967

PART 5

BLOOD INFECTIONS AMONG EAST ASIAN BIRDS

Examinations for infections of haematozoa, microfilaria, and trypanosomes have now been made of thin blood smears from 20,000 birds of 719 species. Parasites have been found to be present in 17.4 per cent of these smears. Twenty thousand slides remain to be examined. Only a few blood films have been taken from many species, but it is anticipated that when the study has been completed there will be sufficient data on numerous species to show geographic as well as seasonal variations of their several parasites.

Table 16 lists the accumulated data showing the number of positive slides among the number examined. Data concerning these studies have been prepared by Miss Somtrakul Paurkpun.

INFECTION RATES BY GROUPS

PROCELLARIIDAE: Shearwaters

19 smears, 1 species, 2 positive.

PHALACROCORACIDAE: Cormorants

22 smears, 2 species, all negative.

FREGATIDAE: Frigate Birds

5 smears. 2 species, all negative.

ARDEIDAE: Herons and bitterns

248 smears, 15 species, 25 positive, 10 %. Heaviest infection was found in Ixobrychus cinnamomeus in Luzon with a 25 % infection among 48 birds.

CICONIIDAE: Storks

115 smears, 1 species, all negative.

ANATIDAE: Ducks

3 smears, 2 species. all negative.

ACCIPITRIDAE: Hawks

57 smears, 8 species, 22 positive, 38.6 %. Adequate samples of the Asiatic Sparrow Hawk, Accipiter virgatus were taken in Negros Oriental, Philippines, 58 %, Thailand, 9 % and Malaya, 60 % to indicate a geographical variation in the infection rate in this species.

FALCONIDAE: Falcons

3 smears, 2 species, 1 positive.

PHASIANIDAE: Pheasants and Quails

52 smears, 8 species, 23 positive, 44.2 %. The Blue-breasted Quail, Coturnix chinensis, was taken in four areas, but only in numbers in Luzon where the infection rate was 60 %.

TURNICIDAE: Button Quails

41 smears, 3 species, 10 positive, 24.4 %. The Barred Button Quail, Turnix suscitator, was taken in five areas with 33 % infection in Malaya and 30 % in Negros Oriental.

RALLIDAE: Rails

218 smears, 12 species, 25 positive, 11.5 %. The White-breasted Waterhen, Amaurornis phoenicurus was taken in three areas, but must abundantly in Malaya where the infection rate was 36.7 %. The Slaty-breasted Rail, Rallus striatus, inhabits the same marshes as the waterhen but 36 specimens from Luzon and Malaya were negative. Other species ranged between these two examples.

ROSTRATULIDAE: Painted Snipe

19 smears, 1 species, all negative.

CHARADRIIDAE: Plovers

258 smears, 9 species, 19 positive, 7.4 %. Infection rates in this groups have been variable. The Pacific Golden Plover, Charadrius dominicus, was negative in the Philippines, 49 samples; the Large Sand Plover, Charadrius leschenaulti, among the same flocks had an infection rate of 5.3 %, while the Little Ringed Plover, Charadrius dubius also in the same flocks was 24.2 % positive.

SCOLOPACIDAE: Sandpipers

380 smears, 24 species, 20 positive, 5.3 %. The longest series of blood films was from the Common Sandpiper, Actitis hypoleucos from six areas, but the only positives were from Luzon, 7.5 %.

RECURVIROSTRIDAE: Stilts

1 smear, 1 species, negative.

GLAREOLIDAE: Pratincoles

1 smear, 1 species, negative.

LARIDAE: Gulls and terns

36 smears, 11 species, all negative.

COLUMBIDAE: Doves

744 smears, 20 species, 76 positive, 10.2 %. The longest series was from the Emerald Dove, Chalcophaps indica, from five areas. This species moves around a great deal but no recoveries from long distances have been received. Infection rates have been; Luzon 0, Palawan 12.9 %, Negros Oriental 5.3 %, Thailand 14.5 % and Malaya 7.2 %. This is a deep forest species, while the forest edge and farmyard Zebra Dove, Geopelia Striata, from three areas was negative.

PSITTACIDAE: Parrots

29 smears, 4 species, 19 positive, 65.5 %. Much more work needs to be done with this group. The infection rate was high in three of four species. No species has been adequately sampled in all of its habitats. In those habitats that have been examined individual birds have had very high infestations with a large percentage of the red cells invaded. Too few ectoparasites have been collected to suggest vectors and nothing is known about the mosquitoes that attack them.

CUCULIDAE: Cuckoos and Malkohas

204 smears, 22 species, 12 positive, 5.9 %. None of the species in this group has been adequately sampled. The 62 slides from the Plaintive Cuckoo, Cacomantis merulinus, distributed over five areas showed positives only in Malaya, 22.2 %.

TYTONIDAE: Barn Owls

11 smears, 2 species, 9 positive, 81.8 %. Eight of these positives were from the Bay Owl, Phodilus badius of Malaya.

STRIGIDAE: Owls

190 smears, 10 species, 143 positive, 75.3 %. All owls seem to be heavily infected in all of the habitats in which they occur. Hippoboscids are known vectors of owl infecting Leucocytozoon and may be involved with all of these species.

Temperate zone owls in Eastern Asia have not been adequately sampled.

PODARGIDAE: Frog Mouths

14 smears, 4 species, 1 positive, 7.1 %.

CAPRIMULGIDAE: Nightjars

56 smears, 5 species, 5 positive, 8.9 %. The Long-tailed Nightjar, Caprimulgus macrourus has been sampled in five areas and all films negative.

APODIDAE: Swifts

94 smears, 8 species, 2 positive, 2.1 %. The only positives seen in this group have been two White-bellied Swiftlets, Collocalia esculenta, from Malaya.

TROGONIDAE: Trogons

49 smears, 7 species, 6 positive, 12.2 %. None of this group has as yet been adequately sampled.

ALCEDINIDAE: Kingfishers

671 smears, 15 species, 148 positive, 22 %. The sampling in this group is reaching adequate numbers for several species. The Common Kingfisher, Alcedo atthis has had small series from every study area but only two positive seen, from Luzon. The White-collared Kingfisher, Halcyon chloris has been sampled in five areas with these results: Luzon 14 %, Palawan 69.2 %, Negros Oriental 45.8 %, Thailand 0, Malaya 61.3 %. The Ruddy Kingfisher, Halcyon coromanda has been sampled inadequately over most of its range, but with an infection rate of 28.6 % among the indigenous populations in Malaya.

MEROPIDAE: Bee-eaters

31 smears, 7 species, 3 positive, 9.7 %.

CORACIIDAE: Rollers

4 smears, 2 species, 3 positive, 75 %. Both species of Rollers that occur in eastern Asia have been inadequately sampled but the results suggest a high infection rate.

UPUPIDAE: Hoopoes

1 smear, 1 species, negative.

BUCEROTIDAE: Hornbills

5 smears, 4 species, 1 positive, 20 %.

CAPITONIDAE: Barbets

174 smears, 10 species, 20 positive, 11.5 %. The Golden-Throated Barbet, Megalaima franklinii and Copper-smith Barbet, Megalaima haemacephala have been sampled in two areas each, with a 14.5 % infection rate among the former which is a mountain cloud forest species (Leucocytozoon) and no infection among the latter which is a forest edge and city species.

INDICATORIDAE: Honey Guides

1 smear, 1 species, negative.

PICIDAE: Woodpeckers

281 smears, 29 species, 4 positives, 1.4 %. This very interesting group has been poorly sampled in all of their habitats, and the only

positives have been found in Thailand and Malaya.

EURYLAIMIDAE: Broadbills

73 smears, 4 species, 2 positive, 2.7 %. None of this tropical family has as yet been adequately sampled. A series of 28 of the Si'er-breasted Broadbill, Serilophus lunatus from the mountains of Thailand had only one positive.

PITTIDAE: Pittas

63 smears, 5 species, 18 positive, 28.6 %. This group has also been inadequately sampled, but slides from both the Hooded Pitta, Pitta sordida and Red-breasted Pitta, Pitta erythrogaster suggest widespread infections.

ALAUDIDAE: Larks

29 smears, 4 species, negative.

HIRUNDINIDAE: Swallows

315 smears, 6 species, 7 positive, 2.2 %. The bulk of the blood films and all positives have been from the House Swallow, Hirundo rustica.

CAMPEPHAGIDAE: Graybirds

135 smears, 13 species, 11 positive, 8.1 %. Only an adequate series from the Pied Triller, Lalage nigra, from four areas, with single positives in Luzon and Negros Oriental.

DICRURIDAE: Drongos

347 smears, 9 species, 35 positive, 10 %. The numbers of blood films examined among the species of this tropical family are becoming large enough to indicate a low rate of infection among nearly all in their various habitats.

ORIOLIDAE: Orioles

114 smears, 3 species, 67 positive, 58.8 %. The Black-naped Oriole, Oriolus chinensis, has been sampled in six areas with adequate numbers only from Negros Oriental where the infection rate was 70.1 %. The incidence of Microfilaria has been high among these.

CORVIDAE: Crows and Jays

26 smears, 9 species, 4 positive, 15.4 %. None of this cosmopolitan group has been adequately examined.

PARIDAE: Tits

87 smears, 10 species, 12 positive, 13.8 %. This northern family has not been adequately studied, but the Long-tailed Tit, Aegithalos caudatus showed a 38.5 % infection among a small series in Korea.

CERTHIIDAE: Tree Creepers

1 smear, 1 species, negative.

SITTIDAE: Nuthatches

15 smears, 2 species, 3 positive, 20 %.

TIMALIIDAE: Babblers

2,704 smears, 86 species, 462 positive, 17.1 %. Several species of this local, tropical, non-migratory family have been adequately examined. Infection rates in species with fifty or more individuals examined have been as follows:

Spectacled Barwing, Actinodura ramsayi, 3.2 %.
Chestnut-headed Nun Babbler, Alcippe castaneiceps, 2.5 %.
Grey-eyed Nun Babbler, Alcippe morrisonia, 19.2 %.
Mountain Nun Babbler, Alcippe nipalensis, 24 %.
Common Nun Babbler, Alcippe poiocephala, 15.2 %.
Red-headed Laughing Thrush, Garrulax erythrocephala 7.1 % Thailand, 73.3 % Malaya.
Tickell's Sibia, Heterophasia melanoleuca, 9.2 %.
Silver-eared Mesia, Leiothrix argentea, 39.6 %.
Striped Tit-babbler, Macronus gularis, 6.7 %.
Lesser Red-headed Tree Babbler, Malacopteron cinereum, negative.
Chestnut-tailed Siva, Minla strigula, 70.2 %.
Streaked Wren-babbler, Napothera brevicaudata, negative.
Chestnut-naped Scimitar Babbler, Pomatorhinus schisticeps, 4.3 %.
Grey-throated Tree Babbler, Stachyris nigriceps, negative.
Blyth's Jungle Babbler, Trichastoma rostratum, 22.6 %.

PARADOXORNITHIDAE: Parrot-bills

60 smears, 3 species, 1 positive, 1.7 %.

PYCNONOTIDAE: Bulbuls

4,037 smears, 40 species, 885 positive, 21.9 %. As with the babblers a number of these common tropical species have been examined in adequate numbers for comparison between areas, those species from which more than 50 samples have been examined include the following:

Olive White-throated Bulbul, Criniger bres, Palawan 80 %, Malaya 13.5 %.
Brown White-throated Bulbul, Criniger ochraceus, 7.6 %.
Crestless White-throated Bulbul, Criniger phaeocephalus, 2 %.
Hairy-backed Bulbul, Hypsipetes criniger, 6.9 %.
Mountain streaked Bulbul, Hypsipetes maclellandii, Thailand 42.5%, Malaya 10.1 %
Philippine Bulbul, Hypsipetes philippinus, Luzon 16.6, Negros Oriental 71.1 %.
Black-headed Bulbul, Pycnonotus atriceps, Palawan 9.2 %.

Black-capped Bulbul, Pycnonotus aurigaster, 14.3 %.
 Blanford's Bulbul, Pycnonotus blanfordi, 68.3 %.
 Stripe-throated Bulbul, Pycnonotus finlaysoni, 27.1 %.
 Pale-faced Bulbul, Pycnonotus flavescens, 2.4 %.
 Yellow-vented Bulbul, Pycnonotus goiavier, Luzon 14.3 %, Negros
 Oriental 66.9 %, Thailand 41.7 %, Malaya 11.9 %.
 Red-whiskered Bulbul, Pycnonotus jocosus, 6.8 %.
 Black-crested Yellow Bulbul, Pycnonotus melanicterus, 70 %.
 Large Olive Bulbul, Pycnonotus plumosus, Palawan 60 %, Malaya
 6.4 %.
 White-eyed Brown Bulbul, Pycnonotus simplex, 13.4 %.

AEGITHINIDAE: Leafbirds

92 smears, 10 species, 13 positive, 14.1 %. These arboreal tropical species have not yet been adequately sampled.

CINCLIDAE: Dippers

2 smears, 1 species, negative.

TROGLODYTIDAE: Wrens

4 smears, 1 species, negative.

TURDIDAE: Thrushes

1,645 smears, 44 species, 413 positive, 25.1 %. This is a family predominantly migrants and samples have been examined from much of their ranges. The Magpie Robin, Copsychus saularis, is tropical and and non-migratory with samples from Luzon 12 %, Negros Oriental 83.3%, Thailand 58 %, Malaya 17.3 %. The Rubythroat, Erithacus calliope, has had small collections from Korea to Thailand and the Philippines all of which have been negative. The Siberian Blue Robin, Erithacus cyane, also migrates great distances with no infection noted from Korea, 12 % from Japan, 7 % from Thailand and 42 % from Malaya. This suggests that it loses infection when in the north or the parasites are suppressed. The Gray-headed Thrush, Turdus obscurus, also a long distance migrant showed 50 % infection in Luzon, none in Palawan, Negros or Thailand from small samples, and 69.9 % infection in a large series from Malaya. Its co-migrant the Siberian Thrush, Zoothera sibirica, had 50 % infection in a small sample from Japan and 56.6 % in a large series from Malaya. This suggests that it retains its peripheral blood parasites in both its northern and southern ranges.

SYLVIIDAE: Warblers

1,031 smears, 60 species, 72 positives, 7 %. Most of the series of slides from the warblers have been in inadequate numbers for comparative studies. Small series of the migratory Great Reed Warbler, Acrocephalus arundinaceus, have indicated infections; Korea negative, Japan 20 %, Taiwan 100 %, Luzon negative, Thailand 14 %, Malaya 13.8%. An adequate series of the Thick-billed Warbler, Phragmaticola aedon, in Thailand had a 52.9 % infection which was exceptional for this family.

MUSCICAPIDAE: Flycatchers

1,116 smears, 47 species, 89 positive, 8 %. This family includes migrant species and non-migrant tropical species. Most of the series taken have been inadequate for comparative purposes. The Niltava, Muscicapa grandis, has shown 20 % infections in both Thailand and Malaya. The mountain forest inhabiting Blue-and-Orange Flycatcher, Muscicapa sundara, was 14.8 % infected in Thailand and 9.1 % in Malaya. The Pied Fantail Flycatcher, Rhipidura javanica was very lightly infected, negative in Luzon and Negros Oriental, 9.7 % in Thailand and 3 % in Malaya.

PACHYCEPHALIDAE: Whistlers

63 smears, 3 species, 5 positive, 7.9 %.

PRUNELLIDAE: Accentors

5 smears, 1 species, negative.

MOTACILLIDAE: Wagtails

244 smears, 8 species, 33 positive, 13.5 %. These are palearctic forms which overwinter in the tropics. Most have been sampled at several latitudes but in small numbers, insufficient for comparative purposes.

ARTAMIDAE: Wood Swallows

14 smears, 1 species, 2 positive, 14.3 %.

LANIIDAE: Shrikes

201 smears, 7 species, 83 positive, 41.3 %. The bulk of these films have been from the migratory Brown Shrike, Lanius cristatus, with indicated infection rates; Korea 20 %, Hong Kong 100 %, Luzon 36.6 %, Palawan 44.4 %, Negros Oriental 42.4 %, Thailand 13.3, Malaya 38.7 %.

STURNIDAE: Starlings

164 smears, 10 species, 61 positive, 37.2 %. This very interesting group of species which are in close association with man has not been adequately sampled. They offer an opportunity for studies concerning possible correlation between arbor virus infections, haematophagous infestations and mosquito vectors.

NECTARINIIDAE: Sunbirds

1,257 smears, 19 species, 362 positives, 28.8 %. Most of the work done with the group has been with the Brown-throated Sunbird, Anthreptes malacensis in Malaya which has a heavy Haemoproteus infection, more than 77 %. A large series of the Little Spiderhunter, Arachnothera longirostris, showed a very low infection rate, less than 4 % throughout Luzon, Palawan, Thailand and Malaya.

DICAEIDAE: Flowerpeckers

101 smears, 14 species, 6 positive, 6 %. Another tropical

group that has been inadequately studied, but small series suggest low infection rates.

ZOSTEROPIDAE: White-eyes

270 smears, 5 species, 29 positive, 10.7 %. All of the species have shown very low infection rates except the Yellow White-eye, Zosterops nigrorum of Negros Oriental, 67.6 %.

FRINGILLIDAE: Finches

786 smears, 25 species, 44 positives, 5.6 %. The species in this palearctic family have shown usually low infections. A series of the Chestnut Bunting, Emberiza rutila, was 16.6 % positive in Korea and 15.7 % positive on their wintering grounds in Thailand.

PLOCEIDAE: Weavers

594 smears, 14 species, 89 positives, 15 %. Fairly good series for most of the weavers have been examined but the infection rates are variable. For example, the Spotted Munia, Lonchura punctulata, was negative in Taiwan, and 53.6 % infected in Thailand. The Sharp-tailed Munia, Lonchura striata, showed the same pattern. The Tree Sparrow is uniformly lightly infected, 20 % in Korea, none in Japan, 16 % in Taiwan, none in Hong Kong, none in Thailand or Malaya. The Pegu House Sparrow in Thailand, Passer flaveolus, was heavily infected, 82.8 % but it is a country species not an urban one. Another open country or brushland ploceid, the Baya Weaver, Ploceus philippinus, was 28.8 % infected in Thailand. These suggest that mosquito control in the cities may reduce malaria infections in the birds as well.

IDENTIFIED BLOOD PARASITES

During a study of avian haematozoa in Malaya (1960-63) previous to the more extensive collections by MAPS cooperators blood films were taken from 125 species. These involved multiple samples from recaptured individuals and 5,621 slides were examined by Dr. Marshall Laird. His identifications are summarized in Table 17. A great many of the species were examined in small series, however 71 species (56.8 %) were infected with Haemoproteus; 47 species (37.6 %) with Leucocytozoon; 29 species (23.2 %) with Plasmodium; 49 species (39.2%) with Microfilaria; and among the rarer infections were Trypanosoma 11 species (8.8 %), Atoxoplasma; 5 species (4.0 %), Lankesterella; 8 species (6.4 %), Haemogregarina; 2 species (1.6 %). Multiple infections were found in 14 species, 11.2 %

Not all positive infections noted by the microscopists screening MAPS slides have been identified, but as they have gained experience they have recorded recognizable infections. These data, inaccuracies of which will be corrected later, are presented in Table 18 for com-

parison with the material from Malaya. Records are given here for 90 species and 556 positive films. Haemoproteus made up 74.8 % of the recognized infections, Leucocytozoon 9.5 %, Plasmodium 11.1 %, Microfilaria 9.5 %, and Trypanosoma 1.1 %. The distribution among the species of hosts was as follows: 75 % infected with Haemoproteus, 22 % Leucocytozoon, 29 % Plasmodium, 21 % Microfilaria, and 6 % Trypanosoma. Multiple infections were noted in 7 species (7%).

These data are presented as a preliminary review. A more comprehensive report is anticipated by 1969.

Dr. Laird presented a discussion of the Plasmodia infections found among the blood films collected by MAPS teams and has presented this material to the International Congresses of Tropical Medicine and Malaria, Teheran, September 1968. This discussion is as follows: "Avian Malaria in the Oriental and Australian Regions" Marshall Laird and Manohar Singh Grewal.

"The number of species of avian malaria parasites currently recognizable is inevitably a matter of personal preference. The splitters would opt for more than the 24 regarded as valid by Garnham in his "Malaria Parasites and Other Haemosporidia" (1966), the lumpers for less.

Seven of those on Garnham's list, having round gametocytes, are referable to the subgenus Haemamoeba:-

Plasmodium relictum and its subspecies,

P. subpraecox,

P. cathemerium,

P. gallinaceum,

P. matutinum,

P. giovannolai,

P. griffithsi.

Of them, P. gallinaceum, like its type host the domestic fowl, is of Oriental origin; and P. griffithsi (which has points of resemblance to both this species and P. relictum) is only known from introduced turkeys in Rangoon, Burma. P. giovannolai, so far reported from a single natural host (the blackbird) in Italy, is closely related to P. relictum and P. matutinum, both of which occur in the Old and New Worlds. The only one of these three recorded with certainty from the Oriental and Australian Regions is P. relictum, which is the only avian malaria parasite yet identified from New Zealand, and in the area under consideration has also been found from Australia and the Solomon Islands to Japan and various parts of South-East Asia. Garnham thought it likely that McGhee's unpublished World War II record of a Plasmodium from Tyto alba in the Pacific was referable to the owl parasite P. subpraecox. However, aside from the host there is nothing in the available description to differentiate the organism from P. relictum; with which, as Corradetti has shown, P. subpraecox

may be con petic. The remaining species of the subgenus Haemamoeba, P. cathemerium, occurs in both Old and New Worlds but in our area is known with certainty only from Japan.

Turning to the present investigations, thin blood films from close to 15,000 birds of the Oriental and Australian Regions have been examined over the past twenty years. The bulk of this material was secured thanks to Dr. Elliott McClure of the United States Army's Migratory Animal Pathological Survey, and Dr. Robert Kuntz, who furnished many slides from United States Navy surveys in the North Pacific. In consequence we are now able to report P. relictum not only from several Malaysian hosts as already recorded by one of us, but also from Japan, Taiwan, the Philippines and Thailand. The brown shrike is a good host in Taiwan, as is the Baya weaver in Thailand. Other weavers are similarly parasitized in Malaysia; as are two thrushes and a cuckoo-shrike. Superficially relictum-like organisms in a post-mortem slide from a Japanese example of the blue-and-white flycatcher proved on more critical examination to be haemoproteids in process of rounding up. The same explanation is now proposed for superficially gallinaceum-like parasites in the films from two dead specimens of the great argus referred to in an earlier paper. These films did in fact exhibit Plasmodium as well, but their state precludes specific identification.

Few preparations from domestic fowls were included in our collections, but a red jungle fowl from Palawan, was parasitized by P. gallinaceum (present in mixed infection with P. juxtannucleare, which far outnumbered it). Although we have no other records of Haemamoeba from our South-East Asian or Pacific material, it seems worth mentioning, in view of the location of these Congresses, that a particularly interesting finding was recently made in a blood film from a great reed warbler, Acrocephalus stentoreus, from Iran. A high percentage of the red cells (particularly the immature ones) in this preparation contain from one to twelve or even more (but usually about eight) oval plasmodia a micron or so in diameter. No other life history stages could be found, although a few Haemoproteus gametocytes with large, rod-shaped granules of blackish pigment were seen. By a stretch of the imagination these might have been interpreted as Plasmodium gametocytes of the elongate type. But the cytoplasm of Plasmodium gametocytes stains more delicately with Giemsa, and the pigment is less coarse - characters difficult indeed to define objectively, although familiar to all who have long acquaintance with the avian haematozoa. No, figures published by Corradetti and his collaborators suggest that this parasite from Iran, which is obviously characterized by a high degree of synchronism, bears close comparison with their P. giovannolai - if not, indeed, with P. subpraecox, for multiple invasions of red cells are characteristic of infections due to either species (up to at least eight trophozoites per immature red cell in the former case, and ten in the latter). In any event, neither of these western species having been recorded to date as near to the

edge of the Oriental Region as this, confirmatory material from Iran would be very welcome. So would such material of the strain of P. cathemerium recorded from Iran in 1954-55 in a thesis by Varjavand (Faculty of Veterinary Medicine, Teheran University) who found it in the type host (the domestic sparrow) and other birds. For as already indicated we have not found any evidence that this Haemamoeba, either, occurs in the heart of the Oriental Region or in Australia.

Moving on now to the avian malaria parasites with elongate gametocytes, Giovannolaia (schizogony in primitive blood-forming cells absent, large erythrocytic schizonts with plentiful cytoplasm) is the subgenus of Plasmodium within which most species have been described. Of the ten species recognized by Garnham, two are listed from Passerine hosts:-

Plasmodium circumflexum, and
P. polare.

Just to illustrate how cautious one must be in making generalizations on the zoogeography of blood parasites not exhibiting rigid host-specificity and able to be dispersed very widely both by bird migrations and bird introductions, as recently as May of this year, when preparing our summary, we wrote that "The presence of as familiar a species as P. (Giovannolaia) circumflexum east of the Indian subcontinent and Ceylon remains to be confirmed, too..." Since then, a summer of intensive screening of a very considerable backlog of slides has provided three records, all of them from bulbuls. Two of these records concern the Malay Peninsula (from which there was already an unconfirmed World War II report), and the other is from Thailand.

P. polare, the second so-called passerine Giov. nnolaia, has been recorded from India and Malaysia. We now report it from passerines (shrikes, sunbirds) as well as from owls, white-breasted waterhens and a pheasant in the Malay Peninsula; from an owl, the white-breasted waterhen and a barbet in Borneo (Malaysia-Sabah), from an owl in Thailand and from two kinds of doves in the Philippines. The last record, incidentally, is from the zoogeographically very interesting island of Palawan. Our record from a pheasant supports the Indian one from another phasianid bird, a partridge, which was questioned by Garnham; who, though, felt that a parasite found by Wetmore in an American grouse "perhaps might be regarded as a strain of P. polare." Owls and columbiform birds have been regarded as characteristically harbouring particular species of Plasmodium (overwhelmingly P. matutinum in the case of columbiforms and P. subpraecox in that of owls, according to Garnham). The present findings underline the general unreliability of host-occurrence as a criterion in classifying avian malaria parasites. Especially in wet tropical areas with very diverse faunas of both birds and potential mosquito vectors, the broadest possible view on matters of host specificity seems warranted by our evidence.

Only one of Garnham's eight "gallinaceous and other species of Giovannolaia" was very tentatively identified among our material. The list comprises:-

Plasmodium fallax,
P. lophurae,
P. durae,
P. pinottii,
P. gundersi,
P. formosanum,
P. garnhami,
P. anasum.

Among these, P. lophurae, described from a crestless fireback pheasant in the New York Zoo, has a Malaysian host. Interestingly enough, all the laboratory strains of this parasite since maintained were derived from this one bird. The solitary record from Malaysia itself, a World War II one by Ogaki, concerns the zebra dove. Being unsupported by morphological data, it obviously requires confirmation. P. formosanum and P. anasum were both described from Taiwan, from blood films from a partridge and a duck respectively. While we cannot provide a definite record for either of these, some of the Novyella-like schizonts present in mixed infections in Malayan Peninsula white-breasted waterhens much resemble P. formosanum in developing into rosettes of ten or twelve small merozoites (rare segmenters of this type were also present in the poor slides from the great argus mentioned earlier). In both waterhens and Argusianus argus, haemoproteids were present too. As Garnham pointed out, the large and bloated gametocytes described by Manwell as those of P. formosanum might conceivably have been referable to an accompanying haemoproteid infection (an explanation rendered the more likely in our view by the characteristic presence in the mature forms of a large, spherical vacuole). If this indeed proves to have been the case it may be necessary to transfer P. formosanum to the subgenus Novyella when a fully satisfactory description has been published. So far as is known the remaining five species of the subgenus Giovannolaia seem to be restricted to a few hosts and localities. P. fallax (owls and guinea-fowl), P. durae (introduced domestic turkeys), P. gundersi (described from a single Liberian owl) and P. garnhami (the hoopoe) have not been reported outside of Africa, while P. pinottii was isolated from a Brazilian toucan. Recollecting that the hoopoe extends through Europe to Malaysia, and that this bird is seasonally abundant in such Asian regions as Uzbekistan, and West Pakistan, a survey to ascertain whether it seeds P. garnhami along its migration routes would be well worthwhile. So, we believe, would critical laboratory studies of this species and P. (Huffia) elongatum which (other than in the nature of the tissue stages) it much resembles.

Five avian plasmodia having elongate gametocytes and not undergoing schizogony in primitive blood-forming cells differ from Giovannolaia in that their erythrocytic schizonts are small and have only scanty cytoplasm. These comprise the subgenus Novyella. Garnham lists

only one of them - Plasmodium juxtannucleare of the domestic fowl - as a gallinaceous species, and the remainder as from passerines:-

Plasmodium vaughani,

P. rouxi,

P. nucleophilum,

P. hexamerium.

P. juxtannucleare, originally described from domestic fowls in Brazil, has since been found in other parts of the world. Thus there are new records from Japan, Ceylon, the Malay Peninsula and Taiwan. The last-mentioned record, the only one not involving domestic fowls, concerns the bamboo partridge. In addition, there is a probable earlier record from the type host in the Philippines (Africa and Soriano, 1940). To these reports must now be added ours from the red jungle fowl in Palawan, Philippines.

Interestingly enough, the red jungle fowl in question originated from Puerto Princesa, where one of our four records of P. nucleophilum was obtained (from the Philippine glossy starling). Without the yardstick of gallinaceous vs. passerine bird we would have been very much inclined to regard these two infections as due to the same species of parasite. Our other hosts for P. nucleophilum were the tigrine dove, in Negros Oriental, Philippines, the Baya weaver in Thailand, and the cinnamon bittorn in the Malay Peninsula; where what was very probably the same species was found by Sandosham and co-workers in the Philippine glossy starling. While three of these hosts are passerines, the tigrine dove belongs to the order Columbiformes and the cinnamon bittorn to the Ciconiiformes; and two other known hosts overlooked by Garnham, ibises from Columbia, belong to the latter order too. In parentheses, one of the hosts for P. nucleophilum listed by Garnham, the Panamanian blue-headed parrot, is hardly a passerine.

The arbitrariness of attempting to group together bird plasmodia on the basis of their presence in passerine as contrasted with other hosts, is again evident when we turn to P. vaughani. Widespread in both Old and New Worlds and one of the most characteristic avian malaria parasites of the Oriental Region, this species is known from Ceylon and East Pakistan to Japan and Taiwan. It also occurs deep into the Australian Region, in Hawaii and the New Hebrides. Malaysian hosts already mentioned in print and instanced by Garnham include two non-passerine birds. One of these (the barred bustard quail) is gallinaceous, the other (the red-billed malocha) being a member of the Cuculiformes. Nine more Malaysian hosts that we have now identified include a columbiform bird (the lesser thick-billed green pigeon) as well as another gallinaceous species (the white-breasted waterhen). The latter species and two additional doves are included among our five hosts from the Philippines (four of these having been found infected in Palawan); and we also have new records from Japan, Taiwan and Thailand.

P. rouxi, which also occurs in the Old and New Worlds, is very prevalent in the Oriental Region too (and although Garnham listed it as a passerine species in his recent book, he mentioned two Iranian and Indian records from gallinaceous birds). We can now add several additional Malaysian hosts to the eight already published by Laird, besides new host and locality records from Thailand and the Philippines (including Palawan). However, it should be noted that there have not yet been any findings of P. rouxi in the Australian Region.

The remaining known member of the subgenus Novyella, P. hexamerium, has not been found in nature beyond the Americas, although a hexamerium-like strain of P. vauhani has been described from East Pakistan.

We now come to the subgenus Huffia, members of which have elongate gametocytes and undergo schizogony in both erythrocytes and primitive blood-forming cells. Only two species have been recognized, P. elongatum and P. huffi. The latter, the separate identity of which has been questioned by Huff, has so far been reported from a single host (the toucan) and country (Brazil). P. elongatum is known from both Old and New Worlds. In our area there are records from Japan and Korea, the Philippines, and certain isolated Pacific islands from those off the Chilean coast to the Hawaiian group and perhaps the New Hebrides. In our experience, though, this is the rarest of the "good" species of avian malaria parasites in South-East Asia, and we have only identified it from a solitary bird (a Blyth's jungle babbler, from the Malayan Peninsula).

Obviously, a great deal remains to be learnt about the zoogeography of the species of Plasmodium parasitizing birds. Thus a compilation published as recently as 1960 lists only Plasmodium relictum, of the twenty-four currently recognized "good" species, from Australia. Again, very little indeed is known of the avian malaria parasites of Indonesia and New Guinea, with their extensive rain forests and complex bird and mosquito faunas. Doubtless much that is new remains to be discovered in these Regions; and although from our experience fresh records for known taxa seem more likely discoveries than new species we do have at least one novelty to report. A Plasmodium characterized by remarkably long filopodia, and having obvious affinities with certain saurian malaria parasites, this is one of several malaria parasites of the white-breasted waterhen (the others are P. relictum, P. polare, P. vauhani, P. rouxi and an undesignated species close to if not conspecific with P. formosanum). The host in this case is an extraordinarily productive one, perhaps, in part at least, because its marshland and stream habitats teem with vector mosquitoes of many species.

TABLE 18

RESULTS OF THE EXAMINATION OF AVIAN THIN BLOOD SMEARS
FOR THE TOTAL PERIOD OF 1963-67. THE NUMBER OF POSITIVE SMEARS OVER THE NUMBER EXAMINED

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
PROCELLARIIDAE													
<i>Fulmar leucomeles</i>		2/19										2/19	2/19
PHALACROCORACIDAE													
<i>Phalacrocorax carbo</i>								0/2 0/20				0/2 0/20	2/22
<i>Phalacrocorax dybows</i>													
FREGATIDAE													
<i>Fregata andrewsi</i>									0/3 0/2			0/3 0/2	0/5
<i>Fregata ariel</i>													
ARDEIDAE													
<i>Ardea cinerea</i>	0/6											0/6	35/248
<i>Ardeola ralloides</i>								0/8 0/32				0/8 0/40	
<i>Bubulcus ibis</i>	0/2		0/5		0/3 0/13 1/1	0/1	0/1	0/2	1/3			1/13	
<i>Butorides striatus</i>												1/1	
<i>Dapetes flavicollis</i>												0/18	
<i>Egretta alba</i>	0/10	0/5 0/10 0/3	0/13		0/2			0/31				0/56	
<i>Egretta garzetta</i>												0/3	
<i>Egretta intermedia</i>												0/1	
<i>Egretta sacra</i>					3/5			0/1				3/5	
<i>Gorsachius gossagi</i>									0/1			0/1	
<i>Gorsachius melanolephus</i>					12/48	1/4			1/9			14/61	
<i>Ixobrychus cinnamomeus</i>					3/13				0/1			0/1	
<i>Ixobrychus eurhythmus</i>		1/1 0/6	1/7						1/1			8/18	
<i>Ixobrychus sinensis</i>												1/13	0/115
<i>Nycticorax nycticorax</i>												0/115	1/3
CICONIIDAE													
<i>Anas ocellatus</i>								0/115				0/115	
ANATIDAE													
<i>Anas crecca</i>			1/2					0/1				1/2	1/3
<i>Nettion coromandelianus</i>												0/1	
ACCIPITRIDAE													
<i>Accipiter badius</i>								0/3				0/3	
<i>Accipiter nisus</i>												0/1	
<i>Accipiter solitarius</i>	1/1											1/6	
<i>Accipiter irroratus</i>					0/5		0/1 1/12	1/11 3/2	0/15			2/4 17/38	
<i>Accipiter virgatus</i>												3/3	
<i>Buteo indicus</i>						0/1						0/1	
<i>Buteo buteo</i>	0/1								0/1			0/1	
<i>Spizella cirrhatus</i>													
FALCONIDAE													
<i>Falco peregrinus</i>								0/1	1/1 0/1			1/1 0/2	1/3
<i>Microhierax caerulescens</i>													
PHASIANIDAE													
<i>Arborophila brunneopictus</i>									0/1			0/1	
<i>Arborophila rufogularis</i>									0/1			0/1	
<i>Argus argus</i>									3/3			3/3	
<i>Coturnix chinensis</i>												10/30	
<i>Callus gallus</i>												0/4	
<i>Lophura erythrophthalma</i>									1/8			1/8	
<i>Meleagris gallopavo</i>									0/2 1/3			0/2 1/3	
<i>Rostratus rostratus</i>													

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
TURNICIDAE													
<i>Turnix ocellata</i>			0/1		0/1							0/1	10/41
<i>Turnix suluator</i>			0/1		0/4	1/1	3/11	0/2	5/15			10/32	
<i>Turnix tanki</i>	0/5		0/1									0/2	25/218
RALLIDAE													
<i>Amazornis phoenicurus</i>					0/1							18/51	
<i>Callixeris cinerea</i>					0/6							0/6	
<i>Callinix chloropus</i>					0/9	0/1						0/10	
<i>Porzana citerea</i>					1/20	0/2	0/1					1/23	
<i>Porzana fusca</i>					0/24			0/1	0/2			0/27	
<i>Porzana pusilla</i>					1/21							1/21	
<i>Porzana tabuensis</i>					0/18							0/18	
<i>Rallina eurizonoides</i>					4/11							4/11	
<i>Rallina fusciata</i>					1/2				0/1			0/3	
<i>Rallus mirificus</i>					0/3							0/3	
<i>Rallus philippensis</i>					0/9							0/9	
<i>Rallus striatus</i>					0/20				1/16			0/26	0/19
ROSTRATULIDAE													
<i>Rostratula bengkalisensis</i>			0/1		0/16		0/2					0/19	19/256
CHARADRIIDAE													
<i>Charadrius alexandrinus</i>			0/2		0/47	0/11						0/13	
<i>Charadrius dominica</i>			0/3		15/62	0/1		0/3				0/49	
<i>Charadrius dubius</i>	1/1				3/55	0/1		0/10				16/70	
<i>Charadrius leschenaulti</i>					0/16	0/4		0/6				3/66	
<i>Charadrius mongolus</i>					0/11	0/1						0/26	
<i>Charadrius peroni</i>					0/3	0/2						0/12	
<i>Charadrius placidus</i>					0/15	0/1			0/1			0/2	
<i>Charadrius squatarola</i>												0/3	
<i>Pterodroma dominica</i>					0/15	0/1			0/1			0/17	20/380
SCOLOPACIDAE													
<i>Actitis hypoleucos</i>	0/4				6/80	0/15	0/6	0/4	0/5			6/114	
<i>Arenaria interpres</i>		0/2			0/2			0/1				0/5	
<i>Callidris alpinus</i>			0/8									0/8	
<i>Callidris canutus</i>								0/1				0/1	
<i>Callidris ferruginea</i>								0/1				0/1	
<i>Callidris minutillus</i>					1/35		0/6	0/2				1/37	
<i>Callidris ruficollis</i>					0/6			0/5				0/12	
<i>Callidris tenuirostris</i>		0/1										0/5	
<i>Capella gallinago</i>			0/1		0/1	0/8		0/3				0/1	
<i>Capella hardwickii</i>					0/1	0/1						0/13	
<i>Capella megala</i>					1/46	0/4	0/1					0/2	
<i>Capella solitaria</i>	0/1				0/4	1/4		0/5				1/51	
<i>Capella stenura</i>					0/9							1/13	
<i>Heteroscelus incanus</i>		1/8			1/1							1/22	
<i>Numenius borealis</i>		0/1			1/10	0/3	1/9					1/1	
<i>Numenius phaeopus</i>		0/1						1/2				2/23	
<i>Scolopax asticola</i>		0/1				1/5		0/1				1/3	
<i>Tringa glareola</i>					1/22							1/10	
<i>Tringa nebularia</i>					1/1			0/5				1/23	
<i>Tringa ochropus</i>					1/1			0/1				1/1	
<i>Tringa stagnatilis</i>					1/19	0/3		0/2				1/3	
<i>Tringa totanus</i>		0/2			1/2	0/1		0/1				1/23	
<i>Xerius cinereus</i>												1/7	0/1
RECURVIROSTRIDAE													
<i>Himantopus himantopus</i>								0/1				0/1	

Family and species	Korea	Japan	Taiwan	Hong Kong	Laos	Philippines	Negros	Thailand	Malaya	Sarawak	Siakab	Species Total	Family Total
<i>Phanopneustes speciosus</i>					1/2			0/1				1/2	
<i>Phanopneustes tristis</i>					0/4	0/2		0/2	0/8			0/14	9/11
<i>Sipunculus lineatus</i>									8/9			8/9	
<i>Thalassidroma</i>					0/1	1/1			1/2			1/2	143/100
<i>Thalassidroma</i>								0/1				0/1	
<i>Thalassidroma</i>								1/1	2/3			3/4	
<i>Thalassidroma</i>								4/4	0/4			4/4	
<i>Thalassidroma</i>												0/4	
<i>Thalassidroma</i>												20/20	
<i>Thalassidroma</i>												7/8	
<i>Thalassidroma</i>												59/73	
<i>Thalassidroma</i>												40/51	
<i>Thalassidroma</i>												3/3	
<i>Thalassidroma</i>												8/22	
<i>Thalassidroma</i>												1/14	
<i>Thalassidroma</i>												1/1	
<i>Thalassidroma</i>												0/1	
<i>Thalassidroma</i>												0/3	
<i>Thalassidroma</i>												0/10	5/56
<i>Thalassidroma</i>												0/1	
<i>Thalassidroma</i>												0/1	
<i>Thalassidroma</i>												0/46	
<i>Thalassidroma</i>												2/3	
<i>Thalassidroma</i>												3/5	2/94
<i>Thalassidroma</i>												0/6	
<i>Thalassidroma</i>												0/8	
<i>Thalassidroma</i>												0/3	
<i>Thalassidroma</i>												0/1	
<i>Thalassidroma</i>												3/58	
<i>Thalassidroma</i>												0/7	
<i>Thalassidroma</i>												0/4	
<i>Thalassidroma</i>												0/7	0/49
<i>Thalassidroma</i>												1/3	
<i>Thalassidroma</i>												0/10	
<i>Thalassidroma</i>												1/14	
<i>Thalassidroma</i>												4/15	
<i>Thalassidroma</i>												0/4	
<i>Thalassidroma</i>												0/1	
<i>Thalassidroma</i>												0/2	
<i>Thalassidroma</i>												0/2	148/671
<i>Thalassidroma</i>												0/6	
<i>Thalassidroma</i>												0/2	
<i>Thalassidroma</i>												0/1	
<i>Thalassidroma</i>												0/4	
<i>Thalassidroma</i>												8/47	
<i>Thalassidroma</i>												0/1	
<i>Thalassidroma</i>												1/31	
<i>Thalassidroma</i>												73/211	
<i>Thalassidroma</i>												17/37	
<i>Thalassidroma</i>												9/49	
<i>Thalassidroma</i>												10/14	
<i>Thalassidroma</i>												17/58	
<i>Thalassidroma</i>												6/78	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
<i>Lacedo pulchella</i>								0/2 0/7	3/4 1/6	1/1		4/7 1/17	
MEROPIDAE						0/4						3/31	
<i>Merops leschenaulti</i>								1/1 0/3				1/1 0/3	
<i>Merops orientalis</i>							0/3					0/3	
<i>Merops philippinus</i>									0/2 2/5			0/2 2/20	
<i>Merops superciliosus</i>					0/8		0/7					0/1	
<i>Merops viridis</i>								0/1				0/1	
<i>Nyctornis atheron</i>									0/1			0/1	
<i>Nyctornis amictus</i>												0/1	
CORACIDAE												3/4	
<i>Coracias benghalensis</i>								1/1				1/1	
<i>Eurystomus orientalis</i>					0/1	1/1		1/1				2/3	
UPUPTIDAE												0/1	
<i>Upupa epops</i>												0/1	
BUCCROTIDAE	0/1											1/5	
<i>Anorrhinus galeritus</i>									0/1 1/2 0/1			0/1 0/1 0/1	
<i>Anthracceros malayanus</i>												0/1	
<i>Berenicornis comatus</i>					0/1							0/1	
<i>Penelopides panini</i>												0/1	
CAPTIONIDAE												25/174	
<i>Megalaima asiatica</i>								2/5				2/5	
<i>Megalaima australis</i>								1/1	0/1			0/1	
<i>Megalaima falcata</i>								2/11 0/35	7/51			9/62 0/80	
<i>Megalaima franklini</i>							0/45	0/1	0/1			0/2	
<i>Megalaima haemiocephala</i>									1/3			1/3	
<i>Megalaima mystacophanes</i>								1/1				1/1	
<i>Megalaima rafflesi</i>								2/2				2/2	
<i>Megalaima virens</i>												1/1	
<i>Megalaima zeylonica</i>												2/2	
<i>Palloporon pyrolophus</i>									7/17			4/17	
INDICATORIDAE								0/1				0/1	
<i>Indicator archipelagicus</i>												0/1	
PICIDAE												4/281	
<i>Blythipicus pyrrhotis</i>								0/7	0/3			0/10	
<i>Blythipicus rubiginosus</i>								0/1	0/6			0/6	
<i>Chrysocolaptes lucidus</i>					0/2	0/1		0/1	0/3			0/7	
<i>Chrysocolaptes validus</i>								0/3	0/1			0/1	
<i>Dendrocopos atratus</i>								0/3				0/3	
<i>Dendrocopos canicapillus</i>								0/1				0/1	
<i>Dendrocopos kizuki</i>	0/1 0/1											0/1	
<i>Dendrocopos leucotus</i>								0/2	0/2			0/2	
<i>Dendrocopos maclei</i>								0/1	0/40 0/2			0/53	
<i>Dendrocopos moluccensis</i>						0/2						0/2	
<i>Dinopium javanense</i>								0/1	0/2			0/1	
<i>Dryocopus javensis</i>							0/1	0/5				0/1	
<i>Hemicircus canente</i>									0/3			0/5	
<i>Jynx torquilla</i>								0/5	0/34 0/32			0/34 0/37	
<i>Meiglyptes tristis</i>												0/1	
<i>Meiglyptes tukki</i>								0/5				0/37	
<i>Micropternus brachyurus</i>					0/1			0/2				0/2	
<i>Mulleripicus funebris</i>								1/2				1/2	
<i>Picumnus innominatus</i>								1/2				1/2	
<i>Picus canus</i>	0/1							0/2	0/3			0/5	
<i>Picus chlorolophus</i>								0/2	0/10			0/10	
<i>Picus erythropygus</i>									0/1			0/1	
<i>Picus flavinuchus</i>									2/56			2/56	
<i>Picus miniacus</i>												0/1	
<i>Picus puniceus</i>												0/1	
<i>Picus vittatus</i>								0/7				2/63	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Pala wan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
<i>Sialis alba</i>								0/2	0/1			0/9	
<i>Sialis ochracea</i>								0/16				0/16	
EURYLAIMIDAE													2/73
<i>Calypomena viridis</i>								0/2	0/18	0/2		0/22	
<i>Cymbistethus macrorhynchus</i>									0/20			0/20	
<i>Eurylaimus javanicus</i>									1/3			1/3	
<i>Sericornis lunatus</i>								1/28				1/28	
PITTIDAE													18/63
<i>Pitta cyanica</i>					4/14	1/1	1/1	0/9				0/9	
<i>Pitta erythrogastrus</i>									5/21			5/21	
<i>Pitta moluccensis</i>								2/5				2/5	
<i>Pitta ostreata</i>					0/2	1/2	0/2		4/6			5/12	0/29
<i>Pitta sordida</i>					0/6							0/6	
ALAUDIDAE													
<i>Alauda arvensis</i>	0/1				0/19			0/2				0/1	
<i>Galerida cristata</i>								0/1				0/2	
<i>Mirafra asamica</i>								0/1				0/20	
<i>Mirafra javanica</i>													7/315
HIRUNDINIDAE													
<i>Delichon dasycarpus</i>		0/2			0/1			0/2				0/1	
<i>Delichon urbica</i>		0/2	0/2					3/116	3/140			0/2	
<i>Hirundo daurica</i>			0/1			1/6						7/260	
<i>Hirundo rustica</i>												0/1	
<i>Hirundo striolata</i>													
<i>Hirundo tahitica</i>					0/34		0/5		0/1			0/40	
CAMPEPHAGIDAE													11/135
<i>Coracina melaschista</i>								0/1	2/8			0/1	
<i>Coracina novaehollandiae</i>								0/1				0/1	
<i>Coracina polioptera</i>					0/3	0/1	0/2					0/6	
<i>Coracina striata</i>								4/10	0/2			0/2	
<i>Hemipus hirundinaceus</i>					0/1							0/1	
<i>Hemipus picatus</i>					1/22	0/1	1/38		0/22			2/83	
<i>Lalage melanocephala</i>								0/5				0/5	
<i>Lalage nigra</i>					0/1			0/2	1/2			0/2	
<i>Pericrocotus ethologus</i>								0/4				1/3	
<i>Pericrocotus flammeus</i>								2/7				0/4	
<i>Pericrocotus roseus</i>												0/4	
<i>Pericrocotus solaris</i>												2/7	
<i>Tephrodornis virgatus</i>													35/347
DICRUVIDAE													
<i>Dicrurus adimilis</i>								0/1	0/2			0/1	
<i>Dicrurus aeneus</i>								0/5	7/25			0/7	
<i>Dicrurus annectans</i>					3/19		5/28					7/25	
<i>Dicrurus bellicus</i>					4/9	3/10		3/33				8/47	
<i>Dicrurus boettgeri</i>						3/16		2/29				10/52	
<i>Dicrurus leucophaea</i>			0/1					1/1				5/45	
<i>Dicrurus macrorhynchus</i>								0/33	1/16	0/1		1/2	
<i>Dicrurus paradoxus</i>								0/99	3/19			1/50	
<i>Dicrurus remifer</i>												3/118	
ORIOLIDAE													67/114
<i>Oriolus chinensis</i>	2/3				1/8	1/4	61/87	2/5	0/2			67/109	
<i>Oriolus traillii</i>								0/4				0/4	
<i>Oriolus xanthopygus</i>									0/1			0/1	
CORVIDAE													4/26
<i>Corvus chinensis</i>		1/1						0/1				0/1	
<i>Corvus corone</i>												1/1	
<i>Corvus macrorhynchus</i>								0/4				0/4	
<i>Crypsirina occipitalis</i>								2/2				2/2	
<i>Crypsirina temia</i>								0/4				0/4	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
<i>Criniger phaeocephalus</i>	4/5	1/5						0/12	0/2	0/1		2/95	
<i>Hypsipetes amaurotis</i>								0/4	2/2			5/10	
<i>Hypsipetes charlottae</i>								1/9	4/63			2/6	
<i>Hypsipetes criniger</i>								4/24	2/5			5/72	
<i>Hypsipetes flavus</i>								2/12				6/29	
<i>Hypsipetes madagascariensis</i>								0/1				2/12	
<i>Hypsipetes malaccensis</i>								40/94	13/125			0/1	
<i>Hypsipetes maclelandi</i>								8/15				53/219	
<i>Hypsipetes philippinus</i>					10/60		74/104					84/164	
<i>Hypsipetes propinqua</i>						1/3						9/16	
<i>Hypsipetes siquijorensis</i>								1/19		0/1		0/1	
<i>Hypsipetes thompsoni</i>						5/54		2/23	2/1	0/2		9/90	
<i>Pycnonotus atriceps</i>				1/7				11/77				2/84	
<i>Pycnonotus aurigaster</i>								168/245				168/246	
<i>Pycnonotus blanfordi</i>								0/5	8/44	1/1		9/50	
<i>Pycnonotus brunneus</i>								0/1	0/3			0/4	
<i>Pycnonotus cyaniventris</i>								1/7	8/18	2/2		11/27	
<i>Pycnonotus erythrophthalmos</i>									0/18	0/3		0/21	
<i>Pycnonotus eutilotus</i>								27/95	0/1			27/98	
<i>Pycnonotus finlaysoni</i>								4/163				4/163	
<i>Pycnonotus flavescens</i>								5/12	128/1,078	0/5		246/1,385	
<i>Pycnonotus golaviei</i>				0/4	22/154		91/136	5/73				5/77	
<i>Pycnonotus jocosus</i>								0/1	0/1			0/2	
<i>Pycnonotus melanoleucos</i>								93/133	1/3	0/1		94/136	
<i>Pycnonotus melanicterus</i>						34/40		28/436	0/1			52/479	
<i>Pycnonotus plumosus</i>								11/82		0/1		11/83	
<i>Pycnonotus simplex</i>				7/22								7/41	
<i>Pycnonotus sinensis</i>	0/19							0/9				0/9	
<i>Pycnonotus striatus</i>	0/1											0/1	
<i>Pycnonotus taiwanus</i>					0/14			0/40	2/1			0/14	
<i>Pycnonotus urostictus</i>										0/1		0/40	
<i>Pycnonotus xanthorhous</i>								0/64				2/6	
<i>Pycnonotus zeylanicus</i>												1/1	
<i>Scoeris criniger</i>												0/64	
<i>Spizixos canifrons</i>												0/2	
<i>Spizixos semitorques</i>												0/2	
AEGITHINIDAE												13/92	
<i>Aegithina lafresnayei</i>								1/1				1/1	
<i>Aegithina tiphia</i>								1/12	0/11			1/23	
<i>Chloropsis aurifrons</i>								1/19				1/19	
<i>Chloropsis cochinchinensis</i>								1/3	0/1			1/4	
<i>Chloropsis cyanopogon</i>								2/6				2/6	
<i>Chloropsis hardwickii</i>								0/7	1/2			1/9	
<i>Chloropsis palawanensis</i>						6/7			0/1			6/7	
<i>Chloropsis nonnerati</i>												0/1	
<i>Irena cyanogaster</i>					0/1	0/2		0/16	0/3			0/21	
<i>Irena puella</i>												0/2	
CINCLIDAE												0/2	
<i>Cinclus pallasi</i>	0/1							0/1				0/2	
TRYLODYTIDAE												0/4	
<i>Troglodytes troglodytes</i>	0/1	0/3										0/4	
TURDIDAE												414/1,664	
<i>Brachypteryx leucophrys</i>								0/63	0/12			0/75	
<i>Brachypteryx montana</i>							0/1	0/8				1/12	
<i>Copsychus saularis</i>					1/1							0/7	
<i>Copsychus malabaricus</i>								18/55	27/55	0/1		45/111	
<i>Copsychus niger</i>						11/20						11/20	
<i>Copsychus pyropygus</i>					1/8		30/36	28/50	1/4	0/2		1/6	
<i>Copsychus saularis</i>								20/115	4/9	0/1		80/210	
<i>Enicurus leschenaulti</i>								0/1	3/11	0/1		4/10	
<i>Enicurus ruficapillus</i>								0/2	1/12	0/1		3/12	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
<i>Enicurus schistaceus</i>		1/4						0/7	1/12			1/19	
<i>Eritrichus albae</i>	0/1	0/3						0/47	21/50			1/4	
<i>Eritrichus caliope</i>	0/8	4/32		0/7	0/20			7/105	0/1			0/65	
<i>Eritrichus cyane</i>												32/195	
<i>Eritrichus ruficeps</i>								0/4	0/1			0/1	
<i>Monticola gularis</i>								0/4				0/4	
<i>Monticola rufiventris</i>			0/2					0/1				0/1	
<i>Monticola saxatilis</i>		0/1	0/1					0/1				0/2	
<i>Monticola solitaria</i>			0/2					0/131	1/10			0/10	
<i>Myiophonus leucura</i>				0/1	0/4			1/16	1/4			1/143	
<i>Myophonus coerules</i>												0/2	
<i>Myophonus robinsoni</i>	0/7	0/8	0/2	0/3				0/2				1/4	
<i>Phoenicurus aureus</i>												0/30	
<i>Phoenicurus frontalis</i>								0/1				0/2	
<i>Rhyacornis fuliginosus</i>					0/2		1/6	0/3				1/13	
<i>Saxicola caprata</i>								0/45				0/45	
<i>Saxicola ferrea</i>								0/2				0/2	
<i>Saxicola jerdoni</i>	1/12	0/1	0/2	0/6				0/5				1/18	
<i>Saxicola torquatus</i>			0/1					0/52				0/60	
<i>Tarsiger cyanurus</i>			0/17									0/1	
<i>Tarsiger indicus</i>			0/17									0/1	
<i>Tarsiger johnstoniae</i>				1/4								0/17	
<i>Turdus cardis</i>		3/9	0/8									4/13	
<i>Turdus celaenops</i>		0/4										0/4	
<i>Turdus chrysolaus</i>	0/1	2/11	0/8	4/17	7/14							9/33	
<i>Turdus hortulorum</i>	0/9	1/6										4/19	
<i>Turdus naumanni</i>	0/2	1/9	0/6	0/3	2/4	0/1	0/3	1/17	137/196			1/35	
<i>Turdus obscurus</i>												140/221	
<i>Turdus paltilus</i>					5/21			3/30	0/3			1/20	
<i>Turdus sinensis</i>					6/11			1/9				5/21	
<i>Zoothera citrina</i>		1/2	1/1					1/8		0/1		3/33	
<i>Zoothera dauma</i>												9/23	
<i>Zoothera interpres</i>												0/1	
<i>Zoothera marginata</i>								0/2	47/83			1/8	
<i>Zoothera sibirica</i>												52/95	59/372
SYLVIIDAE													
<i>Abroscopus superciliosus</i>	0/3	4/20	2/2		0/16			0/6	5/36			0/6	
<i>Acrocephalus arundinaceus</i>		0/4						1/7	0/1			0/6	
<i>Acrocephalus bistrigiceps</i>								0/1				0/4	
<i>Acrocephalus concinnus</i>								0/4				0/4	
<i>Acrocephalus sorghophilus</i>					0/17							0/17	
<i>Cettia acanthizoides</i>			0/4					0/1				0/4	
<i>Cettia canturians</i>												0/1	
<i>Cettia diphone</i>		0/6	0/14					0/24				0/24	
<i>Cettia fortipes</i>	0/4		0/1					0/1				0/1	
<i>Cettia montana</i>								0/4				0/4	
<i>Cettia pallidipes</i>								0/1	0/4			0/1	
<i>Cettia squameiceps</i>		0/3						0/17				0/23	
<i>Cisticola exilis</i>					1/5							1/5	
<i>Cisticola juncidis</i>			0/18					0/1	0/1			0/19	
<i>Gerygone fusca</i>												0/2	
<i>Gerygone subpallens</i>					0/4							0/4	
<i>Locustella certhiola</i>					1/15				0/2			1/17	
<i>Locustella fasciolata</i>	0/1		0/1		8/28							6/30	
<i>Locustella lanceolata</i>		0/4			3/48							3/48	
<i>Locustella ochotensis</i>					0/1							0/5	
<i>Megalururus palustris</i>					0/9							1/12	
<i>Megalururus timoriensis</i>					1/3		1/3					1/5	
<i>Orthotomus atrogularis</i>					0/4		0/13	2/12	1/6			3/35	
<i>Orthotomus cinereiceps</i>					0/3			0/2				0/3	
<i>Orthotomus cucullatus</i>												0/2	
<i>Orthotomus nigriceps</i>					1/1				0/49			1/1	
<i>Orthotomus sepium</i>												0/49	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
Muscicapidae													
<i>Muscicapa westerni</i>								0/3	0/5			0/8	
<i>Muscicapa zanthopygia</i>								0/3	0/28			0/30	
<i>Philetona pyrrhoptera</i>							1/1	0/6				1/1	
<i>Rhinomyias olivacea</i>							0/2					0/6	
<i>Rhinomyias rubicauda</i>									1/13			0/2	
<i>Rhinomyias unibrattis</i>							0/5	0/57	1/13			1/13	
<i>Rhipidura albicollis</i>					0/10		0/33	1/24	1/24			1/61	
<i>Rhipidura cyaniceps</i>					0/24			3/31	5/163			0/15	
<i>Rhipidura javanica</i>					0/1							8/251	
<i>Rhipidura nigrocinnamomea</i>									0/4			0/1	
<i>Rhipidura preata</i>					0/1							0/4	
<i>Rhipidura superciliosa</i>												0/1	
<i>Terpsiphone atrocaudata</i>			0/1			7/19		0/9	6/30			0/1	
<i>Terpsiphone cyanescens</i>												7/19	
<i>Terpsiphone paradisi</i>												6/30	
PACHYCEPHALIDAE													5/23
<i>Pachycephala cinerea</i>									1/56			1/56	
<i>Pachycephala philippinensis</i>					2/3		2/4					2/3	
<i>Pachycephala platensis</i>												2/4	
PRUNELLIDAE	0/5											0/5	0/5
<i>Prunella montanella</i>													33/244
MOTACILLIDAE													
<i>Anthus gustavi</i>			0/1	9/13	0/6		0/2	1/45	0/5			0/3	
<i>Anthus hodgsoni</i>	0/1	2/16	0/7		0/1	0/11	0/17		0/3			12/93	
<i>Anthus novaeseelandiae</i>												0/32	
<i>Anthus spinoletta</i>	0/1											0/1	
<i>Dendronanthus indicus</i>	9/46	0/1	0/1	1/1	3/18	0/1		0/2	2/3			2/9	
<i>Motacilla alba</i>	1/6		0/2			2/3	2/6	1/1	0/2			10/52	
<i>Motacilla caspica</i>	0/1		0/1		0/8	0/2	2/4	0/14				5/29	
<i>Motacilla flava</i>												4/25	
ARTAMIDAE												2/14	2/14
<i>Artamus leucorhynchus</i>													33/201
LANIIDAE													
<i>Lanius bucephalus</i>	2/12	1/5	0/4					0/1				3/21	
<i>Lanius collurio</i>	2/10			1/1	22/80	8/18	14/33	6/45	12/31			0/1	
<i>Lanius cristatus</i>				4/4	1/1		3/3	2/5				65/157	
<i>Lanius nasutus</i>									1/2			2/5	
<i>Lanius schach</i>								0/1				9/10	
<i>Lanius tephronotus</i>		3/4							1/2			0/1	
<i>Lanius tigrinus</i>												4/6	
STURNIDAE													61/164
<i>Aplonis panayensis</i>					7/37	6/30	0/4		1/2			13/71	
<i>Gracula religiosa</i>					3/5	1/1	41/57					2/3	
<i>Sarcops calvus</i>		0/8										44/62	
<i>Sturnus cineraceus</i>					0/7							0/8	
<i>Sturnus cristatus</i>								0/8				0/7	
<i>Sturnus javanicus</i>								1/1				0/6	
<i>Sturnus nigricollis</i>					0/1							1/1	
<i>Sturnus sericeus</i>									1/2			0/1	
<i>Sturnus sturninus</i>								0/1	0/2			1/2	
<i>Sturnus tristis</i>												0/3	
NECTARINIIDAE													362/1262
<i>Aethopyga boltoni</i>					1/2							1/2	
<i>Aethopyga gouldiae</i>								0/140				0/140	
<i>Aethopyga mystacalis</i>								0/1	0/1			0/1	
<i>Aethopyga nipalensis</i>								0/2	3/20			3/22	
<i>Aethopyga saturata</i>					0/1							0/1	
<i>Aethopyga shufeldti</i>												0/5	
<i>Aethopyga sinensis</i>				0/1		0/2	0/3	0/2	316/409			316/416	
<i>Aethopyga malacensis</i>						0/1		0/1	0/4			0/5	
<i>Aethopyga simplex</i>									0/4			0/5	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
DICAETIDAE													
<i>Anthreptes simplex</i>								0/1	0/4			0/5	
<i>Anthreptes singalensis</i>								1/4				1/4	
<i>Arachnothera affinis</i>								0/6	7/17			7/23	
<i>Arachnothera chrysogenys</i>								1/1	1/1			1/1	
<i>Arachnothera longirostris</i>					0/32	1/25		0/174	2/270			3/310	
<i>Arachnothera maculosa</i>					0/1			0/4	14/20			14/33	
<i>Arachnothera philippinensis</i>								0/7	1/22			0/1	
<i>Hypogramma hypogrammica</i>						1/2		5/37	5/37			6/39	
<i>Nectarinia chalcosepha</i>							6/14	2/5	0/2			9/21	
<i>Nectarinia jugularis</i>					0/1			1/2				1/3	6/101
<i>Nectarinia sperata</i>													
DICAETIDAE													
<i>Amalinos johannae</i>						1/3						1/3	
<i>Amalinos olivaceus</i>					0/2		0/3					0/2	
<i>Dicaeum agile</i>					0/4		0/14					0/3	
<i>Dicaeum australe</i>					0/1		0/1					0/16	
<i>Dicaeum bicolor</i>								0/15	1/10			0/2	
<i>Dicaeum cruentatum</i>					0/1							1/25	
<i>Dicaeum hypoleucum</i>								0/3				0/1	
<i>Dicaeum ignipectus</i>					0/1		0/2					0/3	
<i>Dicaeum pygmaeum</i>					1/6		0/3		0/4			1/13	
<i>Dicaeum trigonostigma</i>					0/2			0/6	1/3			1/9	
<i>Prionochilus maculatus</i>												0/2	
<i>Prionochilus olivaceus</i>								0/2	1/14			1/16	
<i>Prionochilus percinus</i>								1/1				1/1	
<i>Prionochilus thoracicus</i>													29/270
ZOSTEROPSIDAE													
<i>Zosterops erythroleuca</i>								0/93				0/93	
<i>Zosterops exilis</i>			0/3		0/1			1/85				0/1	
<i>Zosterops japonica</i>					0/2							1/90	
<i>Zosterops nigrorum</i>							23/34		1/2			23/34	
<i>Zosterops palpebrosa</i>	0/4	2/7	0/27					2/12				5/52	
FRINGILLIDAE													43/798
<i>Carduelis sinica</i>	1/74	0/14						0/166				1/88	
<i>Carpodacus erythrinus</i>	5/11							0/11				0/166	
<i>Carpodacus roseus</i>	0/1	0/1										0/11	
<i>Coccothraustes coccothraustes</i>	1/11											0/2	
<i>Eophona migratoria</i>	1/10			0/2								1/11	
<i>Emberiza aureola</i>	1/26	1/17						0/12				1/24	
<i>Emberiza citreola</i>	3/44	1/30										2/43	
<i>Emberiza elegans</i>	0/56	0/1										4/74	
<i>Emberiza fucata</i>	0/4							0/4				0/57	
<i>Emberiza leucocapitata</i>	1/49											0/4	
<i>Emberiza pusilla</i>	5/30											1/49	
<i>Emberiza rutila</i>	1/3	0/19	0/5	3/17				20/127				25/198	
<i>Emberiza spodocephala</i>	1/3	1/5			0/3							4/44	
<i>Emberiza sulphurata</i>	2/12											0/3	
<i>Emberiza variabilis</i>	0/6											1/5	
<i>Emberiza yessoensis</i>												2/12	
<i>Fringilla montifringilla</i>												0/6	
<i>Haematoptila sibirica</i>								0/1				0/1	
<i>Melospiza lathami</i>								0/1				0/1	
<i>Pyrrhula erythraea</i>			0/6									0/6	
<i>Pyrrhula alpinensis</i>		0/3							0/2			0/2	
<i>Pyrrhula pyrrhula</i>												0/3	
<i>Uragus sibiricus</i>	0/6								0/2			0/6	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
PLOCEIDAE													89/394
<i>Erythrura hyperythra</i>					0/28	2/3	1/4	0/1	0/2			0/2	
<i>Erythrura prasina</i>					2/45	2/3	0/4					0/1	
<i>Lonchura ferruginosa</i>												3/35	
<i>Lonchura leucogaster</i>									3/25			4/32	
<i>Lonchura maja</i>					0/84		1/8		3/25			3/28	
<i>Lonchura malacca</i>					0/8				1/16			2/86	
<i>Lonchura punctulata</i>			0/22	0/4	0/8			15/28	0/15			15/75	
<i>Lonchura striata</i>			0/24					10/20				10/44	
<i>Paddy oryzivora</i>					0/4			29/35	0/78			0/4	
<i>Passer flaveolus</i>			1/8	0/8				0/18				29/35	
<i>Passer montanus</i>	2/10	0/14						0/18				3/132	
<i>Passer rufinus</i>		0/8						0/18				0/8	
<i>Ploceus manyar</i>								19/66	1/7			0/18	
<i>Ploceus philippinus</i>												20/73	
Number species examined	72	87	79	21	179	92	96	361	281	35			719
Number slides examined	881	485	408	124	2,247	612	1,351	6,795	6,821	95			19,633
Number positive slides	31	63	18	31	2,265	178	444	829	1,539	7			3,410
Percent infection	7.4	13.5	3.9	25.0	11.8	28.7	32.9	12.2	22.4	11.6			17.4

TABLE 17

THE NUMBER OF BLOOD PARASITE INFECTIONS IDENTIFIED IN MALAYA, 1940-43

Haemo = Haemoprotozoan; Leuco = Leucocytozoan; Microf = Microfilaria; Plasm = Plasmodium

* - indicates that there were multiple infections present

Host family and species	Number slides examined	Parasites present			
		Haemo.	Leuco.	Plasm.	Microf.
ARDEIDAE					
<i>Butorides striatus</i>	3				
<i>Isobrychus cinnamomeus</i>	9				
<i>Isobrychus sinensis</i>	1	1		1	1
ACCIPITRIDAE					
<i>Accipiter virgatus</i>	15	1	8		
FALCONIDAE					
<i>Falco peregrinus</i>	1	1			
PHASIANIDAE					
<i>Argusianus argus</i>	3	3		2	
<i>Lophura erythrophthalma</i>	8			1	
<i>Nolotus roulei</i>	3	1			
TURNICIDAE					
<i>Turnix susclator</i>	18			5	
RALLIDAE					
<i>Anas cornis phoenicurus</i>	49			17	
COLUMBIDAE					
<i>Chalcophaps indica</i>	89	5			
<i>Ducula bicolor</i>	1	1			
<i>Macropygia ruficeps</i>	3	2	1		
<i>Macropygia unchall</i>	2	1			
<i>Treron curvirostris</i>	3	1			
CUCULIDAE					
<i>Cacomantis merulinus</i>	9	2		1	
<i>Phaenicophaeus javanicus</i>	1				
TYTONIDAE					
<i>Phodilus badius</i>	9	7		1	
STRIGIDAE					
<i>Glaucidium brodiei</i>	3	2			
<i>Otus bakkamoena</i>	49	44	1*		
<i>Otus scops</i>	39	33	1*		
<i>Otus rufescens</i>	3	2	8*		
<i>Otus spilocephalus</i>	14	5			
CAPRIMULGIDAE					
<i>Eurostopodus temminckii</i>	3	2			
ALCEDINIDAE					
<i>Collocalia esculenta</i>					
ALCEDINIDAE					
<i>Ceryx erythacus</i>	39	3			
<i>Ceryx rufidorsus</i>	29	1			
<i>Halcyon chloris</i>	62	38			
<i>Halcyon concreta</i>	17	17			
<i>Halcyon coromanda</i>	25	6			
<i>Halcyon pileata</i>	28	6			
<i>Halcyon amyrnensis</i>	42	14			
<i>Lacedo pulchella</i>	26	4			
<i>Ptilinopus capensis</i>	4	3			
MEROPIDAE					
<i>Merop viridis</i>	6	1			
CORACIDAE					
<i>Eurystomus orientalis</i>	5	2			
	1	1			
					1 Trypanosoma

Host family and species	Number slides examined	Parasites present			
		Haemo.	Leuco.	Plasm.	Microf.
<u>Pycnonotus atriceps</u>	11		1		1*
<u>Pycnonotus erythrophthalmos</u>	18		8		1
<u>Pycnonotus golaviei</u>	1, 078		40	2	84
<u>Pycnonotus melanicterus</u>	3			1*	
<u>Pycnonotus plumosus</u>	438		1	2	26
<u>Pycnonotus simplex</u>	82	9		2	
<u>Pycnonotus zeylanicus</u>	7			2	
<u>AEGITHINIDAE</u>					
<u>Chloropais cyanopogon</u>	6	1	1*	1*	1*
<u>Chloropais hardwickii</u>	2		1		
<u>TURPIDIDAE</u>					
<u>Copsychus malabaricus</u>	55	9*		5*	20*
<u>Copsychus saularis</u>	115	10	2	6	1
<u>Enicurus ruficapillus</u>	11			1	
<u>Enicurus schistaceus</u>	12			3	5
<u>Erithacus cyane</u>	50	13			
<u>Myophonus robinsoni</u>	4	1			
<u>Turdus obscurus</u>	196	55*	76*	1	3
<u>Zosterornis marginata</u>	8	1	1		1
<u>Zosterornis sibirica</u>	83	20	14	6	7
<u>SYLVIIDAE</u>					
<u>Acrocephalus arundinaceus</u>	36	5*			
<u>Orthotomus alpinus</u>	6	1*			
<u>Orthotomus sericeus</u>	41		1		
<u>Phylloscopus trivirgatus</u>	3				
<u>MUSCICAPIDAE</u>					
<u>Muscicapa grandis</u>	70		11	1	2
<u>Muscicapa hypoleuca</u>	21	2			
<u>Muscicapa maculosa</u>	13	1			
<u>Muscicapa sundara</u>	22		1		1
<u>Rhinomyias umbratilis</u>	13	1			
<u>Rhipidura albicollis</u>	24		1		
<u>Rhipidura javanica</u>	163	6			
<u>Terapophone parvula</u>	30				
<u>PACHYCEPHALIDAE</u>					
<u>Pachycephala cinerea</u>	56				
<u>MOTACILLIDAE</u>					
<u>Dendronanthus indica</u>	3	2			
<u>LANIIDAE</u>					
<u>Lanius cristatus</u>	31	12			
<u>Lanius triginus</u>	2	1			
<u>STURNIDAE</u>					
<u>Gracula religiosa</u>	2	1			1
<u>Sturnus sibiricus</u>	2				
<u>NECTARINIDAE</u>					
<u>Actopygia saturata</u>	20				
<u>Anthus malaccensis</u>	409	315	3	1	
<u>Arachnothera affinis</u>	17	7			
<u>Arachnothera longirostris</u>	279		1		1
<u>Arachnothera magna</u>	29		10		4
<u>Hypogramma hypogrammicum</u>	22		1		
<u>Nectarinia chalcasetha</u>	37		5		
<u>DICAETIDAE</u>					
<u>Dicaeum cruentatum</u>	10				
<u>Prionochilus percussus</u>	14	1			

Host family and species	Number slides examined	Parasites present			
		Haemo.	Leuco.	Plasm.	Microf.
ZOSTEROPIDAE					
<i>Zosterops palpebrosa</i>	2	7			
PLOCIDAE					
<i>Lonchura maja</i>	28		1	1	1
<i>Lonchura malacca</i>	16			1	
<i>Ploceus philippinus</i>	7				
Total 125 species	5, 621	733	354	80	203
71 species					
47 species					
29 species					
49 species					
11 species					
5 species					
8 species					
2 species					
					20 Trypanosoma 8 Alloxoplasma 13 Lankesterella 3 Haemogregarine

TABLE 18

EXAMPLES OF SOME IDENTIFIED INFECTIONS OF BLOOD PARASITES AMONG EASTERN ASIAN BIRDS, NOT INCLUDING MALAYA

HK = Hongkong; NO = M = Negros Oriental plus Mindanao; Thal = Thailand

Haemo = Haemoproteus; Leuco = Leucocytozoon; Microf = Microfilaria; Plasm = Plasmodium; Tryp = Trypanosoma

Host family and species	Country					Total Infected Blood films	Parasite						
	Korea	Japan	Taiwan	HK	Luzon		Palawan	NO + M	Thal	Haemo	Leuco	Plasm	Microf
ACCIPITRIDAE													
<i>Accipiter trivirgatus</i>						1			1	1			
<i>Accipiter virgatus</i>										1			
PHALANIDAE													
<i>Coturnix chinensis</i>						6			4		2		
TURNICIDAE													
<i>Turnix suscitator</i>									1		1		
SCOLOPACIDAE													
<i>Capella megala</i>					1				1				
<i>Numenius phaeopus</i>					1		1		2				
<i>Tringa glareola</i>						1			1		1		
<i>Tringa ochropus</i>					1				1				
<i>Tringa totanus</i>					1				1				
COLUMBIDAE													
<i>Chalcophaps indica</i>						2		1	3	2		1*	1*
<i>Macropygia phasianella</i>								1	1				
<i>Phapitreron leucotis</i>					1				1				
<i>Streptopelia chinensis</i>						3			3	1	2		
<i>Streptopelia orientalis</i>									1				
<i>Streptopelia orientalis</i>						1			1				
<i>Trogon curvirostris</i>	1								1				
PSITTACIDAE													
<i>Bombus lucidus</i>					10	5			10	10	1		
<i>Trogon lucidus</i>									4				
TYTONIDAE													
<i>Tyto longimanus</i>						1			1				
STRIGIDAE													
<i>Glaucoptes cuculoides</i>								1	1	1			
<i>Ninox philippensis</i>							2		2				
<i>Ninox scutulata</i>					2		1		3				
<i>Otus bakamoena</i>					3				3	1*			
TROGONIDAE													
<i>Harpactes ardens</i>					1				1	1			
ALCEDINIDAE													
<i>Halcyon chloris</i>									9	9			
<i>Halcyon lindsayi</i>							1		1	1			
<i>Halcyon plicata</i>									1				
PICIDAE													
<i>Picus erythrocephalus</i>									1	1			
PITTIDAE													
<i>Pitta erythrogastra</i>					1	1			9	9			
<i>Pitta sordida</i>									1	1			
CAMPEPHAGIDAE													
<i>Lalage nigra</i>					1				1	1			
DICRUROIDAE													
<i>Dicrurus balicassius</i>					3				3	3			
<i>Dicrurus hottentotus</i>					6				6	6			
<i>Dicrurus macrocerus</i>								1	1	1	2	1	
ORIOLIDAE													
<i>Oriolus chinensis</i>					2		4		6	2		4	1

Host family and species	Country						Total infected Blood films				Parasite			
							Thai	Taiwan	NO + M	Hemo	Leuco	Plasm	Microf	Tryp
	Korea	Japan	Taiwan	HK	Luzon	Paiwan								
CORVIDAE														
<i>Corvus corone</i>		1									1			
TIMALIIDAE														
<i>Alcippe brunneicauda</i>							10			6			4	
<i>Alcippe morrissonia</i>							10			10				
<i>Alcippe nipalensis</i>			1							1		1		
<i>Garulax atripennis</i>						3				1				
<i>Macronous flavicollis</i>										3		1	2	1*
<i>Macronous gularis</i>							10			16		2*	6	1
<i>Macronous pillosus</i>							16			11		7	15	
<i>Macronous striaticeps</i>					11		2			2		1	2	
<i>Malacopteron affine</i>							1			1				
<i>Mimia cynaeroptera</i>							1			1		1		
<i>Pentastorhinus montanus</i>			1				1			3		1		
<i>Yuhina zantholeuca</i>							4			4		1		
PYCNOTOTIDAE														
<i>Criniger bres</i>						1				1				
<i>Criniger pallidus</i>							4			1		1*		
<i>Hypsipetes micellandii</i>							3			1		1		
<i>Hypsipetes philippinus</i>					1		1			1			1	
<i>Hypsipetes propinqua</i>							2			2				
<i>Pycnototus atriceps</i>							1			1				
<i>Pycnototus blanfordi</i>							135			131		3	1	
<i>Pycnototus brunneus</i>							11			11		1	3	1
<i>Pycnototus erythrophthalmos</i>							1			1		1		
<i>Pycnototus finlaysoni</i>							12			2		5	3	
<i>Pycnototus golaviei</i>					11		14		2	7		2		
<i>Pycnototus melanicterus</i>						6	43		42*	42*		1*	1*	
<i>Pycnototus plumosus</i>							6			6		5	1	
AEGITHINIDAE														
<i>Chloropsis aurifrons</i>							1			1				
TURDIDAE														
<i>Copsychus malabaricus</i>							9			9		1		1
<i>Copsychus niger</i>						6	16			15		1		
<i>Copsychus saularis</i>							4			4			2	
<i>Enicurus leschenaulti</i>							1			1			1	
<i>Myophonus caeruleus</i>										1			1	
<i>Turdus cardis</i>		3								3		1		
<i>Turdus chrysolaus</i>		2								2		1		
<i>Turdus naumani</i>		1								1		1		
<i>Turdus pallidus</i>		1								1		1		
<i>Zosterops citrina</i>							2			2		1		
<i>Zosterops duma</i>		1								1				

Host family and species	Country							Total Infected Blood films	Parasite					
	Korea	Japan	Taiwan	HK	Luzon	Palawan	NO + M		Thal	Haemo	Leuco	Plasm	Microf	Tryp
SYLVIIDAE		2							2	2*			1	
<i>Acrocephalus arundinaceus</i>									1					
<i>Megalurus palustris</i>									1					
<i>Orthotomus atrogularis</i>						1			1					
<i>Orthotomus sericeus</i>									1					
<i>Prinia polychroa</i>									1					
<i>Prinia rufescens</i>									6					
MUSCICAPIDAE		9							9					
<i>Muscicapa latirostris</i>									2					
<i>Muscicapa narsistinus</i>		2							2					
<i>Muscicapa parva</i>									2					
<i>Rhipidura javanica</i>						1			3					
<i>Terapibone cyanescens</i>									1					
MOTACILLIDAE									1					
<i>Motacilla alba</i>	7								7					
<i>Motacilla flava</i>						2			2					
LANIIDAE									2					
<i>Lanius bucephalus</i>	2								2					
<i>Lanius cristatus</i>	1				15	4	2		22	11	11			
STURNIDAE														
<i>Sarcops calvus</i>							1		1					
<i>Sturnus nigricollis</i>								1	1	1				
NECTARINIDAE														
<i>Anthreptes singalensis</i>								1	1					
<i>Nectarinia jugularis</i>								1	1					
FRINGILLIDAE														
<i>Eophona migratoria</i>	1								1	1				
<i>Emberiza lucata</i>	1								1					
<i>Emberiza rutila</i>	6								6	6				
PLOCEIDAE														
<i>Lonchura ferruginosa</i>						2			2	2				
<i>Lonchura leucogaster</i>						1			1	1				
<i>Lonchura malacca</i>							1				1			
<i>Lonchura punctulata</i>											1			
<i>Lonchura striata</i>								4	4	3				
<i>Passer flaveolus</i>								5	5	5				
<i>Passer montanus</i>								22	22	22				
<i>Ploceus philippinus</i>	1							15	15	14	1			
TOTAL SPECIES								556	416	53	62	53		6
Multiple Infections.														

99
75
22
29
21
6

*Multiple infections.

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13. ABSTRACT This report consists of five parts. Part I summarizes reports of the banding activities of 12 grantee institutions in 9 countries. Part II discusses the results of banding activities testing records for 893 species. Part III presents data concerning 1,200 recoveries of 140 species, 45 of which crossed international boundaries. Maps of bird movements are given. Part IV summarizes the ectoparasite identifications for the families turdidae, Pycnonotidae and timaliidae. Over 200 species of ectoparasites have been identified from 690 species of birds. Part V summaries of 20,000 blood films from 719 species of birds. Where samples are large enough infection rates for a given species in several geographical areas are given.		

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		ROLE	WT	ROLE	WT	ROLE	WT
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Banding	Leucocytozoon						
Ectoparasites	Microfilaria						
Zoonoses	Trypanosoma						
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