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GRANT NO. DA-CRD-AFE-S92-544-67-G75

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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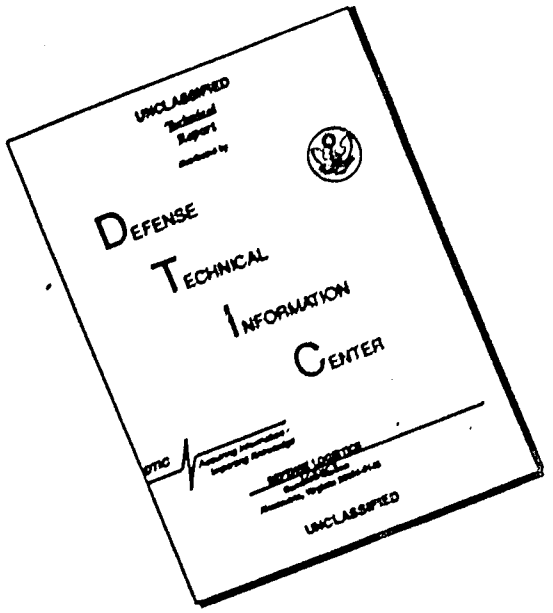

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PARTICIPATING INSTITUTIONS

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 Tsen
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 087FE

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 CO 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

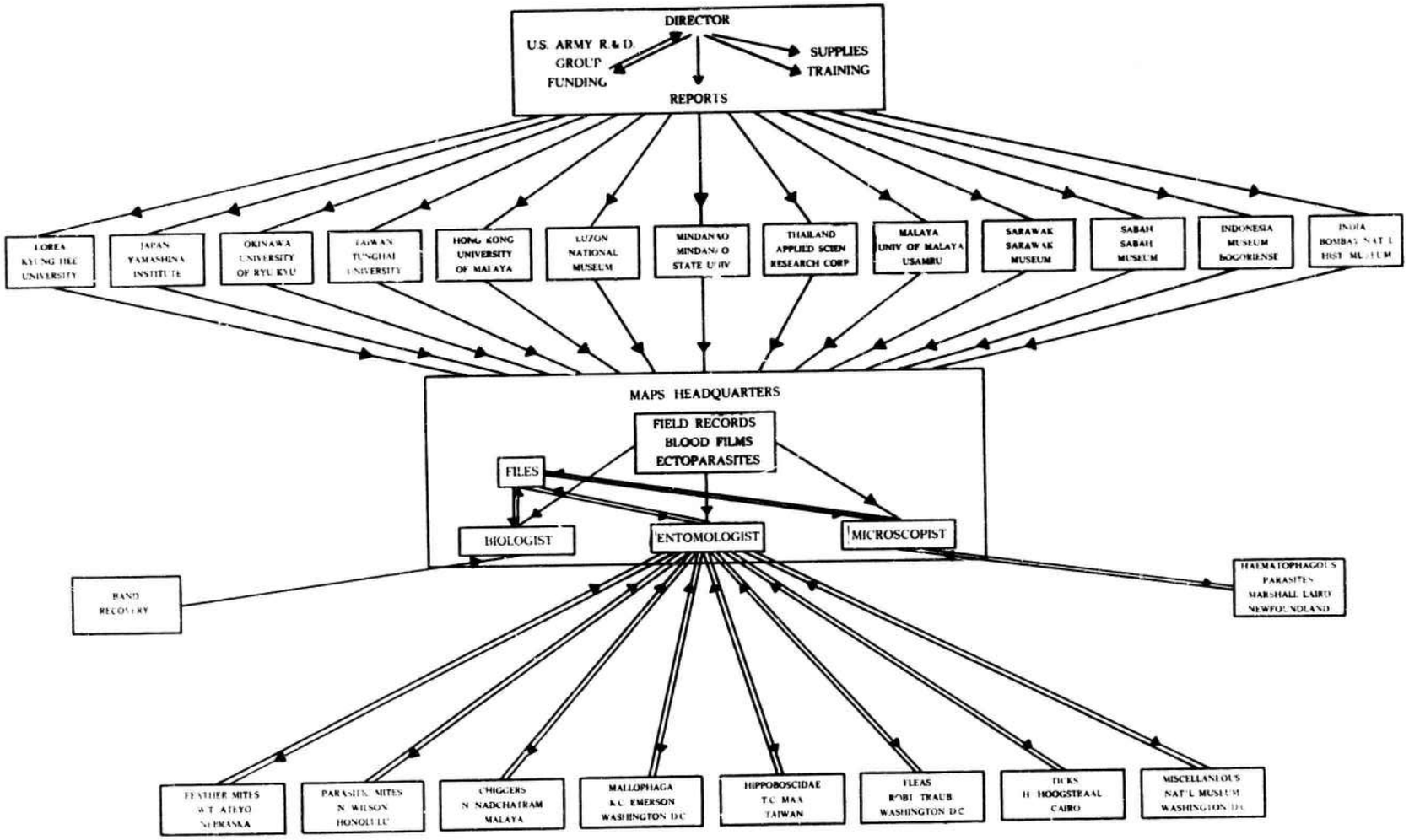

Figure 1. Organizational Chart of the Migratory Animal Pathological Survey.

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 confering 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 on 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 Arcasid (Philippines).

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

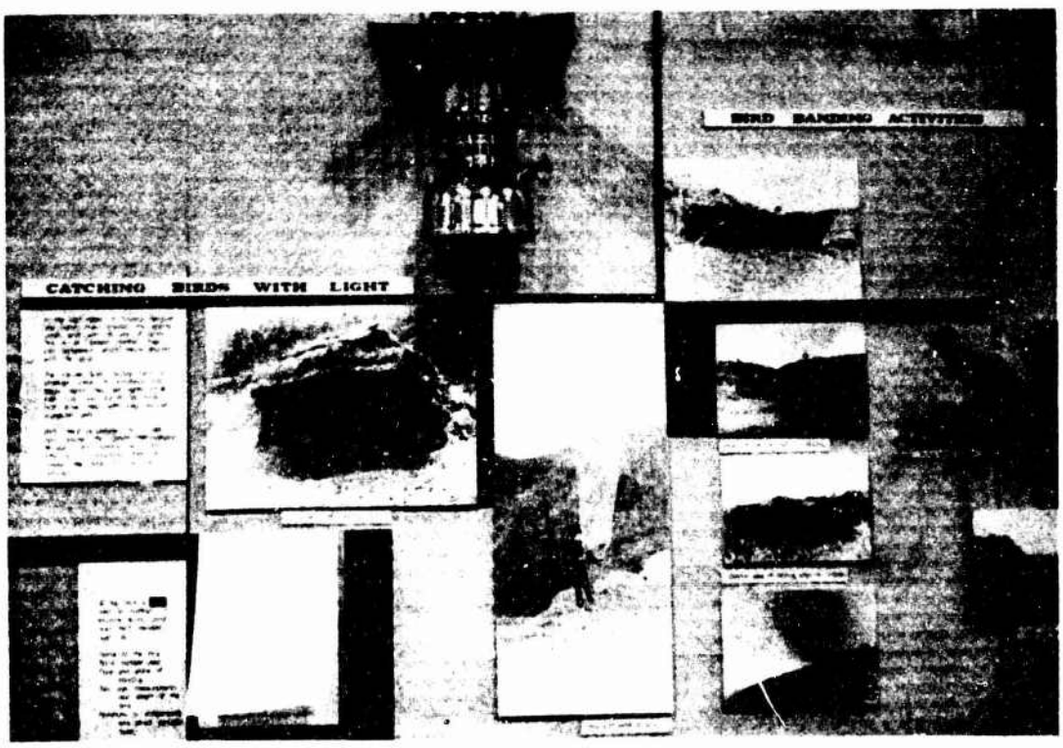

Figure 7. Part of Philippine National Museum exhibition of bird banding and the MAPS programme.

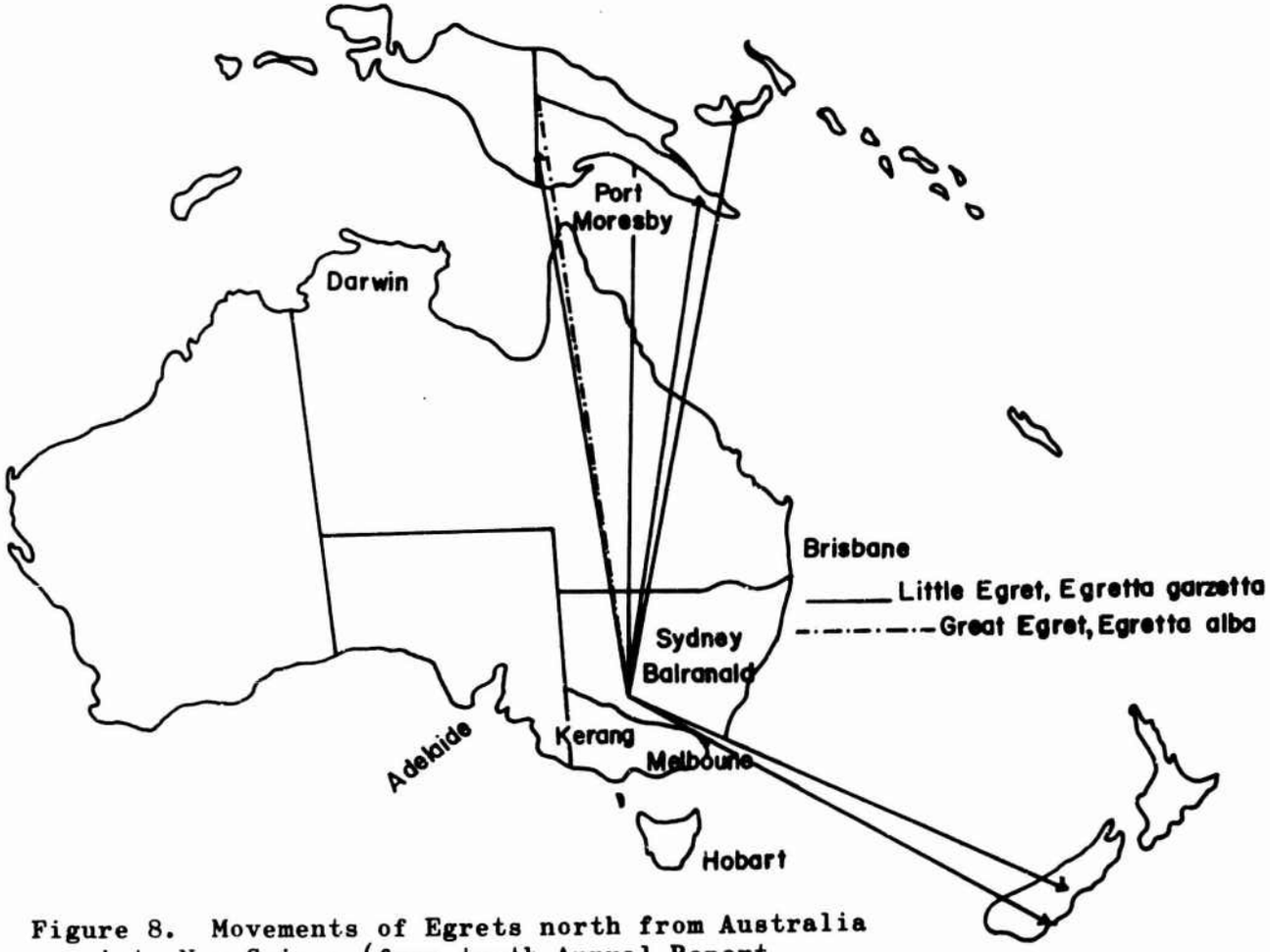

Figure 8. Movements of Egrets north from Australia into New Guinea (from tenth Annual Report Australia bird-banding scheme.)

INDIA

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

Responsible Investigator: Dr. Salim Ali.

Team Members: Robt. Grubh, 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.

Re ponsible Investigator: Henry Tsen.

Tea Members: Local people hired as needed.

Loca ion of Banding Stations: Papar 6.05 N 116 E and vicinity of esselton, 6.00 N, 15.55 E.

Birds anded:	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	

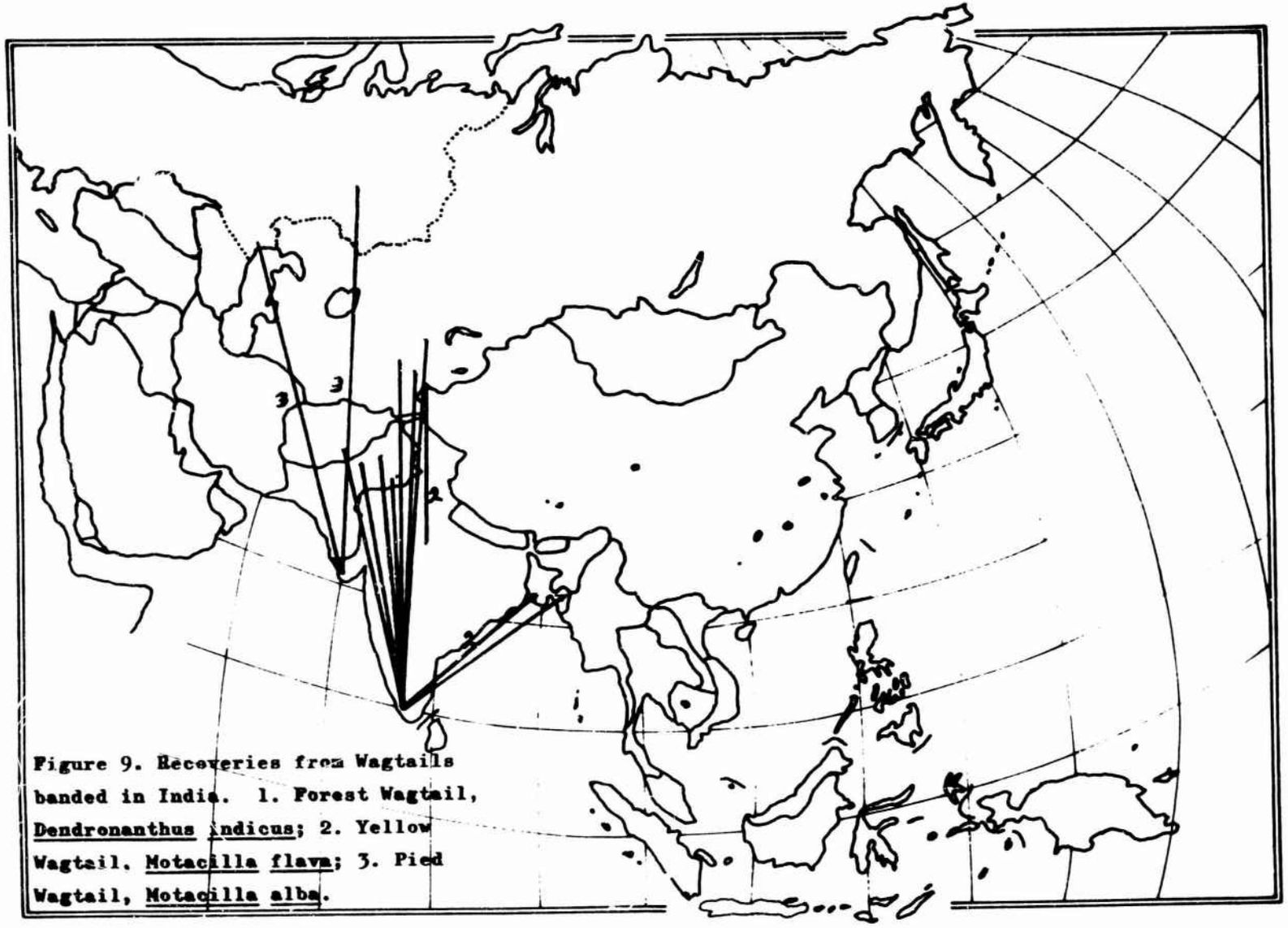

Figure 9. Recoveries from Wagtails banded in India. 1. Forest Wagtail, Dendronanthus indicus; 2. Yellow Wagtail, Motacilla flava; 3. Pied Wagtail, Motacilla alba.

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 preparing 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

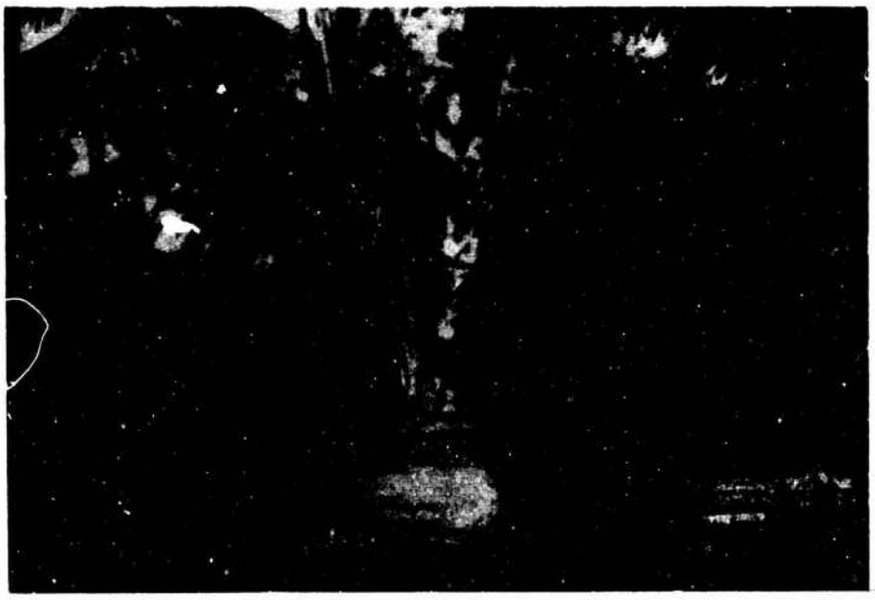

Figure 12. Rantau Panjang, Selangor, Malaya. Longevity records of birds banded here have now reached eight years.

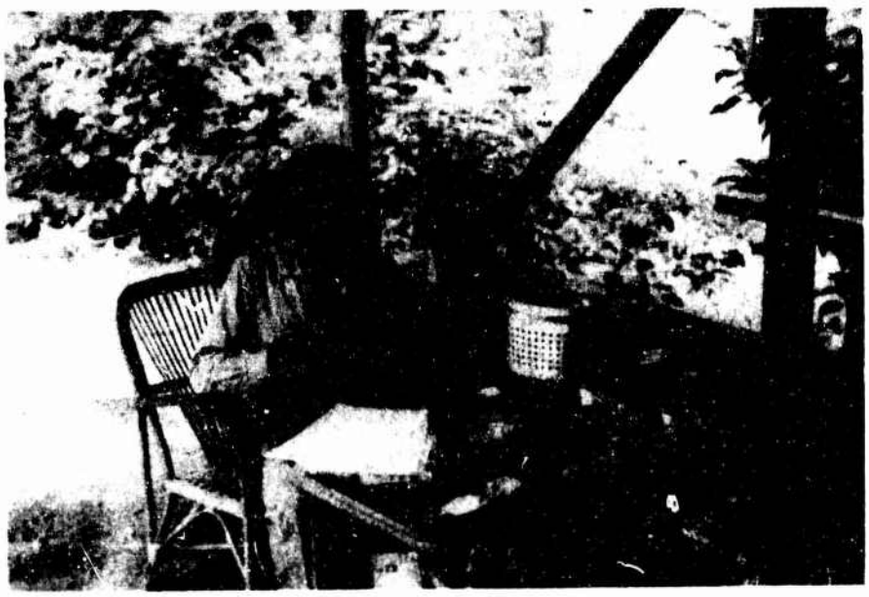

Figure 13. Dawam bin Hamzah and R.D. Soosai working with the day's catch at the Rantau Panjang banding station.

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; Himampargon, Manjuyod, 9.42 N, 123.10 E; Nagoro, Siaton, 9.14 N, 123.06E; 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 suluensis 3, Rhipidura javanica nigritorquis 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 Siguijor. 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 thoseat 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 *Alcedo atthis hengalensis*	1	1	1	1						
Philippine Glossy Starling *Aplonis panayensis panayensis*	1	1	1	1	1	1				
Long-tailed Nightjar *Caprimulgus macrurus manillensis*	2	2	2	2	2	2	2	2	2	
Emerald Dove *Chalcophaps indica indica*	12	12	12	12	8	5	5	5	1	
Magpie Robin *Copsychus saularis mindanensis*	1	1	1	1	1	1	1	1		
Zebra Dove *Geopelia striata striata*	3	3	3	3	2	2	2	2		
White-collared Kingfisher *Halcyon chloris collaris*	20	20	20	16	6	6	5	5	3	
White-breasted Kingfisher *Halcyon smyrnensis gularis*	1	1	1	1						
Philippine Bulbul *Hypsipetes philippinus guimarasensis*	7	7	7	6	5	5	2	2		
Pied Triller *Lalage nigra nigra*	1	1	1							
Brown Shrike *Lanius cristatus lucionensis*	3	3	3	3						
Black-headed Shrike *Lanius nasutus nasutus*	2	2	2	1						
Chestnut Munia *Lonchura malacca jagori*	4	4	4	4	4	4	4	4	3	
Coppersmith Barbet *Megalaima haemacephala intermedia*	3	3	3	3	3	3	2	2	1	
Blue-tailed Bee-eater *Merops philippinus philippinus*	12	12	12	12						
Yellow-breasted Sunbird *Nectarinia jugularis jugularis*	2	2	2	2						
Black-naped Oriole *Oriolus chinensis suluensis*	4	4	3	3	2	2	2	2		
White-eared Brown Fruit Dove *Phapitreron leucotis nigrorum*	1	1	1	1						
Yellow-vented Bulbul *Pycnonotus goiavier goiavier*	46	43	36	32	20	20	19	19	11	
Yellow-vented Bulbul *Pycnonotus goiavier suluensis*	4	3	3	3	3	3	3	3	3	
Pied Fantail Flycatcher *Rhipidura javanica nigritorquis*	8	8	7	5	3	3	2	2	1	
Pied Chat *Saxicola caprata caprata*	2	2	2	2	2	2				
Javanese Turtle Dove *Streptopelia bitorquata dusumieri*	8	8	7	7	4	3	3	2		
Spotted-necked Dove *Streptopelia chinensis tigrina*	2	2	2	2	1	1	1	1	1	
Pink-necked Green Pigeon *Treron vernans vernans*	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 Galo 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.

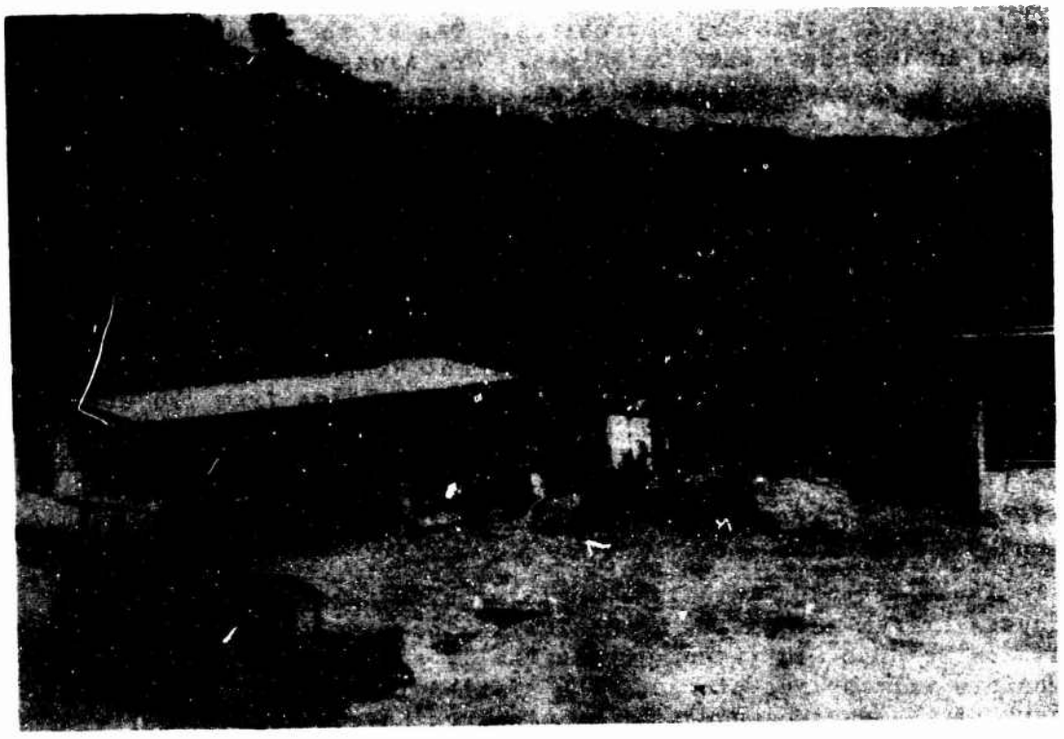

Figure 15. Improvements at the Dalton Pass biological station; additions to the station on the left and use of the abandoned store on the right.
(The bulldozer is not part of the MAPS equipment)

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: Satun, 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 Horseshoe 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 Gyldenstolpe 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 Wooly 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 spelaea 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; Maido 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; Ming-chien, 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: Chi-hsin-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:

Band No.	Banded Date & Place	Recovered Date & Place	Distance
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 Parrottbill 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)

Herons 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.

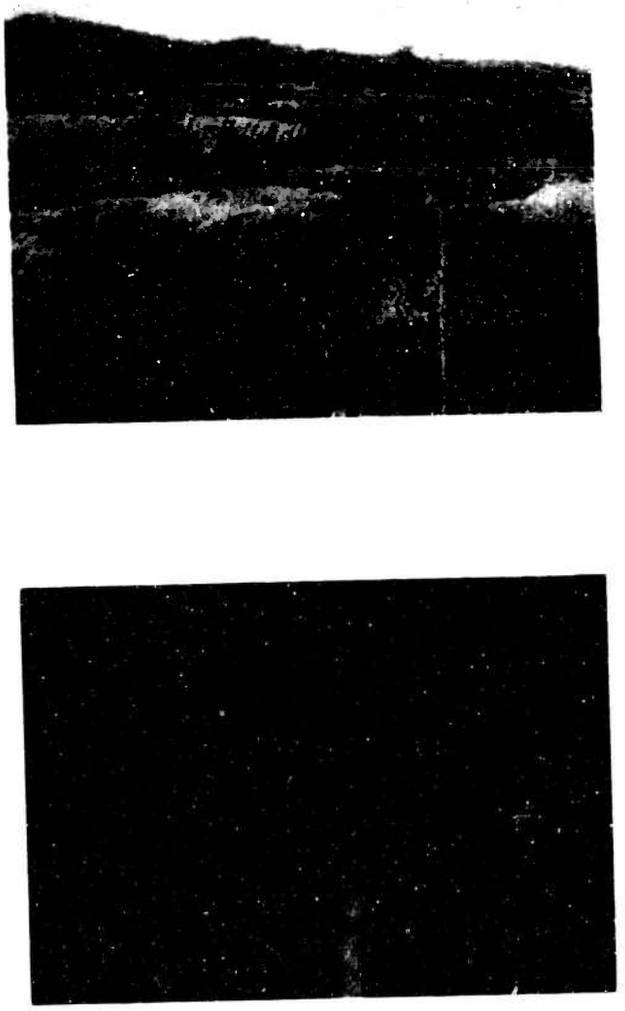

Figure 18. Above, sisal fields of Taiwan in which thousands of migratory Brown Shrikes are caught by snares for food each year. Below, one of the snare made of bamboo.

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. tritaenorhynchus 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. tritaenorhynchus 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; Yoju, 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	57,295 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, soybean 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 systemmatically 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 ½ baht (2½ 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 WEEK-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	3.7
Total species	247	94	125	154	138	136	121	132	124	135	123	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	13,452	6,041	6,198
Average tallied		6,044	6,417	6,048	6,766	5,926	6,219	5,488	7,068	6,493	5,233	6,726	6,041	6,198
Ratio		85	91	85	96	84	88	78	100	92	74	95	85	88
PODICEPIDAE														
1. Little Grebe *Podiceps ruficollis*	7				100								17	3.5
ARDEIDAE														
2. Cattle Egret *Ardeola ibis*	5											100		2.5
3. Pond Heron *Ardeola ralloides*	14	36	100	4										3.5
4. Purple Heron *Ardea purpurea*	1			100										1.0
5. Little Green Heron *Butorides striatus*	20			8		73		100*		8				2.5
6. Large Egret *Egretta alba*	1			100										1.0
7. Tiger Bittern *Gorsachius melanolophus*	6		50							80*	30		100	1.5
8. Cinnamon Bittern *Ixobrychus cinnamomeus*	4			71						100*				2.0
9. Black-crowned Night Heron *Nycticorax nycticorax*	5		71	71	100									1.7
ANATIDAE														
10. Pintail Duck *Anas acuta*	17		100	11										8.5
11. Garganey *Anas querquedula*	97			100							5			19.4

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
12. Whistling Tree Duck *Dendrocygna javanica*	74	20	100	18	60	30	75							10.6
ACCIPITRIDAE														
13. Shikra Goshawk *Accipiter badius*	12			100	14				14	11				2.4
14. Crested Goshawk *Accipiter trivirgatus*	51		31	73	35*	100*	83*	14						3.6
15. Asiatic Sparrow Hawk *Accipiter virgatus*	9		33	100				20	20					1.8
16. Black-crested Baza *Aviceda leuphotes*	7					100*	83*							3.5
17. Cinnamon-winged Buzzard *Butastur liventer*	17			20	12	100*	80							3.4
18. Hen Harrier *Circus cyaneus*	1					100								1.0
19. Black-winged Kite *Elanus caeruleus*	163	10	7	100*	81*	12*	5		5	10	5			7.8
20. White-bellied Sea Eagle *Haliaeetus leucogaster*	1				100*									1.0
21. Black Eagle *Ictinaetus malayensis*	1						100							1.0
22. Black Kite *Milvus migrans*	77		44*	100*	40*	44*	6		3	6		11		4.5
23. Serpent Eagle *Spilornis cheela*	26				26*	100*	26	8	18		26			2.0
24. Blyth's Hawk Eagle *Spizaetus alboniger*	3			50					66			100		1.0
25. Changeable Hawk Eagle *Spizaetus cirrhatus*	4					100	61							2.0
FALCONIDAE														
26. Red-breasted Falconet *Microhierax caerulescens*	169					52*	62*	100	15	6				14.0
27. White-rumped Falcon *Polihierax insignis*	33				6*	56*	10				40	90	100	3.3
PHASIANIDAE														
28. Green-legged Hill Partridge *Arborophila chloropus*	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. Perruginous Tree Partridge Caloperdix oculea	16						76				100	75		4.0
30. Lady Amherst Pheasant Chrysolophus amherstiae E	8	100							17	12				2.0
31. Golden Pheasant Chrysolophus pictus E	3									100				3.0
32. Blue-breasted Button Quail Coturnix chinensis	469			78	100	21	3	3	3	1	1			56.1
33. Migratory Quail Coturnix coturnix	1,948	61	3	33	4	100	53	78	29	6	61	4		74.9
34. Francolin Francolinus pintodeanus	150	5	12	14	100	35	72			8			19	9.4
35. Crested Fire-backed Pheasant Lophura ignita	5				35					12			100	1.2
36. Silver Pheasant Lophura nycthemera	12		100		47			67	67			33		1.2
37. Green Peafowl Pavo muticus	25					45*			21	30	100	45		3.1
38. Peacock Pheasant Polyplactron bicalcaratum	12						100		28			100		3.0
39. Roulroul Rollulus roulroul	263		2	4	4	3	2	10	11	100	72	87	86	13.8
TURNICIDAE														
40. Barred Buttou Quail Turnix suscitator	138	31			22	21	100		5	4	1			13.8
41. Yellow-legged Button Quail Turnix tanki	359			50	79	100					19			35.9
RALLIDAE														
42. White-breasted Waterhen Amauromis phoenicurus	147	23		7	7	16	100	91*	7	35	15	6		6.7
43. Watercock Gallicrex cinerea	23						8		16		100			5.7
44. Common Moorhen Gallinula chloropus	20		100	12										5.0
45. Purple Gallinula Porphyrio porphyrio	13	25	100	25										2.1
46. Slaty-breasted Rail Rallus striatus	13		100					6		10				4.3

	Total	Ratio of abundance												Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
ROSTRATULIDAE														
47. Painted Snipe *Rostratula benghalensis*	9			100										9.0
CHARADRIIDAE														
48. Pacific Golden Plover *Charadrius dominicus*	1			100										1.0
49. Grey-headed Lapwing *Vonellus cinereus*	7			100	58									1.7
50. Red-wattled Lapwing *Vanellus indicus*	1							100						1.0
SCOLOPACIDAE														
51. Common Sandpiper *Actitis hypoleucos*	1			100										1.0
52. Bar-tailed Godwit *Limosa lapponica*	1												100	1.0
GLAREOLIDAE														
53. Collared Pratincole *Glareole pratincole*	1							100*						1.0
LARIDAE														
54. Brown-headed Gull *Larus brunneicephalus*	50											100	31	19.7
COLUMBIDAE														
55. Nicobar Pigeon *Caloenas nicobarica*	53		14	28	45	3			9	7	100	14	55	5.8
56. Emerold Dove *Chalcophaps indica*	372	14	28	25	33	11		28	100	86	43	50	61	15.3
57. Purple Wood Pigeon *Columba punicea*	1									100				1.0
58. Green Imperial Pigeon *Ducula aenea*	45		15	82	100			4						4.1
59. Pied Imperial Pigeon *Ducula bicolor*	3			100								100		1.0
60. Bleeding Heart Pigeon *Gallicolumba luzonica* E	2									100				2.0
61. Diamond Dove *Geopelia cuneata* E	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 Geopelia striata	10,621	69	100	93	51	51	47	55*	60	50	48	49	62	331.9
63.	Red Cuckoo-Dove Macropygia phasianella	12	100	50	12	18									2.4
64.	Little Cuckoo-Dove Macropygia ruficeps	11			88	100									2.2
65.	Barred Cuckoo-Dove Macropygia unchall	4		100	50										1.3
66.	Spotted-necked Dove Streptopelia chinensis	5,857	73	94	77*	100	56	29	72	90	73	27	65	65	183.0
67.	Ringed Dove Streptopelia decaocto E	3,272	68	52	39	50	47	71	100	99	93	95	89	81	102.2
68.	Red Turtle Dove Streptopelia tranquebarica	469	7	1	11	51	2	14	58	100	70	30	6		18.0
69.	Lesser Thick-billed Green Pigeon Treron curvirostra	361			100	46	43		14	21	61	50	18	43	15.0
70.	Yellow-footed Green Pigeon Treron phoenicoptera	8			12						12			100	2.0
71.	Pink-necked Green Pigeon Treron vernans	38	100	70	44	6	4		60			26		40	2.7
	PSITTACIDAE														
72.	Blue-fronted Amazon Amazonia aestiva E	8	100	50	25				33		25	100			1.0
73.	Peach-faced Lovebird Agapornis roseicollis E	66	20	100	70	40	30	20	6		56	60	30	60	2.7
74.	Red Lory Domicella garrula E	315	6	55	50	76	85	47	59	35	72	51	23	100	9.8
75.	White Cockatoo Kakatoe alba E	29				100	30	15		9	66	39			1.8
76.	Greater Sulphur-crested Cockatoo Kakatoe galerita E	58	20	30	60	40	34	40	46	100			30		2.5
77.	Rose-crested Cockatoo Kakatoe moluccensis E	18				50	12			15	50	50	100	100	1.3
78.	Lesser Sulphur-crested Cockatoo Kakatoe sulphurea E	71	25	12	21	21	12	12	25	41	47	29	19	100	2.2
79.	Hanging Parakeet Loriculus vernalis	1,255	9	1	4	2	2	5	3	51	100	32	27	12	50.2
80.	Crested Cockatiel Leptolophus hollandicus E	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.	Budgerigar Melopsittacus undulatus E	13,097	54	45	42	56	59	97	100	82	74	75	90	76	471.8
82.	Large Indian Parakeet Psittacula eupatria	3,009	10	41*	100*	32*	5*	6	4	3	8	2	1	1	94.0
83.	Mustache Parakeet Psittacula alexandri	3,439	11	36	42*	100*	26*	11	10	28	17	15	39	34	107.5
84.	Rose-ringed Parakeet Psittacula Krameri E	191								76	100	88	82	59	15.9
85.	Blossom-headed Parakeet Psittacula roseata	3,529	7	14	45*	30*	12*	12	41	100	71	14	25	13	110.3
86.	African Grey Parrot Psittacus erithacus E	11	100		20						100	70	100	100	1.1
87.	Slaty-headed Parakeet Psittacula finschii	517	50	80	100*	64*	69*	13	67	1	2		53	17	22.5
88.	Blue-rumped Parrot Psittinus cyanurus	114		12	100*	94*	32*	94	47		35			71	6.0
89.	Swainson's Lorikeet Trichoglossus haematod E	131		39	80	59	44	39	22	22	55	67	83	100	5.2
90.	Ornate Lorikeet Trichoglossus ornatus E	72		23	58	100	93	93	46	93	12		35		3.3
	CUCULIDAE														
91.	Common Coucal Centropus sinensis	37			10	6		30	100*	20*	40	6	30	20	2.6
92.	Lesser Coucal Centropus toulou	29			4	•	11	100*	95*				33	22	2.6
93.	Red-winged Crested Cuckoo Clamator coromandus	3			28	100									1.5
94.	Koel Eudynamys scolopacea	364	23	35	87*	47*	100*	66*	94*	23*	19	23	38	23	11.8
95.	Large Green-billed Malcoha Phaenicophaeus tristis	3			100										1.5
	TYTONIDAE														
96.	Bay Owl Phodilus badius	4						71		43		100			1.0
97.	Barn Owl Tyto alba	19		18*	37*	100		18					74	37	1.9
	STRIGIDAE														
98.	Spotted Owlet Athene brama	16			40*	100*	10*			35			100		1.7

		Total	Ratio of abundance*												Average
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
99.	Dusky Eagle Owl Bubo coromandus	3					40*	100		60					1.0
100.	Ceylon Fish Owl Ketupa zeylonensis	59		8	11*	69*	100*	32	48		13		8		3.5
101.	Collared Scops Owl Otus bakkamoena	13		33	100*	67*	13*					20	33		1.6
102.	Brown Wood Owl Strix leptogrammica	15			17*	58*	100*	42	83	83					1.5
	CAPRIMULGIDAE														
103	Long-tailed Nightjar Caprimulgus macrurus	4			25	100									2.0
104.	Great-eared Nightjar Eurostopodus macrotis	5				100*									5.0
	ALCEDINIDAE														
105.	Common Kingfisher Alcedo atthis	1									100				1.0
106.	White-collared Kingfisher Halcyon chloris	11					7		10	100					2.2
107.	Black-capped Kingfisher Halcyon pileata	3			100							60			1.0
108.	White-breasted Kingfisher Halcyon smyrnensis	30		4		2	1	100		8					5.0
109.	Stork-billed Kingfisher Pelargopsis capensis	10					53*		87*				100*		3.3
	MEROPIDAE		*												
110.	Bay-headed Bee-eater Merops leschenaulti	2	100												2.0
111.	Green Bee-eater Merops orientalis	21	100						14*	80	25				3.5
112.	Brown-throated Bee-eater Merops superciliosus	2			100										2.0
113.	Blue-bearded Bee-eater Nyctyornis athertoni	3			100	66									1.0
	CORACIIDAE														
114.	Burmese Roller Coracias benghalensis	149		4	12	46*	96*	100*	38	2	18	14	92		7.4
115.	Broad-billed Roller Eurystomus orientalis	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 *Upupa epops*	583		54*	35*	14*	17*	52*	100*	4				3	30.7
	BUCEROTIDAE													
117.	Northern Pied Hornbill *Anthracoceros convexus*	38	28		14	8*	83*	57*	8	8	14	57	100	83	2.2
118.	Dusky-crested Hornbill *Anorrhinus galeritus*	1											100		1.0
119.	Great Hornbill *Buceros bicornis*	13				20*	33*	100*	47*		13*	67*			1.1
120.	Tickell's Hornbill *Ptilolaemus tickelli*	2					67		100						1.0
121.	Wreathed Hornbill *Rhyticeros undulatus*	24			18	46*	100*	100*	11						2.7
	CAPITONIDAE														
122.	Brown Barbet *Calorhamphus fuliginosus*	6											50	100	2.0
123.	Gold-whiskered Barbet *Megalaima chrysopogon*	3	100			50					20				1.0
124.	Green-eared Barbet *Megalaima faiostricta*	4						100	70						2.0
125.	Coppersmith Barbet *Megalaima haemocephala*	237	3	2	10		2	2	11	100	60	3		34	13.5
126.	Blue-throated Barbet *Megalaima incognita*	1								100					1.0
127.	Gaudy Barbet *Megalaima mystacophanos*	72	14	14	3				43*	28*	100	57	71	43	5.6
128.	Many-colored Barbet *Megalaima rafflesi*	9								7		7	57	100	2.2
129.	Great Barbet *Megalaima virens*	23						15	100	61	30	21		30	1.6
130.	Lineated Barbet *Megalaima zeylanica*	637	8	22	41	35*	100*	73*	47*	33	20	13	41	31	20.5
	PICIDAE														
131.	Golden-backed Three-toed Woodpecker *Dinopium javanense*	11					10	100	40		20*				2.2
132.	Great Black Woodpecker *Dryocopus javensis*	1							100						1.0

		Total	Ratio of abundance												Average
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
133.	Great Grey Woodpecker Muller'picus pulverulentus	2							100						1.0
134.	Red-rumped Green Woodpecker Picus erythropygius	54	11	5	3	11*	11*	100*	37	8	9		44	33	3.0
135.	Large Yellow-naped Woodpecker Picus flavinucha	2									100				1.0
	EURYLAIMIDAE														
136.	Green Broadbill Calyptomena viridis	38				5	9		5		100	13	54	73	3.4
137.	Black-and-Red Broadbill Cymbirhynchus macrorhynchos	1						100							1.0
	PITTIDAE														
138.	Lesser Blue Pitta Pitta cyanea	1											100		1.0
139.	Gurney's Pitta Pitta gurneyi	1						100							1.0
140.	Blue-winged Pitta Pitta moluccensis	63		3			24	10	100	2					8.0
141.	Hooded Pitta Pitta sordida	3											100		1.5
	ALAUDIDAE														
142.	Calandra Lark Melanocorypha calandra	23			12	65	50	50	100	50		50			1.5
	HIRUNDINIDAE														
143.	House Swallow Hirundo rustica	1		100											1.0
144.	Sand Martin Riparia riparia	1		100											1.0
	CAMPEPHAGIDAE														
145.	Black-faced Cuckoo-shrike Coracina novaehollandiae	2			100										2.0
	DICRURIDAE														
146.	Black Drongo Dicrurus adsimilis	36		100	40	44*	33	44*	44						2.4
147.	Hair-crested Drongo Dicrurus hottentottus	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 Dicrurus leucophaeus	4		100	20		20								1.3
149.	Large Racquet-tailed Drongo Dicrurus paradiseus	35	25	12				12	92	32	55	25	12	100	2.3
	ORIOLIDAE														
150.	Black-naped Oriole Oriolus chinensis	138	18	15	17	9	2					1	100	57	8.1
151.	Malaysian [illegible]-backed Oriole Oriolus xanthonotus	1					100								1.0
152.	Indian Black-headed Oriole Oriolus xanthornus	29			100	37		71	28				28	28	2.7
	CORVIDAE														
153.	Green Magpie Cissa chinensis	50		27	81	89	54		100		13		27	81	2.8
154	Red-billed Blue Magpie Cissa erythrorhyncha	139	60	100	87	49	35*	17*	12	16	35	12	62	62	5.1
155.	Large-billed Crow Corvus macrorhynchos	36		25	100*	37*	2		4	4					3.8
156.	Racquet-tailed Treepie Crypsirina temia	104	25	60	35	21	10		90*	100	40	25	25	25	4.3
157.	Rufous Treepie Crypsirina vagabunda	118		60	100	28*	6	3*	2	2	6		3		5.9
	TIMALIIDAE														
158.	Hwamei Garrulax canorus E	44	67	33	33	43	73	83	33	57	33	23	17	100	1.6
159.	Black-throated Laughing Thrush Garrulax chinensis	96	18	13	16	9		26	100	33	22	26	4	88	4.0
160.	White-crested Laughing Thrush Garrulax leucolophus	296	13	76	25	24	11	9	100	92	27	32	24	38	24.8
161.	Lesser Necklaced Laughing Thrush Garrulax monileger us	124	38	100	96	46	4	4	15	2	6	10	23	15	6.2
162.	Greater Necklaced Laughing Thrush Garrulax pectoralis	6											25	100	3.0
163.	Pekin Robin Leiothrix lutea E	34	100	13	7	11	5				5				3.1
164.	Red-headed Tree Babbler Pellorneum ruficeps	3			100										1.0

		Total	Ratio of abundance												Average
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	PYCNONOTIDAE														
165.	Crested White-throated Bulbul Criniger ochraceus	31			45	100	55				5	7			4.4
166.	Crestless White-throated Bulbul Criniger phaeocephalus	3									100	60			1.5
167.	Ashy Bulbul Hypsipetes flave	1	100												1.0
168.	Black-headed Bulbul Pycnonotus atriceps	66	20	55	10				3		30	40	40	100	4.7
169.	Orange-vented Bulbul Pycnonotus auriventer	490	4	30	100	37	17	6	14	21	29	10	9	33	15.8
170.	Blanford's Bulbul Pycnonotus blanfordi	81	35	100	55		8	41	15	20	35	27	23		3.7
171.	Lesser Brown Bulbul Pycnonotus erythrophthalmos	4											100		2.0
172.	Stripe-throated Bulbul Pycnonotus finlaysoni	176	5	35	56	100	10		55		8	3	5	20	7.6
173.	Yellow-vented Bulbul Pycnonotus goiavier	38		30		100	7	45			15	5		15	3.2
174.	Red-whiskered Bulbul Pycnonotus jocosus	3,128	23	4	1	7	6	32	32	44	50	29	13	100	97.7
175.	Black-crested Bulbul Pycnonotus melanicterus	589	28	33	100	48	6		23	22	16	6	4	36	21.0
176.	White-eyed Brown Bulbul Pycnonotus simplex	6											25	100	3.0
177.	Scaly-breasted Bulbul Pycnonotus squamatus	12				17							100	50	3.0
178.	Yellow-crowned Bulbul Pycnonotus zeylanicus	259			6	2	38	16	2	100	60	64	61	17	9.6
	AEGITHINIDAE														
179.	Common Iora Aegithina tiphia	1									100				1.0
180.	Golden-fronted Leafbird Chloropsis aurifrons	907	24	62	60	33	5	37	39	38	100	52	31	54	28.3
181.	Yellow-headed Green Leafbird Chloropsis cochinchinensis	16	22									3	22	100	3.2
182.	Lesser Green Leafbird Chloropsis cyanopogon	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 Chloropsis sonnerati	46	18	9	4				18	31	100	13	27	91	2.9
184. Fairy Bluebird Irena puella	200	100	8	9	3	1	1	1	1	3	9	17	63	7.4
TURDIDAE														
185. Common Shama Copsychus malabaricus	973	40	49	70	72	100	74	64*	74*	57	51	32	28	30.4
186. Magpie Robin Copsychus saularis	879	30	41	59*	65*	78*	100*	61*	48*	72	59	26	9	27.5
187. Blue Whistling Thrush Myiophonus caeruleus	6		100	53										1.2
188. Grey-headed Thrush Turdus obscurus	31	10	55	22									100	5.1
SYLVIIDAE														
189. Great Reed Warbler Acrocephalus arundinaceus	17		25	100	15	25				25		75		2.8
190. Brown Wren-Warbler Prinia subflava	3		100								60	100		1.0
MOTACILLIDAE														
191. Red-throated Pipit Anthus cervinus	1					100								1.0
192. Tree Pipit Anthus hodgsoni	5							100				38		1.7
193. Richard's Pipit Anthus novaeseelandiae	1		100											1.0
194. Forest Wagtail Dendronanthus indicus	210		13	22	46						100	11		30.0
195. Pied Wagtail Motacilla alba	1		100											1.0
196. Yellow Wagtail Motacilla flava	4,990		93	19	79						100	6		712.8
BOMBYCILLIDAE														
197. Eastern Waxwing Bombycilla garrula E	5												100	5.0
LANIIDAE														
198. Black-headed Shrike Lanius nasutus	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 Ampeliceps coronatus	241	100	72	25	9	12*	12*	10*	9	12	1	3	5	8.0
200.	Philippine Starling Aplonis panayensis	126	21	15	2		3		100	26	13	7	4		6.6
201.	Tiong Gracula religiosa	2,173	26	7	9	46*	51*	71*	100*	64*	40	32	26	31	67.9
202.	Glossy Starling Lamprotornis purpureus E	10								100	100	30	100	100	1.8
203.	Jerdon's Starling Sturnus burmanicus	265	17	100	32	13	4*	3*	51*	22	22	6	6		9.8
204.	Chinese Starling Sturnus chinensis	120	100	19	6	4			1	3	7	36	64	46	7.8
205.	Pied Starling Sturnus contra	67		83	3	51	100	69	10	10					6.0
206.	Crested Myna Sturnus cristatellus	1,185	100	16	44	7	60*	85*	40*	34*	81	74	42	33	37.0
207.	Ashy-headed Starling Sturnus malabaricus	17	100	6	6	9							25		2.8
208.	Black-collared Starling Sturnus nigricollis	258	26	47	52	31*	47*	63*	100*	42*	31	5	10	21	8.0
209.	Daurian Starling Sturnus sturninus	8				100					25				4.0
210.	Common Myna Sturnus tristis	196	7		7*	34*	30*	100*	41	16	13	14	4		7.5
	NECTARINIIDAE														
211.	Brown-Throated Sunbird Anthreptes malaccensis	34					33	22	100	10					3.8
212.	Purple Sunbird Nectarinia asiatica	34		6			6		8		12	100			5.7
213.	Yellow-breasted Sunbird Nectarinia jugularis	18		80			10	100	80	12		12			3.0
	DICAEIDAE														
214.	Yellow-vented Flowerpecker Dicaeum chrysorrheum	27							50	100	3				5.4
215.	Scarlet-backed Flowerpecker Dicaeum cruentatum	1,467	9	8	70	84	44	55	90	80	26	26	100	12	45.8

		Total	Ratio of abundance												Average
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	ZOSTEROPIDAE														
216.	Oriental White-eye Zosterops palpebrosa	80	89							12	100	45	4	45	9.0
	FRINGILLIDAE														
217.	Yellow-breasted Buntiug Emberiza aureola	18,320	92	80	30	20	1					1	100	32	1,221.3
218.	Brazilian Cardinal Paroaria cucullata E	82	1	14	14	14	14			100	100	57	43	28	3.1
219.	Canary Serinus canaria E	3,873	97	65	91	82	70	76	91	100	82	83	95	91	121.0
220.	Yellow-fronted Canary Serinus mozambicus E	170	78	61	19	16	23	43	36	23	32	38	100	86	5.3
	PLOCEIDAE														
221.	Red-browed Finch Aegintha temporalis E	982	61	3	51	80	97	75	33	63	71	100	75	68	30.7
222.	Cut-Throat Finch Amadina fasciata E	350			12	64	75	59	64	100	68	84	64	69	13.0
223.	Star Finch Bathilda ruficauda E	1,163	28	16	15	41	63	100	79	63	29	19	30	19	36.3
224.	Red-collared Whydah Coliuspasser ardens E	15			25	65	40	100	35						1.7
225.	Pin-tailed Nouparoil Erythrura prasina	6,762	95	50	50	14	12	3	1	1	6	24	43	100	211.3
226.	Strawberry Finch Estrilda amandava	8,803	1	1	5	12	23	46	100	64	51	16	5	5	275.1
227.	Orange-cheeked Waxbill Estrilda melpoda E	653	47	1	1	35	49	62	50	87	97	98	97	100	20.4
228.	Taha Weaver Euplectes afra E	99	43		32	100	97	21	54						5.8
229.	Orange Bishop Euplectes orrix E	360	59	73	65	57	57	41	41	70	100	88	88		11.2
230.	Corydon Blue Finch Granatina bengalus E	271		6	30	95	100	89	93	48	40	12			9.3
231.	Black Finch Hypocatis sp. E	175	100	8		39	29	46	8	83	77	81	80	33	7.3
232.	Chestnut Munia Lonchura malacca	6,381	50	17	97	44	27	42	23	8	90	100	38	95	199.4
233.	White-headed Munia Lonchura maja	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 Lonchura punctulata	28,418	6	26	16	89	100	97	73	52	37	20	4	29	888.8
235.	Sharp-tailed Munia Lonchura striata	2,127	5			2	24	61	52	95	100	27	8		92.5
236.	Benghalese Lonchura striata E	4,169	32	50	96	81	100	88	91	82	82	70	52	38	130.2
237.	Java Finch Padda oryzivora	4,025	39	77	100	82	63	46	90	60	43	18	49	31	125.7
238.	Pegu House Sparrow Passer flaveolus	455			1		8	5	8	27	100	5	3		32.5
239.	Tree Sparrow Passer montanus	1,151		31	64	7	17	39	17	12	67	100	22	5	57.5
240.	Golden Weaver Ploceus hypoxanthus	263	4	1		3	11	100	10	35	35	17	2	4	11.4
241.	Manyer Weaver Ploceus manyar	3,181			38	50	23	85	14	99	100	70		2	122.3
242.	Baya Weaver Ploceus philippinus	22,656	1	3	30	30	64	43	29	100	64	29	12	25	708.0
243.	African House Weaver Ploceus sp. E	51	100		37	92	80	61	67		5	25			3.0
244.	Long-tailed Grass Finch Poephila acuticaude E	592	69	17	17	20	62	72	100	64	23	17	67	59	18.5
245.	Lady Gould Finch Poephila gouldiae E	334	20	5	9		26	58	100	61	26	11	77	53	11.9
246.	Zebra Finch Taeniopygia guttata E	2,659	61	61	50	58	70	100	74	79	47	49	98	77	83.1
247.	Pin-tailed Whydah Vidua macroura E	69				22				100	72	37			9.3

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	Minda-nao	Malaya	Sara-wak	Sabah	Indo-nesia	Thai-land	1967 Total	1963-67 Grand Total
Podicepidae	S	6															
	T																
Gaviidae	S	3															
	T																
Diomedeidae	S	3															
	T																
Procellariidae	S	11	1													1	2
	T		1, 200													1, 200	3, 822
Hydrobatidae	S	7															2
	T																98
Phaethontidae	S	3															
	T																
Pelecanidae	S	3															
	T																
Phalacrocoracidae	S	9															1
	T																26
Anhingidae	S	1															
	T																
Sulidae	S	4															
	T																
Fregatidae	S	3															
	T																
Ardeidae	S	23	5	6	3	1	11	3	1		5				5	16	16
	T		972	5, 076	7, 617	1	453	80	3		2, 195				66	16, 465	35, 730
Ciconiidae	S	10													1	1	1
	T														104	104	401
Threskiornithidae	S	7															
	T																
Phoenicopteridae	S	1															
	T																
Anatidae	S	58	1	1			1									2	12
	T		25				13									38	467
Accipitridae	S	58	1	1	3	1			1	1	2				4	8	14
	T		42	1	21	1			12	3	5				8	93	2, 611
Pandionidae	S	1									1					1	1
	T										1					1	1
Falconidae	S	17				1					1				1	2	4
	T	1															
Tetraonidae	S	8															
	T																
Phasianidae	S	76	1		1		1	1	1	1	2				1	4	9
	T		1		1		2, 754	10	4	1	25				1	1, 797	5, 858
Turnicidae	S	4					2	1	1		1				2	3	4
	T						34	21	10		6				28	99	310
Gruidae	S	8															
	T																
Rallidae	S	26	1			1	13	6			5	2			1	14	15
	T		2			1	1, 533	14			42	11			1	1, 604	3, 609
Heliornithidae	S	1															
	T																
Otididae	S	4															
	T																
Jacanidae	S	3					1									1	2
	T						3									3	11

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
	T						162	113			1					276	656
Haematopodidae	S	1															
	T																
Charadriidae	S	16					6	6	3	2	4				2	7	8
	T						136	651	23	4	9				5	828	3, 945
Scolopacidae	S	44		4		1	16	19	6	3	6	1			4	23	30
	T			252		1	1, 081	1, 339	148	109	69	5			30	3, 034	7, 969
Recurvirostridae	S	3															
	T																
Phalaropodidae	S	2															1
	T																53
Dromadidae	S	1															
	T																
Burhinidae	S	2															
	T																
Glareolidae	S	3						1			1					1	2
	T							3			7					10	31
Stercorariidae	S	4															
	T																
Laridae	S	37	1	1				1			1					4	8
	T		1	1, 900				3			10					1, 916	4, 656
Rhynchopidae	S	1															
	T																
Alcidae	S	13		1												1	2
	T			125												125	126
Pteroclyidae	S	3															
	T																
Columbidae	S	60	1	1	2	1	10	3	9	5	7			1	6	20	26
	T		5	1	2	2	460	45	677	56	573			1	21	1, 986	5, 930
Psittacidae	S	23							1	2	3					6	9
	T								1	4	14					19	106
Cuculidae	S	38			1		13	5	3	4	10	3		1	7	18	22
	T				4		280	23	8	6	39	5		1	14	381	1, 026
Tytonidae	S	30			1			1			1				1	2	2
	T				1			1			1				1	4	30
Strigidae	S	36	1	2	2		1		2	1	4	1			6	10	14
	T		1	2	8		10		6	1	25	2			30	86	618
Podargidae	S	8					1									1	3
	T						1									1	16
Caprimulgidae	S	11					4	1	2		1	1			1	6	6
	T						13	69	9		19	2			2	114	372
Apodidae	S	19			1		5	1	2		4				2	10	12
	T				91		124	74	1, 678		9				9	2, 186	4, 803
Hemiprocnidae	S	2															1
	T																2
Trogonidae	S	10								1	3	1			1	4	7
	T									3	5	4			3	16	80
Alcedinidae	S	26	1	1	1	3	5	6	4	2	10	5		2	7	12	19
	T		8	1	1	10	197	103	67	25	159	76		5	47	721	3, 436
Meropidae	S	8					1		2	2	4	1			4	6	7
	T						4		90	37	1, 040	6			66	1, 263	1, 912
Coraciidae	S	3					1								1	2	2
	T						6								2	8	22
Upupidae	S	1	1												1	1	1
	T		1												5	9	9
Bucerotidae	S	17							1						2	2	2
	T								1						3	4	6

Family		Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Minda-nao	Malaya	Sara-wak	Sabah	Indo-nesia	Thai land	1967 Total	1963-67 Grand Total
Capitonidae	S	22			1		1		1	1	2				8	9	13
	T				6		2		17	2	3				74	103	385
Indicatoridae	S	1															1
	T																2
Picidae	S	49	1	2	1	1		1		1	10	4			13	22	32
	T		1	4	1	2		1		2	60	35			52	188	578
Eurylaimidae	S	10								1	3	2			3	7	7
	T									4	9	16			11	40	188
Pittidae	S	16					3	2			2	2			2	6	10
	T						686	11			263	7			7	974	2, 116
Alaudidae	S	14	2				1								1	4	5
	T		19				155								91	266	1, 331
Hirundinidae	S	11	3	2	3	1	2	4	2	1	2	2			3	7	8
	T		14, 341	5, 076	14, 221	3	52	892	14	4	24, 162	51			8, 419	67, 505	221, 630
Campephagidae	S	26	1				1	1	1	1	3		1		6	8	17
	T		2				1	27	60	21	34		1		34	180	1, 124
Dicruridae	S	8					2		1	3					7	7	8
	T						6		14	51					60	121	827
Oriolidae	S	11	1				1	1	1	1	1				1	2	4
	T		6				4	2	62	3	10				3	90	567
Corvidae	S	35	4		2	2		1				1			3	11	16
	T		41		2	3		2				1			14	63	274
Paridae	S	27	5	1	3	1	1			1					1	8	12
	T		852	27	163	12	12			1					17	1, 084	3, 325
Certhiidae	S	6					1			1					1	2	4
	T						1			1					1	3	29
Sittidae	S	11	1		1						2				2	3	3
	T		2		5						4				17	28	112
Timaliidae	S	190			13	4	1	1		1	21	13	4		36	64	94
	T				428	20	21	6		56	298	249	6		937	2, 156	6, 164
Paradoxornithidae	S	17	1		2										1	3	4
	T		1, 046		201										74	1, 321	2, 789
Pycnonotidae	S	50		1	3	3	4	3	2	3	16	11	9	1	16	34	46
	T			18	51	407	93	237	1, 063	612	1, 626	229	14	7	1, 428	5, 786	24, 586
Aegithinidae	S	13						2			4		1	1	7	9	11
	T							25			43		1	6	47	125	386
Cinclidae	S	2															1
	T																6
Troglodytidae	S	1	1	1	1											1	1
	T		8	1	7											16	42
Turdidae	S	104	7	12	11	14	7	4	4	1	6	4	3	3	15	39	56
	T		207	265	406	191	76	27	72	1	250	7	6	6	342	1, 642	7, 021
Sylviidae	S	108	8	10	9	10	10	3	5	6	19	4	1	2	25	51	67
	T		72	857	121	65	1, 047	24	22	95	648	56	2	3	562	3, 574	15, 706
Muscicapidae	S	75	2	6	5		9	3	2	4	16	6	4	2	16	39	56
	T		46	40	32		66	27	86	29	426	95	6	3	411	1, 323	5, 417
Pachycephalidae	S	5					2				1	1				3	4
	T						15				7	22				54	134
Prunellidae	S	10	1													1	2
	T		34													34	90
Motacillidae	S	17	7	4	4	4	3	5	2	2	2				6	9	10
	T		3, 557	1, 400	21, 721	37	95	225	37	7	22				701	27, 802	55, 127
Bombycillidae	S	2															1
	T																40
Artamidae	S	2					1	1	1	1						1	2
	T						4	40	6	3						53	176
Laniidae	S	10	3	3	2	1	2	1	2	1	3				4	6	6
	T		104	114	3, 464	12	982	3	58	20	72				65	4, 649	21, 248
Sturnidae	S	25	1	1			3	2	2	2	4	1	1		5	10	16
	T		24	41			68	227	207	34	42	10	2		160	615	2, 642

		Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Minda-nao	Malaya	Sara-wak	Sabah	Indo-nesia	Thai-land	1937 Total	1963-87 Grand Total
Prionopidae	S	1															
	T																
Meliphagidae	S	1															
	T																
Nectarinidae	S	32					1	4	1	3	15	7	6	2	12	16	23
	T						1	90	46	53	488	181	11	21	133	982	4, 158
Dicaeidae	S	27					2		1	6	6	2	1		5	15	17
	T						5		3	191	46	22	1		65	336	1, 077
Zosteropidae	S	14	1	1	2	1	1		1	1	1			1	2	4	7
	T		2	62	3	28	57		23	14	19			1	5	215	2, 385
Fringillidae	S	89	22	14	5	4	2				1				3	28	32
	T		27, 138	1, 449	5, 513	58	30				3				1, 386	35, 575	142, 259
Ploceidae	S	30	1	2	2	2	4	1	2	2	9	2	3	1	11	14	16
	T		84	1, 505	38	24	283	8	159	2, 058	1, 023	139	4	9	3, 095	8, 425	31, 400
Total species		1, 829	86	80	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	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
PROCELLARIIDAE															
Pterodroma leucoptera, Gould's Petrel														-	2
Puffinus leucomelas, Streaked Shearwater		1, 200												1, 200	3, 620
Total		1/1, 200												1/1, 200	3/3, 822
HYDROBATIDAE															
Oceanodroma castro, Madeiran Storm Petrel														-	23
Oceanodroma leucorhoa, Leach's Storm Petrel														-	75
Total														-	2/98
PHALACROCORACIDAE															
Phalacrocorax pygmeus, Pygmy Cormorant														-	26
Total														-	1/26
ARDEIDAE															
Ardea cinerea, Gray Heron	120													120	983
Ardea purpurea, Purple Heron					1									1	2
Ardeola ibis, Cattle Egret	4	75	535		41								31	686	5, 347
Ardeola ralloides, Chinese Pond Heron													4	4	13
Butorides striatus, Little Green Heron	19				3	3	3		8				2	38	170
Dupetor flavicollis, Black Bittern					2									2	4
Egretta alba, Large Egret	788	150												938	1, 628
Egretta garzetta, Little Egret	41	3, 675	3, 501		8								30	7, 255	12, 854
Egretta intermedia, Intermediate Egret		350			4									354	1, 394
Gorsachius goisagi, Japanese Night Heron		1			8									9	15
Gorsachius melanolophus, Tiger Bittern									1					1	3
Ixobrychus cinnamomeus, Cinnamon Bittern					296	76			6				1	379	799
Ixobrychus eurythmus, Von Schrenck's Bittern					9									9	25
Ixobrychus sinensis, Chinese Little Bittern				1	78	1			5					85	249
Nycticorax caledonicus, Rufous Night Heron					3									3	6
Nycticorax nycticorax, Black-crowned Night Heron		825	3, 581						2, 175					6, 581	13, 138
Total	5/972	6/5, 076	3/7, 817	1/1	11/453	3/80	1/3		5/2, 195				5/68	16/16, 465	1635, 730

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
CICONIIDAE															
Anastomus oscitans, Open-billed Stork													104	104	401
Total													1/104	1/104	1/401
ANATIDAE															
Aix galericulata, Mandarin Duck														-	15
Anas acuta, Pintail														-	130
Anas clypeata, Shoveler														-	15
Anas crecca, Teal		25												25	155
Anas falcata, Falcated Teal														-	1
Anas formosa, Spectacled Teal														-	3
Anas luzonica, Philippine Mallard														-	1
Anas penelope, European Widgeon														-	68
Anas platyrhynchos, Mallard														-	56
Anas poecilorhyncha, Spot-billed Duck					13									13	21
Aythya fuligula, Tufted Duck														-	1
Nettapus coromandelianus, Cotton Teal															1
Total		1/25			1/13									2/38	12/467
ACCIPITRIDAE															
Accipiter badius, Shikra Goshawk													3	3	9
Accipiter nisus, Sparrow Hawk														-	4
Accipiter soloensis, Chinese Goshawk	42						1							43	73
Accipiter trivirgatus, Crested Goshawk								3					1	4	15
Accipiter virgatus, Asiatic Sparrow Hawk		1	2				11		3				3	20	85
Aquila heliaca, Imperial Eagle				1										1	1
Butastur indicus, Gray-faced Buzzard			18											18	2, 409
Buteo buteo, Common Buzzard															2
Circus aeruginosus, Marsh Harrier			1											1	2
Circus cyaneus, Hen Harrier															1
Circus melanoleucus, Pied Harrier															1
Elanus caeruleus, Black-winged Kite									2				1	3	4
Hieraetus kienerii, Rufous-bellied Dwarf Eagle															1
Spilornis cheela, Serpent Eagle															
Total	1/42	1/1	3/21	1/1			1/12	1/3	2/5				4/8	8/93	14/2, 811

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
PANDIONIDAE															
Pandion haliaetus, Osprey									1					1	1
Total									1/1					1/1	1/1
FALCONIDAE															
Falco severus, Oriental Hobby														-	1
Falco tinnunculus, Kestrel				3										3	7
Microhierax caerulescens, Red-breasted Falconet									1				2	3	9
Microhierax erythrogenys, Philippine Falconet														-	3
Total				1/3					1/1				1/2	2/6	4/20
PHASIANIDAE															
Arborophila gingica, Rickett's Hill Partridge			1											1	1
Arborophila rufogularis, Rufous-throated Hill Partridge														-	2
Bambusicola thoracica, Bamboo Partridge														-	1
Coturnix chinensis, Blue-breasted Quail					2, 754	10	4	1	24				1	2, 794	5, 843
Coturnix coturnix, Migratory Quail	1													1	3
Francolinus pintadeanus, Francolin														-	1
Gallus gallus, Red Jungle Fowl														-	5
Polyplectron inopinatum, Rothschild's Peacock Pheasant														-	1
Polyplectron malacense, Malay Peacock Pheasant									1					1	1
Total	1/1		1/1		1/2, 754	1/10	1/4	1/1	2/25				1/1	4/2, 797	9/5, 858
TURNICIDAE															
Turnix ocellata, Ocellated Button Quail														-	6
Turnix suscitator, Barred Button Quail					15	21	10		6				19	71	147
Turnix sylvatica, Little Button Quail					19									19	136
Turnix tanki, Yellow-legged Button Quail													9	9	21
Total					2/34	1/21	1/10		1/6				2/28	3/99	4, 310
RALLIDAE															
Amaurornis olivaceus, Bushhen														-	2
Amaurornis phoenicurus, White-breasted Waterhen				1	6	1			14	1			1	24	51
Gallicrex cinerea, Watercock					26				4					30	52
Gallinula chloropus, Moorhen					65	1								66	148
Porzana cinerea, White-browed Crake					206	9				10				225	496
Porzana fusca, Ruddy Crake					247									247	546

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Porzana paykulli,															
Chinese Banded crake	2								1					3	3
Porzana pusilla,															
Baillon's Crake					139									139	308
Porzana tabuensis,															
Sooty Crake					189	1								190	338
Rallina eurizonoides,															
Philippine Banded Crake					288									266	627
Rallina fasciata,															
Malay Banded Crake					3	1			15					19	27
Rallus mirificus,															
Luzon Rail					77									77	160
Rallus philippensis,															
Philippine Rail					9									9	14
Rallus striatus,															
Slaty-breasted Rail					276	1			8					285	634
Rallus torquatus,															
Barred Rail					2									2	8
Total	1/2			1/1	13/1, 633	6/14			5/42	2/11			1/1	14/1, 604	15/3, 609
JACANIDAE															
Hydrophasianus chirurgus,															
Pheasant-tailed Jacana					3									3	6
Metopidius indicus,															
Bronze-winged Jacana														-	5
Total					1/3									1/3	2/11
ROSTRATULIDAE															
Rostratula benghalensis,															
Painted Snipe					162	113			1					276	656
Total					1/162	1/113			1/1					1/276	1/656
CHARADRIIDAE															
Charadrius alexandrinus,															
Kentish Plover					203				2				3	208	404
Charadrius dominicus,															
Golden Plover					28	34	10	2	1				1	76	457
Charadrius dubius,															
Little Ringed Plover					53	260	10	2	5				1	321	1, 641
Charadrius leschenaulti,															
Large Sand Plover					29	96	6							131	913
Charadrius [illegible]															
Mongolian Plover					6	55			1					62	316
Charadrius peroni,															
Malay Sand Plover					19	3	7							29	195
Charadrius placidus,															
Long-billed Ringed Plover														-	6
Charadrius squatarolus,															
Gray Plover					1									1	11
Total					6/136	6/651	3/23	2/4	4/9				3/5	7/828	6/3, 945
SCOLOPACIDAE															
Actitis hypoleucos,															
Common Sandpiper					15	163	88	13	43				13	336	901
Arenaria interpres,															
Turnstone		125			2									127	398
Calidris acuminatus,															
Sharp-tailed sandpiper														-	5
Calidris alpina,															
Dunlin						1								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
Calidris ferruginea, Curlew Sandpiper					1	6								7	18
Calidris ruficollis, Rufous-necked Stint					27	201	2		7					337	1,281
Calidris subminuta, Long-toed Stint					29	624			4				15	672	1,421
Calidris temminckii, Temminck's Stint						2								2	12
Calidris tenuirostris, Great Knot														-	3
Capella gallinago, Common Snipe				1	47	33							1	82	349
Capella hardwickii, Latham's Snipe					31	5								36	64
Capella megala, Swinhoe's Snipe					849	32	8	60						969	1,467
Capella solitaria, Solitary Snipe														-	1
Capella stenura, Pintail Snipe					9	23			10				1	43	105
Heteroscelus brevipes, Grey-rumped Tattler														-	8
Heteroscelus incanus, Wandering Tattler		125			18	1								144	400
Limosa limosa, Black-tailed Godwit					1									1	1
Limicola falcinellus, Broad-billed Sandpiper						2								2	5
Numenius borealis, Least Whimbrel														-	11
Numenius phaeopus, Common Whimbrel					3	2	9							14	190
Philomachus pugnax, Ruff														-	1
Scolopax rusticola, Eurasian Woodcock					1									1	10
Tringa erythropus, Dusky Redshank														-	1
Tringa glareola, Wood Sandpiper					45	111		16	4	5				181	727
Tringa guttifer, Nordmann's Greenshank					1									1	1
Tringa nebularia, Greenshank						2	3							5	90
Tringa ochropus, Green Sandpiper						1								1	17
Tringa stagnatilis, Marsh Sandpiper						2								2	8
Tringa totanus, Redshank					2	35	38		1					76	328
Xenus cinereus, Terek Sandpiper		1				3								4	26
Total		4/252		1/1	16/1,081	19/1,339	6/148	3/109	6/69	1/5			4/30	23/3,034	30/7,969
PHALAROPODIDAE															
Phalaropus lobatus, Red-necked Phalarope														-	53
Total														-	1/53

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
GLAREOLIDAE															
Glareola lactea, Small Pratincole															2
Glareola maldivarum, Collared Pratincole						3			7					10	29
Total						1/3			1/7					1/10	2/31
LARIDAE															
Chlidonias hybridus, Whiskered Tern															1
Larus argentatus, Herring Gull														1	1
Larus crassirostris, Black-tailed Gull	1	1/900												1, 901	4, 475
Sterna albifrons, Little Tern														-	1
Sterna anaetheta, Bridled Tern														-	68
Sterna fuscata, Sooty Tern														-	1
Sterna hirundo, Common Tern						3								3	24
Sterna sumatrana, Black-naped Tern									10					10	85
Total	1/1	1/1, 900				1			1/10					4/1, 915	6/4, 656
ALCIDAE															
Cerorhinca monocerata, Hornbilled Puffin		125												125	125
Synthliboramphus wumizusume, Japanese Murrelet															1
Total		1/125												1/125	2/126
COLUMBIDAE															
Chalcophaps indica, Emerald Dove					189	24	41	29	74	7			16	380	1, 548
Columba janthina, Japanese Wood Pigeon															1
Columba livia, Rock Dove															4
Columba pulchricollis, Ashy Wood Pigeon			1											1	2
Columba vitiensis, Metallic Wood Pigeon															1
Ducula carola, Spotted Imperial Pigeon					10									10	12
Geopelia striata, Zebra Dove					151		197		4				6	358	1, 390
Macropygia phasianella, Red Cuckoo-Dove					17		65	1						63	218
Macropygia ruficeps, Little Cuckoo-Dove									1					1	2
Macropygia unchall, Barred Cuckoo-Dove														-	5
Phapitreron amethystina, Amethyst Brown Fruit Dove														-	11
Phapitreron leucotis, White-eared Brown Fruit Dove					1		9	24						34	419
Ptilinopus jambu, Pink-headed Fruit Dove									428					428	478

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negors	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Ptilinopus leclancheri, Black-chinned Fruit Dove					7		2							9	41
Ptilinopus melanocephalus, Black-naped Fruit Dove												1		1	1
Ptilinopus occipitalis, Yellow-breasted Fruit Dove					65									65	92
Streptopelia bitorquata, Javanese Turtle Dove					3		296	1						300	981
Streptopelia chinensis, Spotted-necked Dove			1	2		7	32	3	11	6			3	65	198
Streptopelia orientalis, Eastern Turtle Dove	5	1												6	34
Streptopelia tranquebarica, Red Turtle Dove					10								2	12	53
Treron curvirostra, Lesser Thick-billed Green Pigeon									54				2	56	65
Treron olax, Little Green Pigeon									1					1	4
Treron phoenicoptera, Yellow-footed Green Pigeon													2	2	2
Treron pompadora, Pompadour Green Pigeon					7		1							8	25
Treron sphenura, Wedge-tailed Green Pigeon															5
Treron vernans, Pink-necked Green Pigeon						14	34							48	317
Total	1/5	1/1	2/2	1/2	10/460	3/45	9/677	5/58	7/573			1/1	6/31	20/1,668	26/5,930
PSITTACIDAE															
Bolbopsittacus lunulatus Guaiabero							1	3						4	40
Loriculus galgulus, Blue-crowned Hanging Parrot									1					1	1
Loriculus philippensis, Philippine Hanging Parrot															5
Prioniturus discursus, Blue-headed Racquet-tailed Parrot								1						1	23
Psittacula cyanocephala, Indian Blossum-headed Parakeet															2
Psittacula longicauda, Long-tailed Parakeet									9					9	9
Psittacula krameri, Rose-ringed Parakeet															1
Psittinus cyanurus, Blue-rumped Parrot									4					4	4
Tanygnathus lucionensis, Blue-naped Parrot															21
Total							1/1	2/4	3/14					5/19	9/106
CUCULIDAE															
Cacomantis merulinus, Plaintive cuckoo					29	13	4	1	6	3			6	62	366
Cacomantis sonnerati, Banded Bay Cuckoo									2				2	4	22
Cacomantis variolosus, Fan-tailed Cuckoo					134				2					136	176
Centropus sinensis, Common Coucal													1	1	5
Centropus toulou, Lesser Coucal			4		16		1	2	4				1	28	73

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Centropus viridis Philippine Cuckoo						6	3	2						11	27
Clamator coromandus, Red-winged crested Cuckoo									3	1				4	13
Chrysococcyx maculatus, Emerald Cuckoo															3
Chrysococcyx malayanus, Malay Cuckoo					9				2					11	20
Chrysococcyx xanthorhynchus, Violet Cuckoo					4				3					8	9
Cuculus canorus, Common Cuckoo					22									22	69
Cuculus fugax, Hawk Cuckoo					6			1						7	22
Cuculus micropternus, Indian Cuckoo					1				5			1		7	8
Cuculus poliocephalus, Little Cuckoo															3
Cuculus saturatus, Blyth's Cuckoo					17									17	42
Cuculus sparverioides, Large Hawk Cuckoo					12									12	52
Cuculus vagans, Lesser Hawk Cuckoo															4
Eudynamys scolopacea, Koel					11	1				1			2	15	33
Phoenicophaeus curvirostris, Chestnut-breasted Malcoha						1			3					4	5
Phoenicophaeus diardi, Lesser Green-billed Malcoha															1
Phoenicophaeus superciliosis, Rough-crested Malcoha					1									1	5
Phoenicophaeus tristis, Large Green-billed Malcoha													1	1	5
Surniculus lugubris, Drongo Cuckoo					18	2			9				1	30	62
Total			1/4		13/280	5/23	3/8	4/6	10/39	3/5		1/1	7/14	19/381	23/1,025
TYTONIDAE															
Phodilus badius, Bay Owl									1				1	2	10
Tyto capensis, Grass Owl			1			1								2	10
Total			1/1			1/1			1/1				1/1	2/4	2/20
STRIGIDAE															
Athene brama, Spotted Owlet													1	1	3
Glaucidium brodiei, Pygmy Owlet													7	7	36
Glaucidium cuculoides, Barred Owlet													6	6	24
Ketupa ketupu, Fish Owl															4
Ninox philippensis, Philippine Boobook Owl							3	1						4	98
Ninox scutulata, Brown Hawk Owl		1			10		3						1	15	67
Otus bakkamoena, Collared Scops Owl									12				10	22	160

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Otus brookei, Rajah Scops Owl									1					1	1
Otus rufescens, Reddish Scops Owl										2				2	8
Otus sagittatus, White-fronted Scops Owl														-	1
Otus scops, Scops Owl	1	1	5						10				5	22	67
Otus spilocephalus, Mountain Scops Owl			3						2					5	47
Strix aluco, Tawny Owl														-	1
Strix uralensis, Ural Owl														-	2
Total	1/1	2/2	2/8		1/10		2/6	1/1	4/25	1/2			6/30	10/85	14/818
PODARGIDAE															
Batrachostomus javensis, Javan Frog mouth														-	3
Batrachostomus septimus, Philippine Frog mouth					1									1	10
Batrachostomus stellatus, Gould's Frog mouth														-	2
Total					1/1									1/1	3/15
CAPRIMULGIDAE															
Caprimulgus affinis, Savanna Nightjar					1		5							6	41
Caprimulgus concretus, Bonaparte's Nightjar										2				2	2
Caprimulgus indicus, Migratory Nightjar					5									5	22
Caprimulgus macrurus, Long-tailed Nightjar					2	69	4		19				2	96	295
Eurostopodus macrotis, Great-eared Nightjar					5									5	13
Total					4/13	1/69	2/9		1/19	1/2			1/2	5/114	5/373
APODIDAE															
Apus affinis, House Swift			91						1					92	1,063
Apus pacificus, White-rumped Swift					2				6					8	10
Chaetura cochinchinensis, White-Throated Spinetail Swift									1					1	1
Chaetura gigantea, Malaysian Spine-tail Swift					4									4	27
Chaetura leucopygialis, White-rumped Spinetail Swift														-	1
Chaetura picina, Philippine Spinetail Swift														-	2
Collocalia brevirostris, Himalayan Swiftlet									1					1	1
Collocalia esculenta, White-bellied Swiftlet							1,876						3	1,879	3,376
Collocalia inexpectata, Edible-nest Swiftlet														-	2
Collocalia troglodytes, Pygmy Swiftlet					33									33	71

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Collocalia vestita, Brown-rumped Swiftlet					2		2							4	10
Collocalia whiteheadi, Whitehead's Swiftlet					83	74								157	231
Cypsiurus parvus, Palm Swift													6	6	6
Total			1/91		5/124	1/74	2/1, 878		4/9				2/9	10/2, 185	13/4, 803
HEMIPROCNIDAE															
Hemiprocne comata, White-whiskered Tree Swift														-	2
Total														-	1/2
TROGONIDAE															
Harpactes ardens, Philippine Trogon								3						3	8
Harpactes diardii, Diard's Trogon									3					3	10
Harpactes duvauceli, Red-rumped Trogon									1	4				5	11
Harpactes erythrocephalus, Red-headed Trogon									1				3	4	38
Harpactes kasumba, Red-naped Trogon														-	4
Harpactes oreskios, Orange-breasted Trogon														-	4
Harpactes whiteheadi, White-head's Trogon														-	5
Total								1/3	3/5	1/4			1/3	4/15	7/80
ALCEDINIDAE															
Alcedo atthis, Common Kingfisher	8	1	1	7	24	33	3		7				12	96	910
Alcedo euryzona, Blue-banded Kingfisher														-	4
Alcedo meninting, Deep Blue Kingfisher						3			3	5			9	20	44
Ceryle lugubris, Pied Kingfisher														-	1
Ceyx argentatus, Silvery Kingfisher														-	1
Ceyx cyanopectus, Dwarf River Kingfisher														-	4
Ceyx erithacus, Black-backed Kingfisher									42	50			2	94	143
Ceyx melanurus, Philippine Forest Kingfisher														-	2
Ceyx rufidorsus, Red-backed Kingfisher						1			6					7	62
Halcyon chloris, White-collared Kingfisher					79	60	71	22	45	18		4		299	1, 510
Halcyon concreta, Chestnut-collared Kingfisher									2	4				6	27
Halcyon coromanda, Ruddy Kingfisher					78	1			7				2	88	262
Halcyon cyanoventris, Java Kingfisher												1		1	1
Halcyon hombroni, Blue-capped Kingfisher														-	2
Halcyon lindsayi, Spotted Wood Kingfisher					2									2	43

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Halcyon pileata, Black-capped Kingfisher				1					21				6	28	96
Halcyon smyrnensis, White-breasted Kingfisher				2	14		12	3	21				15	67	271
Lacedo pulchella, Banded Kingfisher										1				1	20
Pelargopsis capensis, Stork-billed Kingfisher						5	1		5				1	12	33
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
MEROPIDAE															
Merops leschenaulti, Itu-headed Bee-eater									156				9	165	179
Merops orientalis, Green Bee-eater													50	50	105
Merops philippinus, Blue-tailed Bee-eater							75	9	11					95	359
Merops superciliosus, Brown-breasted Bee-eater									11					11	218
Merops viridis, Blue-throated Bee-eater					4		15	48	662	6			6	941	1, 043
Nyctiornis amictus, Red-bearded Bee-eater														-	3
Nyctiornis athertoni, Blue-bearded Bee-eater													1	1	5
Total					1/4		2/90	2/57	4/1, 040	1/6			4/66	6/1, 263	7/1, 912
CORACIIDAE															
Coracias benghalensis, Burmese Roller													2	2	4
Eurystomus orientalis, Broad-billed Roller					6									6	16
Total					1/6								1/2	2/3	2/22
UPUPIDAE															
Upupa epos, Hoopoe	1												5	6	9
Total	1/1												1/5	1, 6	1/9
BUCEROTIDAE															
Anthracoceros albirostris, Southern Pied Hornbill													2	2	2
Penelopides panini, Tarictic Hornbill							1							1	3
Rhyticeros undulatus, Wreathed Hornbill													1	1	1
Total							1/1						2 3	3/4	3/6
CAPITONIDAE															
Calorhamphus fuliginosus, Brown Barbet														-	3
Megalaima asiatica, Blue-throated Barbet														-	31
Megalaima australis, Little Barbet													1	1	4
Megalaima faiostricta, Green-eared Barbet													6	6	7
Megalaima franklini, Golden-throated Barbet													37	37	81
Megalaima haemacephala, Coppersmith Barbet					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
Megalaima henrici, Yellow-crowned Barbet														-	1
Megalaima incognita, Hume's Blue-throated Barbet														-	12
Megalaima mystacophanes, Gaudy Barbet													2	2	6
Megalaima oorti, Muller's Barbet			5											5	5
Megalaima virens, Great Barbet													3	3	9
Megalaima zeylanica, Lineated Barbet													3	3	7
Psilopogon pyrolophus, Fire-tufted Barbet									2				3	5	8
Total			1/5		1/2		1/17	1/2	2/3				8/74	9/103	13/385
INDICATORIDAE															
Indicator archipelagicus, Malay Honey Guide														-	2
Total														-	1/2
PICIDAE															
Blythipicus pyrrhotis, Bay Wood pecker													1	1	13
Blythipicus rubiginosus, Maroon Wood pecker									6	7				13	31
Chrysocolaptes lucidus, Golden-backed 4-toed Woodpecker								2						2	21
Dendrocopos atratus, Striped-breasted Pied Woodpecker													2	2	10
Dendrocopos canicapillus, Oriental Pygmy Pied Woodpecker														-	5
Dendrocopos kizuki, Japanese Pygmy Woodpecker			1											1	6
Dendrocopos leucotos, White-backed Woodpecker														-	3
Dendrocopos macei, Fulvous-breasted Red Woodpecker													1	1	4
Dendrocopos maculatus, Philippine Pygmy Woodpecker														-	4
Dendrocopos major, Great Spotted Woodpecker														1	30
Dendrocopos moluccensis, Malaysian Pygmy Pied Woodpecker									2					2	10
Dinopium javanense, Golden-backed 3-toed Woodpecker						1			11					12	38
Dinopium rafflesi, Olive-backed 3-toed Woodpecker														-	2
Dryocopus javensis, White-bellied Black Woodpecker														-	5
Gecinulus grantia, Pale-headed Woodpecker														-	10
Hemicircus canente, Heart-spotted Woodpecker													1	1	1
Jynx torquilla, Wryneck		3		2									11	16	63
Meiglyptes tristis, Fuluous-rumped Woodpecker														-	4
Meiglyptes tukki, Buff-necked Woodpecker									1	8			6	15	33

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Micropternus brachyurus, Rufous Woodpecker									14	8				22	48
Mulleripicus funebris, Sooty Woodpecker														-	1
Picumnus innominatus, Speckled Piculet									1				11	12	33
Picus canus, Black-naped Green Woodpecker			1										3	4	11
Picus chlorolophus, Lesser Yellow-naped Woodpecker													3	3	5
Picus erythropygius, Red-rumped Green Woodpecker														-	6
Picus flavinucha, Large Yellow-naped Woodpecker													5	5	13
Picus mentalis, Checker-throated Woodpecker														-	1
Picus miniaceus, Banded Red Woodpecker									2					2	5
Picus puniceus, Crimson-Winged Woodpecker									3					3	3
Picus vittatus, Bamboo Green Woodpecker									14				4	18	77
Sasia abnormis, Rufous Piculet									6	12			1	19	46
Sasia ochracea, White-browed Rufous Piculet													3	3	36
Total	1/1	2/4	1/1	1/2		1/1		1/2	10/60	4/35			13/52	22/156	32/578
EURYLAIMIDAE															
Calyptomena viridis, Green Broadbill									6					6	56
Cymbirhynchus macrorhynchos, Black-and-Red Broadbill									1	6			2	9	18
Eurylaimus javanicus, Banded Broadbill										8				8	10
Eurylaimus ochromalus, Black-and-Yellow Broadbill									2					2	4
Eurylaimus steerii, Wattled Broadbill								4						4	9
Psarisomus dalhousiae, Long-tailed Broadbill													3	3	16
Serilophus lunatus, Silver-breasted Broadbill													6	6	65
Total								1/4	3/9	2/16			3/11	7/40	7/188
PITTIDAE															
Pitta caerulea, Giant Pitta														-	1
Pitta cyanea, Lesser Blue Pitta														-	10
Pitta erythrogaster, Red-Breasted Pitta					643	1								644	1,659
Pitta granatina, Garnet Pitta										4				4	4
Pitta guajana, Band i Pitta													1	1	7
Pitta kochi, Koch's Pitta					1									1	2
Pitta moluccensis, Blue-winged Pitta									64				6	70	97

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Pitta oatesi,															
Fulvous Pitta														-	5
Pitta phayrei,															
Phayr Pitta														-	1
Pitta sordida,															
Hooded Pitta					42	10			199	3				254	330
Total					3/686	2/11			2/263	2/7			2/7	6/974	10/2, 116
ALAUDIDAE															
Alauda arvensis,															
Skylark	17													17	575
Alauda gulgula,															
Lesser Skylark														-	5
Galerida cristata,															
Crested Lark	2													2	21
Mirafra assamica,															
Rough-winged Bush Lark													91	91	139
Mirafra javanica,															
Bush Lark					155									155	591
Total	2/19				1/155								1/91	4/265	5/1, 331
HIRUNDINIDAE															
Delichon dasypus,															
Asiatic House Martin														-	1
Delichon urbica,															
House Martin		1, 866												1, 866	5, 643
Hirundo daurica,															
Red-rumped swallow	113												32	145	345
Hirundo rustica,															
House Swallow	14, 226	2, 959	12, 746	3	9	878		4	23, 139	13			8, 385	62, 632	209, 294
Hirundo striolata,															
Striated Swallow			3			4	1							8	237
Hirundo tahitica,															
Pacific Swallow					43	7	13		1, 023	38				1, 124	3, 251
Riparia paludicola,															
Brown-throated Sand Martin			1, 472											1, 472	2, 379
Riparia riparia,															
Sand Martin	2	251				3							2	258	280
Total	3/14, 341	3/5, 076	3/14, 221	1/3	2/52	4/892	2/14	1/4	2/24, 162	2/51			3/8, 419	7/67, 505	8/221, 630
CAMPEPHAGIDAE															
Coracina fimbriata,															
Lesser Graybird									3					3	4
Coracina larvata,															
Black-faced Gray bird														-	1
Coracina melaschista,															
Dark Gray Cuckoo-shrike													1	1	8
Coracina novaehollandiae,															
Black-faced Cuckoo-shrike														-	5
Coracina ostenta,															
White-winged Cuckoo-shrike														-	7
Coracina polioptera,															
Lesser Cuckoo-shrike														-	5
Coracina striata,															
Barred Gray bird														-	21
Hemipus hirundinaceus,															
Black-winged Flycatcher-shrike									1					1	4

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Hemipus picatus,															
Bar-winged Flycatcher-shrike													18	18	122
Lalage melanoleuca,															
Black-and-white Triller														-	4
Lalage nigra,															
Pied Triller					1	27	60	21	30				1	140	810
Pericrocotus brevirostris,															
Scarlet-billed Minivet														-	8
Pericrocotus ethologus,															
Long-tailed Minivet														-	22
Pericrocotus flammeus,															
Scarlet Minivet													1	1	30
Pericrocotus roseus/divaricatus,															
Rosy Minivet	2													2	15
Pericrocotus solaris,															
Mountain Minivet													5	5	19
Tephrodornis virgatus,															
Brown-tailed Wood-shrike											1		8	9	11
Total	1/2				1/1	1/27	1/60	1/21	3/34		1/1		5/34	9/180	17/1, 124
DICRURIDAE															
Dicrurus adsimilis,															
Black Drongo													4	4	72
Dicrurus aeneus,															
Bronzed Drongo									1				5	6	56
Dicrurus annectans,															
Crow-billed Drongo									49				2	51	63
Dicrurus balicassius,															
Balicassiao														-	135
Dicrurus hottentottus,															
Hair-crested Drongo						2		14					4	20	94
Dicrurus leucophaeus,															
Ashy Drongo						4							11	15	121
Dicrurus paradiseus,															
Greater Racquet-tailed Drongo									1				10	11	99
Dicrurus remifer,															
Lesser Racquet-tailed Drongo													24	24	187
Total						2/6		1/14	3/51				7/60	7/131	8/827
ORIOLIDAE															
Oriolus chinensis,															
Black-naped Oriole					4	2	62	3	10					76	570
Oriolus tenuirostris,															
Slender-billed Oriole														-	2
Oriolus traillii,															
Maroon Oriole													3	3	10
Oriolus xanthonotus,															
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															
Cissa chinensis,															
Green Magpie													1	1	3
Cissa erythrorhycha,															
Red-billed Blue Magpie				1										1	4
Cissa thalassina															
Short-tailed Green Magpie														-	4
Corvus corone,															
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
Corvus enca, Slender-billed crow						2								2	2
Corvus macrorhynchos, Large-billed Crow														-	1
Crypsirina formosae, Grey Treepie			1											1	1
Crypsirina occipitalis, Malaysian Treepie														-	10
Crypsirina temia, Racquet-tailed Treepie													11	11	22
Crypsirina vagabunda, Rufous Treepie													2	2	3
Cyanopica cyana, Blue Magpie	5													5	35
Garrulus glandarius, Jay	3		1											4	96
Nucifraga caryocatactes, Nutcracker														-	1
Pica pica, Magpie	31			2										33	71
Platylophus galericulatus, Crested Malay Jay										1				1	7
Platylophus leucopterus, Black-crested Magpie														-	4
Total	4/41		2/2	2/3		1/2				1/1			3/14	11/63	16, 274
PARIDAE															
Aegithaliscus concinnus, Red-headed Tit			55											55	58
Aegithaliscus caudatus, Long-tailed Tit	53													53	383
Parus amabilis, Palawan Tit														-	1
Parus ater, Coal Tit	41		54											95	183
Parus atricapillus, Willow Tit														-	23
Parus elegans, Elegant Titmouse					12			1						13	99
Parus major, Great Tit	712	27		12										751	2, 110
Parus monticolus, Green-backed Tit			54											54	59
Parus palustris, Marsh Tit	30													30	142
Parus varius, Varied Tit	16													16	199
Parus xanthogenys, Yellow-cheeked Tit													17	17	67
Sylviparus modestus, Yellow-browed Tit														-	4
Total	5/852	1/27	3/163	1/12	1/12			1/1					1/17	9/1, 084	12/3, 225
CERTHIIDAE															
Certhia discolor, Brown-throated Tree creeper													1	1	19
Certhia familiaris, European Tree creeper														-	2

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Rhabdornis inornatus, Plain-headed Creeper														-	3
Rhabdornis mystacalis, Striped-headed Creeper					1			1						2	5
Total					1/1			1/1					1/1	2/3	4/29
SITTIDAE															
Sitta azurea, Blue Nuthatch									3					3	3
Sitta europaea, European Nuthatch	2		5										1	8	39
Sitta frontalis, Velvet-fronted Nuthatch									1				16	17	70
Total	1/2		1/5						2/4				2/17	3/28	3/112
TIMALIIDAE															
Actinodura morrisoniana, Formosan Barwing			9											9	9
Actinodura ramsayi, Spectacled Barwing														-	120
Alcippe brunnea, Gould's Nun Babbler														-	17
Alcippe brunneicauda, Brown-tailed Nun Babbler														-	61
Alcippe castaneiceps, Chestnut-headed Nun Babbler														-	361
Alcippe cinereiceps, Brown-headed Nun Babbler			36						9					45	52
Alcippe morrisonia, Gray-faced Nun Babbler			2						19				200	221	745
Alcippe nipalensis, Mountain Nun Babbler			81						71					152	305
Alcippe poiocephala, Common Nun Babbler									2				7	9	230
Chrysomma sinense, Yellow-eyed Babbler													37	37	64
Eupetes macrocercus, Rail Babbler														-	1
Gampsorhynchus rufulus, White-headed Babbler													2	2	4
Garrulax albogularis, White-throated Laughing thrush														-	1
Garrulax canorus, Hwamei			1	6										7	17
Garrulax chinensis, Black-throated Laughing thrush				2									3	5	23
Garrulax erythrocephalus, Red-headed Laughing thrush													10	10	152
Garrulax leucolophus, White-crested Laughing thrush													2	2	9
Garrulax lugubris, Black Laughing thrush														-	1
Garrulax milnei, Red-tailed Laughing thrush														-	1
Garrulax mitratus, Chestnut-capped Laughing thrush									17					17	39
Garrulax moniligerus, Necklaced Laughing thrush													5	5	15
Garrulax morrisonianus, Formosan Laughing thrush			19											19	24

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Garrulax palliatus, Gray-and-Brown Laughing thrush														-	4
Garrulax pectoralis, Greater Necklaced Laughing thrush														-	1
Garrulax perspicillatus, Spectacled Laughing thrush				10										10	16
Garrulax poecilorhynchus, Rufous Laughing thrush			2											2	3
Garrulax strepitans, Tickell's Laughing thrush													10	10	22
Heterophasia annectens, Chestnut-backed Sibia									4					4	52
Heteropasia auricularis, White-eared Sibia			14											14	19
Heterophasia melanoleuca, Tickell's Sibia													4	4	376
Heterophasia picaoides, Long-tailed Sibia									11					11	47
Kenopia striata, Striped Wren-babbler										4				4	4
Leiothrix argentauris, Silver-eared Mesia									65				10	75	309
Leiothrix lutea, Red-billed Leiothrix				2										2	9
Liochila ripponi, Crimson-headed Liocichla														-	22
Liocichla steerei, Steere's Liocichla			81											81	113
Macronus flavicollis, Gray-faced Tit Babbler						8								8	58
Macronus gularis, Striped Tit Babbler									17	26			184	227	682
Macronus ptilosus, Fluffy-backed Tit Babbler									3	9	1			13	31
Macronus striaticeps, Brown Tit Babbler								55						55	148
Malacopteron affine, Plain Babbler									1					1	44
Malacopteron albogulare, White-throated Babbler														-	5
Malacopteron cinereum, Lesser Red-headed Babbler									11	35			13	59	116
Malacopteron magnirostre, Brown-headed Babbler									17				19	36	157
Malacopteron magnum, Greater Red-headed Babbler									4	13				17	31
Minla cyanouroptera, Blue-winged siva									9				18	27	113
Minla strigula, Chestnut-tailed Siva														-	29
Napothera brevicaudatus, Streaked Wren-Babbler									4				1	5	141
Napothera crassa, Mountain Wren-Babbler														-	5
Napothera epilepidotus, Small Wren-Babbler													1	1	28
Napothera macrodactylus, Large-footed Wren-Babbler														-	3
Pellorneum albiventer, Plain Brown Babbler													1	1	26

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Pellorneum capistratum,															
Black-capped Babbler									6	19			7	35	71
Pellorneum ruficeps,															
Striped Babbler													38	98	229
Pnoepyga pusilla,															
Pygmy Wren-Babbler			2											2	3
Pomatorhinus erythrogenys,															
Rusty-cheeked Scimitar Babbler														-	50
Pomatorhinus hypoleucos,															
Large Scimitar Babbler														-	4
Pomatorhinus ochraceiceps,															
Ochraceous-headed Scimitar Babbler													3	3	4
Pomatorhinus schisticeps,															
Chestnut-naped Scimitar Babbler			3						1				6	10	233
Pteruthius aenobarbus,															
Chestnut-fronted Shrike-Babbler													2	2	4
Pteruthius flaviscapis,															
Greater Shrike-Babbler													6	6	23
Pteruthius melanotis,															
Black-eared Shrike-Babbler														-	1
Ptilocicha mindanensis,															
Streaked Ground Babbler														-	1
Ptilocicha falcata,															
Falcated Ground Babbler														-	3
Rhopophilus pekinensis,															
Chinese Babbler														-	9
Stachyris capitalis,															
Rufous-crowned Tree Babbler														-	4
Stachyris chrysaea,															
Golden Tree Babbler									9				18	27	86
Stachyris erythroptera,															
Red-winged Tree Babbler									10	38			15	63	115
Stachyris leucotis,															
White-eared Tree Babbler									3					3	9
Stachyris maculata,															
Red-rumped Tree Babbler									3	8				11	32
Stachyris nigrocapitata,															
Black-crowned Tree Babbler														-	6
Stachyris nigriceps,															
Gray-throated Tree Babbler									38				41	79	512
Stachyris nigricollis,															
Black-necked Tree Babbler										22				22	35
Stachyris plateni,															
Pygmy Tree Babbler														-	7
Stachyris poliocephala,															
Grey-headed Tree Babbler									35	8		1	1	45	156
Stachyris ruficeps,															
Red-headed Tree Babbler			68											68	150
Stachyris rufifrons,															
Hume's Tree Babbler													5	5	8
Stachyris speciosa,															
Rough-templed Tree Babbler														-	41
Stachyris striolata,															
Spotted Tree Babbler														-	1
Stachyris whiteheadi,															
Whitehead's Tree Babbler					21									21	26
Timalia pileata,															
Red-capped Babbler													27	27	75
Trichastoma abbotti,															
Abbott's Jungle Babbler									27				68	95	156
Trichastoma bicolor,															
Ferruginous Jungle Babbler									4	5				9	22

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Trichastoma cinereiceps, Ashy-headed Ground Babbler														-	13
Trichastoma malaccensis, Short-tailed Babbler									17	59	2		1	68	158
Trichastoma pyrrhogenys, Temminck's Jungle Babbler														-	1
Trichastoma rostratum, Blyth's Jungle Babbler									17		2		3	22	56
Trichastoma sepiarium, Horsfield's Jungle Babbler									3	3				6	7
Trichastoma tickelli, Tickell's Jungle Babbler									1				4	5	67
Turdoides earlei, Striated Babbler														-	1
Yuhina brunneiceps, Formosan Yuhina			110											110	202
Yuhina castaniceps, Chestnut-headed Siva													71	71	189
Yuhina flavicollis, Yellow-naped Yuhina														-	134
Yuhina zantholeuca, White-bellied Yuhina									2				34	36	125
Total			13/428	4/20	1/21	1/8		1/55	21/298	13/249	4/6		36/937	64/2, 156	94/6, 164
PARADOXORNITHIDAE															
Paradoxornis gularis, Gray-headed Parrotbill													74	74	151
Paradoxornis guttaticollis, Rufous-headed Parrotbill														-	19
Paradoxornis nipalensis, Orange Parrotbill			198											198	215
Paradoxornis webbiana, Webb's Parrotbill	1, 046		3											1, 049	2, 404
Total	1/1, 046		2/201										1/74	3/1, 321	4/2, 789
PYCNONOTIDAE															
Criniger bres, Olive White-throated Bulbul									23	12	2		10	47	243
Criniger finschi, Finsch's Bulbul									1					1	3
Criniger flaveolus, White-throated Bulbul						23								23	23
Criniger ochraceus, Brown White-throated Bulbul											1		124	125	517
Criniger pallidus, Swinhoe's White-throated Bulbul													30	30	168
Criniger phaeocephalus, Crestless White-throated Bulbul									9	24			1	34	134
Hypsipetes amaurotis, Brown-eared Bulbul		18												18	120
Hypsipetes charlottae, Crested Olive Bulbul											1			1	3
Hypsipetes criniger, Hairy-backed Bulbul									13	24	3		5	45	137
Hypsipetes flavalus, Ashy Bulbul									1				14	15	87
Hypsipetes madagascariensis, Black Bulbul														-	44
Hypsipetes malaccensis, Malaccan Bulbul														-	29
Hypsipetes mcclellandii, Mountain Streaked Bulbul									18				84	102	516

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Hypsipites philippinus, Philippine Bulbul					35		118	20						171	1, 757
Hypsipites propinquus, Olive Bulbul													13	13	116
Hypsipites siguijorensis, Mottled-breasted Bulbul														-	269
Hypsipites thompsoni, Bingham's Bulbul														-	37
Hypsipites viridescens, Streaked Bulbul									1					1	6
Pycnonotus atriceps, Black-headed Bulbul						109			10	5	1		58	183	1, 241
Pycnonotus aurigaster, Black-capped Bulbul				7									63	70	266
Pycnonotus blanfordi, Blanford's Bulbul													364	364	1, 160
Pycnonotus brunneus, Red-eyed Brown Bulbul									5	7	2		9	23	90
Pycnonotus cafer, Red-vented Bulbul												7		7	16
Pycnonotus cyaniventris, Gray-bellied Bulbul														-	24
Pycnonotus erythropthalmos, Lesser Brown Bulbul									5	2			9	16	100
Pycnonotus eutilotus, Crested Brown Bulbul										16				16	16
Pycnonotus finlaysoni, Stripe-throated Bulbul													125	125	345
Pycnonotus flavescens, Pale-faced Bulbul													32	32	500
Pycnonotus goiavier, Yellow-vented Bulbul					50		947	549	1, 392	103	1		276	3, 318	11, 415
Pycnonotus jocosus, Red-whiskered Bulbul				44					3				91	138	467
Pycnonotus leucogenys, White-cheeked Bulbul														-	3
Pycnonotus melanicterus, Black-crested Yellow Bulbul									1				120	121	574
Pycnonotus melanoleucos, Black-and-white Bulbul														-	13
Pycnonotus nieuwenhuisi, Malayan Wattled Bulbul														-	97
Pycnonotus plumosus, Large Olive Bulbul					7	105			134	32	2			280	675
Pycnonotus simplex, White-eyed Brown Bulbul									8					8	34
Pycnonotus sinensis, Chinese Bulbul			44	356										400	2, 829
Pycnonotus squamatus, Scaly-breasted Bulbul														-	3
Pycnonotus striatus, Striated Green Bulbul														-	28
Pycnonotus taivanus, Styan's Bulbul			5											5	7
Pycnonotus urosticus, Yellow-wattled Bulbul					1			43						44	103
Pycnonotus xanthorrhous, Anderson's Bulbul														-	182
Pycnonotus zeylanicus, Yellow-crowned Bulbul									4	1				5	11
Setornis criniger, Hook-billed Bulbul										2	1			3	3

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Spizixos canifrons, Finch-billed Bulbul														-	106
Spizixos semitorques Collared Finch-billed Bulbul			3											2	7
Total		1/18	3/51	3/407	4/98	3/227	2/1,063	3/612	16/1,628	11/229	9/14	1/7	18/1,428	34/5,786	46/24,986
AEGITHINIDAE															
Aegithina lafresnayei, Great Iora													9	9	12
Aegithina tiphia, Common Iora						15			38			8	20	81	163
Aegithina viridissima, Green Iora									3				3	6	7
Chloropsis aurifrons, Golden-fronted Leafbird													1	1	36
Chloropsis cochinchinensis, Yellow-headed Green Leafbird													2	3	29
Chloropsis cyanopogon, Lesser Green Leafbird									1		1			2	5
Chloropsis hardwickii, Hardwick's Leafbird									3				1	2	19
Chloropsis palawanensis, Palawan Leafbird						10								10	28
Chloropsis sonnerati, Greater Green Leafbird														-	5
Irena cyanogaster, Philippine Fairy Bluebird														-	1
Irena puella, Fairy Bluebird													11	11	80
Total						2/35			4/43		1/1	1/8	7/47	9/125	11/366
CINCLIDAE															
Cinclus pallasii, Pallas' Dipper														-	6
Total															1/6
TROGLODYTIDAE															
Troglodytes troglodytes, House Wren	8	1	7											16	42
Total	1/8	1/1	1/7											1/16	1/42
TURDIDAE															
Brachypteryx leucophrys, Lesser Shortwing									4					4	96
Brachypteryx montana, Blue Shortwing					10									10	78
Cochoa viridis, Green Cochoa														-	1
Copsychus luzoniensis, White-eyebrowed Shama														-	11
Copsychus malabaricus, Common Shama									9		3		71	83	306
Copsychus niger, Palawan Black Shama						8								8	36
Copsychus pyrropygus, Orange-tailed Shama										3				2	3
Copsychus saularis, Magpie Robin							31	1	78	2	2	2	99	216	780
Enicurus immaculatus, Black-backed Forktail														-	5

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Enicurus leschenaulti, White-crowned Forktail										1			15	16	40
Enicurus ruficapillus, Chestnut-naped Forktail									8				1	9	40
Enicurus schistaceus, Slaty-backed Forktail									1					1	21
Enicurus scouleri, Little Forktail														-	1
Erithacus akahige, Japanese Robin														-	18
Erithacus calliope, Rubythroat	6	14	236	32	9								31	308	953
Erithacus cyane, Siberian Blue Robin	4	33							138				83	347	662
Erithacus pectoralis, Himalayan Rubythroat														-	5
Erithacus sibilans, Red-tailed Robin	2	4		3										8	38
Erithacus svecicus, Bluethroat				5									1	6	15
Monticola gularis, White-throated Rock Thrush													3	3	7
Monticola rufiventris, Chestnut-bellied Rock Thrush														-	2
Monticola solitaria, Blue Rock thrush	4	3	51		7	1								66	236
Myiomela leucura, White-tailed Blue Robin			7										3	10	236
Myophonus coeruleus, Blue Whistling Thrush				3										3	74
Myophonus glaucinus, Sunda Whistling Thrush														-	3
Myophonus robinsoni, Malayan Whistling Thrush														-	2
Phoenicurus auroreus, Daurian Redstart	78	46	1	4										129	258
Phoenicurus frontalis, Blue-fronted Redstart														-	3
Rhyacornis fuliginosus, Plumbeous Redstart														-	1
Saxicola caprata, Pied Stonechat					3		11						20	34	189
Saxicola ferrea, Grey Bushchat													1	1	109
Saxicola jerdoni, Jerdon's Bushchat														-	2
Saxicola torquata, Stonechat	112			14									1	127	544
Tarsiger cyanurus, Red-flanked Bluetail		66	5	16										87	313
Tarsiger indicus, White-browed Bush Robin			33											33	33
Tarsiger johnstoniae, Johnston's Bush Robin			69											69	77
Turdus cardis, Gray Thrush		18		10										28	196
Turdus celaenops, Seven Islands Thrush														-	19
Turdus chrysolaus, 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	1982-87 Grand Total
Turdus dissimilis, Black-breasted Thrush														-	1
Turdus hortulorum, Gray-backed Thrush				95										95	214
Turdus merula, Black bird				1										1	1
Turdus naumanni, Dusky Thrush	1	17		3										21	106
Turdus obscurus, Gray-headed Thrush		2					29		7				10	48	175
Turdus pallidus, Pale Thrush		50	8	13										89	206
Turdus poliocephalus, Island Thrush			1				1							2	10
Zoothera andromedae, Sunda Ground Thrush														-	1
Zoothera cinerea, Ashy Ground Thrush					28									28	130
Zoothera citrina, Orange-headed Thrush												3	12	15	47
Zoothera dauma, White's Ground Thrush		5	2	2	8									17	75
Zoothera dixoni, Long-tailed Ground Thrush														-	1
Zoothera everetti, Everett's Ground Thrush											1	2		3	4
Zoothera interpres, Chestnut-headed Ground Thrush										1				1	1
Zoothera marginata, Lesser Long-billed Ground Thrush													1	1	31
Zoothera sibirica, Siberian Ground Thrush									5					5	237
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	55/7,921
SYLVIIDAE															
Abroscopus superciliaris, Yellow-bellied Flycatcher Warbler														-	10
Acrocephalus arundinaceus, Great Reed Warbler	2	150	21	5	242	18			185	4			12	839	3,696
Acrocephalus bistrigiceps, Schrenck's Reed Warbler	1	138		1					2					142	468
Acrocephalus concinens, Brown Paddy field Warbler														-	6
Acrocephalus sorghophilus, Speckled Reed Warbler					34									34	362
Acrocephalus sieniorius, Southern Great Reed Warbler							2						3	5	-
Bradypterus caudatus, Long-tailed Ground Warbler														-	2
Cettia acanthizoides, Yellow-bellied Bush Warbler			71											71	96
Cettia brunnifrons, Rufous-capped Bush Warbler														-	-
Cettia canturians, Singing Bush Warbler														-	-
Cettia diphone, Bush Warbler	16	193	2	5										216	743
Cettia montanus, Mountain Bush Warbler			4											4	16

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Cettia pallidipes, Pale-footed Bush warbler														-	6
Cettia squameiceps, Short-tailed Bush Warbler	1	14											4	19	122
Cettia whiteheadi, Whitehead's Bush Warbler														-	7
Cisticola exilis, Rufous-headed Fantail Warbler								13						13	65
Cisticola juncidis, Streaked Fantail Warbler		2	1				3	53	32				3	94	286
Gerygone fusca, Flyeater					2				1					3	25
Locustella certhiola, Pallas' Grasshopper Warbler					4	2			38	3				47	704
Locustella fasciolata, Gray's Grasshopper Warbler					48									48	98
Locustella lanceolata, Streaked Grasshopper Warbler					600				79				2	681	2,329
Locustella ochotensis, Middendorff's Grasshopper Warbler	1	30		2	68									101	290
Megalurus palustris, Striated Canegrass Warbler					6			9						15	107
Megalurus timorlensis, Rufous-capped Canegrass Warbler							3	1						4	33
Orthotomus atrogularis, Black-necked Tailorbird							12	13	9				40	74	326
Orthotomus cinereiceps, White-eared Tailorbird								2						2	2
Orthotomus cucullatus, Mountain Tailorbird					1				3					4	49
Orthotomus nigriceps, Black-headed Tailorbird														-	12
Orthotomus ruficeps, Red-headed Tailorbird									23		2	1		26	86
Orthotomus sericeus, Red-tailed Tailorbird						4			7	36			12	59	118
Orthotomus sutorius, Long-tailed tailorbird				5					4				107	116	335
Phragamaticola aedon, Thick-billed Warbler													30	30	112
Phylloscopus armandii, Buff-browed Willow Warbler														-	1
Phylloscopus borealis, Arctic Willow Warbler		56	1		42		2	3	54	13	1		16	187	1,296
Phylloscopus cebuensis, Yellow-faced Willow Warbler														-	19
Phylloscopus coronatus, Crowned Willow Warbler									88				[illegible]	8	91
Phylloscopus davisoni, White-tailed Willow Warbler													26	30	92
Phylloscopus fuscatus, Dusky Willow Warbler				11									[illegible]4	65	190
Phylloscopus inornatus, Yellow-browed Willow Warbler	3			2									29	36	139
Phylloscopus maculipennis, Gray-faced Willow Warbler														-	2
Phylloscopus occipitalis, Greater Crowned Willow Warbler	44	150							18					212	450

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Phylloscopus olivaceus, Philippine Willow Warbler								1						1	497
Phylloscopus proregulus, Pallas' Willow Warbler				3										3	36
Phylloscopus pulcher, Orange-barred Willow Warbler														-	35
Phylloscopus reguloides, Blyth's Crowned Willow Warbler													10	10	53
Phylloscopus schwarzi, Radde's Willow Warbler													3	3	12
Phylloscopus subaffinis, Grant's Willow Warbler														-	1
Phylloscopus tenellipes, Pale-legged Willow Warbler		71											5	76	184
Phylloscopus trivirgatus, Green Willow Warbler									5					5	9
Phylloscopus trochiloides, Dull Green Willow Warbler													6	6	9
Prinia atrogularis, White-breasted Wren-Warbler													4	4	16
Prinia familiaris, Bar-winged Wren-Warbler												2		2	2
Prinia flaviventris, Yellow-bellied Wren-Warbler				23					90				19	132	524
Prinia hodgsoni, Franklin's Wren-Warbler													78	78	90
Prinia polychroa, Brown Hill Warbler													3	3	3
Prinia rufescens, Rufescent Wren-Warbler													47	47	93
Prinia socialis, Ashy Wren-Warbler														-	1
Prinia subflava, Brown Wren-Warbler			6	7									9	22	235
Prinia sylvatica, Woodland Wren-Warbler														-	2
Regulus ignicapillus, Firecrest			10											10	10
Regulus regulus, Goldcrest	2	53												55	375
Seicercus albogularis, White-throated Flycatcher-Warbler			5											5	5
Seicercus burkii, Yellow-eyed Flycatcher-Warber													36	36	209
Seicercus castaniceps, Chestnut-headed Flycatcher-Warbler									3					3	13
Seicercus montis, Yellow-breasted Flycatcher-Warbler									5					5	22
Seicercus superciliaris, Yellow-bellied Flycatcher-Warbler									2					2	16
Tesia castaneocoronata, Chestnut-headed Ground Warbler														-	1
Tesia olivea, Bright Slaty-bellied Ground Warbler														-	1
Total	8/72	10/857	9/121	10/65	10/1,047	3/24	5/22	8/95	16/648	4/58	1/2	2/3	25/562	51/3,574	67/15,706
MUSCICAPIDAE															
Culicicapa ceylonensis, Grey-headed Flycatcher									3				36	40	185
Culicicapa helianthea, 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
Hypothymis azurea, Black-naped Blue Flycatcher			2		2	4		8	3	5	1		54	79	320
Muscicapa banyumas, Hill Blue Flycatcher									2			1	75	78	325
Muscicapa basilanica, Little Slaty Flycatcher														-	1
Muscicapa caerulata, Large-billed Blue Flycatcher											1			1	2
Muscicapa concreta, White-tailed Blue Flycatcher									2					2	4
Muscicapa cyanomelana, Japanese Blue Flycatcher	5	55												60	271
Muscicapa dumetoria, Orange-breasted Flycatcher										6				6	26
Muscicapa grandis, Niltava										30				30	175
Muscicapa griseisticta, Gray-spotted Flycatcher		1			13			3						17	57
Muscicapa hainana, Hainan Blue Flycatcher													17	17	30
Muscicapa hodgsoni, Rusty-breasted Blue Flycatcher														-	14
Muscicapa hyperythra, Rufous-breasted Flycatcher			4						7				3	14	115
Muscicapa indigo, Indigo Flycatcher														-	3
Muscicapa latirostris, Brown Flycatcher		10	1						48					59	157
Muscicapa leucomelanura, Slaty-blue Flycatcher														-	4
Muscicapa macgrigoriae, Small Niltava														-	30
Muscicapa monileger, White-gorgetted Flycatcher													12	12	95
Muscicapa mugimaki, Mugimaki Flycatcher		7												7	29
Muscicapa narcissina, Narcissus Flycatcher	41	20			19									80	355
Muscicapa panayensis, Panay Flycatcher					2									2	18
Muscicapa parva, Red-breasted Flycatcher													43	43	102
Muscicapa platanae, Palawan Flycatcher														-	1
Muscicapa poliogenys, Brooks Flycatcher														-	1
Muscicapa rubeculoides, Blue-Throated Flycatcher									9				4	13	20
Muscicapa rufigastra, Mangrove Blue Flycatcher					6		19		20					45	336
Muscicapa rufilata, Ferruginous Flycatcher			24						12					36	66
Muscicapa sibirica, Siberian Flycatcher		1			10								2	13	24
Muscicapa solitaris, White-throated Flycatcher									1				2	3	32
Muscicapa strophiata, Orange-gorgetted Flycatcher															25

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Muscicapa sundara, Blue-and-orange Flycatcher													7	7	246
Muscicapa thalassina, Verditer Flycatcher														-	92
Muscicapa tickelliae, Tickell's Blue Flycatcher									7				16	23	54
Muscicapa unicolor, Pale Blue Flycatcher														-	5
Muscicapa vivida, Rufous-bellied Blue Flycatcher			1											1	2
Muscicapa westermanni, Little Pied Flycatcher									4				2	6	26
Muscicapa zanthopygia, Tricolor Flycatcher									99				7	106	115
Philentoma pyrrhoptera, Chestnut-winged Flycatcher									6	20			4	30	66
Philentoma velata, Maroon-breasted Flycatcher														-	8
Rhinomyias brunneata, Migratory Jungle Flycatcher									97					97	102
Rhinomyias gularis, White-browed Jungle Flycatcher								1						1	69
Rhinomyias olivacea, Olive-backed Jungle Flycatcher														-	54
Rhinomyias ruficauda, Rufous-tailed Jungle Flycatcher														-	5
Rhinomyias umbratilis, White-throated Jungle Flycatcher										20				20	31
Rhipidura albicollis, White-throated Pantail Flycatcher									6				47	53	274
Rhipidura cyaniceps, Blue-headed Fantail Flycatcher					8									8	98
Rhipidura hypoxantha, Yellow-bellied Fantail Flycatcher														-	12
Rhipidura javanica, Pied Fantail Flycatcher					4	8	67	17	87	14		2	61	260	1,052
Rhipidura nigrocinnamomea, Black-and-Cinnamon Fantail Flycatcher					2									2	3
Rhipidura perlata, Spotted Fantail Flycatcher									1		3			4	6
Rhipidura superciliaris, Blue Fantail Flycatcher														-	9
Terpsiphone atrocaudata, Japanese paradise Flycatcher		1												1	74
Terpsiphone cinnamonea, Rufous Paradise Flycatcher														-	2
Terpsiphone cyanescens, Blue Paradise Flycatcher						15								15	58
Terpsiphone paradisi, Paradise Flycatcher									15				19	34	106
Total	2/16	6/40	5, 32		9/66	3/27	2/86	4/29	18/426	6/95	4/6	2/3	18/411	39/1, 325	56/5, 417
PACHYCEPHALIDAE															
Pachycephala cinerea, Mangrove whistler									17	22				39	50
Pachycephala hypoxantha, Borneon Mountain Whistler														-	9

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Pachycephala philippensis, Yellow-bellied Whistler					13									13	36
Pachycephala plateni, White-bellied Whistler					2				1/17	1/22				2	40
Total					2/15									3/54	4/134
PRUNELLIDAE															
Prunella montanella, Mountain Accentor														34	88
Prunella rubida, Japanese Accentor														-	2
Total	1/34													1/34	2/90
MOTACILLIDAE															
Anthus gustavi, Pechora Pipit								1						1	22
Anthus hodgsoni, Tree Pipit	98	7	126	23	21	1							13	289	1,730
Anthus novaeseelandiae, Richard's Pipit				5	-	84	36		21				22	168	638
Anthus spinoletta, Water Pipit	9													9	34
Dendronanthus indicus Forest Wagtail	57												78	135	445
Motacilla alba, Pied Wagtail	3,346	1,389	552	7		1							25	5,320	22,474
Motacilla caspica, Gray Wagtail	45	3	8	2	66	2	1		1				10	138	1,048
Motacilla flava, Yellow Wagtail	1		21,035		8	137		6					553	21,740	28,725
Motacilla grandis, Japanese Wagtail	1	1												2	10
Motacilla maderaspatensis, Large Pied Wagtail														-	1
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
BOMBYCILLIDAE															
Bombycilla garrula, Waxwing														-	40
Total															1/40
ARTAMIDAE															
Artamus fuscus, Ashy Wood Swallow														-	2
Artamus leucorhynchus, White-breasted Wood Swallow					4	40	6	3						53	174
Total					1/4	1/40	1/6	1/3						1/53	2/176
LANIIDAE															
Lanius bucephalus, Bull-headed Shrike														123	939
Lanius collurioides, Chestnut-backed Shrike														-	6
Lanius cristatus, Brown Shrike	87	3	3,463		943	3	57	20	55				45	4,671	20,086
Lanius nasutus, Black-headed Shrike							1						11	12	55
Lanius schach, Schach Shrike			1	12	39				3				7	62	133

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Lanius tephronotus, Tibetan Shrike															6
Lanius tigrinus, Thick-billed Shrike	3	2							14				2	21	70
Lanius validirostris, Strong-billed Shrike														-	53
Total	3/104	3/114	2/3,464	1/12	2/982	1/3	2/58	1/20	3/72				4/65	5/4,849	8/21,248
STURNIDAE															
Aplonis panayensis, Philippine Glossy Starling					44	226	44	9	9	10	2			344	1,433
Gracula religiosa, Hill Myna														-	2
Sarcops calvus, Coleto					2		163	25						190	423
Sturnus burmanicus, Jerdon's Starling													2	2	3
Sturnus cineraceus, Grey Starling														-	218
Sturnus contra, Pied Starling													73	73	77
Sturnus cristatellus, Crested Myna														-	22
Sturnus javanicus, Orange-billed Jungle Myna													51	51	59
Sturnus mahrattensis, Jungle Myna									1					1	1
Sturnus malabaricus, Ashy-headed Starling													9	9	9
Sturnus nigricollis, Black-collared Starling														-	16
Sturnus philippensis, Violet-backed Starling					22	1								23	79
Sturnus sericeus, Silky Starling														-	1
Sturnus sinensis, Chinese Starling														-	11
Sturnus sturninus, Daurian Starling	24	41							4					69	201
Sturnus tristis, Common Myna									28				25	63	88
Total	1/24	1/41			3/68	2/227	2/207	2/34	4/42	1/10	1/2		5/160	10/616	16/2,642
NECTARINIIDAE															
Aethopyga boltoni, Apo Sunbird														-	3
Aethopyga christinae, Fork-tailed Sunbird														-	1
Aethopyga gouldiae, Gould's Sunbird													4	4	316
Aethopyga mystacalis, Scarlet Sunbird														1	2
Aethopyga nipalensis, Green-tailed Sunbird														-	30
Aethopyga pulcherrima, Mountain Sunbird														-	2
Aethopyga saturata, Black-breasted Sunbird									19				4	23	74

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Aethopyga shelleyi, Lovely Sunbird								3						3	28
Aethopyga siparaja, Yellow-backed Sunbird										2	1		13	16	108
Anthreptes malacensis, Brown-Throated Sunbird						7			206	37		3	16	269	715
Anthreptes rhodolaema, Rufous-Throated Sunbird									3					3	5
Anthreptes simplex, Plain-colored Sunbird									3				1	4	32
Anthreptes singalensis, Ruby-cheeked Sunbird									3	1	1		17	31	30
Arachnothera affinis, Grey-breasted Spiderhunter									4	3	1		37	34	145
Arachnothera chrysogenys, Lesser Yellow-eared Spiderhunter									1					1	5
Arachnothera larae, Naked-[illegible] Spiderhunter														-	1
Arachnothera crassirostris, Thick-billed Spiderhunter									3					3	4
Arachnothera flavigaster, Greater Yellow-eared Spiderhunter														-	3
Arachnothera longirostris, Little Spiderhunter						45		47	197	114	3	18	12	436	1,836
Arachnothera magna, Streaked Spiderhunter									3				4	7	41
Arachnothera robusta, Long-billed Spiderhunter									2		1			3	8
Hypogramma hypogrammica, Purple-naped Sunbird									17	9	4		16	46	126
Nectarinia chalcostetha, Macklot's Sunbird						17			12					29	63
Nectarinia jugularis, Yellow-breasted Sunbird					1	31	46		18	16			16	76	587
Nectarinia sperata, Van Hasselt's Sunbird								3	1				3	7	45
Total					1/1	4/90	1/46	3/53	15/488	7/181	6/11	2/31	12/133	16/982	23/4,156
DICAEIDAE															
Dicaeum agile, Thick-billed Flowerpecker											1			4	29
Dicaeum australe, [illegible]pine Flowerpecker							3	65						68	362
Dicaeum bicolor, Bicolored Flowerpecker								31						31	39
Dicaeum chrysorreum, Yellow-vented Flowerpecker														-	11
Dicaeum concolor, Plain Flowerpecker									1				1	2	3
Dicaeum cruentatum, Scarlet-backed Flowerpecker									16				41	57	92
Dicaeum hypoleucum, White-bellied Flowerpecker					3			14						16	19
Dicaeum ignipectus, Fire-breasted Flowerpecker													3	3	11
Dicaeum pygmaeum, Pygmy Flowerpecker								1						1	39
Dicaeum sanguinolentum, Javan Fire-breasted Flowerpecker									9					9	13
Dicaeum trigonostigma, Orange-breasted Flowerpecker								67	6			1	9	83	217

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Prionochilus johannae, Palawan Yellow-rumped Flowerpecker						4								4	51
Prionochilus maculatus, Yellow-throated Flowerpecker									13	19			12	44	170
Prionochilus olivaceus, Olive-backed Flowerpecker								13						13	30
Prionochilus percussus, Crimson-breasted Flowerpecker									1					1	13
Prionochilus thoracicus, Scarlet-breasted Flowerpecker														-	4
Prionochilus xanthopygius, Yellow-rumped Flowerpecker										3				3	4
Total					2/5		1/3	6/191	6/46	2/22	1/1		5/65	15/338	17/1,077
ZOSTEROPIDAE															
Chlorocharis emiliae, Mountain Blackeye														-	142
Zosterops erythropleura, Chestnut-flanked White-eye														-	362
Zosterops everetti, Everett's White-eye								14						14	37
Zosterops japonica, Japanese White-eye			2	29									4	35	482
Zosterops montana, Mountain White-eye														-	34
Zosterops nigrorum, Yellow White-eye					57		23							80	441
Zosterops palpebrosa, Oriental White-eye	2	62	1						19			1	1	86	847
Total	1/2	1/62	2/3	1/29	1/57		1/23	1/14	1/19			1/1	2/5	4/215	7/2,365
FRINGILLIDAE															
Carduelis flammea, Common Redpoll	1	2												3	111
Carduelis sinica, Oriental Greenfinch	778	53												831	3,139
Carduelis spinus, Siskin	190	4												194	2,165
Carpodacus erythrinus, Common Rose Finch				1									3	4	485
Carpodacus roseus, Pallas' Rose Finch	11													11	65
Carpodacus vinaceus, Vinaceus Rose Finch			81											81	85
Coccothraustes coccothraustes, Hawfinch	13													13	328
Emberiza aureola, Yellow-breasted Bunting	49												1,359	1,408	2,492
Emberiza chrysophrys, Yellow-browed Bunting	6													6	16
Emberiza cioides, Meadow Bunting	1,126	55												1,181	3,290
Emberiza elegans, Yellow-throated Bunting	950	8												958	3,730
Emberiza fucata, Gray-hooded Bunting	196	3		1										200	857
Emberiza leucocephalus, Pine Bunting	2													2	9
Emberiza pusilla, Little Bunting	39													39	67

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Emberiza rustica, Rustic Bunting	9, 376	341												9, 717	90, 819
Emberiza rutila, Chestnut Bunting	12, 952												24	12, 976	45, 724
Emberiza schoenicius, Common Reed Bunting	1	689												690	1, 171
Emberiza spodocephala, Black-faced Bunting	508	228	4, 778	55										5, 569	14, 870
Emberiza sulphurata, Japanese Yellow Bunting	11	58	615		6									690	956
Emberiza tristrami, Tristram's Bunting	683	1												684	1, 960
Emberiza variabilis, Gray Bunting		1												1	11
Emberiza yessoensis, Japanese Reed Bunting	172													172	272
Eophona migratoria, Migratory Chinese Grosbeak	14			1										15	130
Eophona personata, Japanese Grosbeak														-	1
Fringilla montifringilla, Brambling	54	4												58	206
Haematospiza sipahi, Scarlet Finch														-	5
Loxia curvirostra, Red Crossbill					24									24	30
Melophus lathami, Crested Bunting														-	3
Pyrrhula erythaca, Beavan's Bullfinch			38											39	[illegible]
Pyrrhula nipalensis, Brown Bullfinch			1						3					4	
Pyrrhula pyrrhula, Bullfinch															[illegible]
Uragus sibiricus, Long-tailed Rose Finch	4	2												6	267
Total	22/27, 136	14/1, 449	5/5, 513	4/53	2/30				1/3				3/1, 386	28/36 57	[illegible] 142, 256
PLOCEIDAE															
Erythrura hyperythra, Bamboo Parrot-Finch															7
Erythrura prasina, Pin-tailed Parrot-Finch									22					4	62
Estrilda amandava, Red Avadavat		5												25	38
Lonchura fuscans, Dusky Munia										79	2			81	82
Lonchura leucogastra, White-bellied Munia					186		4	274	5		1	9	[illegible]	519	2, 243
Lonchura maja, White-headed Munia									96				[illegible]	106	524
Lonchura malacca, Chestnut Munia					20	8	155	1, 780	51	60	1			2, 075	7, 839
Lonchura punctulata, Spotted Munia			27	4	69				146				8[illegible]	1, 089	4, 900
Lonchura striata, Sharp-tailed Munia			11						15				22[illegible]	253	1, 861
Padda oryzivora, Java Sparrow					8				5					13	65
Passer flaveolus, Pegu Sparrow													329	329	623

Species	Korea	Japan	Taiwan	Hong Kong	Luzon Mindoro	Palawan	Leyte Negros	Mindanao	Malaya	Sarawak	Sabah	Indonesia	Thailand	1967 Total	1963-67 Grand Total
Passer montanus, Tree Sparrow	84	1, 500		20					462				323	2, 389	9, 941
Passer rutilans, Russet Sparrow														-	54
Ploceus hypoxanthus, Golden Weaver													6	6	6
Ploceus manyar, Manyar Weaver													311	311	314
Ploceus philippines, Baya Weaver									221				964	1, 205	2, 821
Total	1/84	2/1, 505	2/36	2/24	4/263	1/6	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	46. 617	19. 442	54. 130	862	11, 020	4. 431	4, 662	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
	1967	1963-1967	months
Diomedea immutabilis	5	7	Table 11
Diomedea nigripes		3	115
Puffinus leucomelas		2	6
Puffinus tenuirostris		1	1
Puffinus carneipes	2	10	Table 11
Fregata ariel		4	8
Ardea cinerea		5	3
Ardea purpurea		1	6
Ardeola ibis	27	100	Table 11
Dupetor flavicollis		1	11
Egretta alba	3	13	Table 11
Egretta garzetta	32	63	Table 11
Egretta intermedia	9	30	Table 11
Gorsachius goisagi		1	8
Ixobrychus cinnamomeus	6	11	Table 11
Ixobrychus sinensis	1	4	12
Nycticorax nycticorax	26	74	Table 11
Anastomus oscitans	1	4	30
Anas acuta	4	6	36
Anas clypeata		4	12
Anas crecca	15	50	Table 11
Anas falcata		1	1
Anas formosum		1	3
Anas penelope	1	9	22
Anas platyrhynchos	5	21	Table 11
Aythya ferina		1	7
Aythya fuligula		1	4
Butastur indicus	22	68	Table 11
Coturnix chinensis	4	16	Table 11
Fulica atra		1	4
Gallicrex cinerea	1	1	20
Gallinula chloropus	2	4	11
Porzana cinerea	8	12	Table 11
Porsana fusca	5	5	15
Rallina eurizonoides	2	5	15
Rallus striatus	15	20	Table 11
Rostratula benghalensis	1	3	11
Charadrius alexandrinus	2	3	25

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

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

TABLE 7

SUMMARY OF BAND RECOVERY REPORTS 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					4	1			1	3	9
Japan		149		12	1		1		3	23	3	43
Okinawa			2							1		1
Taiwan	3	1	4	47	2							10
Philippines	9	41	65	100	133				1	1		217
Thailand	6			1		35	5					12
Malaya						3	78					3
Borneo				1				6				1
Siberia	1	27		6	2	26	3					65
North Korea	4					45	6					55
Australia		1										1
Caroline Island				2								2
Laos						1						1
Cambodia						1						1
Vietnam	1											1
East Pakistan						1						1
Assam							1					1
Alaska and Pribilof Island		30		1								31
Total	76	249	71	170	138	116	95	6	4	26	6	
Total that were taken outside country of origin	24	100	69	123	5	81	17	0				

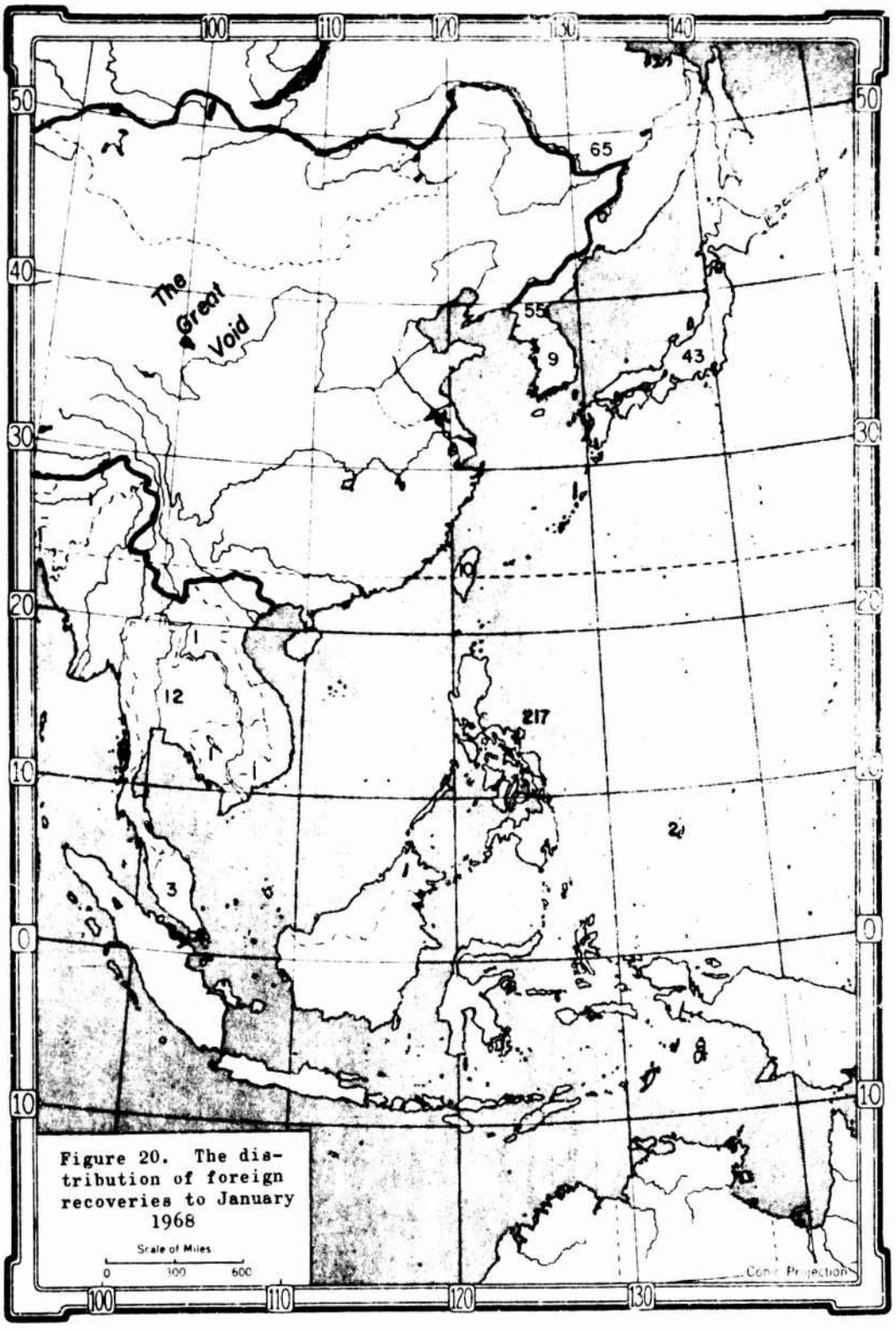

Figure 20. The distribution of foreign recoveries to January 1968

TABLE 8

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

Major Islands	% of human population	Ratio	% of area	Ratio	% of recoveries
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.

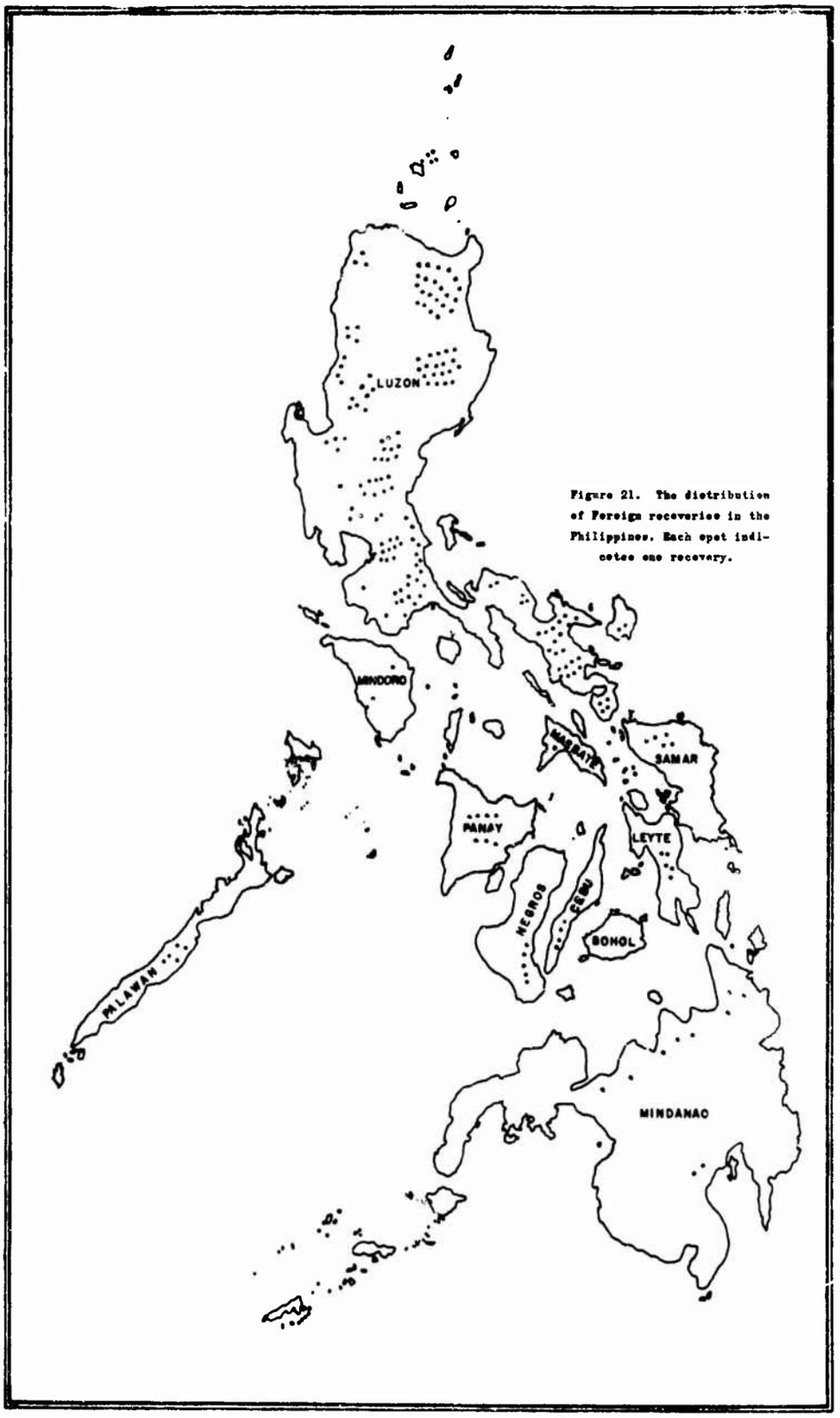

Figure 21. The distribution of foreign recoveries in the Philippines. Each spot indicates one recovery.

TABLE 9

RECOVERY IN 1967 OF BIRDS BANDED IN DALTON PASS, ALL FROM LUZON

Banded no.	Banded date	Recovery date	Time (months)	Recovered		Direction	Distan.
				Place	Co-ordinate		
APODIDAE: Chactura gigantea, Malaysian Spine-tailed Swift							
010-18997	6 Feb. 67	15 Mar. 67	2	Aritao, N. Vizcaya	16. 10 N x 121. 00 E	N	12 mi
ARDEIDAE: Ixobrychus cinnamomeus, Cinnamon Bittern							
070-06606	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
070-06469	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
Ixobrychus sinensis, 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: Chalcophaps indica, Emerald Dove							
060-16242	10 Dec. 66	10 Dec. 67	12	Baliuag, N. Ecija	15. 00 N x 120. 55 E	S	60 mi
Streptopelia tranquebarica, 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: Coturnix chinensis, Blue-breasted Quail							
040-56802	8 Mar. 67	9 May 87	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	30 mi
030-69008	11 Jan. 67	18 May 67	4	Bangabon, N. Ecija	15. 40 N x 121. 10 E	SE	35 mi
030-89232	13 Jan. 67	5 Mar. 87	2	Dipaculao, Aurora	15. 40 N x 121. 35 E	SE	45 mi
RALLIDAE: Gallicrex cinerea, Water Cock							
090-03017	23 Oct. 65	Jun. 67	20	Guimba, N. Ecija	15. 40 N x 120. 50 E	S	35 mi
Gallinula chloropus, 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
Porzana cinerea, 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	Maria, 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. 50 E	E	45 mi
060-16967	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
Porzana fusca, Ruddy Crake							
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	Coordinate		
070-06758	24 Nov. 65	25 Feb. 67	15	Bagabag, N. Vizcaya	16. 30 N x 120. 10 E	NE	20 mi
050-21176	8 Jan. 67	21 Jan. 67	0	San Juan, La Union	16. 40 N x 120. 25 E	NW	50 mi
050-21171	8 Jan. 67	22 Jan. 67	0	Aritao, N. Vizcaya	16. 10 N x 121. 00 E	N	12 mi
Rallina eurizonoides, Philippine Banded Crake							
070-06314	31 Dec. 65	1 Mar. 67	15	Aritao, N. Vizcaya	16. 10 N x 150. 55 E	NE	10 mi
050-21134	19 Dec. 86	25 Dec. 67	12	Taradeo, Pangasinan	15. 58 N x 120. 52 E	SW	12 mi
Rallus striatus, Slaty-breasted Rail							
060-16705	7 Jan. 67	Feb. 67	1	Bayombong, N. Vizcaya	16. 30 N x 121. 15 E	NE	30 mi
060-16718	7 Jan. 67	12 Feb. 87	1	Famy, Laguna	14. 25 N x 121. 35 E	SE	120 mi
060-16652	16 Dec. 66	11 Feb. 67	2	Solano, N. Vizcaya	16. 30 N x 121. 10 E	N	30 mi
070-06714	27 Nov. 65	26 Feb. 67	15	Buguey, Cagayan	18. 25 N x 121. 50 E	N	160 mi
060-16219	18 Nov. 66	26 Feb. 67	3	Bayombong, N. Vizcaya	16. 30 N x 121. 10 E	N	20 mi
060-16287	11 Dec. 66	26 Mar. 67	4	Cabanatuan city, N. Ecija	15. 30 N x 121. 00 E	S	45 mi
060-16599	14 Dec. 66	17 Mar. 67	3	Lasam, Cagayan	18. 05 N x 121. 45 E	NE	185 mi
060-16556	13 Dec. 66	10 Jun. 67	6	Asingan, Pangasinan	16. 00 N x 120. 45 E	E	20 mi
060-17825	11 Jun. 67	24 Jun. 67	0	San Manuel, Tarlac	15. 30 N x 120. 25 E	SW	55 mi
080-16755	8 Jan. 67	6 May 67	4	Buguey, Cagayan	18. 20 N x 121. 50 E	N	160 mi
060-16719	7 Jan. 67	15 Sep. 67	8	Burgos, Pangasinan	16. 05 N x 119. 55 E	W	70 mi
060-16715	7 Jan. 67	Aug. 67	7	Rizal, N. Ecija	15. 40 N x 121. 05 E	SE	30 mi
060-03417	30 May 65	30 Nov. 67	30	San Quintin, Abra	17. 35 N x 120. 30 E	N	100 mi
060-16665	5 Jan. 67	25 Dec. 67	12	San Miguel, Bulacan	15. 10 N x 121. 00 E	S	85 mi
060-17633	11 Jun. 67	23 Dec. 67	7	Santa Cruz, Cagayan	18. 25 N x 121. 30 E	N	165 mi

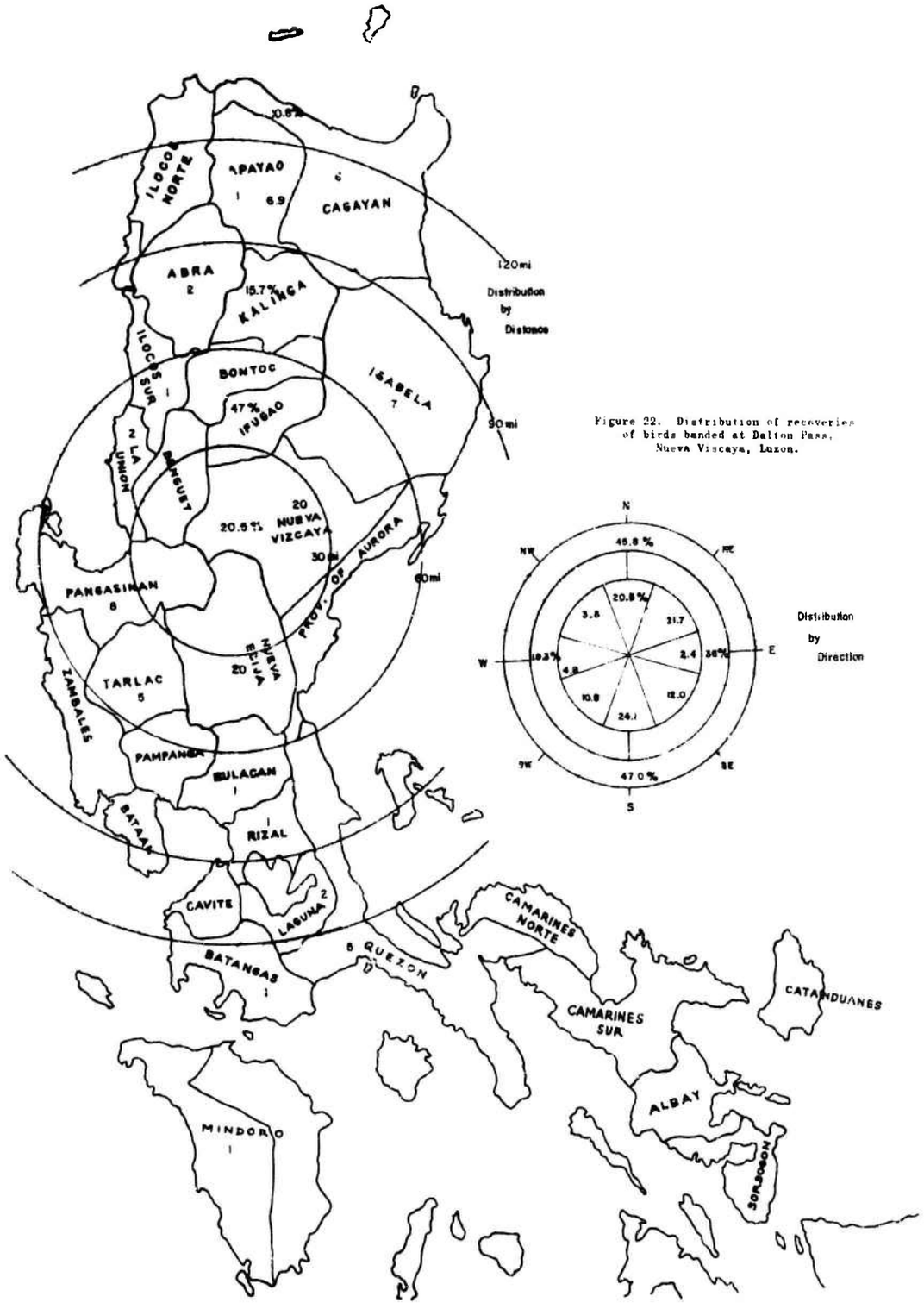

Figure 22. Distribution of recoveries of birds banded at Dalton Pass, Nueva Vizcaya, Luzon.

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: Diomedea immutabilis, Laysan Albatross									
676-86747	7 Mar. 66	16 Jan. 67	11	Midway Is.	26.00 N x 177.00 W	Pacific ocean	30.20 N x 147.40 E	W	2,000 mi
667-34263	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
757-03109	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
PROCELLARIDAE: Puffinus carneipes, Fleshy-footed Shearwater									
160-59177	12 Sep. 63	29 May 67	45	Lord Home Is.	31.31 S x 159.04 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	NW	5,000 mi
ARDEIDAE: Ardeola ibis, 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 Ecija	15.15 N x 120.55 E	S	680 mi
100-15671	6 Jun. 66	1 Feb. 67	6	"	"	Luzon, Quezon	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	500 mi
100-36165	19 Jul. 67	24 Oct. 67	4	"	24.57 N x 121.21 E	Samar, Philippines	12.45 N x 125.00 E	SE	900 mi
100-33661	16 Jun. 67	29 Nov. 67	6	"	24.49 N x 121.07 E	Isabels, 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
100-17367	6 Jul. 66	Mar. 67	6	"	"	Luzon, Isabella	17.05 N x 121.50 E	S	600 mi
100-17050	7 Jul. 66	Feb. 67	7	"	"	Luzon, Isabella	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
100-16066	25 Jun. 66	Apr. 67	10	"	"	Taiwan	-	-	-
100-13545	15 Jun. 66	26 Mar. 67	10	"	"	Luzon, Quezon	13.55 N x 121.35 E	S	650 mi
100-16204	25 Jun. 66	4 Jan. 67	7	"	"	Panay, Philippines	10.40 N x 122.00 E	S	600 mi
100-16290	26 Jun. 66	23 Mar. 67	9	"	"	Luzon, Cagayan	16.00 N x 121.30 E	S	425 mi
100-16506	27 Jun. 66	2 Apr. 67	10	"	"	Mindanao, Davao	7.10 N x 125.30 E	SE	1,300 mi
100-16323	26 Jun. 66	Mar. 67	9	"	"	Luzon, Quezon	15.50 N x 121.35 E	E	600 mi
100-16181	25 Jun. 66	6 Jan. 67	7	"	"	Ngarakabesan Is. Palau Is.	7.00 N x 134.50 E	SE	1,500 mi
100-16007	25 Jun. 66	6 Jan. 67	7	"	"	Mindanao, Surigao Norte	9.50 N x 125.30 E	SE	1,100 mi
100-16357	26 Jun. 66	2 Feb. 67	8	"	"	Luzon, Isabella	17.10 N x 121.50 E	S	550 mi
100-17530	19 Jul. 66	4 Jan. 67	6	"	"	Luzon, Cagayan	16.20 N x 121.55 E	S	450 mi
100-17055	7 Jul. 66	31 Jan. 67	7	"	"	Luzon, Cagayan	16.25 N x 121.55 E	S	400 mi
100-13087	25 May 66	4 Apr. 67	11	"	"	Luzon, Cagayan	17.50 N x 121.45 E	S	500 mi
100-55149	5 Jul. 67	10 Oct. 67	3	Japan	35.40 N x 139.55 E	Japan	35.51 N x 140.19 E	NE	26 mi
100-20259	13 Jul. 67	10 Nov. 67	4	"	35.41 N x 139.55 E	Luzon, Isabella	17.05 N x 122.30 E	SW	1,700 mi
	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	1,900 mi

Band no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
	Egretta garzetta, 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. 57 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 139156 E	S	20 mi
100-08532	29 Jun. 85	12 Feb. 67	20	"	"	"	35. 52 N x 140. 37 E	NE	45 mi
100-20889	12 Jul. 86	3 Mar. 67	8	"	"	"	35. 41 N x 140. 00 E	E	25 mi
100-18341	28 May 66	23 Jan. 67	8	"	"	"	35. 41 N x 139. 55 E	-	-
100-09327	28 May 66	20 Feb. 67	10	"	"	"	35. 30 N x 138. 30 E	SW	90 mi
100-11114	27 May 66	16 Feb. 07	11	"	"	Mindanao, Misamis Oriental	6. 30 N x 124. 30 E	SW	2, 500 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. 87	10	"	"	"	"	E	5 mi
100-23929	20 May 87	3 Aug. 67	3	"	"	"	36. 25 N x 139. 05 E	SW	60 mi
100-23546	20 May 87	22 Jun. 67	2	"	"	"	35. 41 N x 139. 50 E	E	5 mi
100-24428	8 Jun. 67	23 Jun. 67	0	"	"	"	35. 42 N x 139. 53 E	NW	3 mi
100-20750	12 Jul. 66	19 Jun. 67	12	"	"	"	35. 19 N x 140. 20 E	SE	12 mi
100-54200	9 Jun. 67	28 Jun. 67	0	"	"	"	35. 41 N x 140. 04 E	E	6 mi
100-54608	8 Jun. 87	26 Sep. 67	4	"	"	"	35. 41 N x 139. 44 E	W	10 mi
100-24610	20 May 67	3 Aug. 87	3	"	"	"	36. 37 N x 139. 36 E	NW	60 mi
100-24818	"	Jul. 67	2	"	"	"	35. 55 N x 139. 47 E	N	15 mi
100-53968	8 Jun. 37	14 Nov. 67	5	"	"	"	33. 31 N x 133. 35 E	SW	400 mi
100-54439	9 Jun. 87	27 Sep. 87	4	"	"	"	35. 42 N x 140. 52 E	E	63 mi
100-24777	20 May 67	11 Jul. 67	2	"	"	"	35. 45 N x 139. 56 E	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
	Egretta intermedia, 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. 87	10	"	"	Luzon, Isabella	16. 35 N x 121. 40 E	SW	1, 000 mi
100-19918	22 Jun. 86	18 May 87	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. 26 E	SW	2, 000 mi
100-10881	30 Jul. 85	11 Jul. 87	24	"	"	Japan	35. 40 N x 139. 55 E	-	-
100-24264	27 May 87	2 Sep. 87	4	"	38. 23 N x 140. 32 E	"	36. 23 N x 139. 01 E	W	90 mi
	Nycticorxx nycticorxx, 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 Jun. 67	7	"	"	"	35. 53 N x 140. 23 E	NE	25 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 mi
100-23272	20 May 67	11 Jun. 87	1	"	"	"	35. 40 N x 139. 55 E	0	0 mi
100-16806	21 Jun. 66	20 Feb. 67	8	"	"	Luzon, Pangasinan	16. 05 N x 120. 30 E	SW	1, 800 mi
100-36098	18 Jul. 67	25 Dec. 67	6	Taiwan	24. 56 N x 121. 11 E	Taiwan	25. 00 N x 121. 30 E	E	20 mi
100-37345	16 Aug. 67	15 Sep. 67	1	"	24. 57 N x 121. 21 E	"	25. 05 N x 121. 23 E	NE	8 mi
100-04458	24 May 66	6 Aug. 67	15	"	24. 49 N x 121. 07 E	"	24. 00 N x 120. 50 E	SW	50 mi
100-17294	9 Jul. 66	Jan. 67	6	"	24. 49 N x 121. 15 E	"	23. 05 N x 120. 15 E	SW	140 mi
110-05795	29 Sep. 66	31 May 67	9	Malaya	4. 55 N x 100. 35 E	Malaya	5. 15 N x 100. 25 E	N	15 mi
110-05299	"	11 Jan. 67	4	"	"	"	5. 30 N x 100. 40 E	N	35 mi
110-05770	"	21 Jan. 67	4	"	"	"	5. 15 N x 100. 25 E	N	15 mi
110-06627	24 Nov. 66	20 Feb. 87	3	"	4. 52 N x 100. 35 E		4. 45 N x 100. 40 E	SE	25 mi
110-07191	14 Oct. 66	6 Feb. 66	4	"	"	"	5. 15 N x 100. 30 E	N	25 mi
110-07471	30 Nov. 66	4 Jan. 67	2	"	4. 55 N x 100. 35 E	"	5. 45 N x 100. 30 E	N	50 mi
110-07479	"	6 Jan. 67	2	"	"	"	5. 10 N x 100. 25 E	N	20 mi
110-05542	30 Sep. 66	Feb. 67	5	"	4. 52 N x 100. 35 E	"	3. 41 N x 101. 00 E	S	75 mi
x-001057	17 Nov. 67	19 Dec. 67	1	"	4. 52 N x 100. 31 E	"	5. 01 N x 100. 32 E	N	10 mi
x-000302	2 Nov. 67	14 Nov. 67	0	"	"	"	5. 00 N x 100. 30 E	N	10 mi
110-12918	1 Nov. 67	1 Dec. 67	1	"	"	"	5. 25 N x 100. 25 E	N	25 mi
110-12964	1 Nov. 87	16 Dec. 67	2	"	4. 55 N x 100. 25 E	"	5. 07 N x 100. 25 E	N	10 mi
CICONIIDAE: Anastomus oscitans, Open-billed Stork									
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 mi
ANATIDAE: Anas acuta, 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 mi
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 mi
100-09153	8 Jan. 66	4 Apr. 67	15	"	"	USSR, Siberia	43. 05 N x 131. 53 E	NW	700 mi
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 mi
	Anas crecca, 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 mi
327942	19 Dec. 66	10 Jan. 67	1	"	35. 53 N x 149. 40 E	"	35. 47 N x 140. 40 E	S	6 mi
328054	11 Nov. 66	3 Jan. 67	2	"	"	"	35. 46 N x 140. 40 E	S	7 mi
327935	19 Dec. 66	5 Jan. 67	1	"	"	"	35. 50 N x 140. 40 E	S	3 mi
327971	19 Dec. 66	12 Jan. 67	1	"	"	"	35. 49 N x 149. 18 E	SW	5 mi
327921	24 Oct. 88	23 Jan. 67	3	"	"	"	35. 45 N x 140. 28 E	SW	10 mi
328125	24 Oct. 66	5 Feb. 87	4	"	"	"	35. 54 N x 140. 38 E	NW	4 mi
326002	19 Dec. 66	9 Feb. 67	2	"	35. 54 N x 140. 38 E	"	35. 54 N x 148. 38 E	0	0 mi
328130	25 Oct. 66	10 Jan. 67	3	"	35. 53 N x 140. 40 E	"	35. 57 N x 140. 07 E	W	35 mi
326153	26 Oct. 66	11 Feb. 67	4	"	"	"	35. 53 N x 140. 38 E	W	4 mi
327944	19 Dec. 86	14 Feb. 67	2	"	"	"	35. 48 N x 140. 40 E	S	7 mi
326038	19 Dec. 66	14 Feb. 67	2	"	"	"	"	S	7 mi
328619	20 Dec. 86	14 Feb. 87	2	"	35. 45 N x 140. 40 E	"	35. 45 N x 140. 34 E	SW	7 mi
328169	28 Oct. 66	14 Feb. 67	4	"	35. 53 N x 140. 40 E	"	35. 54 N x 140. 30 E	W	10 mi
080-05138	1 Mar. 85	28 Nov. 67	33	"	35. 54 N x 139. 47 E	"	35. 53 N x 139. 44 E	SW	3 mi
	Anas penelope, 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 mi
	Anas platyrhynchos, Mallard								
326959	28 Oct. 66	14 Feb. 87	4	Japan	35. 53 N x 140. 40 E	Japan	38. 02 N x 140. 20 E	NE	25 mi
326962	11 Nov. 66	11 Feb. 67	3	"	"	"	35. 53 N x 140. 36 E	W	4 mi
327193	25 Oct. 67	1 Nov. 67	0	"	"	"	36. 02 N x 140. 22 E	N	53 mi
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 mi
110-04125	22 Nov. 65	29 Jan. 67	15	"	"	"	36. 09 N x 139. 40 E	N	10 mi

Band no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
ACCIPITRIDAE: Butaatur indicus, Gray-faced Buzzard									
100-05796	26 Oct. 64	8 Ja.. 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	800 mi
100-14497	16 Oct. 66	22 Feb. 67	4	"	"	Luzon, Quezon	15. 50 N x 121. 35 E	S	600 mi
100-11330	16 Oct. 65	27 Feb. 67	16	"	"	Luzon, Nueva Ecija	15. 30 N x 120. 90 E	S	700 mi
100-14497	16 Oct. 66	22 Feb. 67	4	"	"	Luzon, Quezon	15. 50 N x 121. 35 E	S	600 mi
100-05919	16 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	Mar. 67	5	"	"	Luzon, Rizal	14. 35 N x 121. 05 E	S	750 mi
100-14492	16 Oct. 66	25 Mar. 67	6	"	24. 45 N x 125. 45 E	Luzon, Nueva Vizcaya	16. 15 N x 121. 00 E	SW	650 mi
100-14466	16 Oct. 66	Mar. 67	5	"	"	"	15. 35 N x 121. 15 E	S	700 mi
100-14907	11 Oct. 66	5 Apr. 67	6	"	24. 25 N x 125. 20 E	Panay Phil.	11. 35 N x 122. 25 E	S	1, 000 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	SW	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. 00 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	13 Oct. 66	16 Dec. 67	14	"	24. 45 N x 125. 45 E	Biliran Is., Phil.	11. 30 N x 124. 30 E	S	950 mi
080-04111	12 Oct. 67	27 Dec. 37	3	Taiwan	22. 15 N x 120. 50 E	Mindanao, Phil.	8. 35 N x 123. 45 E	S	700 mi
ROSTRATULIDAE: Rostratula benghalensis, 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	0	0 mi
CHARADRIIDAE: Charadrius alexandrinus, Kentish Plover									
030-15284	27 Nov 65	Dec. 67	25	Palawan	9. 40 N x 118. 27 E	Palawan, Phil.	9. 41 N x 116. 27 E	N	1 mi
020-69121	9 Nov. 66	Jan. 67	2	"	"	"	"	N	1 mi
Charadrius dominicus, 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	0	0 mi
Charadrius leschenaulti, 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
040-92080	9 Nov. 67	2 Jan. 68	2	Palawan	9. 40 N x 116. 27 E	Palawan, Phil.	9. 41 N x 116. 27 E	N	1 mi
SCOLOPACIDAE: Arenaria interpres, 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
050-05866	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	13 Aug. 67	15	"	"	"	"	NE	3, 000 mi
C-3066	7 May 63	19 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	8 Aug. 67	51	"	"	"	"	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	20 Sep. 67	5	"	"	Pacific ocean	21. 10 N x 173. 15 W	SE	5, 000 mi
050-17125	9 May 67	30 Jul. 67	3	"	"	Pribilof Islands	56. 40 N x 169. 30 E	NE	3, 000 mi
712-03586	3 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

Band no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
712-03632	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
722-10678	5 Aug. 66	6 May 67	9	"	"	"	"	SW	2, 100 mi
722-16366	26 Aug. 66	8 May 67	9	"	"	"	"	SW	2, 100 mi
722-17046	26 Aug. 66	4 May 67	9	"	"	"	35. 40 N x 139. 55 E	SW	2, 100 mi
	Capella gallinago, Common Snipe								
040-15323	12 Dec. 65	7 Jan. 67	13	Luzon, Batangas	13. 48 N x 120. 37 E	Japan	35. 46 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
	Capella megala, Swinhoe' s Snipe								
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	NE	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
050-21832	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
060-38039	30 Aug. 67	30 Aug. 67	0	"	"	"	"	0	0 mi
060-38127	31 Aug. 67	Sep. 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
	Numenius phaeopus, Common Whimbrel								
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
070-11584	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
	Tringa glareola, Wood Sandpiper								
040-55099	28 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
LARIDAE: Larus crassirostris, Black-tailed Gull									
080-09692	17 Jul. 66	11 Jun. 67	6	Japan	40. 32 N x 141. 33 E	Japan	33. 30 N x 132. 30 E	SW	700 mi
080-11750	14 Jun. 67	26 Aug. 67	3	"	"	"	42. 13 N x 140. 20 E	NW	125 mi
090-09772	11 Jun. 66	1 Apr. 67	10	"	"	"	35. 44 N x 140. 40 E	S	400 mi
090-09053	10 Jun. 66	28 Sep. 67	15	"	"	USSR, Siberia	47. 22 N x 142. 48 E	E	600 mi
COLUMBIDAE: Geopelia striata, Zebra Dove									
060-03596	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	28 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
050-09310	3 Sep. 66	Apr. 67	7	" "	9. 04 N x 123. 02 E	"	9. 20 N x 122. 50 E	NW	20 mi
050-09310	3 Sep. 66	Feb. 67	5	" "	"	"	"	NW	20 mi
050-00017	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
	Streptopelia chinensis, Spotted-necked Dove								
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	60 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 atthis, 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, 600 mi
	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
060-03836	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	Siquijor, Phil.	9. 13 N x 123. 40 E	Siquijor, Phil.	9. 15 N x 123. 35 E	W	7 mi
MEROPIDAE: 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
	Merops viridis, Blue-throated Bee-eater								
040-51683	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
012-33356	16 Jan. 66	28 Feb. 67	13	"	13. 45 N x 100. 30 E	"	13. 45 N x 100. 30 E	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	"	"	"	"	0	0 mi
012-56869	10 Jan. 67	5 May 67	4	"	"	South Korea	35. 10 N x 126. 05 E	NE	2, 200 mi
010-70391	22 Mar. 65	18 Apr. 67	25	"	"	Thailand	13. 45 N x 100. 30 E	0	0 mi
011-89491	26 Jan. 66	22 Jan. 67	12	"	"	"	13. 40 N x 100. 25 E	SW	5 mi
010-66809	9 Apr. 65	4 Jan. 67	21	"	"	"	13. 50 N x 100. 30 E	N	5 mi
010-94340	9 Nov. 67	21 Nov. 67	0	"	13. 12 N x 100. 57 E	"	13. 50 N x 100. 35 E	NW	40 mi
012-01557	3 Feb. 66	1 Feb. 67	12	"	13. 45 N x 100. 30 E	Malaya	3. 30 N x 101. 54 E	S	700 mi
012-23913	12 Jan. 66	7 Mar. 67	14	"	"	"	3. 31 N x 101. 55 E	S	770 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	"	"	South Korea	36. 00 N x 100. 30 E	NE	2, 400 mi
012-12141	4 Jan. 66	22 Apr. 67	16	"	"	"	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
012-36594	20 Jan. 66	? 67	?	"	"	North Korea	?	?	?
011-66791	6 Feb. 66	? 67	?	"	"	"	?	?	?
010-70824	22 Mar. 65	? 67	?	"	"	"	?	?	?
012-22223	12 Jan. 66	? 67	?	"	"	"	?	?	?
011-91070	27 Jan. 66	? 67	?	"	"	"	?	?	?
011-84477	7 Feb. 66	? 67	?	"	"	"	?	?	?

Band no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
012-18172	10 Jan. 66	? 67	?	Thailand	13. 45 N x 100. 30 E	North Korea	?	?	?
012-15244	6 Jan. 66	? 67	?	"	"	"	?	?	?
012-16517	7 Jan. 66	? 67	?	"	"	"	?	?	?
012-21970	12 Jan. 66	? 67	?	"	"	"	?	?	?
012-23955	12 Jan. 66	? 67	?	"	"	"	?	?	?
012-24035	12 Jan. 66	? 67	?	"	"	"	?	?	?
012-24263	12 Jan. 66	? 67	?	"	"	"	?	?	?
012-48288	24 Jan. 66	? 67	?	"	"	"	?	?	?
012-27928	14 Jan. 66	? 67	?	"	"	"	?	?	?
012-28765	17 Jan. 66	? 67	?	"	"	"	?	?	?
011-97036	31 Jan. 66	? 67	?	"	"	"	?	?	?
011-99488	2 Feb. 66	? 67	?	"	"	"	?	?	?
011-96345	1 Feb. 66	? 67	?	"	"	"	?	?	?
012-55808	7 Jan. 67	? 67	?	"	"	"	?	?	?
012-56450	10 Jan. 67	? 67	?	"	"	"	?	?	?
012-57470	8 Mar. 67	? 67	?	"	"	"	?	?	?
012-57777	9 Mar. 67	? 67	?	"	"	"	?	?	?
010-71821	23 Mar. 67	? 67	?	"	"	"	?	?	?
012-58801	5 Jan. 67	2 Jun. 67	5	"	"	USSR, Siberia	50. 70 N x 132. 36 E	NE	3, 000 mi
012-21975	11 Jan. 67	2 Jun. 67	5	"	"	"	"	NE	3, 000 mi
012-67986	8 Oct. 66	20 Dec. 67	14	Taiwan	23. 25 N x 120. 18 E	Thailand	13. 50 N x 109. 35 E	SW	1, 500 mi
012-64030	6 Oct. 66	18 Mar. 67	5	"	23. 19 N x 120. 18 E	Japan	33. 55 N x 132. 19 E	NE	900 mi
013-63004	8 Oct. 66	14 May 67	7	"	23. 25 N x 120. 18 E	"	36. 20 N x 138. 54 E	NE	1, 300 mi
011-66307	8 Feb. 66	8 Mar. 67	13	"	24. 13 N x 120. 43 E	"	32. 59 N x 129. 07 E	NE	900 mi
011-21264	12 Mar. 66	22 May. 67	14	"	"	"	32. 50 N x 130. 20 E	NE	800 mi
012-23080	29 Mar. 66	21 Mar. 67	12	"	24. 02 N x 120. 41 E	"	34. 35 N x 131. 00 E	NE	800 mi
012-47852	14 Apr. 66	17 Jan. 67	9	"	"	Luzon, Rizal	14. 35 N x 121. 05 E	S	700 mi
020-66662	24 Oct. 66	18 Feb. 67	4	"	23. 17 N x 120. 20 E	Taiwan	23. 17 N x 120. 20 E	0	0 mi
020-66656	24 Oct. 66	15 Oct. 67	12	"	"	"	23. 23 N x 120. 21 E	N	6 mi
012-67001	8 Oct. 66	20 Nov. 67	13	"	23. 28 N x 120. 26 E	"	24. 01 N x 120. 42 E	N	35 mi
011-66583	21 Feb. 66	20 Nov. 67	21	"	24. 04 N x 120. 41 E	"	"	S	3 mi
011-66780	17 Feb. 66	20 Nov. 67	21	"	"	"	"	S	3 mi
011-66878	17 Feb. 66	20 Nov. 67	21	"	"	"	"	S	3 mi
011-66804	18 Feb. 66	20 Nov. 67	21	"	"	"	"	S	3 mi
011-67220	2 Mar. 66	20 Nov. 67	20	"	24. 13 N x 120. 44 E	"	"	S	12 mi
011-67250	2 Mar. 66	20 Nov. 67	20	"	"	"	"	S	12 mi
011-67257	2 Mar. 66	20 Nov. 67	20	"	"	"	"	S	12 mi
011-67814	1 Mar. 66	20 Nov. 67	20	"	24. 04 N x 120. 41 E	"	"	S	3 mi
011-20811	2 Mar. 66	20 Nov. 67	20	"	24. 13 N x 120. 44 E	"	"	S	12 mi
012-63642	4 Oct. 36	15 Oct. 67	12	"	24. 18 N x 120. 18 E	"	23. 23 N x 120. 21 E	NE	5 mi
012-63655	7 Apr. 36	Apr. 67	12	"	24. 11 N x 120. 37 E	Luzon, N. Vizcaya	16. 25 N x 121. 10 E	S	450 mi
013-48504	25 Feb. 67	20 Dec. 67	10	"	24. 13 N x 120. 44 E	Palawan, Phil.	9. 40 N x 118. 27 E	S	1, 050 mi
020-62195	4 Oct. 66	22 May 67	7	"	23. 19 N x 120. 18 E	Japan	32. 57 N x 132. 50 E	NE	1, 010 mi
010-41480	27 Feb. 67	17 Jun. 67	4	"	23. 17 N x 120. 20 E	"	33. 12 N x 131. 31 E	NW	950 mi
012-67588	8 Oct. 66	11 May 67	7	"	23. 25 N x 120. 18 E	"	33. 34 N x 133. 26 E	NE	1, 000 mi
012-63662	8 Oct. 66	3 Jul. 67	9	"	"	"	34. 03 N x 133. 39 E	NW	1, 100 mi
012-63957	4 Oct. 66	11 Jun. 67	6	"	23. 19 N x 120. 18 E	"	35. 13 N x 133. 45 E	NE	1, 000 mi
012-74068	26 Aug. 66	23 May 67	9	Japan	37. 23 N x 140. 23 E	East China Sea	26. 57 N x 123. 05 E	SW	1, 300 mi
010-96476	26 Jul. 65	29 Dec. 67	29	Korea	37. 38 N x 127. 05 E	Thailand	13. 50 N x 100. 35 E	SW	2, 300 mi
012-85636	12 Aug. 66	28 Nov. 67	16	"	"	"	"	SW	2, 300 mi
012-63381	10 Jul. 67	28 Nov. 67	4	"	"	"	"	SW	2, 300 mi
012-28148	14 Jul. 67	18 Dec. 67	6	"	37. 45 N x 127. 15 E	"	"	SW	2, 500 mi
012-98306	14 Aug. 66	10 Jan. 67	5	"	37. 38 N x 127. 05 E	"	13. 45 N x 100. 30 E	SW	2, 600 mi
013-68654	12 Aug. 67	18 Dec. 67	4	"	"	"	13. 50 N x 100. 35 E	SW	2, 300 mi
011-66803	23 Jun. 66	10 Feb. 67	8	"	37. 49 N x 127. 15 E	Palawan, Phil.	9. 25 N x 118. 30 E	SW	2, 100 mi
012-92307	2 Sep. 66	26 Jun. 67	10	"	27. 38 N x 127. 05 E	South Korea	36. 50 N x 128. 40 E	SE	95 mi
012-98048	27 Aug. 66	? 67	?	"	"	North Korea	?	?	?
013-68681	10 Aug. 66	? 67	?	"	"	"	?	?	?
011-66403	18 Jun. 66	? 67	?	"	"	"	?	?	?

Band no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
012-89672	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
012-85907	12 Aug. 66	25 Apr. 67	6	"	"	"	23. 27 N x 128. 28 E	SW	1, 000 mi
011-80775	13 Jun. 66	15 Oct. 67	16	"	"	"	23. 23 N x 120. 21 E	SW	1, 200 mi
012-77646	18 Oct. 66	20 Nov. 67	13	Malaya	3. 30 N x 101. 54 E	Thailand	13. 50 N x 100. 35 E	N	880 mi
013-23075	15 Dec. 66	? 67	9	"	3. 25 N x 102. 05 E	South Korea	38. 15 N x 126. 25 E	NE	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
012-82323	16 Nov. 66	28 Nov. 67	12	"	3. 25 N x 102. 03 E	"	"	N	760 mi
010-87268	4 Aug. 65	7 Jan. 67	17	"	3. 30 N x 101.54 E	"	"	N	770 mi
012-81383	17 Oct. 66	20 Oct. 67	12	"	3. 16 N x 101. 30 E	Malaya	3. 25 N x 102. 30 E	NE	20 mi
012-11541	13 Mar. 66	? 67	7	"	3. 12 N x 101. 40 E	North Korea	?	?	?
010-57725	20 Jan. 55	? 67	?	"	3. 30 N x 101. 54 E	"	?	?	?
010-66605	6 Oct. 66	3 Feb. 67	4	"	3. 40 N x 101. 45 E	Malaya	3. 30 N x 101. 54 E	SE	15 mi
012-84665	20 Oct. 66	5 May 67	7	"	3. 48 N x 101. 52 E	Japan	43. 13 N x 140. 20 E	NE	3, 600 mi
010-28651	30 Oct. 66	1 Apr. 07	6	Sarawak	1. 30 N x 110. 20 E	Sarawak	1. 30 N x 110. 20 E	0	0 mi
	Hirundo tahitica, 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
010-88923	28 Jul. 66	15 Apr. 67	9	"	3. 48 N x 101. 52 E	"	3. 48 N x 101. 52 E	0	0 mi
DICRURIDAE: Dicrurus balicasius, Balicassio									
956-03141	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
TIMALIIDAE: Alcippe nipalensis, Mountain Nun Babbler									
BA-81656	19 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
	Garrulax erythrocephalus, 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
	Leiothrix argentauris, 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-28731	13 Mar. 63	11 May 67	50	"	"	"	"	0	0 mi
	Stachyris nigriceps, Gray-throated Tree Babbler								
020-39146	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
PARADOXORNITHIDAE: Paradoxornis webbiana, 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
PYCNONOTIDAE: Criniger pallidus, Pale White-throated 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	0 mi
040-04499	14 Jan. 65	22 Oct. 67	34	"	14. 24 N x 101. 09 E	"	14. 00 N x 99. 30 E	SW	90 mi
	Hypsipetes amaurotis, Brown-eared Bulbul								
D-7155	12 Nov. 66	22 Jan. 67	3	Japan	34. 21 N x 130. 51 E	Japan	33. 52 N x 130. 30 E	SW	75 mi

Band no.	Banded date	Recovery date	Time (months)	Banded		Recovered		Direction	Distance
				Place	Co-ordinate	Place	Co-ordinate		
	Hypsipetes guiaris, Philippine Bulbul								
030-34943	10 Jun. 66	20 Nov. 67	18	Luzon, Laguna	14. 24 N x 121. 30 E	Luzon, Laguna	14. 24 N x 121. 30 E	0	0 mi
	Pycnonotus goiavier, Yellow-vented Bulbul								
030-30019	24 Jan. 66	19 Apr. 67	15	Malaya	5. 21 N x 100. 17 E	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	"	3. 02 N x 101. 25 E	0	0 mi
040-50198	2 Jan. 65	1 Jan. 67	24	Singapore	1. 23 N x 193. 52 E	Singapore	1. 23 N x 103. 52 E	0	0 mi
040-50124	2 Jun. 65	15 Jan. 67	19	"	"	"	"	0	0 mi
SYLVIIDAE: Seicercus montis, Yellow-breasied Flycatcher-warbler									
010-91718	1 Jun. 67	16 Jul. 67	0	Malaya	4. 30 N x 101. 30 E	Malaya	4. 30 N x 101. 30 E	0	0 mi
MOTACILLIDAE: Motacilla alba, Pied Wagtail									
020-27946	1 Jul. 66	17 Apr. 67	10	Korea	37. 38 N x 127. 05 E	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	"	"	"	37. 37 N x 127. 00 E	E	5 mi
011-80863	27 Jun. 66	28 Apr. 67	10	"	"	"	37. 49 N x 127. 15 E	NE	15 mi
011-81664	24 Jun. 66	25 Mar. 67	9	"	37. 36 N x 127. 10 E	"	37. 35 N x 127. 10 E	S	3 mi
012-73629	10 Dec. 66	May 67	5	Japan	34. 58 N x 137. 07 E	USSR, Sakhalin	48. 56 N x 142. 57 E	NE	1, 000 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-7950	5 Feb. 67	17 Apr. 67	3	"	"	Japan	42. 17 N x 141. 02 E	N	550 mi
	Motacilla flava, Yellow Wagtail								
020-62589	16 Oct. 66	19 Nov. 67	13	Taiwan	23. 23 N x 120. 21 E	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	"	23. 52 N x 120. 41 E	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
014-86276	3 May 67	7 Jul. 67	2	"	23. 23 N x 120. 21 E	USSR, Siberia	59. 40 N x 150. 04 E	NE	3, 400 mi
020-58663	2 Apr. 66	15 Oct. 67	19	"	23. 16 N x 120. 14 E	Taiwan	23. 23 N x 121. 21 E	E	70 mi
020-58416	29 Apr. 66	20 Oct. 67	18	"	"	"	23. 23 N x 120. 21 E	NE	10 mi
ARTAMIDAE: Artamus leucorhynchus, White-breasied Wood Swallow									
040-15925	24 Nov. 65	26 Jan. 67	14	Palawan	9. 40 N x 116. 27 E	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: Lanius cristatus, Brown Shrike									
030-41985	23 Sep. 65	23 Apr. 67	19	Taiwan	22. 00 N x 120. 44 E	Luzon, Batangas	13. 55 N x 121. 10 E	S	550 mi
040-45363	19 Sep. 66	21 May 67	8	"	"	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	"	17. 10 N x 120. 45 E	SW	1, 400 mi

Band no.	Banded date	Recovery date	Time (months)	Place	Co-ordinate	Recovered Place	Recovered Co-ordinate	Direction	Distance
STURNIDAE: Aplonis panayensis, Philippine Starling									
040-15734	16 Jun. 65	5 Feb. 67	20	Palawan	9. 30 N x 118. 27 E	Palawan, Phil.	9. 30 N x 118. 27 E	0	0 mi
Sarcops calvus, Coleto									
060-18869	22 May 67	11 Jun. 67	1	Negros	10. 33 N x 123. 09 E	Negros. Phil.	10. 35 N x 123. 00 E	N	2 mi
060-18834	21 May 67	30 Sep. 67	4	"	"	"	10. 33 N x 123. 08 E	S	2 mi
Sturnus cineraceus, Grey Starling									
050-10012	13 Jun. 65	23 Jun. 67	25	Korea	27. 35 N x 127. 00 E	South Korea	27. 48 N x 127. 29 E	NE	25 mi
Sturnus tristis, Common Myna									
060-01422	5 Sep. 66	Mar. 67	6	Thailand	13. 12 N x 100. 50 E	Thailand	13. 20 N x 100. 66 E	NE	9 mi
NECTARINIIDAE: Arachnothera longirostris, Little Spiderhunter									
N-19888	20 Mar. 63	11 May 67	50	Malaya	4. 30 N x 101. 35 E	Malaya	4. 30 N x 101. 25 E	0	0 mi
020-39114	6 Jun. 67	19 Jul. 67	1	"	4. 30 N x 101. 30 E	"	4. 30 N x 101. 30 E	0	0 mi
ZOSTEROPIDAE: Zosterops palpebrosa, Oriental White-eye									
010-23780	9 Oct. 66	30 Jul. 67	10	Japan	37. 20 N x 138. 35 E	Japan	27. 20 N x 138. 35 E	0	0 mi
FRINGILLIDAE: Emberiza rustica, Rustic Bunting									
013-13913	31 Dec. 66	13 Jan. 67	1	Korea	37. 49 N x 127. 15 E	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
013-19684	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
011-60640	15 Dec. 65	27 Jan. 67	13	"	37. 45 N x 127. 15 E	"	37. 45 N x 127. 10 E	W	5 mi
011-74880	17 Feb. 66	19 Feb. 67	12	"	"	"	37. 38 N x 137. 06 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
PLOCEIDAE: Lonchura malacca, Chestnut Munia									
011-17025	14 Sep. 66	23 May 67	8	Luzon, Camarines Norte	14. 17 N x 132. 45 E	Luzon, Albay	13. 10 N x 133. 45 E	SW	100 mi
010-12152	9 Sep. 64	Apr. 67	31	Mindoro	13. 7 N x 131. 18 E	Mindoro, Phil.	13. 10 N x 121. 14 E	NW	5 mi
011-50013	20 May 67	15 Jul. 67	2	Sabah	6. 00 N x 116. 00 E	Sabah	6. 00 N x 116. 00 E	0	0 mi
Lonchura striata, Sharp-tailed Munia									
013-72921	19 Aug. 67	16 Sep. 67	1	Thailand	13. 45 N x 100. 30 E	Thailand	13. 45 N x 100. 30 E	0	0 mi
Padda oryzivora, Java Sparrow									
030-44432	11 Dec. 66	7 Sep. 67	9	Malaya	2. 15 N x 102. 15 E	Malaya	3. 15 N x 103. 15 E	0	0 mi
Passer montanus, Tree Sparrow									
020-09163	3 Oct. 65	39 Oct. 67	24	Negros	9. 21 N x 133. 19 E	Negros. Phil.	10. 30 N x 133. 25 E	N	60 mi
Ploceus philippinus, Baya Weaver									
030-64604	6 May 67	15 Aug. 67	3	Thailand	13. 45 N x 100. 30 E	Thailand	13. 45 N x 100. 30 E	0	0 mi

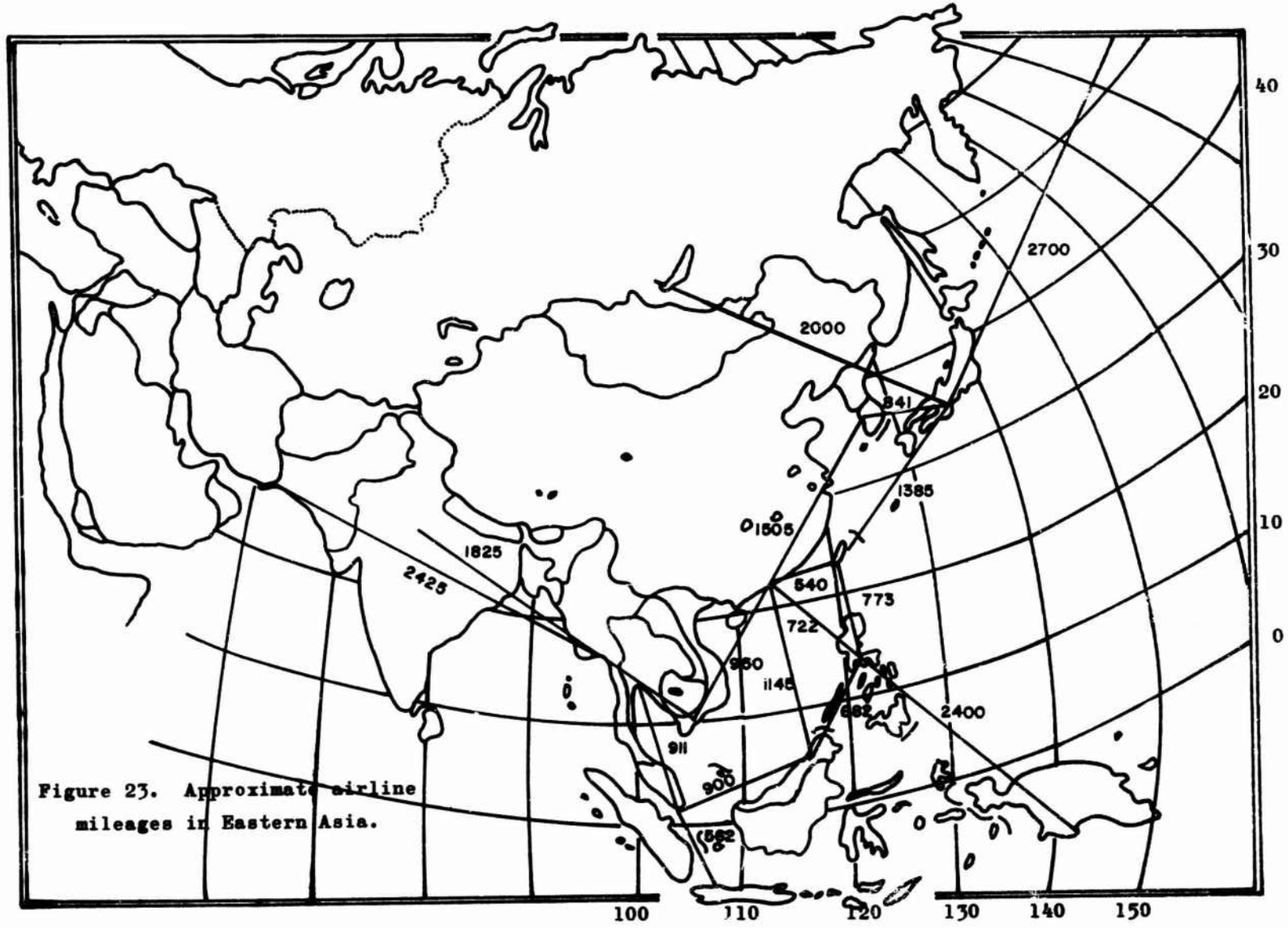

Figure 23. Approximate airline mileages in Eastern Asia.

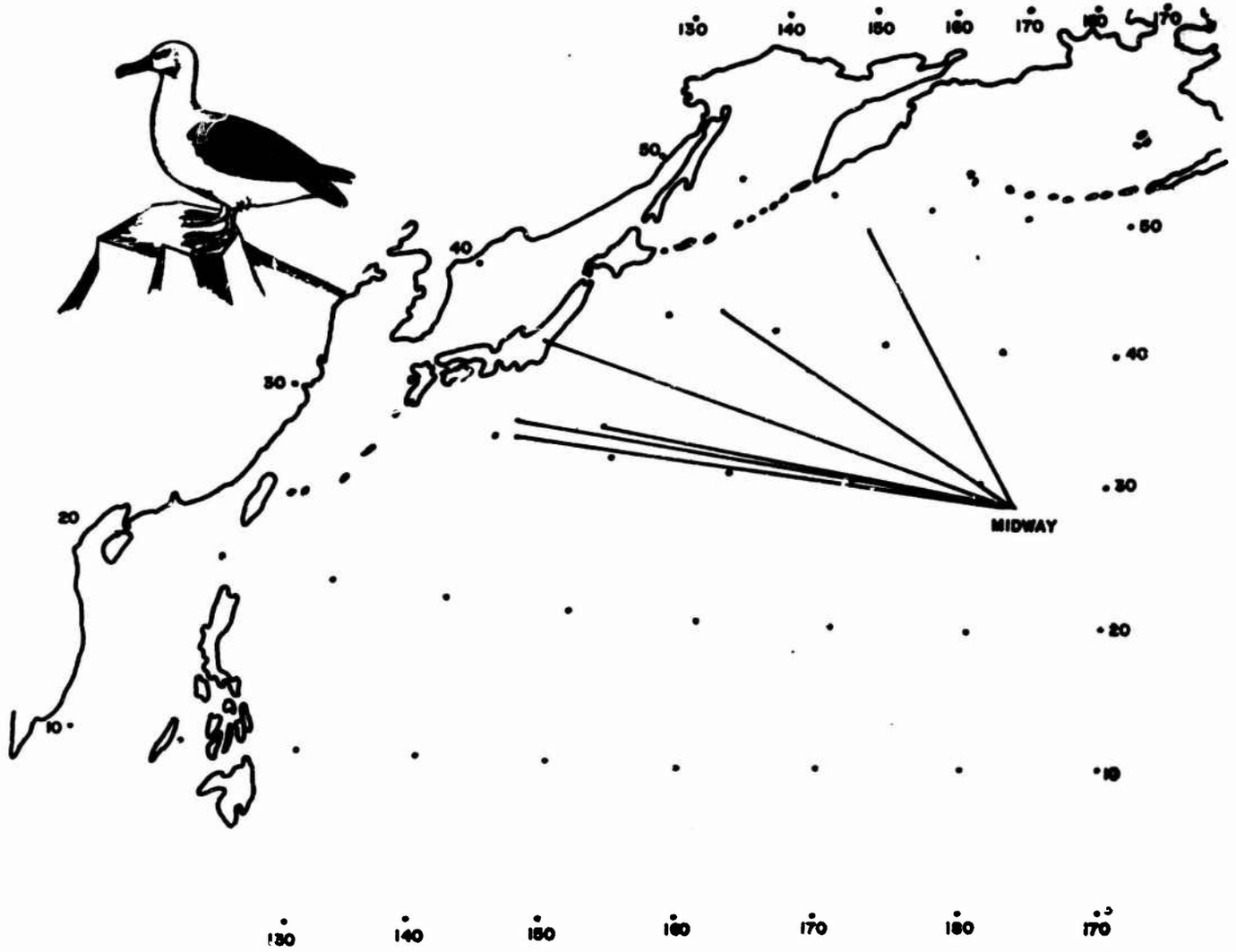

Figure 24. Laysan Albatross, Diomedea immutabilis.

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

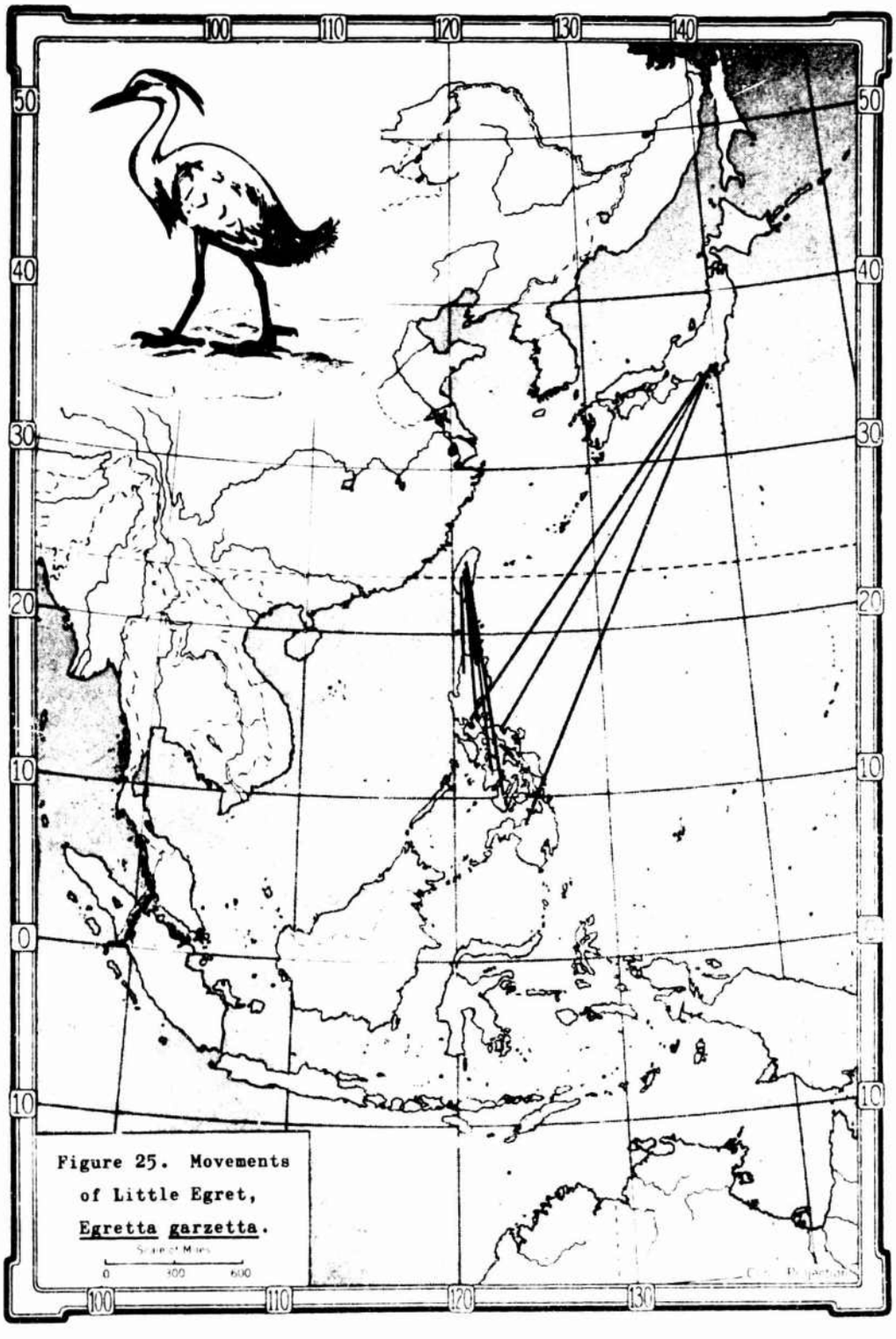

Figure 25. Movements of Little Egret, Egretta garzetta.

Figure 26. Black-crowned Night Heron, Nycticorax nycticorax.

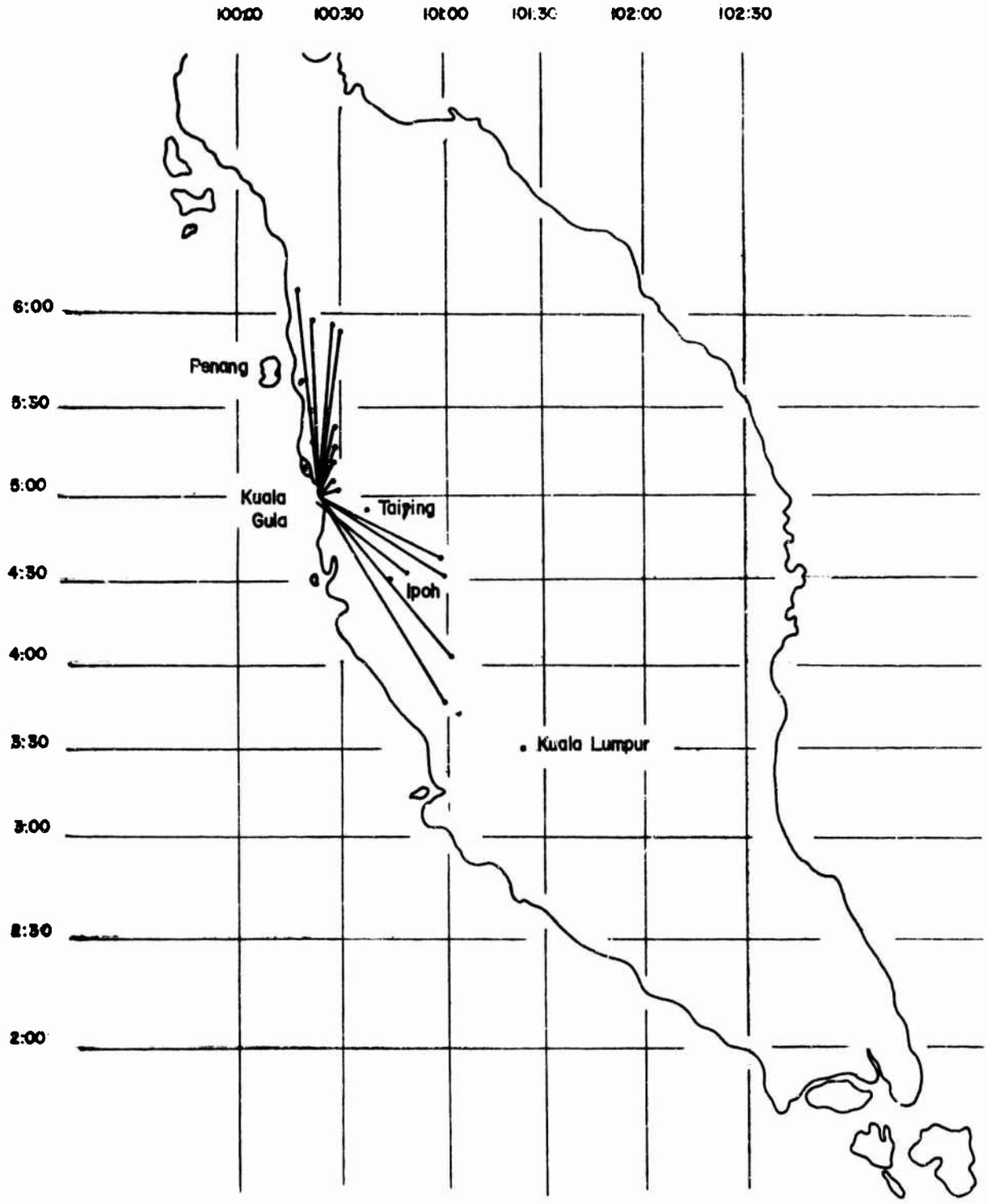

Figure 27. Local movements of Black-crowned Night Herons in Malaya.

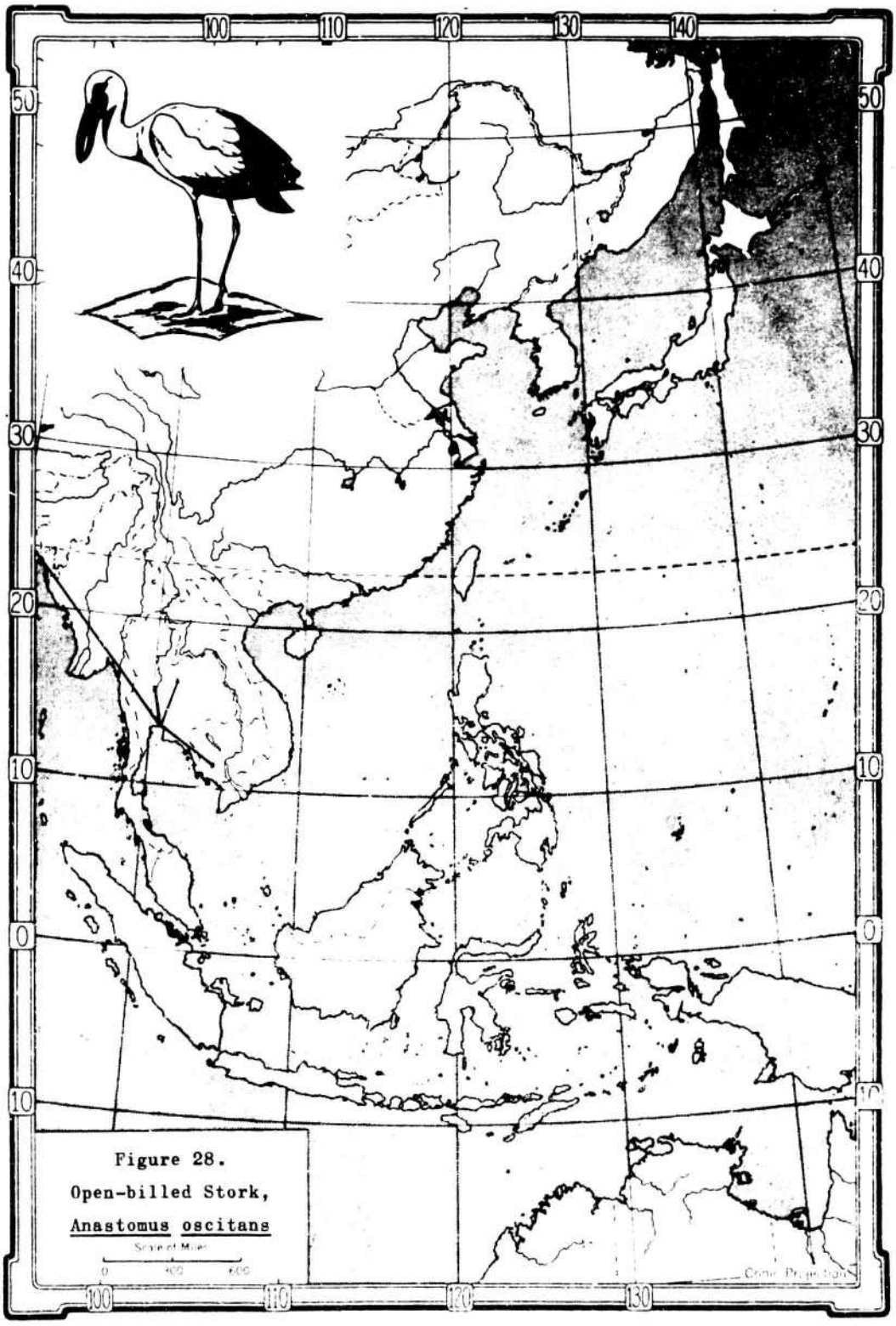

Figure 28.
Open-billed Stork,
Anastomus oscitans

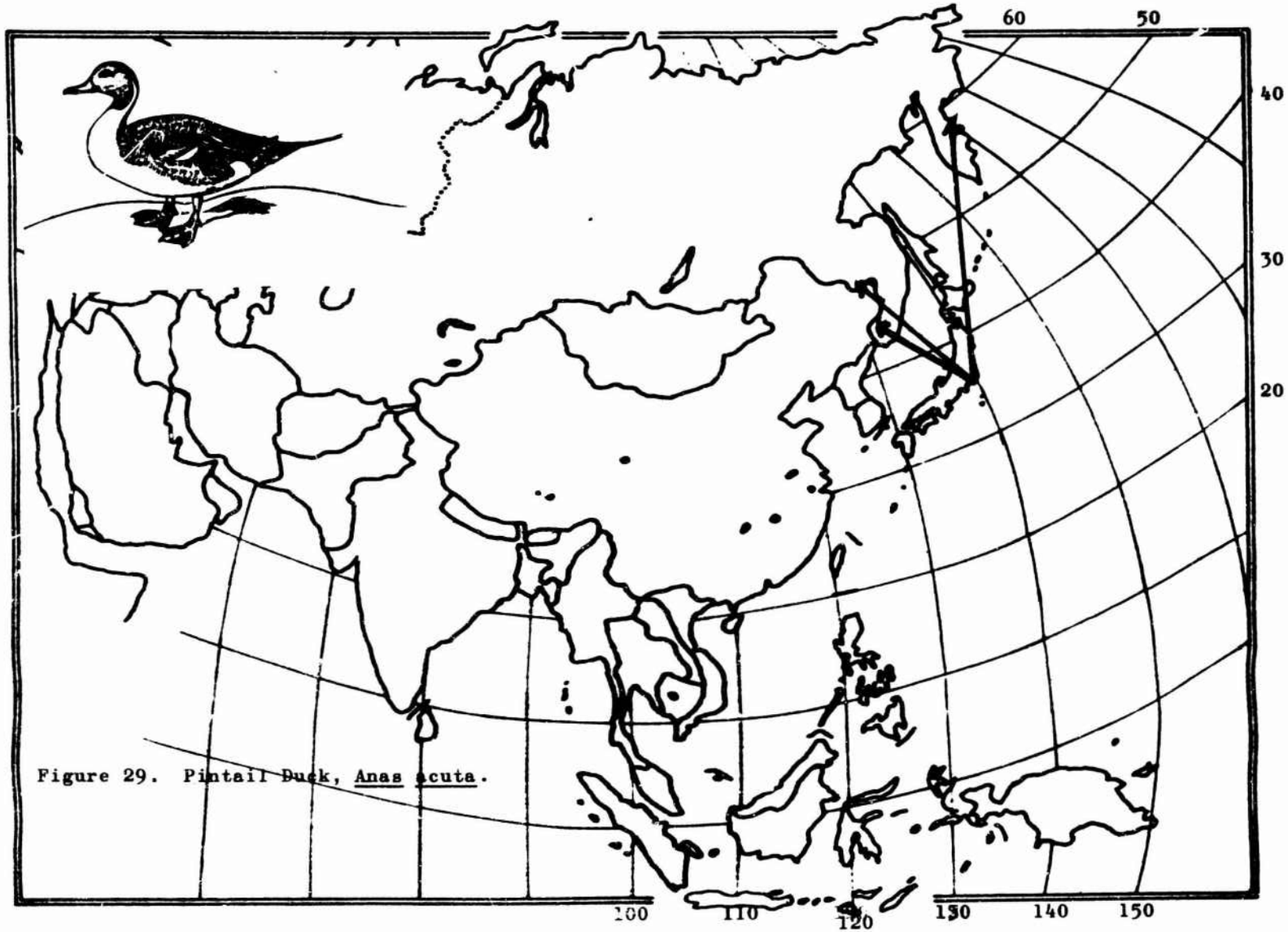

Figure 29. Pintail Duck, Anas acuta.

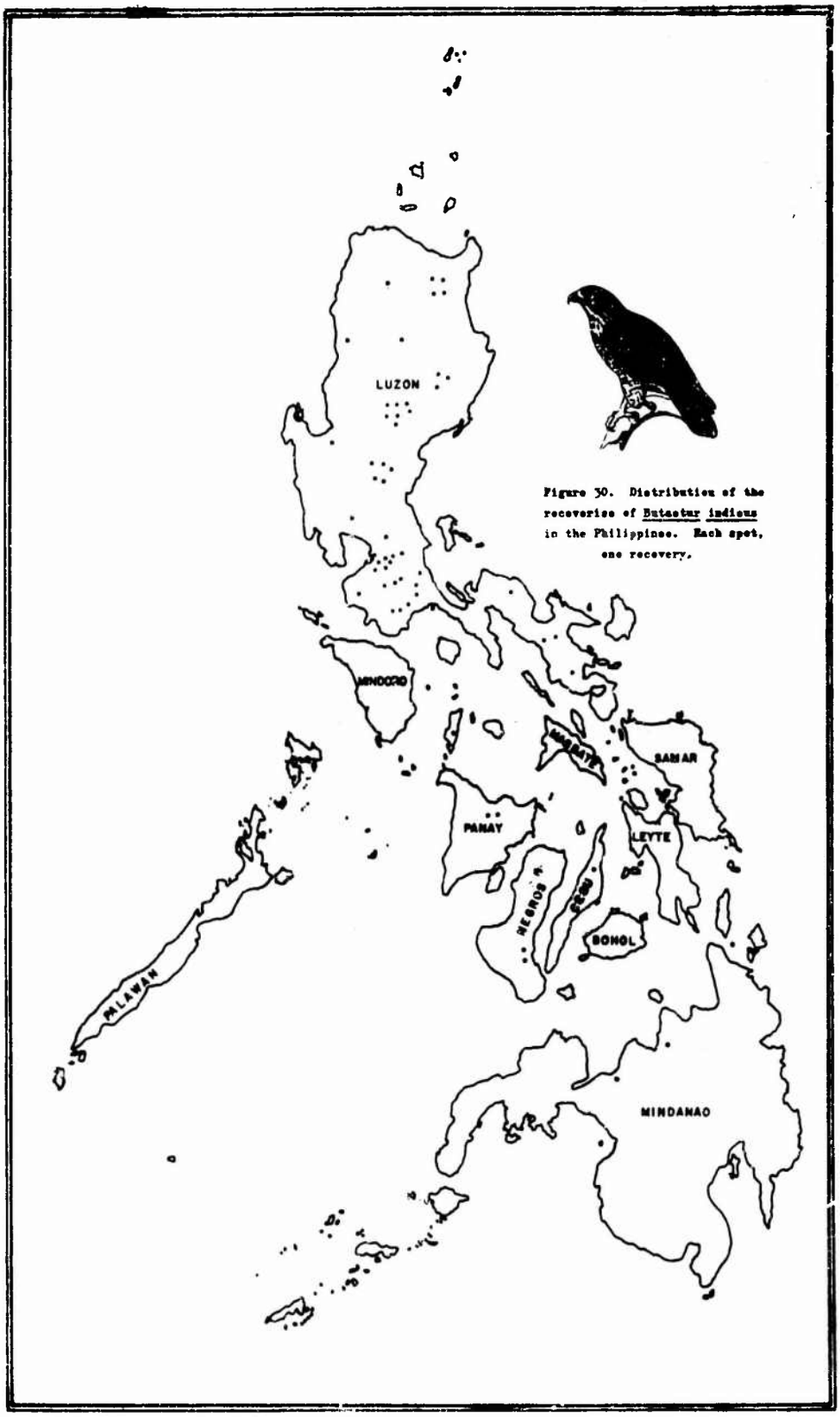

Figure 30. Distribution of the recoveries of Butastur indicus in the Philippines. Each spot, one recovery.

Figure 31. Common Snipe, Capella gallinago.

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.

MEROPIDAE: 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

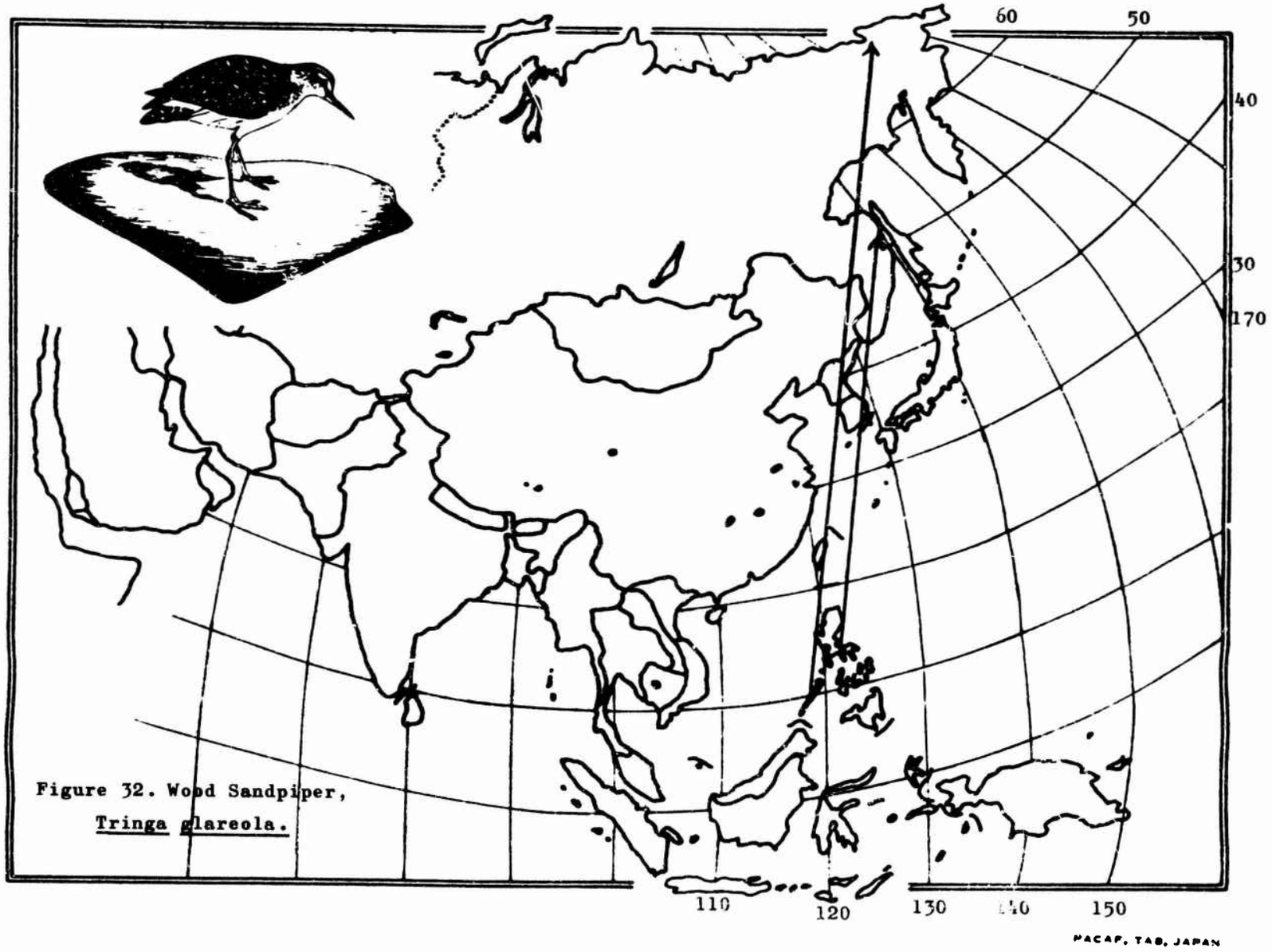

Figure 32. Wood Sandpiper, Tringa glareola.

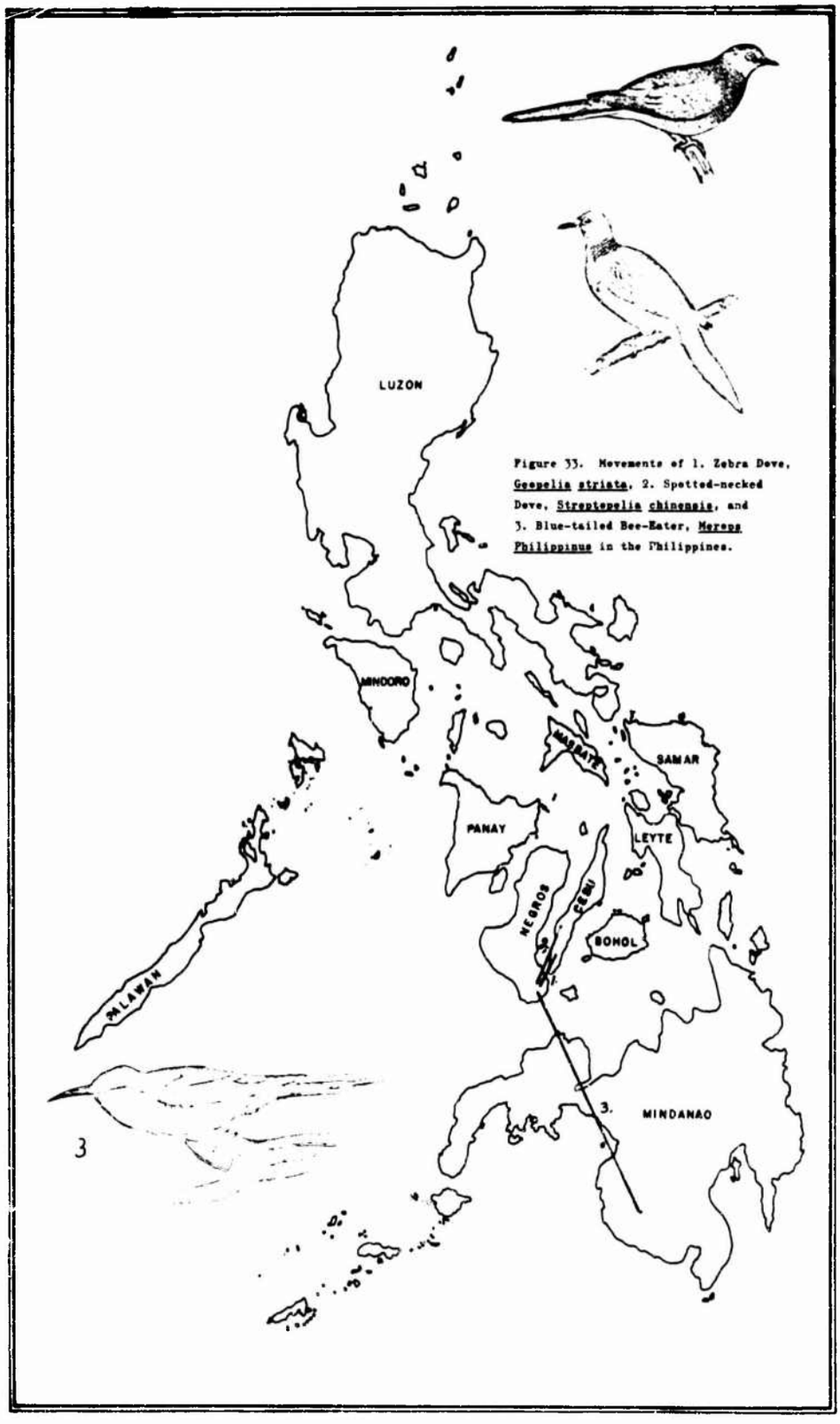

Figure 33. Movements of 1. Zebra Dove, Geopelia striata, 2. Spotted-necked Dove, Streptopelia chinensis, and 3. Blue-tailed Bee-Eater, Merops Philippinus in the Philippines.

Figure 34. Brown-Hawk-Owl
Ninox scutulata

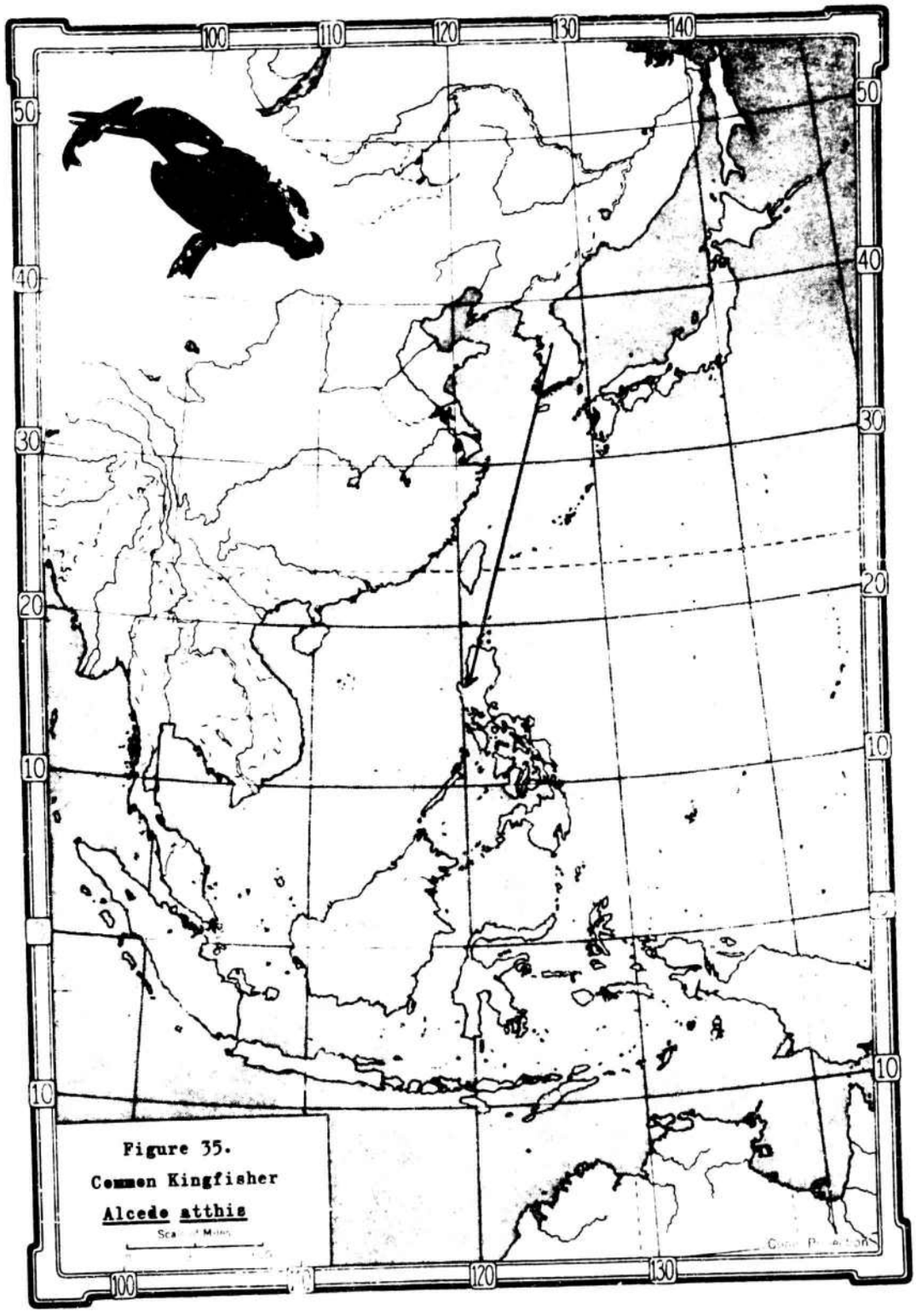

Figure 35.
Common Kingfisher
Alcedo atthis

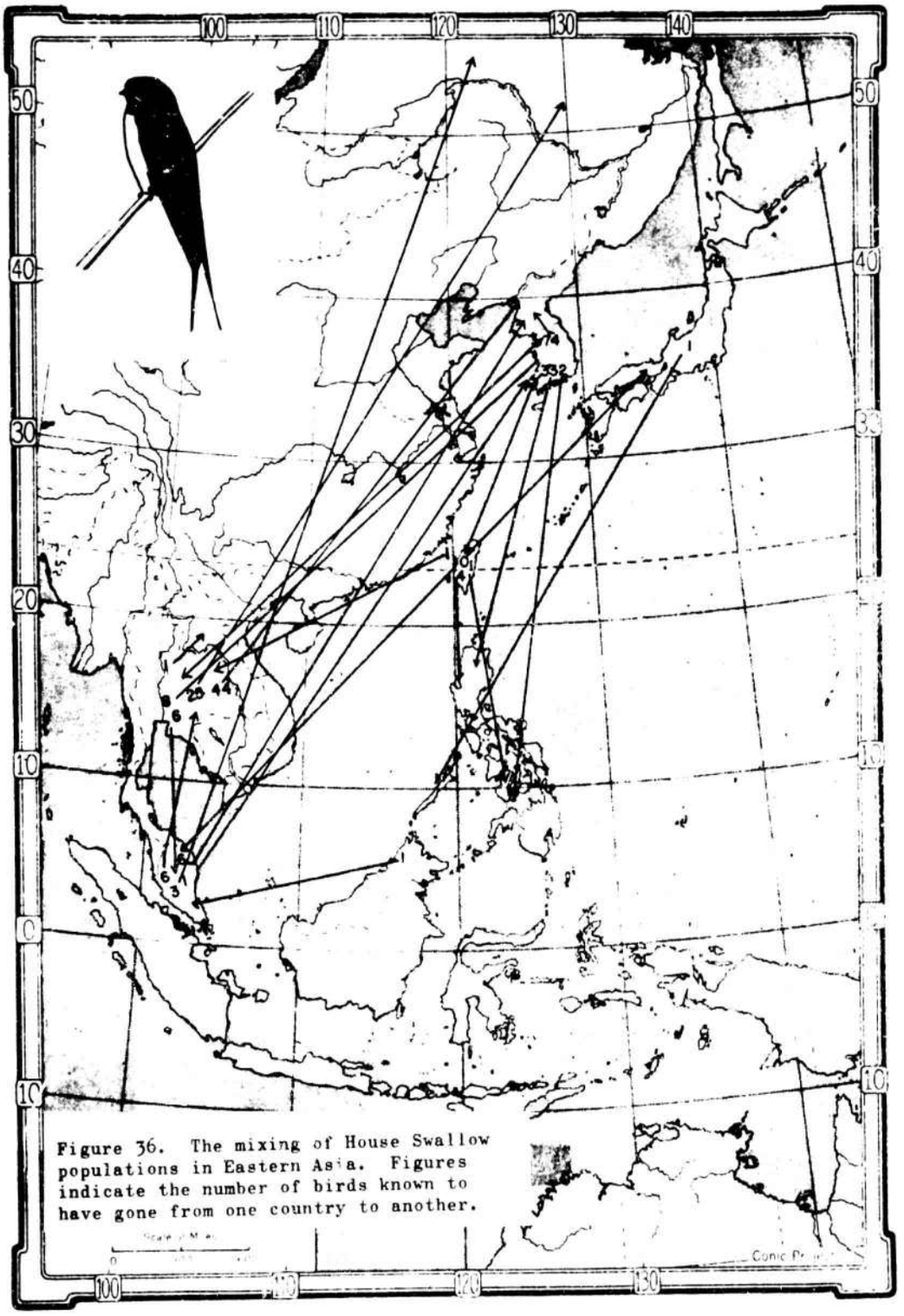

Figure 36. The mixing of House Swallow populations in Eastern Asia. Figures indicate the number of birds known to have gone from one country to another.

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

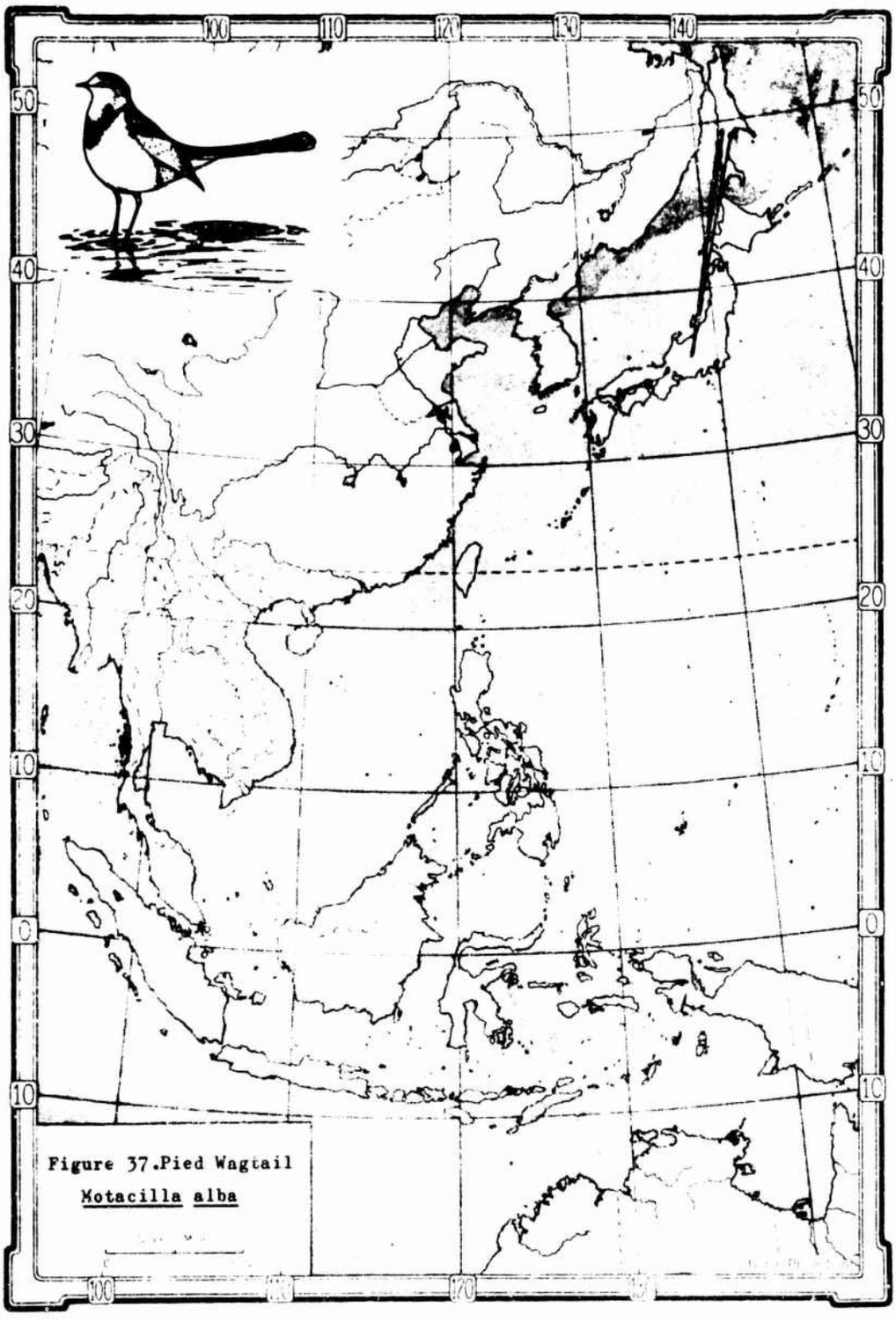

Figure 37.Pied Wagtail
Motacilla alba

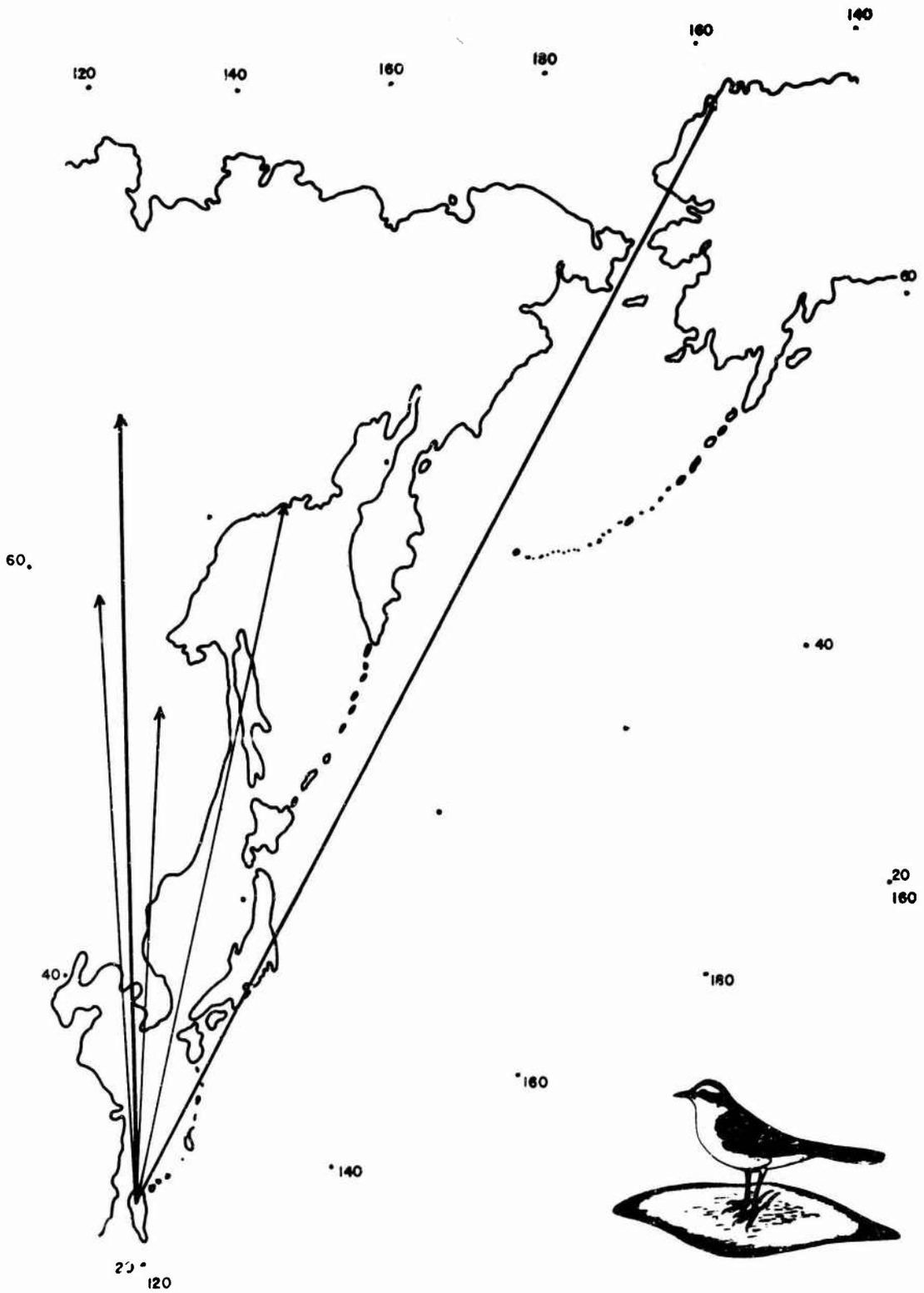

Figure 38. Yellow Wagtail, Motacilla flava.

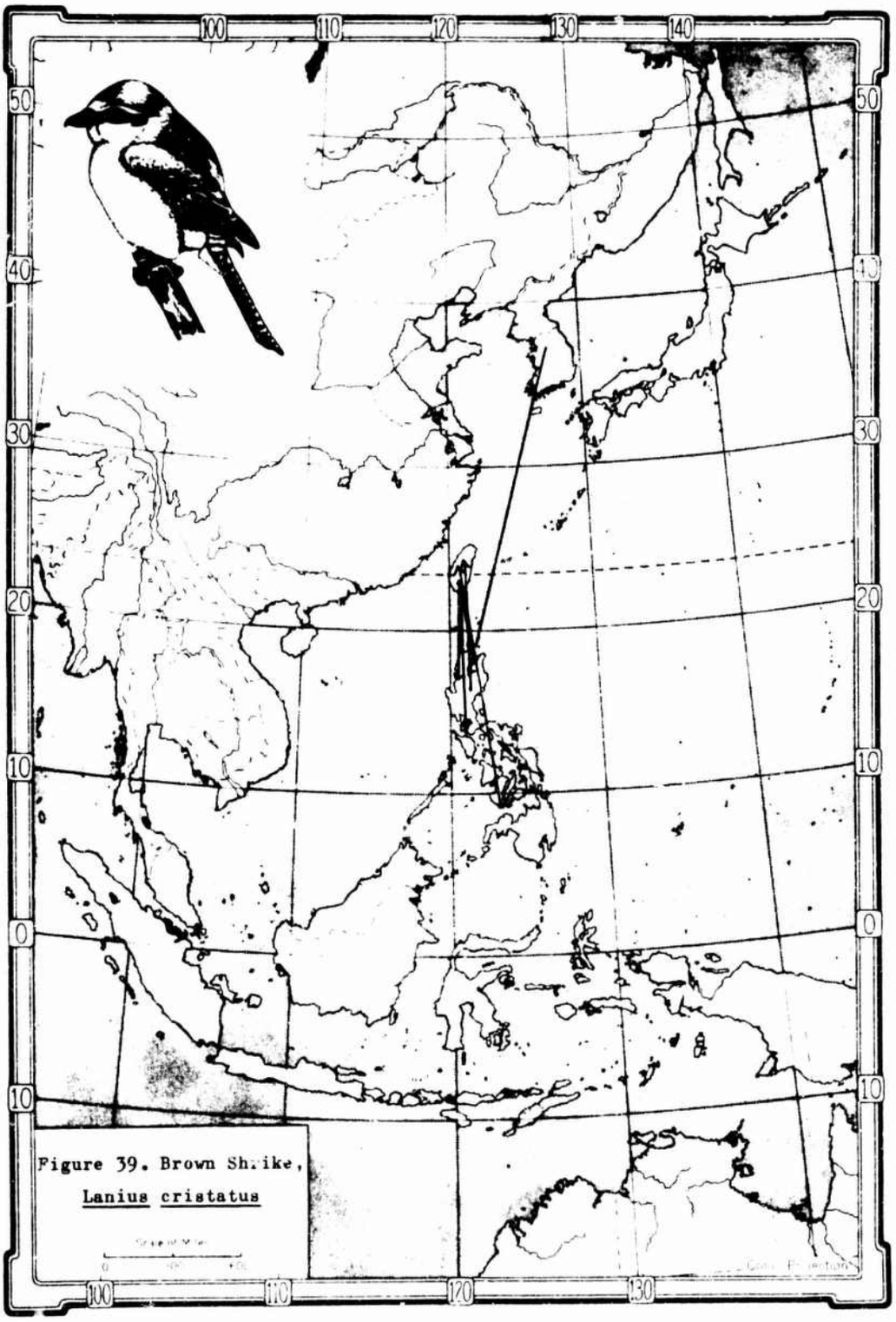

Figure 39. Brown Shrike, Lanius cristatus

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

	Months following date banded																				Oldest recovery
	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	
Diomedea immutabilis	7	7	7	7	5	5	4	3	3	3	2	2	2	2	2	2	1	1	1	1	73
Puffinus carneipes	10	8	7	7	7	7	7	5	5	5	5	3	3	3	2	1	1	1	1		
Ardeola ibis	97	81	33	12	7	3	2														
Egretta garzetta	60	35	20	14	5	4	3	1	1												
Egretta intermedia	30	29	18	14	8	8	5	5	4	3	1										
Ixobrychus cinnamomeus	10	8	4	4	3	1	1														
Nycticorax nycticorax	71	42	17	8	8	4	2	1	1	1											
Anas crecca	50	19	16	11	9	6	4	3	3	3	3	2	2	1	1	1	1	1	1		
Anas platyrhynchos	20	10	5	3	2	1	1	1	1	1											
Butastur indicus	68	41	12	11	9	3	3	3	3	1											
Coturnix chinensis	18	4	1	1																	
Porzana cinerea	12	6	3	3	3	3	2	2	2												
Rallus striatus	19	11	7	4	2	1	1	1	1	1											
Arenaria interpres	45	31	26	16	15	11	11	9	9	8	5	5	5	3	2	2	2				
Capella megala	10	3	1	1	1	1	1	1													
Larus crassirostris	25	14	3	2	1																
Geopelia striata	10	10	9	4	4	4	4	3	2	1	1	1	1	1	1	1	1	1	1	1	73
Hirundo rustica	192	142	83	65	40	23	15	5	3	2											
Hirundo tahitica	10	9	8	6	3																
Pycnonotus goiavier	9	8	8	8	6	4	4	3	1	1	1	1	1	1	1	1	1	1	1	1	82
Motacilla alba	27	24	20	9	4	1	1	1	1												
Motacilla flava	13	11	10	9	9	2	1														
Lanius cristatus	10	7	5	3	3	1	1														
Aplonis panayensis	7	6	6	6	5	3	2	1	1												
Emberiza rustica	20	10	9	9	4	2															
Emberica rutila	10	10	9	9	2	2															
Passer montanus	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 subtropical 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.

TABLE 12

GEOGRAPHICAL DISTRIBUTION OF ECTOPARASITES AS RELATED TO THE GEOGRAPHICAL DISTRIBUTION OF THEIR THRUSH 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: 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
					BRACHYPTERYX LEUCOPHRYS Neoschoengastia solitus (Ch)	BRACHYPTERYX LEUCOPHRYS ?
				BRACHYPTERYX MONTANA Icosta sensilis (H)	BRACHYPTERYX MONTANA ?	
					COPSYCHUS MALABARICUS Leptotrombidium deliensis (Ch) Siseca rara (Ch)	COPSYCHUS MALABARICUS Leptotrombidium deliensis (Ch) ?
			COPSYCHUS SAULARIS Ornithophila metallica (H)	COPSYCHUS SAULARIS ?	COPSYCHUS SAULARIS Ornithophila metallica (H)	COPSYCHUS SAULARIS Ornithophila metallica (H) Haemaphysalis wellingtoni (T) Proctophyllodes cotyledon (FM)
ERITHACUS CALLIOPE ?	ERITHACUS CALLIOPE ?	ERITHACUS CALLIOPE ?	ERITHACUS CALLIOPE ?	ERITHACUS CALLIOPE ?	ERITHACUS CALLIOPE Leptotrombidium deliense (Ch) Leptotrombidium elisbergi (Ch) Leptotrombidium scutellare (Ch) Neoschoengastia longiceps (Ch)	
ERITHACUS CYANE ?	ERITHACUS CYANE ?				ERITHACUS CYANE Neoschoengastia longiceps (Ch) Neoschoengastia solitus (Ch) Odontacarus audyi (Ch) Ornithomya fuscipensis (H) Ornithoica bistativa (H)	ERITHACUS CYANE Leptotrombidium deliense (Ch) Leptotrombidium lanceolata (Ch) Proctophyllodes rubeculinus (FM)
					HODGSONIUS PHOENICUROIDES Leptotrombidium scutellare (Ch) Ornithoica bistativa (H)	
	MONTICOLA SOLITARIS ?	MONTICOLA SOLITARIS ?		MONTICOLA SOLITARIS ?	MONTICOLA SOLITARIS Leptotrombidium scutellare (Ch) MYIOMELA LEUCURA Leptotrombidium scutellare (Ch) Ornithophila metallica (H)	

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 ?		SAXICOLA FERREA Leptotrombidium scutellare (Ch)	
		TARSIGER CYANURUS ?	TARSIGER CYANURUS ?		TARSIGER CHRYSAEUS Leptotrombidium scutellare (Ch) TARSIGER CYANURUS Leptotrombidium scutellare (Ch)	
	TURDUS CARDIS ?		TURDUS CARDIS Haemaphysalis wellingtoni (T)			
	TURDUS CHRYSOLAUS Myrsidea thoracica (Ma)	TURDUS CHRYSOLAUS ?		TURDUS CHRYSOLAUS Myrsidea thoracica (Ma)		
	TURDUS HORTULORUM		TURDUS HORTULORUM Haemaphysalis wellingtoni (T) Ornithophila metallica (H) Ornithoica tridens (H)			
TURDUS NAUMANNI ?	TURDUS NAUMANNI Ixodes turdus (T)		TURDUS NAUMANNI Ricinus elongatus (Ma)			
	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 scutellaris (Ch) Myrsidea thoracica (Ma) Leptotrombidium deliensis (Ch) Leptotrombidium akamushi (Ch) Leptotrombidium keukenschrijveri(Ch) Bicentralaes leiophyllus (FM) Proctophyllodes wrigoldi (FM)
TURDUS PALLIDUS ?	TURDUS PALLIDUS Myrsidea thoracica (Ma)	TURDUS PALLIDUS ?	TURDUS PALLIDUS ?			
					ZOOTHERA CITRINA Neoschoengastia solitus (Ch) Icosta fenestella (H)	ZOOTHERA CITRINA Leptotrombidium deliense (Ch) Toritrombicula vorca (Ch)
ZOOTHERA DAUMA ?	ZOOTHERA DAUMA Bruelia daumae (Ma) Myrsidea ishizawai(Ma)			ZOOTHERA DAUMA ?	ZOOTHERA DAUMA ?	
	ZOOTHERA SIBIRICUS Myrsidea thoracica(Ma) Ornithomya avicularea (H)				ZOOTHERA SIBIRICUS Myrsidea thoracica(Ma) Ornithomya avicularia (H)	ZOOTHERA SIBIRICUS Proctophyllodes rubeculinus (FM) Leptotrombidium deliense (Ch)

TABLE 13

GEOG APHIC 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 20-6°N	Malaya 6-1°N
HYPSIPETES AMAUROTIS ?	HYPSIPETES AMAUROTIS Ornithomya auricularia (H)	HYPSIPETES AMAUROTIS ?				
				HYPSIPETES SIQUIJORENSIS Myrsidea pycnonoti (Ma)		
		PYCNONOTUS SINENSIS ?	PYCNONOTUS SINENSIS Myrsidea pycnonoti (Ma) Icosta sensilis (H)			
			PYCNONOTUS AURIGASTER ?		PYCNONOTUS AURIGASTER Leptotrombidium scutellare (Ch)	
				PYCNONOTUS GOIAVIER Myrsidea pycnonoti (Ma) Ornithophila metallica (H) Icosta sensilis (H)	PYCNONOTUS GOIAVIER Myrsidea pycnonoti (Ma) Ornithophila metallica (F) Icosta sensilis (H)	PYCNONOTUS GOIAVIER Myrsidea pycnonoti (Ma) Ornithophila metallica (F)
					CRINIGER OCHRACEUS Leptotrombidium deliense (Ch)	CRINIGER OCHRACEUS ?
					CRINIGER PALLIDUS Leptotrombidium scutellare (Ch)	
						CRINIGER FINSCHII Bicentra'ges miscellus (FM)
					HYPSIPETES CRINIGER Myrsidea pycnonoti (Ma)	HYPSIPETES CRINIGER Myrsidea pycnonoti (Ma)
					HYPSIPETES FLAVALA Leptotrombidium scutellare (Ch) Ornithophila metallica (F)	HYPSIPETES FLAVALA ?
					HYPSIPETES MCCLELLANDII Leptotrombidium scutellare (Ch)	HYPSIPETES MCCLELLANDII ?
					PYCNONOTUS FLAVESCENS Leptotrombidium scutellare (Ch) Myrsidea pycnonoti (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 pycnonoti (Ma)	PYCNONOTUS FINLAYSONI ?
			PYCNONOTUS JOCOSUS Myrsidea pycnonoti (Ma)		PYCNONOTUS JOCOSUS Myrsidea pycnonoti (Ma) Ornithophila metallica (H) Leptotrombidium scutellare (Ch)	PYCNONOTUS JOCOSUS Myrsidea pycnonoti (Ma) Ornithophila metallica (H)
					PYCNONOTUS MELANICTERUS Icosta sensilis (H)	PYCNONOTUS MELANICTERUS ? Ornithophila pileata (H)
					PYCNONOTUS XANTHORRHOUS Leptotrombidium scutellare (Ch)	
					PYCNONOTUS ZEYLANICUS Myrsidea pycnonoti (Ma)	PYCNONOTUS ZEYLANICUS Myrsidea pycnonoti (Ma)
		SPIZIXOS CANIFRONS ?			SPIZIXOS CANIFRONS Leptotrombidium scutellare (Ch)	

TABLE 14

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	Thailand 20-6°N	Malaya 6-1°N
	ACTINODURA RAMSAYI Ornithopnila metallica (H) ALCIPPE CASTANICEPS Leptotrombidium deliense (Ch) ?	ALCIPPE CASTANICEPS Leptotrombidium deliense (Ch) Leptotrombidium bodensis (Ch)	POMATORHINUS SCHISTICEPS ?	PELLORNEUM CAPISTRATUM POMATORHINUS SCHISTICEPS Ornithoica bistativa (H)	PELLORNEUM CAPISTRATUM Leptotrombidium deliense (Ch)
ALCIPPE MORRISONIA ?	ALCIPPE MORRISONIA Ornithonyssus sylviarum (M)			STACHYRIS POLIOCEPHALA Ornithonyssus bursa(M)	STACHYRIS POLIOCEPHALA Leptotrombidium deliense (Ch)
ALCIPPE NIPALENSIS ?	ALCIPPE NIPALENSIS ?	ALCIPPE NIPALENSIS Ornithonyssus bursa (M)		STACHYRIS LEUCOTIS ?	STACHYRIS LEUCOTIS Echinonyssus nasutus(M) Leptotrombidium deliense (Ch)
	ALCIPPE POIOCEPHALA Ornithoica bistativa (M) Proctophyllodes curtiphyllus (FM)	ALCIPPE POIOCEPHALA ? ?			Leptotrombidium bodensis (Ch)
	GARRULAX ERYTHROCEPHALUS Ornithoica bistativa (H) Ornithomya fuscipennis (H)	GARRULAX ERYTHROCEPHALUS ? ?	STACHYRIS RUFICEPS Bicentralges caudatus (FM)		
	GARRULAX STREPITANS Ornithoica bistativa (H)			STACHYRIS NIGRICEPS Bicentralges caudatus (FM) Leptotrombidium deliense (Ch)	
	HETEROPHASIA ANNECTENS Ornithophila metallica(H)				STACHYRIS MACULATA Bicentralges caudatus (FM)
	MACRONUS GULARIS ?	MACRONUS GULARIS Ornithonyssus sylviarum			Leptotrombidium deliense (Ch)
	NAPOTHERA BREVICAUDATA Ornithophila metallica(H) Ornithoica bistativa (H)	NAPOTHERA BREVICAUDATA ? ?		TRICHASTOMA ABBOTTI ?	TRICHASTOMA ABBOTTI Leptotrombidium deliense (Ch)
				TRICHASTOMA MALACCENSE	TRICHASTOMA MALACCENSE Leptotrombidium deliense (Ch)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

MIGRATORY 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. Hippoboscid flies 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 haemocephala 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 Silver-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 argentauris, 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 mcclellandii, 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 arundinaceaus, 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 pecific. 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. juxtanucleare, 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 Giovannolaia, 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 juxtanucleare of the domestic fowl - as a gallinaceous species, and the remainder as from passerines:-

Plasmodium vaughani,
P. rouxi,
P. nucleophilum,
P. hexamerium.

P. juxtanucleare, 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 bittern 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 bittern 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 malcoha) 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. vaughani 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. vaughani, 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
PROCELLARIDAE													2/19
Puffinus leucomelas		2/19										2/19	
PHALACROCORACIDAE													2/22
Phalacrocorax carbo								0/2				0/2	
Phalacrocorax pygmeus								0/20				0/20	
FREGATIDAE													0/5
Fregata andrewsi									0/3			0/3	
Fregata ariel									0/2			0/2	
ARDEIDAE													25/248
Ardea cinerea	0/6											0/6	
Ardeola ralloides								0/8				0/8	
Bubulcus ibis			0/5		0/3			0/32				0/40	
Butorides striatus	0/2				0/13	0/1	0/1	0/2	1/3			1/22	
Dupetes flavicollis					1/1							1/1	
Egretta alba	0/10	0/5										0/15	
Egretta garzetta		0/10	0/13		0/2			0/31				0/56	
Egretta intermedia		0/3										0/3	
Egretta sacra								0/1				0/1	
Gorsachius goisagi					3/5							3/5	
Gorsachius melanolophus									0/1			0/1	
Ixobrychus cinnamomeus					12/48	1/4			1/9			14/81	
Ixobrychus eurhythmus									0/1			0/1	
Ixobrychus sinensis		1/1			3/13				1/1			5/15	
Nycticorax nycticorax		0/6	1/7									1/13	
CICONIIDAE													0/115
Anastomas oscitans								0/115				0/115	
ANATIDAE													1/3
Anas crecca			1/2									1/2	
Nettapus coromandelianus								0/1				0/1	
Accipitridae													22/57
Accipiter badius								0/3				0/3	
Accipiter nisus												0/1	
Accipiter soloensis	1/1				0/5							1/6	
Accipiter trivirgatus						2/3	0/1					2/4	
Accipiter virgatus							7/12	1/11	9/15			17/38	
Butastur indicus						0/1		2/2				2/3	
Buteo buteo	0/1											0/1	
Spizaetus cirrhatus									0/1			0/1	
FALCONIDAE													1/3
Falco peregrinus									1/1			1/1	
Microhierax caerulescens								0/1	0/1			0/2	
PHASIANIDAE													23/83
Arborophila brunneopectus									0/1			0/1	
Arborophila rufogularis								0/1				0/1	
Argusianus argus									3/3			3/3	
Coturnix chinensis			0/1		12/20	5/7	0/2					18/30	
Gallus gallus								0/4				0/4	
Lophura erythrophthalma									1/8			1/8	
Melanoperdix nigra									0/3			0/3	
Rollulus rouloul									1/3			1/3	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
TURNICIDAE													10/41
Turnix ocellata					0/1							0/1	
Turnix suscitator			0/1		0/4	1/1	3/11		5/15			10/32	
Turnix tanki	0/5		0/1					0/2				0/8	
RALLIDAE													25/218
Amaurornis phoenicurus					0/1			0/1	18/49			18/51	
Gallicrex cinerea					0/6							0/6	
Gallinula chloropus					0/9	0/1						0/10	
Porzana cinerea					1/20	0/2	0/1					1/23	
Porzana fusca					0/24			0/1	0/2			0/27	
Porzana pusilla					1/21							1/21	
Porzana tabuensis					0/18							0/18	
Rallina eurizonoides					4/11							4/11	
Rallina fasciata					1/2				0/1			0/3	
Rallus mirificus					0/3							0/3	
Rallus philippensis					0/9							0/9	
Rallus striatus					0/20				0/16			0/36	
ROSTRATULIDAE													0/19
Rostratula benghalensis			0/1		0/16		0/2					0/19	
CHARADRIIDAE													19/256
Charadrius alexandrinus			0/2			0/11						0/13	
Charadrius dominica					0/47	0/2						0/49	
Charadrius dubius	1/1		0/3		15/62	0/1		0/3				16/70	
Charadrius leschenaulti					3/55	0/1		0/10				3/66	
Charadrius mongolus					0/16	0/4		0/6				0/26	
Charadrius peroni					0/11	0/1						0/12	
Charadrius placidus						0/2						0/2	
Charadrius squatarola					0/3							0/3	
Pluvialis dominica					0/15	0/1			0/1			0/17	
SCOLOPACIDAE													20/380
Actitis hypoleucos	0/4				6/80	0/15	0/6	0/4	0/5			6/114	
Arenaria interpres		0/2			0/2			0/1				0/5	
Calidris alpina			0/8									0/8	
Calidris canutus								0/1				0/1	
Calidris ferruginae								0/1				0/1	
Calidris minutillus					1/35			0/2				1/37	
Calidris ruficollis					0/6		0/6					0/12	
Calidris temminckii								0/5				0/5	
Calidris tenuirostris		0/1										0/1	
Capella gallinago			0/1		0/1	0/8		0/3				0/13	
Capella hardwickii					0/1	0/1						0/2	
Capella megala					1/46	0/4	0/1					1/51	
Capella solitaria	0/1											0/1	
Capella stenura					0/4	1/4		0/5				1/13	
Heteroscelus incanus		1/8			0/9		0/5					1/22	
Numenius borealis					1/1							1/1	
Numenius phaeopus		0/1			1/10	0/3	1/9					2/23	
Scolopax rusticola		0/1						1/2				1/3	
Tringa glareola						1/5		0/5				1/10	
Tringa nebularia					1/22			0/1				1/23	
Tringa ochropus					1/1							1/1	
Tringa stagnatilis					1/1			0/2				1/3	
Tringa totanus					1/19	0/3		0/1				1/23	
Xenus cinereus		0/2			1/2	0/1						1/7	
RECURVIROSTRIDAE													0/1
Himantopus himantopus								0/1				0/1	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
GLAREOLIDAE													0/1
Glareola pratincola								0/1				0/1	
LARIDAE													6/50
Anous stolidus								0/1				0/1	
Chlidonias hybridus								0/1				0/1	
Chlidonias leucopterus								0/6				0/6	
Gelochelidon n'iotica								0/1				0/1	
Larus argentatus	0/1											0/1	
Sterna anaethetus								0/6				0/6	
Sterna bergii								0/4				0/4	
Sterna dougalli								0/4				0/4	
Sterna fuscata					0/1							0/1	
Sterna hirundo			0/1					0/3				0/4	
Sterna sumatrana								0/7				0/7	
COLUMBIDAE													76/744
Caloenas nicobarica									0/2			0/2	
Chalcophaps indica					0/61	4/31	6/112	6/55	5/60			23/328	
Ducula bicolor									1/1			1/1	
Geopelia striata					0/23		0/49		0/9			0/81	
Macropygia phasianella					0/1	5/9	5/7					10/17	
Macropygia ruficeps									1/3			1/2	
Macropygia unchall									2/2			2/2	
Phapitreron amethystina					0/3		0/1					0/4	
Phapitreron leucotis					1/11		4/30					5/41	
Ptilinopus leclancheri					3/7		3/8					6/15	
Ptilinopus occipitalis					4/9							4/9	
Sphenurus sphenurus									0/1			0/1	
Streptopelia bitorquata							0/100					0/100	
Streptopelia chinensis			0/4			5/24	1/8	0/4	0/2			6/42	
Streptopelia orientalis	1/9											1/9	
Streptopelia tranquebarica					0/1							0/1	
Treron curvirostra					1/15	3/11			2/3			6/29	
Treron pompadora							1/3					1/2	
Treron sphenura								0/1				0/1	
Treron vernans						0/6	10/35	0/12				10/55	
PSITTACIDAE													19/29
Bolbopsittacus lunulatus					10/12							10/12	
Prioniturus discurus						2/6	1/1					2/8	
Psittacula longicauda									0/2			0/2	
Tanygnathus lucionensis						6/6						6/6	
CUCULIDAE													12/204
Cacomantis merulinus					0/24	0/9	0/2	0/16	2/9			2/62	
Cacomantis sonneratii						0/1		0/2	0/2			0/6	
Cacomantis variolosus					0/20		0/2					0/22	
Centropus sinensis						0/1		0/2	0/2			0/5	
Centropus toulou			0/1		0/5			2/3	0/6			2/15	
Centropus viridis					1/4	1/5						2/9	
Chrysococcyx maculatus									0/5			0/5	
Chrysococcyx malayanus					0/1							0/1	
Clamator coromandus									0/11			0/11	
Cuculus canorus					1/8							1/8	
Cuculus fugax					0/2		0/1					0/3	
Cuculus micropternus					0/1							0/1	
Cuculus saturatus					0/4							0/4	
Cuculus sparverioides					1/6		0/1	0/4				1/11	
Cuculus vagans									1/1	0/1		1/2	
Eudynamis scolopacea					1/10	0/1		0/3	0/2			1/16	
Phaenicophaeus curvirostris						0/2						0/2	
Phaenicophaeus diardi									0/2			0/3	
Phaenicophaeus javanicus									1/1			1/1	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
Phasianicephalus superciliosus					1/2							1/2	
Phasianicephalus tristis								0/1				0/1	
Surniculus lugubris					0/4	0/2		0/2	0/6			0/14	
TYTONIDAE													0/11
Phodilus badius									0/0			0/0	
Tyto longimembris					0/1	1/1						1/2	
STRIGIDAE													143/190
Athene brama								0/1				0/1	
Glaucidium brodiei								1/1	2/3			3/4	
Glaucidium cuculoides								4/4				4/4	
Ketupa ketupa									0/4			0/4	
Ninox philippensis							20/20					20/20	
Ninox scutulata					6/6		1/2					7/8	
Otus bakkamoena					3/4		3/3	9/18	44/49			59/73	
Otus scops		0/1						7/11	33/39			40/51	
Otus rufescens									3/3			3/3	
Otus spilocephalus								3/9	5/14			8/23	
PODARGIDAE													1/14
Batrachostomus hodgsoni								1/1				1/1	
Batrachostomus javensis						0/1						0/1	
Batrachostomus septimus							0/3					0/3	
Batrachostomus stellatus									0/10			0/10	
CAPRIMULGIDAE													5/56
Caprimulgus affinis							0/1					0/1	
Caprimulgus indicus								0/1				0/1	
Caprimulgus macrurus					0/3	0/3	0/15	0/5	0/31			0/46	
Eurostopodus temminckii									2/3			2/3	
Eurostopodus macrotis					3/5							3/5	
APODIDAE													2/94
Apus affinis								0/5	0/1			0/6	
Apus pacificus			0/1					0/7				0/8	
Chaetura gigantea						0/3						0/3	
Chaetura picina							0/1					0/1	
Collocalia esculenta					0/2	0/1	0/1		2/54			3/58	
Collocalia maxima									0/7			0/7	
Collocalia troglodytes					0/4							0/4	
Collocalia whiteheadi					0/6	0/1						0/7	
TROGONIDAE													0/49
Harpactes ardens					1/3							1/3	
Harpactes diardi									0/10			0/10	
Harpactes duvaucelii									1/14			1/14	
Harpactes erythrocephalus								0/11	4/4			4/15	
Harpactes kasumba									0/4			0/4	
Harpactes oreskios									0/1			0/1	
Harpactes orrhophaeus									0/2			0/2	
ALCEDINIDAE													148/671
Alcedo atthis	0/43	0/1	0/4	0/1	2/25	0/5	0/1	0/15	0/1			2/96	
Alcedo euryzona								0/1	0/5			0/6	
Alcedo meninting						0/6		0/4	0/14	0/1		0/25	
Ceyx cyanopectus					0/4							0/4	
Ceyx erithacus								0/4	8/39	0/4		8/47	
Ceyx melanurus					0/1							0/1	
Ceyx rufidorsus						0/8		0/3	1/20			1/31	
Halcyon chloris					15/107	9/13	11/34	0/5	38/62			73/211	
Halcyon concreta								0/1	17/25	0/1		17/37	
Halcyon coromanda		0/1			1/14	0/3	0/3	0/1	8/28			9/49	
Halcyon lindsayi					6/10		2/4					10/14	
Halcyon pileata	0/1							3/13	14/42	1/3		17/58	
Halcyon smyrnensis					0/14		2/13	0/35	4/26			6/78	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
Lacedo pulchella								0/2	3/4	1/1		4/7	
Pelargopsis capensis						0/4		0/7	1/6			1/17	
MEROPIDAE													3/31
Merops leschenaulti								1/1				1/1	
Merops orientalis								0/3				0/3	
Merops philippinus							0/3					0/3	
Merops superciliosus									0/2			0/2	
Merops viridis					0/8		0/7		2/5			2/20	
Nyctiornis athertoni								0/1				0/1	
Nyctiornis amictus									0/1			0/1	
CORACIIDAE													3/4
Coracias benghalensis								1/1				1/1	
Eurystomus orientalis					0/1	1/1			1/1			2/3	
UPUPIDAE													0/1
Upupa epops	0/1											0/1	
BUCEROTIDAE													1/5
Anorrhinus galeritus									0/1			0/1	
Anthracoceros malayanus									1/2			1/2	
Berenicornis comatus									0/1			0/1	
Penelopides panini					0/1							0/1	
CAPITONIDAE													20/174
Megalaima asiatica								2/5				2/5	
Megalaima australis									0/1			0/1	
Megalaima faiostricta								1/1				1/1	
Megalaima franklini								2/11	7/51			9/62	
Megalaima haemocephala							0/45	0/35				0/80	
Megalaima mystacophanes								0/1	0/1			0/2	
Megalaima rafflesi									1/3			1/3	
Megalaima virens								1/1				1/1	
Megalaima zeylonica								2/2				2/2	
Psilopogon pyrolophus									7/17			4/17	
INDICATORIDAE													0/1
Indicator archipelagicus								0/1				0/1	
PICIDAE													4/281
Blythipicus pyrrhotis								0/7	0/3			0/10	
Blythipicus rubiginosus									0/6			0/6	
Chrysocolaptes lucidus					0/2	0/1		0/1	0/3			0/7	
Chrysocolaptes validus									0/1			0/1	
Dendrocopus atratus								0/3				0/3	
Dendrocopus canicapillus								0/1				0/1	
Dendrocopus kizuki	0/1											0/1	
Dendrocopus leucotus	0/1											0/1	
Dendrocopus macei								0/2				0/2	
Dendrocopus moluccensis									0/2			0/2	
Dinopium javanense						0/2		0/1	0/49			0/52	
Dinopium rafflesi									0/2			0/2	
Dryocopus javensis							0/1					0/1	
Hemicircus canente								0/1				0/1	
Jynx torquilla								0/5				0/5	
Meiglyptes tristis									0/3			0/3	
Meiglyptes tukki									0/34			0/34	
Micropternus brachyurus								0/5	0/32			0/37	
Mulleripicus funebris					0/1							0/1	
Picumnus innominatus								0/2				0/2	
Picus canus	0/1											0/1	
Picus chlorolophus								1/2				1/2	
Picus erythropygium								1/2				1/2	
Picus flavinuchus								0/2	0/3			0/5	
Picus miniaceus									0/10			0/10	
Picus puniceus									0/1			0/1	
Picus vittatus								0/7	2/56			2/63	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
Sasia abnormis								0/2	0/1			0/9	
Sasia ochracea								0/16				0/16	
EURYLAIMIDAE													2/73
Calyptomena viridris								0/2	0/18	0/2		0/22	
Cymbirhynchus macrorhynchos									0/20			0/20	
Eurylaimus javanicus									1/3			1/3	
Serilophus lunatus								1/28				1/28	
PITTIDAE													18/63
Pitta cyanea								0/9				0/9	
Pitta erythrogaster					4/14	1/1	1/1					6/16	
Pitta moluccensis									5/21			5/21	
Pitta oatesi								2/5				2/5	
Pitta sordida					0/2	1/2	0/2		4/6			5/12	
ALAUDIDAE													0/20
Alauda arvensis					0/6							0/6	
Galerida cristata	0/1											0/1	
Mirafra assamica								0/2				0/2	
Mirafra javanica					0/19			0/1				0/20	
HIRUNDINIDAE													7/315
Delichon dasypus						0/1						0/1	
Delichon urbica		0/2										0/2	
Hirundo daurica								0/2				0/2	
Hirundo rustica	0/3	0/2	0/2			1/6		3/116	3/140			7/269	
Hirundo striolata			0/1									0/1	
Hirundo tahitica					0/34		0/5		0/1			0/40	
CAMPEPHAGIDAE													11/135
Coracina melaschista								0/1				0/1	
Coracina novaehollandiae									2/8			2/8	
Coracina polioptera								0/1				0/1	
Coracina striata					0/3	0/1	0/2					0/6	
Hemipus hirundinaceus									0/2			0/2	
Hemipus picatus								4/10	0/2			4/12	
Lalage melanoleuca					0/1							0/1	
Lalage nigra					1/22	0/1	1/38		0/22			2/83	
Pericrocotus ethologus								0/5				0/5	
Pericrocotus flammeus								0/2				0/2	
Pericrocotus roseus					0/1				1/2			1/3	
Pericrocotus solaris								0/4				0/4	
Tephrodornis virgatus								2/7				2/7	
DICRURIDAE													35/347
Dicrurus adsimilis								0/1				0/1	
Dicrurus aeneus								0/3	0/2			0/7	
Dicrurus annectans									7/25			7/25	
Dicrurus balicassius					3/19		5/28					8/47	
Dicrurus hottentottus					4/9	3/10		3/33				10/52	
Dicrurus leucophaeus						3/16		2/29				5/45	
Dicrurus macrocercus			0/1					1/1				1/2	
Dicrurus paradiseus								0/33	1/16	0/1		1/50	
Dicrurus remifer								0/99	3/19			3/118	
ORIOLIDAE													67/114
Oriolus chinensis	2/3				1/8	1/4	61/87	2/5	0/2			67/109	
Oriolus traillii								0/4				0/4	
Oriolus xanthonotus									0/1			0/1	
CORVIDAE													4/26
Cissa chinensis								0/1				0/1	
Corvus corone		1/1										1/1	
Corvus macrorhynchus								0/4				0/4	
Crypsirina occipitalis								2/2				2/2	
Crypsirina temia								0/4				0/4	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
Cyanopica cyanus	0/3											0/3	
Garrulus glandarius		0/1						1/1				1/2	
Platylophus galericulatus									0/6			0/6	
Platysmurus leucopterus									0/1			0/1	
PARIDAE													12/87
Aegithaliscus concinnus							0/1					0/1	
Aegithalos caudatus	5/13	0/1										5/14	
Parus ater	1/9											1/9	
Parus atricapillus			0/2									0/2	
Parus elegans							0/12					0/12	
Parus major	1/14		0/6	3/3								4/23	
Parus palustris	0/4											0/4	
Parus varius	1/3	0/1										1/4	
Parus xanthogenys								1/17				1/17	
Sylviparus modestus							0/1					0/1	
CERTHIIDAE													0/1
Certhia discolor							0/1					0/1	
SITTIDAE													3/15
Sitta europaea	0/1							3/10				3/11	
Sitta frontalis								0/4				0/4	
TIMALIIDAE													462/2, 704
Actinodura morrisoniana			0/5									0/5	
Actinodura ramsayi								2/62				2/62	
Alcippe brunnea			0/3									0/3	
Alcippe brunneicauda								7/23				7/23	
Alcippe castaneiceps								0/85	3/35			3/120	
Alcippe cinereiceps			0/3									0/3	
Alcippe morrisonia								37/193				37/193	
Alcippe nipalensis			1/32					0/2	24/101			25/135	
Alcippe poiocephala								1/49	9/17			10/66	
Chrysomma sinense								0/13				0/13	
Cutia nipalensis									1/2			1/2	
Gampsorhynchus rufulus								0/1				0/1	
Garrulax albogularis								0/1				0/1	
Garrulax canorus			0/3									0/3	
Garrulax chinensis								0/1				0/1	
Garrulax erythrocephalus								4/56	44/60			48/116	
Garrulax leucolophus								0/6				0/6	
Garrulax mitratus									10/24			10/24	
Garrulax milnei								0/1				0/1	
Garrulax monilegerus								0/6				0/6	
Garrulax morrisonianus			0/3									0/3	
Garrulax poecilorhynchus			0/3									0/3	
Garrulax strepitans								1/6				1/6	
Heterophasia annectans								2/12				2/12	
Heterophasia auricularis			2/6									2/6	
Heterophasia melanoleuca								10/109				10/109	
Heterophasia picaoides								0/3	15/39			15/42	
Yuhina stricta										0/2		0/2	
Leiothrix argentauris								10/25	13/33			23/58	
Liocichla ripponi								0/23				0/23	
Liocichla steerei			0/9									0/9	
Macronus flavicollis						4/9						4/9	
Macronus gularis								15/224	0/7	0/1		15/232	
Macronus ptilosus									13/32	0/3		13/35	
Macronus striaticeps					4/7							4/7	
Malacopteron affine									2/22			2/22	
Malacopteron albogulare									0/5	0/3		0/8	
Malacopteron cinereum								0/6	0/49	0/1		0/56	
Malacopteron magnirostre								0/7				0/7	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
Malacopteron magnum						2/8			0/17	0/1		2/34	
Mixia cyanouroptera								2/41	1/6			4/47	
Mixia striguia								0/36	72/104			72/130	
Napothera brevicaudata								0/119	0/10			0/129	
Napothera crispifrons								0/1				0/1	
Napothera epilepidota								0/6				0/6	
Napothera macrodactylus								0/1				0/1	
Pellorneum albiventre								0/15				0/15	
Pellorneum capistratum								0/1	4/8	0/2		4/9	
Pellorneum ruficeps								2/58	1/4			2/62	
Pellorneum tickelli								0/2				0/2	
Pomatorhinus erythrogenys								0/34				0/34	
Pomatorhinus hypoleucos								0/4	2/2			2/7	
Pomatorhinus montanus			1/9						1/1			2/10	
Pomatorhinus ochraceiceps								0/2				0/2	
Pomatorhinus ruficollis			0/1									0/1	
Pomatorhinus schisticeps								4/92				4/92	
Pnoepyga pusilla									0/1			0/1	
Pteruthius erythropterus									1/1			1/1	
Pteruthius flaviscapis								0/4				0/4	
Pteruthius melanotis								0/1	4/7			4/8	
Ptilocichla basilanica					0/1							0/1	
Ptilocichla falcata						1/1		0/1				1/2	
Rhopophilus pekinensis	0/2											0/2	
Stachyris chrysaea								0/17	1/14			1/31	
Stachyris erythroptera								0/5	1/18			1/23	
Stachyris leucotis									2/3			2/3	
Stachyris maculata								3/44	0/2			3/46	
Stachyris nigrocapitata					0/4							0/4	
Stachyris nigriceps								0/88	0/36			0/124	
Stachyris nigricollis								0/1	20/24	0/1		20/26	
Stachyris poliocephala								0/11	22/22			22/44	
Stachyris ruficeps			3/18					0/9				0/27	
Stachyris rufifrons								0/2				0/2	
Stachyris speciosa							1/6					1/6	
Stachyris whiteheadi					1/4							1/4	
Timalia pileata								0/14				0/14	
Trichastoma abbotti								0/1	5/22			5/22	
Trichastoma bicolor								0/1	12/22			12/24	
Trichastoma cinereiceps						1/3						1/3	
Trichastoma malaccense									12/32			12/32	
Trichastoma rostrata									29/128			29/128	
Trichastoma tickelli								0/17				0/18	
Yuhina brunneiceps			1/5									1/5	
Yuhina castaniceps								1/11				1/11	
Yuhina flavicollis								1/40				0/40	
Yuhina zantholeuca			0/2					14/28	0/2			14/22	
PARADOXORNITHIDAE													1/60
Paradoxornis gularis								1/9				1/9	
Paradoxornis guttaticollis								0/15				0/15	
Paradoxornis webbiana	0/32		0/4									0/36	
PYCNONOTIDAE													882/4,037
Criniger bres						24/30		1/8	8/59	1/4		34/101	
Criniger finschi									0/2			0/2	
Criniger ochraceus								10/131				10/131	
Criniger pallidus								14/35				14/25	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
Criniger phaeocephalus								0/12	[illegible]/2	0/1		2/95	
Hypsipetes amaurotis	4/5	1/5										5/10	
Hypsipetes charlottae								0/4	2/2			2/6	
Hypsipetes criniger								1/9	4/63			5/72	
Hypsipetes flavala								4/24	2/5			6/29	
Hypsipetes madagascarensis								2/12				2/12	
Hypsipetes malaccensis								0/1				0/1	
Hypsipetes mcclellandii								40/94	13/125			53/219	
Hypsipetes philippinus					10/60		74/104					84/164	
Hypsipetes propinquus						1/3		8/13				9/16	
Hypsipetes siquijorensis										0/1		0/1	
Hypsipetes thompsoni								1/19				1/19	
Pycnonotus atriceps						5/54		2/23	2/11	0/2		9/90	
Pycnonotus aurigaster				1/7				11/77				[illegible]/84	
Pycnonotus blanfordi								168/246				168/246	
Pycnonotus brunneus								0/5	8/44	1/1		9/50	
Pycnonotus cyaniventris								0/1	0/3			0/4	
Pycnonotus erythropthalmos								1/7	8/18	2/2		11/27	
Pycnonotus eutilotus									0/18	0/3		0/21	
Pycnonotus finlaysoni								27/95	0/1			27/96	
Pycnonotus flavescens								4/163				4/163	
Pycnonotus goiavier					22/154		91/136	5/12	128/1,078	0/5		246/1,385	
Pycnonotus jocosus				0/4				5/73				5/77	
Pycnonotus melanoleucos									0/1	0/1		0/2	
Pycnonotus melanicterus								93/133	1/3			94/136	
Pycnonotus plumosus						24/40			28/438	0/1		52/479	
Pycnonotus simplex									11/82	0/1		11/83	
Pycnonotus sinensis			0/19	7/22								7/41	
Pycnonotus striatus								0/9				0/9	
Pycnonotus taivanus			0/1									0/1	
Pycnonotus urostictus					0/14							0/14	
Pycnonotus xanthorrhous								0/40				0/40	
Pycnonotus zeylanicus									2/7	0/1		2/8	
Setornis criniger										1/1		1/1	
Spizixos canifrons								0/64				0/64	
Spizixos semitorques			0/2									0/2	
AEGITHINIDAE													13/92
Aegithina lafresnayei								1/1				1/1	
Aegithina tiphia								1/12	0/11			1/23	
Chloropsis aurifrons								1/19				1/19	
Chloropsis cochinchinensis								1/3	0/1			1/4	
Chloropsis cyanopogon									2/6			2/6	
Chloropsis hardwickii								0/7	1/2			1/9	
Chloropsis palavanensis						6/7						6/7	
Chloropsis sonneratii									0/1			0/1	
Irena cyanogaster					0/1							0/1	
Irena puella						0/2		0/16	0/3			0/21	
CINCLIDAE													0/2
Cinclus pallasii	0/1							0/1	..			0/2	
TROGLODYTIDAE													0/4
Troglodytes troglodytes	0/1	0/3										0/4	
TURDIDAE													414/1, 664
Brachypteryx leucophrys								0/63	0/12			0/75	
Brachypteryx montana					[illegible]/3		0/1	0/8				1/12	
Copsychus luciensis					0/[illegible]							0/7	
Copsychus malabaricus								18/55	27/55	0/1		45/111	
Copsychus niger						11/20						11/20	
Copsychus pyrropygus									1/4	0/2		1/6	
Copsychus saularis					1/8		30/36	29/50	20/115	0/1		80/210	
Enicurus leschenaulti									4/9	0/1		4/10	
Enicurus ruficapillus								0/1	3/11			3/12	
								0/2	1/12			1/19	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
Enicurus schistaceus								0/7	1/12			1/19	
Erithacus akahige		1/4										1/4	
Erithacus calliope	0/1	0/3	0/7	0/7	0/20			0/47				0/65	
Erithacus cyane	0/8	4/32						7/105	21/50			32/195	
Erithacus ruficeps									0/1			0/1	
Monticola gularis								0/4				0/4	
Monticola rufiventris								0/1				0/1	
Monticola saxatilis			0/2									0/2	
Monticola solitaria		0/1	0/1		0/4		0/2	0/2				0/10	
Myiomela leucura			0/2					0/131	1/10			1/143	
Myophonus caeruleus				0/1				1/16	0/2			1/19	
Myophonus robinsoni									1/4			1/4	
Phoenicurus auroreus	0/7	0/8	0/2	0/3								0/20	
Phoenicurus frontalis								0/2				0/2	
Rhyacornis fuliginosus								0/1				0/1	
Saxicola caprata					0/2		1/6	0/3				1/13	
Saxicola ferrea								0/45				0/45	
Saxicola jerdoni								0/2				0/2	
Saxicola torquatus	1/12	0/1						0/5				1/18	
Tarsiger cyanurus			0/2	0/6				0/52				0/60	
Tarsiger indicus			0/1									0/1	
Tarsiger johnstoniae			0/17									0/17	
Turdus cardis		3/9		1/4								4/13	
Turdus celaenops		0/4										0/4	
Turdus chrysolaus		2/11	0/8		7/14							9/33	
Turdus hortulorum	0/1	0/1		4/17								4/19	
Turdus naumanni	0/9	1/16										1/25	
Turdus obscurus					2/4	0/1	0/3	1/17	137/196			140/221	
Turdus pallidus	0/2	1/9	0/6	0/3								1/20	
Zoothera cinerea					5/21							5/21	
Zoothera citrina								3/30	0/3			3/33	
Zoothera dauma		1/2	1/1		6/11			1/9				9/23	
Zoothera interpres										0/1		0/1	
Zoothera marginata								1/8				1/8	
Zoothera sibirica		[illegible]						0/2	47/83			52/95	
SYLVIIDAE													59/972
Abroscopus superciliaris								0/6				0/6	
Acrocephalus arundinaceus	0/3	4/20	2/2		0/16			1/7	5/36			12/64	
Acrocephalus bistrigiceps		0/4						0/1	0/1			0/6	
Acrocephalus concinens								0/4				0/4	
Acrocephalus sorghophilus					0/17							0/17	
Cettia acanthizoides			0/4									0/4	
Cettia canturians								0/1				0/1	
Cettia diphone	0/4	0/6	0/14									0/24	
Cettia fortipes			0/1									0/1	
Cettia montanus									0/4			0/4	
Cettia pallidipes								0/1				0/1	
Cettia squameiceps		0/3						0/17				0/20	
Cisticola exilis					1/5							1/5	
Cisticola juncidis			0/18						0/1			0/19	
Gerygone fusca								0/1	0/1			0/2	
Gerygone sulphurea					0/4							0/4	
Locustella certhiola					1/15				0/2			1/17	
Locustella fasciolata	0/1		0/1		8/28							8/30	
Locustella lanceolata					3/48							3/48	
Locustella ochotensis		0/4			0/1							0/5	
Megalurus palustris					0/9		1/3					1/12	
Megalurus timoriensis					1/3		0/2					1/5	
Orthotomus atrogularis					0/4		0/13	2/12	1/6			3/35	
Orthotomus cinereiceps					0/3							0/3	
Orthotomus cucullatus								0/2				0/2	
Orthotomus nigriceps					1/1							1/1	
Orthotomus sepium									0/49			0/49	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malay.	Sarawak	Sabah	Species Total	Family Total
Orthotomus sericeus						1/2		0/7	1/41			2/50	
Orthotomus sutorius								9/22	0/32			0/54	
Pycnonotidae sedon								18/34				18/34	
Phyllosc. armandii								0/1				0/1	
Phyllosc. borealis		0/3	1/15		0/15	0/1	0/9		0/6			1/49	
Phyllosc. coronatus								0/2				0/2	
Phyllosc. davisoni								0/41				0/41	
Phyllosc. fuscatus								0/18				0/18	
Phyllosc. inornatus								1/40				1/40	
Phyllosc. maculipennis								0/1				0/1	
Phyllosc. orientalis	0/4	1/13										1/17	
Phyllosc. olivaceus					0/9		0/1					0/10	
Phyllosc. proregulus								0/15				0/15	
Phyllosc. pulcher								0/25				0/25	
Phyllosc. reguloides								0/8				0/8	
Phyllosc. schwarzi								0/4				0/4	
Phyllosc. subaffinis								0/1				0/1	
Phyllosc. tenellipes		0/17						0/2				0/23	
Phyllosc. trivirgatus									1/3			1/3	
Phyllosc. trochiloides								0/3				0/3	
Prinia atrogularis								0/4				0/4	
Prinia flaviventris			0/24					1/3				1/27	
Prinia hodgsoni								5/17				5/17	
Prinia inornata			0/23									0/23	
Prinia rufescens								0/10				0/10	
Prinia subflava			0/2					0/2				0/4	
Sphenoeacus rufus		0/2										0/2	
Seicercus burkii								0/60				0/60	
Seicercus castaniceps								0/2				0/2	
Seicercus montis									0/6			0/6	
Seicercus superciliaris									0/2			0/2	
Tesia castaneocoronata								0/1				0/1	
Tesia olivea								0/1				0/1	
MUSCICAPIDAE													102 1,175
Copsychus saularis								0/18	0/4			0/22	
Copsychus stricklandii						0/1						0/1	
Cyornis rubeculoides			0/8		0/7	1/1	0/3	1/36	0/4			2/69	
Muscicapa banyumas						2/2		2/99	0/1			4/102	
Muscicapa concreta									0/1			0/1	
Muscicapa cyanomelana		0/12			0/1				0/1			0/14	
Muscicapa dauurica									0/3			0/3	
Muscicapa grandis								6/34	14/70			20/104	
Muscicapa griseisticta		0/1				1/1	1/4					2/6	
Muscicapa hainana								1/12				1/12	
Muscicapa hodgsoni								1/9				1/9	
Muscicapa leucomelanura			0/1		0/2		0/3	0/12	2/21			2/39	
Muscicapa latirostris		0/11										0/11	
Muscicapa leucomelanura								0/3				0/3	
Muscicapa sanegrigerae								0/5				0/5	
Muscicapa sordidger								0/27				0/27	
Muscicapa sp. nov.		1/6							0/7			1/13	
Muscicapa sibirica		2/8			0/1			0/1	2/13			4/29	
Muscicapa parva								7/18				7/18	
Muscicapa dauurica					1/3		0/1					1/4	
Muscicapa sibirica					1/3	1/3	0/15		0/53			2/80	
Muscicapa sordida			1/4		0/1			0/2	0/2			1/9	
Muscicapa solitaria								0/1				0/1	
Muscicapa sp. nov.									0/1			0/1	
Muscicapa streubeta								0/17				0/17	
Muscicapa sundara								8/54	2/22			10/76	
Muscicapa tickelliae								0/3	0/1			0/4	
Muscicapa thalassina								1/15				1/15	
Muscicapa turcosa									0/1			0/1	
Muscicapa vivida								1/1				1/1	
Muscicapa viridis								0/1				0/1	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
Muscicapa westermanni								0/3	0/5			0/8	
Muscicapa zanthopygia								0/3				0/3	
Philentoma pyrrhoptera								0/?	0/28			0/30	
Rhinomyias gularis							1/1					1/1	
Rhinomyias olivacea								0/6				0/6	
Rhinomyias ruficauda							0/2					0/2	
Rhinomyias umbratilis									1/13			1/13	
Rhipidura albicollis								0/57	1/24			1/81	
Rhipidura cyaniceps					0/10		0/5					0/15	
Rhipidura javanica					0/24		0/33	3/31	5/163			8/251	
Rhipidura nigrocinnamomea					0/1							0/1	
Rhipidura perlata									0/4			0/4	
Rhipidura superciliaris					0/1							0/1	
Terpsiphone atrocaudata			0/1									0/1	
Terpsiphone cyanescens						7/19						7/19	
Terpsiphone paradisi								0/9	6/30			6/39	
PACHYCEPHALIDAE													5/63
Pachycephala cinerea									1/56			1/56	
Pachycephala philippinensis					2/3							2/3	
Pachycephala plateni							2/4					2/4	
PRUNELLIDAE													0/5
Prunella montanella	0/5											0/5	
MOTACILLIDAE													33/244
Anthus gustavi			0/1				0/2					0/3	
Anthus hodgsoni	0/1	2/16	0/7	9/13	0/6			1/45	0/5			12/93	
Anthus novaeseelandiae					0/1	0/11	0/17		0/3			0/32	
Anthus spinoletta	0/1											0/1	
Dendronanthus indicus	0/6								2/3			2/9	
Motacilla alba	9/46	0/1	0/1	1/1		0/1		0/2				10/52	
Motacilla caspica	1/6		0/2		3/18			1/1	0/2			5/29	
Motacilla flava	0/1		0/1			2/3	2/6	0/14				4/25	
ARTAMIDAE													2/14
Artamus leucorhynchus					0/8	0/2	2/4					2/14	
LANIIDAE													83/201
Lanius bucephalus	2/12	1/5	0/4									3/21	
Lanius colluriodes								0/1				0/1	
Lanius cristatus	2/10			1/1	22/60	8/18	14/33	6/45	12/31			65/157	
Lanius nasutus								2/5				2/5	
Lanius schach				4/4	1/1		3/3		1/2			9/10	
Lanius tephronotus								0/1				0/1	
Lanius tigrinus		3/4							1/2			4/6	
STURNIDAE													61/164
Aplonis panayensis					7/37	6/30	0/4					13/71	
Gracula religiosa						1/1			1/2			2/3	
Sarcops calvus					3/5		41/57					44/62	
Sturnus cineraceus		0/8										0/8	
Sturnus cristatellus					0/7							0/7	
Sturnus javanicus								0/8				0/8	
Sturnus nigricollis								1/1				1/1	
Sturnus sericeus					0/1							0/1	
Sturnus sturninus									1/2			1/2	
Sturnus tristis								0/1	0/2			0/3	
NECTARINIIDAE													362/1262
Aethopyga boltoni					1/2							1/2	
Aethopyga gouldiae								0/140				0/140	
Aethopyga mystacalis									0/1			0/1	
Aethopyga nipalensis								0/1				0/1	
Aethopyga saturata								0/2	3/20			3/22	
Aethopyga shelleyi					0/1							0/1	
Aethopyga siparaja							0/3	0/2				0/5	
Arthopyga maiacensis				0/1		0/2		0/4	316/409			316/416	
Arachnothera simplex								0/1	0/4			0/5	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
Anthreptes simplex								0/1	0/4			0/5	
Anthreptes singalensis								1/4				1/4	
Arachnothera affinis								0/6	7/17			7/23	
Arachnothera chrysogenys									1/1			1/1	
Arachnothera longirostris					0/32	1/25		0/174	2/279			3/510	
Arachnothera magna								0/4	14/29			14/33	
Arachnothera philippinensis					0/1							0/1	
Hypogramma hypogrammica								0/7	1/22			1/29	
Nectarinia chalcostetha						1/2			5/37			6/39	
Nectarinia jugularis							6/14	2/5	0/2			8/21	
Nectarinia sperata					0/1			1/2				1/3	
DICAEIDAE													6/101
Anaimos johannae						1/3						1/3	
Anaimos olivaceus					0/2							0/2	
Dicaeum agile							0/3					0/3	
Dicaeum australe					0/4		0/14					0/18	
Dicaeum bicolor					0/1		0/1					0/2	
Dicaeum cruentatum								0/15	1/10			1/25	
Dicaeum hypoleucum					0/1							0/1	
Dicaeum ignipectus								0/3				0/3	
Dicaeum pygmeum					0/1		0/2					0/3	
Dicaeum trigonostigma					1/8		0/3		0/4			1/13	
Prionochilus maculatus								0/6	1/3			1/9	
Prionochilus olivaceus					0/2							0/2	
Prionochilus percussus								0/2	1/14			1/16	
Prionochilus thoracicus								1/1				1/1	
ZOSTEROPIDAE													29/270
Zosterops erythropleura								0/93				0/93	
Zosterops exilis					0/1							0/1	
Zosterops japonica			0/3		0/2			1/85				1/90	
Zosterops nigrorum							23/34					23/34	
Zosterops palpebrosa	0/4	2/7	0/27					2/12	1/2			5/52	
FRINGILLIDAE													43/796
Carduelis sinica	1/74	0/14										1/88	
Carpodacus erithrinus								0/166				0/166	
Carpodacus roseus	0/11											0/11	
Coccothraustes coccothraustes	0/1	0/1										0/2	
Eophona migratoria	1/11											1/11	
Emberiza aureola	1/10			0/2				0/12				1/24	
Emberiza cioides	1/26	1/17										2/43	
Emberiza elegans	3/44	1/30										4/74	
Emberiza fucata	0/56	0/1										0/57	
Emberiza leucocephalus	0/4											0/4	
Emberiza pusila								0/4				0/4	
Emberiza rustica	1/49											1/49	
Emberiza rutila	5/39		0/1					20/127				25/168	
Emberiza spodocephala	1/3	0/19	0/5	3/17								4/44	
Emberiza sulphurata					0/3							0/3	
Emberiza tristrami	1/3											1/3	
Emberiza variabilis		1/5										1/5	
Emberiza yessoensis	2/12											2/12	
Fringilla montifringilla	0/6											0/6	
Haematospiza sipahi								0/1				0/1	
Melophus lathami								0/1				0/1	
Pyrrhula erythaca			0/6									0/6	
Pyrrhula nipalensis									0/2			0/2	
Pyrrhula pyrrhula		0/3										0/3	
Uragus sibiricus	0/6											0/6	

Family and species	Korea	Japan	Taiwan	Hong Kong	Luzon	Palawan	Negros	Thailand	Malaya	Sarawak	Sabah	Species Total	Family Total
PLOCEIDAE													89/594
Erythrura hyperythra									0/2			0/2	
Erythrura prasina								0/1				0/1	
Lonchura ferruginosa					0/26	2/5	1/4					3/35	
Lonchura leucogaster					2/45	2/3	0/4					4/52	
Lonchura maja									3/25			3/28	
Lonchura malacca					0/84		1/8		1/16			2/86	
Lonchura punctulata			0/22	0/4	0/8			15/28	0/15			15/75	
Lonchura striata			0/24					10/20				10/44	
Padda oryzivora					0/4							0/4	
Passer flaveolus								20/35				20/35	
Passer montanus	2/10	0/14	1/8	0/6				0/18	0/78			3/132	
Passer rutilans		0/9										0/9	
Ploceus manyar								0/18				0/18	
Ploceus philippinus								19/66	1/7			20/73	
Number species examined	72	87	79	21	179	92	96	361	281	35			719
Number slides examined	891	465	408	124	2, 247	612	1, 351	6, 795	6, 821	95			19, 633
Number positive slides	51	63	18	31	265	178	444	829	1, 530	7			3, 410
Percent infection	7.4	13.5	3.9	25.0	11.8	28.7	32.9	12.2	22.4	11.9			17.4

TABLE 17

THE NUMBER OF BLOOD PARASITE INFECTIONS IDENTIFIED IN MALAYA, 1960-63

Haemo = Haemoproteus; Leuco = Leucocytozoon; Microf = Microfilaria; Plasm = Plasmodium
* - indicates that there were multiple infections present

Host family and species	Number slides examined	Parasites present				
		Haemo.	Leuco.	Plasm.	Microf.	Miscellaneous
ARDEIDAE						
Butorides striatus	3				1	
Ixobrychus cinnamomeus	9			1		
Ixobrychus sinensis	1	1				
ACCIPITRIDAE						
Accipiter virgatus	15	1	8			
FALCONIDAE						
Falco peregrinus	1	1				
PHASIANIDAE						
Argusianus argus	3	3		2	2*	
Lophura erythropthalma	8			1		
Rollulus rouloul	3	1				
TURNICIDAE						
Turnix suscitator	18			5		1 Trypanosoma
RALLIDAE						
Amaurornis phoenicurus	49			17	1	
COLUMBIDAE						
Chalcophaps indica	89	5				
Ducula bicolor	1	1				
Macropygia ruficeps	3		1			
Macropygia unchall	2	2			1*	
Treron curvirostra	3	1			1	
CUCULIDAE						
Cacomantis merulinus	9	2				
Phaenicophaeus javanicus	1			1		
TYTONIDAE						
Phodilus badius	9	7		1		
STRIGIDAE						
Glaucidium brodiei	3	2	1*			
Otus bakkamoena	49	44	1*	1		
Otus scops	39	33	8*		1*	
Otus rufescens	3	2				
Otus spilocephalus	14	5				
CAPRIMULGIDAE						
Eurostopodus temminicki	3	2				
APODIDAE						
Collocalia esculenta						
ALCEDINIDAE						
Ceyx erythacus	39	3				
Ceyx rufidorsus	20	1				
Halcyon chloris	62	38			3*	
Halcyon concreta	25	17				
Halcyon coromanda	28	6	2			
Halcyon pileata	42	14				
Halcyon smyrnensis	26	4				
Lacedo pulchella	4	3				
Pelargopsis capensis	6	1				
MEROPIDAE						
Merop viridis	5	2				
CORACIIDAE						
Eurystomus orientalis	1	1				

Host family and species	Number slides examined	Parasites present				
		Haemo.	Leuco.	Plasm.	Microf.	Miscellaneous
BUCEROTIDAE						
Anthracoceros malayanus	2		1			
CAPITONIDAE						
Megalaima franklini	51	2	4		1	
Megalaima rafflesi	3				1	
Psilopogon pyrolophus	17	4				
PICIDAE						
Picus vittatus	56	1			1	
EURYLAIMIDAE						
Eurylaima javanicus	3		1			
PITTIDAE						
Pitta moluccensis	21	1		1	1	1 Atoxoplasma 1 Lankesterella
Pitta sordida	6	3			1	
HIRUNDINIDAE						
Hirundo rustica	140	2			1	
CAMPEPHAGIDAE						
Coracina novaehollandiae	8		1		1	
Pericrocotus roseus	2			1		
DICRURIDAE						
Dicrurus annectans	25	3	2		2	
Dicrurus paradiseus	16		1			
Dicrurus remifer	19	1	1			
TIMALIIDAE						
Alcippe castaniceps	35		3			
Alcippe nipalensis	101	1	23			
Alcippe poliocephala	17	9				
Cutia nipalensis	2				1	
Garrulax erythrocephalus	60	5	34		5	
Garrulax mitratus	24	4	7	1		
Heterophasia picaoides	39	1	13			1 Trypanosoma
Minla strigula	104	1	42		24	6 Trypanosoma
Pellorneum capistratum	6				4	
Pomatorhinus hypoleucos	3		3	1	1	
Pomatorhinus montanus	1				1	
Pteruthius erythropterus	1			1		
Pteruthius melanotis	7		4			
Stachyris erythroptera	18					1 Trypanosoma
Stachyris leucotis	3		1		1	
Stachyris maculata	44		1		1	1 Trypanosoma
Stachyris nigricollis	34				15	2 Trypanosoma 2 Lankesterella 1 Haemogregarine
Stachyris poliocephala	33	1		3	16	1 Atoxoplasma 2 Lankesterella
Trichastoma abbotti	22				5	
Trichastoma bicolor	23				12	
Trichastoma malaccensis	32				12	
Trichastoma rostrata	128			12	11	4 Atoxoplasma 2 Lankesterella
PYCNONOTIDAE						
Criniger bres.	59	6	1		1	
Criniger phaeocephalus	82				1	1 Trypanosoma
Hypsipetes charlottae	2	1	1			
Hypsipetes criniger	63	4				
Hypsipetes flavalus	5	2				
Hypsipetes mcclellanti	125	3	10			

Host family and species	Number slides examined	Parasites present				
		Haemo.	Leuco.	Plasm.	Microf	Miscellaneous
Pycnonotus atriceps	11		1		1*	
Pycnonotus erythropthalmos	18		6		1	
Pycnonotus goiavier	1,078		40	2	84	1 Atoxoplasma
						1 Trypanosoma
Pycnonotus melanicterus	3			1*		1 Trypanosoma
Pycnonotus plumosus	438		1		26	
Pycnonotus simplex	82	9		2		
Pycnonotus zeylanicus	7			2		
AEGITHINIDAE						
Chloropsis cyanopogon	6	1	1*	1*	1*	
Chloropsis hardwickii	2		1			
TURDIIDAE						
Copsychus malabaricus	55	9*		5*	20*	2 Trypanosoma
						1 Atoxoplasma
Copsychus saularis	115	10		6		1 Lankesterella
Enicurus ruficapillus	11		2		1	
Enicurus schistaceus	12			1		
Erithacus cyane	50	13		3	5	
Myophonus robinsoni	4	1				
Turdus obscrurus	196	55*	76*	1	3	2 Trypanosoma
Zoothera marginata	8	1	1			
Zoothera sibirica	83	20	14	6	7	
SYLVIIDAE						
Acrocephalus arundinaceus	36	5*				
Orthotomus atrogularis	6	1	1*			
Orthotomus sericeus	41					1 Trypanosoma
Phylloscopus trivirgatus	3		1			
MUSCICAPIDAE						
Muscicapa grandis	70		11	1	2	
Muscicapa hyperythra	21	2				
Muscicapa narcissina	13	1				1 Lankesterella
Muscicapa sundara	22		1		1	
Rhinomyias umbratilis	13	1				
Rhipidura albicollis	24		1			
Rhipidura javanica	163					3 Lankesterella
Terpsiphone paradisi	30	6				2 Haemogregarine
PACHYCEPHALIDAE						
Pachycephala cinerea	56					1 Lankesterella
MOTACILLIDAE						
Dendronanthus indica	3	2				
LANIIDAE						
Lanius cristatus	31	12				
Lanius tigrinus	2	1				
STURNIDAE						
Gracula religiosa	2	1				
Sturnus sturninus	2				1	
NECTARINIIDAE						
Acthopyga saturata	20		3			
Anthreptes malaccensis	409	315		1		
Arachnothera affinis	17	7				
Arachnothera longirostris	279		1		1	
Arachnothera magna	29		10		4	
Hypogramma hypogrammica	22		1			
Nectarinia chalcastetha	37		5			
DICAEIDAE						
Dicaeum cruentatum	10			1		
Prionochilus percussus	14	1				

Host family and species	Number slides examined	Parasites present				
		Haemo.	Leuco.	Plasm.	Microf.	Miscellaneous
ZOSTEROPIDAE						
Zosterops palpebrosa	2	7				
PLOCEIDAE						
Lonchura maja	28		1		1	
Lonchura malacca	16			1		
Ploceus philippinus	7			1		
Total 125 species	5,621					
71 species		733				
47 species			354			
29 species				80		
49 species					293	
11 species						20 Trypanosoma
5 species						8 Atoxoplasma
8 species						13 Lankesterella
2 species						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; Thai = 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	Thai		Haemo	Leuco	Plasm	Microf	Tryp
ACCIPITRIDAE														
Accipiter trivirgatus						1			1	1				
Accipiter virgatus								1	1		1			
PHASIANIDAE														
Coturnix chinensis						6			6	4		2		
TURNICIDAE														
Turnix suscitator						1			1			1		
SCOLOPACIDAE														
Capella megala					1				1	1				
Numeneus phaeophus					1		1		2	2				
Tringa glareola						1			1			1		
Tringa ochropus					1				1	1				
Tringa totanus					1				1	1				
COLUMBIDAE														
Chalcophaps indica						2		1	3	2			1*	1*
Macropygia phasianella								1	1	1				
Phapitreron leucotis					1				1	1				
Streptopelia chinensis						3			3		1	2		
Streptopelia orientalis	1								1	1				
Treron curvirostra						1			1	1				
PSITTACIDAE														
Bolbopsittacus lunulatus					10				10	10				
Tanygnathus lucionensis						5			5	4		1		
TYTONIDAE														
Tyto longimambris						1			1	1				
STRIGIDAE														
Glaucidium cuculoides								1	1	1			1*	
Ninox philippensis							2		2	2				
Ninox scutulata					2		1		3	3	1*			
Otus bakkamoena					3				3	3				
TROGONIDAE														
Harpactes ardens					1				1	1				
ALCEDINIDAE														
Halcyon chloris						9			9	9				
Halcyon lindsayi							1		1		1			
Halcyon pileata								1	1	1				
PICIDAE														
Picus erythropygium								1	1	1				
PITTIDAE														
Pitta erythrogaster					1	1			2			2		
Pitta sordida						1			1				1	
CAMPEPHAGIDAE														
Lalage nigra					1				1					1
DICRURIDAE														
Dicrurus balicassius					3				3	3				
Dicrurus hottentotus					6				6	3		2	1	
Dicrurus macrocereus								1	1	1				
ORIOLIDAE														
Oriolus chinensis					2		4		6	2			4	

Host family and species	Country								Total infected Blood films	Parasite				
	Korea	Japan	Taiwan	HK	Luzon	Palawan	NO + M	Thai		Haemo	Leuco	Plasm	Microf	Tryp
CORVIDAE														
Corvus corone		1							1		1			
TIMALIIDAE														
Alcippe brunneicauda								10	10	6			4	
Alcippe morrisonia								10	10	10				
Alcippe nippalensis			1						1			1		
Garrulax strepitans								1	1	1				
Macronous flavicollis						3			3			1	2	
Macronous gularis								10	10	3		2*	6	1*
Macronous ptilosus								16	16				15	1
Macronous striaticeps					11				11		3	7	1	
Malacopteron affine								2	2				2	
Minla cyanouroptera								1	1		1			
Pomatorhinus montanus			1						1			1		
Yuhina zantholeuca								4	4	3		1		
PYCNONOTIDAE														
Criniger bres						1			1	1				
Criniger pallidus								4	4	1	3*	1*		
Hypsipetes mcclellandii								3	3	1	1	1		
Hypsipetes philippinus					1			1	1				1	
Hypsipetes propinquus								2	2	2				
Pycnonotus atriceps								1	1	1				
Pycnonotus blanfordi								135	135	131		3	1	
Pycnonotus brunneus								11	11	5	1	1	3	1
Pycnonotus erythropthalmos								1	1		1			
Pycnonotus finlaysoni								12	12	2	5		3	
Pycnonotus goiavier					11	1	2		14	7	2	5		
Pycnonotus melanicterus								43	43	42*	21*	1*	1*	
Pycnonotus plumosus						6			6			5	1	
AEGITHINIDAE														
Chloropsis aurifrons								1	1	1				
TURDIIDAE														
Copsychus malabaricus								9	9	6				1
Copsychus niger						6			6	5		1		
Copsychus saularis								16	16	15		1		
Enicurus leschenaulti								4	4	2			2	
Myophonus caeruleus								1	1				1	
Turdus cardis		3							3	1	1		1	
Turdus chrysolaus		2							2	1	1			
Turdus naumani		1							1		1			
Turdus pallidus		1							1		1			
Zoothera citrina								2	2		?			
Zoothera dauma		1							1	1				

Host family and species	Country								Total infected Blood films	Parasite				
	Korea	Japan	Taiwan	HK	Luzon	Palawan	NO + M	Thai		Haemo	Leuco	Plasm	Microf	Tryp
SYLVIIDAE														
Acrocephalus arundinaceus		2							2	2*	2*			
Megalurus palustris							1		1				1	
Orthotomus atrogularis								1	1		1			
Orthotomus sericeus						1			1	1				
Prinia polychroa								1	1	1				
Prinia rufescens								6	6	6				
MUSCICAPIDAE														
Muscicapa latirostris		9							9	7		3*		
Muscicapa narcissina		2							2	1		1		
Muscicapa parva								2	2	2				
Rhipidura javanica								3	3	3				
Terpsiphone cyanescens						1			1	1				
MOTACILLIDAE														
Motacilla alba	7								7	7				
Motacilla flava						2			2	2				
LANIIDAE														
Lanius bucephalus	2								2	2				
Lanius cristatus	1				15	4	2		22	11		11		
STURNIDAE														
Sarcops calvas							1		1	1				
Sturnus nigricollis								1	1	1				
NECTARINIIDAE														
Anthreptes singalensis								1	1	1				
Nectarinia jugularis								1	1	1				
FRINGILLIDAE														
Eophona migratoria	1								1	1				
Emberiza fucata	1								1			1		
Emberiza rutila	6								6	6				
PLOCEIDAE														
Lonchura ferruginosa						2			2	2				
Lonchura leucogastra						1			1	1				
Lonchura malacca							1		1			1		
Lonchura punctulata								4	4	3		1		
Lonchura striata								5	5	5				
Passer flaveolus								22	22	22				
Passer montanus	1								1	1				
Ploceus philippinus								15	15	14		1		
TOTAL SPECIES 99									556					
75										416				
22											53			
29												62		
21													53	
6														6

*Multiple infections.

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This report consists of five parts. Part I summaries 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 summaries 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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14. KEY WORDS		LINK A		LINK B		LINK C	
		ROLE	WT	ROLE	WT	ROLE	WT
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Ectoparasites	Microfilaria						
Zoonoses	Trypanosoma						
Indonesia	Plasmodium						
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