

BODY OF REPORT

SEATO Medic Study No. 110 Migratory Animals Pathological Survey
(MAPS)

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S. E. Asia

Task 01: Military Medical Research Program
S. E. Asia

Subtask 01: Military Medical Research Program
SEASIA (Thailand)

Reporting Installation: US Army-SEATO Medical Research Laboratory
APO San Francisco 96346

 Division of Special Projects

 MAPS Project

Period Covered by Report: 1 March 1964 to 31 March 1965

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Edward Dickinson **

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Objective: The objectives of this project are: to determine the migratory habits and the seasonal and altitudinal distribution of all the species of birds known from Thailand; to study the incidence of ectoparasites and blood parasites for all species of Thai birds; to obtain bird pathology data; to train a Thai team to take over this research project.

Description: Birds are captured alive using mist nets. They are then identified,

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** Volunteer cooperater, Bangkok

banded, measured and released. Blood smears and ectoparasites are taken from a sampling. Birds which cannot be identified are made into study skins. Birds which die in the nets and the carcasses of collected birds are preserved in formalin and alcohol.

The bird study skins are added to the SEATO Lab reference collection. All other specimens, i.e., ectoparasites, blood smears, and preserved birds are sent to MAPS HQ in Tokyo for study. Monthly plankton samples are taken from the Chao Phaya River and also forwarded to MAPS HQ.

Field trips are made to all parts of Thailand on a survey basis. Much time is spent collecting and observing birds as methods of obtaining distribution data.

Progress: Initially, 30 mist nets/area were used. As the year progressed, the number was increased to 200/area with a resultant increase in the total number of birds caught. It was also found that by shifting unproductive nets, an area could be utilized for 10 days or more (on one occasion for 17 days) instead of only 6 or 7 days of productive netting when all nets are left stationary.

The first 50 birds of all species in each area are measured. On the last trip this was cut to the first 25. Measurements taken are: total length, wing, tail, tarsus length, tarsus diameter, gape, and culmen. Thus far, measurements of about 4000 birds of over 400 species have been taken. Analysis of this data has not yet begun. It is hoped that clues to subspecies identification will be found through measurements. The measurements may also help to substantiate the hypothesis that the plains and mountain populations of wintering species have different origins. Inconclusive evidence from wing measurements of Zosterops japonica favors the hypothesis.

Ectoparasites and blood smears were taken from about 1000 birds of 200 species. These collections have increased in number through the year as the technicians improved their technique. A much greater number is expected to be collected in the coming year. Only broad identification to class, i.e., Hippoboscidae, ticks, Mallophaga, etc., are made in the field. MAPS HQ in Tokyo does the specific identifications.

Because of the large numbers of banded birds necessary and the long time it takes to derive the definitive data from bird banding, the heaviest emphasis of this program for its first few years will be on banding as many birds of as many species as possible. Although emphasis is placed on banding known migratory birds, the resident birds are banded as well, to discover what local movements take place. Some evidence of altitudinal migration of Otus bakkamoena and Carrulax erythrocephalus was found on Doi Inthanon in Chiangmai Province. Neither of these species had been previously reported having such movements in Thailand.

In the period covered, the MAPS team banded 22,313 birds of 326 species.

Dr. Joe T. Marshall, in his virus work, banded an additional 1,789 birds of 113 species. A volunteer cooperator, Edward Dickinson, banded 34 birds of 18 species. Thus a total of 24,136 birds of 361 species representing 50 families were banded in Thailand this year. The latest checklist of Thai birds by Deignan lists 790 species of 68 families.

Four birds banded previously by the Virus Department of the SEATO Laboratory were recovered in the same places in Bangkok where they were originally banded.

<u>Species</u>	<u>Date banded</u>	<u>Date recovered</u>
<u>Pycnonotus blanfordi</u>	7 November 1962	21 October 1964
<u>Pycnonotus blanfordi</u>	20 December 1962	31 March 1964
<u>Copsychus saularis</u>	1 November 1962	30 March 1964
<u>Copsychus saularis</u>	31 January 1963	28 March 1964

Identification of Thai birds is frequently quite difficult. Because there is no complete work available, identification is dependent on the use of many different books, often inadequate, covering surrounding areas. In addition to a small collection begun at SEATO Laboratory by Mr. Kitti Thonglongya, there are 2 large collections of birds in Bangkok. However, none of the collections is adequate for serious work. To remedy these problems, the investigators are building up the SEATO Laboratory collection. This year about 1,100 study skins were added. At the conclusion of the study, this collection will be given to Thailand to form the basis of the proposed Thai National Museum collection. Further, the investigators will publish a paper dealing with the data and results of this project. Finally, the investigators are planning a monograph on the birds of Thailand which will deal primarily with identification keys, descriptions, and distribution.

In the period of this report the MAPS team made the following field trips:

1. 14-18 March 1964
Klong Dan, Chanburi Province
89 birds of 12 species banded
2. 19 April - 1 June 1964
Chiengmai Province, Chiengrai Province
541 birds of 107 species banded
3. 8 August - 9 September 1964
Phatthalung Province, Songkhla Province, Narathivas Province
463 birds of 57 species banded

Table I

Place (Month)	Elevation feet	Days in area	No. of species	No. of birds banded	Ave/day
Doi Inthanon (Dec) Chiengmai Province	1,800	4	45	164	41
Doi Inthanon (Dec) Chiengmai Province	2,600	3	41	138	46
Doi Inthanon (Dec) Chiengmai Province	3,900	9	98	1289	143
Doi Inthanon (Dec) Chiengmai Province	4,900	10	91	1016	101
Doi Inthanon (Nov) Chiengmai Province	5,680	17	96	1369	81*
Chieng Saen (Jan) Chiengrai Province	1,300	7	63	210	30
Chieng Saen (Feb) Chiengrai Province	1,300	4	52	183	46
Doi Pui (Feb) Chiengmai Province	5,200	6	68	418	70
Doi Pui (Feb) Chiengmai Province	5,200	13	97	1892	142

* This poorer average is due to a large and unknown number of birds eaten by the locally hired tribesmen assisting the team during the first 8 days of the operation.

4. 26 October - 28 December 1964
Doi Inthanon, Chiengmai Province
4,315 birds of 182 species banded

5. 19 January - 2 March 1965
Chiengmai Province, Chiengrai Province
2,703 birds of 152 species banded

A gradual increase in the number of birds banded due to experience and improved technique will be noted.

The team has found that the best variety and numbers of birds are at the higher elevations of mountains where there is evergreen forest broken up by abandoned and overgrown farms and grass. The above data in Table I will illustrate.

The "Pa Daeng" forest, open deciduous forest mixed with a little undergrowth, grass and bamboo along the streams proved to be rather unsuited to netting operations because of its open nature, and limited variety and quantity of bird species. This type of forest forms a high percentage of the forested area of Thailand below 2,500 feet north of the Isthmus of Kra. Other lowland forests of mixed evergreen and deciduous trees mixed with bamboo proved only slightly more productive.

A large amount of new distributional data has been uncovered. This new data will form important sections of both the paper on the results of the project and the

monograph on Thai birds. Eleven species new to Thailand were discovered. All except Collocalia esculenta, which was taken in Ranong Province were taken in either Chiangmai or Chiengrai Province. All require museum verification before publication, they are as follows:

<u>Aquila nipalensis</u>	1 collected
<u>Collocalia esculenta</u>	2 collected
<u>Apus acuticaudus</u>	1 collected
<u>Erithacus sibilans</u>	3 netted; 2 study skins, 1 banded
<u>Saxicola jerdoni</u>	6 netted; 4 study skins, 2 banded
<u>Hodgsonius phoenicuroides</u>	1 netted and 1 collected: 2 study skins
<u>Bradypterus taczanowskia</u>	1 collected
<u>Muscicapa leucomelanura</u>	8 netted; 7 study skins, 1 banded
<u>Haematospiza sipahi</u>	10 netted: 6 study skins, 4 banded
<u>Emberiza spodacephala</u>	4 collected
<u>Emberiza tristrami</u>	2 netted: 1 study skin, 1 banded

Several birds in the collection, as yet unidentified, may also represent new species for Thailand.

A large concentration (120,000-140,000) of house swallows, Hirundo rustica, roosts in downtown Bangkok during the winter. In 14 nights of banding between 1:30 and 5:00 AM, the MAPS team, combined with Dr. Joe T. Marshall's virus team, banded 14,024 of the swallows. 100 of the birds were weighed and ectoparasites and blood samples taken from them.

Summary: From the program's beginning on 1 March 1964, experience and improved techniques have gradually increased the daily numbers of both birds banded and ectoparasites and blood smear collections. Proficiency is expected to continue to rise during the following year. Training of the Thai team on the technician level is progressing well. However, a suitable trainee for supervisor has not yet been found. Some preliminary evidence of different origins of wintering species found on both plains and mountains was obtained. Some evidence of hitherto unrecorded altitudinal migration was found. The MAPS team banded 22,313 birds of 326 species this year. Cooperators added 1,823 birds of 116 species including 35 species not banded by the MAPS team. Several recoveries of birds banded in Bangkok in 1962 and 1963 were made. Considerable progress

in identification was made this year through the bird study skins added to the SEATO collection. A large amount of data on distribution, habits, parasites, measurements, migration and identification was obtained which will be used in the two main publications on Thai birds that are planned by the investigators. High mountains were found to give the highest yield of both numbers and species of birds. The survey of distribution of Thai birds got well under way with 4 major field trips.

The team will continue to explore new areas in order to make the survey as complete as possible in the time available. Field trips to all the major zoogeographical regions of Thailand are now being planned.

Conclusions: The results of the previous year indicate that at least 2 more years will be required to make a reasonably complete survey of bird distribution and migration within Thailand. However, the plotting of the great migratory movements of palearctic birds to Thailand in winter by means of foreign band recoveries will take many more years. The great est emphasis of the program must therefore remain on banding as many birds of as many species as possible. Increased proficiency in collecting work will allow a good sampling of ectoparasites and blood parasites from all species captured. Correlation of the bird distribution and parasite incidence data will give a good picture of bird parasite distribution and relative abundance on birds in Thailand and provide a broad basis for more specialized research should medically important parasites be found. Because of the excellent opportunities for studying altitudinal distribution and the much greater number of species and individuals on mountains, the majority of future field trips will center on high mountains.