Field work for a study of the Amphibians and Reptiles of the ASRCT Sakaerat Experiment Station, Amphoe Pak Thongchai, Changwat Nakhonratchasima.

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ASRCT, 1970.

ABSTRACT

This report summarizes the field work undertaken by a party from the Field Museum of Natural History (Chicago) with the financial support of a National Science Foundation (U.S.A.) grant awarded to Dr. Robert F. Inger. The field work was begun 23 February 1969 and completed 8 January 1970.

The principal personnel concerned with the field work were: Dr. Robert F. Inger, who was present for the initial 3 months of the investigation and returned for a few days at the close of the project; Dr. W. Ronald Geyer and Mr. Sukhum Pongsapipatana (ASRCT) who were present throughout the project; and 5 labours hired locally. In addition, Mrs. Miriam Heyer put in many volunteer hours aiding in the preservation, sorting, packing of specimens, and aiding in secretarial work.

Over 5400 individual specimens of 103 different species of amphibians and reptiles were collected by 3 major sampling techniques. In each case, a body of ecological data was recorded for each specimen with respect to date, time, and exact place of capture. All specimens have been shipped to the Field Museum where Dr. Inger is identifying, measuring, and taking the stomach contents of each individual. A sample of each species collected will be returned to ASRCT.

Almost 500 8 by 8 m. quadrats were sampled from the forest floor of the dry-evergreen forest; over 700 quadrats were sampled from the deciduous dipterocarp forest floor. Seven surveyed stream portions (3 on the Sakaerat Experiment Station, 2 south of the Station along the

highway, l at Sarika waterfall, l at Khao Yai) were ampled at nights once each month. The rest of the specimens were captured during cruising collecting periods either at night or in the day.

Dr. Inger is in the process of analyzing the body of data collected with respect to diversity patterns, comparative niche sizes, degree of niche overlap, and habitat utilization. The author will analyze another body of data collected on larval frog populations with respect to seasonal species, succession patterns, and population dynamics. Mr. Sukhum Pongsapipatana is in the process of reporting on a collection of reptile eggs made at the site.

The specimens and data are in various stages of analysis; most ecological statements would be premature at this point. The data on broad occurrences of species within major vegetation types is readily available from the catalogue sheets, however, and is worthy of comment at this time.

A list of the species collected is attached. The list includes only those species the party collected on the Station itself. Three species are included that were not collected this year: Ichthyophis glutinosus and Python reticulatus are included on the basis of collections made by Mr. Karl Frogner at the site; Varanus bengalensis has been observed several times but never captured. Three vegetation types are distinguished: the dry-evergreen forest (DE); the deciduous dipterocarp forest (DDP); and open agricultural land (AG). At Station, agricultural land is limited to the immediate area adjacent to the highway. For each species, the occurrence within vegetation types is indicated by DE, DDP, or AG. If the species is common in a vegetation type, the occurrence is indicated by capital letters; lower case indicates rarity. Criteria for deciding whether a species occurs commonly or rarely within a vegetation type is based on my observations and bias.

For further analysis, the data from collections made in other agricultural areas adjacent to Sakaerat have been added. The results are: the dry-evergreen forest has a herpetofauna of 74 species, the deciduous dipterocarp 58 species, and agricultural areas 46 species. The dry-evergreen and deciduous dipterocarp forests share 33 species in common, the deciduous dipterocarp and agricultural areas share 38 species, and the dry-evergreen and agricultural areas share 26 species. Another way of looking at the data is to use the coefficient of difference,

$$CD = 1 - \frac{\text{number of species in common}}{\text{umber of species in the larger sample being compared}} \times 100\%$$

Any figure over 50 per cent is considered significant; that is, the herpetofaunal assemblages being compared are considered distinct. The CD values are: DE-DDP = 55%, DDP-AG = 34%, DE-AG = 65%. Thus the dry-evergreen and deciduous dipterocarp forests support distinct herpetofaunal assemblages, while the deciduous dipterocarp and agricultural areas share a common herpetofauna.

There is doubt as to the successional stage of the deciduous dipterocarp forest. It unquestionably is a fire climax forest at present. At the study site, the deciduous dipterocarp probably represents a successional stage leading to the dry-evergreen forest, if fires were curtailed for upwards of 100 years (pers. comm. C. F. van Beusekom, view shared by the author.). Others maintain that the deciduous dipterocarp is a natural fire climax forest; the fires not being caused principally by man. The interesting point with respect to the amphibian and reptile data is that the assemblages are distinct in the two forest types. Thus there is a substantial historical difference between the forest communities; the deciduous dipterocarp herpetofauna is not merely a reduced dry-evergreen herpetofauna. Apparently, man has made his presence felt in north-eastern Thailand for many hundreds of years. The recent nature of the agricultural clearings in the Sakaerat region is reflected by the fact that the herpetofauna of the agricultural areas is basically a reduced deciduous dipterocarp herpetofauna.