

Study of Vertebrate Reservoirs of Disease

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BACKGROUND : Vertebrate animals potentially involved in the epidemiology of human disease are identified for investigators engaged in field studies. Information is supplied on their life history and ecology especially as they relate to arthropod-borne diseases. This information is based upon our own studies because of unreliability of the available literature on mammals owing to confusion on scientific names.

DESCRIPTION : Although Thai mammals have been extensively collected in the past and are well represented in museums, studies have been hampered by the poor preparation of their skulls and teeth. SEATO Laboratory has therefore built up a new and extensive collection, preserving only those specimens with perfect skulls that have been cleaned by our colony of dermestid beetles. This collection is now divided among SEATO Laboratory, Applied Scientific Research Corporation of Thailand (Centre for Thai National Collections—which was started by our contribution), British Museum (Natural History), and Smithsonian Institution. In those museums can be found the specimens which fully document the taxonomy of rodents which follows.

Thai rats and mice are notable for their great numbers of individuals and of species, and for the close association of many of them with man. There are 36 species, most of which support ectoparasites capable of transmitting disease. Eleven of them live in warehouses, homes or ricefields and thus constitute an economic as well as a medical problem. All that we have learned about the nomenclature, ecology, distribution, karyology, and ectoparasites of these rodents is now in press as a chapter on the Family Muridae (Rats and Mice) contributed by Marshall to the book "Mammals of Thailand" by Lekagul and McNeely (Association for the Conservation of Nature of Thailand). It consists of a fully illustrated key; diagrams of chromosomes, palatal ridges, footpads, mammae, and tail color patterns; average measurements; and species accounts. It is illustrated with photographs of the skulls and of the live animals.

The following checklist is extracted from that chapter. The subgenus, a category that may be unfamiliar to the reader, is a group of species that possess in common a certain skull shape, similar karyotype, and the same species of lice in the genera *Hoplopleura* and *Polyplax*. Recent discoveries are Dr. Bahmanyar's taking of *Bandicota bengalensis* and *B. savilei* together at Myingyun, Burma, and our capture of *B. savilei* and *B. indica* in the same fields at Korat, Thailand, thus proving that there are three species of bandicoots; Mr. Kittl Thonglongya's capture of true *Rattus niviventer* at the summit of Doi Angka which knocks over the names of related species like a row of dominoes; and William A. Neill's trapping a new species of rat at the Saraburi bat cave, to be named *Rattus hinpoon*, the limestone rat.

CHECKLIST OF RATS AND MICE OF THAILAND

FAMILY MURIDAE Rats and Mice

SUBFAMILY I. MICROTINAE Meadow-mice

Genus 1. *Eothenomys*

1. *Eothenomys melanogaster* Pere David's Vole. Summit of Doi Inthanon.

SUBFAMILY II. MURINAE Old World Rats and Mice

A. Arboreal Rats and Mice

Genus 2. *Vandeleuria*

2. *Vandeleuria oleracea* Long-tailed Cane Mouse. Throughout Thailand except for the peninsula; in cane.

Genus 3. *Chiromyscus*

3. *Chiromyscus chiropus* Fea's Tree Rat. Three specimens from Chiangmai and Loei.

Genus 4. *Hapalomys*

4. *Hapalomys longicaudatus* Marmoset Rat. Lives in bamboo internodes; two specimens from western Thailand.

Genus 5. *Chiropodomys*

5. *Chiropodomys gliroides* Pencil-tailed Tree Mouse. Lives in bamboo internodes; common throughout Thailand.

B. Terrestrial Rats and Mice

Genus 6. *Bandicota*

6. *Bandicota indica* Great Bandicoot. Ricefields throughout Thailand except the peninsula.
7. *Bandicota savilei* Lesser Bandicoot. Foothill localities except the north and peninsula. Lives in teak forest and is a despoiler of corn fields and vegetable gardens.

Genus 7. *Mus*

Subgenus 1. *Leggadilla*

8. *Mus shortridgei* Shortridge's Spiny Mouse. Dry dipterocarp forest across northern and central Thailand.

Subgenus 2. *Coelomys*

9. *Mus pahari* Gairdner's Shrew-mouse. Tak and Chiangmai, in the evergreen forest.

Subgenus 3. *Mus*

10. *Mus caroli* Ryukyu Mouse. Ricefields throughout Thailand as far south as Huahin.
11. *Mus cervicolor* Fawn-colored Mouse. Ricefields and grass beneath deciduous dipterocarp forest throughout Thailand except the peninsula.
12. *Mus cookii* Cook's Mouse. Grass within forests of the north; also in hill rice plantations.
13. *Mus musculus castaneus* Asian House Mouse. Warehouses of Thonburi and Trang.

Genus 8. *Rattus*

Subgenus 1. *Berylmys* White-toothed Rats.

14. *Rattus berdmorei* Lesser White-toothed Rat. Marshy grass in forests throughout Thailand except the central plains and peninsula south of Huahin.
15. *Rattus mackenziei* Kenneth's White-toothed Rat. Two specimens, from forests of Tak and Chiangmai.
16. *Rattus bowersi* Bower's Rat. Mountain evergreen forests throughout Thailand.

Subgenus 2. Rajah Rats.

17. *Rattus whiteheadi* Whitehead's Rat. Lowland evergreen forest of the peninsula.
18. *Rattus rajah* Brown Rajah Rat. Two specimens from Trang.
19. *Rattus surifer* Yellow Rajah Rat. Abundant in forests throughout the kingdom.

Subgenus 3. *Niviventer* Group.

20. *Rattus langbianis* Langbian Rat. Collected by Kitti Thonglongya in deciduous forest at Chongmek, eastern Thailand.
21. *Rattus cremoriventer* Pencil-tailed Rat. Forests of Peninsular Thailand.

22. *Rattus niviventer* White-bellied Rat. Moss forest at the summit of Doi Angka and Doi Pahompok, Chiangmai Province.
23. *Rattus rapit orbis* Long-tailed Rat. Evergreen forests of Khao Luang, Nakornsrithammarat Province, and Doi Inthanon, Chiangmai Province.
24. *Rattus fulvescens* Chestnut Rat, Bonhote's Rat (including *Rattus fulvescens bukit* which was formerly called "*Rattus niviventer bukit*"). Forests throughout Thailand: In the north becoming reddish through intergrading with *Rattus fulvescens huang*; *Rattus fulvescens fulvescens* in the mountains of the west; a dull colored long-tailed population at Khao Yai National Park; the rest of the country occupied by the common *Rattus fulvescens bukit*.
25. *Rattus hinpoon* nov. species Limestone Rat. Limestone cliffs of Saraburi Province, central Thailand. The only endemic terrestrial species of mammal in Thailand.

Subgenus 4. *Rattus* House Rats.

26. *Rattus norvegicus* Norway Rat. Buildings and warehouses of cities in central and southern Thailand. Absent from Chiangmai.
27. *Rattus nitidus* Himalayan Rat. In houses of mountain villages in the north.
28. *Rattus losea* Lesser Ricefield Rat. Ricefields and vegetable gardens throughout Thailand.
29. *Rattus argentiventer* Greater Ricefield Rat. Ricefields of the central plains and peninsula.
30. *Rattus remotus* Island Rat. Secondary forest of Samui Island and adjacent islands, Suratthani Province.
31. *Rattus koratensis* Sladen's Rat. Evergreen forests of mountains exclusive of Peninsular Thailand.
32. *Rattus exulans* Polynesian Rat. Houses throughout Thailand.
33. *Rattus rattus* Roof Rat. The native, non-European forms with 42 chromosomes, with subspecific names such as *jalorensis*, *diardii*, *robinsoni* and, *Rattus rattus thai*, are found in wild, domestic, island, and agricultural habitats throughout Thailand. Especially destructive to rice and coconuts.

Subgenus 5. *Stenomys* Aquatic Giant Rats.

34. *Rattus mülleri* Müller's Giant Rat. Wet portions of lowland evergreen forest of the peninsula.

Subgenus 6. *Leopoldamys* Long-tailed Giant Rats.

35. *Rattus edwardsi* Edwards' Rat. Evergreen forest of Phu Kradung National Park, Loei Province.
36. *Rattus sabanus* Noisy Rat. Evergreen forests throughout the Kingdom.