

THE INDONESIAN **ARCHIPELAGO** ZOOGEOGRAPHY **AND** TAXONOMIC PROBLEM OF RATS **AND** BATS

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Some surveys of mammals in Indonesia were **designed** principally to evaluate the status of rats and bats and the biogeography of each region and to examine factors which may be **associated** with morphological **variation** among selected mammal species. Until relatively recent days, however not much was known of **their** systematics and distribution or even the number of species. We now have **reasonable** ideas and methods to reveal their phylogeny and biogeography.

The distribution and diversity of rats and bats are **influenced by** microclimate, elevation, habitat types and food resources. The re-evaluation of the rats and bats is needed because the biological taxonomy typically goes through two phases: a long period during which specimens are collected from ever more localities and new species and/or subspecies are described one by one, followed by a period of consolidation when the described taxa are compared in detail to each other and overall revisions are proposed.

As the consequence of zoogeography comparison of Indonesian rats, fruit bats and insectivorous bats, the endemism, i.e. $100 \times \frac{N_e}{N_t}$ where N_e and N_t are numbers of endemic and all species in the given island, respectively, **was** 12.5-75.7% in rats, 5.3-22.7% in fruit bats and 31.3-36.7% in **insectivorous** bats. Irian showed high endemism in all of rats (73.4%), fruit bats (22.7%) and insectivorous bats (36.7%). The endemism in Sulawesi was high in rats (75.7%) but relatively low in and fruit bats (10.7%) **and** insectivorous bats (7.8%). Factors **affecting** the species richness of non-major islands were analyzed by multiple regression analysis where a dependent

variable was the number of species and independent variables were island **size**, distance from the nearest major island, depth of sea isolating from the nearest major island and volcanic activity. **Correlations** were significant in all the rats, fruit bats and insectivorous bats. This analysis extracted significant factors as follows: sea depth in rats; island size, sea distance, sea depth and volcano in fruit bats; island **size**, sea **depth** and volcano in **insectivorous** bats.

The zoogeographic boundaries of rats seem to lie between Sulawesi and Maluku **and** between Irian and its surrounding small islands. In addition to those boundaries, the present study found another boundary for rats between Sumatra and western Sumatra islands. For fruit bats, a zoogeographic boundary lies between northern Maluku and Irian but not between Northern Maluku and Sulawesi; an obvious boundary was not detected between Southern Maluku and Irian. For insectivorous bats, a **zoogeographic boundary lies** between Sulawesi and Maluku but not between Maluku and Irian. Wallace's line seems to be a zoogeographic boundary for all of three mammal groups with modification that Bali **and** Lombok **belong** to the cluster of Lesser Sunda in rats but to the cluster of Greater Sunda in bats. Weber's line also seems to **be** a zoogeographic boundary for all of the three mammal groups with modification that an effective boundary lies between Sulawesi and Maluku in rats and insectivorous bats but between northern Maluku and Irian in fruit bats. Lydekker's line seems to **be** a boundary for only rats, though Biak, Owi and Yapen belong to the cluster of Maluku

HISTORICAL RECORD OF WILDLIFE ANIMALS IN SANGIRAN DOME, CENTRAL JAVA, INDONESIA

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Sangiran Dome which located in the north part of Solo City, Central Java, is one of the most important hominid sites in the world. Sangiran Dome can be considered important because of two reasons (1) time dimension of the site give complete and continues soil layers from late pleistocene (2,4 million years ago) era to recent time; (2) even it was listed in "World Heritage List" by UNESCO because of hominid fossil, the abundance of wild life animal fossils can be easily and continually found. It consist of 5 layers soil: Kalibeng (2,4 – 1,8 million years ago), Pucangan (1,8 – 0,73 million years ago), Kabuh (0,73 – 0,20 million years ago), Notopuro (0,20 – 0,12 million years ago), and Alluvial terraces (0,12 million years

ago – now). Many kinds of wild life animal fossils had been found in the each layer, for examples: *Stegodon trigonocephalus*, *Bibos paleo-sondaicus*, *Bubalus paleokarabau*, *Rhinoceros sondaicus*, *Cerpus sp.*, etc. It about 13,808 pieces of fossils have been collected from Sangiran Dome until 2007. The most fossils were animals and some of them have not been exactly identified. The kind and number of wild life animal fossils could be increased day by day since the soil erosion always happened during rainy season. In the near future, more attention has to pay to find a new kind fossil and reconstruct the presence fossil by applying advance technologies.