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SHORT COMMUNICATION

ASSEMBLAGES OF FROGS SPECIES AT BALAMBANGAN ISLAND, SABAH, MALAYSIA

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ABSTRACT

Borneo is well known as a hotspot for biodiversity, yet species assemblages at smaller islands in the East Malaysian states of Sabah and Sarawak, are not well documented. The survey of frogs in Balambangan Island, which is situated at the west coast of Sabah, was the first attempt to look at the occurrence of frogs at smaller islands in the state. Sampling of frogs was conducted at the coastal areas of Kampung Selamat and limestone forest for four nights sampling period. Visual encounter survey and transect line were used to sample the frogs which were captured by hand. A total of seven species of 32 individuals were captured. This was only about 8% of the total species that occurs on the mainland Sabah. The island was dominated by the ranids (65%), rhacophoridae (22%) and microhylids (13%). Bufonids and megophryids were absent. The Mangrove frog, *Fejervarya cancrivora* (9 individuals) and the Lesser swamp frog, *Limnonectes paramacrodon* (8 individuals) were dominant on this island. No new species and endemism were noted on this island. The results from this preliminary study did not support the initial belief that the island contains high levels of endemism. On the contrary, the results appear to imply recent isolation from the Sabah mainland. Thus, a more detailed study including genetic diversity should be conducted to cover more areas on the main island and other smaller islands surrounding the Borneo Island and to obtain overall picture of biogeography of the frog species.

Keywords: Frogs, Ranidae, Rhacophoridae, Microhylidae, Balambangan

At least 150 species of frogs occur in Borneo (Inger & Stuebing 2005) and 89 species found in Sabah alone (Inger & Stuebing 1989). Nevertheless, most of collections were on the mainland of Sabah particularly at Kinabalu Parks (Inger *et al*. 1995; Inger *et al*. 2000, Malkmus *et al*. 2002; Wong 1994), Crocker Range (Inger & Stuebing 1998; Ramlah *et al.* 2001), Lower Segama (Kueh & Yambun 2006) and Kudat, the west coast of Sabah (Kueh 2006). None were sampled from any offshore islands off Sabah including the Balambangan Island. This survey was the first attempt to look at amphibian diversity on smaller islands, starting with the Balambangan Island.

Balambangan Island is situated about 5 km west of Banggi Island and 30 km north of the mainland town of Kudat. The island consists of limestones, swamps and coastal areas. From the town of Kudat in the north, chartered boats can be arranged to commute to the islands of Banggi and Balambangan.

Frog sampling was carried out for 4 nights consecutively, which were 17th to 25th of May, 2001. Two sites representing two different ecological systems were chosen. These were Kampung Selamat and campsite vicinity, which was in a limestone forest. Kampung Selamat, which was a heavily disturbed coastal area, consists of mangrove, coastal and limestone areas, while the campsite was totally a limestone forest with a little bit of mangroves. Line transects were used at both sites, since most of the rocky streams were small (less than 5m wide). The animals were located by headlamps and caught by hand. The animals were also searched along the limestone cave but only for one night. All specimens were preserved in 10% formalin and later stored in 70% alcohol. Muscle tissues from selected frogs were dissected and preserved in DMSO buffer for further studies. Specimens were then deposited at the UNIMAS Zoological Museum. The specimens were identified according to the book of 'A Field guide to the Frogs of Borneo' (Inger & Stuebing 1997; 2005).

Thirty two individual frogs belonging to seven species were caught during the survey (Table 1).

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