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INSECTIVOROUS MAMMALS (MAMMALIA: EULIPOTYPHILA) OF THE BA VI NATIONAL PARK, NORTHERN VIETNAM

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ABSTRACT

An inventory of the insectivorous mammal fauna of the Ba Vi National Park (northern Vietnam) based on the 1993–2013 surveys was conducted. A total of five species of Eulipotyphla were found in different types of the montane broad-leafed and mixed forests and anthropogenic habitats at the altitudes 50–1000 m a.s.l. New faunistic records of the short-tailed mole *Eurosaptor subanura*, the Etruscan shrew *Suncus etruscus* and the Taiwanese gray shrew *Crocidura tanakae* from Vietnam are reported.

Key words: distribution, Erinaceomorpha, Soricomorpha, Vietnam

НАСЕКОМОЯДНЫЕ МЛЕКОПИТАЮЩИЕ (MAMMALIA: EULIPOTYPHILA) НАЦИОНАЛЬНОГО ПАРКА БАВИ, СЕВЕРНЫЙ ВЬЕТНАМ

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РЕЗЮМЕ

Представлен обзор фауны насекомоядных млекопитающих национального парка Бави, северный Вьетнам. Отмечено пять видов Eulipotyphla, встречающихся в различных типах горных широколиственных и смешанных лесов и в антропогенных местообитаниях в диапазоне высот от 50 до 1000 м н.у.м. Представлены данные о новых для территории Вьетнама фаунистических находках короткохвостого крота *Eurosaptor subanura*, белозубки-малютки *Suncus etruscus* и серой белозубки *Crocidura tanakae*.

Ключевые слова: распространение, Erinaceomorpha, Soricomorpha, Вьетнам

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INTRODUCTION

The Ba Vi National Park is located in northern Vietnam, c. 50 km west of Hanoi, southward of the confluence of Red and Black Rivers (Fig. 1). The park is situated on the isolated, soil-limestone Ba Vi mountain range running from north-east to south-west, with three main peaks – Vua Peak of 1296 m a.s.l., Tan Vien Peak – 1226 m, and Ngoc Hoa Peak – 1120 m. The park has rich and diverse (sub) tropical flora and fauna.

Since 1993, several biodiversity (zoological and botanical) surveys have been conducted in the Ba Vi National Park by the Joint Vietnam-Russian Tropical Research and Technological Centre (Kuznetsov 1999, 2006). A total of 45 mammal species have been found at Ba Vi (Gilmour and Nguyen Van San 1999). Kuznetsov (1999, 2006) reported on the short-tailed gymnure *Hylomys suillus*, the Himalayan mole *Euroscaptor micrura* and the Asian house shrew *Suncus murinus* from Ba Vi. A short survey of mammals in the Ba Vi National Park carried out by the Joint Vietnam-Russian Tropical Research and Technological Centre in May 2013 has resulted in a number of new faunistic records of Eulipotyphla.

The present paper is a synopsis of the insectivorous mammals recorded from the Ba Vi National Park.

MATERIAL AND METHODS

Mammalogical fieldworks in the north-eastern part of the Ba Vi National Park have been conducted by the Joint Vietnam-Russian Tropical Research and Technological Centre in August 1993, May 1994, May 1995 (see Kuznetsov 1999) and May 2013 (present data). In 1993–1995, small mammals were collected along a transect extending all the way to the summit of Tan Vien at 1200 m a.s.l. (Kuznetsov 1999), in 2013 the trapping plots were located from 50 up to 800 m. A variety of small mammal traps, including cage live traps, snap-traps, pitfall traps and mole traps, were used to collect as many species as possible. Total trapping efforts were 500 trap-nights in 1993 and 3500 trap-nights in 1994–1995 (see Kuznetsov 1999), and 1665 trap-nights in 2013.

The standard external body measurements (head and body length, tail length, hind foot length, ear length) were taken. Weight was measured in grams. Voucher specimens of each species were collected for confirmation of the record and further comparison



Fig. 1. Map of Indochina. Location of the Ba Vi National Park is marked by star. All the records of *Euroscaptor subanura* known for Vietnam (1 – Na Hang Nature Reserve, Tuyen Quang Province; 2 – Tam Dao Mountain, Tuyen Quang Province; 3 – Pu Huong Nature Reserve, Nghe An Province) and *Suncus etruscus* (4 – Huu Lien Nature Reserve, Lang Son Province; 5 – Cuc Phuong National Park, Ninh Binh Province; 6 – Bu Gia Map Nature Reserve, Binh Phuoc Province; 7 – Vinh Cuu Nature Reserve (Ma Da Forest), Dong Nai Province) are mapped.

with museum collections because a definite field identification of most species was impossible. Except for the voucher specimens, all the trapped mammals were released. Voucher specimens are deposited in the Zoological Museum of the Moscow State University (Moscow, Russia) and the Zoological Institute of the Russian Academy of Sciences (Saint Petersburg, Russia). The majority of specimens were preserved in 70% ethanol. Tissue samples for genetic studies were taken from fresh specimens and stored in 96% ethanol.

Here we follow Bannikova and Lebedev (2012) in systematics of order Eulipotyphla and recognition of three suborders, the Erinaceomorpha, Soricomorpha and Talpomorpha.

SYSTEMATICS

Suborder Erinaceomorpha Gregory, 1910

Family Erinaceidae G. Fischer, 1814

Subfamily Galericinae Pomel, 1848

Hylomys suillus Müller, 1840 – short-tailed gymnure

The species is widely distributed throughout Indochina from southern China (Yunnan) and northern Myanmar to Peninsular Malaysia, islands of Borneo, Java, Sumatra and Tioman (Hutterer 2005). It occurs in northern, central and southern Vietnam (Kuznetsov 2006; Dang Ngoc Can et al. 2008).

This species was recorded from the Ba Vi National Park for the first time in 1993 (see Kuznetsov 1999). The species is common in the park and found in most of the studied biotopes, from the elevations of 300–1000 m a.s.l. The short-tailed gymnures were most abundant at the higher elevation (900–1000 m) in the habitats with plentiful tree waste. Pregnant females were recorded at mid-May. Litter size was 4.0 (n=2).

Suborder Talpomorpha Bugge, 1974

Family Talpidae G. Fischer, 1814

Subfamily Talpinae G. Fischer, 1814

Euroscaptor subanura Kawada, Nguyen Truong Son et Dang Ngoc Can, 2012 – short-tailed mole

The short-tailed moles from the Ba Vi national Park were previously misidentified as the Himalayan

mole *Euroscaptor micrura* (Kuznetsov 1999, 2006). A morphological study of the mole specimens from Ba Vi left no doubt that they belong to *Euroscaptor subanura*, the species that was recently described from northern Vietnam (Kawada et al. 2012). *Euroscaptor subanura* has been known from the three localities only (Fig.1): the north-western, low-elevation slope of Tam Dao Mt., Tuyen Quang Province; Na Hang Nature Reserve, Tuyen Quang Province; and Pu Huong Nature Reserve, Nghe An Province (Kawada et al. 2012). Thus, the Ba Vi National Park represents the fourth known locality for *E. subanura* in Vietnam.

The species was collected at the elevations of 300–1000 m a.s.l. (Kuznetsov 1999) and was most abundant in the slightly disturbed broad-leaved tropical forest above 600 m, where numerous mole tunnels were found. In the type locality (the foothills of Tam Dao Mountain), *E. subanura* is known to occur at low elevations (250–300 m a.s.l.), whereas the higher elevations (above 1000 m) there are occupied by another species, *E. longirostris* (Kawada et al. 2012). The latter species is known to occur at high altitudes of north-western and northern Vietnam (Abramov et al. 2008; Kawada et al. 2009), but is not found south and west of the Red River.

Euroscaptor subanura can be easily distinguished by the combination of its small body size and very short tail, not much of which is visible under the fur in the dorsal view (Fig. 2). Means and extremes of measurements (in mm) from the three collected specimens are as follows: head and body length, 118.7 (116.0–123.0); tail length, 6.7 (6.0–7.0); weight, 41.0 (35.1–46.0) g. The tail is 5.6% of head

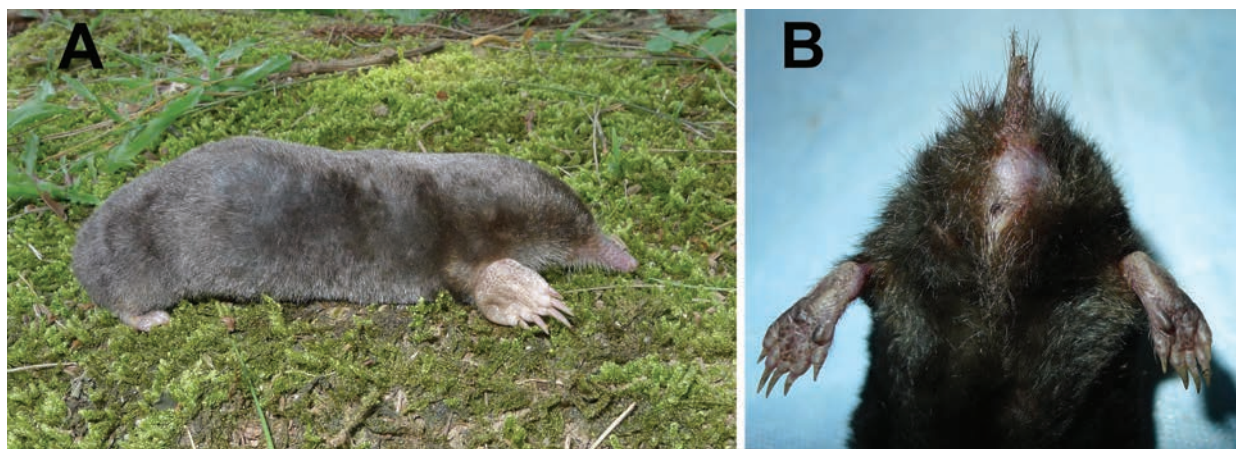


Fig. 2. *Euroscaptor subanura* from the Ba Vi National Park: A – general appearance, B – short tail is a diagnostic character of this species.

and body length, in average. Moles from the type locality (Tam Dao) differ in having shorter tails; the tail ratio is 3.2% (Kawada et al. 2009).

Suborder Soricomorpha Gregory, 1910

Family Soricidae G. Fischer, 1814

Subfamily Crocidurinae Milne-Edwards, 1872

***Crocidura tanakae* Kuroda, 1938 – Taiwanese gray shrew**

A widespread and common species known throughout Vietnam. In northern Vietnam to the north and east of Red River, the species is replaced by *C. attenuata*. Most authors (Dang Huy Huynh et al. 1994; Hutterer 2005; Kuznetsov 2006; Dang Ngoc Can et al. 2008) have suggested a wide geographic distribution for *C. attenuata* in Vietnam. However, the recent study of mitochondrial DNA (Bannikova et al. 2011) restricted the distribution of *C. attenuata* proper to the northernmost part of Vietnam. Elsewhere in the mainland of Vietnam, it is replaced by *C. tanakae*.

This species has been recorded for the Ba Vi National Park for the first time. We collected this species in few biotopes at the elevations of 320–430 m a.s.l. All specimens were captured in the lower montane evergreen forest and the lower montane mixed coniferous and broadleaf forests.

This is a medium-sized *Crocidura*, with a moderately long tail; on average, tail is 67.7% of the head and body length. Means and extremes of measurements (in mm) from 8 adults are: head and body length, 78.4 (70.0–90.0); tail length, 52.9 (48.0–57.0). Two pregnant females were recorded at mid-May; litter size was 4 and 5.

***Suncus etruscus* (Savi, 1822) – Etruscan shrew**

This is the smallest species of shrews, widely distributed across Eurasia (Hutterer 2005). However, its distribution in Vietnam is poorly studied (Fig. 1), where it has been known from two localities in the northern part: Cuc Phuong National Park, Ninh Binh Province (Feiler and Nadler 1997) and Huu Lien Nature Reserve, Lang Son Province (Lunde et al. 2007), and two localities in southern Vietnam: Vinh Cuu Nature Reserve (Ma Da Forest), Dong Nai Province (Kuznetsov 2006) and Bu Gia Map Nature Reserve, Binh Phuoc Province (Abramov et al. 2009, 2011).

The species has been found in the Ba Vi National Park for the first time. Thus, it is the fifth known locality for *Suncus etruscus* in Vietnam. Most of the Etruscan shrews were collected from the disturbed montane evergreen forest at the elevations of 320–370 m a.s.l.; yet one specimen was caught in the garden near a human settlement, at the elevation of about 80 m a.s.l.

The external measurements of our six specimens are as follows: head and body length, 46.5 (45.0–50.0); tail length, 29.3 (28.0–30.0); weight, 2.0 (1.7–2.3) g.

***Suncus murinus* (Linnaeus, 1766) – Asian house shrew**

The Asian house shrew is widespread throughout the Indomalayan Region and has been widely introduced in the Philippines, parts of Africa, coastal Arabia, islands in the Indian Ocean and many other regions (Hutterer and Tranier 1990; Hutterer 2005). It is a widespread and common synanthropic species, known throughout Vietnam and usually found near human settlements.

In the Ba Vi National Park, the species was found in human houses and household buildings and neighbouring biotopes at the elevations up to 100 m a.s.l. (Kuznetsov 1999, 2006; Dang Huy Huynh et al. 2007).

CONCLUSION

We have confirmed the present occurrence of five Eulipotyphla species in the Ba Vi National Park. Three of them (*Euroscaptor subamura*, *Suncus etruscus*, *Crocidura tanakae*) represent new faunistic records for Vietnam. Since the 1990s, there have been numerous intensive surveys of the mammal fauna of Vietnam resulting both in new distributional records and even in the description of several new species. Vietnam holds a great variety of natural habitats that support high mammal species richness. Targeted and intensive surveys of small mammals are still needed in Vietnam in order to study their faunal composition and species distribution.

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