

Catalogue of mammal type specimens deposited in the Natural History Museum Thailand

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ABSTRACT

This paper provides a comprehensive and updated catalogue of the mammalian type specimens (four holotypes and 21 paratypes) deposited in the Natural History Museum Thailand (THNHM), National Science Museum. Documenting and maintaining type collections is critical for ensuring zoological nomenclatural stability, providing an immutable reference resource for worldwide taxonomic and systematic studies, and establishing verified biodiversity databases. This catalogue covers four species belonging to three families: *Hipposideros halophyllus* Hill and Yenbutra, 1984 (Hipposideridae), *Hipposideros lekaguli* Thonglongya and Hill, 1974 (Hipposideridae), *Megaerops niphanae* Yenbutra and Felten, 1983 (Pteropodidae), and *Niviventer hinpoon* (Marshall, 1976) (Muridae), representing the complete set of mammalian type materials currently housed at THNHM. We present granular data regarding specimen labeling, reference materials, collection periods (spanning 1973 to 1978), geographic coverage (Central, Northeast, and Northern Thailand), and historical collector associations. The methodology involved meticulous examination of physical specimens, cross-referencing with original species descriptions to validate nomenclatural authenticity, and correcting typographical errors against the primary collection databases to preserve historical and scientific accuracy. Ultimately, this unified inventory serves as an essential reference archive supporting future systematic, ecological, and evolutionary research in Southeast Asian mammalogy.

Keywords: Natural History Museum Thailand, nomenclature, reference collection, type localities, type specimens

INTRODUCTION

In zoological nomenclatures, type specimens represent the ultimate anchor of taxonomy. A holotype serves as the single name-bearing type that defines the biological concept of a species, while paratypes illustrate intraspecific morphological variation within the original description series. Public natural history museums play an indispensable role in curating, documenting, and publishing detailed inventories of these immutable reference materials to maintain global nomenclatural stability and resolve taxonomic uncertainties in biodiversity research.

The Natural History Museum Thailand (THNHM), under the National Science Museum (NSM) in Pathum Thani Province, serves as a premier repository for zoological reference materials in Southeast Asia. THNHM consolidates valuable collections, including historical transfers from the Thailand Institute of Scientific and Technological Research (TISTR) and materials established by pioneering Thai taxonomists such as Kitti Thonglongya and Dr. Jarujin Nabhitabhata. Following systematic cataloguing efforts for amphibians, reptiles, and insects at THNHM (Chan-ard and Makchai, 2011; Jeenthong *et al.*, 2013), comprehensive reporting on its mammalian type holdings remains an essential step for institutional transparency and international taxonomic accessibility.

Although Thailand supports a high mammalian diversity of approximately 345 species, early historical explorations frequently resulted in type specimens being deposited in foreign institutions. Consequently, the mammalian type collection curated locally at the Natural History Museum Thailand (THNHM) comprises a relatively small number of specimens. The primary objective of this study is to provide an explicit, fully updated, and meticulous catalogue of all mammalian type materials deposited at THNHM, encompassing a total of 25 specimens (four holotypes and 21 paratypes). These specimens carry immense scientific significance as they provide unambiguous morphological and historical benchmarks that underpin regional species identification, resolve complex taxonomic uncertainties, and serve as an immutable reference archive supporting future systematic, ecological, and conservation research in Southeast Asian mammalogy.

MATERIALS AND METHODS

The scope of this study explicitly encompasses the entire mammalian type collection currently housed at the Natural History Museum Thailand (THNHM), National Science Museum, Pathum Thani, Thailand. The study material comprises a total of 25 type specimens (4 holotypes and 21 paratypes) representing four species distributed across three families and two orders: Order Chiroptera (bats): Family Hipposideridae includes *Hipposideros halophyllus* Hill and Yenbutra, 1984 (one holotype, four paratypes) and *Hipposideros lekaguli* Thonglongya and Hill, 1974 (one holotype, 13 paratypes). Family Pteropodidae includes *Megaerops niphanae* Yenbutra and Felten, 1983 (one holotype, four paratypes). Order Rodentia (rodents): Family Muridae includes *Niviventer hinpoon* (Marshall, 1976) (one holotype).

All 25 physical specimens preserved in fluid (ethanol) or prepared as dry study skins and cleaned skulls were directly and meticulously examined at THNHM. Morphological characters, physical condition, and skull structures were assessed and cross-referenced with the diagnostic characters detailed in their respective original published species descriptions (Thonglongya and Hill, 1974; Marshall, 1976; Yenbutra and Felten, 1983; Hill and Yenbutra, 1984).

To confirm nomenclatural authenticity and institutional provenance, primary registration ledgers, internal accession cards, and all original handwritten or printed physical tags attached to each specimen were thoroughly audited. High-resolution digital photographic documentation was conducted for all holotypes and representative paratypes, capturing

whole-body morphological aspects, skull features, and verbatim specimen labels to ensure scientific transparency.

Collection metadata, such as collection dates, original field numbers, collector identities, and historical locality names, were systematically cross-checked against THNHM primary databases. Historical geographic localities across Central, Northern, and Northeastern Thailand were mapped and updated to modern Thai administrative units (provinces, districts, subdistricts), while verbatim label text was preserved in brackets to maintain historical integrity. Currently accepted taxonomic status, authority citations, and potential generic reassignments were validated against international authoritative standards, primarily Handbook of the Mammals of the World (Wilson *et al.*, 2017; Wilson and Mittermeier, 2019).

RESULTS AND DISCUSSION

A total of 25 mammalian type specimens, consisting of four holotypes and 21 paratypes representing four distinct species distributed across three families (Hipposideridae, Pteropodidae, and Muridae), are preserved in the THNHM and were examined in this study (Table 1). This small but highly significant assemblage constitutes the entirety of the mammalian type material currently curated at the museum.

Table 1. Mammalian type specimens deposited in the Natural History Museum Thailand.

Species	Holotypes	Paratypes	Total
<i>Hipposideros halophyllus</i> (Hill and Yenbutra, 1984)	1	4	5
<i>Hipposideros lekaguli</i> Thonglongya and Hill, 1974	1	13	14
<i>Megaerops niphanae</i> Yenbutra and Felten, 1983	1	4	5
<i>Niviventer hinpoon</i> (Marshall, 1976)	1	-	1
Total	4	21	25

Although Thailand records a substantial mammalian diversity of approximately 345 species, the vast majority of early findings stemmed from descriptive observations by European explorers between 1689 and 1861, who consistently deposited their collected biological materials into major international institutions. In recent years, however, research has intensively focused on small mammals, with a specialized emphasis on the order Chiroptera, whose type specimens are now preserved directly within domestic Thai museums. For instance, the Princess Maha Chakri Sirindhorn Natural History Museum (PSU Museum) currently houses holotypes for eight distinct species, including *Rhinolophus francisi thailandicus* Soisook and Bates, 2015; *Murina balaensis* Soisook *et al.*, 2013; *Murina guilleni* Soisook *et al.*, 2013; *Murina hkakaboraziensis* Soisook *et al.*, 2017; *Eudiscoderma thongareeae* Soisook *et al.*, 2015; *Ia io peninsulata* Soisook *et al.*, 2017; *Rhinolophus chutamasae* Soisook and Bates, 2022; and *Hipposideros kingstonae* Wongwaiyut *et al.*, 2023. In addition to these holotypes, the museum also preserves paratypes for six species, which serve as essential reference material for taxonomic studies. These include paratypes of *Murina balaensis* Soisook *et al.*, 2013; *Murina guilleni* Soisook *et al.*, 2013; *Eudiscoderma thongareeae* Soisook *et al.*, 2015; *Hipposideros alongensis sungi* Thong *et al.*, 2012; *Kerivoula furva* (Kuo *et al.*, 2017); and *Hipposideros kingstonae* (Wongwaiyut *et al.*, 2023).

From an interpretive standpoint, these 25 specimens hold immense scientific value as name-bearing reference materials. They provide unambiguous morphological and historical

benchmarks that resolve taxonomic uncertainties within complex species groups, such as the *Hipposideros bicolor* species complex. The sole rodent species, *Niviventer hinpoon*, represents a crucial endemic taxon restricted to limestone karsts in central Thailand, underscoring the role of museum collections in documenting localized evolutionary radiations. By serving as an accessible repository, the THNHM ensures that future systematic, molecular, and comparative studies can reliably verify species identities, thereby underpinning subsequent regional conservation and biodiversity initiatives.

The preservation of these specimens within Thailand underscores the country's growing independence and excellence in the field of zoological research and biodiversity conservation.

List of species and type specimens

Mammalia

Chiroptera

Hipposideridae

Hipposideros halophyllus Hill and Yenbutra, 1984 (Figures 1–2)

Bulletin of the British Museum (Natural History) Zoology 47: 77–82 (Hill and Yenbutra, 1984).

Holotype. Adult male (THNHM-M-00011053), central Thailand, Lopburi Province, Tha Wung District, Khao Samo Khon, 20.VI.1973, B. Lekagul leg.

Four paratypes. Two adult males (THNHM-M-00011054, THNHM-M-00011055), and two adult females (THNHM-M-00011056, THNHM-M-00011055- THNHM-M-00011057), central Thailand, Lopburi Province, Tha Wung District, Khao Samo Khon, 20.VI.1973, B. Lekagul leg.

Current status. Valid as *Hipposideros halophyllus* Hill and Yenbutra, 1984 (Wilson and Mittermeier, 2019).



Figure 1. Holotype of *Hipposideros halophyllus* Hill and Yenbutra, 1984 (THNHM-M-00011053).

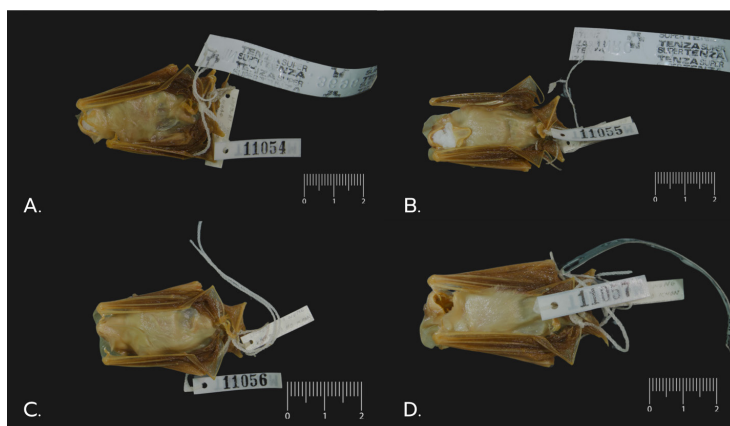


Figure 2. Paratypes of *Hipposideros halophyllus* Hill and Yenbutra, 1984. A, THNHM-M-00011054; B, THNHM-M-00011055; C, THNHM-M-00011056; D, THNHM-M-00011057.

***Hipposideros lekaguli* Thonglongya and Hill, 1974** (Figures 3–5)

Mammalia 38: 285–294 (Thonglongya and Hill, 1974).

Holotype. Adult male (THNHM-M-00006288), central Thailand, Saraburi Province, Kaeng Khoi District, Phu Nam Tok Tap Kwang, 18.XII.1973, B. Lekagul leg., original number 54-2200.

Thirteen paratypes. Five adult males (THNHM-M-00006279, THNHM-M-00006280, THNHM-M-00006283, THNHM-M-00006286, THNHM-M-00006289) and eight adult females (THNHM-M-00006281, THNHM-M-00006282, THNHM-M-00006284, THNHM-M-00006285, THNHM-M-00006287, THNHM-M-00006290, THNHM-M-00006291, THNHM-M-00006292), central Thailand, Saraburi Province, Kaeng Khoi District, Phu Nam Tok Tap Kwang, 18.XII.1973, B. Lekagul leg.

Current status. Valid as *Hipposideros lekaguli* Thonglongya and Hill, 1974 (Wilson and Mittermeier, 2019).

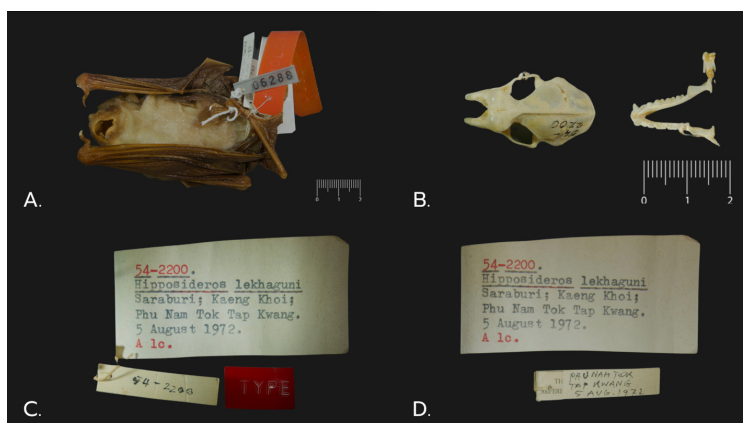


Figure 3. Holotype of *Hipposideros lekaguli* Thonglongya and Hill, 1974 (THNHM-M-00006288).

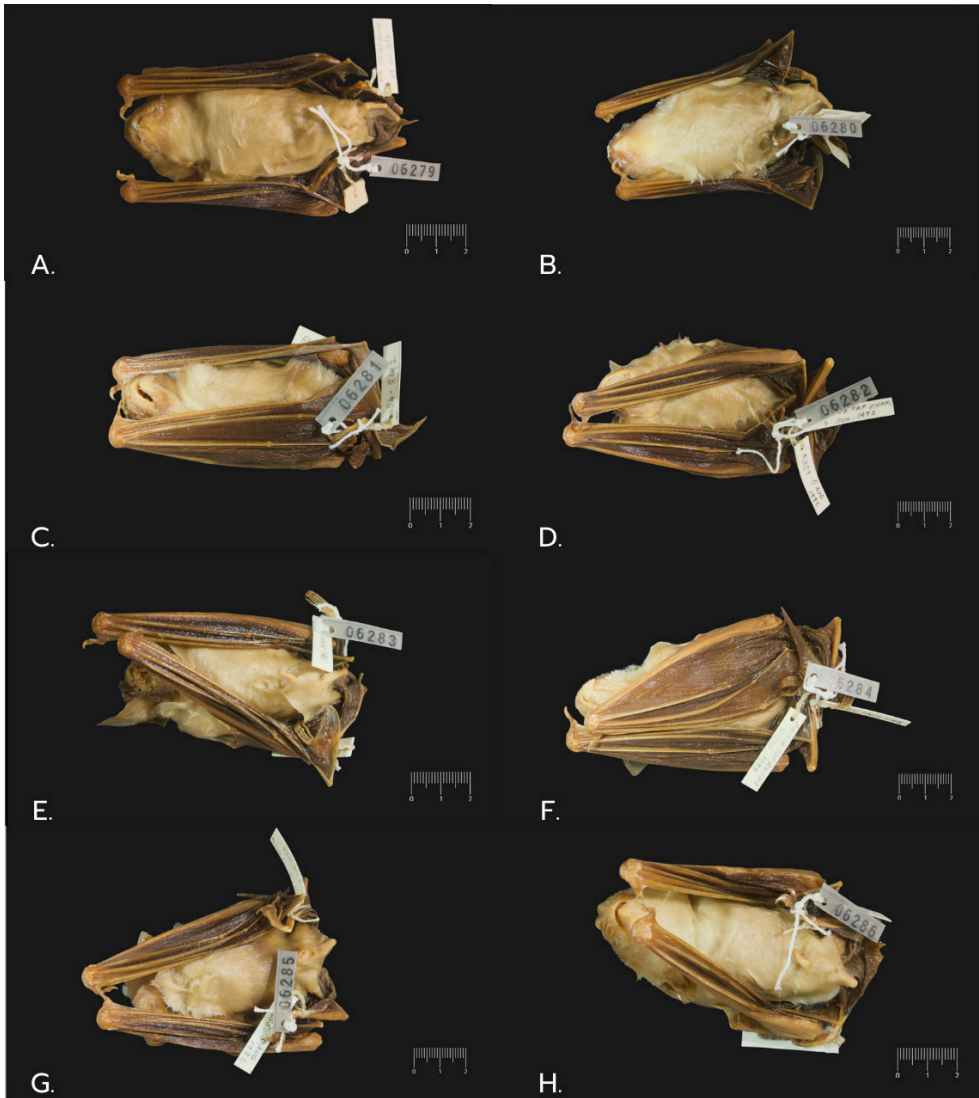


Figure 4. Paratypes of *Hipposideros lekaguli* Thonglongya and Hill, 1974. A, THNHM-M-00006279; B, THNHM-M-00006280; C, THNHM-M-00006281; D, THNHM-M-00006282; E, THNHM-M-00006283; F, THNHM-M-00006284; G, THNHM-M-00006285; and H, THNHM-M-00006286.

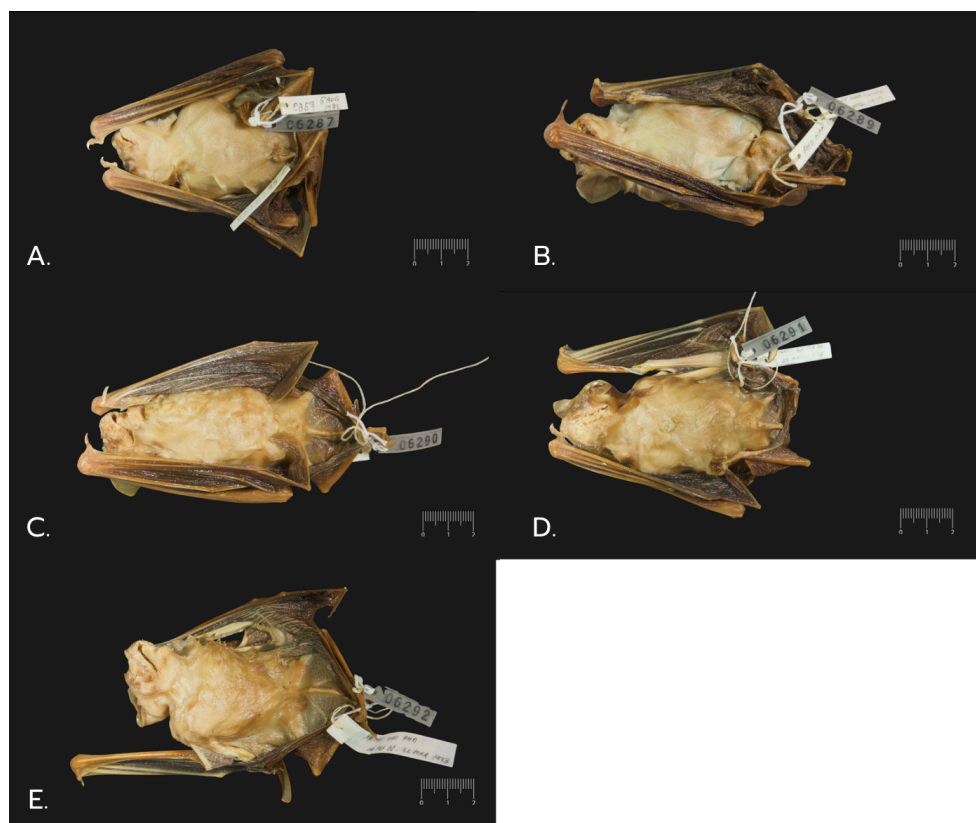


Figure 5. Paratypes of *Hipposideros lekaguli* Thonglongya and Hill, 1974. A, THNHM-M-00006287; B, THNHM-M-00006289; C, THNHM-M-00006290; D, THNHM-M-00006291; and E, THNHM-M-00006292.

PTEROPODIDAE

Megaerops niphanae Yenbutra and Felten, 1983 (Figures 6–7)

Senckenbergiana biologica 64: 1–11 (Yenbutra and Felten, 1983).

Holotype. Adult male (THNHM-M-00007536), Northeastern Thailand, Nakhon Ratchasima Province, Pak Thong Chai, Sakaerat Environmental Research, 3. VIII. 1973, Kitti Thonglongya leg.

Four paratypes. One adult male (THNHM-M-00007535) northern Thailand, Nakhon Ratchasima Province, Pak Thong Chai, Sakaerat Environmental Research, 3. VIII. 1973, Kitti Thonglongya leg.; one adult female (THNHM-M-00007537) and 2 adult males (THNHM-M-00007538 and THNHM-M-00007539), northeastern Thailand, Phetchabun Province, Nam Nao District, Lak Dan Subdistrict, Nam Nao National Park, 28.III.1978, ERD Team leg.

Current status. Valid as *Megaerops niphanae* Yenbutra and Felten, 1983. (Wilson and Mittermeier, 2019).

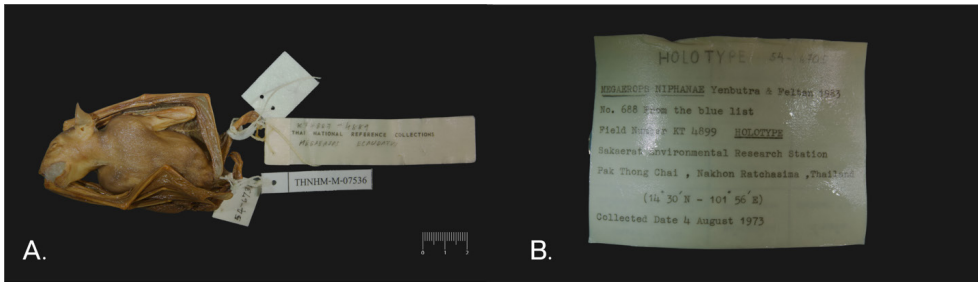


Figure 6. Holotype of *Megaerops niphanae* Yenbutra and Felten, 1983; A, THNHM-M-00007536; B, labels.

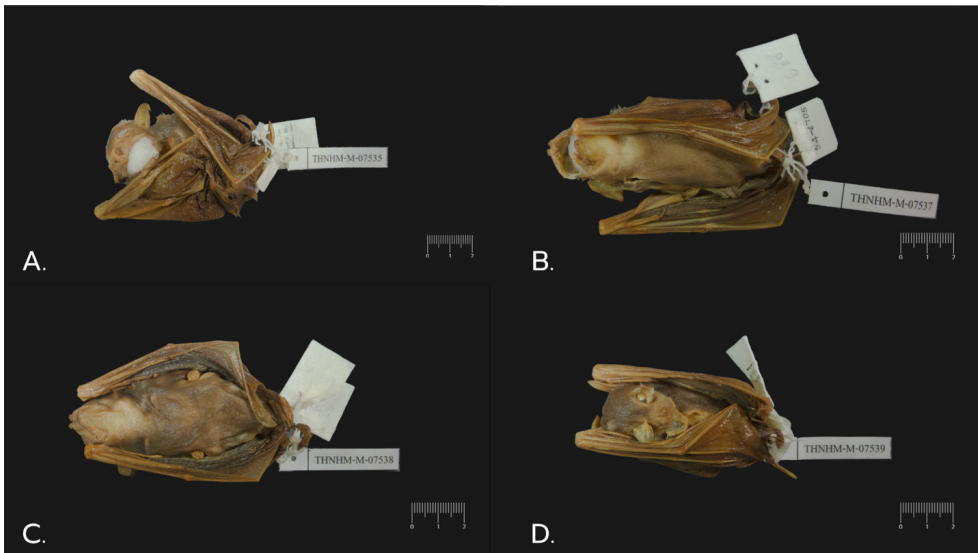


Figure 7. Paratypes of *Megaerops niphanae* Yenbutra and Felten, 1983. A, THNHM-M-00007535; B, THNHM-M-00007537; C, THNHM-M-00007538; and D, THNHM-M-00007539.

RODENTIA MURIDAE

Rattus hinpoon Marshall, 1976 (Figure 8)

Mammals of Thailand: 397–487 (Marshall, 1976).

Holotype. Adult male (THNHM-M-00008123), ex. Vandee 797), central Thailand, Saraburi province, Kaeng Koi District, 17.VII.1973, Vandee leg.

Current status. Valid as *Niviventer hinpoon* (Marshall, 1976) (Wilson *et al.*, 2017).

Taxonomic Note. This species was originally described as *Rattus hinpoon* by Marshall (1976). It was subsequently reassigned to the genus *Niviventer* based on morphological and molecular evidence (Wilson *et al.*, 2017).

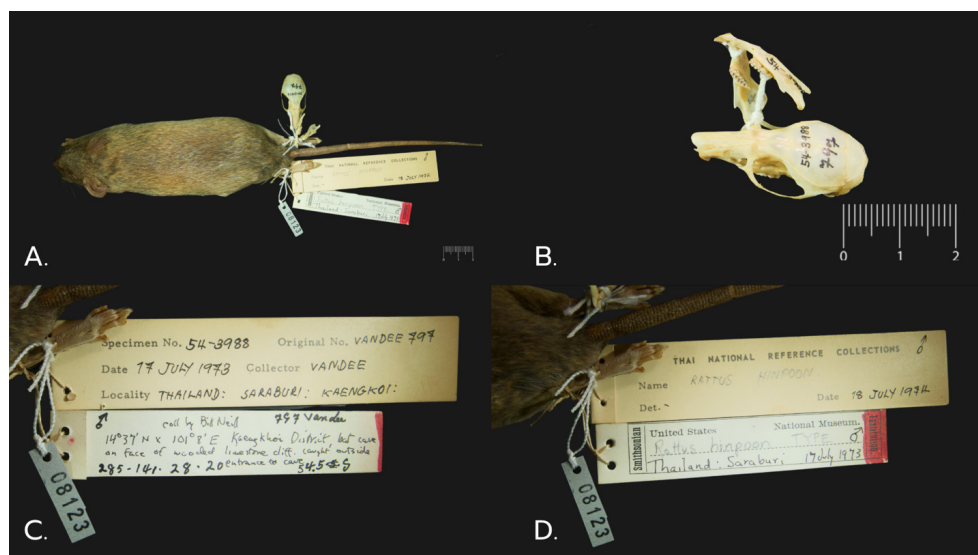


Figure 8. Holotype of *Niviventer hinpoon* (Marshall, 1976); A, THNHM-M-00008123, Dry specimen of the holotype; B, Skull Specimen; C, labels; D, labels.

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