

A NEW DISTRIBUTIONAL RECORD OF *Chaerephon johorensis* (CHIROPTERA: MOLLOSIDAE) AT BELUKAR BUKIT, HULU TERENGGANU, TERENGGANU, MALAYSIA

Azuan Roslan^{1,*}, Gertrude David¹, Muhamad-Aidil Zahidin¹, Fathihi-Hakimi Rosmidi¹, Nur Izzah Izzati Ahmad¹ & M.T. Abdullah^{1,2}

¹*Kenyir Research Institute, Universiti Malaysia Terengganu, 21030, Kuala Terengganu, Terengganu, Malaysia*

²*School of Marine and Environmental Science, Universiti Malaysia Terengganu, 21030, Kuala Terengganu, Terengganu, Malaysia*

*Corresponding author's email: azuan.roslan@gmail.com

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Globally, there are 100 species of Molossidae bats (Wilson & Reeder, 2005). Meanwhile in the Indomalayan region, there are 13 species of molossid bats (Corbet & Hill, 1992). Six molossid bats species exist in Southeast Asia in which four species, namely, *Mops mops*, *Chaerephon johorensis*, *Chaerephon plicatus* and *Cheiromeles torquatus* are found in Peninsular Malaysia (Kingston *et al.*, 2006; Francis, 2008; Jayaraj *et al.*, 2013; Abdullah, 2016). In Malaysian Borneo only three species are found namely *Mops mops*, *Tadarida plicata* and *Cheiromeles torquatus* (Payne *et al.*, 1985; Phillips & Phillips, 2016). The molossid bat can be distinguished through the presence of a free tail spreading outside the uropatagium of the bats (Francis, 2008). This family of bats are among the less studied due to the low number of population and this has been shown in the International Union for Conservation of Nature (IUCN) Red List where 30% of its population are decreasing over a ten years' time period (Csorba & Kingston, 2014).

This study present a new distributional record of *Chaerephon johorensis* in the Malaysian east-coast region during a sampling trip at Belukar Bukit, Hulu Terengganu, Terengganu (Figure 1) from the 15th to 21st of May 2015. Belukar Bukit is a waterfall recreational area and consist of secondary forest. This species was first distinguished based on the complex interaural band (Juste & Ibàñez, 1993). This marked the fifth locality record of this species after Krau Wildlife Reserve (Pahang), Johore and Mount Jerai (Kedah) in Malaysia; and Sumatra in Indonesia. *C. johorensis* is listed as vulnerable in the IUCN Red List of Threatened Species (Csorba & Kingston, 2014).

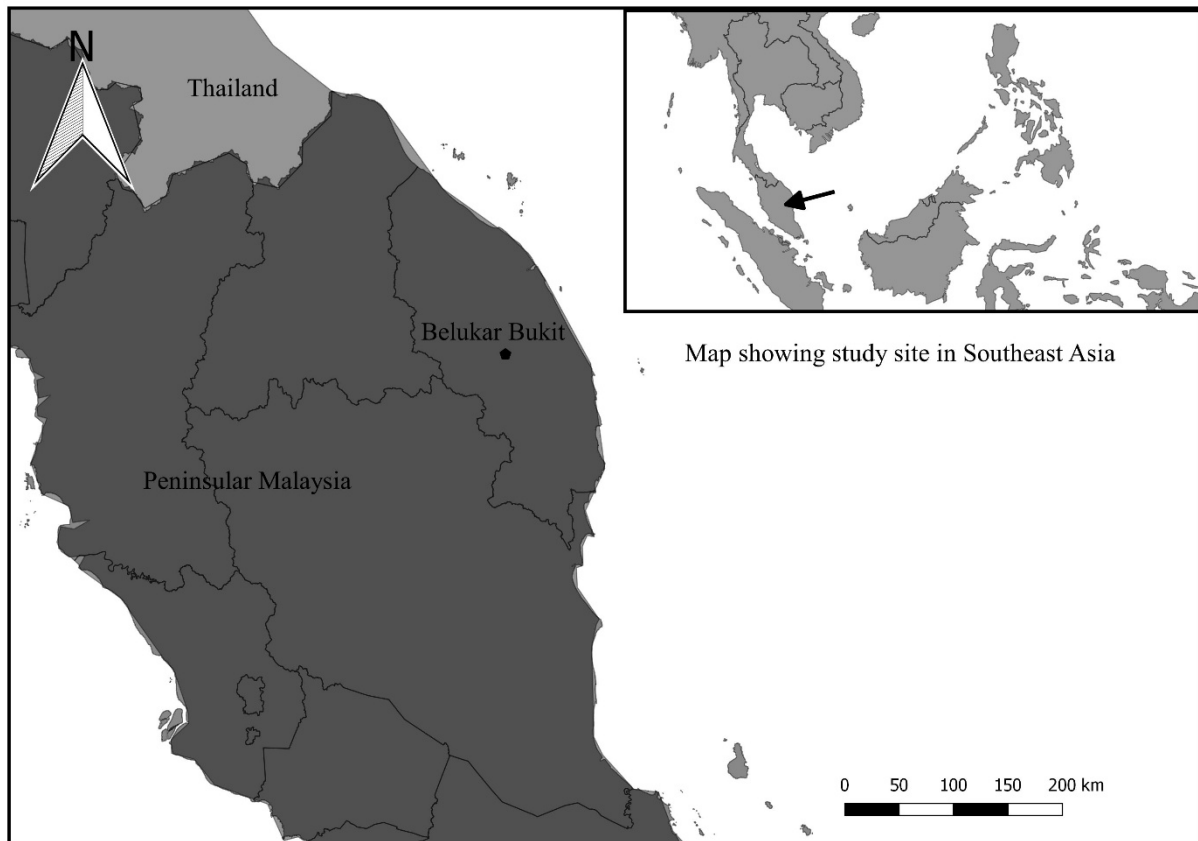


Figure 1 Map showing study site in Peninsular Malaysia and Southeast Asia.

Field sampling of six trapping nights was conducted by using ten mist nets and two harp traps that were placed in three different strata level (from the forest floor); understory at the range height of 5 m from the forest floor, sub canopy at the range height of 5-15 m, and the canopy level at the range height of 15-30 m from the forest floor. All of the harp traps and five mist nets were deployed at the understory level whereas another three mist nets were placed at sub-canopy level and another two at canopy level. The bats external morphological measurements such as forearm length (FA), ear length (E), tibia length (TB), hindfoot length (HF), tail length (T), head and body length (HB) were taken by using digital calliper (Abdullah, 2003) and weight (Wt) by Pesola spring balance (Pesola AG, Sweden). The selected specimens were euthanized and preserved 70% ethanol. The preserved specimens were then deposited at the Museum of Zoological Kenyir (MZK). Species identification followed the keys from Francis (2008).

A female *C. johorensis* (Field No: BBK15 050) was mist-netted from canopy mist net at the height of 20.65 m from the forest floor (Figure 2 and 3). We also managed to record another ten species of bats; *Balionycteris maculata*, *Cynopterus brachyotis*, *Cynopterus horsfieldi*, *Eonycteris spelaea*, *Macroglossus sobrinus*, *Megaerops ecaudatus*, *Megaderma spasma*, *Penthetor lucasi*, *Rhinolopus affinis* and *Rhinolophus lepidus*. The measurements ranges of *C. johorensis* based from Francis (2008) are FA: 44-49, T: 36-43 and Wt: 15-25 g. The external measurements of *C. johorensis* in this study are FA: 45.36, E: 11.36, TB: 16.65, HF: 10.51, T: 34.02, HB: 64.35 and Wt: 20.6 g.



Figure 2 *Chaerephon johorensis* captured in Belukar Bukit, Hulu Terengganu, Terengganu.



Figure 3 Pouched at the back of *Chaerephon johorensis*.

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REFERENCES

- Abdullah, M.T. (2003). Biogeography and variation of *Cynopterus brachyotis* in Southeast Asia. PhD thesis. The University of Queensland, St. Lucia, Australia.
- Abdullah, M.T. (2016). *Evolusi dan Biogeografi Mammalia* Malaysia. *Siri Syarahan Inaugural UMT: 21 (2016)*. Kuala Terengganu: Penerbit UMT, Universiti Malaysia Terengganu.
- Corbet, G.B. & Hill, J.E. (1992). The mammals of Indomalayan region. Oxford: Oxford University Press.
- Csorba, G. & Kingston, T. (2014). *Chaerephon johorensis*. The IUCN Red List of Threatened Species 2014. Available from <http://www.iucnredlist.org/details/4313/0> (Version on 29 November 2015).
- Francis, C.M. (2008) A field guide to the mammals of South-East Asia: Thailand, Peninsular Malaysia, Singapore, Myanmar, Laos, Vietnam and Cambodia. London: New Holland Publishers Ltd.
- Jayaraj, V.K., Azhar, M.I. & Daud, S.H.M. (2013). A new record of *Chaerephon johorensis* at Mount Jerai Kedah, Malaysia. *Malayan Nature Journal*, **65**: 233-235.
- Juste, J. & Ibàñez, C. (1993). A new Tadarida of the subgenus *Chaerephon* (Chiroptera: Molossidae) from Sao Tomé Island, Gulf Of Guinea (West Africa). *Journal of Mammalogy*. **74**(4): 901-907.
- Kingston, T., Lim, B.L. & Akbar, Z. (2006). Bats of Krau Wildlife Reserve. Bangi: Penerbit Universiti Kebangsaan Malaysia.
- Payne, J., Francis, C. M. & Phillips, K. (1985). A field guide to the mammals of Borneo. Kota Kinabalu: The Sabah Society.
- Phillips, Q. & Phillips, K. (2016). Phillips's field guide to the mammals of Borneo and their ecology. Kota Kinabalu: Natural History Publication.
- Wilson, D.E. & Reeder, D.M. (2005). Mammal species of the world: a taxonomic and geographic reference. Baltimore: The John Hopkins University Press.