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# A Field Survey of Bats on Koh Tao Island in the Gulf of Thailand

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Accounts of bat species in Thailand have increased dramatically in the past decade. Of particular interest are reports by Kock (1999), Prajakjit and Thongaree (2003), Campbell *et al.* (2004) Bumrungsri *et al.* (2006), Campbell *et al.* (2006), Thong *et al.* (2006), Bates *et al.* (2007), Duengkae (2007), Soisook *et al.* (2007) and Francis (2008). Additional records of distributions were reported by Yokubol (2000) and Abdullah *et al.* (2007). As the frequency and number of field surveys increase, there are likely to be more discoveries. This report presents the results of a bat survey conducted on a small (ca. 21 km$^2$) remote (ca. 70 km from the mainland) island in the Gulf of Thailand (Figure 1).

The present study was conducted from the 26$^{th}$ to the 29$^{th}$ of July 2008 on Koh Tao Island (Koh Pha-ngan District, Surat Thani Province). The island is situated at approximately 10° 05′N, 99o 50′ E. Standard ground-level bat mist nets and harp traps were used following the technique of Jones *et al.* (1996), with the addition of traditional netting by local people. Geographical co-ordinates were obtained by using a Garmin GPSMAP 60CSx. The bats were identified according to Lekagul and McNeely (1977), Corbet and Hill (1992), Bates and Harrison (1997), Duengkae (2007) and Francis (2008). Five measurements of external morphological characters were made: head and body length (HB), tail length (T), forearm length (FA), hind foot length (HF) and ear length (E). After measuring, all the bats were released except for eight specimens. One individual each of *Pteropus hypomelanus, Rhinolophus affinis* and *R. lepidus*, and five *Cynopterus sphinx* were collected and preserved in 75% alcohol. These specimens were deposited at the Department of Forest Biology, Faculty of Forestry, Kasetsart University (Bangkok, Thailand.

A total of 30 bats were captured on a total of four trap nights. Six *Pteropus hypomelanus* (Pteropodidae) were a captured by local people in mixed fruit orchards (coconut, mango and banana). Fourteen *Cynopterus sphinx* (Pteropodidae) were captured with mist nets set at the edge of dry evergreen forest. Eight *Rhinolophus affinis* and two *R. lepidus*) (Rhinolophidae) were captured with harp traps set in mixed fruit orchards.

Prior to this work, *Pteropus hypomelanus, Cynopterus sphinx, Eonycteris spelaea* and *Macroglossus minimus* had been reported from Koh Samui and surrounding islands in the gulf of Thailand: (Mashall and Nongngork, 1970; Lekagul and McNeely, 1977; Corbet and Hill, 1992; Jones and Kunz, 2000; Francis, 2008). On Koh Tao Island, *P. hypomelanus* had been documented by Nabhitabhata and Chan-ard (2005). The remaining species, *C. sphinx*, *Rhinolophus affinis* and *R. lepidus*), are common and widely distributed (Lekagul and McNeely,

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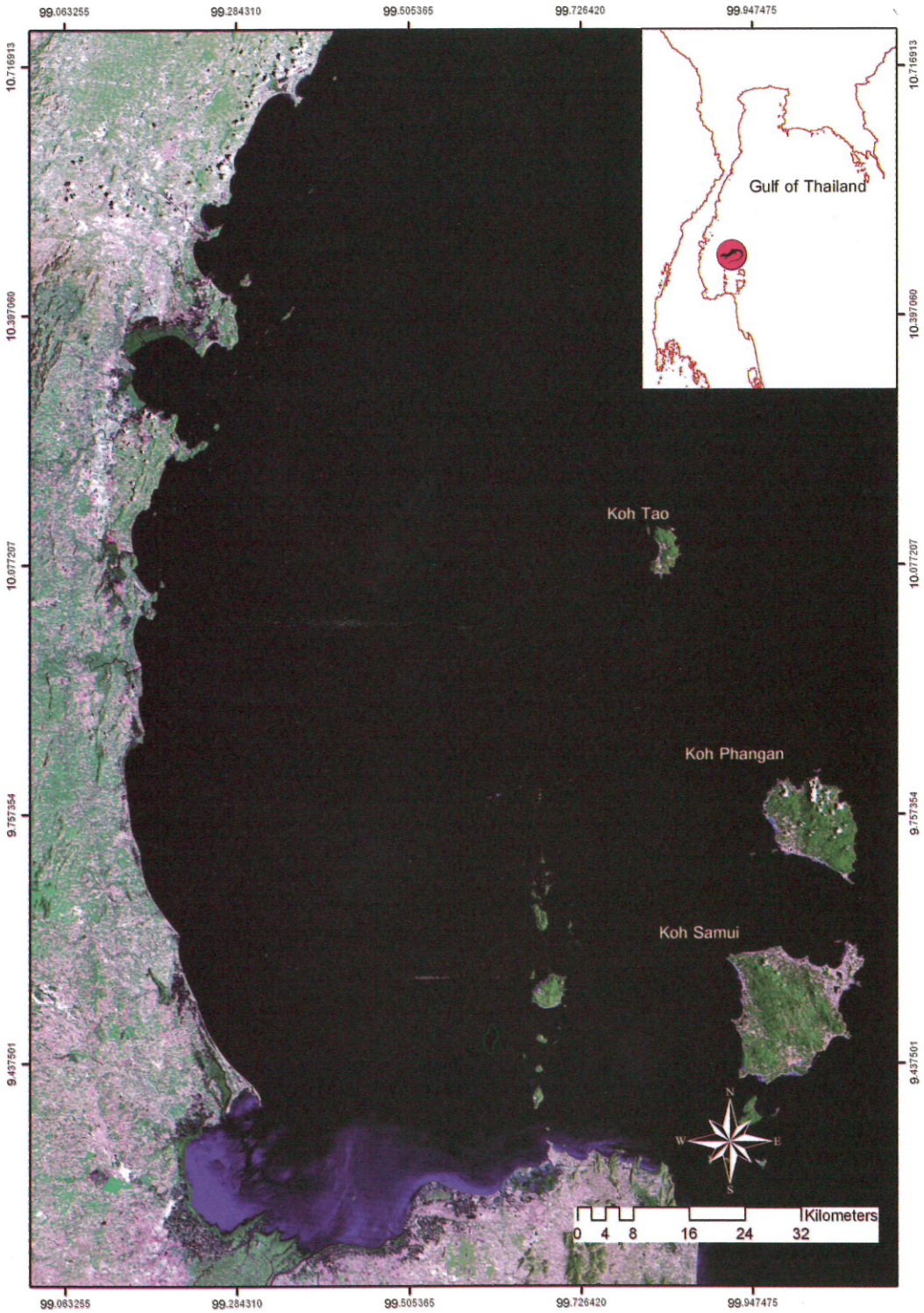


**Figure 1.** Map of Koh Tao and adjacent islands.

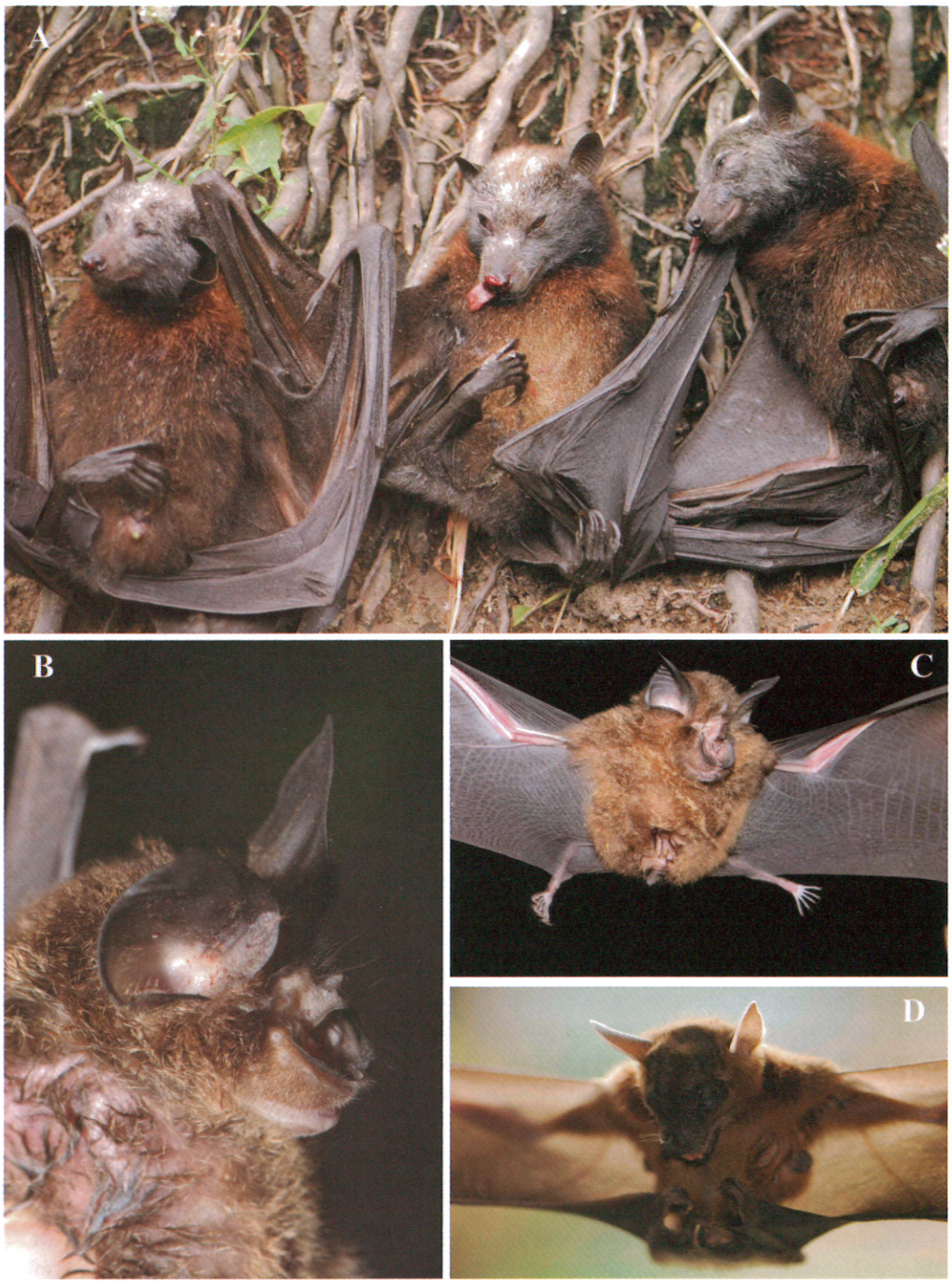


**Figure 2.** Life photographs of bats from Koh Tao Island: A, *Pteropus hypomelanus*; B, *Rhinolophus lepidus*; C, *Rhinolophus affinis*; D, *Cynopterus sphinx*. Photography by Dome Pratumtong.

**Table 1.** Five external measurements (in mm) of four species (*Pteropus hypomelanus*, *Cynopterus sphinx*, *Rhinolophus affinis* and *R. lepidus*) from Koh Tao Island. Definitions of abbreviations are provided in the text.

| Species | Location | | Sex | HB | T | HF | FA | E |
|---|---|---|---|---|---|---|---|---|
| | N | E | | | | | | |
| **Family Pteropodidae** | | | | | | | | |
| *Pteropus hypomelanus* | 10° 06′ 24″ | 99° 50′ 20″ | male | 196.6 | 0 | 39.4 | 129.2 | 27.2 |
| | 10° 06′ 24″ | 99° 50′ 20″ | male | 200.9 | 0 | 38.8 | 130 | 28.8 |
| | 10° 06′ 24″ | 99° 50′ 20″ | male | 194.2 | 0 | 37.7 | 129.2 | 26.5 |
| *Cynopterus sphinx* | 10° 06′ 14″ | 99° 50′ 29″ | male | 90.5 | 14.5 | 16.3 | 71.6 | 16.4 |
| | 10° 06′ 14″ | 99° 50′ 29″ | male | 85 | 16.2 | 15.5 | 70.2 | 18.6 |
| | 10° 06′ 14″ | 99° 50′ 29″ | male | 82.1 | 19.6 | 14.9 | 70.2 | 18.6 |
| **Family Rhinolophidae** | | | | | | | | |
| *Rhinolophus affinis* | 10° 06′ 24″ | 99° 50′ 20″ | male | 55.1 | 21.6 | 11 | 48.7 | 15.4 |
| *Rhinolophus lepidus* | 10° 06′ 24″ | 99° 50′ 20″ | male | 39.4 | 16.7 | 7.3 | 38.4 | 12.9 |

1977; Corbet and Hill, 1992; Storz and Kunz, 1999; Francis, 2008) but they had not been previously documented on Koh Tao. The present study represents the first record for this Island. Although geographic distribution has been given significant attention, the present study suggests that a long-term survey is still necessary to establish the present range and poplations of these species.

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