

Herpetofauna of Gunung Pantı Forest Reserve, Johor, Peninsular Malaysia

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Abstrak: Tinjauan herpetofauna telah dijalankan di Hutan Simpan Gunung Pantı, Johor dari 3-7 August 2006, 2-5 Jun 2008, dan 28-31 Julai 2008. Satu senarai species yang telah dikemaskinikan dan mengandungi hasil kajian-kajian lepas telah disediakan. Sejumlah 37 spesies katak, satu kura-kura, 27 cicak/biawak dan 11 ular dilaporkan dari Hutan Simpan Gunung Pantı, Johor.

Kata kunci: Inventori, senarai species, Hutan Simpan Gunung Pantı

Abstract: A survey was carried out at Gunung Pantı Forest Reserve, Johor from 3-7 August 2006, 2-5 June 2008, and 28-31 July 2008 to inventory the herpetofauna therein. An updated checklist for the area which incorporates findings from previous studies is provided. In total, 37 species of frogs, one turtle, 27 lizards, and 11 snakes have been recorded from Gunung Pantı Forest Reserve, Johor.

Keywords: Inventory, checklist, Gunung Pantı Forest Reserve

INTRODUCTION

Gunung Pantı Forest Reserve (GPFR) encompasses a significant area (13,410 ha) in the southern part of central Johor, Peninsular Malaysia, and is situated 16 km from the town of Kota Tinggi (Fig. 1). The three highest peaks in this reserve are Gunung Pantı (481 m) and Gunung Pantı Barat (513 m) in the central part of the reserve and Gunung Muntahak (634 m) in the northwestern region. Its vegetation consists predominantly of lowland dipterocarp forests amidst an extensive peat swamp forest associated with the confluence of the rivers Sungai Sedili Besar and Sungai Dohol and their smaller tributaries (Grismer *et al.* 2008). Upper hill dipterocarp forests can be found near the peaks of Gunung Pantı and Gunung Muntahak. Most of GPFR was logged in the early 1970's and vestiges of primary forests are restricted to the foothills of the mountains therein.

Southern Peninsular Malaysia has been the focal point of various herpetological surveys (Grismer & Pan 2008), beginning with a survey of the Seribuat Archipelago which flanks the southern states of Pahang and Johor (Hien *et al.* 2001; Lim & Lim 1999; Grismer *et al.* 2006), Endau-Rompın National Park, Johor (Daicus & Hashim 2004; Kiew 1984; Wood *et al.* 2008) and of the Water Islands Archipelago off the coast of Melaka (Chan *et al.* 2009). These surveys have been extremely successful, documenting at least 14 species previously unknown to science, more than 200 new locality records, and the re-discovery of a rare species (Grismer *et al.* 2006; Grismer *et al.* 2007; Wood *et al.* 2008 and references therein). Collectively, these surveys have increased the overall recorded biodiversity of southern Peninsular Malaysia by more than 40% since

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the earlier contributions by Lim & Lim (1999) and Hien *et al.* (2001) for the Seribu Archipelago and Daicus & Hashim (2004) for Endau-Rompin National Park, Johor. Such dramatic trends can be expected to continue as the extensive, yet under-studied, forests of GPFR are explored. This checklist compiles findings from various expeditions conducted from the years 2006-2008 as well as reports from other naturalists.

MATERIALS AND METHODS

Surveys were conducted from 3-7 August 2006, 2-5 June 2008, and 28-31 July 2008 during expeditions organised by Universiti Kebangsaan Malaysia. Areas surveyed include Kota Tinggi Waterfall, Gunung Pantu Recreational Forest, Bunker Trail, Sungai Padang, Sg. Pelepah Kiri and Sg. Terap (Fig. 1). Specimens were captured by hand or with blowpipes. Liver tissues were taken and stored in 90% ethanol. Specimens were fixed in 10% formalin and later transferred to 70% ethanol for storage. Photographs or voucher specimens are provided for each species unless stated otherwise. Accounts without vouchers are considered unconfirmed. Voucher photographs are deposited in the La Sierra University Digital Photograph Collection (LSUDPC) and Universiti Kebangsaan Malaysia Digital Photograph Collection (UKMDPC). All specimens have been deposited in the La Sierra University Herpetological Collection (LSUHC) at La Sierra University, Riverside, California and the Universiti Kebangsaan Malaysia Herpetological Collection (HC) at Universiti Kebangsaan Malaysia, Bangi, Peninsular Malaysia. Amphibian taxonomy follows the Amphibian Species of the World 5.3 by Frost (2009) (<http://research.amnh.org/herpetology/amphibia/>), last accessed on 5 June 2009; *Hemidactylus* taxonomy follows Carranza and Arnold (2006). Abbreviations used are: Sg. – Sungai or river; LSUHC – La Sierra University Herpetological Collection; LSUDPC – La Sierra University Digital Photograph Collection; UKMHC – Universiti Kebangsaan Malaysia Herpetological Collection.

RESULTS

AMPHIBIA

Family Bufonidae

Duttaphrynus melanostictus: 6 August 2006, Sg. Pelepah Kiri, UKMHC 628; 3 June 2008, Gunung Pantu Recreational Forest, specimens not collected.

Ingerophrynus parvus: 6 August 2006, Sg. Pelepah Kiri, UKMHC 631; 2 June 2008, Bunker Trail, LSUHC 8893; 3 June 2008, Gunung Pantu Recreational Forest, specimens not collected.

Ingerophrynus quadriporcatus: 4 June 2008, Bunker Trail, LSUHC 8928.

Phrynowidia aspera: 4 August 2006, Sg. Padang, UKMHC 606.

Family Dicroglossidae

Fejervarya limnocharis: 6 August 2006, Sg. Pelepah Kiri, UKMHC 621,623,629; 2 June 2008, Bunker Trail, observed but not collected.

Limnonectes blythii: 3 August 2006, Gunung Panti Recreational Forest, UKMHC 578-580; 4 August 2006, Sg. Padang, UKMHC 584, 586, 590; 5 August 2006, Sg. Terap, UKMHC 619; 6 August 2006, Sg. Pelepah Kiri, UKMHC 633.

Limnonectes malesianus: 3 August 2006, Gunung Panti Recreational Forest, UKMHC 596; 6 August 2006, Sg. Pelepah Kiri, UKMHC 640.

Limnonectes paramacrodon: 3 August 2006, Gunung Panti Recreational Forest, UKMHC 581.

Occidozyga laevis: 3 August 2006, Gunung Panti Recreational Forest, UKMHC 574, 582.

Occidozyga martensii: 3 June 2008, Gunung Panti Recreational Forest, LSUDPC 4667.

Family Megophryidae

Leptobrachium hendricksoni: 5 August 2006, Sg. Terap, UKMHC 613, 614; 2 June 2008, Bunker Trail, LSUHC 8899.

Leptobrachium nigrops: 5 August 2006, Sg. Terap, UKMHC 615,617; 3 June 2008, Gunung Panti Recreational Forest, LSUHC 8911.

Family Microhylidae

Kalophrynus palmatissimus: 4 August 2006, Sg. Padang, UKMHC 608

Kalophrynus pleurostigma: 4 June 2008, Bunker Trail, LSUHC 8915–16.

Kaloula pulchra: 3 June 2008, Bunker Trail, observed but not collected.

Microhyla heymonsi: 4 August 2006, Sg. Padang, UKMHC 604; 2 June 2008, Bunker Trail, heard but not collected.

Microhyla mantheyi: 4 June 2008, Bunker Trail, LSUHC 8920.

Micryletta inornata: 4 June 2008, Bunker Trail, LSUHC 8921.

Family Ranidae

Hylarana baramica: 5 August 2006, Sg. Terap, UKMHC 612

Hylarana erythraea: 3 August 2006, Gunung Panti Recreational Forest, UKMHC 360, 575; 6 August 2006, Sg. Pelepah Kiri, UKMHC 639

Hylarana glandulosa: 4 August 2006, Sg. Padang, UKMHC 595, 597

Hylarana laterimaculata: 2 June 2008, Bunker Trail, LSUDPC 4666.

Hylarana nicobariensis: 2 June 2008, Bunker Trail, LSUHC 8898.

Hylarana picturata: 4 August 2006, Sg. Padang, UKMHC 591-594; 5 August 2006, Sg. Terap, UKMHC 635; 6 August 2006, Sg. Pelepah Kiri, UKMHC 630.

Rana labialis: 3 August 2006, Gunung Panti Recreational Forest, UKMHC 361, 362; 4 August 2006, Sg. Padang, UKMHC 587; 5 August 2006, Sg. Terap, UKMHC 611, 618

Odorrana hosii: 6 August 2006, Sg. Pelepah Kiri, UKMHC 625-627.

Family Rhacophoridae

Nyctixalus pictus: 4 June 2008, Bunker Trail LSUHC 8917–18.

Polypedates colletti: 4 August 2006, Sg. Padang, UKMDPC 1.0078

Polypedates leucomystax: 4 August 2006, Sg. Padang, UKMHC 585

Polypedates macrotis: 4 August 2006, Sg. Padang, UKMHC 607

Rhacophorus cyanopunctatus: 2 June 2008, Bunker Trail, LSUHC 8895–97.

Rhacophorus nigropalmatus: 4 June 2008, Bunker Trail, two males were heard calling from trees 2.5 m above ground. No specimens were captured and this record remains unconfirmed.

Theلودerma licin: 2 June 2008, Bunker Trail, LSUHC 8892, 8919.

REPTILIA

Family Agamidae

Acanthosaura armata: 6 August 2006, Sg. Pelepah Kiri, UKMHC 637

Calotes versicolor: 3 June 2008, Gunung Panti Recreational Forest. Observed but not collected.

Draco formosus: 4 June 2006, Kota Tinggi Waterfall, LSUHC 8908–09.

Draco melanopogon: 6 August 2006, Sg. Pelepah Kiri, UKMHC 636.

Gonocephalus grandis: 4 August 2006, Sg. Padang, UKMHC 599, 600.

Family Bataguridae

Cyclemys dentata: 6 August 2006, Sg. Pelepah Kiri, UKMHC 641.

Family Gekkonidae

Cnemaspis kendallii: 4 August 2006, Sg. Padang, UKMHC 598,609

Cyrtodactylus consobrinus: 2 June 2008, Bunker Trail, LSUHC 8902–03, 8923–25.

Cyrtodactylus pantiensis: 2 June 2008, Bunker Trail, ZRC 2.6743–49.

Cyrtodactylus semenanjungensis: 2 June 2008, Bunker Trail, LSUHC 8900–01, 8926–27, 8930.

Gehyra mutilata: 3 June 2008, Gunung Panti Recreational Forest, LSUHC 8912.

Gekko monarchus: 3 June 2008, Gunung Panti Recreational Forest, LSUHC 8914.

Gekko smithii: 3 June 2008, Gunung Panti Recreational Forest, observed but not collected.

Hemidactylus craspedotus: 3 June 2008, Gunung Panti Recreational Forest, observed but not collected.

Hemidactylus frenatus: 3 June 2008, Gunung Panti Recreational Forest, observed but not collected.

Hemidactylus platyurus: 3 June 2008, Gunung Panti Recreational Forest, observed but not collected.

Family Scincidae

Dasia olivacea: 3 June 2008, Gunung Panti Recreational Forest, observed on tree trunk 2 m above ground during the day.

Eutropis multifasciata: 2 June 2008, Bunker Trail, observed but not collected.

Eutropis rugifera: 4 June 2008, Bunker Trail, LSUHC 8929.

Lipinia vittigera: An individual was observed on a tree trunk 4 m above ground during the day near Kota Tinggi Waterfall.

Lygosoma bowringii: 3 August 2006, Gunung Panti Recreational Forest, UKMHC 626.

Family Colubridae

Ahaetulla mycterizans: 3 June 2008, Bunker Trail, LSUHC 8913.

Coelognathus flavolineatus: 2 June 2008, Bunker Trail, LSUHC 8891.

Family Viperidae

Parias hageni: 3 August 2006, Gunung Pantı Recreational Forest, UKMHC 610

DISCUSSION

This is the first report on the herpetofauna of the Gunung Pantı Forest Reserve. It documents 37 species of frogs, one turtle, 27 lizards, and 11 snakes. We have taken into account a report on the larger vertebrates of GPFR (Yong, 2006), which included a number of reptiles, and a report by Leong (2004) on the tadpoles of some poorly known frogs from Peninsular Malaysia (see Table 1). The current study also resulted in the discovery of a new species of gekkonid lizard *Cyrtodactylus pantiensis* (Grismer et al. 2008) which is endemic to southern Peninsular Malaysia (SPM). This is particularly noteworthy as SPM now harbours 23 endemic species, 17 of them belonging to the offshore islands of the Seribuat Archipelago. On continental SPM, *Ansonia endauensis*, *Ingerophrynus gollum*, *Cyrtodactylus pantiensis*, *C. semenanjungensis* and *C. sworderi* are endemic to the state of Johor whereas *C. batucolus* is only known from the Water Islands Archipelago off the coast of Melaka. Such results once again highlight SPM as a biodiversity hotspot, as previously stated by Grismer & Pan (2008).

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Table 1. Amphibians and reptiles of Gunung Pantí Forest Reserve. Data source: 1= This study; 2=Yong (2006); 3= Leong (2004)

| Taxa | Status | | |
|---|-----------|-------------|-------------|
| | Confirmed | Unconfirmed | Data Source |
| AMPHIBIA | | | |
| Bufonidae | | | |
| <i>Duttaphrynus melanostictus</i> (Schneider 1799) | X | | 1 |
| <i>Ingerophrynus parvus</i> (Boulenger 1887) | X | | 1 |
| <i>Ingerophrynus quadriporcatus</i> (Boulenger 1887) | X | | 1 |
| <i>Phrynoidis aspera</i> (Gravenhorst 1829) | X | | 1 |
| Dicroglossidae | | | |
| <i>Fejervarya limnocharis</i> (Gravenhorst 1829) | X | | 1 |
| <i>Limnonectes blythii</i> (Boulenger 1920) | X | | 1 |
| <i>Limnonectes malesianus</i> (Kiew 1984) | X | | 1 |
| <i>Limnonectes paramacrodon</i> (Inger 1966) | X | | 1 |
| <i>Occidozyga laevis</i> (Peters 1877) | X | | 1 |
| <i>Occidozyga martensii</i> (Peters 1867) | X | | 1 |
| Megophryidae | | | |
| <i>Leptobrachium hendricksoni</i> Taylor 1962 | X | | 1 |
| <i>Leptobrachium nigrops</i> Berry & Hendrickson 1963 | X | | 1 |

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Table 1. (continued)

| Taxa | Status | | |
|--|-----------|-------------|-------------|
| | Confirmed | Unconfirmed | Data Source |
| Microhylidae | | | |
| <i>Kalophrynus palmatissimus</i> Kiew 1984 | X | | 1 |
| <i>Kalophrynus pleurostigma</i> Tschudi 1838 | X | | 1 |
| <i>Kaloula baleata</i> (Müller 1836) | X | | 3 |
| <i>Kaloula pulchra</i> Gray 1831 | X | | 1 |
| <i>Microhyla heymonsi</i> Vogt 1911 | X | | 1 |
| <i>Microhyla mantheyi</i> Parker 1928 | X | | 1,3 |
| <i>Microhyla palmipes</i> Boulenger 1897 | X | | 3 |
| <i>Micryletta inornata</i> (Boulenger 1890) | X | | 1 |
| Ranidae | | | |
| <i>Hylarana baramica</i> (Boettger 1901) | X | | 1 |
| <i>Hylarana erythraea</i> (Schlegel 1837) | X | | 1 |
| <i>Hylarana glandulosa</i> (Boulenger 1882) | X | | 1 |
| <i>Hylarana laterimaculata</i> (Barbour & Noble 1916) | X | | 1 |
| <i>Hylarana nicobariensis</i> (Stoliczka 1870) | X | | 1 |
| <i>Hylarana picturata</i> (Boulenger 1920) | X | | 1 |
| <i>Odorrana hosii</i> (Boulenger 1891) | X | | 1 |
| <i>Rana labialis</i> (Peters 1871) | X | | 1 |
| Rhacophoridae | | | |
| <i>Nyctixalus pictus</i> (Peters 1871) | X | | 1 |
| <i>Polypedates colletti</i> (Boulenger 1890) | X | | 1 |
| <i>Polypedates leucomystax</i> Gravenhorst 1829 | X | | 1,3 |
| <i>Polypedates macrotis</i> (Boulenger 1891) | X | | 1,3 |
| <i>Rhacophorus appendiculatus</i> (Günther 1858) | X | | 3 |
| <i>Rhacophorus cyanopunctatus</i> Manthey & Steioff 1998 | X | | 1,3 |
| <i>Rhacophorus nigropalmatus</i> Boulenger 1895 | | X (call) | 1 |
| <i>Rhacophorus tunkui</i> Kiew 1987 | X | | 3 |
| <i>Theلودerma licin</i> McLeod & Norhayati 2007 | X | | 1 |

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Table 1. (continued)

| Taxa | Status | | |
|--|-----------|-------------|-------------|
| | Confirmed | Unconfirmed | Data Source |
| REPTILIA | | | |
| Bataguridae | | | |
| <i>Cyclernys dentata</i> (Gray 1831) | X | | 1 |
| Agamidae | | | |
| <i>Acanthosaura armata</i> (Hardwicke & Gray 1827) | X | | 1 |
| <i>Aphaniotis fusca</i> (Peters 1864) | | X | 2 |
| <i>Bronchocela cristatella</i> (Kuhl 1820) | | X | 2 |
| <i>Calotes versicolor</i> (Daudin 1802) | | X | 1 |
| <i>Draco formosus</i> Boulenger 1900 | X | | 1 |
| <i>Draco melanopogon</i> Boulenger 1887 | X | | 1,2 |
| <i>Draco quinquefasciatus</i> Hardwicke & Gray 1827 | | X | 2 |
| <i>Draco sumatranus</i> Schlegel 1844 | | X | 2 |
| <i>Gonocephalus grandis</i> (Gray 1845) | X | | 1,2 |
| Gekkonidae | | | |
| <i>Cnemaspis kendallii</i> (Gray 1845) | X | | 1 |
| <i>Cyrtodactylus consobrinus</i> (Peters 1871) | X | | 1 |
| <i>Cyrtodactylus quadrvirgatus</i> Taylor 1962 | X | | 1 |
| <i>Cyrtodactylus semenanjungensis</i> Grismer & Leong 2005 | X | | 1 |
| <i>Cyrtodactylus pantiensis</i> (Grismer et al. 2008) | X | | 1 |
| <i>Gehyra mutilata</i> (Wiegmann 1834) | X | | 1 |
| <i>Gekko monarchus</i> (Duméril & Bibron 1836) | X | | 1 |
| <i>Gekko smithii</i> (Gray 1842) | | X | 1,2 |
| <i>Hemidactylus craspedotus</i> (Mocquard 1890) | | X | 1 |
| <i>Hemidactylus frenatus</i> Duméril & Bibron 1836 | | X | 1 |
| <i>Hemidactylus platyurus</i> (Schneider 1792) | | X | 1 |

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Table 1. (continued)

| Taxa | Status | | |
|---|-----------|--------------|-------------|
| | Confirmed | Unconfirmed | Data Source |
| Scincidae | | | |
| <i>Dasia olivacea</i> Gray 1839 | | X (sighting) | 1,2 |
| <i>Eutropis multifasciata</i> (Kuhl 1820) | | X | 1,2 |
| <i>Eutropis rugifera</i> (Stoliczka 1870) | X | | 1,2 |
| <i>Lipinia vittigera</i> (Boulenger 1894) | | X (sighting) | 1 |
| <i>Lygosoma bowringii</i> (Günther 1864) | X | | 1 |
| Varanidae | | | |
| <i>Varanus nebulosus</i> (Gray 1831) | | X | 2 |
| <i>Varanus salvator</i> (Laurenti 1768) | | X | 2 |
| Colubridae | | | |
| <i>Ahaetulla mycterizans</i> (Linnaeus 1758) | X | | 1 |
| <i>Boiga dendrophila</i> (Boie 1827) | | X | 2 |
| <i>Calamaria lowi</i> Boulenger 1887 | | X | 2 |
| <i>Coelognathus flavolineatus</i> (Schlegel 1837) | X | | 1 |
| <i>Dendrelaphis formosus</i> (Boie 1827) | | X | 2 |
| <i>Macropisthodon rhodomelas</i> (Boie 1827) | | X | 2 |
| <i>Oligodon signatus</i> (Günther 1864) | | X | 2 |
| <i>Xenochrophis trianguligerus</i> (Boie 1827) | X | | 2,3 |
| Elapidae | | | |
| <i>Calliophis intestinalis</i> (Laurenti 1768) | | X | 2 |
| Pythonidae | | | |
| <i>Python reticulatus</i> (Schneider 1801) | | X | 2 |
| Viperidae | | | |
| <i>Parias hageni</i> (van Lidth de Jeude 1886) | X | | 1 |