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Herpetofauna of Gunung Panti Forest Reserve, Johor, Peninsular Malaysia

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Abstrak: Tinjauan herpetofauna telah dijalankan di Hutan Simpan Gunung Panti, Johor dari 3–7 Ogos 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, 1 kura-kura, 27 cicak/biawak, dan 11 ular dilaporkan dari Hutan Simpan Gunung Panti, Johor.

Kata kunci: Inventori, Senarai Spesies, Hutan Simpan Gunung Panti

Abstract: A survey was carried out at Gunung Panti 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, 1 turtle, 27 lizards, and 11 snakes have been recorded from Gunung Panti Forest Reserve, Johor.

Keywords: Inventory, Checklist, Gunung Panti Forest Reserve

INTRODUCTION

Gunung Panti 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 Panti (481 m) and Gunung Panti 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 Panti and

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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-Rompin National Park, Johor (Daicus & Hashim 2004; Kiew 1987; 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 the earlier contributions by Lim and Lim (1999) and Hien *et al.* (2001) for the Seribuat Archipelago and Daicus and 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.

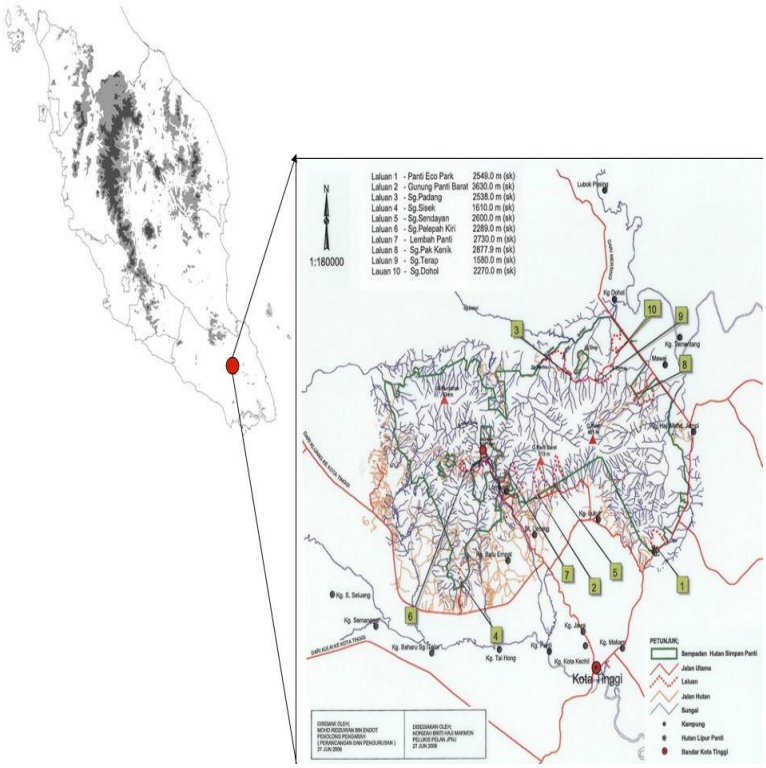

Figure 1: Location of Gunung Panti Forest Reserve, Johor.

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 Panti Recreational Forest, Bunker Trail, Sungai Padang, Sungai Pelepah Kiri and Sungai 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), Universiti Kebangsaan Malaysia Digital Photograph Collection (UKMDPC), and Zoological Reference Collection at the Raffles Museum of Biodiversity Research, National University of Singapore (ZRC). 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 (UKMHC) at Universiti Kebangsaan Malaysia, Bangi, Peninsular Malaysia. Amphibian taxonomy follows the Amphibian Species of the World 5.3 by Frost (2009), last accessed on 5 June 2009; *Hemidactylus* taxonomy follows Carranza and Arnold (2006). Abbreviations used are: Sg. (*sungai* or river), LSUHC, LSUDPC, UKMDPC, UKMHC, and ZRC.

RESULTS

AMPHIBIA

Family Bufonidae

Duttaphrynus melanostictus

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

Ingerophrynus quadriporcatus

4 June 2008, Bunker Trail, LSUHC 8928.

Phrynoidis 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, 8916.

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 8917–8918.

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 8895–8897.

Rhacophorus nigropalmatus
4 June 2008, Bunker Trail, 2 males were heard calling from trees 2.5 m above ground. No specimens were captured and this record remains unconfirmed.

Theloderma 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, 8909.

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, 8903, 8923–8925.

Cyrtodactylus pantiensis
2 June 2008, Bunker Trail, ZRC 2.6743–2.6749.

Cyrtodactylus semenanjungensis
2 June 2008, Bunker Trail, LSUHC 8900, 8901, 8926, 8927, 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 Panti Recreational Forest, UKMHC 610.

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

Taxa	Status		
	Confirmed	Unconfirmed	Data source
AMPHIBIA			
Bufonidae			
Duttaphrynus melanostictus (Schneider 1799)	X		1
Ingerophrynus parvus (Boulenger 1887)	X		1
Ingerophrynus quadriporcatus (Boulenger 1887)	X		1
Phrynoidis aspera (Gravenhorst 1829)	X		1
Dicroglossidae			
Fejervarya limnocharis (Gravenhorst 1829)	X		1
Limnonectes blythii (Boulenger 1920)	X		1
Limnonectes malesianus (Kiew 1984)	X		1
Limnonectes paramacrodon (Inger 1966)	X		1
Occidozyga laevis (Peters 1877)	X		1
Occidozyga martensii (Peters 1867)	X		1
Megophryidae			
Leptobrachium hendricksoni Taylor 1962	X		1
Leptobrachium nigrops Berry & Hendrickson 1963	X		1
Microhylidae			
Kalophrynus palmatissimus Kiew 1984	X		1
Kalophrynus pleurostigma Tschudi 1838	X		1
Kaloula baleata (Müller 1836)	X		3
Kaloula pulchra Gray 1831	X		1
Microhyla heymonsi Vogt 1911	X		1
Microhyla mantheyi Parker 1928	X		1,3
Microhyla palmipes Boulenger 1897	X		3
Micryletta inornata (Boulenger 1890)	X		1
Ranidae			
Hylarana baramica (Boettger 1901)	X		1
Hylarana erythraea (Schlegel 1837)	X		1
Hylarana glandulosa (Boulenger 1882)	X		1

(continued on next page)

Table 1: *(continued)*

Taxa	Status		
	Confirmed	Unconfirmed	Data source
Hylarana laterimaculata (Barbour & Noble 1916)	X		1
Hylarana nicobariensis (Stoliczka 1870)	X		1
Hylarana picturata (Boulenger 1920)	X		1
Odorrana hosii (Boulenger 1891)	X		1
Rana labialis (Peters 1871)	X		1
Rhacophoridae			
Nyctixalus pictus (Peters 1871)	X		1
Polypedates colletti (Boulenger 1890)	X		1
Polypedates leucomystax Gravenhorst 1829	X		1,3
Polypedates macrotis (Boulenger 1891)	X		1,3
Rhacophorus appendiculatus (Günther 1858)	X		3
Rhacophorus cyanopunctatus Manthey & Steioff 1998	X		1,3
Rhacophorus nigropalmatus Boulenger 1895		X (call)	1
Rhacophorus tunkui Kiew 1987	X		3
Theloderma licin McLeod & Norhayati 2007	X		1
REPTILIA			
Bataguridae			
Cyclemys dentata (Gray 1831)	X		1
Agamidae			
Acanthosaura armata (Hardwicke & Gray 1827)	X		1
Aphaniotis fusca (Peters 1864)		X	2
Bronchocela cristatella (Kuhl 1820)		X	2
Calotes versicolor (Daudin 1802)		X	1
Draco formosus Boulenger 1900	X		1
Draco melanopogon Boulenger 1887	X		1,2
Draco quinquefasciatus Hardwicke & Gray 1827		X	2
Draco sumatranus Schlegel 1844		X	2
Gonocephalus grandis (Gray 1845)	X		1,2
Gekkonidae			
Cnemaspis kendallii (Gray 1845)	X		1
Cyrtodactylus consobrinus (Peters 1871)	X		1

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Table 1: *(continued)*

Taxa	Status		
	Confirmed	Unconfirmed	Data source
Cyrtodactylus quadrivirgatus Taylor 1962	X		1
Cyrtodactylus semenanjungensis Grismer & Leong 2005	X		1
Cyrtodactylus pantiensis (Grismer et al. 2008)	X		1
Gehyra mutilata (Wiegmann 1834)	X		1
Gekko monarchus (Duméril & Bibron 1836)	X		1
Gekko smithii (Gray 1842)		X	1,2
Hemidactylus craspedotus (Mocquard 1890)		X	1
Hemidactylus frenatus Duméril & Bibron 1836		X	1
Hemidactylus platyurus (Schneider 1792)		X	1
Scincidae			
Dasia olivacea Gray 1839		X (sighting)	1,2
Eutropis multifasciata (Kuhl 1820)		X	1,2
Eutropis rugifera (Stoliczka 1870)	X		1,2
Lipinia vittigera (Boulenger 1894)		X (sighting)	1
Lygosoma bowringii (Günther 1864)	X		1
Varanidae			
Varanus nebulosus (Gray 1831)		X	2
Varanus salvator (Laurenti 1768)		X	2
Colubridae			
Ahaetulla mycterizans (Linnaeus 1758)	X		1
Boiga dendrophila (Boie 1827)		X	2
Calamaria lowi Boulenger 1887		X	2
Coelognathus flavolineatus (Schlegel 1837)	X		1
Dendrelaphis formosus (Boie 1827)		X	2
Macropisthodon rhodomelas (Boie 1827)		X	2
Oligodon signatus (Günther 1864)		X	2
Xenochrophis trianguligerus (Boie 1827)	X		2,3
Elapidae			
Calliophis intestinalis (Laurenti 1768)		X	2

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Table 1. *(continued)*

Taxa	Status		
	Confirmed	Unconfirmed	Data source
Pythonidae			
Python reticulatus (Schneider 1801)		X	2
Viperidae			
Parias hageni (van Lidth de Jeude 1886)	X		1

DISCUSSION

This represents the first report on the herpetofauna of the Gunung Panti Forest Reserve. In total 37 species of frogs, 1 turtle, 27 lizards, and 11 snakes are reported from this reserve after taking into account previous reports by Yong (2006) and Leong (2004) (Table 1). This study also resulted in the discovery of a new species of gekkonid lizard, *C. 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, C. pantiensis, C. semenanjungensis* and *Cyrtodactylus sworderi* are endemic to the state of Johor whereas *Cyrtodactylus 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 and Pan (2008).

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