

## THE TERRESTRIAL HERPETOFAUNA OF PULAU TIOMAN, PENINSULAR MALAYSIA

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**ABSTRACT.** - At least 20 amphibian and 50 reptile species are recorded from Pulau Tioman. Of the terrestrial reptiles, 24 are lizards, 25 are snakes and one is a turtle. Four species (two amphibians and two reptiles), viz., *Bufo melanostictus*, *Ichthyophis* sp., *Gekko smithii* and *Enhydryis plumbea* are new records for the island.

**KEY WORDS.** - checklist, terrestrial amphibians and reptiles, new records, Pulau Tioman.

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### INTRODUCTION

The first comprehensive listing of Pulau Tioman's terrestrial herpetofauna was made by Hendrickson (1966a, 1966b). Eleven species of amphibians and 29 species of reptiles were recorded, including the description of *Ansonia tiomanica*, a toad believed to be endemic to the island. Hendrickson's collection is deposited at the Bishop Museum in Hawaii, USA. Bullock (1966) provided some insight into the diet of selected taxa. Denzer et al. (1989) added 3 microhylid frogs to the list. Their specimens are from the Zoologisches Forschungsinstitut und Museum Alexander Koenig in Bonn, Germany. Day (1990) in his unpublished report added a further four species of amphibians and 16 species of reptiles, but not all records are supported by specimens. Manthey & Grossmann (1997) in their review of Southeast Asian herpetofauna illustrated with colour photographs a number of reptiles and amphibians from Tioman, and also featured two previously unknown records of two lizards, *Dibamus* cf. *alfredi*, *Cyrtodactylus quadrivirgatus*, and a snake, *Lycodon effraenis*.

The main purpose of the present checklist is to document Pulau Tioman's herpetofaunal diversity. It is a compilation of previous works, and also includes observations and collections made between 1995 and 1997. Day's (1990) report from the University of Bristol was never published, but his findings are substantial enough to merit their inclusion in this paper. The material collected during his survey, apparently deposited at the Natural History Museum in London, has not been examined by the present authors.

All records and identification based on citation in literature alone, or on sightings not supported by voucher specimens or photographs (e.g. that of *Boiga cynodon*, *Lycodon effraenis*, *Cyrtodactylus quadrivirgatus* and *Leiolepis belliana*) should be viewed with suspicion. However, we are tentatively leaving these records unquestioned unless specimens have been examined by us, or the known distribution of the species concerned does not include the southeastern quarter of the Malay Peninsula (e.g. that of *Chrysopelea ornata*). Although not listed, species like *Naja sumatrana*, *Oligodon octolineatus* and *Emoia atrocostata* are mentioned because their occurrence on Tioman are suspected mostly from unsubstantiated accounts given by the island's villagers. These are common reptiles on mainland Peninsular Malaysia, but their occurrence on the island awaits confirmation.

From recent surveys, four species (two amphibians and two reptiles) are recorded from Pulau Tioman for the first time. They are *Bufo melanostictus*, *Ichthyophis* sp., *Gekko smithii* and *Enhydryis plumbea*. At least 20 amphibian and 50 reptile species are now known from the island. Of the reptiles, 24 are lizards, 25 are snakes and one is a turtle (see Appendix 1). This report does not take into account the marine snakes (Hydrophiidae) and marine turtles (Cheloniidae, Dermochelyidae) which are present around the island.

Between 1989 and the present, some 30 additional species have been added to the herpetofaunal list of Pulau Tioman. Further sampling efforts are expected to unearth taxa previously unrecorded, for despite the brisk tourist trade on Tioman, a large part of the island's interior has not been developed as human activities are concentrated along the coast in sheltered bays. The hilly inland areas and rocky coasts tend not to be easily accessible and relatively large tracts of tall forest have been left intact and unexplored. It would be interesting to examine the herpetofaunal composition of Tioman between the last major compilation by Hendrickson in 1966 and the present time. However, this would be difficult as our knowledge of Tioman's herpetofaunal diversity is still far from complete.

It seems that taxa like *Bufo melanostictus* and *Kaloula pulchra* are relatively recent additions to Tioman's fauna. Both frogs are abundant among human settlements on the mainland, and are very rarely found in forest. Tioman has since become an extremely popular holiday destination for local and foreign tourists alike, and the increased human traffic between the mainland and the island could have resulted in the artificial introduction of these two species not recorded earlier by Hendrickson (1966).

Being some 48 km away from mainland Peninsular Malaysia, Pulau Tioman is relatively isolated in the South China Sea. Because of this, it is possible that certain animals have, over time, become morphologically different from their counterparts on the mainland. Seventeen mammal subspecies are recognised as Tioman endemics (Medway, 1966). We believe that careful examination of presently-known herpetofaunal taxa from the island is likely to reveal unnamed taxa. Potentially new species include the Tioman forms of *Oligodon signatus*, *Trimeresurus popeiorum*, *Dibamus alfredi* and an unidentified *Cyrtodactylus*.

TL refers to total length, often expressed as snout-vent length+tail length, SV is snout-vent length, CL is carapace length (for chelonians). The specimens examined by the authors and herein listed are deposited at the Zoological Reference Collection of the Raffles Museum of Biodiversity Research, Department of Biological Sciences, National University of Singapore (ZRC). Collectors for material in the ZRC as presented in chronological order: 1916 - Cecil Boden Kloss; 1927 - Norman Smedley; 1985 - J. Counsilman et al.; 1992 - C. H. Diong et al.; 1995-1996 - P. K. L. Ng, T. H. T. Tan, H. H. Tan, S. H. Tan, L. J. Lim.

T. M. Leong, D. C. J. Yeo, Y. Y. Goh, L. H. Liow and others; 1997 - P. K. L. Ng, H. H. Tan, T. H. T. Tan, K. K. P. Lim and others. Scientific nomenclature largely follows Inger & Tan (1996) for anurans, Denzer & Manthey (1991) for lizards, David & Vogel (1996) for snakes.

## ANNOTATED CHECKLIST

### AMPHIBIA

#### ORDER ANURA

#### FAMILY BUFONIDAE

#### *Ansonia tiomanica* Hendrickson

*Ansonia tiomanica* Hendrickson, 1966b: 74-76, Fig. 5, Pl. 10 (type locality: Gua Sinah at ca. 2400 ft. in Ulu Lalang)

*Ansonia tiomanica* - Berry, 1975: 44; Day, 1990: 28

**Material examined.** - None.

**Remarks.** - Specimens from Gunung Benom on mainland Peninsular Malaysia, at the Natural History Museum in London, identified as possible *Ansonia tiomanica* by Grandison (1972: 49), were recently examined by Day (1990: 28). He found that they are not conspecific with the one he had collected from Tioman (from a cave at 1800 m on west slope of Gunung Kajang). He went on to confirm that *Ansonia tiomanica* is a species unique to Pulau Tioman.

#### *Bufo asper* Gravenhorst

*Bufo asper* - Day, 1990: 28

**Material examined.** - None.

**Remarks.** - First recorded by Day (1990: 28) from an example found along the Sungai Nipah at 80 to 200 m elevation.

#### *Bufo melanostictus* Schneider

**Material examined.** - 1 ex., 27.0 mm SV (ZRC.1.3475), Kampung Tekek, 26 Jun.1997.

**Remarks.** - Observed at Kampung Tekek in June 1996 and 1997, and appears to be common. A new record for Pulau Tioman, this species was probably introduced recently. It is abundant around human habitations in Peninsular Malaysia.

***Bufo parvus* Boulenger**

*Bufo parvus* - Hendrickson, 1966b: 73; Berry, 1975: 50; Day, 1990: 28

**Material examined.** - 2 ex., 14.4-14.5 mm SV (ZRC.I.3329-3330), Sungai Paya, 26 Jun.1996; 6 ex., 14.8-18.1 mm SV (ZRC.I.3331-3336), Sungai Paya, 26 Jun.1996.

**Remarks.** - Reported by Hendrickson (1966b: 73) from Kampung Juara, and by Day (1990: 28) to be common along Sungai Keliling.

***Pelophryne brevipes* (Peters)**

*Pelophryne signata* - Hendrickson, 1966b: 73, Pl. 9; Day, 1990: 28

*Pelophryne brevipes* - Berry, 1975: 55; Manthey & Grossmann, 1997: 42

**Material examined.** - 1 ex., 16.6 mm SV (ZRC.I.3337), Gunung Kajang at 2000 ft., 27 Jun.1996.

**Remarks.** - Hendrickson (1966b: 73) collected this species from the Tekek-Juara trail at 900 ft., from Ulu Lalang above 2400 ft., and from Gunung Kajang above 2900 ft. Day (1990: 28) reported one from Gunung Kajang at 950 m.

FAMILY MEGOPHRYIDAE

***Megophrys nasuta* (Schlegel)**

*Megophrys monticola nasuta* - Hendrickson, 1966b: 72; Berry, 1975: 40; Day, 1990: 29

**Material examined.** - 1 newly-metamorphosed juvenile, 14.2 mm SV; 4 larvae, 27.9 - 35.1 mm TL (ZRC.I.3235-3239), Sungai Ayer Surin at ca. 800 ft., 18 Sep.1995; 1 larva, 23.1 mm TL (ZRC.I.3409), Sungai Keliling, 28 Jun.1996; 1 larva, 22.6 mm TL (ZRC.I.3338), Sungai Keliling, 28 Jun.1996.

**Remarks.** - The Malaysian horned frog tends to be more easily heard than seen. Hendrickson (1966b: 72) reported it from behind Kampung Mukut at 200 ft., the Tekek-Juara trail behind Kampung Tekek at ca. 900 ft., and on Gunung Kajang at ca. 2500 ft.

***Leptolalax gracilis* (Günther)**

*Leptobrachium* sp. - Day, 1990: 29

**Material examined.** - 3 larvae, 66.1-88.0 mm TL (ZRC.I.3339-3341), Gunung Kajang at 1200 ft., 26 Jun.1996.

**Remarks.** - Day (1990: 29) had earlier collected similar larvae in a pool of water within a cave at 1000 m on Gunung Kajang.

FAMILY RANIDAE

*Limnonectes blythii* (Boulenger)

*Rana blythii* - Hendrickson, 1966b: 78

*Rana macrodon* - Berry, 1975: 77

*Rana blythii* - Day, 1990: 29

**Material examined.** - 6 ex., 80.1-108.5 mm SV (ZRC.1.349-354), Sedagong, v.1927; 2 ex., 16.4 - 24.2 mm SV (ZRC.1.3221-3222), Sungai Ayer Raja at Kampung Genting, 15 Sep.1995; 2 ex., 24.8 - 42.7 mm SV (ZRC.1.3223-3224), Sungai Durian Kallang at Kampung Paya, 16 Sep.1995; 1 ex., 87.7 mm SV (ZRC.1.3233), Sungai Besar waterfall along Tekek-Juara trail, 16 Sep.1995; 1 ex., 22.5 mm SV (ZRC.1.3234), Sungai Pasal, 17 Sep.1995; 2 ex., 82.8 - 105.8 mm SV (ZRC.1.3240-3241), Sungai Durian Kallang, 18 Sep.1995; 8 ex., 9.7-31.8 mm SV (ZRC.1.3299-3306), Sungai Keliling, Sungai Paya, Sungai Baharu, 28 Jun.1996; 1 ex., 102.9 mm SV (ZRC.1.3307), Tekek-Juara trail, 28 Jun.1996; 3 larvae, 17.2 - 20.4 mm TL (ZRC.1.3326-3328), Sungai Paya, Sungai Baharu, 28 Jun.1996; 1 ex., 88.8 mm SV (ZRC.1.3473), Sungai Paya, 25 Jun.1997; 1 ex., 100.1 mm SV (ZRC.1.3474), Tekek-Juara trail near Kampung Tekek, 23 Jun.1997.

**Remarks.** - Hendrickson (1966b: 78) commented that this large frog was common mainly in forest near upland streams and also along edges of coastal plains. Day (1990: 29) added that it was common along all medium to slow-flowing rivers. We have found it to be a common frog along forest streams.

*Rana cancrivora* Gravenhorst

*Rana cancrivora cancrivora* - Hendrickson, 1966b: 76

*Rana cancrivora* - Berry, 1975: 62; Day, 1990: 29

**Material examined.** - None.

**Remarks.** - The crab-eating frog tends to associate with human habitations, and is known from Kampung Lalang and Kampung Tekek (Hendrickson, 1966b: 76).

*Rana chalconota* (Schlegel)

*Rana chalconota* - Hendrickson, 1966b: 81; Berry, 1975: 63; Day, 1990: 29; Manthey & Grossmann, 1997: 107

**Material examined.** - 4 ex., 31.8-35.3 mm SV (ZRC.1.553-556), Sungai Sedagong, v.1927; 1 ex., 48.9 mm SV (ZRC.1.3010), no locality data, 25 Jun.1985; 3 ex., 36.6-39.9 mm SV (ZRC.1.3296-3298), Sungai Keliling & Tekek-Juara trail waterfall, 26 Jun.1996; 15 larvae, 16.0-34.4 mm TL (ZRC.1.3311-3325), pond between Sungai Mentawak & Sungai Keliling, Sungai Keliling, 27 Jun.1996.

**Remarks.** - This generally arboreal frog occurs mainly along forest streams.

***Rana doriae* Boulenger**

*Rana doriae* - Day, 1990: 29

**Material examined.** - None.

**Remarks.** - Day (1990: 29) reports two 'colour morphs' based on the presence of a pale orange vertebral stripe. He found this frog along a tributary of the Sungai Mentawak at 300 m.

The identity of the *Rana* (*Discodeles/Platymantis*) sp. of Hendrickson (1966b: 79) from the Tekek-Juara trail at ca. 1000 ft., and Ulu Lalang at 2500-3000 ft.) could not be clarified as the specimens, deposited at the Bishop Museum (Hawaii), were not examined.

***Rana erythraea* (Schlegel)**

*Rana erythraea* - Hendrickson, 1966b: 80; Berry, 1975: 66; Day, 1990: 29

**Material examined.** - none.

**Remarks.** - Hendrickson (1966b: 80) collected this species from a pond south of Kampung Tekek. The green paddy frog generally prefers clearings and therefore, is often found near human habitation. Due to its close association with man, it may, like *Bufo melanostictus* and *Kaloula pulchra*, have been artificially introduced.

***Rana hosii* Boulenger**

*Rana hosii* - Hendrickson, 1966b: 80; Berry, 1975: 69; Day, 1990: 29; Manthey & Grossmann, 1997: 111

**Material examined.** - 2 ex., 49.2-81.2 mm SV (ZRC.1.3011-3012), no locality data, 25 Jun.1985; 1 ex., 12.4 mm SV (ZRC.1.3225), Sungai Durian Kallang at Kampung Paya, 16 Sep.1995; 7 ex., 47.7-79.8 mm SV (ZRC.1.3226-3232), Sungai Besar waterfall along Tekek-Juara trail, 16 Sep.1995; 3 ex., 23.3-82.5 mm SV (ZRC.1.3308-3310), Sungai Paya and Tekek-Juara trail waterfall, 26 Jun.1996.

**Remarks.** - This frog is generally found on rocks in fast-flowing forest streams. Apart from the localities listed above, it has also been observed at the waterfalls along Sungai Asah.

***Rana signata* (Günther)**

*Rana signata* - Day, 1990: 29

**Material examined.** - None.

**Remarks.** - Day (1990: 29) recorded one example on low vegetation along a tributary of the Sungai Mentawak, at 300 m elevation.

FAMILY MICROHYLIDAE

*Chaperina fusca* Mocquard

*Chaperina fusca* - Denzer et al., 1989: 27; Day, 1990: 28; Manthey & Grossmann, 1997: 51, figs. 17 & 18

**Material examined.** - 2 ex., 20.3-20.7 mm SV (ZRC.1.3005-3006), no locality data,

**Remarks.** - Denzer et al. (1989: 27) first recorded this species from the Sungai Ayer Besar, and between Lalang and Kampung Tekek.

*Kaloula pulchra* Gray

*Kaloula pulchra* - Denzer et al., 1989: 28

**Material examined.** - None.

**Remarks.** - Another frog which is found in cleared areas, and one which was probably introduced by man. It was first reported from Kampung Tekek (Denzer et al., 1989: 28), where one was last seen in June 1997 (pers. obs.).

*Kaloula baleata* (Müller)

*Kaloula baleata* - Denzer et al., 1989: 29; Manthey & Grossmann, 1997: 56

**Material examined.** - None.

**Remarks.** - Denzer et al. (1989: 29) examined a specimen which was collected from Kampung Tekek.

FAMILY RHACOPHORIDAE

*Philautus aurisfasciatus* (Schlegel)

*Philautus petersi* - Hendrickson, 1966b: 82

*Philautus aurisfasciatus* - Berry, 1975: 91; Day, 1990: 30

? *Philautus vermiculatus* - Berry, 1975: 95

**Material examined.** - None.

**Remarks.** - Apparently a montane species with records of one from Ulu Lalang at 2500 ft. (Hendrickson, 1966b: 82), and another from the summit of Gunung Kajang (Day, 1990: 30). It is not clear if Berry's (1975: 95) record of *Philautus vermiculatus* (Boulenger) from Ulu Lalang, Tioman, was based on actual specimens. It could have been due to her indecision on the specific position of Hendrickson's Tioman record.

***Polypedates leucomystax* (Bocconio)**

*Rhacophorus leucomystax* - Hendrickson, 1966b: 81

*Polypedates leucomystax* - Day, 1990: 30

**Material examined.** - None.

**Remarks.** - Records from Kampung Tekek (Hendrickson, 1966b: 81) and Kampung Juara (Day, 1990: 30). This is another species which generally inhabits cleared areas and human habitations, and may not have occurred naturally on Tioman.

ORDER GYMNOPIHIONA

FAMILY ICHTHYOPHIIDAE

***Ichthyophis* sp.**

**Material examined.** - 1 ex., 91.0 mm TL (ZRC.1.3342), Sungai Paya, 27 Jun.1996.

**Remarks.** - This is the first record of caecilians on Pulau Tioman. The present specimen, a larva collected in water, has a thin pale-yellow longitudinal stripe on its side.

REPTILIA

ORDER SQUAMATA

FAMILY AGAMIDAE

***Bronhocela cristatella* (Kuhl)**

*Calotes cristatellus* - Hendrickson, 1966a: 64; Day, 1990: 32

**Material examined.** - 1 ex., 105.0+ 360.0 mm TL (ZRC.2.3512), Tekek-Juara trail near Juara, 28 Jun.1996.

**Remarks.** - This arboreal lizard was recorded from Kampung Tekek, Kampung Mukut and Pulau Tulai by Hendrickson (1966a: 64), and from Juara by Day (1990: 32).

***Draco melanopogon* Boulenger**

*Draco melanopogon* - Smith, 1930: 23; Hendrickson, 1966a: 58; Muster, 1983: 60; Day, 1990: 32

**Material examined.** - 4 ex., 48.5+99.0-81.5+incomplete mm TL (ZRC.2.612-615), Sedagong, v.1927; 1 ex., 83.6+166.0 mm TL (ZRC.2.3513), Tekek-Juara trail, 24 Jun.1996; 1 male ex., 76.2+143.0 mm TL (ZRC.2.3545), Kampung Asah, 24 Jun.1997; 1 male ex., 77.7+149.0 mm TL (ZRC.2.3548), Kampung Paya, 25 Jun.1997.

**Remarks.** - Hendrickson (1966a: 58) recorded this gliding lizard from along the Tekek-Juara trail and from Gunung Kajang at 2700 ft. Common in forest behind Kampung Asah



in the morning and early afternoon of 24 June 1997, where males, apparently engaged in courtship displays, were gliding from tree to tree and actively flashing their orange-and-black gular pouch (KKPL pers. obs.). Muster (1983: 60) notes that the females of *Draco melanopogon* from Tioman appear to be larger than those from other areas.

***Draco volans sumatranus* Schlegel**

*Draco volans* - Smith, 1930: 21; Hendrickson, 1966a: 59

*Draco volans sumatranus* - Muster, 1983: 87; Day, 1990: 32

**Material examined.** - 1 ex., 77.7+103.7 mm TL (male) (ZRC.2.685), Ayer Batang, v.1927.

**Remarks.** - Hendrickson (1966a: 59) reports this species from Kampung Tekek. One with a blue throat was recently observed on a tree along the Sungai Mukut at Kampung Mukut on 26 June 1997 (KKPL). In addition to the two species, Day (1990: 32) reports having observed a species of *Draco* with characteristic bright red gular pouch from Tioman, but its identification has not been established.

***Acanthosaura armata* (Hardwicke & Gray)**

*Gonocephalus armatus* - Hendrickson, 1966a: 64

*Gonocephalus armatus* - Day, 1990: 32

*Acanthosaura armata* - Manthey & Grossmann, 1997: 155, fig. 96

**Material examined.** - None.

**Remarks.** - Hendrickson (1966a: 64) recorded this horned agamid from along the Tekek-Juara trail.

***Gonocephalus grandis* (Gray)**

*Gonocephalus grandis* - Smith, 1930: 24; Day, 1990: 32; Manthey & Denzer, 1991; Manthey & Grossmann, 1997: 183-184, fig. 129

*Gonocephalus grandis* - Hendrickson, 1966a: 61

**Material examined.** - 2 ex., 128.0+200.0-145.0+235.0 mm TL (ZRC.2.898-899), Sedagong, v.1927; 1 ex., 100.0+280.0 mm TL (ZRC.2.3514), Tekek-Juara trail, 25 Jun.1996.

**Remarks.** - Recently observed in forest along Sungai Asah and Sungai Nipah (KKPL, June 1997).

***Gonocephalus chamaeleontinus* (Laurenti)**

*Gonocephalus chamaeleontinus* - Smith, 1930: 25; Day, 1990: 32; Denzer & Manthey, 1991: 312; Manthey & Denzer, 1993: 24-29; Manthey & Grossmann, 1997: 181-182, fig. 126

? *Gonocephalus harveyi* - Smith, 1930: 24

*Gonocephalus chamaeleontinus* - Hendrickson, 1966a: 60 (Tekek-Juara trail)

**Material examined.** - 1 ex., 90.0+156.0 mm TL (ZRC.2.926), no locality data, coll: C. B. Kloss, vi.1916; 2 ex., 140.0+245.0 (male) - 140.0+220.0 (female) mm TL (ZRC.2.3371-3372), near Tekek-Juara trail waterfall, 14 Sep.1992; 2 ex., 150.0+241.0-140.0+210.0 mm TL (ZRC.2.3550-3551), Tekek-Juara trail, 12 Sep.1993.

**Remarks.** - This anglehead lizard was largely known from forest along the Tekek-Juara trail (Hendrickson, 1966a: 60). In June 1997, one individual was photographed in the forest behind Kampung Paya along the trail to Gunung Kajang (A. T. C. Wong pers. comm. to KKPL). Manthey & Denzer (1992) regard *Gonocephalus harveyi* as a synonym of *Gonocephalus liogaster* (Günther). Under their list of synonyms is included the *G. harveyi* in Smith (1930: 24) where specimens were not listed. Hendrickson (1966a: 53) had expressed doubts about the identity of Smith's *G. harveyi* from Tioman. He cites the example of a *G. chamaeleontinus* (ZRC.2.926) having been misidentified as *G. harveyi*.

### *Aphaniotis fusca* (Peters)

*Aphaniotis fusca* - Hendrickson, 1966a: 60; Day, 1990: 31; Manthey & Grossmann, 1997: 158 & 159, fig. 101

**Material examined.** - 1 ex., 57.2+133.0 mm TL (ZRC.2.320), Sedagong, v.1927.

**Remarks.** - Hendrickson (1966a: 60) recorded this species from along the Tekek-Juara trail. Day (1990: 31) reported its presence in primary forest at 250 to 350 m. One was observed clinging to a sapling less than 20 cm off the ground behind Kampung Asah on 24 June 1997 (KKPL).

## FAMILY UROMASTYCIDAE

### *Liolepis belliana* (Gray)

*Liolepis belliana* - Day, 1990: 32

**Material examined.** - None.

**Remarks.** - Day (1990: 32) recorded a single sighting of this sand-dwelling lizard along the bank of Sungai Keliling. This lizard is common along the east coast beaches of Peninsular Malaysia.

## FAMILY DIBAMIDAE

### *Dibamus cf. alfredi* Taylor (Fig. 1.)

*Dibamus cf. alfredi* - Manthey & Grossmann, 1997: 205, fig. 146

**Material examined.** - 1 ex., 106.2 mm TL (ZRC.2.3410), hilly forest behind Kampung Paya, 16 Sep.1995.

**Remarks.** - In life, this worm-like lizard is reddish-brown with a pale transverse band on the anterior half of the body. The specimen was found under a large stone. It is a male with



Fig. 1. *Dibamus* cf. *alfredi* (ZRC.2.3410) from Kampung Paya.

a flap on each side of the cloaca. Tail length 14.3 mm, 23 midbody scale rows, 45 subcaudal scales, 221 ventral scales from chin to cloaca. This appears to be the second record of this genus from Peninsular Malaysia, and a first for Pulau Tioman.

*Dibamus alfredi* was described from southern Thailand at Pattani, and is also known to inhabit mainland Peninsular Malaysia and Borneo. It is characterised by having two postocular scales, 20-21 midbody scale rows, less than 180 ventral scales, and 41-47 subcaudal scales. Another species, *D. leucurus* (Bleeker), is distinguished by having one post-ocular scale, and 41-52 subcaudal scales. *D. leucurus* is known from Borneo, Sumatra and the Philippines, and has not been recorded from the Malay Peninsula (see Manthey & Grossmann, 1997: 204, tab. 17). Apart from the presence of two post-ocular scales, meristic data collected from the present specimen, however, do not fall in the range for *D. alfredi*. Additional specimens from Tioman are required to ascertain if the present *Dibamus* is a different species.

#### FAMILY GEKKONIDAE

#### *Cnemaspis kendallii* (Gray)

*Gonatodes kendalli* - Smith, 1930: 16

*Cnemaspis kendalli* - Hendrickson, 1966a: 55

*Cnemaspis* (sic.) *kendalli* - Day, 1990: 33

*Cnemaspis kendallii* - Manthey & Grossmann, 1997: 213

**Material examined.** - 3 ex., 41.3+incomplete-52.6+62.8 mm TL (ZRC.2.3501-3503), Tekek-Juara trail, 28 Jun.1996.

**Remarks.** - Recent specimens have been collected off trunks and branches of fallen trees. Hendrickson (1966a: 55) reported this gecko from Pulau Tulai.

*Cnemaspis nigridius* (Smith)

*Cnemaspis* sp. - Hendrickson, 1966a: 56

*Cnemaspis* (sic.) *nigridius* - Day, 1990: 33

*Cnemaspis nigridius* - Denzer & Manthey, 1991: 313; Manthey & Grossmann, 1997: 214-215, fig. 151

**Material examined.** - 1 ex., 79.3+incomplete mm TL (ZRC.2.1102) path to Gunung Rokam at ca. 1200 ft., v.1927; 1 ex., 37.7+43.9 mm TL (ZRC.2.3411), Tekek-Juara trail, 16 Sep.1995; 3 ex., 60.6+72.9-76.5+90.8 mm TL (ZRC.2.3504-3506), Tekek-Juara trail, 28 Jun.1996; 1 ex., 77.6+88.6 mm TL (ZRC.2.3507), Gunung Kajang at ca. 1200 ft., 27 Jun.1996.

**Remarks.** - A colour photograph of a Tioman specimen is featured in Manthey & Grossmann (1997: 214). *Cnemaspis nigridius* is distinguished from *C. kendalli* by its larger size; presence of a median row of ventral caudal scales which lie flat, are not pointed and have no keels (versus the heavily keeled, pointed scales in *C. kendalli*); and its plain-coloured (versus faintly striated) ventral region. Also known from Pulau Tulai (Hendrickson, 1966a: 56).

*Cyrtodactylus* sp.

(Fig. 2.)

*Cyrtodactylus* sp. - Manthey & Grossmann, 1997: 228, fig. 164

**Material examined.** - 3 ex., 70.0+ 98.0-88.0+111.0 mm TL (ZRC.2.3412-3413), Tekek-Juara trail, 16 Sep.1995; 4 ex., 68.0+incomplete-80.0+90.0 mm TL (ZRC.2.3508-3511), Tekek-Juara trail, 28 Jun.1996; 1 ex., 46.9+61.0 mm TL (ZRC.2.3515), Gunung Kajang at 1200 ft., 27 Jun.1996.

**Remarks.** - This apparently undescribed species appears to be a Pulau Tioman endemic. It is similar to *Cyrtodactylus pulchellus* (Gray) in colour pattern which consists of four dark-brown transverse bands with white margins over the dorsum from occiput to base of tail. Unlike *C. pulchellus* which occurs on mainland Peninsular Malaysia and is not known from Tioman, the present gecko has four dark-brown transverse bands with blackish margins. All specimens were taken at night, mostly above ground and usually from tree trunks, holes of fallen logs and rock faces in primary forest. All but one were from the Tekek-Juara trail, near the Tekek end. The smallest specimen was taken on the slopes of Gunung Kajang at

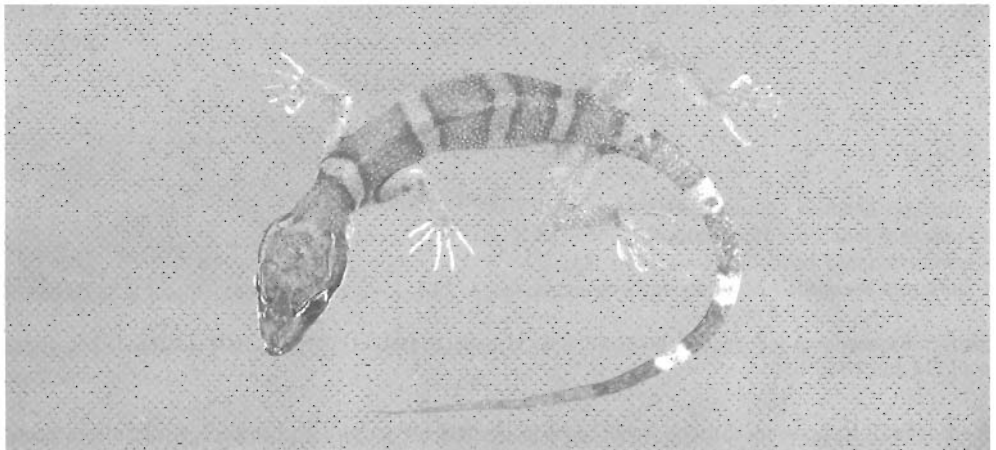


Fig. 2. *Cyrtodactylus* sp. (ZRC.2.3508) from Tekek-Juara trail.

approximately 750 metres elevation. See Manthey & Grossmann (1997: 228) for additional notes and a colour photograph of this gecko.

***Cyrtodactylus quadrivirgatus* (Taylor)**

*Cyrtodactylus quadrivirgatus* - Manthey & Grossmann, 1997: 228

**Material examined.** - None.

**Remarks.** - The record of this species from Tioman by Manthey & Grossmann (1997: 228) is not supported by information on locality or specimen.

***Gehyra mutilata* (Wiegmann)**

*Gehyra mutilata* - Hendrickson, 1966a: 58; Day, 1990: 33

**Material examined.** - None.

**Remarks.** - This house-dwelling gecko was recorded from Kampung Tekek and Kampung Mukut by Hendrickson (1966a: 58).

***Gekko monarchus* Duméril & Bibron**

*Gekko monarchus* - Day, 1990: 33

**Material examined.** - None.

**Remarks.** - One was observed on bankside rocks along the Sungai Keliling (Day, 1990: 33).

***Gekko smithii* Gray**

**Material examined.** - 1 female ex., 148.2+148.5 mm TL (ZRC.2.3547), Tekek-Juara trail near Kampung Tekek, 23 Jun. 1997.

**Remarks.** - A first record of this large gecko for Pulau Tioman. The present specimen was collected on a wooden pole along a forested footpath in the evening at about 8 pm.

***Hemidactylus frenatus* Duméril & Bibron**

*Hemidactylus frenatus* - Hendrickson, 1966a: 58; Day, 1990: 33

**Material examined.** - None.

**Remarks.** - Hendrickson (1966a: 58) recorded this common house gecko from Kampung Tekek. It was observed to frequent buildings at the same locality in June 1997.

FAMILY SCINCIDAE

*Dasia olivacea* Gray

*Dasia olivacea* - Hendrickson, 1966a: 66; Day, 1990: 33

**Material examined.** - None.

**Remarks.** - Hendrickson (1966a: 66) recorded this arboreal skink from Kampung Tekek. Day (1990: 33) observed it in forest and cultivated areas. Recently seen on a mangrove tree at Kampung Paya (LLJ, June 1996), and also on tree trunks along Sungai Asah (KKPL, 24 June 1997).

*Mabuya multifasciata* (Kuhl)

*Mabuya longicaudata* - Smith, 1930: 31; Hendrickson, 1966a: 53, 65; Manthey & Grossmann, 1997: 269

*Mabuya multifasciata* - Hendrickson, 1966a: 65; Day, 1990: 34

**Material examined.** - 2 ex., 121.0+240.0-122.0+incomplete mm TL (ZRC.2.1678-1679), Bt. Sedagong at 1000 ft., v.1927; 1 ex., 525.0+739.0 mm TL (ZRC.2.3415), Sungai Pasal, 17 Sep.1995; 1 ex., 110.0+148.0 mm TL (ZRC.2.3500), Tekek-Juara trail, 25 Jun.1996; 1 ex., 54.0+95.3 mm TL (ZRC.2.3549), Kampung Paya, 25 Jun.1997.

**Remarks.** - *Mabuya multifasciata* is still common in forest and along forest edges on Pulau Tioman (KKPL, June 1997). Also recorded on Pulau Tulai (Hendrickson, 1966a: 65). According to Hendrickson (1966a: 65), the presence of *M. longicaudata* (Hallowell) on Tioman is dubious since Smith's (1930: 31) record has not been substantiated, and could be a misidentification of *M. multifasciata*.

*Lipinia surda* (Boulenger)

*Lipinia surda* - Day, 1990: 34

**Material examined.** - None.

**Remarks.** - One example of about 7 cm with incomplete tail, and grey-green colouration, was found in grass against a wall at Nipah Bay (Day, 1990: 34).

*Lipinia vittigera* (Boulenger)

*Lygosoma vittigerum* - Smith, 1930: 36

*Leiolepis vittigerum* - Hendrickson, 1966a: 53

**Material examined.** - None.

**Remarks.** - One example of about 8 cm TL was observed (by KKPL) on a reclining dead tree trunk some three metres above the ground, behind Kampung Asah along Sungai Asah in the morning of 24 June 1997. It was brown with a bright yellow vertebral stripe from tip of snout to tail and bordered by two black stripes on both sides.

***Sphenomorphus scotophilus* (Boulenger)**

*Lygosoma scotophilum* - Smith, 1930: 34; Hendrickson, 1966a: 66

*Sphenomorphus scotophilus* - Day, 1990: 34

**Material examined.** - 1 ex., 54.0+77.0 mm TL (ZRC.2.3494), Gunung Kajang at ca. 1200 ft., 27 Jun.1996; 5 ex., 38.0+62.0-50.4+88.3 mm TL (ZRC.2.3495-3499), Tekek-Juara trail, 24-25 Jun.1996.

**Remarks.** - This skink frequents epiphyte and moss-covered granite boulders in primary forest where it may be observed foraging in the open during the day. At night, its niche is taken over by rock geckos of the genera *Cnemaspis* and *Cyrtodactylus* (pers. obs.). Observed at Kampung Asah, Sungai Nipah and along the Tekek-Juara trail. Also present on Pulau Tulai (Hendrickson, 1966a: 66).

Hendrickson (1966a: 54) reports having seen ‘... “small, black skinks” on the intertidal rocks when circumnavigating the island in a boat ...’ in 1958. Although he could not confirm their identity, he suggests the strong possibility of them being ‘...one of the characteristic seashore skinks, such as *Emoia atrocostata* ...’. The likelihood of their occurrence is linked to the ‘... extensive suitable habitat ...’ available on Tioman in the form of rocky coasts. The mangrove skink, *Emoia atrocostata* (Lesson), is a common inhabitant of coastal habitats in Peninsular Malaysia.

FAMILY VARANIDAE

***Varanus salvator* (Laurenti)**

*Varanus salvator* - Hendrickson, 1966a: 54, 55; Day, 1990: 34

**Material examined.** - 2 ex., ca. 2 m TL (ZRC.2.1892-1893), Sedagong, v.1927.

**Remarks.** - Day (1990: 34) observed that this species was much less common than *Varanus nebulosus*. However, no less than six individuals of around two metres were observed by KKPL at Kampung Salang in August, 1992 where they frequent the neighbourhood scavenging on discarded food. No *V. nebulosus* were seen on that occasion. In June 1997, about five *V. salvator* and only one *V. nebulosus* were seen at Kampung Salang (KKPL pers. obs.). Additional individuals of *V. salvator* were observed at Kg Asah, Kampung Tekek, and Pulau Tulai in June 1997 (KKPL).

***Varanus nebulosus* (Gray)**

*Varanus nebulosus* - Hendrickson, 1966a: 55; Day, 1990: 34

*Varanus bengalensis nebulosus* - Manthey & Grossmann, 1997: 288, figs. 209 & 210; Traeholt, 1997

**Material examined.** - 2 ex., 170.0+248.0-310.0+500.0 mm TL (ZRC.2.1876-1877) Sedagong, v.1927; 2 ex., 195.0+incomplete-247.0+420.0 mm TL (ZRC.2.1878-1879), Ayer Batang, v.1927.

**Remarks.** - Hendrickson (1966a: 55) recorded this lizard from Kampung Tekek and vicinity. Day (1990: 34) observed it to be abundant in lowland forest to about 350 m elevation. Our observations however, suggests otherwise. Only one was identified foraging at a rubbish point along the forest edge at Kampung Salang in June 1997 (KKPL).

FAMILY TYPHLOPIDAE

***Ramphotyphlops braminus* (Daudin)**

*Typhlops braminus* - Hendrickson, 1966a: 54

*Ramphotyphlops braminus* - Day, 1990: 36

**Material examined.** - None.

**Remarks.** - Day (1990: 36) recorded one from Juara Bay. Hendrickson's (1966a: 54) sighting of a 4-5 inch, all black 'burrowing snake' dug out from a rat's nest in the forested uplands was assumed to be this species.

FAMILY PYTHONIDAE

***Python reticulatus* (Schneider)**

*Python reticulatus* - Hendrickson, 1966a: 67; Day, 1990: 36

**Material examined.** - None.

**Remarks.** - One example of the reticulated python was known from Kampung Tekek north of Telok Dungun (Hendrickson, 1966a: 67).

FAMILY COLUBRIDAE

***Elaphe flavolineata* (Schlegel)**

*Elaphe flavolineata* - Day, 1990: 37

**Material examined.** - none.

**Remarks.** - One example observed at forest edge along Penut Bay (Day, 1990: 37).

***Elaphe porphyracea* (Cantor)**

*Elaphe porphyracea* - Day, 1990: 37

**Material examined.** - none.

**Remarks.** - Day (1990: 37) records the observation of one individual in forest at 80 m elevation north of Nipah Bay.



***Gonyosoma oxycephalum* (Boie)**

*Gonyosoma oxycephalum* - Day, 1990: 38

**Material examined.** - None.

**Remarks.** - Day (1990: 38) observed an example in primary forest inland of Nipah Bay.

***Dendrelaphis caudolineatus* (Gray)**

*Dendrelaphis caudolineatus* - Day, 1990: 37

**Material examined.** - None.

**Remarks.** - Day (1990: 37) recorded one example from Kampung Juara.

***Dendrelaphis formosus* (Boie)**

*Dendrelaphis formosus* - Day, 1990: 37

**Material examined.** - 1 ex., 880 mm TL (ZRC.2.3414), behind Paya beach, 16 Sep.1995.

**Remarks.** - Day (1990: 37) also cites two specimens from Sungai Keliling at about 60 m elevation.

***Lepturophis albofuscus* (Duméril, Bibron & Duméril)**

*Lycodon albofuscus* - Day, 1990: 38

*Lepturophis albofuscus* - Manthey & Grossmann, 1997: 360, fig. 265

**Material examined.** - none.

**Remarks.** - Day (1990: 38) recorded one individual from along the Sungai Nipah at 75 m.

***Lycodon effraenis* (Cantor)**

*Lycodon effraensis* - Manthey & Grossmann, 1997: 363

**Material examined.** - none.

**Remarks.** - Manthey & Grossmann's (1997: 363) record of this wolf-snake from Tioman cites neither specimen nor locality.

***Ahaetulla prasina* (Boie)**

*Dryophis prasinus* - Hendrickson, 1966a: 67

*Ahaetulla prasina* - Day, 1990: 37

**Material examined.** - None.

**Remarks.** - Hendrickson (1966a: 67) recorded three individuals from Tekek-Juara trail in the vicinity of Sungai Ayer Besar crossing. Day (1990: 37) says the species was frequent in lowland forest.

***Boiga cynodon* (Boie)**

*Boiga cynodon* - Day, 1990: 37

**Material examined.** - None.

**Remarks.** - Day (1990: 37) refers to a sighting of a single example in 1987, along the Tekek-Juara trail at about 300 m elevation.

***Chrysopelea ornata* (Shaw)**

*Chrysopelea ornata* - Day, 1990: 37

**Material examined.** - none.

**Remarks.** - Day's (1990: 37) identification of one snake observed along the Sungai Keliling at 10 m. is open to doubt. It does not seem likely that *Chrysopelea ornata* occurs on Tioman, as it is a continental Asian taxon whose southernmost range in Peninsular Malaysia is in Perak (Tweedie, 1983: 67). It is possible that this record could be based on a misidentified *C. paradisi* Boie, which is a similar and common snake in the southern half of the peninsula. We are leaving *C. ornata* in the checklist until its occurrence on Tioman is proven otherwise.

***Chrysopelea pelias* (Linnaeus)**

*Chrysopelea pelias* - Day, 1990: 37; Manthey & Grossmann, 1997: 334-335, fig. 243

**Material examined.** - None.

**Remarks.** - One specimen was observed by Day (1990: 37) at Kampung Juara. The snake featured on figure 243 in Manthey & Grossmann (1997: 334) was from Pulau Tioman.

***Calamaria lumbricoidea* Boie**

*Calamaria vermiformis* - Hendrickson, 1966a: 67

*Calamaria lumbricoidea* - Day, 1990: 37

**Material examined.** - None.

**Remarks.** - Hendrickson (1966a: 67) recorded one from Tekek-Juara trail between Kampung Tekek and Sungai Ayer Besar crossing at ca. 500 ft. In addition, Day (1990: 37) obtained one from Gunung Kajang at 1050 m and observed another along the Tekek-Juara trail)

***Calamaria pavimentata* Duméril, Bibron & Duméril**

*Calamaria pavimentata* - Day, 1990: 37

**Material examined.** - none.

**Remarks.** - Day (1990: 37) recorded one specimen from the Tekek-Juara trail at 250 m.

***Liopeltis tricolor* (Schlegel)**

*Liopeltis tricolor* - Hendrickson, 1966a: 67

**Material examined.** - none.

**Remarks.** - A single record by Hendrickson (1966a: 67) of an example from the Tekek-Juara trail crossing Sungai Ayer Besar.

***Oligodon purpurascens* (Schlegel)**

*Oligodon purpurascens* - Hendrickson, 1966a: 67

*Oligodon purpurescens* - Day, 1990: 38

**Material examined.** - none.

**Remarks.** - Hendrickson (1966a: 67) recorded one from Ulu Lalang, and Day (1990: 38) found another individual from the Tekek-Juara trail at 300 m.

According to Day (1990: 38), *Oligodon octolineatus* (Schneider), the striped kukri snake is recognised by Tioman islanders. Although this garden snake is common on mainland Peninsular Malaysia, its occurrence on Tioman is yet to be confirmed.

***Oligodon signatus* (Günther)**

*Oligodon signatus* - Hendrickson, 1966a: 67; Day, 1990: 38

**Material examined.** - None.

**Remarks.** - Hendrickson (1966a: 67) recorded one example from the north slope of Gunung Kajang at ca. 2700 ft. Although he did not observe any *Oligodon signatus* on Pulau Tioman, Day (1990: 38) recognised a hitherto undescribed *Oligodon* from a specimen collected along the Tekek-Juara trail at 300 m. It is reportedly similar in appearance to *O. signatus* but differing in head squamation and dorsal colour pattern. A description of this new taxon is apparently in preparation.

***Psammodynastes pulverulentus* (Boie)**

*Psammodynastes pulverulentus* - Day, 1990: 38

**Material examined.** - None.

**Remarks.** - Day (1990: 38) obtained seven juveniles of this mock viper from montane forest on the summit of Gunung Kajang.

***Rhabdophis chrysargos* (Schlegel)**

*Natrix chrysarga* - Hendrickson, 1966a: 67

*Rhabdophis chrysargos* - Day, 1990: 38

**Material examined.** - 1 ex., 150.0+50.0 mm TL (ZRC.2.3694), Sedagong, v.1927.

**Remarks.** - There is an additional record by Hendrickson (1966a: 67) from behind Kampung Juara.

***Cerberus rynchops* (Schneider)**

*Cerberus rynchops* - Hendrickson, 1966a: 67

**Material examined.** - 2 ex., 470.0+135.0-165.0+45.0 mm TL (ZRC.2.3491-3492), Sungai Paya near stream mouth, 25 Jun.1996.

**Remarks.** - Hendrickson (1966a: 67) had earlier recorded one specimen from Kampung Tekek, and another from Kampung Lalang).

***Enhydris plumbea* (Boie)**

**Material examined.** - 1 ex., 150.0+25.0 mm TL (ZRC.2.3490), Sungai Raya, 26 Jun.1996.

**Remarks.** - This freshwater homalopsine is recorded from Tioman for the first time by the present specimen found under a rock in the Sungai Raya. It is dark brownish-grey above

and cream below the lower-most two and a half scales and the upper labials. Underside of tail white with a grey median line. Scales smooth; 19 scale rows over the back; 122 ventral shields; 8 upper labials, 4th and 5th of which touch the eye.

FAMILY ELAPIDAE

*Ophiophagus hannah* (Cantor)

*Naja hannah* - Hendrickson, 1966a: 54

*Ophiophagus hannah* - Day, 1990: 39

**Material examined.** - None.

**Remarks.** - There are notes on actual sightings of a king cobra on Pulau Tioman (Hendrickson, 1966a: 54). This record is not substantiated by specimens.

The presence of *Naja sumatrana* F. Müller, the black spitting cobra, on Tioman is yet to be substantiated with specimens or confirmed sightings. Hendrickson (1966a: 54) reports having seen the hind part of a black snake which he assumed to be a cobra (as *Naja naja*), but Day (1990: 39) did not report any sightings. *Naja sumatrana* is a common snake in the Malay Peninsula, and its presence on Tioman can be expected. The presence of two species of cobra (including *Ophiophagus hannah*) on Pulau Tioman is based solely on sight records. According to Hendrickson (1966a: 54), the '... islanders are uniformly familiar with both of these very distinctive and dangerous snakes, and all reports agree as to the presence of both on the island ...'.

*Maticora intestinalis* (Laurenti)

*Maticora intestinalis* - Day, 1990: 39

**Material examined.** - None.

**Remarks.** - Day (1990: 39) reports an example from the Tekek-Juara trail at 340 m, and another one from primary forest inland of Nipah Bay.

FAMILY CROTALIDAE

*Trimeresurus cf. popeiorum* Smith  
(Fig. 3.)

*Trimeresurus popeiorum* - Day, 1990: 39

**Material examined.** - 1 ex., 575.0+155.0 mm TL (ZRC.2.3493), Gunung Kajang at 1200 ft., 26 Jun.1996.

**Remarks.** - Day (1990: 39) records one from the summit of Gunung Kajang, and in addition, also reports a '... green pit viper with bold markings on the head and body ...' which he attributes to a possible *Tropidolaemus wagleri*. The present specimen from Gunung Kajang has deep maroon bands which vaguely resemble the colouration of juvenile *Tro. wagleri*.



Fig. 3. *Trimeresurus* cf. *popeiorum* (ZRC.2.3493) from Gunung Kajang. Photographed by Benjamin Lee.

However, its meristic characters agree with that of *Trimeresurus popeiorum* (fide Tweedie, 1983: 139). The present specimen has 9 upper labials of which the second borders the loreal pit, 21 rows of transdorsal scales, 173 ventral scales; top of head with smooth scales of which 12 lie in between the narrow supra-ocular scales.

It is not known if the female collected by Day was uniform green with a red tail, the colouration of *Tri. popeiorum* from mainland Peninsular Malaysia and Borneo. Additional specimens are required to ascertain if the Tioman *Tri. popeiorum* represents a distinct taxon.

## ORDER TESTUDINES

### FAMILY TRIONYCHIDAE

#### *Dogania subplana* (Geoffroy)

*Trionyx subplanus* - Boulenger, 1912: 9

*Dogania subplana* - Hendrickson, 1966a: 55

*Trionyx subplanum* - Day, 1990: 40

**Material examined.** - 2 ex., 85.4-86.1 mm CL (ZRC.2.3516-3517), remnant stream ca. 50 m south of Sungai Keliling, 27 Jun.1996; 1 ex., 260.0 mm CL (ZRC.2.3518), Sungai Baharu on right side of Tekek-Juara trail (towards Juara), 28 Jun.1996.

**Remarks.** - This softshell turtle inhabits streams. The largest specimen (ZRC.2.3518) obtained by us is a very dark brown with irregularly-shaped yellow mottles densely distributed over the carapace, head and limbs. The colouration resembles that of *Amyda cartilaginea* (Boddaert) with which it is sometimes syntopic on mainland Peninsular Malaysia. However, the presence of a black vertebral stripe distinguishes it as a *Dogania*.

## ACKNOWLEDGEMENTS

The authors are grateful to Peter K. L. Ng, L. M. Chou, C. M. Yang and N. Sodhi for their support and encouragement. Tommy H. T. Tan, Tan Heok Hui, Tan Swee Hec, Darren C. J. Yeo, Ng Heok Hee, Goh Yan Yih, Benjamin Lee, Leong Tze Ming, Liow Lee Hsiang, Peter K. L. Ng and C. H. Diong provided enthusiastic support in the field. Thanks also to R. F. Inger for his critical comments on our manuscript.

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APPENDIX 1: Checklist of the terrestrial herpetofauna of Pulau Tioman.

Publications

- 1 - Hendrickson (1966)  
 2 - Denzer et al. (1989)  
 3 - Day (1990)  
 4 - Manthey & Grossmann (1997)  
 5 - present checklist

Remarks

- C - specimens examined by present authors at the ZRC  
 S - sight record not substantiated with specimens  
 P - photographic record  
 R - record in literature  
 \* - present new record for Tioman

No.	Taxon	1	2	3	4	5
1.	<i>Ansonia tiomanica</i>	R	-	R	-	-
2.	<i>Bufo asper</i>	-	-	R	-	-
3.	<i>Bufo melanostictus</i>	-	-	-	-	C*
4.	<i>Bufo parvus</i>	R	-	R	-	C
5.	<i>Pelophryne brevipes</i>	R	-	-	R	C
6.	<i>Megophrys nasuta</i>	R	-	R	-	C
7.	<i>Leptotalax gracilis</i>	-	-	R	-	C
8.	<i>Limnonectes blythii</i>	R	-	R	-	C
9.	<i>Rana cancrivora</i>	R	-	R	-	-
10.	<i>Rana chalconota</i>	R	-	R	R	C
11.	<i>Rana doriae</i>	-	-	R	-	-
12.	<i>Rana erythraea</i>	R	-	R	-	-
13.	<i>Rana hosii</i>	R	-	R	R	C
14.	<i>Rana signata</i>	-	-	R	-	-
15.	<i>Chaperina fusca</i>	-	P	R	P	C
16.	<i>Kaloula pulchra</i>	-	R	-	-	S
17.	<i>Kaloula baleata</i>	-	R	-	R	-
18.	<i>Philautus aurifasciatus</i>	R	-	R	-	-
19.	<i>Polypedates leucomystax</i>	R	-	R	-	-
20.	<i>Ichthyophis</i> sp.	-	-	-	-	C*
1.	<i>Bronchocela cristatella</i>	R	-	R	-	C
2.	<i>Draco melanopogon</i>	R	-	R	-	C
3.	<i>Draco volans sumatranus</i>	R	-	R	-	C
4.	<i>Acanthosaura armata</i>	R	-	R	P	-
5.	<i>Gonocephalus grandis</i>	R	-	R	P	C
6.	<i>Gonocephalus chamaeleontinus</i>	R	-	R	P	C
7.	<i>Aphaniotis fusca</i>	R	-	R	P	C
8.	<i>Liolepis belliana</i>	-	-	S	-	-
9.	<i>Dibamus</i> cf. <i>alfredi</i>	-	-	-	P	C
10.	<i>Cnemaspis kendalli</i>	R	-	R	R	C
11.	<i>Cnemaspis nigridius</i>	R	-	R	P	C
12.	<i>Cyrtodactylus</i> sp.	-	-	R	P	C
13.	<i>Cyrtodactylus quadrivirgatus</i>	-	-	-	R	-
14.	<i>Gehyra mutilata</i>	R	-	R	-	-
15.	<i>Gekko monarchus</i>	-	-	S	-	-
16.	<i>Gekko smithii</i>	-	-	-	-	C*
17.	<i>Hemidactylus frenatus</i>	R	-	R	-	S



No.	Taxon	1	2	3	4	5
18.	<i>Dasia olivacea</i>	R	-	R	-	S
19.	<i>Mabuya multifasciata</i>	R	-	R	R	C
20.	<i>Lipinia surda</i>	-	-	R	-	-
21.	<i>Lipinia vittigera</i>	R	-	-	-	S
22.	<i>Sphaenomorphus scotophilus</i>	R	-	R	-	C
23.	<i>Varanus salvator</i>	R	-	R	-	C
24.	<i>Varanus nebulosus</i>	R	-	R	P	C
25.	<i>Rumphotyphlops braminus</i>	R	-	R	-	-
26.	<i>Python reticulatus</i>	R	-	R	-	-
27.	<i>Elaphe flavolineata</i>	-	-	R	-	-
28.	<i>Elaphe porphyracea</i>	-	-	S	-	-
29.	<i>Gonyosoma oxycephalum</i>	-	-	S	-	-
30.	<i>Dendrelaphis caudolineatus</i>	-	-	R	-	-
31.	<i>Dendrelaphis formosus</i>	-	-	R	-	C
32.	<i>Lepturophis albofuscus</i>	-	-	R	P	-
33.	<i>Lycodon effraenis</i>	-	-	-	R	-
34.	<i>Ahaetulla prasina</i>	R	-	R	-	-
35.	<i>Boiga cynodon</i>	-	-	S	-	-
36.	<i>Chrysopelea ornata</i>	-	-	S	-	-
37.	<i>Chrysopelea pelias</i>	-	-	S	P	-
38.	<i>Calamaria lumbricoidea</i>	R	-	R	-	-
39.	<i>Calamaria pavimentata</i>	-	-	R	-	-
40.	<i>Liopeltis tricolor</i>	R	-	-	-	-
41.	<i>Oligodon purpurascens</i>	R	-	R	-	-
42.	<i>Oligodon signatus</i>	R	-	R	-	-
43.	<i>Psammodynastes pulverulentus</i>	-	-	R	-	-
44.	<i>Rhabdophis chrysargos</i>	R	-	R	-	C
45.	<i>Cerberus rynchops</i>	R	-	-	-	C
46.	<i>Enhydris plumbea</i>	-	-	-	-	C*
47.	<i>Ophiophagus hannah</i>	S	-	-	-	-
48.	<i>Maticora intestinalis</i>	-	-	R	-	-
49.	<i>Trimeresurus cf. popeiorum</i>	-	-	R	-	C
50.	<i>Dogania subplana</i>	R	-	R	-	C