

**Komunikasi Pendek/Short Communication**

**Butterflies (Lepidoptera: Nymphalidae) Associated with Pig Carrions in Malaysia**  
 [Rama-rama (Lepidoptera: Nymphalidae) Berasosiasi dengan Bangkai Khinzir di Malaysia]

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ABSTRACT

An entomological study was conducted in Tanjung Sepat, Selangor, Malaysia in May until September 2007 revealing five species of butterflies (all from family Nymphalidae) were attracted to pig carcasses placed in an oil palm plantation. *Euploea mulciber* (Cramer 1777), *Hypolimnas bolina* (Linnaeus 1758), *Elymnias hypermnestra* (Linnaeus 1763), *Mycalesis mineus* (Linnaeus 1758) and *Ypthima baldus* (Fabricius 1775) came to the carcasses at different stages of decomposition. From this study, we know that nymphalid butterflies are attracted to carcasses but their roles are most probably unimportant in post-mortem estimation.

Key words: Butterflies, Nymphalidae, pig carcass, forensic entomology, Malaysia

ABSTRAK

Suatu kajian entomologi telah dijalankan di Tanjung Sepat, Selangor, Malaysia pada bulan Mei hingga September 2007 menunjukkan kehadiran lima spesies rama-rama (kesemua spesies daripada famili Nymphalidae) tertarik kepada bangkai khinzir yang terletak di sebuah ladang kelapa sawit. Antaranya ialah *Euploea mulciber* (Cramer 1777), *Hypolimnas bolina* (Linnaeus 1758), *Elymnias hypermnestra* (Linnaeus 1763), *Mycalesis minues* (Linnaeus 1758) dan *Ypthima baldus* (Fabricius 1775). Rama-rama ini mendekati bangkai khinzir pada peringkat pereputan yang berbeza. Daripada kajian ini, kami mendapati bahawa rama-rama daripada famili Nymphalidae adalah tertarik kepada bangkai tetapi peranan mereka adalah tidak berkepentingan dari segi penganggaran sela waktu kematian.

Adult butterflies are varied in size, from small to very large, and covered with scales. They have two pairs of scaled membranous wings, prominent antennae (also variable in form), and mouthparts, generally a coiled sucking proboscis (vestigial in some species). Their compound eyes are prominent and the life cycle undergoes complete metamorphosis. The larva (caterpillar) abdomen usually with five pairs of proto-legs while pupa enclosed in cocoon (Catts & Haskell 1990).

Pig carcasses were placed in an oil palm plantation in Tanjung Sepat, Selangor, Malaysia to observe insects succession and decomposition process from May until September 2007. Five different species of butterflies visited

the decaying pig carcasses during various stages of decomposition (Table 1). These butterflies were caught by hand net, pinned and kept in the Department of Parasitology & Medical Entomology, Faculty of Medicine, UKM. Key of identification was based on the reference of Corbet & Pendlebury (1992) and was confirmed by Prof. Dr. Mohd. Sofian Azirun from Institute of Biological Science, Faculty of Science, University of Malaya.

*Euploea mulciber* (Cramer 1777) (Nymphalidae) was attracted to a carcass, which was hanged for two days (fresh stage of decomposition). Another butterfly attracted to carrion was *Hypolimnas bolina* (Linnaeus 1758) (Nymphalidae) which was attracted to a burnt pig carcass

TABLE 1. Presence of butterfly during different decomposition stages

Stages Species	Fresh stage (Day 1-2)	Bloated stage (Day 3-4)	Active decay stage (Day 5-6)	Advance decay stage (Day 7-8)	Dry stage (Day 9 onwards)
<i>Eploea mulciber</i>	Yes (1)	-	-	-	-
<i>Hypolimnas bolina</i>	-	-	-	Yes (1)	-
<i>Elymnias hypermnestra</i>	Yes (1)	Yes (1)	Yes (1)	-	-
<i>Mycalesis mineus</i>	Yes (1)	Yes (1)	-	-	-
<i>Ypthima baldus</i>	Yes (1)	-	-	Yes (1)	-

( ) = total numbers of butterfly observed

placed on top of the soil in the oil palm plantation. The later came when the pig carcass was nearly skeletonized (advance decay stage of decomposition) on day nine.

*Elymnias hypermnestra* (Linnaeus 1763) (Nymphalidae) was observed landing three times on the pig carcasses. It came to the pig carcasses at fresh stage (Day-2 of death), bloated stage (Day-4 of death) and active decay stage of decomposition (Day-5 of death).

*Mycalesis mineus* (Linnaeus 1758) (Nymphalidae) was observed two times on the same pig carcass, which was placed on the ground. It came during fresh stage and bloated stage of decomposition (Day-2 and Day-3 of death).

*Ypthima baldus* (Fabricius 1775) (Nymphalidae) came to the pig carcasses that placed on ground at two different stages. It arrived on Day-2 (fresh stage) and Day-9 of death (advance decay stage of decomposition).

*Euploea mulciber* (Nymphalidae) also known as striped blue crow butterfly (Figure 1 & 2) is a butterfly found in India that belongs to the Crow and Tigers, that is, the Danaid group of the Brush-footed butterflies family. Its wingspan is about 9-11 cm. This butterfly can be found in south India and south China, and through Sundaland to the Philippines. The habitat includes primary and secondary forests. The common name of this species

describes the female butterfly, where the hind wing is striped with narrow white streaks. The male has bright blue-shot forewings above and a reddish brown hind wing. The undersides are drably colored with white sub-marginal spots. Its caterpillar is known to feed on *Ficus* and *Nerium*. The adult butterfly is also attracted to the dried *Heliotropium indicum* plant (Bingham 1905).

The Great Eggfly (*Hypolimnna bolina*) (Figure 3 & 4), also called bluemoon butterfly in New Zealand or Common Eggfly is a species of nymphalid butterflies (Liza Gross 2006). The Great Eggfly is a black-bodied butterfly with a wingspan of about 7-8.5 cm. The species has a high degree of sexual dimorphism. The upper side of the male wings are jet black, offset with three pairs of white spots two on the forewing and one on the hind wing. These white spots are surrounded by purple iridescence. In addition, the upper side of the hind wing bears a series of small white dots. The upper side of the wings of female is brownish black and does not have any spot like those of male. The edges bear white markings, which are similar to those of the Common Indian Crow butterfly. The Great Eggfly are found in Madagascar in the West, through to South and Southeast Asia, South Pacific Islands (French Polynesia, Tonga, Samoa, Vanuatu) and part of Australia, Japan and New Zealand. The Great Eggfly is known



FIGURE 1. *Euploea mulciber* attracted to the hanged pig carcass (fresh stage)



FIGURE 2. Male *E. mulciber* (D ≈ 10.0 cm)  
(D = Diameter/wing span)



FIGURE 3. *Hypolimnna bolina* on skull of a burnt pig (advance decay stage)



FIGURE 4. Male *H. bolina* (D ≈ 8 cm)

for maternal care behavior, with the female guarding leaves where eggs have been laid. Males are also very territorial. The female hovers over a plant to check for ants, which will eat her eggs. After selecting a plant which has no ants on it, she lays at least one but often two to five eggs on the undersides of leaves. Race bolina breeds on *Fleuria interrupta*, *Sida rhombifolia* (Kunte 2006), *Elastostemma cuneatum*, *Portulaca oleracea*, *Laportea interrupta* (Bell 1910), and *Triumfetta pentandra* (Rajagopalan 2005).

*Elymnias hypermnestra* (race *undularis*) also called the Common Palmfly, is a species of satyrid butterfly found in South Asia (Figure 5). As some other species in the genus *Elymnias*, the common palmfly has a precostal cell on the hindwings and a hair tuft of androconial scales on dorsal discal cell of hindwing. This butterfly species is dimorphic, whereby males and females do not look alike. Males exhibit black colored upperside forewings with small blue patches and reddish brown color on upperside of hindwings, while the females mimic butterfly species of the genus *Danaus*. It can be found in India, Sub-Himalaya and Southeast Asia. They feed on plants includes *Cocos nucifera*, *Calamus pseudo-tenuis*, *Calamus rotang*, *Calamus thwaitesii*, *Phoenix loureirii* and *Licuala chinensis* (Kunte 2006). Larvae are known to be cannibalistic (Boireau 1995).



FIGURE 5. Male *Elymnias hypermnestra* (D ≈ 5.5 cm)

*Mycalesis mineus* (Figure 6) also known as the Dark-Branded Bushbrown, is a species of satyine butterfly found in Asia. The upper side is dark Vandyke-brown; fore and hindwings with slender subterminal and terminal pale lines. Forewing with a single white-centred, fulvous-ringed, black ocellus, which generally sets in a square pale area. Hindwing is uniform but sometimes with one or two obscure postmedian ocelli (Bingham 1905).

*Ypthima baldus* or The Common Fivering, is a species of Satyrinae butterfly and is found in Asia (Figure 7 and 8). The male upper side is brown, both fore and hind wing with terminal margins much darker, and generally with more or less distinct sub-basal and discal dark bands. The fore wing with a large, slightly oblique, oval, bi-pupilled, yellow-ringed black, pre-apical ocellus. Hind wing with two postdiscal, round, uni-pupilled, similar but smaller ocelli. Underside is ochraceous-white, ground color paler, tin-transverse brown strice coarser, the ocelli on the hind wing more distinctly in echelon, two tornal, two median, and two pre-apical. Wing expanse is about 38-46 mm. The distribution includes Sub-Himalaya India from Chamba to Sikkim and Bhutan, Central India and the hills of southern India and Western Ghats, Assam, Myammar and the Tenasserim (Bingham 1905).



FIGURE 6. *Mycalesis mineus* (D ≈ 5.0 cm)



FIGURE 7. *Ypthima baldus* on a pig bone (advance-decay stage of decomposition)



FIGURE 8. *Y. baldus*. (D ≈ 3.0 cm)

Adult Lepidopteran are frequently attracted to decaying remains and feed on decomposition fluids (Catts & Haskell 1990). Reed (1958) listed 14 species of adult Lepidoptera associated with dog carcasses in Tennessee; ten of which he observed feeding on the carcasses. They belong to the Geometridae, Hesperidae, Lycaenidae, Nymphalidae, Papilionidae and Sphingidae families. Similar results were given by Payne and King (1969), they collected 21 species of Lepidopteran belonging to Papilionidae, Satyridae, Nymphalidae, Hesperidae, Sphingidae, Noctuidae, Geometridae, Pyralidae and Tineidae families from pig carrions during different stages of decomposition. Five species of Nymphalid butterflies, *Chlosyne nycteis*, *Phyciodes tharos*, *Polygonia faunus*, *Asterocampa clyton* and *Asterocampa celltis* were observed feeding on carrion fluid. However, butterflies in our study were not the same species mentioned by Payne & King (1969). It may be due to different ecological habitats of nymphalid butterflies throughout the world. Early and Goff (1986) and Tullis and Goff (1987), working in both wet and dry habitats of the Hawaiian Island, recovered larvae of Tineidae and Gelechiidae from soil under carcasses during late decomposition of carcass.

In our study, we report five species of butterflies from the Nymphalidae family (*Eploea mulciber*, *Hypolimnas bolina*, *Elymnias hypermnestra*, *Mycalesis mineus* and *Ypthima baldus*) that was associated with pig carcasses in Malaysia for the first time. No butterfly larvae were found from the carcass at this stage.

At this time it is not clear what role these butterfly may play in the ecology of decomposition and forensic entomology. However, behavioral studies on butterflies in this country should be conducted for a better

understanding of the role it may play in decomposing of organic matters.

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