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Research Note

First report of the signal fly, *Scholastes* sp. (Diptera: Platystomatidae) visiting animal carcasses in Malaysia

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Abstract. Signal fly, *Scholastes* sp. (Diptera: Platystomatidae) was observed associated with animal carcasses in Malaysia. The first observation was on a monkey carcass, which was killed by using a handgun and immediately placed in a forested area in Gombak, Selangor while the second observation was on a pig that died of natural causes and whose carcass was placed in an oil palm plantation in Tanjung Sepat, Selangor. Both animal carcasses were visited by *Scholastes* sp. flies during the fresh decomposition period. However, the role *Scholastes* flies in the decomposition process remains unknown. In this paper, we report the occurrence of *Scholastes* sp. on animal carcasses in Malaysia for the first time.

Platystomatidae, recently termed signal flies, belongs to order Diptera. Platystomatidae are worldwide in distribution and one of the largest families of acalyptrate flies with around 119 known genera and nearly 1,200 described species (McAlpine, 2001).

The present study was the first report on the observations of a signal fly, *Scholastes* sp. (Diptera: Platystomatidae) visiting monkey and pig carcasses in Malaysia. The adult signal flies were caught by using sweep net. The signal flies were then killed, pinned and identified by Dr. David K. McAlpine, a taxonomist at the Australian Museum, Sydney, Australia.

The first observation was on a monkey (*Macaca fascicularis* Raffles) carcass. The study was conducted to determine successional fauna using monkey carcass in a forested area in Wildlife Research Centre, University of Malaya, 16th Mile of Gombak District, Selangor, Malaysia. The monkey carcass was used as a model for human decomposition. The monkey was killed by a single shot to the forehead from a handgun at point blank by a member of the Department of Wildlife and National Parks (PERHILITAN), peninsular Malaysia, Ministry of Natural Resources and Environment, Malaysia. The study protocol was approved by Institute for Medical Research's Unit of Animal Care and Use Committee (ACUC).

After death was confirmed, the monkey carcass was immediately dressed in a cotton t-shirt and placed outdoor in a forest. Observers sat near to the carcass to observe and confirm the timing of arrival of forensically important insects. Within an hour, the blowflies, *Hypopygiopsis* sp. was the first visitor on the carcass, followed by *Chrysomya* sp. A signal fly, *Scholastes* sp. was also observed visiting the carcass during the first hour. The *Scholastes* sp. landed on the body and sucked the blood stain on the cloth (Figure 1). No *Scholastes* sp. was observed visiting the monkey carcass after first the day and they were not observed to oviposit on or around the body.

The second observation was on a pig (*Sus scrofa* Linnaeus) carcass. A forensic entomological study was conducted in an oil palm plantation in Tanjung Sepat, Selangor, Malaysia on August 2007 using a young pig as a carcass model to study the insect succession and decomposition patterns. The pig had died naturally as a result of pneumonia and was immediately placed inside the oil palm plantation located nearby the pig farm. Within five minutes of placement, a signal fly, *Scholastes* sp. was observed to land on the pig carcass, followed by the blowfly, *Chrysomya megacephala* (Fabricius). However, as in the first case no oviposition by *Scholastes* sp. was observed.

There were papaya trees around the pig carcass and several *Scholastes* sp. were observed landing on decayed fruits on the ground. This indicated that these flies were attracted to decaying organic matters, including decomposing fruit, vegetable and probably animal carcasses. These observations are in agreement with those of McAlpine (1973) who stated that adult Platystomatidae are attracted to flowers, decaying fruit, excrement, and decomposing snails. In our study, we observed that *Scholastes* sp. was attracted to dead animal and decaying fruit.

According to Steyskal (1971) immature stages of Platystomatidae are found on fresh and decaying vegetation, carrion, human corpses, and root nodules of legumes. However, in our study, we did not find any larva stages of *Scholastes* sp. feeding on animal carcasses and there is no evidence in the literature to suggest that they are commonly found on decaying bodies of humans or other larger mamals.

Figure 1. *Scholastes* sp. was observed landing at the bloodstain on the cloth worn by a freshly dead monkey (*Macaca fascicularis* Raffles).

The larva of an Australian species of the genus *Euprosopia* has been observed eating a coleopterous pupa, while the larvae of *Elassogaster linearis* (as *sepsoides*) have been recorded attacking egg pods of *Locusta migratoria* in the Philippines and Papua New Guinea, and *Trigonosoma decorum* (de Meijere) has been recorded feeding on human lesions (Steyskal 1971). So far, there is no report on Malaysian species of Platystomatidae playing a role as a predator for other pest insects or of any known medical importance.

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