香港虻類初探
A brief account of Orthorrhaphous Brachycera (Diptera) in Hong Kong

胡嘉麟 Wu Ka Lun, Kelvin
Email: kelvinklwu@gmail.com

引言

在香港，虻類比其他雙翅目成員(蚊和蠅)較少爲人注意和研究，原因可能是由於很多虻類成員屬捕食性 / 蜜食性，甚少對經濟造成直接影響；即使嗜血的虻科昆蟲可傳播疾病，其嚴重程度亦遠不及牠們的近親。事實上，虻類中很多科在全世界已發現超過五千種，考慮本地其他昆蟲品種的豐度，相信香港仍有很多虻類待發掘。本文將結集以往文獻紀錄以及近年野外觀察所見，概述香港各科虻類品種，希望能爲本地虻類研究作拋磚引玉之用。

Introduction

The Hong Kong Orthorrhaphous Brachycera fauna is less noticed and studied than their local Dipteran counterparts. It may be due to their predatory / nectarivorous habits that rarely have direct impact on our economy. Even the blood-sucking Tabanidae members are known to spread disease, the consequence is far less severe than their relatives. In fact, many families of Orthorrhaphous Brachycera contain over 5,000 species over the world. By comparing the abundance of other insects, it is believed that there are still many of this Dipteran group to be discovered in Hong Kong. This article summarizes records of Hong Kong Orthorrhaphous Brachyceran flies from both literatures and field observations, so as to formulate a basis for future studies.

虻類解構

在中文俗名中，以「虻」命名之昆蟲通常指雙翅目短角亞目中不屬於蠅型下目之成員。基於羽化時蛹皮裂口之形態，過去牠們被歸類作直裂下目，蠅型下目之成員則屬環裂下目。相信以往中國學者亦是基於此而將兩個分類群成員之名字分別綴以「虻」或「蠅」字。惟依照種系發生學之研究，顯示直裂下目爲一側系群，故普遍學者已摒棄這種分類法。原來直裂下目之成員分別歸入食木虻型下目、虻型下目、水虻型下目及食蟲虻型下目；亦有學者將食蟲虻型下目的成員納入蠅型下目，意見紛紜。本文所討論的虻類昆蟲是指舊分類法中直裂下目之成員，分類系統參照Pjotr Oosterbroek (1998)，當中引用McAlpine & Wood (1989)的分類方法。

虻類屬短角亞目中較原始的一群。與長角亞目一樣，牠們的蛹型爲離蛹，蛹期時肢體通常可見而不能動，羽化時成蟲從頭部背面一條縱向裂紋破蛹而出，在其前方有時會有一條較小的橫裂，形成“T”字型裂縫，故被稱爲直裂下目；環裂下目則形成圍蛹，羽化時從頭部破開圓洞爬出。虻類成蟲各科體型、外貌差別甚大，體長由一毫米至七十毫米不等。複眼通常佔頭部大半面積，單眼卻並非所有種類都有。捕食性和吸血性虻類(如虻科和食蟲虻科)通常具刮舔式口器，爲雙翅目中所特有；而食腐、食樹汁等虻類(如木虻科和水虻科)則有如蠅類般的舔吸式口器。幼蟲爲腐食性、捕食性或寄生性，一般爲陸棲，而部分虻科和水虻科的幼蟲則在水中生活。

What are Orthorrhaphous Brachycera flies?

The collective term Orthorrhaphous Brachycera includes dipteran members of the suborder Brachycera that are not included in the infraorder Muscomorpha. Because of the straight aperture on the pupa when the adult emerges, they were once grouped in the infraorder Orthorrhapha, as opposite to Cyclorrhapha (now synonymous to Muscomorpha), the pupa aperture of which is in circular shape during emerging. It is believed that the former Chinese entomologists suffixed the Chinese common name of all "Orthorrhaphan" and "Cyclorrhaphan" flies with the words "虻" and "蠅" respectively based on this classification system. Phylogenetic studies, however, reveals that "orthorrhapha" is a paraphyletic group, and thus the term has become obsolete. The original orthorrhaphan flies are re-classified into infraorders Xylophagomorpha, Tabanomorpha, Stratiomyomorpha and Asilomorpha, and the latter is sometimes grouped under Muscomorpha. Until now their classification is still under debate. Flies discussed in this article are those belong to "Orthorrhapha" under old systems. Classification adopted by Pjotr Oosterbroek (1998), citing the system proposed in McAlpine & Wood (1989), is followed.

"Orthorrhapha" is the more primitive group in Brachycera. Similar to Nematocera, their pupae are obtect that the appendages are clearly visible and closely packed to the body. Pharates emerge from a longitudinal cleft at the dorsal side of the anterior end (hence the term "Orthorrhapha"). This is usually accompanied with a small horizontal one, the two forming a "T" shape opening. In Cyclorrhapha, the pupae are coarctate (i.e. encased by puparium), and the pharates emerge by pushing open a circular slit (hence the infraorder name). Adults are distinctly different among families in terms of appearance and size. Body lengths vary from 1mm to 70mm. Compound eyes usually occupy the majority of the head's surface area, while ocelli are not always present. Predatory / hematophagous species (e.g. Tabanidae and Asilidae) usually have scimitar-like mandibles that are unique in Diptera. Saprophagous and tree-sap suckling species (e.g. Xylomyidae and Stratiomyidae) are with sponge-like mouthparts similar to Muscomorpha. Larvae are saprophagous, predatory or parasitic, and usually live on ground. Larvae of some species in Tabanidae and Stratiomyidae are aquatic.

表1 虻類分科表

Table 1 Family Classification for Orthorrhaphous Brachycera (McAlpine & Wood 1989, cited by Oosterbroek 1998)

雙翅目 Order Diptera

短角亞目 Suborder Brachycera

食木虻型下目 Infraorder Xylophagomorpha
- 食木虻科 Family Xylophagidae

虻型下目 Infraorder Tabanomorpha
- 穴虻科 Family Vermileonidae
- 鷸虻科 Family Rhagionidae
- 流虻科/僞鷸虻科 Family Athericidae
- 虻科 Family Tabanidae

水虻型下目 Infraorder Stratiomyomorpha
- 木虻科 Family Xylomyidae
- 水虻科 Family Stratiomyidae

食蟲虻型下目 Infraorder Asilomorpha

網翅虻總科 Superfamily Nemestrinoidea
- 小頭虻科 Family Acroceridae
- 網翅虻科 Family Nemestrinidae

食蟲虻總科 Superfamily Asiloidea
- 蜂虻科 Family Bombyliidae
- 劍虻科 Family Therevidae
- 窗虻科 Family Scenopinidae
- 食蟲虻科 Family Asilidae
- 擬食蟲虻科 Family Mydidae
- 棘虻科 Family Apioceridae

舞虻總科 Superfamily Empidoidea
- 舞虻科 Family Empididae
- 阿舞虻科 Family Atelestidae
- 駝舞虻科 Family Hybotidae
- 小室舞虻科 Family Microphoridae
- 長足虻科 Family Dolichopodidae

除以上所列者外，虻類中尚有其他較新或具爭議的科，在此不予贅述。

In addition to the list above, there are still some new or controversial families of Orthorrhaphous Brachycera, the details of which are not discussed in this article.

本地文獻紀錄

過往有關香港虻類的紀錄寥寥可數，大部分散見於介紹本地昆蟲之著作中。下面撮錄了這些文獻中所紀錄的香港虻類品種。

Literatures on local species

In the past, descriptions on Hong Kong Orthorrhaphous Brachycera are few, mostly scattered in books on local insect fauna. Species recorded by these literatures are summarized as follows.

(1) Hill, D.S. & Cheung, W.K.K. (1978) *Hong Kong Insects* 香港昆蟲. Urban Council, Hong Kong.

Family 科	Scientific Name 學名	Chi. name 中文俗名	Eng. name 英文俗名
Tabanidae 虻科	*Tabanus* sp.	虻	Horse Fly / Cleg

(2) Hill, D.S. (1982) *Hong Kong Insects Volume II* 香港昆蟲卷二. Urban Council, Hong Kong.

Family 科	Scientific Name 學名	Chi. name 中文俗名	Eng. name 英文俗名
Tabanidae 虻科	*Tabanus* sp.	灰馬虻	Grey Horse Fly
Tabanidae 虻科	*Chrysops* sp.	斑虻/盲虻/綠眼馬虻	Green-eyed Horse Fly
Stratiomyidae 水虻科	*Stratiomya* sp.	水虻	—
Therevidae 劍虻科	*Thereva* sp.	劍虻	—
Asilidae 食蟲虻科	*Philodicus javanus*	爪哇盜虻/海岸盜虻	Seashore Robber Fly
Asilidae 食蟲虻科	—	褐盜虻	Brown Robber Fly
Bombylinidae 蜂虻科	*Ligyra tantalus*	黑蜂虻/大黑蜂虻	Large Black Bee Fly
Bombylinidae 蜂虻科	*Anthrax* sp.	戀虻/小蜂虻	Small Bee Fly

(3) Hill, D.S., Hore, P.M. & Thornton, I.W.B. (1982) *Insects of Hong Kong*. Hong Kong University Press.

Family 科	Scientific Name 學名	Chi. name 中文俗名	Eng. name 英文俗名
Stratiomyiidae	*Stratiomyia* sp.?	—	—
Tabanidae	*Tabanus* sp.	—	—
Tabanidae	*Chrysops* sp.	—	—
Asilidae	*Promachus indigenous*	—	—
Asilidae	*Philodious javanicus*	—	—
Bombylinidae	*Anthrax* sp.	—	—
Bombylinidae	*Ligyra tantalus*	—	—

(4) Hill, D.S. & Phillipps, K. (1989) *A Colour Guide to Hong Kong's Animals (2nd Ed.)* 香港動物原色圖鑑. Government Printer, Hong Kong Government.

Family 科	Scientific Name 學名	Chi. name 中文俗名	Eng. name 英文俗名
Asilidae 食蟲虻科	*Trypanoides indigenous*	食蟲虻	Robber Fly
Bombyliidae 蜂虻科	*Ligyra tantalus*	黑蜂虻	Black Bee Fly
Tabanidae 虻科	*Tabanus* sp.	虻	Horse Fly

(5) 饒戈Yiu, V. (2006) *Insecta Hongkongica* 香港昆蟲圖鑑. Hong Kong Lepidopterists' Society & Hong Kong Discovery 香港鱗翅目學會及野外動向.

Family 科	Scientific Name 學名	Chi. name 中文俗名	Eng. name 英文俗名
Tabanidae 虻科	*Tabanus* sp.	虻	Horse Fly
Asilidae 食蟲虻科	—	食蟲虻	Robber Fly
Bombyliidae 蜂虻科	*Ligyra tantalus*	小亞細亞清蜂虻	Bee Fly

(6) 香港自然探索學會 Society of Hong Kong Nature Explorers (2008) *Pictorial Guide to Hong Kong Insects and Spiders*. 香港昆蟲及蜘蛛圖冊

Family 科	Scientific Name 學名	Chi. name 中文俗名	Eng. name 英文俗名
—	*Ligyra tantalus*	小亞細亞清蜂虻	—
—	*Systropus* sp.	蜂虻	—
—	*Aulacophora indica* (應爲手民之誤 Typo error)	食蟲虻	—
—	*Tabanus* sp.	虻	—

(7) 香港政府食物及環境衛生署：防治蟲鼠事務諮詢組曾處理之動物品種紀錄
Record of animal specimens handled by Pest Control Advisory Section, Food and Environmental Hygiene Department, Hong Kong Government. http://www.fehd.gov.hk/safefood/risk-pest-arthropod_detailslist.html

Family 科	Scientific Name 學名	Chi. name 中文俗名	Eng. name 英文俗名
Stratiomyidae 水虻科	*Hermetia illucens* (larvae)	—	—
Tabanidae虻科	*Tabanus lineola*	—	—
—	*Tabanus rubidus*	紅色原虻	—

(8) 楊再華，楊燕，魏濂艨及楊茂發YANG, Zai-hua, YANG, Yan, WEI, Lian-meng, YANG, Mao-fa (2008) 中國水虻科名錄（雙翅目） A Checklist of Chinese Stratiomyidae (Diptera). In *Classification and Distribution of Insects in China* 昆蟲分類與分佈 (ed. Shen *et al*).

Sub-family 亞科	Scientific Name 學名	Chi. name 中文俗名	Synonym 同物異名
扁角水虻亞科 Hermetiinae	*Hermetia illucens* Linnaeus 1758	亮斑扁角水虻	—
扁角水虻亞科 Hermetiinae	*Ptecticus tenebrifer* (Walker) 1849	黑色指突水虻	*P. illucens* Schiner 1868b, *P. sinensis* Pleske 1928a
扁角水虻亞科 Hermetiinae	*Sargus mandarinus* Schiner 1868b	柑橘瘦腹水虻	—
扁角水虻亞科 Hermetiinae	*Sargus viridiceps* Macquart 1855	綠紋瘦腹水虻	—
水虻亞科 Stratiomyinae	*Odontomyia garatas* Walker 1849	黃綠斑水虻	*O. staurophora* Schiner 1868

從以上資料中可見虻科（尤其是虻屬）、食蟲虻科及蜂虻科（尤其是小亞細亞清蜂虻）記載較其他科爲多，原因可能是牠們體型較大，較常遇見及容易分辨，又或者因爲其「害蟲」的身份（主要指虻科），而其他科則因體型細小難以觀察而被忽略。事實上，筆者在野外遇到長足虻科成員的次數和生境種類比虻科的還要多。

It can be seen that there are more records of Tabanidae (in particular *Tabanus* sp.), Asilidae and Bombyliidae (in particular *Ligyra tantalus*) than other families, probably because of their larger size, more frequent encounter, easier identification, or the identity as a “pest” (Tabanidae). Other families may be ignored due to their small size. Indeed, members of Dolichopodidae are more frequently encountered in various habitats by the writer than those of Tabanidae.

野外觀察紀錄

以下列出一些近年在香港野外觀察到的虻類。由於並無保留標本作仔細鑒定，故部分屬名未能肯定，僅供參考比較之用。

Field observation records

The followings are records of Orthorrhaphous Brachycera observed in Hong Kong nature in recent years. Since no specimen has been kept for identification, the genus name given for some species are indeterminate and are shown for reference and comparison only.

1. 虻科

外貌如大型蠅類，體型粗壯，頭呈半球型；複眼巨大，視覺是牠們的主要受感，多爲日行性。幼蟲期生於水中，捕獵其他動物；成蟲吸食花蜜，雌蟲具刮舔式口器，可刮開動物表皮，吸食哺乳類動物血液，不單造成痛楚，更可令牲畜出血過多或傳染疾病(如羅阿絲蟲病和炭疽病)，造成經濟損失，故被認爲是害蟲。全世界虻科昆蟲約有四千多種，中國約有四百多種。

早於漢初之時，中國已有典籍記載虻蟲有散瘀積之藥效(見《淮南子》及《神農本草經》)。李時珍在《本草綱目》中提及三種可入藥的虻，包括木虻(相信並非指木虻科)、蜚虻及鹿虻(或稱牛虻)，從其「並能啖血」的描述，似乎所指的是虻科中的不同種類。


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圖 1.1 虻屬
Figure 1.1 *Tabanus* sp.


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圖 1.2 麻虻屬
Figure 1.2 *Haematopota* sp.


© Paul Aston
圖 1.3 異斑虻
Figure 1.3 *Chrysops dispar*


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圖 1.4 虻科品種
Figure 1.4 Tabanidae sp.


© Paul Aston
圖 1.5 虻科品種
Figure 1.5 Tabanidae sp.

1. Tabanidae (Horse flies)

Large flies with robust body and hemispherical head with very large compound eyes. They depend largely on vision and are mostly diurnal. Larval stage aquatic, preying on other animals. Adults feed on nectar. Females possess scimitar-like mandibles that are used to peel off the epidermis of mammals for sucking blood. More than mere pain, it may cause severe blood loss in livestock or transmit diseases like loa loa filarial or anthrax. Because of the economic loss so incurred, they are often considered pests. Over 4,000 species of Tabanidae are described worldwide, 400 of which are found in China.

Horse flies were described to be effective in treating hematoma in Chinese medicine publications since the early Han dynasty. In the famous *Compendium* of *Materia Medica* by Li Shizhen, three types of "flies" were said to have medical use. From the description on their blood-sucking behaviour, it is believed that all these are Tabanidae species.

(i) 虻屬（圖1.1）
體長約十五毫米，應是本港最常見的虻科昆蟲。

(i) *Tabanus* sp. (Figure 1.1)
Body length 15 mm. Should be the most common Tabanid species in Hong Kong.

(ii) 麻虻屬（圖1.2）
全身均帶黑白斑紋，包括複眼及翅膀，觸角粗而長。

(ii) *Haematopota* sp. (Figure 1.2)
Variegated with white and black spots over the whole body, including compound eyes and wings. Antennae swollen and lengthy.

(iii) 異斑虻（圖1.3）
色彩斑斕的虻，翅外緣及中段有黑斑。

(iii) *Chrysops dispar* (Figure 1.3)
A colourful Tabinid. Black bands along anterior edge and over the middle part of the wings.

(iv) 虻科品種（圖1.4 及1.5）
其他未經辨認的虻科昆蟲。

(iv) Tabanidae sp. (Figures 1.4 and 1.5)
Other unidentified Tabanidae species.

2. 鷸虻科

鷸虻屬中型虻類，腿部細長，腹部幼細，身體一般無剛毛；成蟲捕食其他昆蟲或吸血。全世界約五百種。

2 . Rhagionidae (Snipe flies)

Snipe flies are medium sized flies with stilt legs and slender bodies, which usually lack bristles. Adults are predaceous or haematophagous. About 500 species were found worldwide.

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圖 2.1 金鷸虻屬
Figure 2.1 *Chrysopilus* sp.

(i) 金鷸虻屬（圖2.1）

金鷸虻屬廣泛分佈全世界。此品種翅膀透明，前緣有一黑點；腹部黑色帶幼白間披細毛。

(I) *Chrysopilus* sp. (Figure 2.1)

The genus *Chrysopilus* is distributed worldwide. The species shown has transparent wings with a black spot near the anterior margin. Pilose abdomen with black and thin white stripes.

3. 木虻科

木虻科是較小的一科，全世界只有約一百一十種，其中四分之三屬於粗腿木虻屬。木虻以腐木爲食，具舔吸式口器，雙翅摺疊於腹背上，與同屬水虻型下目的水虻科類似。

3 . Xylomyidae (Wood soldier flies)

Xylomyidae is a small family with only 110 described species worldwide. Three quarters of them are classified as genus *Solva.* Wood soldier flies are with sponge-like mouthparts and feed on decaying wood. The wings are folded on the back of abdomen when at rest, similar to Stratiomyidae under the same infraorder.

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圖 3.1 粗腿木虻屬
Figure 3.1 *Solva* sp.

(i) 粗腿木虻屬（圖3.1）

體長約八毫米，胸背黑色，具光澤鬃毛，腹部橙色，後足腿節粗壯。

(i) *Solva* sp. (Figure 3.1)

Body length about 8 mm. Dorsal side of thorax in black with shiny bristle. Orange abdomen. Hind legs with robust femora.

4. 水虻科

水虻科的幼蟲多在水體或濕地中生活，故名。成蟲小型至中型，普遍外貌擬態胡蜂，相對其他虻類較不活躍，休息時雙翅摺疊於腹背上。口器爲舔吸式，與蠅類相似，食性多樣化。全世界已發現一千五百多種，楊再華等(2008)記載中國水虻科昆蟲一百八十三種，其中四種在香港有紀錄。

3. Stratiomyidae (Soldier flies)

Most larvae of Stratiomyidae live in water or wetland. Imago size small to medium. Many of them are mimics of wasps. They are less active and usually have their wings folded on the back of abdomen. Like Muscomorpha, they have sponge-like mouthparts, feeding on a variety of food types. About 1,500 species have been described in the world. Yang et al (2008) listed 183 species of soldier flies in China, four of them were recorded in Hong Kong.


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圖 4.1 金黃指突水虻
Figure 4.1 *Ptecticus aurifer*

(i) 金黃指突水虻（圖4.1）
全身橙黃色，複眼綠色，接近二十毫米長，常見於新界溪流附近。

(i) *Ptecticus aurifer* (Figure 4.1)
Whole body in orange. Compound eyes in green. Body length near 20 mm. Commonly seen near streams in New Territories.


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圖 4.2 瘦腹水虻屬
Figure 4.2 *Sargus* sp.

(ii) 瘦腹水虻屬（圖4.2）
黑色身軀，複眼紅色。未確定是否與有紀錄的兩種瘦腹水虻之一。

(ii) *Sargus* sp. (Figure 3.2)
Black body and red compound eyes. Not sure if it is one of the two locally recorded *Sargus* sp.


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圖 4.3 光亮扁角水虻
Figure 4.3 *Hermetia illucens*

(iii) 光亮扁角水虻（圖4.3）
這品種因人爲因素成爲全世界廣泛分佈的品種，其食腐性幼蟲常被應用在堆肥、寵物飼料或法證等方面。光亮扁角水虻的體型與外貌與方頭泥蜂科的 *Trypoxylon politum* 極爲相似，尤其是仿蜂的特長觸角，與及模擬蜂腰、儼如透明的腹部基節。Hill *et al* (1982) 所提及的 *Stratiomyia* sp. 相信便是指此品種。

(iii) *Hermetia illucens* (Black soldier fly) (Figure 4.3)
A species widely distributed over the world as a result of human activities. Their saprophagous larvae are commonly used in composting, as pet food or in forensic science. Its appearance highly resembles the organ pipe mud dauber *Trypoxylon politum* (Hymenoptera: Crabronidae), in particular the wasp-like elongated antennae and the "windows" in the base segments of the abdomen that mimic wasp waists. It is believed that the *Stratiomyia* sp. mentioned in Hill *et al* (1982) is indeed *H. illucens*.


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圖 4.4 小麗水虻屬
Figure 4.4 *Microchrysa* sp.

(iv) 小麗水虻屬（圖4.4）
體型細小，頭部比例較大，複眼紅色，胸背板金屬綠色，近似黃腹小麗水虻。另亦見一種全身綠色的品種(圖4.5)。

(iv) *Microchrysa* sp. (Figure 4.4)
A small fly with comparatively large head. Red compound eyes. Metallic green dorsum. Close to *M. flaviventris*.Another species with whole body in green has also been found.(Figure 4.5)


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圖 4.5 小麗水虻屬
Figure 4.5 *Microchrysa* sp.


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圖 5.1 小亞細亞清蜂虻
Figure 5.1 *Ligyra tantalus*


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圖 5.2 清蜂虻屬
Figure 5.2 *Ligyra* sp.


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圖 5.3 卵蜂虻屬
Figure 5.3 *Anthrax* sp.


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圖 5.4 姬蜂虻屬
Figure 5.4 *Systropus* sp.

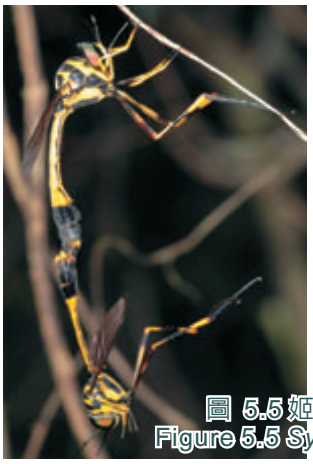
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圖 5.5 姬蜂虻屬
Figure 5.5 *Systropus* sp.

5. 蜂虻科

顧名思義，蜂虻科的成員是擬蜂的虻類，亦是雙翅目中的一個大科，全世界已發現約四千五百種。香港已知的品種外貌與熊蜂、姬蜂等十分相似，此擬態可讓牠們免受天敵襲擊。與蜂類一樣，一般蜂虻科成蟲均常訪花，以長喙吸食花蜜，幼蟲期爲捕食性或寄生性。

5. Bombyliidae (Bee flies)

As the name suggests, bee flies are mimics of bees. It is a big family with over 4,500 described species worldwide. Species in Hong Kong resemble bumblebees and ichneumon wasps much and this can help to keep predators away. Like bees, bee fly adults are flower-visitors, using their long proboscis to feed on nectar. Larvae are predatory or parasitic.

(i) 小亞細亞清蜂虻（圖5.1）
可算是本港最常見的蜂虻，出沒於林地溪流附近，惟亦多見於郊外混凝土小徑上留連。

(i) *Ligyra tantalus* (Figure 5.1)
Should be the commonest bee fly in Hong Kong. Occur near woodland stream, but also commonly seen on concrete trails in the countryside.

(ii) 清蜂虻屬（圖5.2）
另一種清蜂虻屬，胸及腹部被棕色毛，翅膀深棕色。

(ii) *Ligyra* sp. (Figure 5.2)
Another *Ligyra* sp. with brown hair on thorax and abdomen. Wings in dark brown.

(iii) 卵蜂虻屬（圖5.3）
翅膀上半部棕黑色，下半部透明，體黑色，腹部被白色毛。

(iii) *Anthrax* sp. (Figure 5.3)
Upper half of the wings in black and lower half transparent. Black body with white hair on abdomen.

(iv) 姬蜂虻屬(圖5.4及5.5)
極幼細的腹部及極長的後腿，爲姬蜂的擬態，除了觸角以外與細腹蟲虻亞科亦很相似。香港暫時發現兩種姬虻蜂。

(iv) *Systropus* sp. (Figure 5.4 & 5.5)
Extremely slender abdomen and long hind leg. Mimics of ichneumon wasps. Other than the antennae, it also looks like members of Leptogastrinae. Two species have been discovered in Hong Kong.

6. 食蟲虻科

食蟲虻屬中至大型虻類，可算是最大型的雙翅目成員。腹部一般較修長，胸部發達，足部強壯，複眼間頭頂凹陷，巨大的複眼佔頭部過大半面積，臉部被濃密鬃毛，用以在捕獵時保護雙眼。成蟲是捕獵能手，捕食其他昆蟲和蜘蛛，常見牠們於林區曠野枝頭上佇候，憑藉強壯身軀及優越的飛行能力捕捉獵物，捕獲後將刺吸式口器刺入獵物體內，注入唾液麻醉獵物及分解內部組織後再將其吸收；幼蟲期間爲雜食性。

食蟲虻科是雙翅目中一個大科，全世界已知的成員約有七千種，中國已知二百五十多種。在香港，有紀錄的食蟲虻只有約兩至三種，惟根據近年野外觀察，估計香港約有十多種食蟲虻，牠們均屬中至大型品種，體長由十五毫米至五十毫米不等，體色多爲灰、黑或橙、黑組合，從平地到山上的林緣均可發現其蹤影。

6. Asilidae (Robber flies)

Robber flies are medium to large flies, and are the largest in Diptera in terms of body size. Usually with long abdomen, robust thorax and strong legs. There is a depression between the giant compound eyes, which cover the majority of their heads. Dense bristles called mystax are present on the faces to protect the eyes when hunting. Adults are skillful predators on other insects and spiders. They are often seen perching on branches in open areas of woodland, using their strong body and superb flight skills to prey. After capture, they use their proboscis to stab the prey, inject saliva to paralyze the prey and digest the internal body parts for their sucking. Larvae are omnivorous.

Asilidae is a big family in Diptera. About 7,000 species are known worldwide and 250 species are recorded in China. There are only two to three recorded species in Hong Kong, but field observations in recent years show that there may be more than a dozen species occur locally. All of them are medium to large size flies, with body length ranging from 15 mm to 50 mm. Body colours are usually combinations of grey and black or orange and black. They can be seen at the edge of woodlands from flatland to hillside.

(i) 長吻蟲虻屬? (圖6.1)
相信是本港最大型的食蟲虻，體長接近五十毫米，腹部比翅膀長，末端節芒與頭三節等長。常見於林邊植物的椏枝上守候獵物。

(i) *Promachus* sp.? (Figure 6.1)
Believed to be the largest robber fly in Hong Kong, with body length about 50 mm. Abdomen longer than the wings. Arista equals the total length of the first three segments of antenna. Often seen perching on branches and waiting for prey.


圖 6.1 長吻蟲虻屬?
Figure 6.1 *Promachus* sp.?
© Kelvin Wu

(ii) 峰額蟲虻屬? (圖6.2)
體長約三十多毫米，軀幹及腿部橙色，是另一種較常見的食蟲虻。

(ii) *Philodicus* sp.? (Figure 6.2)
Body length about 30 mm. Body and legs in orange. Another locally common robber fly species.


圖 6.2 峰額蟲虻屬?
Figure 6.2 *Philodicus* sp.?
© Kelvin Wu

(iii) 脹蟲虻屬 (圖6.3)
小型食蟲虻，略大於家蠅，約有十五毫米長；腹部較短，休息時翅膀完全覆蓋腹部；具兩列觸角節芒羽狀毛。

(iii) *Emphysomera* sp. (Figure 6.3)
Small robber fly slightly larger than house flies. Body length about 15 mm. Abdomen relatively short and wholly covered by wings when at rest. Plumose arista with two rows of hair.


圖 6.3 脹蟲虻屬
Figure 6.3 *Emphysomera* sp.
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圖 6.4 細腹蟲虻亞科品種
Figure 6.4 Leptogastrinae sp.

(iv) 細腹蟲虻亞科品種 (圖6.4)
屬比較原始的食蟲虻，腹部比其他亞科幼長，除了特長的後腿外，緩慢的飛行形態頗像豆娘。與其他食蟲虻不同，細腹蟲虻亞科會在飛行時直接在植物上掠走獵物，甚至可以在蛛網上捕獵蜘蛛。

(iv) Leptogastrinae sp. (Figure 6.4)
Primitive robber flies, with very slender abdomen and long hind legs. Looks like damselflies when in flight because of its slow speed and lengthy body. Unlike other robber flies, members of Leptogastrinae grab their prey directly from vegetation during flying. They can even catch spiders from the webs.


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圖 6.5 Apocleinae sp.
Figure 6.5 Apocleinae sp.

(v) Apocleinae sp. (圖 Figure 6.5)

(vi) Stenopogoninae sp. (圖 Figure 6.6)

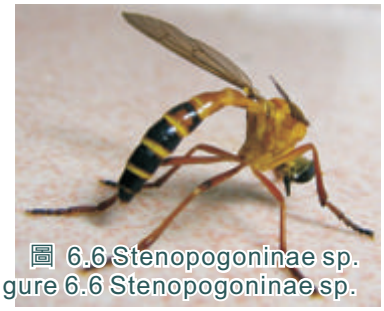
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圖 6.6 Stenopogoninae sp.
Figure 6.6 Stenopogoninae sp.


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圖 6.7 食蟲虻科未分辨品種
Figure 6.7 Unidentified Asilidae sp.

(vii) 食蟲虻科未分辨品種 Unidentified Asilidae sp. (圖 Figure 6.7)

7. 舞虻科及駝舞虻科

舞虻總科是虻類中最進化的類群。關於舞虻總科的分類目前尚存在很大爭議。捷克雙翅目專家Milan Chvála在其著作中提出把舞虻總科分爲五個科，包括長足虻科、舞虻科、阿舞虻科、駝舞虻科及小室舞虻科，此系統廣爲西方雙翅目學者所採納；楊定及楊集昆(2004)指出傳統舞虻科的成員(即除長足虻科以外的舞虻總科成員)屬單系群，故應予以保留，惟亦有人對此提出異議(Sinclair & Cumming 2006)。

全世界已描述的舞虻(廣義而言)有四千多種，中國約有四百多種，絕大部分不論成蟲或幼蟲階段皆爲捕食性。牠們屬小至中型昆蟲，頭部呈圓球形，複眼巨大，普遍品種(尤其是雄性)的兩隻複眼在頭頂上長長地緊接，只露出少部分前額；口器近刺吸式，部分品種喙部特長，尤如彩鷸。由於好些品種在交配前會有群飛習性，故被稱爲舞虻，好些品種的雄性更會贈送獵物予雌性以與其交配。楊定及楊集昆(2004)描述中國螳舞虻亞科和駝舞虻亞科(=駝舞虻科)品種，當中並沒包括廣東省或香港的紀錄；李文亮等(2007)描述廣東三種柄駝舞虻屬。從野外觀察可知在本港確實有舞虻的分佈，普遍屬小型品種。

7. Empididae (Dagger flies) and Hybotidae (Dance flies)

Empidoidea is the most evolved group in Orthorrhaphous Brachycera. Their classification is still under hot debate. In the publications of the Czech dipterist, Milan Chvála, Empidoidea members are classified into five families, including Dolichopodidae, Empididae, Atelestidae, Hybotidae and Microphoridae. This classification has been widely adopted by western dipterists. In Yang & Yang (2004), it is stated that the traditional Empididae (i.e. Empidoidea excluding Dolichopodidae) is a monophyletic group and therefore should be retained. Yet there were disagreements on this view (Sinclair & Cumming 2006).

There are about 4,000 species of dance flies and relatives (i.e. Empididae *sensu lato*) in the world, with 400 or so species in China. Both adult and larval stages are predatory. Body size small to medium. Spherical head with giant compound eyes that are often holoptic over a long distance at the upper side (particularly for males),


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圖 7.1 舞虻屬
Figure 7.1 *Empis* sp.


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圖 7.2 舞虻亞科品種
Figure 7.2 Empidinae sp.


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圖 7.3 螳舞虻亞科品種
Figure 7.3 Hemerodromiinae sp.


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圖 7.4 駝舞虻屬
Figure 7.4 *Hybos* sp.


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圖 7.5 隱脈駝舞虻屬
Figure 7.5 *Syndyas* sp.


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圖 7.6 平鬚舞虻屬
Figure 7.6 *Platypalpus* sp.

resulting in small frons. Mouthparts are in the form of a needle-like proboscis, which in some species are exceptionally long and make the insect look like greater painted snipes (hence the name dagger fly). Some species form dance swarms before mating (hence the name dance fly). Many of the males would give prey to female as a gift for courtship. No Guangdong or Hong Kong record was described in Yang & Yang (2004), which included Hemerodromiinae and Hybotinae (=Hybotidae) species in China. Li *et al* (2007) described three species of the genus *Syneches* in Guangdong. It is known from field observations that there are dance flies and relatives occurring in Hong Kong, most of them are small species.

(I) 舞虻科：舞虻亞科：舞虻屬（圖7.1）
體長約六至七毫米，身體黑色，腹部修長；複眼紅色而巨大；喙部特長，有如匕首。另亦見類似個體，未確定是否同一品種。（圖7.2）

(i) Empididae: Empidinae: *Empis* sp. (Figure 7.1)
Body length 6-7mm. Body in black. Slender abdomen. Big, red compound eyes. Long proboscis resembling a dagger. Another similar individual has been found, but it is not known whether they are the same species (Figure 7.2).

(ii) 舞虻科：螳舞虻亞科品種（圖7.3）
頭部偏長，具捕捉式前足，基節很長，與螳螂相似。

(ii) Empididae: Hemerodromiinae sp. (Figure 7.3)
Elongated head. Raptorial fore legs with long coxa that resemble those of mantis.

(iii) 駝舞虻科：駝舞虻亞科：駝舞虻屬（圖7.4）
體長約七毫米，身體黑色，胸背具光澤；複眼紅色而巨大；後足腿節粗壯及具剛毛；足部跗節黃色。

(iii) Hybotidae: Hybotinae: *Hybos* sp. (Figure 7.4)
Body length 6-7mm. Body in black with lustrous dorsum at thorax. Big, red compound eyes. Robust femur with bristle. Tarsus in yellow.

(iv) 駝舞虻科：駝舞虻亞科：隱脈駝舞虻屬（圖7.5）
約五毫米長，頭部呈圓球形，複眼紅色，覆蓋全頭；身體黑色，胸背板隆起及具光澤，足部跗節黃色。

(iv) Hybotidae: Hybotinae: *Syndyas* sp. (Figure 7.5)
About 5 mm long. Spherical head almost wholly covered with red compound eyes. Body in black. Humpbacked dorsum with lustre. Tarsus in yellow.

(v) 駝舞虻科：合室舞虻亞科：平鬚舞虻屬（圖7.6）
複眼、胸部及腹背黑色，其餘部分棕黃色。

(v) Hybotidae: Tachydrominae: *Platypalpus* sp. (Figure 7.6)
Black compound eye, thorax and dorsal side of abdomen. Other parts in yellow.

8. 長足虻科

長足虻體型較小，體長一般不超過十毫米，然而卻是雙翅目中種類最多、最進化的科之一。全世界已描述的長足虻約有七千多種，部分在香港也算常見，但卻甚少有文獻記載，可能是因爲其細小而不顯眼，且主要爲捕食性而非食腐性，對環境衛生沒有直接影響而爲人忽略。絕大部分長足虻科成員足部修長，身體多爲具金屬光澤的綠色、藍色或棕色。從個人觀察所見，香港的長足虻於水體附近(特別是溪流)較多出現。

8. Dolichopodidae (Long-legged flies)

Long-legged flies are generally small in size, body length usually less than 10 mm. However it is one of the most evolved families and contains the most number of species among others. There are about 7,000 species described worldwide. Some of them are common in Hong Kong, but there were very few literature about local long-legged flies. People's ignorance to them may be due to their small size that makes them less visible, and their predatory instead of saprophagous habit that causes no environmental hygiene problem. Most long-legged flies are, as the name suggests, with long legs. Body colour usually metallic green, blue or bronze. From personal observations, long-legged flies are more often seen near water bodies (in particular rural streams).


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圖 8.1 金長足虻屬
Figure 8.1 *Chrysosoma* sp.

(i) 金長足虻屬（圖8.1）
本港最常見的長足虻，身長約八毫米，全身金屬綠色，觸角長度大於頭胸總長，翅膀透明，通常見於葉面步行或作短暫飛行，甚少駐足停下。未知本港是否有數個類似品種出現。

(i) *Chrysosoma* sp. (Figure 8.1)
The most commonly seen long-legged fly in Hong Kong. Body length about 8 mm. Whole body in metallic green. Antennae longer than the total length of head plus thorax. Wings transparent. Usually seen walking or flying in short distance on leaves. Seldom remains stationary. Not sure if there are several similar species occur in Hong Kong.


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圖 8.2 毛瘤長足虻屬
Figure 8.2 *Condylostylus* sp.

(ii) 毛瘤長足虻屬（圖8.2）
外型和行爲均與金長足虻屬類似，惟觸角較短，雙翅具黑斑。

(ii) *Condylostylus* sp. (Figure 8.2)
Resembles *Chrysosoma* sp. in terms of both appearance and behaviour, but with shorter antennae and black patches on the wings.


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圖 8.3 短跗長足虻屬
Figure 8.3 *Chaetogonopteron* sp.

(iii) 短跗長足虻屬（圖8.3）
體型很小，只有約四至五毫米長，橙白色身軀，胸背板帶金屬藍色。本屬被歸於合長足虻亞科之下。另亦見一相似品種，應同爲合長足虻亞科，但身分未知（圖8.4）。

(iii) *Chaetogonopteron* sp. (Figure 8.3)
Very small size, about 4 to 5 mm long. Body colour orange white. Dorsum in metallic blue. The genus is classified under the subfamily Sympycninae. There is another species belonging to the same subfamily but the genus is undetermined (Figure 8.4).


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圖 8.4 合長足虻亞科品種
Figure 8.4 Sympycninae sp.

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圖 8.5
弓脈長足虻 / 羽芒長足虻屬組別
Figure 8.5
Paraclius / Pelastoneurus sp. group

(iv) 弓脈長足虻 / 羽芒長足虻屬組別（圖8.5）
較大型之長足虻，身長約十至十五毫米，胸背金屬藍綠色，曾於晚上發現數十隻一同棲息在溪流旁植物上。另亦見類似品種，腹部呈金屬銅色，應同屬長足虻亞科，但身份未明(圖8.6)。

(iv) *Paraclius* / *Pelastoneurus* sp. group (Figure 8.5)
Relatively big long-legged fly. Body length 10 to 15 mm. Dorsum in metallic bluish green. Several dozens of individuals were found resting together on riparian vegetations at night. There is another similar Dolichopodinae species that are with bronze abdomen but of unknown identity(Figure 8.6).

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圖 8.6 長足虻亞科品種
Figure 8.6 Dolichopodinae sp.

(v) 嵌長足虻屬（圖8.7）
體長約三至四毫米，觸角膨大。

(v) *Syntormon* sp.
(Figure 8.7)
Body length about 3 to 4mm with swollen antennae.

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圖 8.7 嵌長足虻屬
Figure 8.7 *Syntormon* sp.

除了以上提及各個科外，筆者亦曾在梧桐寨目睹一隻具櫛狀觸角、形似雙翅目的昆蟲，有可能是食木虻科的肋角虻屬。

In addition to the families mentioned above, a Diptera-like insect with pectinate antennae, probably a *Rachicerus* sp. of Xylophagidae, has been observed in Ng Tung Chai.

總結

綜合文獻及野外觀察紀錄，可見香港至少可發現約九至十科虻類昆蟲。表二列出了本文提及這些虻類在本地、中國以及全世界已描述的大約種數。

粗略估計，香港的虻類昆蟲至少有三、四十種，若考慮牠們在中國以至全世界的種數，同時比較其他較多被研究的昆蟲(如蝴蝶和蜻蜓)在本地的分佈，香港虻類品種的實際數目可能還要多一至兩倍(尤其是舞虻總科)。即使是常見的虻類(如虻科和食蟲虻科)，我們對本地品種的認識依然匱乏，更遑論研究其習性與生活史。故希望各位能提供本地虻類觀察紀錄，同時亦歡迎對本文之分類提出指正及意見。

特別鳴謝借出照片以及在Diptera.info提供品種鑒別意見的朋友們。

表二 部分虻類科別的品種數目
Table 2 Number of species for selected Orthorrhaphous Brachyceran families

科	Family	香港* Hong Kong*	中國 China	世界 World
食木虻科	Xylophagidae	1?	?	110
虻科	Tabanidae	5	400	4,000
鷸虻科	Rhagionidae	1	?	500
木虻科	Xylomyidae	1	?	110
水虻科	Stratiomyidae	7 – 8	183	2,800
蜂虻科	Bombyliidae	5	?	4,500
劍虻科	Therevidae	1	?	1,600
食蟲虻科	Asilidae	7 – 8	250	7,000
舞虻科	Empididae	2 - 3	400	5,000
駝舞虻科	Hybotidae	3		
長足虻科	Dolichopodidae	7	?	7,000

* 只包括本文提及者 Includes only the species mentioned here

Conclusion

Records from literature and field observation demonstrate that at least 9 to 10 families of Orthorrhaphous Brachycera are represented in Hong Kong. Table 2 lists out the estimated number of known species for these families in Hong Kong, China and the World.

It is roughly estimated that there are at least about 30 to 40 species of Orthorrhaphous Brachyceran insects in Hong Kong. Taking into account the number of species in China and over the World, and comparing the distribution of taxons that are more studied (e.g. butterflies and dragonflies), the actual number of species in Hong Kong may indeed be one or two times more (in particular Empidoidea species). Our knowledge on the local species is still very limited even for the common families like Tabanidae and Asilidae, not to mention the study of their behvaiour and life cycle history. Readers are encouraged to supplement records of Hong Kong Orthorrhaphous Brachycera. Comments on the classification mentioned in this article are also welcome.

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