Records of rose chafers (Coleoptera, Cetoniinae) in Hong Kong
香港的花金龜紀錄

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Abstract
Fourteen species of rose chafers (Coleoptera, Cetoniinae) from Hong Kong are listed with brief description and illustrations, of which three are new records, namely *Campsiura javanica* (Gory & Percheron, 1833), *Cosmiomorpha setulosa* Westwood, 1854 and *Clinteria ducalis* White, 1856. Information on distribution, flying periods, adult foods and immature stages are also provided whenever available.

Key words: Cetoniidae, Cetoniinae, beetles, Hong Kong, new records.

Introduction
Fabricius (1775) is the first author to have used the name *Cetonia*, while the family Cetoniidae was first proposed by MacLecy (1819). Some authors regard cetoniid beetles as belonging to the subfamily Cetoniinae of Scarabaeidae (Arrow 1910, Schenkling 1921, Medvedev, 1964 and Miksic 19867). However, Krikken (1984) insists Cetoniidae is a separate family and contains three subfamilies, namely Cetoniinae, Trichiinae and Valginae, while Ma (1995) treats Cetoniidae, Trichiidae and Valgidae as separate families. All records mentioned in this article belong to the Cetoniinae as defined by Krikken, or Cetoniidae as defined by Ma and the classification adopted in this article is that of Krikken (1994).

Cetoniid beetles are commonly called rose chafers, flower chafers or flower beetles. There are about 3,600 species of described cetoniid beetles in the world (Krikken, 1984), about 90% of which are Cetoniinae (Ma, 1995). Forty-two genera and 142 species of Cetoniinae are known in China (Ma, 1995). There are only fragmentary records of the subfamily in Hong Kong. Boheman described the first flower chafer (*Glycyphana nasalis*) from Hong Kong in 1858. Redtenbacher reported the second (*Gametis jucunda* (Faldermann 1835)) in 1867. Waterhouse reported the third (*Euselates schoenfeldti* Kraatz 1893) in 1900. Hill (1978, 1982) reported four additional species. Lee and Winney (1981) listed three species which overlap with Hill' s report. Yiu (2006) reported four species, of which two were new records for Hong Kong.

Methods
Since 2004, specimens of adult Cetoniinae have been collected in Hong Kong by the author. Cetoniinae could be readily collected on flowers and fruits where they feed. Sometimes, they are found feeding on sap exuding from trees. *Agestrata orichalca* (Linnaeus 1769) is attracted to artificial light and can be found in remote public toilets. Larvae of *Campsiura javanica* (Gory & Percheron 1833) were collected in cow dung and kept in captivity until they emerged. Adults of this species can also be found in cow dung. *Cosmiomorpha setulosa* Westwood 1854 is found on the ground and leaf litter of dense woodland.

Morphological features of the specimens were examined under a 20X-40X dissecting microscope for species which could not be identified with certainty in the field. Clear photographic records were also accepted. Specimens stored in Tai Lung Experimental Station of the Agricultural, Fisheries and Conservation Department were also examined. Records from old literature are also included as a reference. Chinese names adopted from Ma (1995) are added for Chinese readers.

The species

Cremastocheilini 顏花金龜族

1. *Campsiura javanica* (Gory & Percheron 1833)
   黑斑臀花金龜

Body length 15-18mm, black, with the head, pronotum and forelegs partially or entirely orange; the scutellum, side pieces of the metasternum and sides of the hind coxae generally bright yellow or (almost white in living specimens), and the sides of the third and fourth abdominal segments deep red. The pronotum commonly has a black median line and a large black patch laterally, the former may be reduced to a patch and the latter frequently reduced to two spots. Clypeus slightly convex. The pygidium bears a median longitudinal carina and a blunt tubercle laterally. The sternal process is very short and rather broadly dilated.

This is a new record for Hong Kong. Three last instar larvae were collected in cow dung in Chuen Lung in early May 2006. They fed on the cow dung and pupated a week after, using the cow dung and soil to build their pupal cases. They emerged in early June of the same year. Two additional records were made, one from Kap Lung in early March 2007 and the other from Chuen Long in March 2009. In both cases the specimens were found in or under cow dung.

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Fig. 1.1 *Campsiura javanica* - last instar larva

Fig. 1.2 *Campsiura javanica* - pupa in a pupal case

Fig. 1.3 *Campsiura javanica* - ventral view

Fig. 1.4 *Campsiura javanica* - dorsal view

Fig 1.5 *Campsiura javanica* - variation of markings on pronotum

2. *Coenochilus striatus* Westwood 1874 條紋普花金龜
Original English description by Westwood: "The front margin of the clypeus is slightly emarginate; the maxillae have both the mando and galea armed with two nearly equal thick teeth; the mentum is subquadrate in its outline, but the middle of the disc is strongly angulated; the obliquely truncate anterior portion semicircular, and fringed with strong setae. The exposed part of the epimera. with a large patch on each side of the metasternum, and a spot on each side of the second and third segments of the abdomen, those on the third being smaller than the others. The under side of the abdomen is not longitudinally channelled at the base, and the anterior tibiae are obtusely bidentate." Type collected by Bowring from Hong Kong. No further local records since the type description.

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Schizorhinini (未有中文名稱)

3. *Thaumastopeus nigritus* (Frolich 1792) 暗藍花金龜
Body length 30-31mm, elongated, dorsally flattened, straight-sided and slightly tapering from humeri to apex. Shining black, more or less tinged with blue. The clypeus is deeply cleft. Pronotum strongly extended posteriorly and covers the scutellum. Sternal process is slender and curved upward.

Occasionally recorded in various places including Wang Chau (Yuen Long), Kam Tin, Tai Lam and Fung Yuen. Often found feeding on ripe fruits such as longan (*Euphoria longana*) and figs (*Ficus* spp.).

Thaumastopeus pullus Billb. listed by Lee & Winney (1981), and *Thaumastopeus pullus* Fairmaire, 1891 are both synonyms of *Thaumastopeus nigritus* (Frolich, 1792)

The author's specimens also match well with the description of *T. shangaicus* by Neervoort Van De Poll J.R.H. (1886), who wrote: "I found two male specimens of this species in Chevrolat's collection, labelled 'Shanghai, Bowring'"; Wallace has also enumerated examples of the same locality for *T. pullus*, and he rightly remarks, "The Hongkong specimens are very fine and glossy, with the punctation of the elytra almost entirely wanting. Although very closely allied *to Th. pullus* Billb., *Th. anthracina* Wied. and *Th. cupripres* Waterh., this species differs from all these by its slender form, short thorax and strong apical callus; moreover *pullus* has the elytra rather deeply punctate-striate...". However, Neervoort Van De Poll's viewpoint on distinguishing *T. shangaicus* and *T. pullus* has probably not been noticed or accepted by later authors including Arrow (1910) and Ma (1995). Wallace (1868) considered the difference on elytra surface as a variation. He wrote: "The forms … vary much in size and colour… Some of the small Indian specimens … have elytra very much punctured, and there seems to be every form between these extremes…". Further study and dissection of genitalia would be helpful in resolving this issue.

Fig. 3.1 *Thaumastopeus nigritus* - feeding on longan fruits

Fig. 3.2 *Thaumastopeus nigritus* - deeply cleft clypeus

Fig. 3.3 *Thaumastopeus nigritus* - lateral view showing the sternal process

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4. *Agestrata orichalca* (Linnaeus 1769) 綠奇花金龜
Body length 36 - 45.5mm, very flat. All local specimens exceed 40mm long. Largest scarab beetle in Hong Kong. Dorsal surface metallic dark green, very glossy. Coxae, femora, mesosternal epimera, pygidium and sides of the sternum and abdomen orange-red. Clypeus quadrate, anterior margin slightly concave.

The first documented record is probably by Hill & Cheung (1978). Recorded from May to September in 2007 and 2008, in Cheung Sha (Lantau), Nam Chung, Sai Wan (Sai Kung), Wong Cheuk Yeung and Tai Mo Shan. Feeds on various fruits in captivity. Attracted to artificial light at night.

Fig. 4.1 *Agestrata orichalca* - dorsal view

Fig. 4.2 *Agestrata orichalca* — ventral view

Fig. 4.3 *Agestrata orichalca* - clypeus and pronotum

Goliathini 巨花金龜族

5. *Dicranocephalus wallichi bowringi* Pascoe 1863
黃粉鹿花金龜
According to the descriptions by Pascoe (1863) and Ma (1995), the species has a body length of 19-25mm. Surface yellowish green; the clypeus, two longitudinal carinae on the pronotum, carinae on humera and apex of each elytron reddish. The clypeus of the male deeply depressed dorsally, the sides produced forwards into a pair of long and flattened slender horns. That of the female is only sharply angular on each side. Hua (2002) includes Hong Kong under its distribution range (source not indicated).

It is sometimes mis-spelt by some authors as *Dicronocephalus,* originating from a typographical error by Hope (1837). The spelling is clearly *Dicranocephalus* in Hope's original description of this genus in 1831.

6. *Cosmiomorpha setulosa* Westwood 1854
鈍鱗毛花金龜
Body length 13.5-16.5mm, yellowish brown or dark brown, densely punctured and clothed with yellow scaly hairs. Clypeus quadrate, anterior margin elevated. Scutellum nearly glabrous except at the basal corners. Each elytron has two longitudinal carinae.

A new record for Hong Kong: Ng Tung Chai (21.vi.2007, 11.vii.2009), moving on the dense woodland floor, at 2100h and 1500h respectively.

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Fig. 6.1 *Cosmiomorpha setulosa* - dorsal view

Fig. 6.2 *Cosmiomorpha setulosa* - clypeus and pronotum

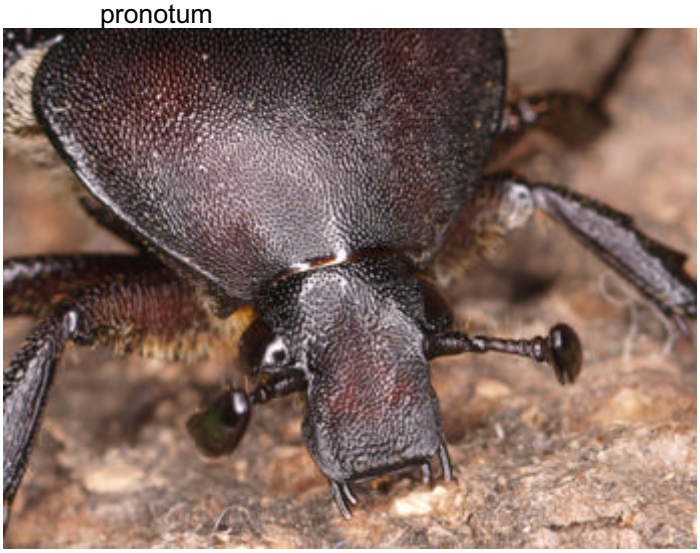

Fig. 6.3 *Cosmiomorpha setulosa* - lateral view

Cetoniini 花金龜族

7. *Protaetia orientalis* Gory & Percheron 1833
白點星花金龜

Body length 19-26mm, metallic green, golden-green, coppery or coppery-purple dorsally and ventrally, with a very narrow white marginal line on each side of the pronotum and small scattered white markings, consisting of four to seven small spots on each side of the pronotum, numerous indefinite spots near the lateral margins of the elytra, transverse median, postmedian and apical bars on each elytron, three spots (sometimes coalescing) on each side of the pygidium, numerous spots at the sides of the sternum, and transverse bars at the sides of the ventral segments. The head is coarsely and closely punctured and the clypeus quadrate, with the anterior margin strongly elevated and distinctly bilobed. The pronotum is coarsely but not closely punctured, except near the sides. The elytra are irregularly sculptured with large transverse punctures or impressions, the apical angles acute but not spinose. The pygidium, sides of the metasternum, hind coxae, and the lateral margins of the ventral segments are rugose, and the middle of the metasternum and abdomen are smooth.

P. orientalis can be distinguished from the very similar *P. brevitarsis* by having a more distinctly bilobed clypeus. *Protaetia aerata* (Erichson 1834) reported by Ma (1995) and *Potosia aerata* (Erichson 1834) listed by Hua (2002) have the same application as *Protaetia orientalis* Gory & Percheron 1833 (Krikken, 1984).

The first documented local record is by Lee & Winney (1981). It is probably the most commonly seen flower chafer in Hong Kong. It has been found feeding on various fruits including lychee (*Litchi sinensis*), figs and tomato (*Solanum lycopersicum*), as well as on flowers. Mating pairs kept in captivity laid eggs in August, with first instar larvae hatching in early September. Larvae fed on fermented sawdust, and pupated in March of the next year, with adults emerging in April and May.

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Fig. 7.1 *Protaetia orientalis* - clypeus and pronotum

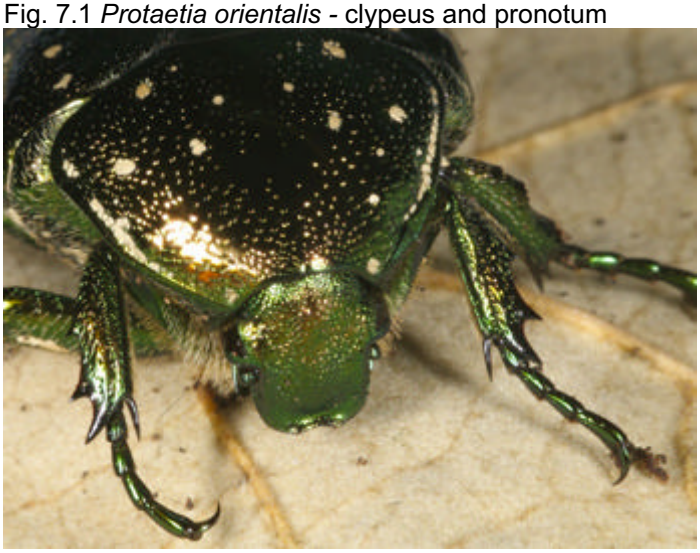

Fig. 7.2 A *Protaetia orientalis* - feeding on a flower

Fig. 7. 3 *Protaetia orientalis* - feeding on a ripe tomato

Fig. 7.4 *Protaetia orientalis* - ventral view

8. *Protaetia fusca* (Herbst 1790) 紡星花金龜

Body length 13-15mm, coppery, with the head, legs and ventral surface shiny; the pronotum, scutellum, elytra and pygidium matt chocolate-colour, finely and irregularly sprinkled with yellow points, most closely aggregated at the sides of the pronotum and in two masses at the outer edge of each elytron before and behind the middle. The head, legs, sides of the pronotum, sternum, abdomen and the pygidium are thickly clothed with recumbent yellow setae. The clypeus is broad, closely punctured and very feebly emarginate in the middle of the front margin. There are five longitudinal furrows in the disc of each elytron. The apical angles of the elytra are produced into long spines. The sternal process is very short and broad.

There are 18 specimens deposited in the Insect Museum, Tai Lung Experimental Station, Hong Kong, which were collected from 1963 to 1999, in Ta Shek Wu, Tai Lung and Ngau Tam Mei respectively, in the period of April to November.

Fig. 8.1 *Protaetia fusca* - dorsal view

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Fig. 8.2 *Protaetia fusca* - clypeus and pronotum

Fig. 8.1 *Protaetia fusca* - ventral view

9. *Glycyphana nicobarica* Janson 1877
雙斑短突花金龜

Body length 9-12mm, matt; head black; pronotum, scutellum and elytra matt green; pygidium brick red; ventral surface glossy. Head bears two small spots at the base. Pronotum bears a marginal line on each side and a pair of discoidal spots (occasionally with an additional pair anteriorly). Each elytron bears five to eight spots. The head is densely punctured and moderately notched in the front. The sternal process is truncated and very short.

The first documented local record is by Yiu (2006). Although not abundant, it is commonly recorded in various localities in the New Territories, from March to October. It is often found feeding on flowers, including that of *Bidens alba*, *Rhus chinensis* and *Viburnum odoratissimum*. All 16 specimens deposited in the Insect Museum, Tai Lung Experimental Station, Hong Kong were collected from a compost of pig waste and sawdust, in 1993. Mated females laid eggs into fermented sawdust in captivity in September 2008 and new adults emerged in November of the same year.

Fig. 9.1 *Glycyphana nicobarica* - dorsal view

Fig. 9.2 *Glycyphana nicobarica* - dorsal view showing different colour

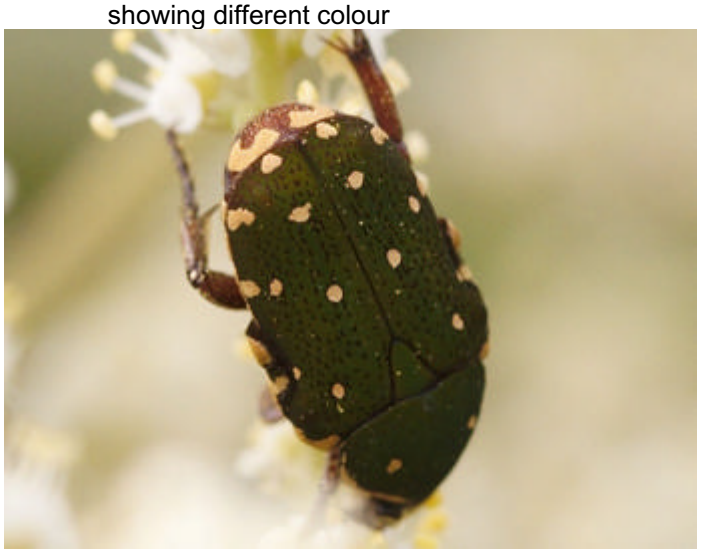

Fig. 9.3 *Glycyphana nicobarica* - lateral view

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10. *Glycyphana nasalis* Boheman 1858
(未有中文名稱)

According to the original Latin description, the species has a body length of 14mm. Matt green. Head closely punctured. Prothorax moderately punctured, bearing two yellow spots dorsally, black laterally and shining ventrally. Elytra finely punctured, with 14 yellow spots unevenly distributed. Pygidium bears four spots.

Type originated from Hong Kong; no further record and information found thereafter.

11. *Gametis jucunda* (Faldermann 1835) 小青花金龜

Body length 11-16mm, matt dorsally, colour varying from green, olive, red, dark blue or black (Ma, 1995). All specimens so far recorded locally are green. Surface, clothed thinly dorsally and thickly ventrally with tawny hairs and setae, and decorated with yellow markings, consisting of a discoidal spot and a marginal line on each side of the pronotum, three to four at the outer margin and around three (sometimes absent) near the inner margin of each elytron. The head is densely and finely punctured. The clypeus is very bluntly bidented. The pygidium bears four transversely arranged spots.

Redtenbacher (1867) reported this from Hong Kong (as a synonym *Euryomia kuperi*). Recent local records: San Tau (Lantau) (28.viii.2005), feeding on flowers of *Caesalpinia bonduc*; Wong Chuk Yeung (Sai Kung) (14.ix.2008), feeding on flowers of *Rhus chinensis*; Yung She O (04.x.2008), feeding on flowers of *R. chinensis*; Tiu Shau Ngam (31.vii.2009), feeding on flowers of *Schima superba*.

Fig. 11.1 *Gametis jucunda* - dorsal view

Fig. 11.2 *Gametis jucunda* - dorsal view showing variation of markings

Fig. 11.3 *Gametis jucunda* - clypeus and pronotum

12. *Gametis bealiae* (Gory & Percheron 1833)
斑青花金龜

Body length 13-17mm. Structurally similar to *G. jucunda*. The prothorax brownish yellow, decorated with a pair of large black patches. Each patch usually has an additional small spot at the middle. Each elytron bears a large, more or less rectangular brownish yellow patch in the middle.

Arrow (1910) regarded this species as a variation of *G. jucunda*, however, this has not been generally accepted. Indeed *G. bealiae* is generally larger and not only the markings differ greatly between the two species; the punctures and ridges on the elytra are also generally more conspicuous in *G. jucunda*.

First local record reported by Yiu (2006). It has been recorded feeding on flowers of *Viburnum odoratissimum* and *Lonicera* sp., from March to May.

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Fig. 12.1 *Gametis bealiae* - dorsal view

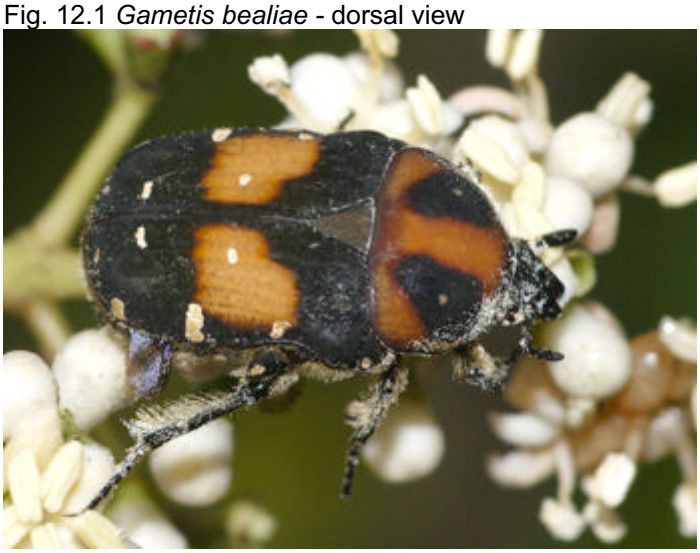

Fig. 12. *Gametis bealiae* - clypeus and pronotum

Gymnetini 柄花金龜族

13. *Euselates schoenfeldti* Kraatz 1893 海麗花金龜
Body length 18-21mm, black, clothed with yellowish brown pubescence. Clypeus deeply incised, with two longitudinal yellow stripes on the head. Pronotum with four longitudinal yellow stripes. Scutellum elongated, yellow, except small area at the middle of the two sides. Elytron marked with four to five yellow spots and two longitudinal red bands, one from anterior margin to the middle, dilating towards the suture of the elytra, the other starts from the anterior end of the first, runs along the anterior margin and the lateral margin, and dilates beyond the middle towards the suture. Pygidium almost semi-circular, marked with a large yellow spot in the middle and two small yellow spots on the sides.

First Hong Kong record (*Taeniodera galei*) reported by Waterhouse (1900). Recorded feeding on the flowers of *Cleistocalyx operculatus*, in June 2007 and June 2008 in Hok Tau.

Fig. 13.1 *Euselates schoenfeldti* - dorsal view

Fig. 13.2 *Euselates schoenfeldti* - lateral view

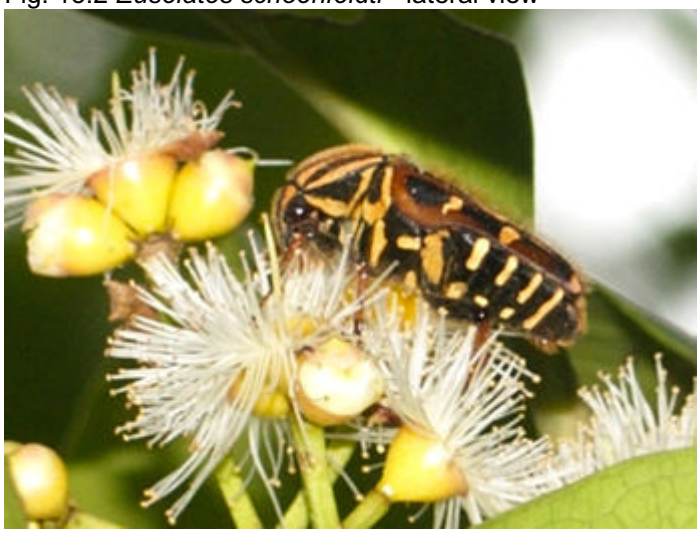

Fig. 13.3 *Euselates schoenfeldti* - pygidium

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14. *Clinteria ducalis* White, 1856 黃斑絨花金龜
Body length 13.5-15mm, sooty black or blackish purple dorsally, thinly clothed with pubescence. Head, legs and ventral surface shining black. Clypeus quadrate, anterior margin slightly concave. Each elytron marked with two irregularly shaped yellow patches, the larger one at the middle and the smaller near the apex.

A new record for Hong Kong: Wong Chuk Yeung (Sai Kung) (13.ix.2008, 16.ix.2008), on flowers of *Rhus chinensis* ; Tiu Shau Ngam (01.iv.2009, 21.iv.2009), on flowers of *Rhaphiolepis indica* and flowers of *Homalium cochinchinensis* respectively.

Fig. 14.1 *Clinteria ducalis* - dorsal view

Fig. 14.2 *Clinteria ducalis* - lateral view

Fig. 12.2 *Clinteria ducalis* - clypeus and pronotum

ACKNOWLEDGEMENTS

Mr. Paul Aston has critically reviewed this article and has given me very helpful comments. Tai Lung Experimental Station of the Agricultural, Fisheries and Conservation Department allowed me to study and take photos of the cetoniinae specimens in the Insect Museum.

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