

***Cetonia* (*Sakaiana* subgen. nov.) *annamitica* sp. nov. from South Vietnam
(Coleoptera: Scarabaeidae: Cetoniinae)**

Stanislav JÁKL

Geologická 1218, Praha 5, 158 00, Czech Republic
email: stanley.jakl@seznam.cz

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Abstract. A new subgenus and new species, *Cetonia* (*Sakaiana*) *annamitica* subg. et sp. nov., is described from South Vietnam. The new subgenus is illustrated and compared with three recently known subgenera, and a taxonomical key to subgenera of *Cetonia* is provided. Habitus and male genitalia of the new species are pictured and compared with its relatives. Distribution of *Cetonia* Fabricius, 1775 in south Indochina is shortly discussed and some new records are given.

INTRODUCTION

Cetonia Fabricius, 1775 is recently divided into three subgenera. Its subgeneric taxonomy is based mainly on the structure of the mesometasternal process, structure of the male abdomen and male parameres. Generally species missing bassalic tomentum (except of *Cetonia funeraria* Gory et Percheron, 1833) and missing a transversally developed keel in front of the mesometasternal apex, are attributed to the nominotypical subgenus. Delimitation between other two subgenera, *Indocetonia* Mikšič, 1965 and *Eucetonia* Schoch, 1894 is more difficult, especially in females. An only reliable character is the presence or absence of the male abdominal impression, present in *Eucetonia* and absent in *Indocetonia*. Size of mesometasternal process used by Mikšič (1982) is not a good character, as for example some small specimens of *Cetonia* (*Indocetonia*) *rhododendri* Gestro, 1891 have smaller mesometasternal process than large specimens of *Cetonia* (*Eucetonia*) *sakaii* Antoine, 2000. After Mikšič's monography (1982) dealing with part of Oriental and Palearctic Cetoniini, in which the subgenus *Indocetonia* was established, no further comprehensive study has been published. Single descriptions of *Eucetonia* and *Indocetonia* has been published by Sakai (1993), Antoine (2000), Krajčák (2002, 2008, 2012), Krajčák & Jákł (2004), but all the above mentioned publications did not put more light on problem with better delimitation of *Cetonia* subgenera.

Strange, large *Cetonia* was collected by Japanese colleagues and local collectors in South Vietnam during several expeditions in the last decade. Insect characters seem to be rather far from both *Cetonia* subgenera flying in Indochina. Male has no abdominal impression, mesometasternal process is separated by only very vague and indistinct tiny furrow and dorsal side is completely missing bassalic tomentum. Male parameres are completely different from those in all *Cetonia* species. Even the temptation to describe a new genus is

high, I prefer the subgeneric level of *Cetonia*. Main reason leading me to this decision is that the recent systematic position of other Cetoniini genus *Protaetia* Burmeister, 1842 is also separated into numerous subgenera, although the differences between male genitalia are enormous across various *Protaetia* subgenera. Therefore the insect will be accommodated in new a subgenus of *Cetonia* and described in taxonomical part of this study.

MATERIAL AND METHODS

The following codens of private collections are used in the text:

KSCP Kaoru Sakai, private collection, Tokyo, Japan;

SJCP Stanislav Jákl, private collection, Praha, Czech Republic.

Specimens of the newly described species are provided with one printed, red label for Holotypus or yellow for Paratypus, sex symbol and St. Jákl det. 2015. Exact label data are cited for the material examined, individual labels are indicated by a double slash (/), individual lines of every label by a single slash (/).

The following specimens were compared with the newly described species:

Cetonia (*Indocetonia*) *vetusta* Ritsema, 1885, (7 ♂♂, 5 ♀♀); *Cetonia* (*Indocetonia*) *vetusta miksici* Antoine, 2000, (2 ♂♂); *Cetonia* (*Indocetonia*) *bensoi* Westwood, 1849, (2 ♂♂, 1 ♀); *Cetonia* (*Indocetonia*) *rhododendri* Gestro, 1891, (20 ♂♂, 12 ♀♀); *Cetonia* (*Indocetonia*) *siamensis* Antoine, 2000, (3 ♂♂, 1 ♀); *Cetonia* (*Indocetonia*) *rutilans* Janson, 1881, (2 ♂♂, 3 ♀♀); *Cetonia* (*Indocetonia*) *laeviventris* Arrow, 1910, (1 ♂); *Cetonia* (*Indocetonia*) *wrzecionkoi* Krajčik, 2008, (3 ♂♂, 2 ♀♀); *Cetonia* (*Eucetonia*) *viridiopaca* Motschulsky, 1858, (3 ♂♂, 5 ♀♀); *Cetonia* (*Eucetonia*) *pilifera* Motschulsky, 1860, (2 ♂♂, 2 ♀♀); *Cetonia* (*Eucetonia*) *reolofsi* Harold, 1880, (10 ♂♂, 8 ♀♀); *Cetonia* (*Eucetonia*) *magnifica* Ballion, 1870, (28 ♂♂, 23 ♀♀); *Cetonia* (*Eucetonia*) *sichuana* Krajčik, 2002, (1 ♂, 3 ♀♀); *Cetonia* (*Eucetonia*) *chinensis* Schurhoff, 1942, (5 ♂♂, 5 ♀♀); *Cetonia* (*Eucetonia*) *kolbei* Curti, 1914, (5 ♂♂, 3 ♀♀); *Cetonia* (*Eucetonia*) *prasinata* Bourgoin, 1915, (3 ♂♂, 3 ♀♀); *Cetonia* (*Eucetonia*) *sakaii* Antoine, 2000, (24 ♂♂, 8 ♀♀); *Cetonia* (*Eucetonia*) *pakistanica* Krajčik et Jákl, 2004, (1 ♂). Specimens stated above are deposited in coll. of the author.

TAXONOMY

Cetonia (*Sakaiana*) subgen. nov.

Type species. *Cetonia* (*Sakaiana*) *annamitica* sp. nov. (by monotypy).

Description. Large *Cetonia* with body size 21.2- 23.1 mm (excluding pygidium), completely missing bassalic tomentum (cuticle), pronotum green-metallic shining, elytra and head with bright purpureous metallic lustre.

Head purpureous to green with strong metallic lustre. Widest point approximately in middle length. Frons with yellowish setation. Punctuation rather dense, especially laterally. Antennae black, stalk longer than club in both sexes. Pronotum golden metallic-green, lustre very strong. Punctuation dense and rugose, diameters of punctures large, laterally confluent.

Basal part of disc impunctate. Lateral sides with border. Scutellar shield same coloured as pronotum, its shape approximately triangular, apex slightly rounded, impunctate. Elytra running almost parallel, its subhumeral emargination rather shallow, colouration purpureous with metallic lustre. Each elytron with two vague ribs, humeral and apical calli obtuse. Punctuation horse shoe shaped, forming six irregularly, longitudinally running lines on each elytron. Sides and apex with dense and deep striolation. Whitish setation present throughout its total elytra length, but its density very thin. Pygidium green to metallic purpureous, punctuation very rugosely present, setation whitish, rather long and dense. Colouration of ventrum metallic green to purpureous. Abdominal impression absent, its punctuation and short setation developed only at sides, near anterior margin of each abdominal segment. Metasternum with abundant wrinkles and longer yellowish setation, except of disc, which is almost glabrous. Mesometasternal process long and robust, almost reaching level of procoxae. Kiel usually separating mesometasternal process's apex and running in angle approximately 45 is very reduced, only formed by very shallow and vague line with angle approximately 30-35°. Femurs and tibia bronze to metallic purpureous, tarsi green. All tibia with whitish, long and dense setation. Protibia tridentate in both sexes. Parameres (Figs. 4-5) of male short, but wide, terminated with two circularly shaped flaps.

Differential diagnosis. The newly described subgenus differs from three known subgenera as follows: From the nominotypical subgenus, it can be distinguished by the presence of a keel separating the apex of the mesometasternal process and by an arched abdomen in both sexes, also by completely different male parameres. From subgenus *Eucetonia*, it can be distinguished by the arched abdomen of males, missing abdominal impression, by the absence of bassalic dorsal tomentum (cuticle) and by a differently structured male aedeagus. From the subgenus *Indocetonia* it can be recognised by absence of bassalic, dorsal tomentum (cuticle) and differently shaped male parameres.

Etymology. Named after my friend and colleague Kaoru Sakai (Tokyo, Japan), who provided me with interesting new species and subgenus. Gender: feminine.

TAXONOMICAL KEY TO *CETONIA* SUBGENERA

- 1 (2) Transversally running keel, separating mesometasternal process apex from basal part is missing, mesometasternal process only with longitudinal middle line. Abdominal impression in males always developed. Mostly species with dorsal, bassalic tomentum (cuticle) occurring in west Palearctic Region to Middle East and Central Asia *Cetonia (Cetonia)* Fabricius, 1775
- 2 (1) Transversal keel of mesometasternal process always developed. Males with or without abdominal impression. Bassalic dorsal tomentum present (except of *Sakaiana* subg. nov.)
- 3 (4) Abdominal impression of males always present. Species bearing bassalic cuticle. Mesometasternal process usually not very protruding, its transversal keel always present. Species from East Palearctic Region, Taiwan, Japan, China, Vietnam, Laos and Pakistan *Cetonia (Eucetonia)* Schoch, 1894
- 4 (3) Abdominal impression of males missing. Dorsal bassalic tomentum developed or missing. Mesometasternal process large, protruding, its transversal keel present.
- 5 (6) Bassalic, dorsal tomentum present, species without lustre. Keel of mesometasternal process clearly visible, running at angle approximately 45°, species from Indochina, Nepal, Pakistan, China, Malaysia, Sumatra *Cetonia (Indocetonia)* Mikšič, 1965
- 6 (5) Bassalic, dorsal tomentum completely missing, body shining, lustre very strong. Mesometasternal process

with very vague transversal keel running at angle approximately 30°. Male parameres short and wide, apex with two large flaps *Cetonia (Sakaiana)* subg. nov.

***Cetonia (Sakaiana) annamitica* sp. nov.**

(Figs. 1-5)

Type locality. South Vietnam, Di Linh, near Bao Loc.

Type material. Holotype (♂) labelled: Di Linh/near Bao Loc/S. Vietnam/V. 2005 (in coll. SJCP). Paratypes: (Nos. 1-2 ♀♀) labelled: Bao Loc/S. Vietnam/III. – Iv. 2004 (in coll. SJCP); (Nos. 3-8: 3 ♂♂, 3 ♀♀) labelled: same as holotype (in coll. KSCP).

Description of holotype. Large *Cetonia* with almost parallel, purpureous, strongly reflected elytra and metallic green shining pronotum, body size (excluding pygidium) 23.1 mm, maximum humeral width 10.8 mm.

Head. Frons purpureously reflected, clypeus with metallic green lustre. Widest in posterior half of clypeus. Punctuation rather rugose and dense, especially in frons and sides. Punctuation of apical half of clypeus also dense, but diameters of punctures much smaller and shallower. Apical margin of clypeus medially deeply emarginate, sides of clypeus rounded. Frons bears whitish setation, which is rather long but not very abundant. Antennae blackish, club shorter than stalk, scape as long as antennomeres 2-4.

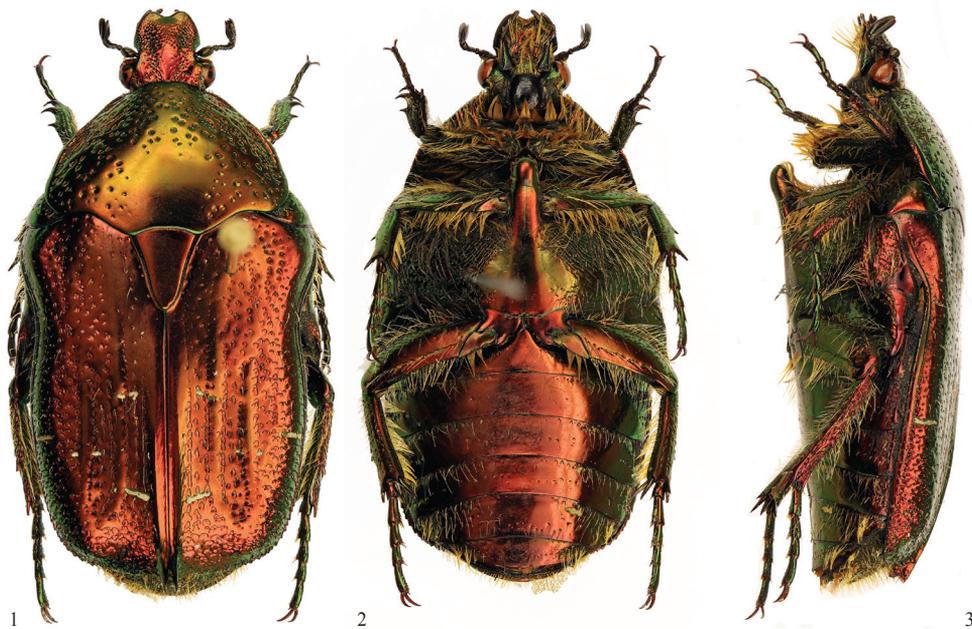
Pronotum. Colouration metallic green, strongly reflected. Punctuation of anterior half and posterolateral margins very rugosely developed, diameters of punctures large, circularly shaped. Anterolateral margins and anterior half of sides deeply and densely striolated, posterior half of disc and base impunctate. Sides with border, reaching posterolateral margins. Setation completely absent.

Scutellar shield. Shape triangulated with gently rounded apex, colouration purpureous, strongly shining, impunctate.

Elytra. Almost parallel, subhumeral emargination mild. Colouration purpureous to purpureous golden, strongly reflected. Each elytron with five tiny white tomentum spots placed in posterior half. Punctuation of posterior half rugose and dense, punctuation of anterior half thinner and finer, reduced mainly to sides. Disc of each elytron with two distinct ribs and six running lines of mostly horse-shoe shaped punctures. Posterior half of lateral margins and apex with unusually dense and deep striolation. Humeral calli obtuse and almost impunctate, apical calli indistinct. Sutural ridge sharp, medially elevated behind apical half, its apex protruding rather far over elytra apex, termination of sutural ridge sharply developed.

Pygidium. Dark purpureous, strongly reflected. Surface with granulation distributed uniformly throughout total length. Whitish setation long and dense.

Ventrum. Abdomen metallic to purpureous, missing abdominal impression. Each abdominal segment with 1-2 vague horizontally running fine puncture lines, mainly at sides. Segments 3-6 with tiny tomentum maculae between disc and lateral margins. Posterior margins of each abdominal segment with whitish setation, lateral margins with rugose punctuation. Metasternum, except of disc, deeply striolated and covered with whitish setation. Disc glabrous. Colouration of metasternum green to metallic, reflected. Mesometasternal process thin, but long, reaching level of posterior margins of procoxae, its transversal keel



Figs. 1-5. *Cetonia* (*Sakaiana* subgen. nov.) *annamitica* sp. nov.: 1- habitus dorsal aspect; 2- habitus ventral aspect; 3- habitus lateral aspect; 4- aedeagus; 5- aedeagus lateral aspect.

separating disc from apex visible, but very vague and its angle obtuse, approximately 30° . Prosternum metallic, almost completely covered by long yellowish to ginger setation.

Legs. Pro- and mesofemurs metallic to green, metafemurs purpureously golden, posterior and anterior margins of all femurs with long and dense yellowish to ginger setation. Protibia green to metallic, meso- and metatibia same coloured as meso- and metafemurs. Meso- and metatibia uniformly granulate throughout its total length. All tibia covered with yellowish setation. Protibia tridentate, posterior and central teeth more distanced than two anterior ones. Tarsi normally developed, its colouration green, shining.

Genitalia. (Figs. 4-5) Not resembling genitalia of classical *Cetonia* by anything, male parameres short and wide, apex terminated with two almost circularly developed flaps.

Variability. Males only differ in size (21.4-23.5 mm) and small differences in elytra tomentation. In other aspects similar to each other.

Sexual dimorphism. Size 21.2-23.3 mm. Legs only very slightly more robust and abdomen indistinctly more arched, but all other characters including punctation, tomentation, granulation, length of antennal club, shape of clypeus margin and etc. same as males, generally without abdomen dissection hard to recognise sex.

Differential diagnosis. Generally say there is no congener to newly described species. From any other of known *Cetonia* it can be distinguished by combination of following characters: I. Dorsal side is missing bassalic tomentum (cuticle); II. Abdomen of both sexes without impression; III. Large size 21.2-23.5 mm; IV. Mesometasternal process with transversally running keel, but this keel is only indistinctly developed and runs in more obtuse angle (30-35°); V. Apex of mesometasternal process thin, but long reaching level of procoxae; VI. Sides and apex of elytra and pygidium with deep and dense granules or wrinkles; VII. type locality South Vietnam, where any of *Cetonia* has never been collected, should be also considered.

Distribution. South Vietnam, Bao Loc.

Etymology. The species is named after a region including south part of Vietnam, Laos and Cambodia - Annam.

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