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THE JEWEL BEETLE GENUS *CAPNODIS* ESCHSCHOLTZ (COLEOPTERA: BUPRESTIDAE) OF PAKISTAN

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ABSTRACT

Five species and one subspecies of the genus *Capnodis* Eschscholtz, 1829 are listed from Pakistan. Key to the species and additional distribution are also provided.

Keywords: Additional records, taxonomy, *Capnodis*,

INTRODUCTION

The genus *Capnodis* Eschscholtz of the subfamily Chrysochroinae, tribe Dicercini, includes fifteen species with seven subspecies in the Palaearctic region. Most of these species are stem borers and economically important (Stebbing (1914); Beeson (1941); Balachowsky (1962); Ben-Yehuda *et al.* (2000); Mendel *et al*. (2003) etc.).

Marseul (1865) was the first who presented a key for the species of *Capnodis* known at that time. Kerremans (1903) described the characters of the genus again and listed fourteen species with its geographical distribution. In the monograph of Buprestidae Kerremans (1906-1913) presented thirteen species of the genus *Capnodis*. Obenberger (1926) listed eighteen species and one subspecies (*C. miliaris metallica*) from East, Central and northern Asia and Europe. He recorded *C. excisa* from Baluchistan Prov. of Pakistan. Théry (1936) made remarks on eleven species of *Capnodis* and presented a key for these species. He reported three species, *C. miliaris*, *C. indica* and *C. excisa* from Asia and northern India. Bílý (1985) recorded *C. excisa* as new for Saudi Arabia. Holynski (1999) redescribed five species of *Capnodis* and prepared a key for them, where he treated *Capnodis sexmaculata* as subspecies of *Capnodis carbonaria*. Akiyama and Ohmomo (2000) listed four species *C. indica*, *C. miliaris*, *C .excisa* and *C. sexmaculata* from Europe, Central Asia and Russia. Kuban (2006) presents in the "Catalogue of Palaearctic Coleoptera" a comprehensive work on the bibliography and distribution of the buprestids in the Palaearctic region. He states fifteen *Capnodis* species with seven subspecies, three of them occurring also in Pakistan. He did not mention *C. excisa* and *C. miliaris* for our country. In the "World Catalogue and Bibliography of the Jewel Beetles" Bellamy (2008) recorded only *C. indica* from Indian Kashmir and the subspecies *C. miliaris afghanica* from Afghanistan and Pakistan. Howarth and Gillet (2009) recorded *C. excisa* from the United Arab Emirates and listed its distribution.

In Pakistan, Chaudhary *et al*. (1970) presented in a preliminary list of Buprestidae only three species, *C. miliaris*; *C. carbonaria* and *C. indica* from different localities of Pakistan. Hashmi and Tashfeen (1992) listed *C. carbonaria*, *C. indica*, *C. kashmirensis*, *C. miliaris* and *C. tenebrionis* from Pakistan.

During this study, five species belonging to the genus *Capnodis* Eschscholtz were collected in Pakistan. Details of the Pakistan records of these species are given below, including remarks and illustration. In addition a checklist and a key to Pakistan species are given.

MATERIALS AND METHODS

The specimens studied belong to the collection of the NARC (National Agriculture Research Institute) Islamabad, Punjab; Natural History Museum, University of Karachi, Karachi. The measurements of various structures and of the body were taken with the help of a micromillimeter slide using Leitz Binocular. For the study of the male genitalia the abdomen was removed and warmed in 10% KOH solution on a bench lamp for about 10 minutes. It was then washed with tap water, dissected and studied under a Leitz binocular microscope. The genitalia were preserved in microvials with a drop of glycerine and pinned to the specimens.

Checklist of *Capnodis* Eschscholtz species from Pakistan

Capnodis excisa Ménétriés 1848:28
Capnodis indica Thomson 1879b:176

Capnodis miliaris (Klug) 1829, No. 15
Capnodis miliaris metallica Ballion 1871:349
Capnodis parumstriata Ballion 1871:349
Capnodis sexmaculata Ballion 1871:349

Key to the species of *Capnodis* of Pakistan

1 Pronotum with a short, narrow groove in the centre of the basal border ..... ***C. excisa*** Ménétriés
- Pronotum without such a narrow groove **2**

2 Elytrae with clearly visible, convex, alternatively large and small ribs (costae) without any other pattern ..... ***C. parumstriata*** Ballion
- Elytrae without costae or costae flat and regular and elytra with an irregular pattern of patches of small spots..... **3**

3 Elytrae with flat costae and lines of small confluent spots ..... ***C. miliaris*** Klug
- Elytra without flat costae and lines of small confluent spots **4**

4 Elytrae with an irregular pattern of smooth areas and patches of small spots .....***C. indica*** Ménétriés
- Elytrae without any irregular pattern of smooth areas ..... ***C. sexmaculata*** Ballion

***Capnodis* Eschscholtz**
Buprestis (Capnodis) Eschscholtz 1829:9
Type species: *Buprestis tenebrionis* Linnaeus, 1758

Description. Medium to big size species (11-41mm); dark brown to black with coppery bronze pattern, which is covered with white waxy coating in fresh specimens; pronotum cordate with smooth black spots; small scutellum; fine punctuated elytra.
The following five species of this genus are recorded from Pakistan.

***Capnodis excisa* Ménétriés, 1848**
Ménétriés, 1848:44

Records for Pakistan in literature: Obenberger 1926:202; Théry1936:221; Richter 1952:161; Holynski 1999:31
Material examined. Pakistan: Baluchistan Prov., 1 ♀ (no other data). (NARC, Islamabad). Length 22.8 mm.
Distribution. According to Kuban (2006), this species occurs from Armenia and Azerbaijan to Turkmenistan, Uzbekistan and Tajikistan, but he does not mention it for Pakistan while Obenberger (1926) and Richter (1952) also report it from Baluchistan.
Remarks. This species can easily be recognized by the presence of the small carina and two median black smooth fasciae in the basal part of the pronotum.
The development of *Capnodis excisa* takes place in *Calligonum* spec.

***Capnodis indica* Thomson, 1879**
Thomson 1879:176

Records for Pakistan in literature: Kerremans 1903:107 (sub *vermiculata)*; 1911:632 (sub *vermiculata)*; Stebbing 1914:202; Obenberger 1926:202 (sub *vermiculata)*; Théry 1936:220; Richter 1952:154; Alexeev, *et al*.1992:390; Holynski 1999:28; Kuban 2006:346.
Synonym: *Capnodis vermiculata* Fairmaire, 1891:CXXV
Material examined: Pakistan: Punjab Prov., Murree, 1 ♀, ?.vii.2007. (NARC, Islamabad). Length 23 mm.
Distribution. According to Kuban (2006), this species is distributed from Pakistan to northern India (Himachal and Uttar Pradesh).
*Remark*s. This species looks very similar to *C. miliaris* but it can be easily distinguished by the absence of lines on the elytrae.
The biology of *Capnodis indica* is unknown.

***Capnodis miliaris* (Klug)**
Klug, 1829: No. 15, Plate 2, figure 2 (*Buprestis*)

Records for Pakistan in literature: Stebbing 1914:203; Théry 1925e:80; Obenberger 1926:203; Richter 1952:154; Chaudhary *et al*, 1970: ; Alexeev *et al*. 1990:82.
Material examined. Pakistan: Mansehra, Dadar, Khyber Pakhtoon Khwa Prov., 2 ♂, 22.vi.2005, Ahmed, Z (NFCP). Length 35.25 mm.
Distribution. This species is distributed from Turkey, Cyprus and Syria to Central Asia and north-western China. It also reported from Baluchistan Prov., Pakistan.
Remarks. Beside this nominate form there is the subspecies *metallica* Ballion, 1871. It can be separated by the metallic shine of the apical and central part of the elytrae. As it occurs together with the nominate form in the same places we treat it as a simple variation of *Capnodis miliaris*.
Capnodis miliaris is a pest to *Populus* and *Salix* spec. where the larvae destruct the sapwood.

***Capnodis parumstriata* Ballion, 1871**
Ballion 1871:349

Records for Pakistan in literature: Fairmaire 1902:39 (sub *costulata*); Kerremans 1911 :621 ; Obenberger 1926 :203 ; Richter 1952:160; Alexeev, *et al*. 1990:82 ; Holynski 1999 :30 ; Kuban 2006 :346.
Synonym: *Capnodis costulata* Fairmaire, 1902:39
Material: Pakistan: Northern Areas, Astore valley, 1430 m, 6.7.2007, 1 ♀ (coll. H. Mühle, Munich). Length 34.5 mm.
Distribution. Beside Pakistan the species is distributed in Afghanistan, Iran, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan and northern India.
*Remark*s. *Capnodis parumstriata* can be recognized immediately by the elevated ribs of the elytrae.
According to Richter (1952:160) this species develops in *Pistacia* spec.

***Capnodis sexmaculata* Ballion, 1871**
Ballion 1871:349

Records for Pakistan in literature: Kerremans 1903:107 (sub *kashmirensis*), 1911:633; Obenberger 1926:203 (sub *kashmirensis*); Holynski 1999 :28; Kuban 2006 :346.
Material examined: Pakistan: Baluchistan, Quetta, 25 ♂, 5 ♀, on Almond trees, 28.vi.2006.(NFCP). Length 26mm.
Further material: Pakistan: Northern Areas, Jaglot (Karakorum Agriculture Research Center), 1440 m, 6.7.2007, 2 ♂, 2 ♀; Burji 1600 m, ?.V.1975 2 ♀; Baluchistan, Quetta/Urak 2100 m, 6.5.1979, 1 ♂; 12.5.1983, 1 ♂; 24.5.1983, 1 ♀; 10.6.1983, 1 ♀; Ziarat 2400 m 5.6.1979, 1 ♂, 1 ♀; 20.6.1982, 1 ♀ (coll. H. Mühle, Munich). Length 18.5-27 mm.
Distribution. Iran, Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan) and Pakistan (Chitral, Kashmir, Baluchistan).
Remarks. This is the only species of *Capnodis* in Pakistan, having six smooth spots on the pronotum only. All the other species are having also a smooth spot in the middle part of the pronotum.
Capnodis sexmaculata is developing in the stems of *Amygdalis* (Almond trees), causing heavy damages.

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