



International Journal of Fauna and Biological Studies

Available online at www.faunajournal.com

I
J
F
B
S
International
Journal of
Fauna And
Biological
Studies

ISSN 2347-2677

IJFBS 2014; 1 (6): 59-62

Received: 15-07-2014
Accepted: 24-08-2014**Nadia Fatima**

Department of Zoology, Federal Urdu University of Arts, Science & Technology, Gulshan – E – Iqbal Campus, Karachi- 75300- Pakistan.

Abid Raza

Department of Environmental Science, Federal Urdu University of Arts, Science & Technology, Gulshan – E – Iqbal Campus, Karachi- 75300- Pakistan.

S. Ansar Rizvi

Department of Zoology, University of Karachi, 75250, Pakistan.

S. Shahid Shaukat

Institute of Environmental Studies, University of Karachi, Karachi- 75270, Pakistan.

M Afzal Farooq

Department of Environmental Science, Federal Urdu University of Arts, Science & Technology, Gulshan – E – Iqbal Campus, Karachi- 75300- Pakistan.

Correspondence:**Abid Raza**

Department of Environmental Science, Federal Urdu University of Arts, Science & Technology, Gulshan – E – Iqbal Campus, Karachi- 75300- Pakistan – E – Iqbal Campus, Karachi- 75300- Pakistan.

A Preliminary Investigation of Buprestidae Fauna (Order, Coleoptera) Records from Pakistan

Nadia Fatima, Abid Raza, S. Ansar Rizvi, S. Shahid Shaukat and M Afzal Farooq

Abstract

A survey was conducted during 2005 to end of November 2013 in various provinces of Pakistan including Sindh, Punjab, Khyber Pakhtunkhwa as well as Azad Kashmir and Tribal areas (Kurrum Agency) on Jewel beetles, to collect and determine their taxonomic study. This paper is preliminary study on the species diversity of family Buprestidae. A total of 22 newly recorded species of family Buprestidae (subfamily Buprestinae, Chalcophorinae, Julodinae) were collected and identified base on this survey.

Keywords: Jewels Beetles, Buprestidae, Pakistan, Fauna.

1. Introduction

Buprestidae contains over 15,000 described species distributed throughout the world on almost every continent [1]. Members of the family Buprestidae (jewel beetles) of the class Insecta belonging to phylum Arthropoda are usually present in the semidesert and humid tropical areas. They are found in the leaf parenchyma of various plants including grasses and ferns. The important characteristics of Jewel beetles vary in size, 2 mm-80 mm; shape cylindrical to flattened, elongate-ovoid, generally convex above; colour various, often bright iridescent or dark coloured with different maculae; head greatly deflexed; antennae serrate, some with flabellate or pectinate; labrum bilobed and setose distally; mandible stout, curved; maxillary palpi with four palpomeres; labial palpi with three palpomeres; eyes lateral, elongate-oval to reniform; pronotum slightly broader than head; legs simple, sometimes tibiae dentate or spinose; elytra with different vestiture, rugose or carinate; abdomen with five sternites; male genitalia trilobed type. Some of the quantitative data on the Buprestidae has been provided by earlier workers Holdhaus [2, 3-4-5-6-7-8, 9, 10, 11, 12, 13, 14, 15, 16].

The aim of the present study is to identify Buprestidae fauna collected from Pakistan during the surveys conducted in 2005-2013. The checklist aims to include all species that have been reliably recorded from the Pakistan as possible residents. The checklist aims to be comprehensive in its listing of subfamilies, genera and species. Tribes are only listed when supported by a recent, authoritative review.

2. Material and Methods

Specimens were collected from different areas of Pakistan during the surveys carried out from 2005 to the end of November 2013. The specimens were collected by beating branches of trees and shrubs and using sweep nets or directly with hand-picking methods. Specimens were killed by pinning, labeled and prepared for identification, dried specimens were placed in warm water for about 30 minutes, then dissected into several large parts, which were further softened and cleared of non-chitinous material in a 10% solution of warm KOH. The sample were identified on the basis of their identified taxonomic characters and confirmed and compared with the catalogue, literature, keys. The identified specimens are deposited in Zoology Museum, Department of Zoology, University of Karachi, Pakistan.

3. Results

Subfamily Agrilinae Lacordaire, 1857

3.1. Agrilus zigzag Mars

3.1.1 Material Examined

1 ♀, Pakistan, Islamabad, 05.iv.2006, leg; Mishkat.

3.1.2 Distribution

New record for Pakistan.

Subfamily Buprestinae, Lacordaire, 1857

3.2. *Anthaxia (Anthaxias.str.) anatolica* Chevrolat, 1838

3.2.1 Material Examined

Specimen was donated by Marek Kafka. Data as E. Kazakhstan Sour Mts., Sargar A Klimenko leg; Mit, H=2200m, 21.IV.2000.

3.2.2 Distribution

North Africa, Europe, Central Asia, Israel, Turkmenistan, Turkey, Algeria, Morocco, Greece, Bulgharia, Rumania, Chypre and Syria. New record for Pakistan.

3.3. *Anthaxia (Anthaxias.str.) hemichrysis* Abeille de Perrin, 1893

3.3.1. Material Examined

Specimen was donated by Marek Kafka. Data as Turkmenistan, culi, 1990.

3.3.2 Distribution

Turkmenistan and North Iran. New record for Pakistan.

3.4. *Anthaxia (Haplantaxia) gedrosiana* Bílý, 1983

3.4.1. Material Examined

1♀, Iran, Balochistan, Bampur, 1998. (specimen donated by Marek Kafka).

3.4.2. Distribution

Iran and new record for Pakistan.

3.5. *Anthaxia (Melanthaxia) conradti* Semenov, 1891

3.5.1 Material Examined

1♂, Specimen was donated by Marek Kafka. Data as Uzbekistan: Dzum-d-zum-sad, 1 male, 11.vii.1989, leg; K. Marek.

3.5.2. Distribution

USSR, China, Xizang, Kizang, Kazakhstan, Kirghizia, Tadjikistan, Turkmenistan, Dzum-dzum-sad, Uzbekistan. New record for Pakistan.

3.6. *Anthaxia (Melanthaxia) tianshanica* Bílý, 1984

3.6.1. Material Examined

1♂, Specimen was donated by Marek Kafka. SU-Kirgizia.

3.6.2. Distribution

USSR, Central Asia, Su-Kirgista-przhevalsk, Turkey, New Guinea, Praho and Borneo. New record for Pakistan.

3.7. *Trachypterispicta* (Pallas, 1773)

3.7.1 Material Examined

1♀, National Agriculture Research Centre. (data not available).

3.7.2 Distribution

N.Africa, Europe, Asia Minor, E.USSR, NE. China, Tirol and Uralsk. New record for Pakistan.

Subfamily chalcophorinae Lacordaire, 1857

3.8. *Chrysochroa rajah* Gory, 1840

3.8.1 Material Examined

1♀, Zoological Survey of Pakistan Museum, Karachi. (data not available).

3.8.2. Distribution

Burma, China, India, Laos, Thailand, Vietnam, Indo-China. New record for Pakistan.

3.9. *Capnodisexsica* Ménétríés, 1849

3.9.1 Material Examined

Single specimen without label, loan from NARC (National Agriculture Research Centre).

3.9.2 Distribution

Armenia, Azerbaidjan, Egypt, Iran, Iraq, Kazakhstan, Kuwait, Eastern Saudi Arabia, N. Turkey, UAE, Tadjikistan, Turkmenistan, Uzbekistan. New record for Pakistan.

3.10. *Capnodis miliaris metallica* Ballion, 1870

3.10. 1. Material Examined

1♂, Pakistan, loan by NARC (National Agriculture Research Centre). (data unavailable).

3.10.2. Distribution

Afghanistan, Greece, Iran, Italy, Turkmenistan, Syria, Uzbekistan, Turkey. New record for Pakistan.

3.11. *Lampetis (Spinthoptera) mimosae mimosae* (Klug, 1829)

3.11.1 Material Examined

2♀, Pakistan, Kalam, Swat, Khyber Pakhtunkhwa, 17.VII.2009, leg; Zubair.

3.11.2. Distribution

Syria, Parsia, Iran, Egypt, Chad, Djibouti, Erithrea, Libya, Morocco, Algeria, Senegal, Greece, Guine, Iraq, Jordan, Lebanon, Oman, Saudi Arabia, Sudan, Tanzania, Turkey, UAE, Israel, Tunisia, Yemen, Ethiopia. New record for Pakistan.

3.12. *Sphenoptera backeri* Dohrn, 1866

3.12.1. Material Examined

1♀, Pakistan, Sind, Karachi, campus of University of Karachi, leg; Atique.

3.12.2. Distribution

Afghanistan, Armenia, Azerbaidjan, Egypt, China, Georgia, Iran, Kyrgyzstan, Kazakhstan, Russia, Tajikistan, Mongolia, Turkey, Turkmenistan, Ukraine, Uzbekistan, Caucasus, Central Asia. New record for Pakistan.

3.13. *Sphenoptera heroica* Jakovlev, 1903

3.13.1 Material Examined

2♂, Pakistan, Sind, Jamshoro, Tori Phatak, 22.VI.2011, leg; Zubair.

3.13.2 Distribution: New record for Pakistan.

3.14. *Sphenoptera ignita* Reitter, 1895

3.14.1. Material Examined

1♀, Pakistan, Sind, Jamshoro, Tori Phatak, 7.V.2010, leg; Zubair.

3.14.1 Distribution

Central Asia, Mongolia, Transcaucasia, Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan, Russia. New record for Pakistan.

3.15. *Sphenoptera lapidaria* (Brullé, 1832)

3.15.1 Material Examined

1♀, Pakistan, Punjab, Murree, 3.VII.1996, on *Astragalus* spp, leg; Khan. Loan by NARC (National Agriculture Research Centre).

3.15.2. Distribution

Albania, Azerbaidjan, Egypt, Greece, Turkey, France, Hungary, Iran, Iraq, Italy, Israel, Lebanon, Sicily, Spain, Caucasus, Syria, Transcaucasia. New record for Pakistan.

3.16. *Sphenoptera mesopotamica* Marseul, 1866

3.16.1 Material Examined

1♀, Pakistan, Swat, Khyber pakhtunkhwa, 25.VII.1996, leg; Waheed.

3.16.2 Distribution

Afghanistan, Armenia, Azerbaidjan, Georgia, Iran, Iraq, Kazakhstan, S. America, Tajikistan, Turkmenistan, Central Asia, Caucasus, Turkey, Uzbekistan. New record for Pakistan.

3.17. *Sphenoptera Scovitzii* Falder, 1835

3.17.1. Material Examined

2♂, Pakistan, Sind, Jamshoro, Tori Phatak, 20.VI.2011, on *Acacia senegal*, leg; Zubair.

3.17.2. Distribution: Algeria, Egypt, Israel, Saudi Arabia, Syria, UAE, Caucasus, Central Asia, Iran. New record for Pakistan.

3.18. *Sphenoptera striatipennis* Jakovlev, 1889

3.18.1 Material Examined

1♂, Pakistan, Swat, kalam, Khyber Pakhtunkhwa, 18.V.2006, leg; Sadiq.

3.18.2. Distribution

Iran, Kazakhstan, Mongolia, Tajikistan, Turkmenistan, Central Asia, Uzbekistan. New record for Pakistan.

3.19. *Sphenoptera (Chrysoblemma) tamaricis* (Klug, 1829)

3.19.1. Material Examined

1♂, Pakistan, Sind, Jamshoro, Tori Phatak, 27.V.2010, leg; Zubair.

3.19.2. Distribution: Afghanistan, Armenia, Azerbaidjan, Egypt, Iran, Iraq, Israel, Kyrgyzstan, Kazakhstan, Mongolia, Russia, S. Arabia, Tajikistan, Turkmenistan, Uzbekistan. New record for Pakistan.

Subfamily Julodinae Lacordaire, 1857

3.20. *Sternocera orientalis* (Herbst, 1801)

3.20.1 Material Examined

1♂, Pakistan, Punjab, Fatehjung, 26-VI-2004, leg; Mishkat.

3.20.2. Distribution

India, Nepal, Myanmar, Thailand, Laos. New record for Pakistan.

3.21. *Julodis faldermanni* Mannerheim, 1837

3.21.1 Material Examined

1♂, 1♀, Pakistan, Balouchistan, Naushki, 13.VI.2012, leg; Shuja.

3.21.2. Distribution

South Arabia, Armenia, Azerbaidjan, Iran, Iraq, Afghanistan, Turkey, Russia, Syria. New record for Pakistan.

3.22. *Julodis variolaris* (Pallas, 1773)

3.22.1. Material Examined

3♂, 5♀, Pakistan, Jamshoro, Tori Phatak, on *Acacia senegal*, 14.IV.2011, leg; Zubair.

3.22.2. Distribution

Afghanistan, Turkestan, Uzbekistan, Central Asia, Russia, Armenia, N.E. Iran and Kazakistan. New record for Pakistan.

4. Discussion

In the present studies on the family Buprestidae of Pakistan a total of 22 species, 2 sub-species belonging 9 genera, 3 Subfamilies and 7 tribes were recorded. The identification and the classification followed the relevant literature. The earliest study is that of [2] who identified 16 species of jewel beetles, while Obenberger [3-4-5-6-7-8] within his six volume catalogue (Coleopterorum catalogue) mentioned about 51 species and subspecies distributed in Mesopotamia, Beeson [9] reported 88 species of jewel beetles from Indian region, [10] described seven subfamilies of Buprestidae from Indian region., Relatively recently, [11] suggested 4 subfamilies, 12 tribes and about 64 subtribes of Buprestidae. [16] ave a checklist of Buprestidae the entire world.

5. Reference

- Bellamy CLA. World catalogue and bibliography of the jewel beetles (Coleoptera: Buprestoidea). Pensoft, Sofia-Moscow, 2008, 606.
- Holdhaus K. Koleopteren aus Mesopotamien. Ann Nat Mus Wien 1919; 38:40-49.
- Obenberger J, Buprestidae I. In: Junk, W. & Schenkling, S., Coleopterorum Catalogus, 1926; 84:1-212. Eds. W. Junk Berlin W. 15.
- Obenberger, J. Buprestidae II. In: Junk, W. & Schenkling, S., Coleopterorum Catalogus, 1930; 111: 215-568. Eds. W. Junk Berlin W. 15.26. IV.
- Obenberger, J. Buprestidae III. In: Junk, W. & Schenkling, S., Coleopterorum Catalogus, 1934; 132: 571-781. Eds. W. Junk Berlin W. 15.3-I.
- Obenberger, J. Buprestidae IV. In: junk, W. & Schenkling, S., Coleopterorum Catalogus, 1935; 143: 785-934. Eds. W. Junk Š- Gravenhage 15. VI.
- Obenberger, J. Buprestidae V. In: Junk, W. & Schenkling, S., Coleopterorum Catalogus, 1936; 152:935-1246. Eds. W. Junk Š- Gravenhage 14. XII.
- Obenberger, J. Buprestidae VI. In: Junk, W. & Schenkling, S., Coleopterorum Catalogus 1937; 157:1247-1714. Eds. W. Junk Š-Gravenhage 31. XII.
- Beeson CFC. The ecology and control of the forest insects of India and the neighbouring countries. Publ by the author, Vasant Press, Dehra Dun, India, 1941; 1007 pp.
- Stebbing E. *Indian Forest Insects, Buprestidae*. Chapter 11, pp. 190-222. Eyre et Spottiswoode, London, 1914; 648 pp.

11. Cobos A. Ensayo sobre 10s generos de la subfamilia Polycestinae (Coleoptera, Buprestidae) (Parte I). EOS Revista Espanola de Entomologia 1980; 54(1979):15-94.
12. Holynski A. Reassessment of the internal classification of the Buprestidae Leach (Coleoptera). Crystal publication of the (Natural Science Foundation Series Zoologica) 1993; 1:1-36.
13. Akiyama K, Ohmomo S. The buprestid beetles of the world. Iconographic Series of Insects. Gekkan-Mushi Co., Ltd, 2000, 341.
14. Bellamy CL. A catalogue of the higher taxa of the family Buprestidae (Coleoptera). Navorsinge van die Nasionale Museum Bloemfontein 1985; 4(15):405-472.
15. Bellamy CL. An Illustrated Summary of the Higher Classification of the Superfamily Buprestoidea (Coleoptera) - *Folia heyrovskyana*. Supplementum 2003; 10:1-197.
16. Bellamy CLA. World Catalogue and Bibliography of the Jewel Beetles (Coleoptera: Buprestoidea). Volume 5. Appendices, Bibliography, Indices. Pensoft Series Faunistica No. 80, pp. 2685-3264, Pensoft Publishers, Sofia-Moscow, 2009.