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## Biosystematic Studies of Tetrigidae (Orthoptera) of Rawalpindi Division (Punjab) Pakistan

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**Abstract:** Eight species of tetrigid grasshoppers under 5 genera belonging to the subfamilies Scelimeninae and Metrodorinae collected from various localities of Rawalpindi Division have been identified. Out of which, four genera, viz., *Eucriotettix*, *Bolivaritettix*, *Thoradonta* and *Eurymorphopus* and seven species, viz., *Eucriotettix montanus*, *E. grandis*, *Bolivaritettix laticeps*, *Criotettix annandalei*, *Thoradonta apiculata*, *T. sinuata* and *Eurymorphopus latilobus* have been recorded for the first time from Pakistan.

**Key words:** Biosystematic, Orthoptera, Tetrigidae, Rawalpindi, Pakistan

### Introduction

Grasshoppers of the family tetrigidae, commonly called grouse locusts or pygmy grasshoppers, belong to the the order Orthoptera. They have been recorded to feed on various types of food growing in their humid habitat, such as algae, mosses, lichens, grasses, fungi, and even on vegetable detritus (Mani, 1982). The leading taxonomic work done, before the partition of the Indopak subcontinent, is that of Kirby (1914) and Hancock (1912, 1913, 1915) while after the separation of Pakistan, this was done by Moeed (1971), Suhail *et al.* (1994) and Wagan and Kevan (1992).

### Material and Method

The specimens were killed in a cyanide bottle and pinned. Most of the specimens were with wings folded on their bodies and legs improperly placed. In order to make a study of such specimens, they were kept in a relaxing jar for 1-2 days, 8-10 specimens at a time. After relaxation, they were mounted on spreading boards and the left tegmen and wing of each specimen were fully spread so that the maculation could be studied.

Hind legs were placed in an inverted "V" position. All the mounted material was left on spreading boards for 4-6 days; then transferred to boxes after labelling for preservation. Naphthalene balls mounted on pins and BHC powder were used as fumigant to save the preserved specimens from the attack of insects. These collections were supplemented with specimens from the students' collection of the Department of Agri. Entomology, University of Agriculture, Faisalabad.

A revolving stage and a WILD M3B binocular microscope (10X × 1.6X) were used for identifying the specimens up to the specific level. The measurements (maximum length and width) of body, pronotum, tegmen and hind femur were taken with a finely pointed divider and a ruler and their means and standard deviation were worked out. The type specimens have been deposited in the Insect Museum, Department of Agricultural Entomology, University of Agriculture, Faisalabad. In the present study, this family is represented by eight species, under 5 genera, belonging to the subfamilies Scelimeninae and Metrodorinae. Out of these, four genera and seven species are first records from Pakistan.

### Subfamily Scelimeninae

Genus *Criotettix* Bolivar

Type: *Criotettix bispinosus* (Dalm.)

#### 1. *Criotettix annandalei* Hancock

1915. *Criotettix annandalei* Hancock, Rec. Ind. Mus., (Ent.), 11, p. 87.

#### Measurements (mm): ( 1 ♂ )

	Female
Length of the body	11.50
Length of head	1.50
Length of pronotum	16.00
Width of pronotum	3.10
Length of tegmen	1.80
Length of hind femur	7.50
Width of hind femur	2.10
Length of hind tibia	6.00

**Material examined:** Salgran 1 ♂, 3.IX.94.

**Habitat:** A single female of this species was collected from the stones, covered with mosses, near a water pond.

**New record:** This species has been recorded for the first time from Pakistan.

#### 2. *Criotettix japonicus* (de Haan)

1843. *Acridium bispinosus* De Haan, Verh. Natuur. Geschid. Nederl. Overz. Bezitte., 169.

1938. *Criotettix bispinosus* Gunther, Stett. Ent. Zeitg., 99:147.

1951. *Criotettix japonicus* Bei-Bienko & Mishchenko, keys Faun. USSR., 38:90.

#### Measurements (mm): ( 5 ♂ 3 ♀ )

	Male	Female	Mean	S.D.
Body (L)	9.25-10.50	13.0-17.50	11.69	2.78
Head (L)	0.90-1.00	1.00-1.25	1.06	0.13
Pronotum (L)	15.0-16.5	18.0-19.0	16.75	1.60
Pronotum (W)	3.00-3.50	4.00-4.75	3.66	0.67
Tegmen (L)	1.75-2.00	2.25-2.50	2.11	0.31
Hind femur (L)	5.75-6.75	7.00-8.00	6.65	0.80
Hind femur (W)	2.00-2.25	2.40-2.50	2.21	0.23
Hind tibia (L)	5.00-5.75	6.00-6.50	5.70	0.53

**Material examined:** Kahuta 1 ♂, 9.VI.93; Kalar Kahar 1 ♀, 12.VI.93; 1 ♂1 ♀6.IX.94; Rawalpindi 1 ♂10.VI.93; Tala Gang

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3 ♂ 5.IX.94.

**Habitat:** The specimens were collected from a vertical wall, on which large quantity of mosses was growing due to the seeping moisture and from the "Dib" (*Typha latifolia*) plantation growing near a lake.

**New record:** All above mentioned localities except Rawalpindi, are new record for this species. Earlier, Suhail *et al.* (1994) recorded this species from Islamabad and Mardan and Rawalpindi.

**Genus *Eucrietettix***

Type: *Crietettix tricarinatus* Bolivar

**1. *Eucrietettix grandis* (Hancock)**

- 1912. *Crietettix grandis* Hancock, Mem. Dept. Agric. Ind., Ent., 4: 134.
- 1913. *Crietettix maximus* Hancock, Rec. Ind. Mus., 8: 311.
- 1915. *Crietettix gravelyi* Hancock, Rec. Ind. Mus., (Ent.), 11, p. 88.
- 1938. *Eucrietettix grandis* Gunther, Stett. Ent. Zeitung, 99: 182.

**Measurements (mm): ( 1 ♂)**

	Male
Length of the body	16.00
Length of head	0.90
Length of pronotum	17.50
Width of pronotum	2.80
Length of tegmen	1.70
Length of hind femur	7.40
Width of hind femur	2.10
Length of hind tibia	5.10

**Material examined:** Salgran 1 ♂, 3.IX.94.

**Habitat:** A single male specimen was collected from a mossy place.

**New record:** This species has been recorded for the first time from Pakistan.

**2. *Eucrietettix montanus* (Hancock)**

- 1912. *Crietettix montanus* Hancock, Mem. Dept. Agric. Ind., 4: 133.
- 1938. *Eucrietettix montanus* Gunther, Stett. Ent. Zeitung, 99: 189.

**Measurements (mm): ( 1 ♂ 2 ♀)**

	Male	Female	Mean	S.D.
Body (L)	14.00	12.00-16.00	14.00	2.83
Head (L)	1.50	1.25-1.75	1.50	0.35
Pronotum (L)	17.80	17.75-18.10	17.93	0.25
Pronotum (W)	2.80	3.75	3.27	0.67
Tegmen (L)	2.00	2.00-2.25	2.13	0.19
Hind femur (L)	8.00	8.25-8.50	8.38	0.18
Hind femur (W)	2.55	2.30-2.75	2.53	0.32
Hind tibia (L)	6.00	6.50-7.50	6.50	0.70

**Habitat:** The specimen was collected from the algae and

**Material examined:** Salgran 1 ♀, 11.VI.93; 1 ♂ 1 ♀, 3.IX.94.

**Habitat:** The specimens were collected from the mosses and algae growing near a pool of stagnant water.

**New record:** This species has been recorded for the first time from Pakistan.

**Genus *Bolivaritettix***

Type: *Mazarredia sculpta* Bolivar

**1. *Bolivaritettix laticeps* (Bolivar)**

- 1909. *Mazarredia laticeps* Bolivar, Bol. Soc. espan. Hist. nat., 9: 399.
- 1915. *Crietettix doherlyi* Hancock, Mem. Dept. Agric. Ind., 4: 86.
- 1939. *Bolivaritettix laticeps* Gunther, Abh. Ber. Mus. Tierk. Volk. Dreshan., (A), 20: 76.

**Measurements (mm): ( 3 ♂)**

	Male	Mean	S.D.
Body (L)	10.50-11.75	11.08	0.63
Head (L)	1.00-1.50	1.25	0.25
Pronotum (L)	15.50-16.00	15.83	0.29
Pronotum (W)	2.90-3.00	2.97	0.06
Tegmen (L)	1.60-1.75	1.70	0.09
Hind femur (L)	7.00-7.25	7.08	0.14
Hind femur (W)	2.10-2.40	2.20	0.17
Hind tibia (L)	5.50-6.00	5.67	0.29

**Material examined:** Kahuta 1 ♀, 9.VI.93; Salgran 2 ♀, 3.IX.94.

**Habitat:** Only male specimens of this species have been found in wild grasses.

**New record:** This species has been recorded for the first time from Pakistan.

**Genus *Thoradonta* Hancock**

Type: *Thoradonta dentata* Hancock

**1. *Thoradonta apiculata* Hancock**

- 1915. *Thoradonta apiculata* Hancock, Rec. Ind. Mus. (Ent.), 11, p. 81.

**Measurements (mm): ( 1 ♀)**

	Female
Length of the body	10.00
Length of head	0.75
Length of pronotum	10.00
Width of pronotum	4.50
Length of tegmen	1.60
Length of hind femur	5.00
Width of hind femur	2.25
Length of hind tibia	4.25

**Material examined:** Salgran 1 E, 11.VI.93.

mosses, growing on the stones near a water pond.

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**New record:** It has been recorded for the first time from Pakistan.

**2. *Thoradonta sinuata* Hancock**

1915. *horadonta sinuata* Hancock, Rec. Ind. Mus. (Ent.), 11, p. 81.

**Measurements (mm): ( 1 ♀ )**

	Female
Length of the body	8.25
Length of head	0.75
Length of pronotum	8.80
Width of pronotum	3.80
Length of tegmen	1.50
Length of hind femur	5.00
Width of hind femur	2.00
Length of hind tibia	4.00

**Material examined:** Salgran 1 ♀, 3.IX.94.

**Habitat:** The specimen was collected from a crack in a stone, lying near the bank of water reservoir.

**New record:** It has been recorded for the first time from Pakistan.

**Subfamily Metrodorinae**

Genus *Eurymorphopus* Hancock

Type: *Amorphopus cunctatus* Bolivar

**1. *Eurymorphopus latilobus* Hancock**

1908. *Eurymorphopus latilobus* Hancock, Spol. Zeyl. v, pp. 113, 114.

**Measurements (mm): ( 1 ♂ )**

	Male
Length of the body	8.00
Length of head	2.00
Length of pronotum	9.00
Width of pronotum	2.00
Length of hind femur	11.0
Width of hind femur	2.75
Length of hind tibia	1.25

**Material examined:** Salgran 1 ♀, 11.VI.93.

**Habitat:** The specimen was collected from a crack in a stone, lying near the bank of water reservoir.

**New record:** It has been recorded for the first time from Pakistan.

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