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Taxonomic Studies on Calliptaminae (Acrididae:Orthoptera) of Pakistan

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Abstract

This study includes the synonymy, measurements, habitat and new record of the five grasshopper species belonging to the subfamily Calliptaminae. Species, *Calliptamus abbrevatus* Ikonnikov, *C. balucha* Uvarov, *C.tenuicercis* Tarbinskii, *C. tartarus* (Costa) and *Acorypha glaucopsis* (Walker) were collected from various localities of Pakistan during a survey conducted in 1995-96. Species *C. abbrevatus* and *C.tenuicercis* have been recorded for the first time from Pakistan.

Introduction

Grasshoppers belonging to the subfamily Calliptaminae are small to medium sized polyphagous insects mostly found in bushes and upland grasses.

The subfamily Calliptaminae from Sub-Continent has been studied by Kirby (1914) and Bei-Bienko and Mishchenko (1951), whereas Mohyuddin (1955), Ahmad (1958), Perwin *et al.* (1985), Wagan (1990) and Malik *et al.* (1993) studied and described some species from Pakistan. As no detailed taxonomic work on the subfamily Calliptaminae has been done in Pakistan. In view of this scanty work, the present taxonomic studies have been initiated to explore the grasshopper fauna along with its habitat and distribution in Pakistan.

In the present work, this subfamily is represented by five species in two genera, viz., *Calliptamus abbrevatus* Ikonnikov, *C. balucha* Uvarov, *C.tenuicercis* Tarbinskii, *C. tartarus* (Costa) and *Acorypha glaucopsis* (Walker) have been recorded from various localities of Pakistan.

All specimens were killed in a cyanide bottle, pinned and their body parts set on appropriate setting boards. On drying, these were labelled and mounted in collection boxes. Naphthaline balls were kept in the boxes for the safety of the specimens. A revolving stage and a wild M 3 binocular microscope (10X x 1.6X) were used for identifying the specimens up to the specific level. Deviating characters, of these species, if any, from published descriptions by Kirby (1914), Bei-Bienko and Mishchenko (1951), Mohyuddin (1955), Ahmad (1958), Wagan (1990), measurements (max. length "L" & width "W") and their collection data are given in this paper.

Calliptamus Serville

Species: *Calliptamus italicus* (L.): Five species recorded in this subfamily conform to the published description (Bei-Bienko & Mishchenko, 1951; Dirch, 1965) of this genus.

Calliptamus abbrevatus Ikonnikov

3. *Calliptamus abbrevatus* Ikonnikov, Über die Von P. Schmidt aus Korea Acrid., p.19.

The collected specimens are exactly similar to the published

description (Bei-Bienko & Mishchenko, 1951) of this species, except slight variation in measurements of various body parts (Table 1.1).

Material examined: Urak (Quetta) 2 ♂ 3 ♀, 10-VIII-96; Mustung (Quetta) 1 ♀, 11-VIII-96; Quetta 2 ♂ 2 ♀, 10-VIII-96; Khuzdar 2 ♀, 13-VIII-96.

Habitat: The specimens of this species have been collected from rocky areas, grasses and bushes near apple and pomegranate orchard and vegetable fields.

New record: It has been recorded for the first time from Pakistan. Perwin *et al.* (1985) mentioned some un-identified species of this genus from Rawalpindi.

1.2: *Calliptamus balucha* Uvarov

1938. *Calliptamus balucha* Uvarov, Ann. Mag. nat. Hist., (11) 1: 376.

The collected specimens are entirely in conformity to the published description of Bei-Bienko & Mishchenko (1951) of this species. Measurements of some body parts given in table 1.2.

Material examined: Ziarat 2 ♂ 2 ♀, 15-VIII-96.

Habitat: This species has been collected from short grasses in valley and upland grassland.

New record: Above locality. Perwin *et al.*, (1985) also mentioned this species from Baluchistan.

1.3: *Calliptamus tenuicercis* Tarbinskii

1930. *Calliptamus tenuicercis* Tarbinskii, Izvert. AN SSSR, Otd. F-Mat. Nauk., 2: 177-186.

The collected specimens of this species totally resemble with the published description (Bei-Bienko & Mishchenko, 1951) of this species, except slight variation in measurements of various body parts (Table 1.2).

Material examined: Dera Ghazi Khan 1 ♂, 5-IX-95; Lorali 2 ♂ 4 ♀, 17-VIII-96; Jamshoro (Hyderabad) 1 ♀, 12-X-96; Karachi 1 ♀, 10-X-96; Hub (Lasbela) 1 ♂ 1 ♀, 11-X-96; Makli (Thatta) 1 ♂ 2 ♀, 12-X-96; Makran Coast 1 ♂, 8-IX-95.

Table 1.1: Measurements(mm): (4 ♂ 8 ♀)

	Male	Female	Mean	S.D.
Body (L)	15.50-16.00	24.00-25.00	21.50	4.21
Pronotum (L)	4.00- 4.50	5.25- 5.75	5.02	0.55
Pronotum (W)	3.00- 3.50	4.00- 4.50	3.87	0.51
Tegmen (L)	10.25-10.75	15.00-16.00	13.66	2.35
Tegmen (W)	2.25- 2.50	3.25- 3.75	3.08	0.50
Hind femur (L)	9.75-10.50	13.25-14.00	12.45	1.62
Hind femur (W)	3.25- 3.75	4.50- 5.25	4.33	0.63

Table 1.2: Measurements(mm): (2 ♂ 2 ♀)

	Male	Female	Mean	S.D.
Body (L)	17.00-18.00	26.50-27.50	22.25	5.51
Pronotum (L)	3.50- 4.00	6.00- 6.50	5.00	1.47
Pronotum (W)	2.75- 3.25	4.50- 5.00	3.87	1.05
Tegmen (L)	9.50-10.25	16.00-16.50	13.06	3.69
Tegmen (W)	2.00- 2.50	4.00- 4.50	3.25	1.19
Hind femur (L)	10.00-10.25	15.50-15.75	12.87	3.17
Hind femur (W)	4.25- 4.50	4.75- 5.25	4.68	0.42

Habitat: This species occurs in rocky areas and barren lands having mix vegetation of grasses, shrubs and herbs.

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

1.4: *Calliptamus barbarus barbarus* (Costa)

1836. *Acridium barbarum* Costa, Faun. del Regn. di Nap., Ortatteri. P.13.
1838. *Caloptenus siculus* Burmeister, Handb. Ent., 2:639.
1853. *Caloptenus barbarus* Fischer, Orth. Eur., 380.
1879. *Caloptenus italicus* Var. *barbarus* Bormans, Ann. Mus. Stor. Nat. Gen., 15: 407.
1884. *Caloptenus italicus* var. *sicula* Bormans, Ann. Mus. Stor. Nat. Gen., 20: 180.
1936. *Calliptamus siculus* Willemse, Nat. Maandbl., 25:102.
1943. *Calliptamus barbarus* Chopard, Faun. Emp. Franc, 1:403.
1951. *Calliptamus barbarus barbarus* Bei-Bienko & Mishchenko, keys Faun. USSR., p.258.

The specimens of this species are similar to the published description (Bei-Bienko & Mishchenko, 1951) of this species except the size which is somewhat larger (Table 1.4).

Material examined: Murree 1 ♂ 2 ♀, 5-VII-95; 1 ♂, 10-XI-96; Kalam (Swat) 1 ♀, 5-VII-96; Ziarat 2 ♂ 2 ♀, 15-VIII-96.

Habitat: This species has been collected from the bushes and grasses grown along the margin of water courses, river and stream.

New record: All above localities except Murree. Earlier, Perwin *et al.* (1985) reported this species from Murree.

2: Genus *Acorypha* Krauss

Type: *Acorypha picta* Krauss: A single species collected in this genus resembles the published description (Kirby, 1914; Bei-Bienko & Mishchenko, 1951; Dirsh, 1965) of this genus.

2.1: *Acoryphs glaucopsis* (Walker):

1870. *Caloptenus glaucopsis* Walker, Cat. Derm. Salt. Brit. Mus. (N.H.) 4:702.
1902. *Calliptamus pechypus* Krauss, Anz. Akad. Wiss. Wien., 39:57.
1909. *Calliptamus meruensis* Sjostedt, Wiss. Zool. Exped. Killiman. Orth. Acrid., pp. 185, 192.
1910. *Euryphymus glaucopsis* Kirby, Syn. Cat. Orth., 3(2):547.
1914. *Caloptenopsis glaucopsis* Kirby, Faun. Brit., Ind. Acrid. pp. 258, 259.
1926. *Acorypha glaucopsis* Uvarov, Trans. R. ent. Soc. Lond., p.452.

The collected specimens totally agree with the published description of Bei-Bienko & Mishchenko (1951) and Wagan (1990) of this species. Measurements of some body parts given in Table 2.1.

Material examined: Kallar Kahar (Chakwal) 1 ♂ 1 ♀, 2-VIII-91. Murree 1 ♂, 30-VII-95; 1 ♀, 10-XI-96; Jamshoro (Hyderabad) 2 ♂ 2 ♀, 12-X-96; Karachi 1 ♂ 2 ♀, 11-X-96; Hub (Lasbela) 1 ♂, 11-X-96; Lorali 1 ♂, 17-VIII-96; Kohat 1 ♀, 17-IX-95.

Table 1.3: Measurements(mm): (6 ♂ 9 ♀)

	Male	Female	Mean	S.D.
Body (L)	20.50-21.00	27.50-29.00	25.22	3.59
Prothorax (L)	4.50- 4.75	6.50- 7.50	6.02	1.10
Prothorax (W)	3.50- 3.75	5.50- 6.00	4.88	0.96
Fore femur (L)	14.00-15.50	20.50-21.75	18.75	3.01
Fore femur (W)	3.50- 4.00	4.50- 5.00	4.10	0.50
Mid femur (L)	12.00-12.50	19.00-20.00	16.72	3.42
Mid femur (W)	4.50- 4.75	6.50- 6.75	5.88	0.95

Table 1.4: Measurements(mm): (4 ♂ 5 ♀)

	Male	Female	Mean	S.D.
Body (L)	18.00-18.50	24.50-25.50	22.00	3.46
Prothorax (L)	3.50- 4.00	5.50- 6.00	4.83	0.93
Prothorax (W)	2.50- 3.00	5.00	4.05	1.13
Fore femur (L)	16.00-16.50	18.00-18.25	17.52	1.10
Fore femur (W)	3.00- 3.25	3.50- 4.25	3.40	0.27
Mid femur (L)	11.50-12.00	14.00-14.75	13.22	1.31
Mid femur (W)	3.25- 3.75	4.00- 4.50	3.94	0.39

Table 2.1: Measurements(mm): (7 ♂ 7 ♀)

	Male	Female	Mean	S.D.
Body (L)	20.25-21.00	29.00-31.25	25.10	4.71
Prothorax (L)	4.25- 5.00	8.50- 9.00	6.60	1.95
Prothorax (W)	3.00- 3.50	5.50- 6.00	4.53	1.16
Fore femur (L)	17.50-18.25	26.00-28.00	22.42	4.49
Fore femur (W)	3.50- 4.25	4.50- 5.00	4.39	0.36
Mid femur (L)	10.75-12.00	19.00-19.75	15.44	3.93
Mid femur (W)	4.00- 4.25	6.00- 6.25	5.21	0.97

Material: This species has been collected from fields having mixed vegetation of herbs and grasses.

Record: All above localities except Murree, Chakwal and Karachi. Earlier, it has been reported from Karachi by Perwin (1967) and Perwin *et al.* (1983, 1985), Dadu (Sindh) by Wagan (1990) and from Chakwal (Punjab) by Malik *et al.* (1983). Ahmad (1958) and Latif *et al.* (1959) identified it as *Caloptenus glaucopsis* and collected from Lyallpur (Faisalabad), Punjab.

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