

# First Checklist and Distribution of Tettigoniodea (Ensifera: Orthoptera) from Pakistan

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## Abstract

At present 47 species belonging 7 sub-families i.e., Pseudophyllinae, Phaneropterinae, Conocephalinae, Tettigoniinae, Hexacentrinae, Mecopodinae and Decticinae of Tettigoniodea were collected from Pakistan and their distribution have been recorded at provincial level. Phaneropterinae and Conocephalinae showed its wide diversity in Pakistan and overall percentage of Conocephalinae was recorded significantly highest i.e., 55.7% followed by 43.6% of Phaneropterinae while significantly least percentage i.e., 0.36%, 0.11%, and 0.06% for Tettigoniinae, Pseudophyllinae and Mecopodinae respectively and 0.04% was recorded for Hexacentrinae and Decticinae. Overall, these finding suggests that Phaneropterinae and Conocephalinae were collected in large numbers and having prevailing status throughout the country on contrary to this, other studied subfamilies i.e., Hexacentrinae, Mecopodinae and Decticinae were considered rare due to less numbers and species. In addition to this, checklist to species is provided for the first time.

**Keywords:** Tettigoniodea, Orthoptera, Distribution, Checklist, Species

## Introduction

Grasshoppers are the largest and most diverse group of insects. Grasshoppers have several advantages for such studies, relating to its great body size easy catch ability and high dominance so, that it became a main invertebrate group for biological indication in its wider sense (Panhwar, 2015). They are often the main invertebrate consumer in grasslands and are to be important food source for many groups of predators e.g. birds, lizards etc. The grasshopper insect fauna generally are grouped as short-horned grasshopper (Caelifera) and long-horned grasshopper (Ensifera).

Various representative of Ensifera have been studied by Hebard (1922); Ragge (1956, 1964, 1980); Bailey (1975, 1979); Kleukers *et al.*, (1996); Ingrisch (1998); Ingrisch & Gorochov (2007); Gorochov & Kang (2002); Gorochov (2004); Decler *et al.*, (2000); Landeck *et al.*, (2005) from the different part of world. But, considerable taxonomic work has been done on Caelifera of Pakistan e.g. (Ahmed, 1980; Wagan, 1990; Wagan & Naheed 1997; Yousaf, 1996) but, no attention has been paid to long-horned grasshoppers, the Ensifera except (Riffat *et al.*, 2012-2015; Panhwar *et al.*, 2013-2014). As some of the species belonging to Tettigoniodea are important

pests of agricultural crops, orchard and forest. It is important to identify them accurately so that diagnosis of an economic problem can be properly made as there is no published record on the distribution of Tettigoniodea from Pakistan. Tettigoniodea are phytophagous insects therefore one would expect a considerable number of plant pests in this group (Otte & Naskrecki, 2004). Many species are ecologically associated with forest biocenoses, damaging trees and shrubs in addition to herbaceous plant. These facts extend the range of injuring the plants of forest, fruits, orchards and berry shrubs. Hopefully, this work will be first of its kind and will be great help to agencies dealing with pest control in Pakistan.

## Materials and Methods

The adults of Tettigoniodea were collected from the agriculture fields of rice, forests, fruit orchards, grapevine, berry shrubs, hilly, semi desert & desert areas, trees, shrubs, herbs and grasses with the help of traditional insect hand-net (8.89 cms in diameter and 50.8 cms in length) as well as by hand catching. The collection was made during the year 2011-2014 in the months of March to November from various provinces of Pakistan (Table 3).

## Results and discussion

As a result of this work, a total of 4379 adults were collected from different climatic zone of country during the year 2011-2014 and field sites included: agriculture land, forests, fruit orchards, grapevine, berry shrubs, hilly, semi desert and desert areas, trees, shrubs, herbs and grasses. The collected material was sorted out into 47 species of Tettigoniodea pertaining to 07 sub-families i-e: Pseudophyllinae, Phaneropterinae, Conocephalinae, Tettigoniinae, Hexacentrinae, Mecopodinae and Decticinae belonging to 20 tribes, 22 genera were recorded. Following is checklist of species:

Kocarek & Holusa, (2006) observed that Tettigoniidae occupies a wide range of open habitats from xerothermic to wetlands including ruderal habitats but it mostly consumed tall herb or lower shrub by vegetation everywhere present study is agreed with this statement while Kleukers *et al.*, (1996); Decleret *et al.*, (2000) and Landeck *et al.*, (2005) has reported its distribution in Western Europe. It is

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## Checklist of Species of Tettigoniidae from Pakistan

SN	Sub-family	Species
1	Pseudophyllinae	* <i>Sathrophyllia nr. rugosa</i> (Linnaeus, 1758)
2		* <i>Sathrophyllia femorata</i> (Fabricius, 1787)
3		<i>Sathrophyllia saeedi</i> Riffat et al., 2014
4		<i>Sathrophyllia irshadi</i> Riffat et al., 2014
5	Phaneropterinae	* <i>Trigonocorypha unicolor</i> Stål, 1873
6		* <i>Trigonocorypha angustata</i> Uvarov, 1922
7		* <i>Trigonocorypha nr. angustata</i> Uvarov, 1922
8		<i>Phanoptera spinosa</i> Bei-Bienko, 1965
9		<i>Phanoptera roseata</i> Walker, 1869
10		<i>Phanoptera gracilis</i> Bei-Bienko, 1954
11		* <i>Phanoptera bivittata</i> Bei-Bienko, 1954
12		<i>Holochlora japonica</i> Brunner von Wattenwyl, 1878
13		* <i>Holochlora nigrotympana</i> Ingrisich, 1990
14		* <i>Holochlora venosa</i> Stål, 1873
15		* <i>Holochlora astylata</i> Karny, 1926
16		* <i>Ducetia japonica</i> Thunberg, 1815
17		* <i>Letana rufonotata</i> (Serville, 1838)
18		* <i>Letana bulbosa</i> Ingrisich, 1990
19		* <i>Tylopsis lilifolia</i> Fabricius, 1793
20		* <i>Isopsera spinosa</i> Ingrisich, 1990
21		* <i>Isopsera stylata</i> Brunner von Wattenwyl, 1878
22		* <i>Isopsera pedunculata</i> Brunner von Wattenwyl, 1878
23		* <i>Isopsera astylata</i> Karny, 1926
24		* <i>Himertula kinneari</i> (Uvarov, 1923)
25		* <i>Himertula marmorata</i> (Brunner von Wattenwyl, 1891)
26	Tettigoniinae	* <i>Calopterus balucha</i> (Uvarov, 1932)
27		<i>Calopterus mansehraensis</i> Panhwar, 2015
28		<i>Iranusa grisea</i> Ingrisich, 1996
29		<i>Gampsocleis akbari</i> Panhwar, 2015
30		<i>Platycleis intermedia</i> (Serville, 1839)
31		* <i>Platycleis grisea</i> (Fabricius, 1781)
32		<i>Tettigonia caudata</i> (Charpentier, 1842)
33		<i>Tettigonia chitralensis</i> Riffat et al., 2015
34		* <i>Glyphonotus sinensis</i> Uvarov, 1939
35		* <i>Eupholidoptera karatolosi</i> Mofidi & Quicke, 2007
36	Conocephalinae	<i>Euconocephalus incertus</i> Walker, 1869
37		<i>Euconocephalus pallidus</i> Redtenbacher, 1891
38		<i>Euconocephalus mucro</i> de Haan, 184215.
39		<i>Euconocephalus nasutus</i> Thunberg, 1815
40		<i>Euconocephalus indicus</i> (Redtenbacher, 1891)
41		<i>Conocephalus maculates</i> (Le Guillou, 1841)
42	Hexacentrinae	* <i>Hexacentrus unicolor</i> Serville, 1831
43		* <i>Hexacentrus pusillus</i> Redtenbacher, 1891
44	Mecopodinae	* <i>Mecopda platyphoea</i> Walker, 1870
45		* <i>Afromecopoda monrovia</i> (Karsch, 1886)
46	Decticinae	* <i>Decticus verrucivorus</i> (Linnaeus, 1758)
47		* <i>Decticus albifrons</i> (Fabricius, 1775)

\*Shows that species have been collected for the first time and constructed new records to Pakistan

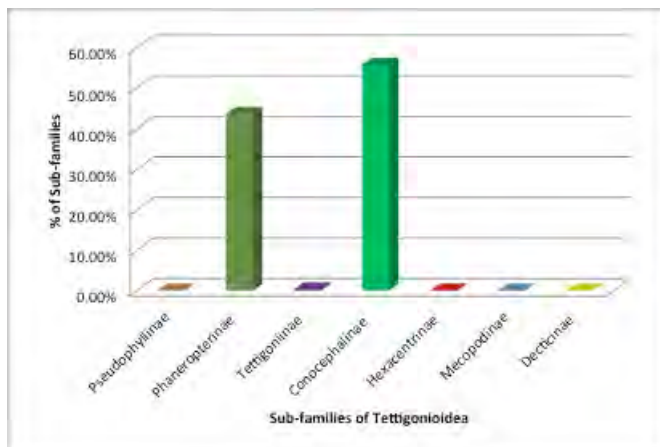
clear that the distribution of Tettigoniidae is insufficiently known from this region. Phaneropterinae and Conocephalinae showed its wide diversity in Pakistan and overall percentage of Conocephalinae was recorded significantly highest i-e: 55.7% followed by 43.6% of Phaneropterinae while significantly least percentage i-e: 0.36%, 0.11%, and 0.06% for Tettigoniinae, Pseudophyllinae and Mecopodinae respectively and

0.04% was recorded for Hexacentrinae and Decticinae (Table. 1&2, Fig. 1&2).

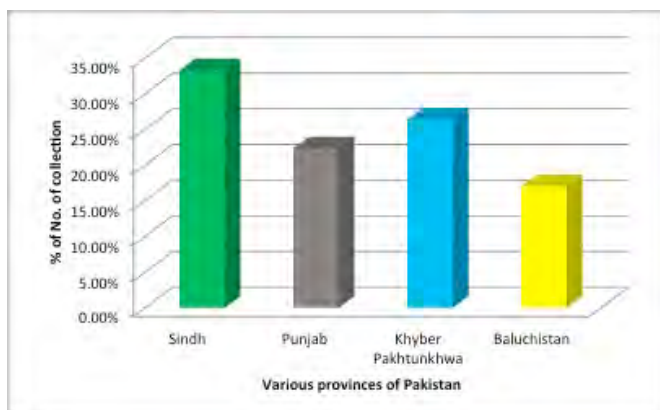
During the present study 29 new records of Tettigoniidae were enlisted to Pakistan that includes: *Sathrophyllia nr. rugosa* (Linnaeus, 1758), *S. femorata* to sub-family Pseudophyllinae, surprisingly, sub-family Phaneropterinae possess maximum new records i-e: *Trigonocorypha unicolor* Stål, 1873, *T. angustata* Uvarov, 1922,

*T. nr. angustata* Uvarov, 1922, *Phanoptera bivittata* Bei-Bienko, 1954, *Holochlora nigrotympana* Ingrisich, 1990, *H. venosa* Stål, 1873, *H. astylata* Karny, 1926, *Ducetia japonica* Thunberg, 1815, *Letana rufonotata* (Serville, 1838), *L. bulbosa* Ingrisich, 1990, *Tylopsis lilifolia* Fabricius, 1793, *Isopsera spinosa* Ingrisich, 1990, *I. stylata* Brunner von Wattenwyl, 1878, *I. pedunculata* Brunner von Wattenwyl, 1878, *I. astylata* Karny, 1926, *Himertula kinneari* (Uvarov, 1923) and *H. marmorata* (Brunner von Wattenwyl, 1891) and there are 4 new records in sub-family Tettigoniinae viz: *Calopterus balucha* (Uvarov, 1932), *Platycleis grisea* (Fabricius, 1781), *Glyphonotus sinensis* Uvarov, 1939 and *Eupholidoptera karatolosi* Mofidi & Quicke 2007 and 2 each to sub-family Hexacentrinae, Mecopodinae and Decticinae, *Hexacentrus unicolor* Serville, 1831, *H. pusillus* Redtenbacher, 1891, *Mecopda platyphoea* Walker, 1870, *Afromecopoda monrovia* (Karsch, 1886), *Decticus verrucivorus* (Linnaeus, 1758) and *Decticus albifrons* (Fabricius, 1775).

During the present study, it was observed that *Phanoptera spinosa*, Bei-Bienko, *P. roseata*, Walker of Phaneropterinae and *Conocephalus maculates* (Le-Guillou) and *Euconocephalus incertus* Walker to Conocephalinae were widely distributed species, the possible reason of this spread might be feeding on nutritional rich vegetations and favourable climatic condition of region. Besides this, single individual each of *Phanoptera gracilis* Bei-Bienko, *Trigonocorypha nr. angustata* Uvarov and *Letana rufonotata* (Serville) of Phaneropterinae: *Platycleis intermedia* (Serville), *Tettigonia caudata* (Charpentier), *Glyphonotus sinensis* Uvarov, *Eupholidoptera karatolosi* Mofidi & Quicke to Tettigoniinae were considered as rare. In addition to this, *Tylopsis lilifolia* Fabricius was



**Fig 1.** Showing the percentage of collection of sub-families of Tettigonioidae during the year 2011-2014



**Fig 2.** Showing the percentage of collection of Tettigonioidae from various provinces of Pakistan during the year 2011-2014

**Table 1:** Showing the percentage of collection of Sub-families of Tettigonioidae during the year 2011-2014

Subfamilies	No.of collected specimens	Percentage
Pseudophyllinae	05	0.11%
Phaneropterinae	1910	43.6%
Tettigoniinae	16	0.36%
Conocephalinae	2441	55.7%
Hexacentrinae	02	0.04%
Mecopodinae	03	0.06%
Decticinae	02	0.04%

**Table 2:** Showing the percentage of collection of Tettigonioidae from various provinces of Pakistan during the year 2011-2014

Provinces	No. of collected specimens	Percentage
Sindh	1501	34.27%
Punjab	978	22.33%
Khyber Pakhtunkhwa	1155	26.37%
Baluchistan	745	17.01%

restricted to Baluchistan. Present findings suggest that, the distributions of many of previously recorded species have been extended to new localities.

**Table 3: Showing Latitude and Longitude of various provinces of Pakistan**

Provinces	Latitude	Longitude
Sindh	24.9056° N	67.0822° E
Punjab	30.55083° N	73.39083° E
Khyber Pakhtunkhwa	34.14685° N	73.21449° E
Baluchistan	29.89978° N	69.52476° E

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**Table 4: Showing the number of adult Tettigonioidae collected from different provinces of Pakistan during the year 2011-2014**

**(a) Sindh**

Subfamily/species	Districts															
	KHI	JAM	TH	THAR	UK	MK	HYD	KH	BA	DDU	LK	SK	T.A.Y	T.M.K	BD	SH
<b>Sub-family Pseudophyllinae</b>																
<i>Sathropyllia rugosa</i> (Linnaeus, 1758)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<b>Sub-family Phaneropterinae</b>																
<i>Trigonocorypha unicolor</i> Stål, 1873	25	31	20	15	10	25	35	27	29	32	10	20	11	15	25	5
<i>T. angustata</i> Uvarov, 1922	9	15	6	9	7	5	8	9	10	6	3	9	5	4	7	2
<i>Trigonocorypha nr angustata</i> Uvarov, 1922	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
<i>Phaneroptera spinosa</i> Bei-Bienko, 1965	5	21	9	6	-	10	12	7	-	15	2	7	5	-	6	-
<i>P. roseata</i> Walker, 1869	7	18	5	3	2	-	9	3	1	21	8	6	-	8	-	16
<i>P. gracilis</i> Bei-Bienko, 1954	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
<i>P. bivittata</i> B-Bienko, 1954	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
<i>Holochlora japonica</i> Brunner, 1878	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ducetia japonica</i> Thunberg, 1815	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
<i>Letana rufonotata</i> (Serville, 1838)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Tylopsis lilifolia</i> Fabricius, 1793	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Sub-family Tettigoniinae</b>																
<i>Glyphonotus sinensis</i> Uvarov, 1939	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<b>Sub-family Conocephalinae</b>																
<i>Euconocephalus incertus</i> Walker, 1869	6	10	12	18	10	20	22	25	-	13	19	11	23	31	14	12
<i>E. pallidus</i> Redtenbacher, 1891	5	9	11	15	7	11	-	21	7	6	5	13	3	6	6	5
<i>E. mucro</i> de Haan, 1842	3	4	7	6	5	8	9	2	2	5	6	3	1	2	5	1
<i>E. nasutus</i> Thunberg, 1815	2	3	4	1	-	2	4	5	3	1	2	4	3	2	4	2
<i>E. indicus</i> (Redtenbacher, 1891)	1	2	3	2	-	3	-	1	-	2	1	-	3	1	2	-
<i>C. maculatus</i> (Le Guillou, 1841)	25	28	21	15	26	23	22	21	18	16	18	21	22	27	26	-

Note: KHI= Karachi, JAM=Jamshoro, TH=Thatta, THAR=Tharparkar, UK=Umerkot, MK=MirpurKhas, HYD=Hyderabad, KH=Khairpur, BA= Benazirabad, DDU=Dadu, LK=Larkana, SK=Sukkur, T.A.Y=Tando Allah Yar, T.M.K=Tando Muhammad Khan, BD=Badin, SH=Shikarpur. Total No of specimens collected: 1509

**(b) Punjab**

Subfamily/species	Districts																		
	A	BN	B	CH	DG	F	HA	JH	LH	RP	RYK	KS	M	S	K	JHL	MN	SK	ISB
<b>Sub-family Phaneropterinae</b>																			
<i>Trigonocorypha unicolor</i> Stål, 1873	15	11	13	12	12	4	13	12	4	12	5	17	12	6	3	2	7	2	3
<i>T. angustata</i> Uvarov, 1922	3	2	4	5	3	6	2	3	2	1	4	5	3	5	2	3	5	3	2
<i>P. spinosa</i> Bei-Bienko, 1965	13	9	7	5	6	3	5	7	9	11	3	5	7	6	4	5	3	2	3
<i>P. roseata</i> Walker, 1869	10	7	6	3	5	4	3	4	7	9	11	7	5	4	6	3	2	3	1
<b>Sub-family Conocephalinae</b>																			
<i>Euconocephalus incertus</i> Walker, 1869	11	12	9	15	17	16	12	9	7	16	10	9	7	6	5	3	4	11	7
<i>E. pallidus</i> Redtenbacher, 1891	3	2	-	2	-	1	-	3	2	-	3	-	2	-	1	1	14	4	1
<i>E. mucro</i> de Haan, 1842	1	-	1	-	1	-	1	-	2	1	-	1	-	2	1	2	3	-	-
<i>E. nasutus</i> Thunberg, 1815	1	2	-	1	-	1	-	1	-	1	-	2	-	3	-	2	-	-	-
<i>E. indicus</i> (Redtenbacher, 1891)	2	2	1	-	-	-	2	-	-	-	3	-	-	-	-	2	-	5	4
<i>C. maculatus</i> (Le Guillou, 1841)	20	17	17	15	11	9	8	15	20	21	19	13	10	9	7	5	15	11	13
<b>Sub-family Mecopodinae</b>																			
<i>Mecopoda platyphoea</i> Walker, 1870	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Afromecopoda monroviae</i> (Karsch, 1886)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

Note: A=Attok, BN= Bahawal nagar, B=Bahawalpur, CH=Chakwal, DG=Dera Ghazi Khan, F= Faisalabad, HA=Hafizabad, JH=Jhang, LH=Lahore, RP=Rawalpindi, RYK=Rahim Yar Khan, KS= Kasur, M=Multan, S=Sahiwal, K=Khanawal, JHL=Jhelum, MN=Mianwali, SK=Sialkot, ISB= Islamabad. Total No. of specimens collected: 978

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**(C) Khyber Pakhtunkhwa**

Subfamily/species	Districts															
	AB	BG	DIK	HP	MS	PW	SW	NS	MD	KL	CS	KH	RW	SWB	CHT	JG
<b>Sub-family Pseudophyllinae</b>																
<i>Sathrophyllia femorata</i> (Fabricius, 1787)	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
<i>Sathrophyllia saeedi</i> Riffat et al., 2014	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
<i>Sathrophyllia irshadi</i> Riffat et al., 2014	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
<b>Sub-family Phaneropterinae</b>																
<i>Trigonocorypha unicolor</i> Stål, 1873	21	15	9	23	29	16	13	12	13	7	9	6	-	-	-	-
<i>T. angustata</i> Uvarov, 1922	5	10	7	6	3	9	5	3	2	-	5	3	-	-	-	-
<i>P. spinosa</i> Bei-Bienko, 1965	22	15	7	22	28	19	15	21	15	9	11	9	-	-	-	-
<i>P. roseata</i> Walker, 1869	4	6	3	5	4	-	2	3	-	6	-	8	-	-	-	-
<i>Holochlora japonica</i> Brunner, 1878	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
<i>H. nigrotympana</i> Ingrisch, 1990	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
<i>H. venosa</i> Stål, 1873	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
<i>H. astylata</i> Karny, 1926	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
<i>Letana bulbosa</i> Ingrisch, 1990	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Isoptera spinosa</i> Ingrisch, 1990	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>I. stylata</i> Brunner, 1878	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>I. pedunculata</i> Brunner, 1878	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>I. astylata</i> Karny, 1926	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>Himertula kinneari</i> (Uvarov, 1923)	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>H. marmorata</i> (Brunner, 1891)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
<b>Sub-family Tettigoniinae</b>																
<i>Calopterus balucha</i> (Uvarov, 1932)	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
<i>Calopterus mansehraensis</i> Panhwar, 2015	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Iranusa grisea</i> Ingrisch, 1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
<i>Tettigonia caudata</i> (Charpentier, 1842)	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Tettigonia chitralensis</i> Riffat, 2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
<i>Eupholidoptera karatolosi</i> Mofidi & Quicke, 2007	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<b>Sub-family Conocephalinae</b>																
<i>Euconocephalus incertus</i> Walker, 1869	23	21	18	14	19	6	7	18	25	21	19	21	-	7	-	-
<i>E. pallidus</i> Redtenbacher, 1891	5	7	9	9	6	7	9	10	13	15	9	7	-	-	-	-
<i>E. mucro</i> de Haan, 1842	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>E. nasutus</i> Thunberg, 1815	2	1	1	2	-	-	-	-	3	-	-	-	-	-	-	-
<i>E. indicus</i> (Redtenbacher, 1891)	3	2	2	-	4	1	2	2	4	2	5	5	-	-	-	-
<i>C. maculatus</i> (Le Guillou, 1841)	29	21	22	21	27	21	19	16	29	32	28	30	-	-	-	-
<b>Sub-family Hexacentrinae</b>																
<i>Hexacentrus unicolor</i> Serville, 1831	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<b>Sub-family Decticinae</b>																
<i>Decticus verrucivorus</i> (Linnaeus, 1758)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>D. albifrons</i> (Fabricius, 1775)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

Note: AB= Abbotabad, BG=Batagram, DIK=Dera Ismail Khan, HP=Haripur, MS=Mansehra, PW=Peshawar, SW=Swat, NS=Noushera, MD=Mardan, KL=Kalam, CS=Charsada, KH=Kohat, SWB=Swabi, JG=Jaglot, CHT=Chitral, RW=Rawalakot. Total No of specimens collected: 1155

**(d) Baluchistan**

Subfamily/species	Districts									
	GW	LB	KH	JF	JM	KL	MT	SBD	BK	QU
<b>Sub-family Phaneropterinae</b>										
<i>Trigonocorypha unicolor</i> Stål, 1873	15	27	29	26	24	13	29	10	14	21
<i>T. angustata</i> Uvarov, 1922	1	2	3	-	-	1	-	-	-	1
<i>Phaneroptera spinosa</i> Bei-Bienko, 1965	12	9	6	5	3	-	7	5	2	6
<i>P. roseata</i> Walker, 1869	9	4	3	-	2	8	9	4	-	11
<i>Tylopsis lilifolia</i> Fabricius, 1793	-	-	-	-	-	-	-	-	-	1
<b>Sub-family Tettigoniinae</b>										
<i>Gampsocleis akbari</i> Panhwar, 2015	-	-	-	-	-	-	-	-	-	1
<i>Platycleis intermedia</i> (Serville, 1839)	-	-	-	-	-	1	-	-	-	-
<i>Platycleis grisea</i> (Fabricius, 1781)	-	-	-	-	-	-	-	-	-	1
<b>Sub-family Conocephalinae</b>										
<i>Euconocephalus incertus</i> Walker, 1869	13	15	9	1	18	10	9	11	9	6
<i>E. pallidus</i> Redtenbacher, 1891	5	4	6	-	4	5	5	6	5	7
<i>E. mucro</i> de Haan, 1842	3	-	-	-	1	-	-	-	-	2
<i>E. nasutus</i> Thunberg, 1815	-	3	1	1	2	-	3	-	1	2
<i>E. indicus</i> (Redtenbacher, 1891)	5	7	2	6	2	3	-	2	2	3
<i>C. maculatus</i> (Le Guillou, 1841)	22	23	29	27	21	18	15	16	21	28
<b>Sub-family Hexacentrinae</b>										
<i>Hexacentrus unicolor</i> , Serville, 1831	-	-	-	-	-	-	-	-	-	1

Note: GW=Gwadar, LB= Lasbela, KH= Khuzdar, JF=Jafarabad, JM=Jhal Magsi, KL= Kalat, MT= Mastung, SBD= Sibi division, BK=Barkhan, QU= Quetta. Total No of specimens collected: 745

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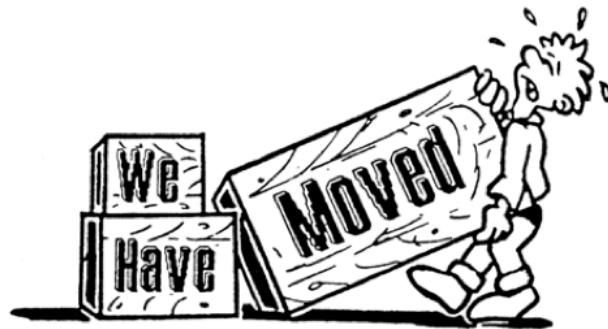
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## Announcement



### We have moved ....

Our New Address Is:

**Zoo Outreach Organization (ZOO) / Wildlife Information & Liaison Development (WILD) Society**

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(Our telephone numbers remain unchanged but will only be activated next month)

#### Temporary contact numbers:

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