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**ORIGINAL ARTICLE**

**Survey of field crickets (Orthoptera, Gryllidae) in different regions of Iraq**

**Hanaa H. Al-Saffar and Razzaq Shalan Augul\***

Iraq Natural History Research Center and Museum, University of Baghdad, Baghdad, Iraq

Corresponding author: [razzaqshalan@gmail.com](mailto:razzaqshalan@gmail.com)

**ABSTRACT**

*The aim of this study is to survey species of Gryllidae in some localities in Iraq. The current investigation showed 12 species belonging to nine genera, under three subfamilies, date and localities of collections were recorded.*

*Also, the some species were revised that mentioned them at previous checklists.*

**Key words:** Cricket, Gryllidae, Iraq, Orthoptera, Survey.

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**INTRODUCTION**

The true cricket field is a common name on family Gryllidae (Insecta: Orthoptera), with about 3000 species worldwide [1]; The species of Gryllidae are collectively known as crickets and are often only seen at night; usually remaining concealed during the day on the ground in leaf litter, among vegetation or under logs and stones; color of these species may be bright or dark but are usually drab colored [2, 3].

The development is incomplete metamorphosis in this family simple, with three stages: egg, nymph, and adult, the females oviposit their ovipositor in the soil, or laying the eggs into plant stems singly. Most crickets overwinter in the egg stage. Depending on the species, the nymph may molt 6-12 times before reaching adulthood and have a range with life cycle which dependent with climate conditions, some overwinter as eggs, but others do so at nymph stages or adults [4, 5, 6, 7, 8].

Some of crickets are pests of various agricultural crops such as cotton, rice, millet and by the other hand, they found as predators and helpful in biological control strategy [9].

The Diagnostic characters of Gryllidae according to some authors such as [10, 11, 12, 13] these features are: Insects with somewhat flattened and relatively broad-bodied; antennae longer than the body; tarsi with three segments; ovipositor of female usually long and cylindrical; cerci long and feeler like; most of the tegminal surface is dorsal in position; the front wings of female thickened and leathery; those of males contain large membranous areas and are often wider and the auditory organs are located on both sides of fore tibiae.

The faunal Gryllidae in Iraq was poorly studied, and a restricted to listed species that found in little publications; therefore, this study was suggested to survey and revised some species in the previous listed.

**MATERIAL AND METHODS**

This investigation was carried out from the March to November 2017 in different regions of Iraq; the specimens were collected by sweep net, also we used fine forceps to catch the cricket that living in indoors. The specimens are diagnosed the according to many identification keys such as: (1, 11, 14, 15, 16); in addition to, they compared with diagnosed species that kept at the collection of the department of Entomology and figured by Samsung Galaxy S4, GT- 19500.

The specimens were preserved after pinning and deposited in the collections of Iraq Natural History Research Center and Museum, University of Baghdad.

**RESULTS AND DISCUSSION**

This investigation showed 12 species belonging to nine genera under three subfamilies as follow:

**(A) Subfamily: Gryllinae****(1) *Acheta domesticus*** Linnaeus, 1758 (Fig. 1 A)**Synonyms:**

- = *Acheta domestica* (Linnaeus, 1758)
- = *Gryllus aegyptiacus* Haan, 1842
- = *Gryllus domesticus* Linnaeus 1758

**Common name:** House Cricket .

**Material Examined:** (6♂♂, 10♀♀): Baghdad, Al-Kadhimiya, 2♀♀, 5.III.2017; Bab Al-Muadham 2♀♀, 2♂♂, 8.VIII. 2017); Karbala, 4♀♀, 2♂♂, 20.V.2017; Wasit, Al Zubaidiya, 2♂♂, 2♀♀, 30.XI. 2017.

**Distribution:** Iraq [17, 18, 19, 20]; Kuwait [21], Saudi Arabia [22], Libya [23], India [14], Cyprus [24] and Turkey [25].

**(2) *Acheta hispanica*** (Fig. 1 B)**Synonym:**

*anicus* Rambur, 1839

- = *Acheta erythrospilus* (Walker, 1869)
- = *A. fuscus* (Bolívar, 1927)

**Material Examined:** (4♂♂, 3♀♀): Wasit, Al Zubaidiya, Sher' han village, 30.VII. 2017.

**Distribution:** Iraq [20]; Iberian Peninsula, Sicily, North Africa up to Industan [26].

**(3) *Modicogryllus bordigalensis*** (Latreille, 1804) (Fig. 1 C)**Synonyms:**

- = *Eumodicogryllus bordigalensis* (Latreille, 1804)
- = *Acheta burdigalensis* Latreille
- = *Acheta (Gryllus) chinensis* Web
- = *Tartarogryllus bordigalensis* Latreille

**Common name:** Verge Cricket

**Materials Examined:** (2♂♂, 6♀♀): Wasit, Al Zubaidiya, 2♀♀, 30.V.2017; Baghdad: Bab Al Muadham, 1♂, 3♀♀, 7.VII.2017; Al Amiryah, 1♂, 1♀, 20.VIII.2017.

**Distribution:** In Iraq, this species was recorded by [27] under the name *Gryllus chinensis* Web., also [19] mentioned to it under the synonym names, Abdul Rassoul [28] under name *Tartarogryllus bordigalensis* Latreille; Libya [23]; Mediterranean region and Eastern Europe, North Africa, in the east as far as Central Asia and India [29]; Iran [30].

**(4) *Modicogryllus frontalis*** (Fieber, 1844)**Synonym**

- = *Gryllus frontalis* Fieber, 1844
- = *Acheta (Gryllus) frontalis* Fieber, 1844

**Common name:** Eastern Cricket

**Distribution:** In Iraq this species was recorded by [19] under name *Acheta (Gryllus) frontalis* Fieber, 1844, *Gryllus frontalis* by [27]; Iran [30], Cyprus [24] and distributes from France through southern Europe, the southern part of Central Europe to western Asia [16].

**(5) *Melanogryllus desertus*** (Pallas, 1771) (Fig. 1 D)**Synonyms:**

- = *Acheta agricola* Rambur, 1839
- = *Acheta deserta* (Pallas, 1771)
- = *Acheta desertus* (Pallas, 1771)
- = *Acheta desertus melas* Charpentier, 1825
- = *Gryllus alata* Ramme, 1920
- = *Gryllus desertus* Pallas, 1771
- = *Gryllus tomentosus* Eversmann, 1859
- = *Gryllus tristis* Serville, 1838

**Common names:** Steppe Cricket, Desert Cricket.

**Materials** (11♂♂, 6♀♀): Wasit, Al Zubaidiya, 2♂♂, 2♀♀, 30.IX.2017; Baghdad: Bab Al Muadham, 1♂, 1♀, 7.VI.2017; Al Amiryah, 8♂♂, 3♀♀, 20.IX.2017.

**Distribution:** In Iraq this species was recorded under name *Acheta desertus* (Pallas, 1771) [19] Cyprus [24]; Turkey [25], Iran [30] and Mediterranean area, North Africa and Central Asia [31].

**(6) *Turanogryllus lateralis* (Fieber, 1853)**

**Synonym**

= *Gryllus lateralis* Fieber, 1853

**Common name:** Turanian Cricket

**Distribution:** In Iraq this species was recorded under name *Gryllus lateralis* Fieber, 1853 [19]; Iran [30] and Central Asia; Southern European and Russia [32].

**(7) *Tartarogryllus tartarus* (Saussure, 1874) (Fig. 1 E)**

**Synonym:**

= *Acheta tartarus* Karabag, 1958

= *Gryllus tartarus* Saussure, 1874

= *Gryllus tartarus obscurior* Uvarov, 1934

**Common name:** Arable Cricket

**Materials** (6♀♀): Wasit, Al Zubaidiya, 2♀♀, 23.VII.2017; Baghdad: Al Amiryah, 4♀♀, 13.IX.2017.

**Distribution:** Iraq this species was recorded under name *Gryllus tartarus obscurior* Uvarov, 1934 by [33] *Gryllus tartarus* Saussure, 1874 [19]; Pakistan [34], Spain, North Africa [35] and Iran [30], also occurs from the southern Balkans Peninsula: Bulgaria, Greece, Macedonia, and European part of Turkey to Pakistan (36).

**(8) *Gryllodes sigillatus* (F. Walker, 1869)**

**Synonym:**

= *Gryllodes supplicans* F. Walker

**Common name:** Banded Cricket, Decorate Cricket, Indian House Cricket, Tropical House Cricket, and Squeaky-wheel Cricket.

**Materials** (2♂♂, 6♀♀): Wasit, Al Zubaidiya, 2♀♀, 30.V.2018; Baghdad: Bab Al Muadham, 1♂, 3♀♀, 7.VII.2017; Al Amiryah, 1♂, 1♀, 20.VIII.2017.

**Distribution:** Iraq, [17, 19, 20]; Cosmopolitan species [37].

**(9) *Gryllus amarensis* (Chopard, 1921)**

**Synonym:**

= *Acheta amarensis* Chopard, 1921

**Common name:** Without common name.

**Materials** (2♂♂, 6♀♀): Wasit, Al Zubaidiya, 2♀♀, 30.V.2018; Baghdad: Bab Al Muadham, 1♂, 3♀♀, 7.VII.2017; Al Amiryah, 1♂, 1♀, 20.VIII.2017.

**Distribution:** Iraq, [18, 27].

**(10) *Gryllus bimaculatus* De Geer, 1773 (Fig. 1 F)**

**Synonym:**

= *Acheta bimaculata* (De Geer, 1773)

= *Acheta capensis* Fabricius, 1775

= *Gryllus ater* Saussure, 1877

= *Gryllus interruptus* F. Walker, 1869

= *Gryllus lugubris* Stål, 1855

= *Gryllus marginalis* F. Walker, 1869

= *Gryllus (Acheta) rubricollis* Stoll, C., 1813

= *Liogryllus bimaculatus* (De Geer, 1773)

**Common name:** Two-spotted Cricket

**Materials** (2♂♂, 6♀♀): Wasit, Al Zubaidiya, 2♀♀, 30.V.2018; Baghdad: Bab Al Muadham, 1♂, 3♀♀, 7.VII.2017; Al Amiryah, 1♂, 1♀, 20.VIII.2017.

**Distribution:** Iraq, this species was recorded under name *Acheta bimaculata* (De Geer, 1773) by [27], and *Liogryllus bimaculatus* De Geer, 1773 by [38]; Kuwait [21], Saudi Arabia [22], Libya [23], India [14], Cyprus [24] and Turkey [25].

This species distributed from Portugal to North Africa and central Asia, and the Ethiopian, Madagascan and Indo-Malaysian regions [39].

**(B) Subfamily: Oecanthinae**

***Oecanthus pellucens* (Scopoli, 1763) (Fig. 2)**

**Synonym:**

= *Gryllus pellucens* Scopoli, 1763

**Common name:** European Tree-cricket, Tree-cricket.

**Materials** (1♀): Baghdad: Al Amiryah, 1♀, 29.VIII.2017.

**Distribution:** Iraq (33, 19, 20); Libya (23), India (14), Cyprus (24) and Turkey (25), Austria, Malta, Ukraine, Poland and United Kingdom (40).

**(C) Subfamily: Nemobiinae**

***Stenonemobius gracilis*** (Jakovleff, 1871)

**Synonym:**

= *Pteronemobius gracilis* Jakovleff, 1871

= *Nemobius gracilis* Jakovlev 1871

**Common name:** European Tree-cricket, Tree-cricket.

**Distribution:** Iraq this species was recorded under name *Pteronemobius gracilis* Jakovleff, 1871 [19].

**Distribution:** The species distributes from the western Mediterranean (including Spain and the Maghreb) [41]; Malta, Sicily, central and northern Italy [42] and Macedonia [41]; Egypt and Palestine, Asia Minor and beyond (Mesopotamia, Turkestan, the Caspian Sea region), as well as eastern Africa (northern Sudan) [43].



**Figure (1)** A: *Acheta domesticus*; B: *A. hispanica*; C: *Modicogryllus bordigalensis*; D: *Melanogryllus desertus*; E: *Tartarogryllus tartarus*; F: *Gryllus bimaculatus*



**Figure (2):** Female of *Oecanthus pellucens*

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