

RESEARCH ARTICLE

First report of *Sciobia (Thliptoblemmus) caliendrum caliendrum* (Fischer, 1853) in Algeria (Orthoptera, Gryllidae)

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ABSTRACT

The *Sciobia* Burmeister, 1838 genus, one of the family Gryllidae, didn't receive many studies in Algeria, although there are 13 known species. This study presents the first observation of a further species of *Sciobia* in the Ouarsenis region, Tissemsilt (Northwest Algeria), during the study period (2019–2022). These results led to the counting of six adult individuals (five males and one female), and the species was identified as *Sciobia (Thliptoblemmus) caliendrum caliendrum* (Fischer, 1853). It is considered as the first report in Algeria and the second in North Africa after it was limited to Morocco.

Keywords: Algeria; Gryllidae; New record; *Sciobia caliendrum*; Ouarsenis massif

1. Introduction

Algeria belongs to the Western Palearctic region and is characterized by diverse climates: subtropical, Mediterranean, semi-arid, and arid^[1-2]. This aspect makes it possible to have important diversity, ecological, landscape, genetic richness (fauna and flora), contributing to the overall balance and sustainability of the ecosystem^[3]. The Order Orthoptera the most diverse among the Polyneoptera insect lineages; it distributes in

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all the world's terrestrial habitats except the polar regions and plays an important role in their ecosystems^[4-7].

This order is divided into two suborders: the Caelifera contains Tridactylidae and Acrididae, and the Ensifera groups Grylloidea, Rhaphidophoroidea, Tettigoniidae, and Schizodactyloidea^[8-10].

According to Sahnoun et al.^[11], thirteen species of the *Sciobia* genus, of the family, Gryllidae are known in Algeria, with more than 75% of them being endemic. Recently^[12] the presence of *Sciobia bolivari* (Chopard, 1937) was reported in the digestive tract of the Cattle Egret, *Bubulcus ibis*, raising this list to thirteen species.

The current study provides the first record of another species of *Sciobia* in Algeria, based on recent fieldwork performed in the Ouarsenis region, Tissemsilt (northwest Algeria).

2. Material and methods

2.1. Study area

Our study area is located in the northwestern part of the Ouarsenis massif, in the Tissemsilt region (northwestern Algeria) (**Figure 1**). This forest massif is characterized by a semi-arid to humid climate; it contains many biotopes with distinct plant covers, which are distributed over an altitude varying between 626 and 1985 m and a slope reaching 50%^[13-14]. In this study, only adult individuals of *Sciobia* are used for identification after being killed and kept in 70% alcohol. Identification was obtained using a stereomicroscope (Zeiss, West Germany). Morphological identification was performed with^[15].

This material is deposited at the Valorization Laboratory and Conservation of Arid Ecosystems, University of Ghardaïa, Algeria.

Material was sampled from four localities: Ben El Keffen (35°52'52.91"N, 1°38'24.50"E); Mitidja (35°52'38.27"N, 1°40'4.71"E); Sidi Slimen (35°51'19.42"N, 1°40'8.54"E); and Aïn El Bargoug (35°50'11.99"N, 1°42'6.06"E) (**Figure 2**). Species were recorded while walking in a random way; we searched under rocks, stones, and in cavities.

The sampled areas are characterized by a semi-arid climate and schist soil and are located at altitudes ranging from 879 to 1486 m, where the *Pinus halepensis* is dominant in association with other species, including *Quercus ilex*, *Pistacia lentiscus*, and *Juniperus oxycedrus*^[14].

2.2. Taxonomic account

Gryllidae Laicharting, 1781

Sciobia Burmeister, 1838

Sciobia (*Thliptoblemmus*) *caliendra* (Fischer, 1853): 233

Synonym: *Platyblemmus kollarii* (Fieber, 1853):233; Gogorza, 1881: 516; Bolívar, 1925: 423; Chopard, 1967: 137.

Platyblemma caliendrum Fischer, 1853:168.

Platyblemmus caliendrus Fischer, 1853; Bolívar, 1878: 280; Gogorza, 1881: 516.

Sciobia caliendrum (Fischer, 1853); Kirby, 1906: 48; Bolívar, 1914: 215.

Sciobia (*Platyblemmus*) *caliendra* (Fischer, 1853); Bolívar, 1925: 423.

Thliptoblemmus caliendrum (Fischer, 1853); Chopard, 1943: 207; Herrera, 1982: 44.

Thliptoblemmus (*Thliptoblemmus*) *caliendrum* (Fischer, 1853); Chopard, 1967:1937.

Sciobia (Thliptoblemmus) caliendra caliendra (Fischer, 1853); Eades et al., 2013.

2.3. Material examined

Algeria, Tissemsilt, Ben El Keffen, in grassland, 1486 m, one male, 05/2019 (H. Chelghoum, legit).
Algeria, Tissemsilt, Mitidja, in Pine Forest (*Pinus halepensis*), 1068 m, one male, 05/2019 (M. Ait Hammou, legit).
Algeria, Tissemsilt, Sidi Slimen, in Pine Forest (*Pinus halepensis*), 879m, one male, 05/2022 (A. Chedad, legit).
Algeria, Tissemsilt, Aïn El Bargoug, in grassland, 1081 m, two males and one female, 05/2022 (A. Chedad, legit).

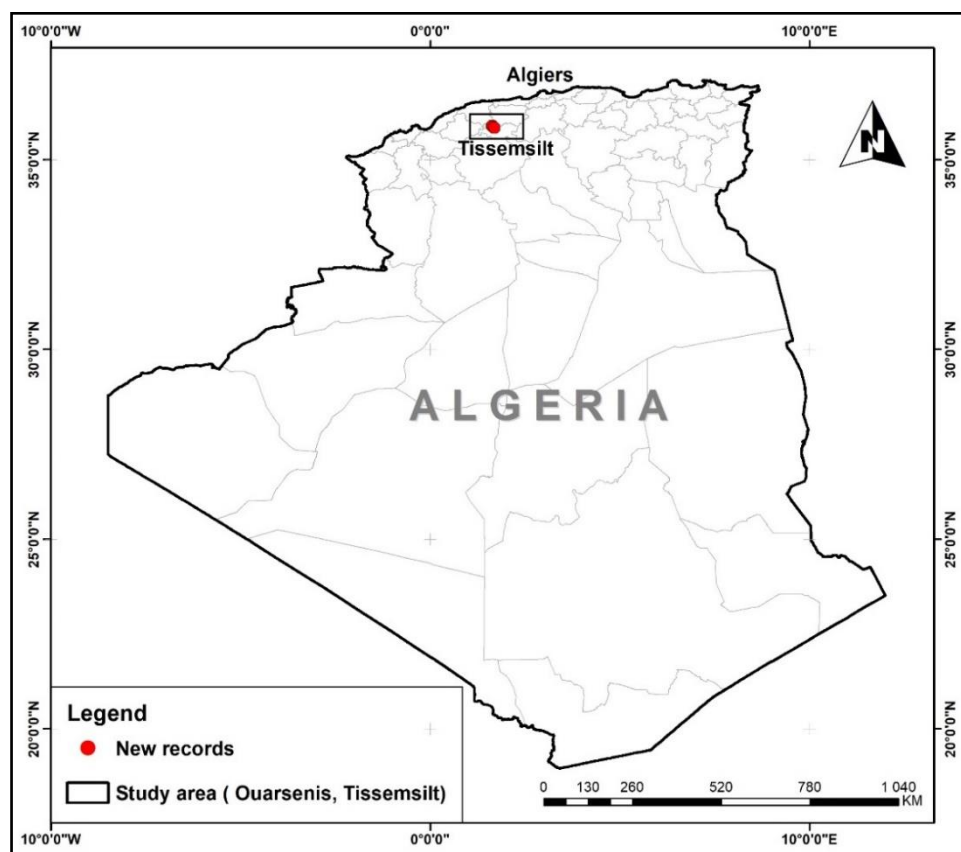


Figure 1. Maps of Algeria showing the locality of the new record of *Sciobia c. caliendrum*.



Figure 2. General view of the Ouarsenis region, Tissemsilt, Algeria.

3. Results and discussion

During our researches in the Ouarsenis massif, we found this remarkable little cricket, which was later identified as *Sciobia caliendra caliendra* (Figure 3). This finding is the first record for this species in Algeria.



Figure 3. Male of *Sciobia c. caliendrum* in natural habitat (original).

3.1. Diagnosis of the male

General coloration black (Figure 3, 4a), head with 4-6 small yellow stripes on the occipital; long rostral process, red, with the lateral edges slightly convex and the apex almost rounded (Figure 4b, c). Pronotum black with a small spot at the angle of the lateral lobes. Brownish elytra with a yellow apical border; short cords, extended by irregular veins; 4 or 5 oblique veins; lateral field black, bordered with whitish (Figure 4d). Black legs and hind tibiae with five spines on both sides (Figure 4e)^[15-16].

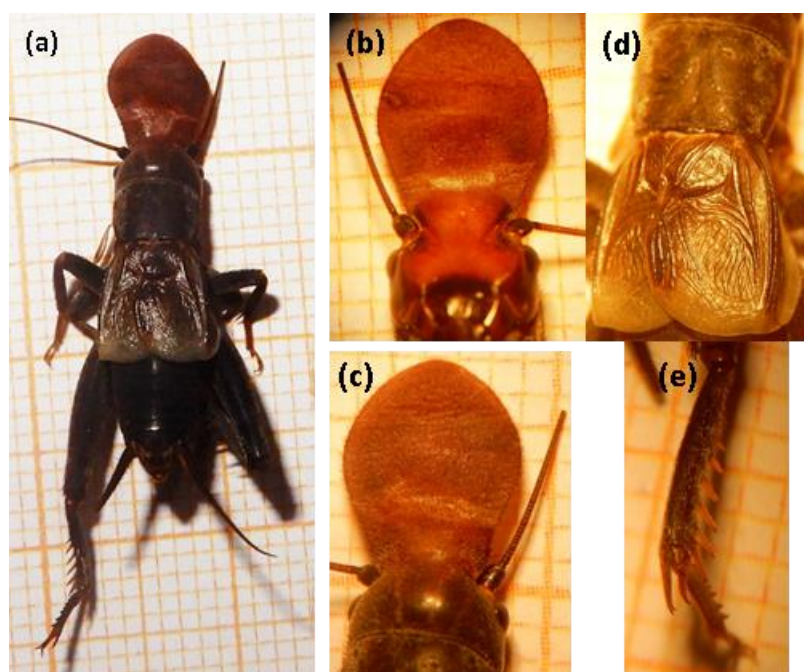


Figure 4. *S. c. caliendrum*; a: male; b: head (ventral side), c: head (dorsal side); d: tegmen and pronotum; e: posterior tibia (original).

3.2. Diagnosis of the female

General appearance is similar to that of the male (**Figure 5a**): blackish with some short yellow stripes on the occiput. Frontal rostrum wide, but quite protruding, subangular, with summit reddish yellow and face reddish; patch with short side edges, upper edge almost rounded (**Figure 5b**). Pronotum stained with yellowish on the ridge and the lateral lobes, abdomen with a yellowish band on each side and at the base (**Figure 5d**). Black legs and hind tibiae with five spines on both sides. Very short elytra, lateral, rounded, completely yellowish.

The ovipositor is rather short, with slightly obtuse apical valves (**Figure 5c**), reddish face^[15-16].

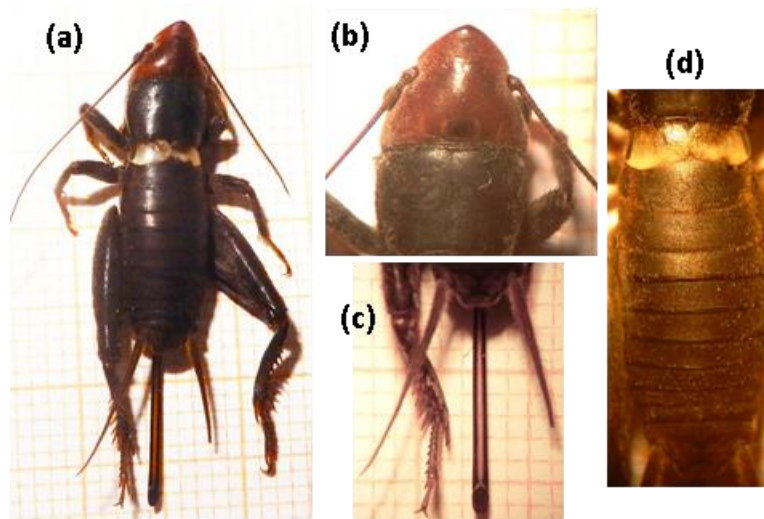


Figure 5. *S. c. caliendrum*; a: female habitus; b: head (dorsal side); c: ovipositor; d: tegmen, and abdomen (original).

Morphological measurements of *Sciobia c. caliendrum* (male and female) are summarized in **Table 1**.

Table 1. Measurements of *Sciobia c. caliendrum*

Measurments (mm)	Sex	Total length	Rostral process length	Pronotum length	Elytra	Posterior femur	Ovipositor
Chopard, 1943	♂	17-19	6-7	-	5.5-6.5	8.5-9	-
	♀	18.5	-	-	-	10	-
Barranco and Aguirre-Segura, 2013	♂	14-19	-	3-3.6	5.4-6	8-9	-
	♀	14-20	-	3.2-3.8	0.5-1.3	9-10.5	8.2-9
Current study	♂	18-19.8	5,8-7	3,5-3,7	6,1-6,4	8,8-9.2	-
	♀	20	1.1	3.7	0.9	10.1	9

3.3. Identification of the species of the genus *Sciobia* collected in the Ouarsenis region (Northwestern Algeria)

3.3.1. Male

Elytron longer than the pronotum, membranous with patent nerviationSubgenus *Thliptoblemmus*

Membranous projection of the face: oval, reddish, very large, and with the foot in peak.*Sciobia* (*Thliptoblemmus*)
caliendrum

3.3.2. Female

Cephalic protrusion in lateral vision does not protrude from the vertex.....Subgenus *Thliptoblemmus*

Cephalic protuberance in frontal vision with the apex angled. Ovipositor approximately the length of the Hind femur.....*Sciobia (Thliptoblemmus) caliendrum*

In Algeria, where *S. caliendra* was not reported, neither through alive specimens nor through the diet analysis of insectivorous species. During our researches in, the Ouarsenis massif, we found this remarkable little cricket, which was later identified as *Sciobia caliendra caliendra* (**Figure 3**). This finding is the first record for this species in Algeria.

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The genus seems to have spread from Morocco (Medium Atlas) toward North (Spain) and East (Algeria, Tunisia)(**Table 2**)^[11-12,16-20].

Table 2. Systematic list of the *Sciobia* recorded species in Algeria.

N °	Species	Distribution	Bioclimatic zone in Algeria	Biogeographic zones	References
01	<i>S. finoti stramineus</i> Bolivar, 1925	North Africa (Morocco and Algeria)	Sub-humid, semi-a rid, arid	Shoreline, Tellian Atlas, High Plateaux, Saharian Atlas	Sahnoun et al., (2010)
02	<i>S. luctuosus</i> (Gogorza, 1881)	North Africa (Algeria and Morocco)	Sub-humid, semi-arid	Tellian Atlas, High Plateaux, Saharian Atlas	Sahnoun et al., (2010)
03	<i>S. umbraculatus</i> (Gogorza, 1881)	North Africa (Morocco, Algeria, Tunisia) and Mauritania	Humid, sub-humid, semi-arid, saharian	Tellian Atlas, High Plateaux, Saharian Atlas	Sahnoun et al., (2010)
04	<i>S. algiricus</i> (Gogorza, 1881)	Northern Algeria (Endemic)	Semi-arid	Tellian Atlas	Sahnoun et al., (2010)
05	<i>S. batnensis</i> (Finot, 1893)	North-Eastern Algeria (Endemic)	Sub-humid, semi-arid	Shoreline, High Plateaux	Sahnoun et al., (2010)
06	<i>S. bouvieri</i> (Bolivar, 1925)	Northern and North-Eastern Algeria (Endemic)	Sub-humid, semi-arid	Shoreline, Tellian Atlas, High Plateaux	Sahnoun et al., (2010)
07	<i>S. finoti finoti</i> (Brunner von Wattenwyl, 1882)	North Africa (Morocco and Algeria)	Sub-humid, semi-arid, arid	Shoreline, Tellian Atlas, High Plateaux, Saharian Atlas	Sahnoun et al., (2010)
08	<i>S. foreli</i> (Saussure, 1898)	North Africa (Morocco and Algeria)	Semi-arid	Tellian Atlas	Sahnoun et al., (2010)
09	<i>S. gogorzei</i> (Bolivar, 1912)	Northern Algeria (Endemic)	Sub-humid	Tellian Atlas	Sahnoun et al., (2010)
10	<i>S. maria</i> Gorochov, 1985	Northern Algeria (endemic)	Sub-humid	Shoreline	Sahnoun et al., (2010)

N °	Species	Distribution	Bioclimatic zone in Algeria	Biogeographic zones	References
11	<i>S. mazarredoi</i> (Bolivar, 1881)	Northern and North-Western Algeria (Endemic)	Humid, sub-humid, semi-arid	Shoreline, Tellian Atlas	Sahnoun et al., (2010)
12	<i>S. tatiana</i> (Gorochov, 1985)	Algeria without precision (Endemic)	No data	No data	Sahnoun et al., (2010)
13	<i>S. bolivari</i> (Chopard 1937)	North Africa (Morocco and Algeria)	Humid	Shoreline	Temimi & Marniche (2020)
14	<i>S. c. caliendrum</i> (Fischer, 1853)	North Africa (Morocco, Algeria) and Spain	Semi-arid	Tellian Atlas	Current study

Table 2. (Continued)

4. Conclusion

The new records of *S. c. caliendrum* are the first ones in Algeria and increase the known range of this species, which, so far known only from Sapin and Morocco ^[16], showing a high ecological plasticity of this species, that allows it to live in different biotopes and climates. Also, this note increases the number of known species of *Sciobia* in Algeria. The present record highlights the need for wider assessments in all regions of Algeria, where studies on this genus are lacking. It would be fascinating to clarify the biogeographical distribution and evolution of populations of these species and to define their ecology and phenology status.

Author contributions

AC: Abdelwahab Chedad, MAH: Mohamed Ait Hammou, FM: Faiza Marniche, SSE: Salah Eddine Sadine, HC: Hicham Chelghoum, ME: Mayssara El Bouhissi, AC: Abdessalam Chedad & MB: Miloud Belli

Conceptualization, AC, ME, MAH; methodology, AC, MAH, SSE; software, AC and HC; validation, AC, ME, MAH, SSE and HC; formal analysis, AC; investigation, ME, MAH, HC, MB ; data curation, AC, ME, MAH, SSE and WD; writing—original draft preparation, AC, ME, MAH, FM; writing—review and editing, AC, ME, MAH, SSE and WD; visualization, ME, FM, MAH; supervision, MAH, SSE. All authors have read and agreed to the published version of the manuscript.

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Conflict of interest

Authors declare that there is no conflict of interest.

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