

***Gryllotalpa vineae* Bennet-Clark, 1970 (Orthoptera: Gryllotalpidae), a new species for the African continent and considerations on the genus *Gryllotalpa* in North Africa**

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Abstract: This study reports the first record of *G. vineae* in Morocco and on the African continent, based on a male specimen collected in 2023. A review of historical records suggests previous misidentifications, particularly in *G. gryllotalpa*. Additionally, two taxa, *G. algerica* and *G. maroccana*, are discussed and considered *nomen nudum* due to their lack of valid description. These findings expand the known distribution of the genus *Gryllotalpa* in North Africa and underscore the importance of thorough taxonomic revisions to clarify species diversity in the region.

Key words: *Gryllotalpa*; *Gryllotalpa vineae*; *nomen nudum*; Morocco

Résumé : Cette étude signale la première mention de *G. vineae* au Maroc et sur le continent africain, à partir d'un spécimen mâle collecté en 2023. Une révision des données historiques suggère des erreurs d'identification antérieures, notamment avec *G. gryllotalpa*. Par ailleurs, deux taxons, *G. algerica* et *G. maroccana*, sont abordés et considérés comme *nomen nudum* en raison de l'absence de description valide. Ces résultats étendent la répartition connue du genre *Gryllotalpa* en Afrique du Nord et soulignent l'importance de révisions taxonomiques rigoureuses pour clarifier la diversité spécifique dans la région.

Mots clés : *Gryllotalpa* ; *Gryllotalpa vineae* ; *nomen nudum* ; Maroc

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The genus *Gryllotalpa* is morphologically quite distinct from other Maghrebian ensiferans. These insects have modified forelegs adapted for digging (Llucià-Pomares, 2002). In Morocco, records exist for two species, which are mainly distinguished by their size and the length of the body and forewing: *G. africana* Palisot de Beauvois, 1805 and *G. gryllotalpa* (Linnaeus, 1758).

Gryllotalpa vineae is a species distributed across the Iberian Peninsula and the south of France. Throughout its distribution range, it appears to have been confused with its congeneric species, which is why, over the last 20 years, nearly all new published data on this genus have referred solely to *G. vineae*. New records of *G. gryllotalpa* exist only from central and northern Spain (Llucià-Pomares & Ortiz, 2011; Pino-Pérez & Llucià-Pomares, 2023).

Evidence from Galicia and Extremadura suggests that *G. gryllotalpa* may co-occur with *G. vineae* in central and northern regions. However, in southern areas, only a few specimens from various localities, altitudes, and habitats have been examined. All recent identifications of the *G. gryllotalpa* species group, based on studies from the Iberian Peninsula (Ragge & Reynolds, 1998; Oliveira et al., 2001; Ferreira, 2009; Quiñones-Alarcón & Llucià-Pomares, 2018; Domenech-Fernandez, 2020; Rodríguez & Ríos, 2020), have been assigned to *G. vineae*. This suggests that *G. gryllotalpa* is likely a rare species in southern Iberia.

STUDIED MATERIAL

Gryllotalpa africana; El Jadida, Morocco, 2017. 33.2670, –8.4095; Ifrane, Morocco, 2024. 33.5483, –5.0955; Nador, Morocco, 2025. 35.0231, –2.9696. (AT leg. & det.)

Gryllotalpa vineae, 1 male. Kharzouza, Morocco. 33.3698, –5.2242. 18-May-2023. (GR leg. & det.). Fig. 1

The specimen measures 50.06 mm in total length; pronotum length (PL) is 15.62 mm; tegmen length (TL) is 17.82 mm. Length of the hind wings (HWL) is 41.32 mm, Width of harp cell 2, adjacent to the cubital cell (H2), is 1.49 mm, and width of harp cell 1, away from the cubital cell (H1), is 1.09 mm. The stridulatory file has 62 teeth.

Although biometric data for the species are relatively scarce in the literature, several studies (Bennet-Clark, 1970; Domenech-Fernandez, 2020; Rodríguez & Ríos, 2020; Pino-Pérez & Llucià-Pomares, 2023) support the identification of this specimen as a male of *G. vineae*. A comparison with known biometric ranges for males of *G. vineae* and *G. gryllotalpa* is as follows:

Pronotum length (PL) ranges from 9.75 to 14.15 mm in *G. vineae*, whereas in *G. gryllotalpa* it ranges from 11.35 to 13.50 mm. The tegmen length (TL) in *G. vineae* varies between 12.6 and 20.33 mm, being slightly shorter in *G. gryllotalpa* (14.10–16.00 mm). The hind wings (HWL), in turn, are significantly longer in *G. vineae* (37.16–41.10 mm) than in *G. gryllotalpa* (29.44–32.92 mm).



Figure 1. Adult male of *G. vineae* (Kharzouza, Morocco) and right tegmen of the specimen.

Author: Diego González-Dopico.

Regarding the harp cells, *G. vineae* exhibits larger dimensions both in cell 2 (H2: 1.11–1.57 mm vs. 0.95–1.13 mm) and in cell 1 (H1: 0.53–1.16 mm vs. 0.31–0.51 mm). Finally, a notable difference is observed in the number of stridulatory file teeth, with a range of 40 to 59 in *G. vineae*, compared to *G. gryllotalpa* with 72 to 93.

While the number of teeth in the stridulatory file (62) slightly exceeds the upper limit reported for *G. vineae*, this may reflect intraspecific variation not yet fully documented. Additionally, the overall morphology of the harp further supports the identification: in *G. vineae*, the harp has a triangular shape resembling a right triangle (Fig. 1), whereas in *G. gryllotalpa*, it more closely resembles a trapezoid (Fig. 2 in Bennet-Clark, 1970; Fig. 2 in Pino-Pérez & Lluçà-Pomares, 2023).

Although *G. gryllotalpa* and *G. vineae* can be differentiated by their calling song characteristics, *G. gryllotalpa* showing dominant frequencies between 1.4 and 1.8 kHz, and *G. vineae* between 3.0 and 3.8 kHz (Barataud, 2024), unfortunately, the calling song of the specimen was not recorded.

BIBLIOGRAPHIC REVISION

G. gryllotalpa: Ain Leuh, Gandafa, Tafingoult, Settât (Chopard, 1943); Tissint (Chopard, 1942);

Tetouan, Larache, Ametrasse, Alhucemas, Bou Beker, Bab Chiquer, Beni Ammar (Morales Agacino, 1956); Sidi Ifni (Bolívar, 1936); Marrakesh, Agadir, Tanger (Bolívar, 1914); Rincón del Medik (Codina, 1926); Oued Ikhalfiwan, Jerada forêt (Mabrouki et al., 2021).

G. africana: Rabat, Beni Mellal, Essaouira, Taroudant, Casablanca, Azemmour (Chopard, 1943); Fum Asaca, Guelmim (Bolívar, 1936); El Aaiún (Morales Agacino, 1945).

Based on the available data (Fig. 2), two species of *Gryllotalpa* can be recognized with certainty in Morocco: *G. africana* and, for the first time, *G. vineae*. The presence of the other species cited in literature, *G. gryllotalpa*, cannot currently be confirmed by the authors in Morocco.

The morphological identification of *G. africana* does not pose a problem, and the bibliographic data concerning this species can therefore be considered valid. The identification of *G. vineae* represents a new record for the Moroccan and African fauna and suggests the need to reassess historical records and specimens previously attributed to *G. gryllotalpa*, particularly considering potential misidentifications. A critical re-evaluation of museum collections and reported localities is essential to clarify the true distribution and taxonomic status of *G. gryllotalpa* in the region.

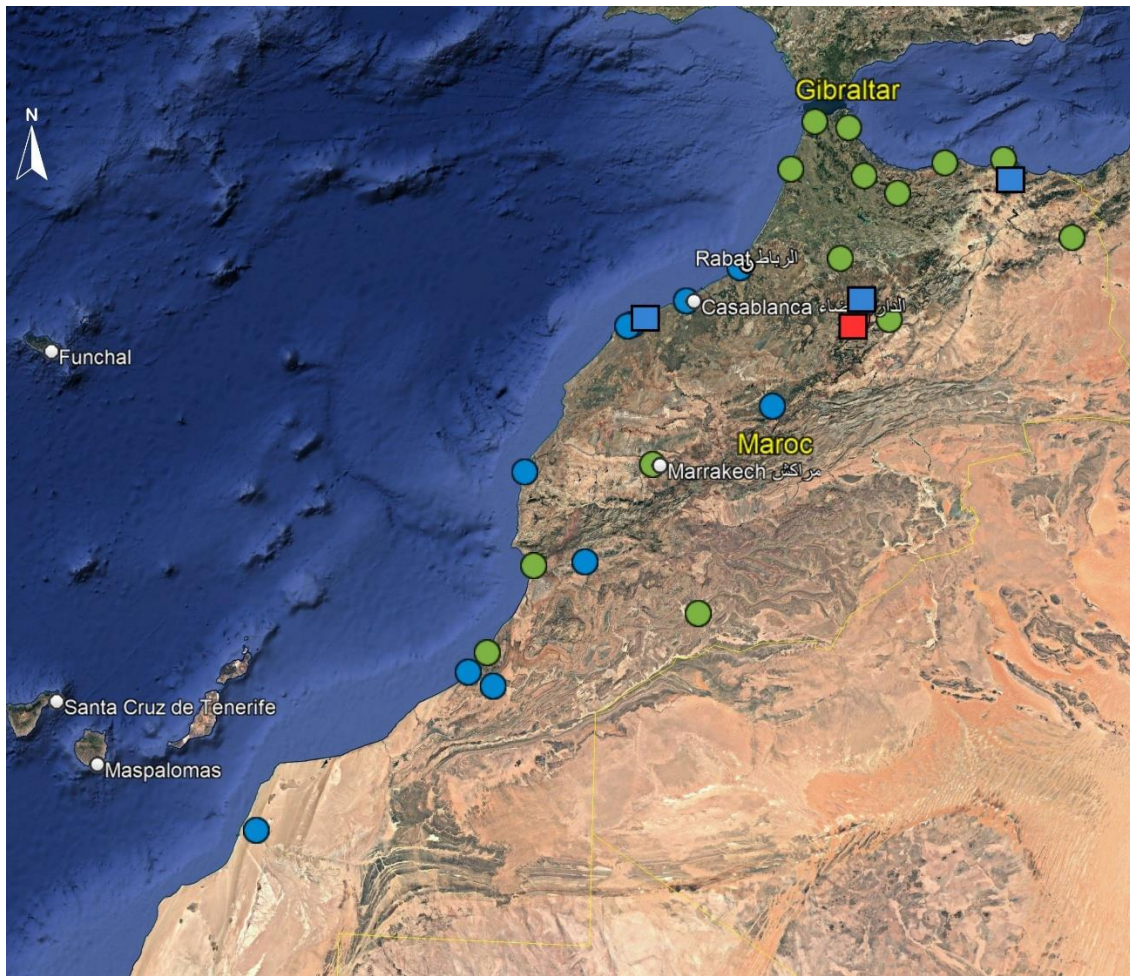


Figure 2. Known distribution points of *Gryllotalpa* in Morocco from literature and examined material: *G. vineae* (red square), *G. africana* (blue circles for literature records, blue squares for studied material), and *G. gryllotalpa* to be verified from literature records (green circles).

TAXONOMIC CONSIDERATIONS AND NOMENCLATURAL ISSUES WITHIN THE GENUS GRYLLOTALPA

An extensive review of deposited *G. gryllotalpa* material from North Africa, the Iberian Peninsula, is still necessary. Further research should also include a comprehensive biometric study encompassing the variability of *G. vineae* and *G. gryllotalpa* across the full distribution range of the former. Additionally, it is essential to examine populations from adjacent regions such as the Balearic Islands, Algeria, and Tunisia.

During an exhaustive bibliographic review of this genus in Morocco, we identified references to two additional species: *G. algerica* and *G. maroccana*, both briefly mentioned by Baccetti (1987). These species, whose specific epithets suggest an origin in Algeria and Morocco, respectively, have remained taxonomically unrecognized since their initial mention. Based on current evidence, we consider both taxa to be ***nomen nudum***. The reasoning for this conclusion is outlined below:

-Lack of Description or Diagnosis: Both names appear in Baccetti (1987), but no description, diagnosis, or distinguishing morphological traits are provided that would allow differentiation from other species. This violates Article 13.1 of the International Code of Zoological Nomenclature (ICZN, 1999), which requires a published description or reference to a description for a name to be available.

-Unclear Taxonomic Intent: While the species names are mentioned, the author does not explicitly state that these are newly described taxa, or does he indicate they were previously established. Only the scientific names and presumed authorship are presented (e.g., *G. maroccana* Bacc., *G. 17-chromosomica* Ortiz), leaving the taxonomic status ambiguous. Furthermore, since the reference is from a 1987 publication, the actual date of valid description cannot be confidently ascertained, as per Article 21 of the ICZN (1999).

-Absence of Type Material: No information is provided about the specimens upon which these species names are based. Although designation of a holotype

was not mandatory prior to 1999 (ICZN Article 16.4), the absence of any reference to type material further undermines the validity of the names.

-Confirmation from External Databases: The Orthoptera Species File (Version 5.0/5.0) lists *G. algerica* as a **nomen nudum**, although no specific publication is cited to support this classification.

Despite these nomenclatural shortcomings, we have located material labelled as *G. maroccana* and *G. algerica* in Baccetti's personal collection, housed at the Museo Civico di Storia Naturale di Genova. While we reaffirm the status of these taxa as **nomen nudum**, the existence of physical specimens provides an opportunity for future morphological and genetic analysis that could clarify their taxonomic identity.

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