



The Pamphagidae (Orthoptera) from East Algeria and description of a new species

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Abstract

Through a 3-year survey of 9 stations in North East of Algeria, we recorded 16 species of grasshopper belonging to the family Pamphagidae. The National Park of Belezma, near Batna city, appears to be the richest region for this family, with 10 species. Notably, *Paracinipe sulphuripes*, only known from Djelfa, is present at Belezma, showing unexpected relationship between these two areas, separated by 280 km. Within the *Pamphagus djelfensis* complex, a new species is described, *P. batnensis* Benkenana & Petit, easily distinguishable by its epiphallic characters. Taking into account several studies dealing with other Algerian stations, we provide certain climatic constraints of most species, as illustrated by bioclimograms. We show that the semi-arid stage with fresh winter and sub-humid stage with cold winter correspond to the most suitable conditions for this family.

Key words: Pamphagidae, Pamphagus, Belezma, Algeria

Résumé

Neuf stations du Nord Est de l'Algérie ont été suivies pendant 3 ans, ce qui a permis de recenser 16 espèces d'acridiens de la famille des Pamphagidae. The Parc National de Belezma, situé près de la ville de Batna, apparaît être la région la plus riche pour cette famille, avec 10 espèces. Il est à noter que *Paracinipe sulphuripes*, seulement connu de Djelfa, a été rencontré à Belezma, montrant une relation inattendue entre ces 2 régions, en dépit de leur fort éloignement (280 Km). A l'intérieur du complexe *Pamphagus djelfensis*, une nouvelle espèce est décrite, *P. batnensis* Benkenana & Petit, facilement reconnaissable par des caractères de l'épiphalle. La prise en compte de travaux effectués dans d'autres stations algériennes a permis de définir certaines contraintes climatiques de la plupart des espèces, illustrées par des bioclimogrammes. Nous montrons que les étages méditerranéens semi-aride avec hiver frais et sub-humide hiver froid correspondent aux conditions les plus favorables pour cette famille.

Introduction

Pamphagus elephas and *P. cristatus* were first described by Linnaeus (1758) under the genus *Locusta*. These species, and further discovered ones, are now classified in the Pamphagidae Burmeister, H. 1840, a family divided into 8 subfamilies, according to Orthoptera Species File (Eades *et al.* 2011). Following Harz (1975), this family differs from other Acridomorpha by its head being never conical, the vertex forming with the front a right or obtuse broadly rounded angle, and with foveola, if distinct, always separated. Moreover, the second segment of abdomen bears Krauss' organ, with oblique stripes, in winged species and *Pamphagus*. There is a dorsal apical spine at the outside of hind tibia. The epiphallus is shield-like, with ancorae and without lophi. The mechanism of sound production differs in the different genera. In *Tmethis*, the stridulation can occur during the flight, due to the dentated middle tibia against the modified venation of hind wings. In *Euryparyphes sitifiensis*, Korsakoff (1941) described a sound production by the mesothoracic legs against tegmina. In *Pamphagus* and several genera within Pamphaginae, there is a mechanism more used by females than by males, consisting in tegmina strokes against the vestigial hind wings