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Acinipe eulaliae, a new species of Pamphagidae (Orthoptera: Caelifera) from the northeast of the Iberian Peninsula

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Abstract

A new species of the genus *Acinipe* (Rambur, 1838) is described from Catalonia (in the northeast of the Iberian Peninsula). *Acinipe eulaliae* n. sp. was collected in an intact calcicolous rosemary scrub dominated by rosemary (*Rosmarinus officinalis*). *A. eulaliae* n. sp. is characterized by the rounded shape of its fastigium, concave in contact with the vertex, and by a penis that is slender and directed upwards. This new species is compared to the similar species *A. deceptoria* (Bolívar, 1878) and *A. segurensis* (Bolívar, 1908).

Key words

Orthoptera, Caelifera, Pamphagidae, *Acinipe eulaliae*, new species, Catalonia, Iberian Peninsula

Introduction

There are 27 species belonging to the genus *Acinipe* (Rambur, 1838), nine of which have been described from the Iberian Peninsula (Llorente & Presa 1997, Descamps & Mounassif 1972, Biondi & Massa 1995). The genus is a member of the family Pamphagidae and a large number of Palearctic species of this genus are endemic, with a restricted distribution of southern African origin (La Greca 1999). In 1934 two females belonging to the *Acinipe* genus were found in Catalonia and determined as *A. deceptoria* by Llorente & Presa (1997). A new species of this genus was found (Olmo-Vidal 2002) among new *Acinipe* material: 3 males and 2 females from Catalonia in the northeast of the Iberian Peninsula. (All material recollected in the Orpí locality as detailed in Results section.) This new species is represented by eastern populations, comprising the most northerly known populations in Europe of *Acinipe*.

Methods

The coordinate system employed for designation of localities is the UTM (Universal Transverse Mercator), subdivided into 10 × 10 km grid squares. Catalonia corresponds to zone 31T.

Results

Acinipe eulaliensis n. sp.
Figs 1-3, 9, 10

Holotype.—Male (Figs 1, 2). Orpí, Barcelona, Catalonia, UTM: 31TCF89, 475 m, July/1994, J. M. Olmo-Vidal leg.

Paratypes.—1 female, La Juncosa, Tarragona, Catalonia, UTM: 31TCF77, 430 m, July/1934 (MZB); 1 female, Montmell, Tarragona, Catalonia, UTM: 31TCF77, 430 m, July/1934 (MZB); 2 females, Orpí, Barcelona, Catalonia, 475 m, UTM: 31TCF89, 19/August/1996, J. M. Olmo-Vidal leg; 2 males, Orpí, Barcelona, Catalonia, 475 m, UTM: 31TCF89, 18/July/2004, J. M. Olmo-Vidal leg.

Description.

— **Male** (Holotype).

General color brown and grey with white and black spots.

Head and antennae: frons protruding between the eyes (Fig. 1). Lateral margins of fastigium very round and concave, in contact with the vertex in lateral view. Antennae 15-segmented, extending to end of 2nd thoracic tergite, basally flattened. Frontal ridge with longitudinal furrow narrowed below median ocellus.

Thorax: median carina of pronotum well arched in prozona and clearly incised by transverse sulcus. Metazona slightly arched, lower than prozona. Discus and paranota with tubercles and longitudinal callosities. Hind margin of paranota rounded. Mesosternal space 1.5 × longer than wide, metasternal space about as long as wide. Prosternal tubercle a smooth hump with its anterior margin strongly elevated.

Abdomen: median carina with only a few tubercles before the hind margin of the tergites. Other parts with callosities and also wrinkles. Epiproct rhombic with deep longitudinal furrow delimited by carinae. Subgenital plate weakly pointed.

Tegmina: squamiform narrowly spatula-shaped with rounded apex, 2.5 × as long as wide. Dorsal margin of tegmina straight. Tegmina extend to end of first abdominal segment.

Legs: hind femora slender. Hind tibiae black-purple.

Genitalia: in lateral view, valves of penis long, directed upwards. Proportion between height of base of valves and total height of the valves (Fig. 2) 1:3. Ventral face of penis slightly concave at mid length. Epiphallus with one row of large teeth.

Female: similar to but larger than male. From below, ventral valves with a triangular shape and transverse carina (Fig. 3).

Measurements.— See Table 1.

Habitat and distribution.— *A. eulaliae* n. sp. was detected only in an intact calcicolous rosemary scrub, mainly comprised of rosemary (*Rosmarinus officinalis*) and thyme (*Thymus vulgaris*). This scrub was thinned out and high 0.5 to 1 m. Only known from the holotype locality and La Juncosa i Montmell, 23 km distant from the type locality (Fig. 4). Both are continental high plateaus with Mediterranean vegetation.

Etymology.— Named in honor of my friend Eulàlia Recolons,

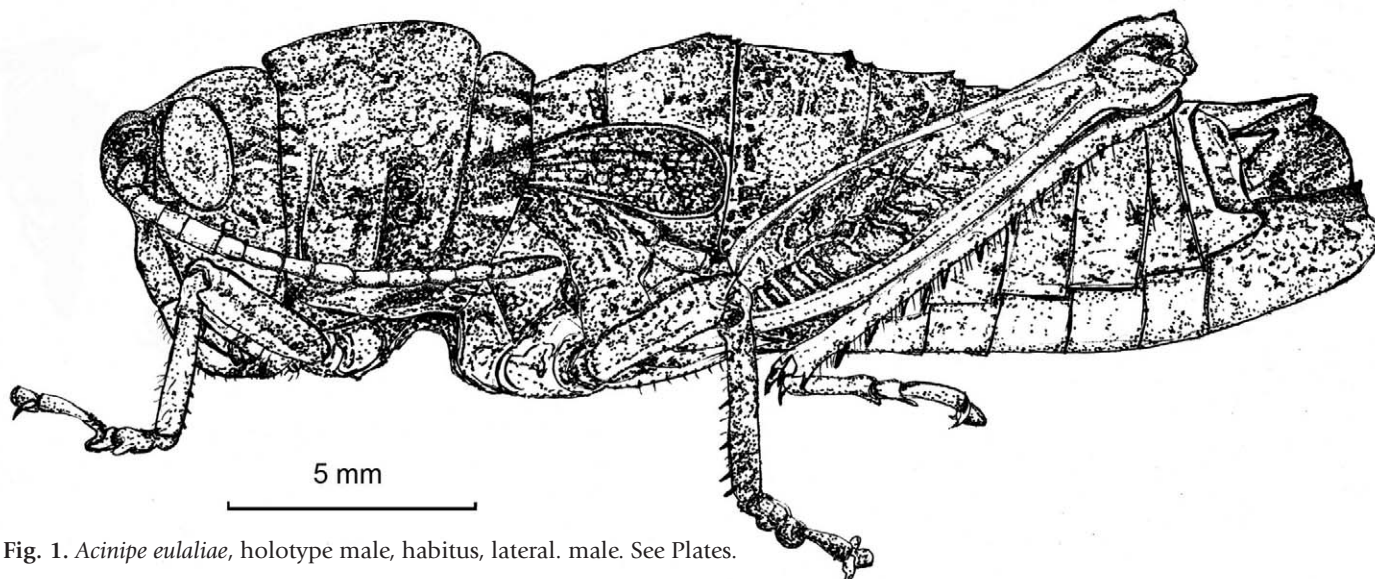


Fig. 1. *Acinipe eulaliae*, holotype male, habitus, lateral. male. See Plates.

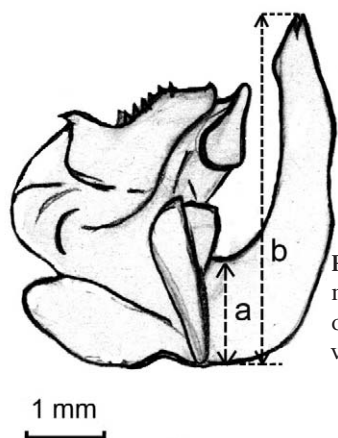


Fig. 2. Phallic complex of *A. eulaliae* n. sp. Abbreviations: a, height base of the valves; b, total height of the valves.

Fig. 3. Ventral valves of *A. eulaliae* female from below.

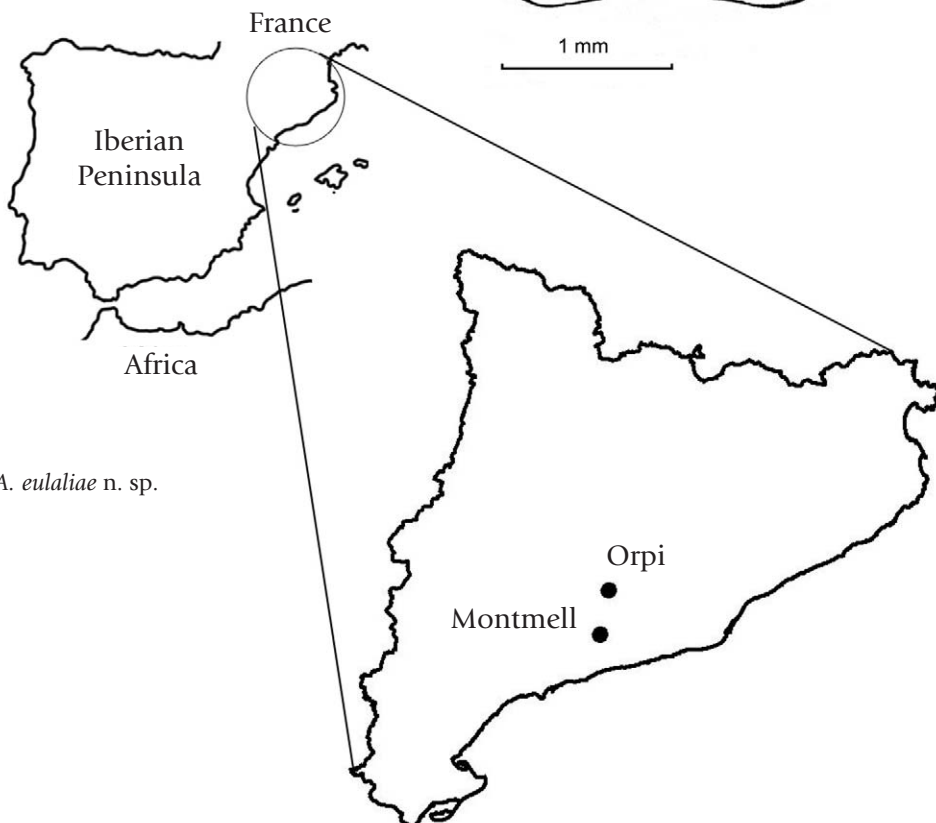
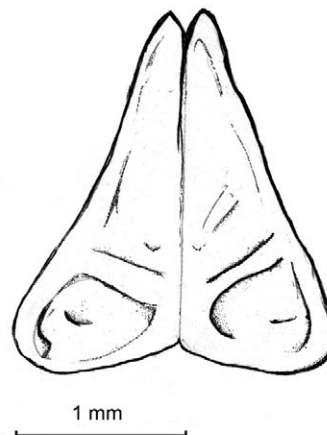


Fig. 4. The only two localities known of *A. eulaliae* n. sp.

Table 1. Measurements of *Acinipe eulaliae* n. sp. (mm). Min- Max, Minimum - Maximum; \bar{x} , Mean; SD, Standard Deviation.

	Paratypes						
	Holotype	Males (n = 2)			Females (n = 4)		
		Min - Max	\bar{x}	SD	Min - Max	\bar{x}	SD
Total length of body	30.94	32.26-32.98	32.62	0.50	43.10-50.18	46.95	2.92
Length of pronotum	5.90	6.23-6.25	6.24	0.01	8.28-9.11	8.81	0.54
Length of tegmina	4.92	5.68-5.92	5.80	0.16	6.49-7.79	7.16	0.61
Length of hind femur	11.93	13.06-13.82	13.44	0.53	15.49-16.87	16.38	0.61

deseased 1999, for her love of this type of rosemary scrub habitat found in Catalonia.

Additional material examined.—*Acinipe deceptoria*: 1 male, Albarracín, 12/July/1904, J. J. Presa det. 1982; 1 female, Ciudad Encantada, Cuenca, 23/July/1988 (P. Muñoz leg.). *Acinipe segurensis*: 1 male, Orgiva, Granada, 23/July/1901, J. J. Presa det. 1982; 1 female, Molinicos de la Sierra, Albacete, [lacking date] (material all of Spain).

Depository.—Holotype and two female paratypes deposited in Museu de Zoologia de Barcelona (MZB); two male and two female paratypes in author's collection.

Discussion

Morphological characters of *A. eulaliae* n. sp., placed in the genus *Acinipe* (Rambur, 1838). Members of the genus *Acinipe* are often distinguishable only with difficulty: a recent revision requires systematic study of the male genitalia (Descamps & Mounassif 1972, Biondi & Massa 1995). The external appearance of different species of this genus is homogeneous, especially in females.

A. eulaliae n. sp. is similar to *A. deceptoria* (Bolívar, 1878) and *A. segurensis* (Bolívar, 1908), but males of *A. eulaliae* have in lateral view, the rounded shape of the fastigium, concave in contact with the vertex (Figs 1, 10). The prozona and metazona of males is deeply incised by a transverse sulcus in *A. eulaliae*, but not in *A. segurensis* or *A. deceptoria* (Figs 8, 10, 12). The shape of the phallic complex of *A. eulaliae* (Fig. 2) is similar to that of *A. segurensis*; although in *A. eulaliae* the penis is more slender and more upwardly directed than in *A. segurensis* (Fig. 5). The proportion between the height at the base of the valves and overall height is 1:3 in *A. eulaliae*, similar to that of *A. deceptoria*, but the phallic complex of *A. deceptoria* is

directed anteriorly (Fig. 6). The proportion between the base of the valves and the overall length of the valves is 1:1.3 in *A. segurensis*.

The ventral valves of the females seen from below, are more triangular in *A. eulaliae* (Fig. 3) than *A. deceptoria* and *A. segurensis* (compare Llorente & Presa 1997). The first abdominal tergites bear very tiny tubercles in *A. eulaliae* and are without tubercles in *A. deceptoria* and *A. segurensis*. The female of *A. eulaliae* is very similar to *A. segurensis* in the shape of its pronotum, but in its anterior part this is flatter in *A. eulaliae* (Figs 9, 11). Nevertheless in *A. deceptoria* it is flatter than *A. eulaliae* and *A. segurensis* (Figs 7, 9, 11).

This new species occupies exclusively open habitats of calcicolous rosemary scrub on rosemary (*Rosmarinus officinalis*). These habitats at the moment are undervalued as they are considered to be secondary growth. Because of its restricted distribution *A. eulaliae* is proposed as a threatened species on the endangered list of Catalonia (Olmo-Vidal 2006 and ICHN 2008). Management efforts are necessary to protect this interesting species and its habitat.

Acknowledgments

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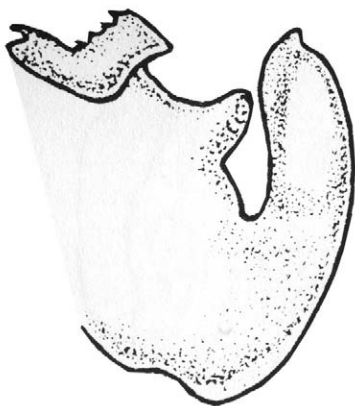


Fig. 5. Phallic complex of *A. segurensis* (Bolívar, 1908), according to Llorente & Presa 1997.

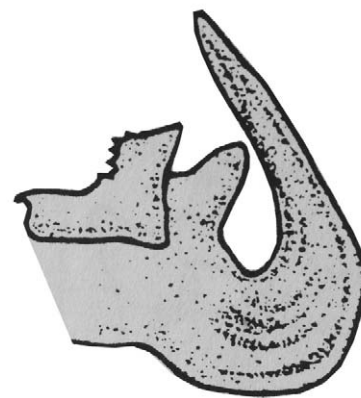


Fig. 6. Phallic complex of *A. deceptoria* (Bolívar, 1878), according to Llorente & Presa, 1997.



Fig. 7. Adult female of *A. deceptoria**.



Fig. 8. Adult male of *A. deceptoria**.



Fig. 9. Adult female of *A. eulaliae**.



Fig. 10. Adult male of *A. eulaliae**. Arrows indicate diagnostic shape of fastigium at vertex and transverse sulcus.



Fig. 11. Adult female of *A. segurensis**.



Fig. 12. Adult male of *A. segurensis**.

*Head and pronotum represented without clypeus, labrum and mandibles.

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