

## ARTIGO / ARTÍCULO / ARTICLE

A new species of the genus *Attalus* Erichson, 1840 from Algarve  
(Portugal) discovered by citizen science  
(Coleoptera, Melyridae, Malachiinae)

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**Abstract:** A new species belonging to the genus *Attalus* (*Attalus*) Erichson, 1840 (Coleoptera, Melyridae, Malachiinae) from Algarve (Faro, Portugal), first discovered by photographs hosted on a website and characterized by the modified apex of elytra in males, is described. Its taxonomic position is also discussed.

**Key words:** Coleoptera, Melyridae, Malachiinae, *Attalus* (*Attalus*) *miricauda*, new species, Portugal, Iberian Peninsula.

**Resumen:** Una nueva especie del género *Attalus* Erichson, 1840 del Algarve (Portugal) descubierta por ciencia ciudadana (Coleoptera, Melyridae, Malachiinae). Se describe una nueva especie perteneciente al género *Attalus* (*Attalus*) Erichson, 1840 (Coleoptera, Melyridae, Malachiinae) del Algarve (Faro, Portugal), descubierta inicialmente por fotografías alojadas en una página web y caracterizada por el ápice de los élitros modificado en los machos. También se discute su posición taxonómica.

**Palabras clave:** Coleoptera, Melyridae, Malachiinae, *Attalus* (*Attalus*) *miricauda*, nueva especie, Portugal, Península Ibérica.

**Recibido:** 20 de septiembre de 2024

**Aceptado:** 1 de octubre de 2024

**Publicado on-line:** 8 de noviembre de 2024

urn:lsid:zoobank.org:pub:B6CC2DCF-231F-4A18-A1AA-E1E3DE73C063

## Introduction

The emerging phenomenon of online databases of photographs of wildlife is expanding the possibilities of research in Biodiversity, and the ever improving quality of images makes them useful also for Entomology (Skvarla & Fisher, 2023). The present paper has its origin in the finding in the iNaturalist database of a Melyridae Malachiinae (<https://www.inaturalist.org/observations/153384994>, last access March 2024) recorded by one co-author (TV, Figs. 17-18) and retrieved as a new species attributable to the genus *Attalus* (subgenus *Attalus*) Erichson, 1840 by the first author (GF). The collection and subsequent examination of specimens of both sexes has confirmed both the novelty of the taxon and its placement within the genus.

## Materials and methods

Morphometric measurements were taken using an ocular micrometer mounted on a stereoscope.

Habitus and morphology photographs were obtained with a digital camera fitted with Canon MP-

E 65 mm macro lens, or adapted on compound microscope in transmitted light with 10x objective. The genital parts were mounted in dimethyl-hydantoin formaldehyde medium (DMHF) after a short maceration in caustic potash (KOH). Multiple focus stacks were assembled with Helicon Focus.

The following abbreviations are used:

AL: Antennal length.

EL: Elytron length from humeral callus to apex.

EW: Elytra width measured across both elytra at the base.

HW: Head width including the eyes.

IOW: Interocular width, the minimum distance between the inner margins of the eyes.

PL: Pronotal length.

PW: Pronotal width.

TL: Total body length.

The specimens examined are preserved in the following repositories:

CCo = collection Robert Constantin, Saint-Lô, France.

CFr = collection Gabriele Franzini, Milano, Italy.

MHNP = Museu de História Natural e da Ciência, Porto, Portugal.

NMPC = Národní muzeum, Praha, Czech Republic.

SMNS = Staatliches Museum für Naturkunde, Stuttgart, Germany.

## Results

### *Attalus (Attalus) miricauda* sp. nov.

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Holotype ♂: Portugal, Algarve, São Brás de Alportel / 26.III.2023 / MHNCUP-ART-41205 / Thijs Valkenburg leg. The holotype will be deposited in the MHNP, institution that maintains a research collection accessible for study, with proper facilities for preserving name-bearing types.

18 Paratypes as below:

1 ♂ Portugal (PT) Algarve / São Brás de Alportel / 26.III.2023, Thijs Valkenburg leg. (CFr); 2 ♀ idem 2.III.2024, Thijs Valkenburg leg. (CCo); 1 ♀ Algarve PT / Castro Marim / 05.III.2023, Thijs Valkenburg leg. (CFr); 1 ♀ Algarve PT / Monchique / 2.IV.2023 / MHNCUP-ART-41206 / Thijs Valkenburg leg. (MHNP); 3 ♀ idem / 10.III.2024, Thijs Valkenburg leg. (CFr); 1 ♂ 5 ♀ Algarve PT Alcoutim / Ribeira da Foupana / 16.III.2024, Thijs Valkenburg leg. (CFr); 1 ♂ Portugal, Algarve / Silves 5 km W / Mira Rio, am Rio Arade / 3.III.2010 leg. Frank Frizlar (CCo); 1 ♂ and 2 ♀, Carrapateira, Amado [Amado surf school] 4.III.2004, Marion Mantič leg. (NMPC).

### Short diagnosis

An *Attalus* of the subgenus *Attalus* entirely dark metallic green, shiny, frons with retro-antennal bumps, pronotum strongly transverse, elytra with strong punctuation without rugosity, apices in males obliquely excavate, smooth, shiny and separately pointed and inflated. *A. (A.) miricauda* sp. nov. differs from all other *Attalus (Attalus)* species for the above mentioned structure of apex of elytra in males.

### Description

**Male.** Habitus as in Fig. 1. **Measurements:** TL 3,6 mm; HW 0,7 mm; IOW 0,4 mm; AL 1,0 mm; PL 0,7 mm; PW 0,8 mm; EL 1,7 mm; EW 0,8 mm. **Colour:** Upper body surface dark green with metallic reflection. Antennae infusate towards apex, with antennomeres 2-4 more or less brownish-testaceous, especially on underside. Epistoma dark, clypeus brownish-yellow, mandibles, maxillary and

labial palpi entirely dark. Legs entirely dark. Integument shiny, covered by short, sparse recumbent grey vestiture and long erected black setae. Ventral surface brown, including mesepimera.

**Head** with eyes included, slightly narrower than pronotum; frons with transverse retroantennal bumps visible in low-angled light (Fig. 2); vertex slightly depressed with a median recess; last maxillary palpomere spindle-shaped, twice as long as wide; antennae (Fig. 8) reaching basal third of the elytra, antennomere I thickened distally, II short and subglobose, III-X triangular, twice as long as wide, XI longer than X, spindle-shaped and pointed. **Pronotum** transverse, 1.4 times as wide as long, moderately convex; anterior margin advanced, sides uniformly rounded; base rounded, rimmed and slightly raised. **Scutellum** transverse. **Elytra** about 2.5 times longer than pronotum, base as wide as the pronotum in its greatest width; humeral callus prominent; sides subparallel in their first half, then gradually widened; surface strongly and densely punctate, the points as wide as the interval between them. **Elytral apices** (Fig. 4) separately pointed, each with a mirror-like oblique zone bordered by thickened rear edge; basal surface minutely punctate by few short setae and dense network of microscopic pores, probably related to pheromone secretions. **Legs** slender, covered with short, fine, uniform whitish pubescence, without long dark setae; pro- and mesotibiae straight, distal part of metatibiae weakly arched. Black comb on protarsomere II very evident (Figs. 6, 7). **Abdomen** with tergite VIII (Fig. 10) transverse, sub-rectangular, with a pair of long anterior struts, sinuate posteriorly and the middle of the apex extended backwards. Sternite VIII (Figs. 5, 11) strongly emarginate, the notch almost reaching the base of the segment, delimiting two rounded subtriangular lobes joined by a narrow sclerotised link. Median lobe of aedeagus (Figs. 12, 13) slender, angular at mid-length and slightly bent at apex in lateral view; internal sac with small spines assembled in longitudinal groups, two long lateral and one shorter medial, without large sclerites. Tegmen short, attached dorsally to the base of the median lobe, pointed at apex in lateral view. Spicular fork (spiculum gastrale) (Fig. 14) almost as long as median lobe, the two arms S-shaped and distally setose.

**Female.** Differs from the male by eyes less convex (Fig. 3), by antennae shorter with antennomeres more obtuse (Fig. 9). Elytra with simple apices. Protarsomere II simple, without black combs. Tergite VIII (Fig. 15) twice as wide as long, its apical edge rounded with a short medial triangular emargination. Sternite VIII (Fig. 16) short, crescent-shaped, the median portion thinned and slightly concave. Dimensions of a female paratype: TL 3.5 mm; AL 1.32 mm; HW 0.76 mm; IOW 0.52 mm; PL 0.77 mm; PW 1.33 mm; EL 2.35 mm; EW 1.18 mm. Other females: length 3.3-3.5 mm.

#### Differential diagnosis

*Attalus (Attalus) miricauda* n. sp. is similar to the blue *Attalus* with brown legs from the Iberian Peninsula, in particular *Attalus (Attalus) baguenai* Escalera, 1942, *Attalus (Attalus) rosenhaueri* Evers, 1962, *Attalus (Attalus) atrocyanus* Uhagon, 1898, *Attalus (Attalus) mateui* Pardo Alcaide, 1954 and *Attalus (Attalus) santiagoi* Evers, 1988 (according to Evers, 1988; Plata Negrache & Santiago Hernández, 1990), and two Moroccan species, *Attalus (Attalus) viridescens* Pic, 1932 and *Attalus (Attalus) dasytiformis* Abeille de Perrin, 1885 (Evers, 1966; Plata Negrache & Santiago Hernández, 1987). *A. (A.) miricauda* n. sp. can be distinguished from all these species by the elytral apex of the males showing an oblique excavation with a shiny base, the frons with two retroantennal bumps, the shape of the antennomeres and the body pubescence.

#### Etymology

The new species is named after the peculiar (latin *mirus*, strange) structure of apex of elytra in male.

#### Distribution

All the localities known so far for *A. (A.) miricauda* n. sp. are in Faro, the southernmost district of Portugal. Future discovery in the adjacent province of Huelva is possible, as a similar female specimen from Almería is present in the collections of SMNS. The discovery of male specimens will however be required to confirm its occurrence in Andalusia.

## Ecology

The new species has been collected in Mediterranean broad-leaved mixed vegetation. Some of the specimens were found on *Erica arborea* and *Cistus ladanifer*. On the basis of specimens collected and observations deposited in iNaturalist by a co-author (TV), the period of activity is between mid-February and end-March.

## Results

The taxonomic position of the new taxon is based on existing literature. Plata Negrache & Santiago Hernández (1987, 1990) are to be credited with recalling and clarifying the characters of the genus *Attalus* and its recognised subgenera. In his catalogue of Palaearctic Coleoptera, Mayor (2007) lists more than 220 taxa divided into six subgenera. *Attalus* (*A.*) *mateui* is the closest species to *Attalus* (*A.*) *miricauda* n. sp., but the latter differs in the size of the antennomeres, relief of the frons, the elytral excavation of the males and the apically incised sternite VIII of the females.

Special male structures on the apex of elytra are already known in subtribe Attalina in genus *Nepachys* C.G. Thomson, 1859, traditionally included in this subtribe, and characterized in males by pectinate antennae and excavate elytral apex bearing spiny appendages. Even more surprisingly, the modification of the elytral apex reappears in the same way in another Western Europe representative of subtribe Malachiina, *Clanoptilus* (*Hypoptilus*) *barnevillei* Puton, 1865, in the form of an oblique impression with a smooth base.

In our opinion, it would be inappropriate to define a new taxon at genus level, despite the presence of these structures. Indeed, the supra-specific taxonomy of the subfamily Malachiinae (Tshernyshev, 2021) is still based on secondary male characters (mainly antennae, tarsi, elytral apex) and shows some unresolved weaknesses; in particular the polyphyletic nature of the genus *Attalus* has already been noted in two molecular phylogeny studies based on four genes (Bocakova et al., 2012; Gimmel et al., 2019). A revision of the subtribe Attalina based on a larger number of characters and a wider panel of species from all over the world will therefore be of great use.

## Acknowledgements

We are grateful to our colleague Jiří Hajek (Národní muzeum, Praha, Czech Republic), for examination and sharing photographs of *Attalus* deposited in his institution, to José Manuel Grosso-Silva (Museu de História Natural e da Ciência, Porto, Portugal), for the deposit of the holotype, and to Pablo Bahillo de la Puebla (Barakaldo, Spain), for reviewing the manuscript. We are also grateful to the iNaturalist site staff, for providing an invaluable novel tool supporting discovery and sharing of biodiversity data.

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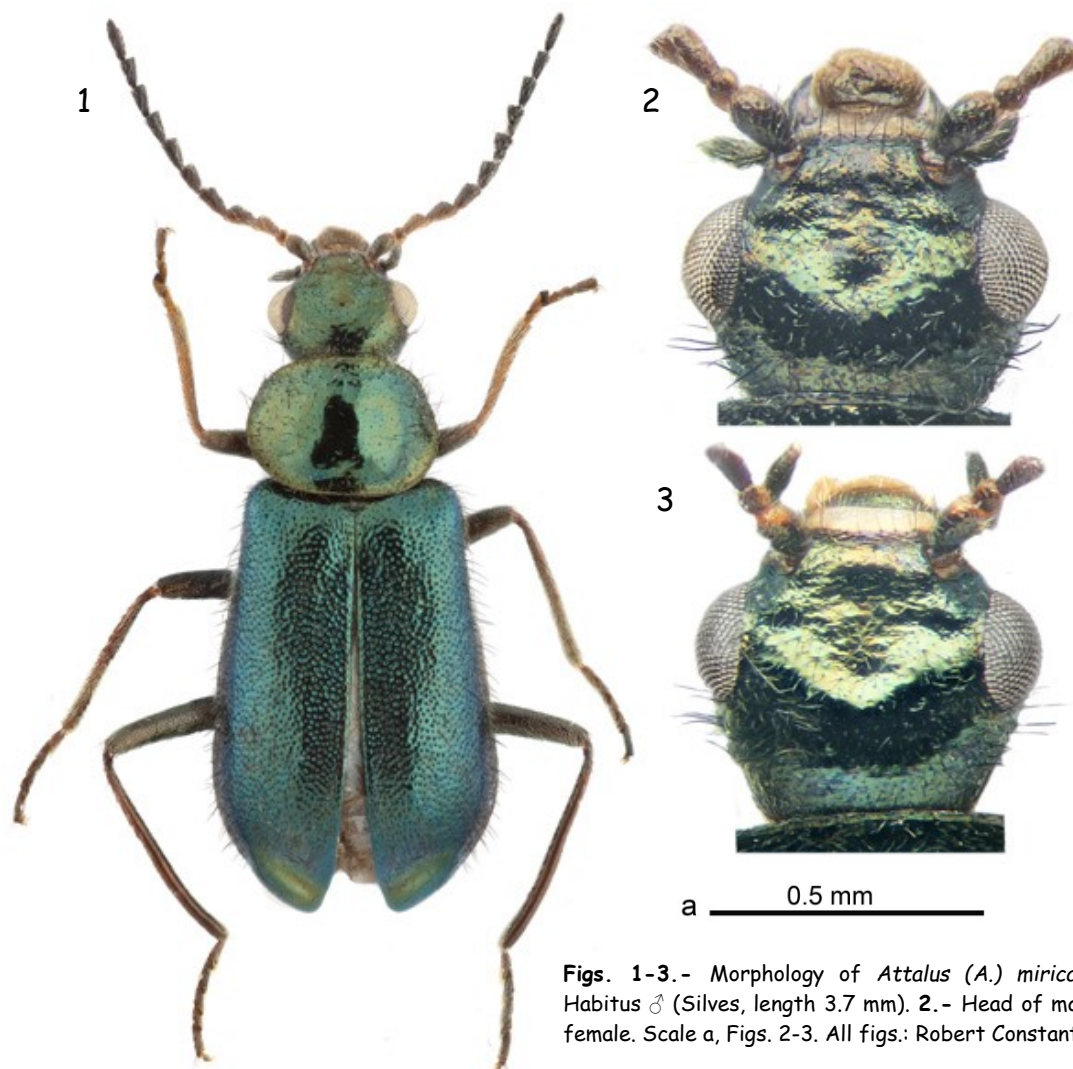
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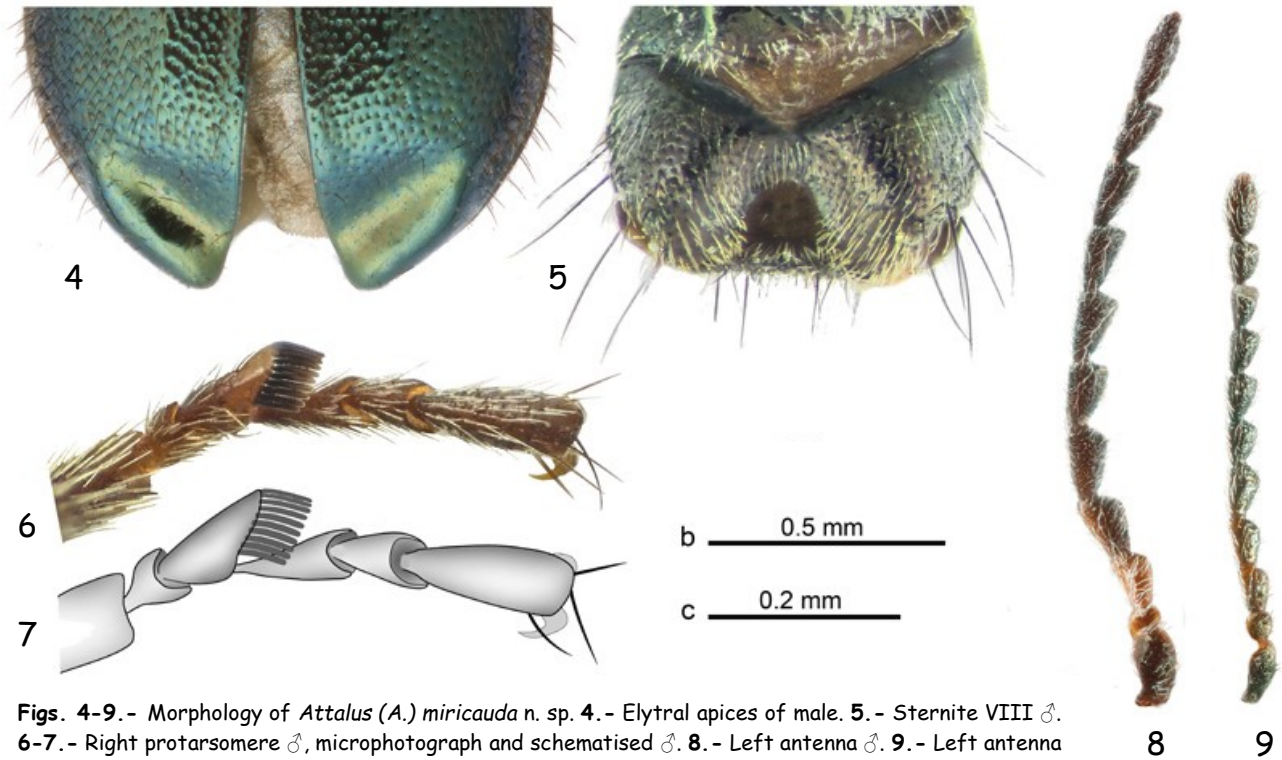
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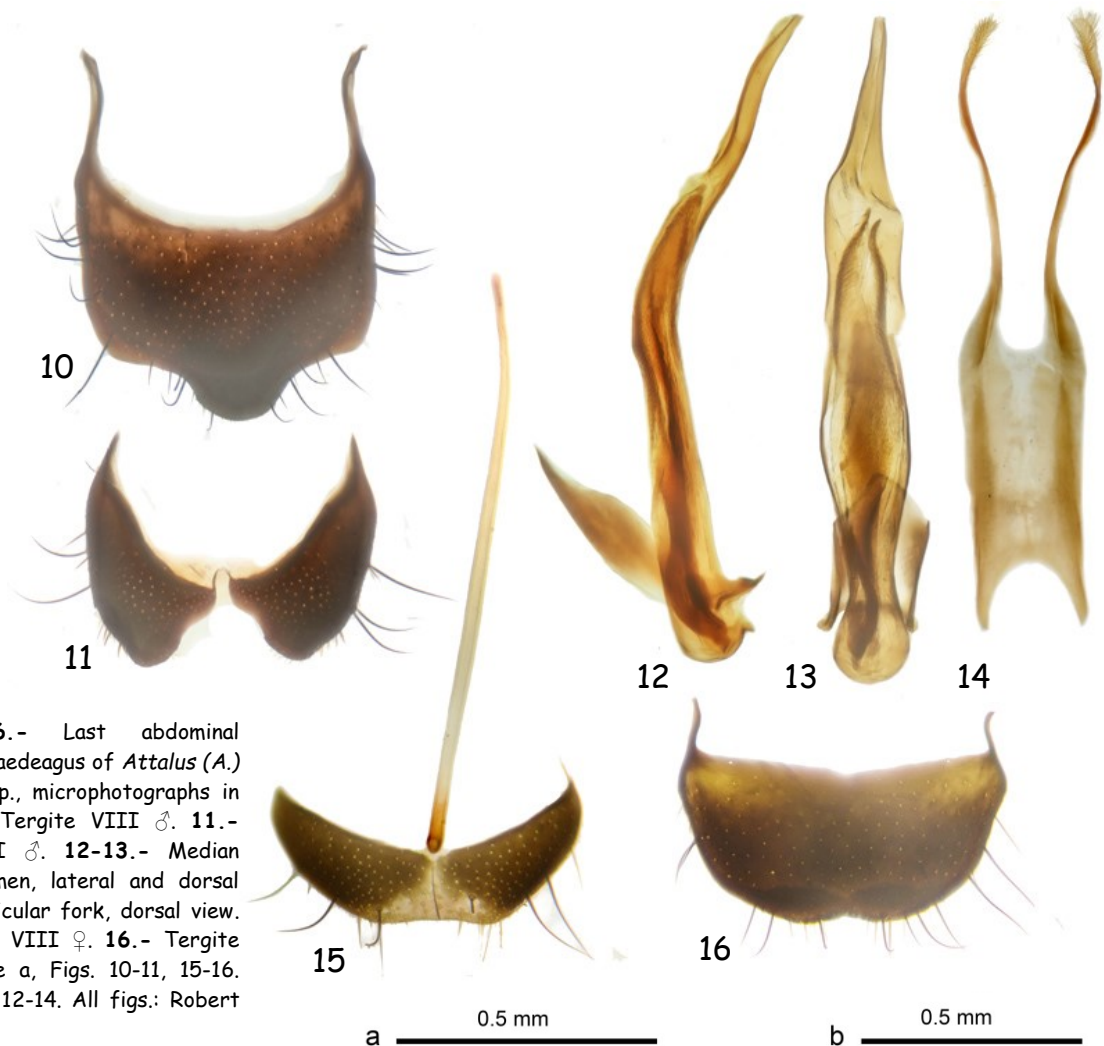
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**Figs. 1-3.-** Morphology of *Attalus (A.) miricauda* n. sp. 1.- Habitus ♂ (Silves, length 3.7 mm). 2.- Head of male. 3.- Head of female. Scale a, Figs. 2-3. All figs.: Robert Constantin.



**Figs. 4-9.-** Morphology of *Attalus (A.) miricauda* n. sp. 4.- Elytral apices of male. 5.- Sternite VIII ♂. 6-7.- Right protarsomere ♂, microphotograph and schematised ♂. 8.- Left antenna ♂. 9.- Left antenna ♀. Scale b, Figs. 8, 9. Scale c, Figs. 6, 7. All figs.: Robert Constantin.



**Figs. 10-16.-** Last abdominal segments and aedeagus of *Attalus (A.) miricauda* n. sp., microphotographs in DMHF. 10.- Tergite VIII ♂. 11.- Sternite VIII ♂. 12-13.- Median lobe and tegmen, lateral and dorsal view. 14.- Spicular fork, dorsal view. 15.- Sternite VIII ♀. 16.- Tergite VIII ♀. Scale a, Figs. 10-11, 15-16. Scale b, Figs. 12-14. All figs.: Robert Constantin.



Figs. 17-18.- Live specimens of male *Attalus* (*A.*) *miricauda* n. sp. Photographs: Thijs Valkenburg.

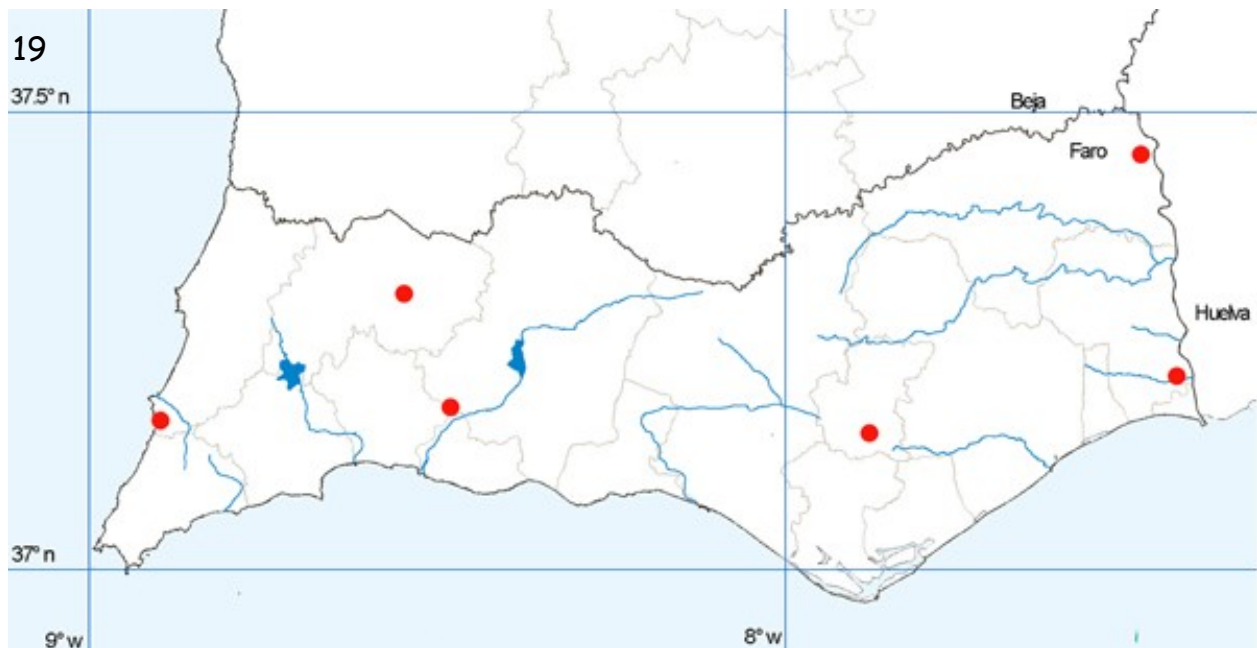


Fig. 19.- Distribution map of *Attalus* (*A.*) *miricauda* n. sp. in the district of Faro (Portugal). Red dots: localities of capture. Map: Robert Constantin.