

THE EUPARIINI (COLEOPTERA, APHODIIDAE) OF PORTUGAL, INCLUDING THE FIRST RECORD OF *ATAENIUS SPRETULUS* (HALDEMAN, 1848) FROM OUTSIDE NORTH AMERICA

Tristão Branco

Rua de Camões, 788, 2º Dto, P-4000-142 Porto, Portugal – tristao.branco@gmail.com

Abstract: *Ataenius spretulus* (Haldeman, 1848) is recorded for the first time from Portugal. Data on the Portuguese population of *Parataenius simulator* (Harold, 1868) are updated. The Eupariini purportedly introduced to Europe are briefly reviewed.

Key words: Coleoptera, Aphodiidae, Eupariini, Portugal, *Parataenius simulator* (Harold, 1868), *Ataenius spretulus* (Haldeman, 1848).

Los Eupariini (Coleoptera, Aphodiidae) de Portugal, incluyendo el primer registro de *Ataenius spretulus* (Haldeman, 1848) fuera de Norteamérica

Resumen: *Ataenius spretulus* (Haldeman, 1848) ha sido registrado por primera vez en Portugal. Se actualizan los datos portugueses sobre las poblaciones de *Parataenius simulator* (Harold, 1868), revisando asimismo las especies de Eupariini supuestamente introducidas en Europa.

Palabras clave: Coleoptera, Aphodiidae, Eupariini, *Parataenius simulator* (Harold, 1868), *Ataenius spretulus* (Haldeman, 1848), Portugal.

1. Introduction

The motivation for this note is the recent discovery in Portugal, by António Zuzarte, of a population of *Ataenius spretulus* (Haldeman, 1848), a species here recorded for the first time from outside North America.

A word of explanation on the Azores and Madeira seems necessary. Macaronesian islands, often considered as a biogeographic subregion of the Palaearctic, comprising the European archipelagos of the Azores and Madeira, and the North African archipelagos of the Canary and Cape Verde, have a fauna with little relation to the European one. For that reason, for the purpose of this note, I do not include the Portuguese archipelagos of the Azores and Madeira in either Portugal or Europe.

Except for *Ataenius horticola* Harold, 1869, whose distribution range extends into southeastern Europe, the other five species of Eupariini Schmidt, 1910 so far recorded from Europe were to all verisimilitude introduced. A sixth species, *Ataenius brevicollis* (Wollaston, 1854), described from the Portuguese island of Madeira, was listed by Stebnicka (2006; 2007a) from Portugal. As far as I can ascertain, *Ataenius brevicollis* has never been recorded from continental Portugal and should be deleted from its fauna.

Three of the introduced species were so far known to have established permanent populations in Europe, *Saprosites mendax* (Blackburn, 1892) and *Saprosites natalensis* (Péringuey, 1901) in Great-Britain (Angus *et al.*, 2003), and *Parataenius simulator* (Harold, 1868) in Portugal (Chalumeau, 1992). As explained below, a fourth species, *Ataenius spretulus* (Haldeman, 1848), must now be added to that list.

2. Brief review of the Eupariini introduced in European countries other than Portugal

Saprosites mendax (Blackburn, 1892) was described, as *Ataenius mendax*, from Fern Gully, Victoria, Australia and, as

Saprosites punctatus Richards, 1959, from Remuera, Auckland, New Zealand. Its transfer to the genus *Saprosites* Redtenbacher, 1858 was proposed by Blackburn (1904). Stebnicka & Howden (1996) recorded it from southeastern Australia (New South Wales and Victoria), from Tasmania, and from the urban area of Auckland, New Zealand. In 1921 two specimens were found in the Arundel Park, West Sussex, Great Britain (Tottenham, 1921). The presence there of a permanent population was confirmed a few years later (Tottenham, 1930).

Saprosites natalensis (Péringuey, 1901) was described, as *Pleurophorus natalensis*, from Estcourt, KwaZulu-Natal, South Africa. Its transfer to the genus *Saprosites* Redtenbacher, 1858 was proposed by Pittino & Mariani (1986). Angus *et al.* (2003) reported the recent discovery of a population in Greater London, and for the first time reported the species from the Western Cape Province, South Africa as well as a specimen in the Natural History Museum, London, labelled “S. Australia”. In view of its affinities with *Saprosites mendax*, Angus *et al.* (2003) suggested that *Saprosites natalensis* could be an Australian species, rather than South African, introduced to both South Africa and Great-Britain. However, Stebnicka & Howden (1996) did not report *natalensis* from Australia.

Saprosites peregrinus Redtenbacher, 1858 was described from Schönbrunn, Vienna, Austria, where according to Redtenbacher (1858) it «kommt öfters in grosser Menge in dem Orchideen-Hause von Schönbrunn vor» [occurred often in great numbers in the orchid greenhouses of Schönbrunn]. In spite of that, *peregrinus* does not seem to have ever established a permanent population there, and it is not listed either by Machatschke (1969) or Krell & Fery (1992) as part of the fauna of central Europe. Stebnicka (2001) recorded it from Columbia and Costa Rica, and suggested that it could be

conspecific with the widespread *Saprosites pygmaeus* Harold, 1877.

Ataenius simplicipes (Mulsant & Rey, 1870) was described as *Hexalus simplicipes*. Its identity remains obscure. Purportedly, it was described on a specimen collected in Loudun (Vienne, France) as suggested by Mulsant & Rey's 1870 statement «Cette espèce nous a été envoyée dans le temps par M. Cremière, de Loudun» [This species was sent to us at the time by M. Cremière, from Loudun], but d'Orbigny (1896) questioned the meaning of this assertion (see below). Paulian & Baraud (1982) stated that a second specimen was found in Marseille but gave no further details. Stebnicka (2006) listed it from the Neotropical region but the fact is that no other records are known of *Ataenius simplicipes* from either Europe or anywhere else. Stebnicka (2007b), although listing *Hexalus* Mulsant & Rey, 1870 as a synonym of *Ataenius* Harold, 1867, did not include *simplicipes* in her work. In a footnote, d'Orbigny (1896) suggested that *Hexalus simplicipes* may be a synonym of *Ataenius horticola* Harold, 1869: «D'après la description, l'*Hexalus simplicipes* Muls. ne paraît différer de l'*Ataenius horticola* que par la suture frontale à peine indiquée au lieu d'être complètement invisible. Mulsant ne dit pas positivement que cet insecte ait été pris en France.» [According with the description, *Hexalus simplicipes* Muls. does not seem to differ from *Ataenius horticola* other than by the frontal suture hardly indicated instead of entirely invisible. Mulsant does not say positively that this insect was taken in France.]. Clarification of the identity of *Hexalus simplicipes* requires the exam of the holotype, which, according to Paulian (1944), should be in the Muséum National d'Histoire Naturelle, Paris. That, however, is beyond the scope of the present note.

3. The Portuguese Eupariini

3.1. *Parataenius simulator* (Harold, 1868)

I found the first female in 1976, under dried-out cow dung, in a small pinewood on sandy soil, in Foz-do-Neiva, 41°36'33"N-8°48'26"W (Viana do Castelo, Minho). Two years later I found a second female, some 31 km further south, in cow dung on sandy dunes in Azurara, 41°20'21"N-8°44'32"W (Vila do Conde, Douro Litoral). These two females were studied by Renaud Paulian who described them (Paulian, 1979) as the new subgenus and new species *Ataenius (Brancoataenius) lusitanicus*.

In the years that follow I collected the species in rather large numbers in Azurara as well as in the nearby Areia, 41°19'37"N-8°44'15"W. My friend Francisco Figueiredo found a female in Praia de Mira, 40°27'23"N-8°48'08"W (Mira, Beira Litoral) which is the southernmost locality I know the species from.

Later I sent some of those specimens to Fortuné Chalumeau, who established (Chalumeau, 1992) the synonymy with *Parataenius simulator* (Harold, 1868). This synonymy was upheld by Stebnicka & Skelley (2009).

Specimens were collected from January through to June and in October and November. They were all collected on sandy soil, either amongst roots of herbaceous plants or under stones and dried-out excrements (cow, dog and human). In Areia, on a warm day of June, between 8 and 9 am I collected, together with a number of *Calamosternus granarius* (Linnaeus, 1767), 18 specimens flying over the beach.

The Portuguese specimens are 3,4 – 4,9 mm long (measured from the fore edge of the head to the tip of the elytra), and 1,5 – 2,2 mm wide. Externally the sexes can only be separated by the size and shape of the pygidium and the sixth and fifth abdominal sternites, the sixth abdominal sternite being shorter than either the pygidium and the fifth abdominal sternite in males, longer in females. Aedeagus. Fig. 1.

Parataenius simulator (Harold, 1868) is a widespread species. It was described, as *Ataenius simulator*, from Mendoza, Argentina, as *Psammodius schwarzi* Linell, 1896 from Jacksonville, Florida, USA, as *Parataenius granuliceps* Petrovitz, 1971 from Sydney, New South Wales, Australia, and, as stated above, as *Ataenius (Brancoataenius) lusitanicus* Paulian, 1979 from Foz-do-Neiva, Minho, Portugal. It has also been recorded from Brazil, Chile, Uruguay, Bolivia, Venezuela, Mexico, and New Zealand. Stebnicka & Skelley (2009) listed it also from Africa but I could not find any published record from that continent.

3.2. *Ataenius spretulus* (Haldeman, 1848)

António Zuzarte found the first two females of this species in 2007, in Aroeira (Almada, Estremadura) a recent urbanization of an old farm, centred around 38°34'38"N-9°10'19"W, not far from the coast and on sandy soil. He has since collected the species every year, in the same place, to a total now of 42 specimens, as follows, all specimens were collected at light: 2 ♀ on 1.ix.2007; 2 ♀ on 18.vii.2008; 1 ♂ on 4.viii.2008; 4 ♂ and 1 ♀ on 14.viii.2009; 1 ♂ and 3 ♀ on 9.ix.2009; 9 ♂ and 16 ♀ on 26.vii.2010, and 1 ♂ and 2 ♀ on 25.viii.2010. This shows that a population of *spretulus* is established there.

These specimens are 4,8 – 5,6 mm long (measured from the fore edge of the head to the tip of the elytra), and 2,0 – 2,3 mm wide. Aedeagus: Fig. 2.

The species was described by Haldeman (1848), as *Aphodius spretulus*, from the “Middle States”, USA, and as *Ataenius consors* Fall, 1930 from “Massachusetts (Lawrence, Milton, Cambridge); New York (Peekskill); New Jersey; Pennsylvania (Mt. Airy, Moore's, Bucks Co.); District of Columbia; North Carolina (Highlands); Florida (Biscayne, Paradise Key); Tennessee (Madison); Missouri (St. Louis); Arkansas (Hope); Louisiana (Winnfield, New Orleans); Kansas (Lawrence, Argentine); New Mexico (Elba)”, USA (the holotype is from Lawrence, Massachusetts).

Ataenius falli Hinton, 1934 is an unnecessary replacement name for Fall's *consors* to eliminate the homonymy with *Ataenius consors* Blackburn, 1904, unnecessary since the name *spretulus* (Haldeman, 1848) was available.

Ataenius spretulus is widespread in the USA. According to Cartwright (1974) it “has been collected in all but seven states in continental United States”. As can be seen in Cartwright's fig. 15 (1974), those seven states are the western Washington, Montana, Oregon, California and Nevada, and the northeastern Maine and Vermont. It had never been recorded from outside North America.

As pointed out by Cartwright (1974) and Stebnicka & Lago (2005), *Ataenius spretulus* is most similar to *A. cognatus* (LeConte, 1858) and *A. strigatus* (Say, 1823). It can be easily distinguished from *cognatus* by the presence of a furrow along the distal half of the posterior edge of the middle and hind femurs (Fig. 3), neither furrowed nor margined in *cognatus*. It can be differentiated from *strigatus* by the fore femurs finely and sparsely punctate (Fig. 4), coarsely and densely punctate in *strigatus* (Fig. 5).

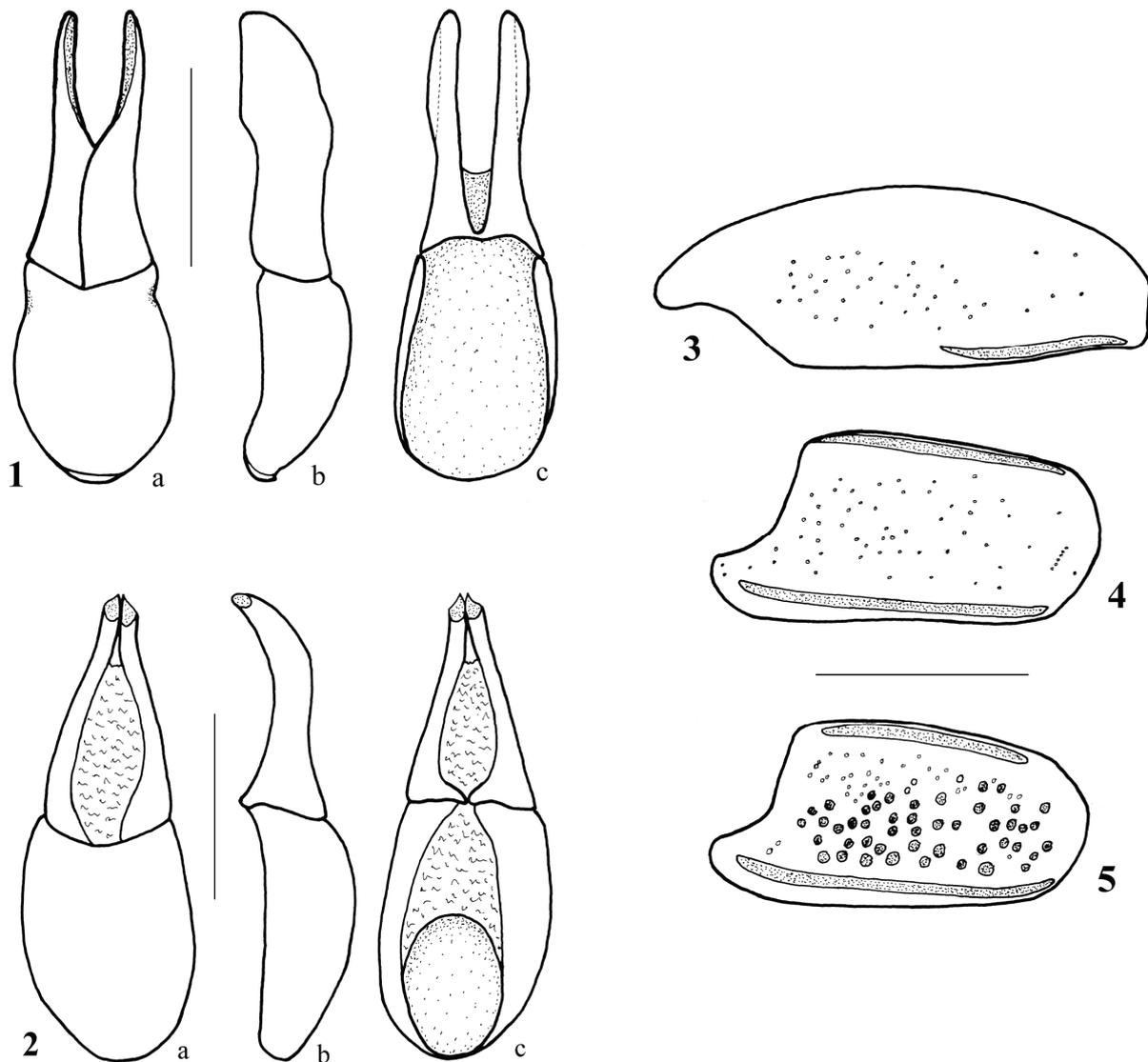


Fig. 1-2. Aedeagus in dorsal view (a), lateral view (b) and ventral view (c). **1.** *Parataenius simulator* (Harold, 1868), Portugal: Douro Litoral: Vila do Conde: Azurara. **2.** *Ataenius spretulus* (Haldeman, 1848), Portugal: Estremadura: Almada: Aroeira. Scale lines 0.5 mm. **Fig. 3.** Left hind femur, *Ataenius spretulus* (Haldeman, 1848), Portugal: Estremadura: Almada: Aroeira. Same scale as Fig. 4-5. **Fig. 4-5.** Left fore femur. **4.** *Ataenius spretulus* (Haldeman, 1848), Portugal: Estremadura: Almada: Aroeira. **5.** *Ataenius strigatus* (Say, 1823), USA: Texas: Anderson Co.: Tennessee Colony. Scale line 0.5 mm.

Besides the difference in size and shape of the pygidium and sixth abdominal sternite, the sexes can be easily distinguished, as pointed out by Fall (1930), by the disc of the metasternum with coarse piliferous punctures in males, finely punctate and glabrous in females.

Acknowledgments

I am most grateful to my friend António Zuzarte (Monforte, Portugal) who generously gave me all the specimens of *Ataenius spretulus* that he collected. My thanks go also to Andrew Smith (Canadian Museum of Nature, Ottawa, Canada), Paul Schoolmeesters (Herent, Belgium) and Valerie McAtear (Librarian, The Royal Entomological Society, St. Albans, UK) for help obtaining the papers by Haldeman (1848), Fall (1930) and Tottenham (1921; 1930), respectively.

References

- ANGUS, R.B., C.J. WILSON, J.F. MATÉ, P.M. HAMMOND & D.J. MANN 2003. *Saprosites mendax* (Blackburn) and *S. natalensis* (Peringuey) (Scarabaeoidea, Aphodiidae), two species introduced into Britain. *Proceedings of the second pan-European conference on Saproxylous Beetles*: 1-4.
- BLACKBURN, T. 1904. Revision of the Australian Aphodiides, and descriptions of three new species allied to them. *Proceedings of the Royal Society of Victoria (New series)*, **17**: 145-181.
- CARTWRIGHT, O. L. 1974. *Ataenius*, *Aphotaenius*, and *Pseudataenius* of the United States and Canada. *Smithsonian Contributions to Zoology*, **154**: 106 pp, 3 pls.
- CHALUMEAU, F. E. 1992. Eupariini du Nouveau Monde: un mise au point (Coleoptera, Scarabaeidae) (1^{re} partie). *Nouvelle Revue d'Entomologie (Nouvelle Série)*, **9**: 189-206.

- D'ORBIGNY, H. 1896. Synopsis des Aphodiens d'Europe et du bassin de la Méditerranée. *L'Abeille*, **28**: 197-271.
- FALL, H. C. 1930. On *Ataenius strigatus* Say and allied species (Coleoptera). *Journal of the New York Entomological Society*, **38**: 93-108.
- HALDEMAN, S.S. 1848. Descriptions of North American Coleoptera, chiefly in the Cabinet of J. L. Le Conte, M. D., with references to described species. *Journal of the Academy of Natural Science of Philadelphia, Second series*, **1**: 95-110.
- KRELL, F.-T. & H. FERY 1992. Familienreihe Lamellicornia. Pp. 200-254. In Lohse, G. A. & W. H. Lucht, *Die Käfer Mitteleuropas*. 2. Supplementband mit Katalogteil. Goecke & Evers, Krefeld.
- MACHATSCHKE, J. W. 1969. Familienreihe Lamellicornia. Pp. 265-371. In Freude, H., K. W. Harde & G. A. Lohse, *Die Käfer Mitteleuropas*, Vol. **8** (Teredilia, Heteromera, Lamellicornia), Goecke & Evers, Krefeld, 388 pp.
- MULSANT, E. & C. REY 1870. Description d'une espèce nouvelle constituant un genre nouveau de la Famille des Aphodiens (Tribu des Coléoptères Lamellicornes, Branche des Aphodiaires). *Opuscules Entomologiques*, **14**: 200-202.
- PAULIAN, R. 1944. Les types d'Insectes de Mulsant au Muséum de Paris. *Bulletin du Muséum National d'Histoire Naturelle*, 2^e série, **16**: 117-121.
- PAULIAN, R. 1979. Un nouvel Aphodiidae du Portugal. *Bulletin de la Société entomologique de France*, **84**: 66-67.
- PAULIAN, R. & J. BARAUD 1982. *Faune des Coléoptères de France. II. Lucanoidea et Scarabaeoidea*. Encyclopédie Entomologique. Editions Lechevalier, Paris, **43**, 477 pp, 16 pls.
- PITTINO, R. & G. MARIANI 1986. A revision of the Old World species of the genus *Diastictus* Muls. and its allies (*Platytomus* Mul., *Pleurophorus* Muls., *Afrodiastictus* n. gen.)(Coleoptera Aphodiidae Psammodiini). *Gionale Italiano di Entomologia*, Vol. 3, n° 12: 1-165.
- REDTENBACHER, L. 1858. *Fauna Austriaca. Die Käfer. Nach der analytischen Method bearbeitet. Zweite, gänzlich umgearbeitete, mit mehreren Hunderten von Arten und mit der Charakteristik sämtlicher europäischen Käfergattungen vermehrte Auflage*. C.Gerold's Sohn, Wien, cxxxvi + 1017 pp., 2 pl.
- STEBNICKA, Z. 2001. A revision of the Neotropical species of *Saprosites* Redtenbacher, 1858 (Insecta: Coleoptera: Scarabaeidae: Aphodiinae: Eupariini). *Entomologische Abhandlungen, Staatlichen Museum für Tierkunde in Dresden*, **59**: 221-242.
- STEBNICKA, Z. 2006. Tribe Eupariini Schmidt, 1910. Pp. 143-144. In: Löbl, I. & A.Smetana (eds.), *Catalogue of Palaearctic Coleoptera. Volume 3: Scarabaeoidea - Scirtoidea - Dascilloidea - Buprestoidea - Byrrhoidea*. Apollo Books, Stenstrup. 690 pp.
- STEBNICKA, Z.T. 2007a. The New World species of *Ataenius* Harold, 1867. VIII. Revision of the *A. scutellaris*-group and diagnosis of the *A. texanus-carinator* group with descriptions of new species (Coleoptera: Scarabaeidae: Aphodiinae: Eupariini). *Acta Zoologica Cracoviensia*, **50B**: 45-81.
- STEBNICKA, Z.T. 2007b. *The genus Ataenius Harold, 1867 (Coleoptera: Scarabaeidae) of New World. Iconography*. Institute of Systematics and Evolution of Animals. Polish Academy of Sciences, Kraków, 155 pp.
- STEBNICKA, Z. & H.F. HOWDEN 1996. Revision of the Australian Genera in the Tribes Odontolochilini, Psammodiini, Rhyparini, Stereomerini and Part of the Eupariini (Coleoptera: Scarabaeoidea: Aphodiinae). *Invertebrate Taxonomy*, **10**: 97-170.
- STEBNICKA, Z. & P. LAGO 2005. The New World species of *Ataenius* Harold, 1867. V. Revision of the *A. strigatus*-group (Coleoptera: Aphodiinae: Eupariini). *Insecta Mundi*, **19**(1-2): 55-83.
- STEBNICKA, Z.T. & P.E. SKELLEY 2009. Taxonomic redefinition of the genera *Parataenius* Balthasar and *Pseudataenius* Brown, with description of three new species (Scarabaeidae: Aphodiinae: Eupariini). *Insecta Mundi*, **66**: 1-18.
- TOTTENHAM, C.E. 1921. A *Saprosites* (?*parallelus* Harold) in Britain. *The Entomologist's Monthly Magazine*, **57**: 252-253.
- TOTTENHAM, C.E. 1930. *Saprosites mendax* Blackb. in Sussex. *The Entomologist's Monthly Magazine*, **66**: 231.