ABSTRACT

Systematics of the genus *Oviedinus* nov. (Coleoptera: Ptinidae), including a fossil new species from Dominican amber, biogeographical remarks and an account on fossil Ptinids.

The genus *Oviedinus* gen. n. (Coleoptera: Ptinidae) is described from the Caribbean region, including the species *Ptinus semiobscurus* Pic and *Ptinus latus* Pic from Brazil, *Ptinus texellatus* Gorham from Moustique Island, *Ptinus strangulatus* Fall from Florida, *Ptinus dufau* Pic from Guadalupe, *Ptinus angustithorax* Bellés from Venezuela, *Ptinus espanyoli* Bellés from Jamaica and the fossil new species *Oviedinus hispaniolensis* from Dominican amber collected at Hispaniola. *Oviedinus* falls in the vicinity of *Gynopterus* Mulsant & Rey, but the peculiar structure of the prothorax of the new genus, with the posterior constriction showing a well delimited smooth groove, distinguishes it from *Gynopterus*, which presents a simple constriction.

Key words: Coleoptera, Ptinidae, systematics, Caribbean biogeography, Dominican amber fossil.

INTRODUCTION

The study of the Neotropical Ptinidae became especially difficult after the work of Maurice Pic who, between 1896 and 1939, published as much as 51 isolated descriptions of new species, the major part of them being assigned to the genus *Ptinus* L., without thoroughly studying the affinities of the new taxa. Therefore, the genus *Ptinus* in the Neotropical region became a sort of «miscellaneous» genus, where a notable disparity of species and species-groups has been included.

In previous papers the author have contributed to clarify the composition of the Neotropical species originally assigned to *Ptinus* by describing two new genera (*Prosternoptinus* Bellès, 1985 and *Tropicoptinus* Bellès, 1999) (BELLÉS, 1985, 1999) and by defining the «*Ptinus semiobscurus* group» of species (BELLÉS, 1986) (see also PHILIPS, 2000). The present paper follows this line with the description of a new genus for the «*Ptinus semiobscurus* group», to embrace eight species from the Caribbean region. Seven of them were described under the genus *Ptinus*, and the remaining one is described as
new in the present paper. The new species is a fossil ptinid from the Dominican amber which, in addition to afford new taxonomic data, helps to clarify the biogeographical history of the new genus.

**MATERIAL AND METHODS**

The type-specimens of *Ptinus semiobscurus* Pic, *Ptinus latus* Pic and *Ptinus dufaui* Pic, and a «cotype» of *Ptinus tessellatus* Gorham, were supplied by the Muséum National d’Histoire Naturelle, Paris (MNHN). The type-specimen and a paratype of *Ptinus angustithorax* Bellés were borrowed from the Instituto de Zoología Agrícola, Universidad Central de Venezuela, Maracay, Venezuela (IZAM). The type-specimen and a paratype of *Ptinus espanyoli* Bellés were supplied by the Canadian Museum of Nature, Ottawa, ON (CMNC). A paratype of *Ptinus strangulatus* Fall was borrowed from the United States National Museum, Washington D.C. (USNM); fresh material from *P. strangulatus* was supplied by Stewart B. Peck, Department of Biology, University of Ottawa (ON). The specimen in Dominican amber belonging to a new fossil species described in the present paper was bought by the author in «Amberica» company, Dominican Republic.

**SYSTEMATICS**

The species considered in the present paper are those included in the «*Ptinus semiobscurus* group», as previously defined (BELLÉS, 1986), to which three other species are now added: *P. strangulatus* Fall, 1905, from Florida peninsula, *P. espanyoli* Bellés, 1997, from Jamaica, and a new fossil species from the Dominican amber. The information presently available suggests the convenience of formally proposing a new genus for the «*Ptinus semiobscurus* group» including the aforementioned three species newly incorporated. This new genus is described as follows.

Genus *Oviedinus* gen. n.
Type species: *Ptinus angustithorax* Bellés, 1986

**Description**

Length 2-3 mm; body elongate and subparallel in both sexes; color generally brown, varying from reddish to almost black, depending on the species; pubescence consisting of scattered setae, with no patches of scale-like setae neither on the pronotum nor on the elytra (Fig. 1). Head partially visible from above; surface with scattered erect yellow setae; eyes round and more or less convex, projecting laterally, with scattered short and erect setae between ommatidia; interantennal space narrow; antennae 11 segmented, filiform, shorter than the length of the body (Fig. 1). Pronotum with granulations convex and well delimited, with lateral lobes more or less marked, and with the posterior constriction consisting of a well delimited transversal groove wide and smooth; scutellum subtriangular and well apparent (Fig. 1); prosternal process narrow, slightly expanded distally, and extending past posterior margin of procoxae; mesosternal process extending posteriorly 2/3 length of mesocoxae; legs with five segments in all tarsi. Elytra with humeral angles broadly rounded and sides subparallel in both sexes, and with longitudinally aligned rows of small punctures; pubescence composed of two types of setae, one type
consisting of a row of erect or suberect setae between punctures, the other type consisting of shorter recumbent setae inserted along each puncture row (Fig. 1). Sternal part of the abdomen with five visible ventrites; first three fused and suture line sometimes obsolete at middle; fourth ventrite reduced in length (Fig. 2). Aedeagus elongate, subsymmetrical, parameres about the same length of median lobe (Fig. 3); male genital segment composed of two branches, slightly expanded in the distal part (Fig. 4). Sexual dimorphism scanty apparent, in comparison with males, females usually have the antennal segments shorter, the eyes smaller and the elytra less slender.

Discussion

*Oviedinus* can be placed in the vicinity of *Gynopterus* Mulsant & Rey, 1868, with a number of species known in the New World. However, the peculiar structure of the prothorax of *Oviedinus*, with the posterior constriction consisting of a well delimited transversal and smooth groove, is clear enough to separate this genus from *Gynopterus,*
which shows a simple constriction in the posterior 3/4 of the pronotum. Another typical feature of *Oviedinus* is the fusion of the first two sutures of the ventral part of the abdomen, a feature which is shared by the New World genus *Niptinus* Fall, 1905. However, the posterior part of the pronotum of *Niptinus* shows a constriction simple and not very apparent. The structure of the pronotum of *Oviedinus* has some resemblance with that of *Sulcoptinus* Bellés, 1988, from Madagascar and other islands from the Indian Ocean (Bellés, 1988, 1991), which also shows a well marked transversal groove in the posterior 3/4 of the pronotum. However, *Oviedinus* differs from *Sulcoptinus* in many characters, for example in the complex and asymmetrical aedeagus showed by the later genus (Bellés, 1988, 1991).

**Distribution**

Northeastern South America (Venezuela and Brazil), Caribbean islands (Greater and Lesser Antilles) and Florida peninsula.

**Etymology**

Dedicated to Gonzalo Fernández de Oviedo (Madrid, Spain, 1478-Santo Domingo, Hispaniola, 1557), author of the «*Sumario de la natural y general historia de las Indias*» (1526) and «*Historia general y natural de las Indias*» (1535), which contain the first systematic accounts on the natural history of the New World.

**CATALOGUE OF SPECIES**

*Oviedinus semiobscurus* (Pic, 1896), **comb. n.**

*Ptinus semiobscurus* Pic, 1896  
*Ptinus semiobscurus* Pic. Pic, 1899  
*Ptinus semiobscurus* Pic. Bellés, 1986

This species was described and diagnosed by PIC (1896, 1899), and revised and figured by BELLÉS (1986) including the description of the aedeagus. It is only known from the Serra da Communaty, in Pernambuco (Brazil).

*Oviedinus latus* (Pic, 1896), **comb. n.**

*Ptinus latus* Pic, 1896  
*Ptinus latus* Pic. Pic, 1899  
*Ptinus latus* Pic. Bellés, 1986

Species briefly defined and diagnosed by PIC (1896, 1899), and revised and figured by BELLÉS (1986). It is known only from a single specimen collected at Bahia (Brazil).

*Oviedinus tesellatus* (Gorham, 1898), **comb. n.**

*Ptinus tesellatus* Gorham, 1898  
*Ptinus tesellatus* Gorham. Bellés, 1986

*O. tesellatus* was briefly described and figured by GORHAM (1898), and revised by BELLÉS (1986). It is endemic from Moustique Island, close to Grenada (Lesser Antilles).

*Oviedinus strangulatus* (Fall, 1905), **comb. n.**

*Ptinus strangulatus* Fall, 1905  
*Ptinus strangulatus* Fall. Papp, 1962

This species was thoroughly described by FALL (1905). Although it presents the
typical features that characterized the «Ptinus semiobscurus group» (like the well delimited transversal groove in the posterior part of the prothorax, and the fusion of the first three ventrites), it was overlooked in the synopsis by BELLÉS (1986), which was focused on Antillean and South American fauna. The type specimens are from Miami and Key Largo (Florida, USA). In addition to a paratype from Miami, the author has studied fresh material from a forest in the Deering Estate Park, Dade Co, South Miami, Florida (USA), (1-VI/25-VIII-1986, S. & J. Peck leg.).

Oviedinus dufaui (Pic, 1906), comb. n.

Ptinus dufaui Pic, 1906
Ptinus dufaui Pic. Lepesme, 1947
Ptinus dufaui Pic. Bellés, 1986

This species was briefly defined by PIC (1906), and revised and figured by LEPESME (1947) and BELLÉS (1986) who included the description of the aedeagus. It is known from the locality of Trois Rivières, in the Island of Guadalupe (Lesser Antilles).

Oviedinus angustithorax (Bellés, 1986), comb. n.

Ptinus angustithorax Bellés, 1986

O. angustithorax was described, diagnosed and figured by BELLÉS (1986). It is known from Venezuela, from the localities of La Yagua (Cojedes) and Cata (Aragua).

Oviedinus espanyoli (Bellés, 1997), comb. n.

Ptinus espanyoli Bellés, 1997

This species was described, diagnosed and figured by BELLÉS (1997). It is only known from the locality of Duncans, in Jamaica (Greater Antilles).

Oviedinus hispaniolensis sp. n.

Type material. Holotype: a female in amber from the Dominican Republic, in Hispaniola island (Greater Antilles) (X.B. collection).

Description (Fig. 5)

Length 2.1 mm. Color uniformly dark brown. Eyes very convex, semispherical; antennae robust and short, shorter than half the length of the body. Pronotum somewhat longer than wide, with the granulations flat but well apparent; disc very convex, forming a sort of hunch; sides rounded and neatly protuberant; posterior constriction consisting of a narrow, but well marked groove. Elytra long, almost 2 times longer than wide; elytral sides subparallel; punctures narrow and long, densely aligned in rows; setae inserted in each puncture yellow, recumbent and short, only somewhat longer than the length of the puncture; setae inserted between puncture rows yellow, suberect and long, 3 times as long as those inserted in the punctures. First three ventrites fused, with the suture line practically obsolete at middle.

Discussion

The structure of the pronotum with the constriction consisting of a narrow groove and the sides rounded and neatly protuberant, as well as the relatively short antennae, shorter than half the length of the body, relates O. hispaniolensis with O. tesellatus and O. dufau, and neatly distinguishes it from O. semiobscurus, O. strangulatus, O. latus, O. angustithorax and O. espanyoli, which have the posterior constriction of the pronotum consisting of a large groove, and the antennae longer than 3/4 the length of the body.
The more protuberant sides of the pronotum and the antennae with almost all segments subcylindrical, distinguishes *O. hispaniolensis* from *O. tesellatus*, which has the sides of the pronotum less protuberant and the antennae with the segments pedunculate. The very narrow groove of the posterior constriction of the pronotum and the morphology of the elytra, with subparallel sides, distinguishes *O. hispaniolensis* from *O. dufau*, which has the groove of the posterior constriction of the pronotum somewhat larger in the middle, and the elytra with the sides rounded, at least in the female.

**Etymology**

Name derived from Hispaniola island, where the type was found.

**KEY OF SPECIES IDENTIFICATION**

1. Posterior transversal groove of the pronotum narrow (Figs. 6, 7). Antennae short, shorter than 3/4 the length of the body (Figs. 5-7) ............................................................. 2

2. Posterior transversal groove of the pronotum wide (Figs. 1, 9-11). Antennae long, longer than 3/4 the length of the body (Fig. 1) ............................................................. 4
Antennae robust, the female with all segments pedunculated. Posterior transversal groove of the pronotum quite superficial at middle. Sides of the pronotum not very prominent, scarcely surpassing the convexity of the eyes (Fig. 6) ..........................................................  
.......................................................................................................................... O. tesellatus (Gorham)

- Antennae slender, the female with all segments subcylindrical. Posterior transversal groove of the pronotum deep at middle. Sides of the pronotum quite prominent, clearly surpassing the convexity of the eyes (Figs. 5, 7) ................................................. 3

3 Posterior transversal groove of the pronotum very narrow at middle. Elytra of the female with the sides subparallel (Fig. 5) ......................... O. hispaniolensis sp. n.

- Posterior transversal groove of the pronotum relatively wide at middle. Elytra of the female with the sides rounded (Fig. 7) ......................... O. dufaui (Pic)

4 Elytra short (1.5 times longer than wide) and oval. Pronotum with a discal protuberance quite convex, which partially conceal the posterior transversal groove (Fig. 8). .......................................................... O. latus (Pic)

- Elytra long (more than 1.5 times longer than wide) and subparallel (Fig. 1). Prono-
tum with a discal protuberance less convex, not concealing the posterior transversal
groove (Figs. 9-11). ................................................................. 5

5 Color reddish brown. Eyes of the female very convex, semispherical. Pronotum
transverse, with the surface covered with granulations of big size, and with the pos-
terior transversal groove not very deep (Fig. 9). .................... O. semiobscurus (Pic)

– Color dark brown. Eyes of the female not very convex, in dorsal view slightly sur-
passing the curvature of the head. Pronotum longer than wide, with the surface cov-
ered with granulations of smaller size, and with the posterior transversal groove
deply excavated (Figs. 1, 10-11). ............................................. 6

6 Pronotum with the sides very prominent, like lateral hunches, and with the posterior
transversal groove very large (Fig. 10) .................................. O. espanyoli (Bellés)

– Pronotum not forming lateral hunches, and with the posterior transversal groove nar-
orwer (Figs. 1, 11) ................................................................. 7

7 Sides of the pronotum regularly rounded and with a pubescence formed by long and
convergent setae; granulations of the disc not well delimited (Fig. 1). Setae inserted
between the elytral puncture rows long, approximately 3 times longer than the space
between the puncture rows (Fig. 1) ................................. O. angustithorax (Bellés)

– Sides of the pronotum enlarged towards the posterior transversal groove and with
a pubescence formed by shorter and scattered setae; granulations of the disc well
delimited (Fig. 11). Setae inserted between the elytral puncture rows shorter, approxi-
mately 2 times longer than the space between the puncture rows ................................. O. strangulatus (Fall)

BIOGEOGRAPHICAL REMARKS

Our data indicates that the distribution of the genus *Oviedinus* comprises the Carib-
bean Islands and adjacent continental land, Venezuela and Brazil in South America, and
Florida peninsula in North America. However, the genus must probably be more spread
in the area (data are lacking from many Antillean islands and from Central America, for
example).

The paucity of data, especially the lack of information on the possible presence of
*Oviedinus* in critical regions, like Mexico and the Central America region, for example,
makes premature a thorough phylogenetical analysis. However, the distribution presently
known, including the fossil species from Dominican amber (which affords singularly pre-
cise colonization data) and the paleogeography of the Caribbean region, allow to propose
at least preliminary hypotheses about the biogeographical history of the new genus.

The plate tectonics and the paleogeography of the Caribbean area is far from sim-
ple, as suggested by the discrepant theories of different contributions addressed to re-
construct it, like the classical papers of ROSEN (1975, 1985), who combine geological
and biological data; the classical reviews of STEHLI & WEBB (1985) and DONNELLY
(1988); and the more recent syntheses of ITURREALDE-VINENT & MACPHEE (1999),
MESCHEDE & FRISCH (2001) and RAO (2008). Very briefly, it seems that from the
Jurassic to the end of the Tertiary, the two Americas were separated, although there are
evidences that suggest that there were arcs of islands from volcanic origin that connected
the two subcontinents around the end of the Cretaceous and the Paleogene. From the
Miocene onwards, the link of both Americas became progressively continuous and cul-
minated with the definitive consolidation of the Isthmus of Panama around the Pliocene.
Concerning the Greater Antilles, they apparently originated from a Cretaceous inter-American volcanic arc, which would had fragmented and derived towards the northwest, and neared their present location around the Miocene.

According to the known distribution and relationships of *Oviedinus* species, the most parsimonious hypothesis is that the genus originated in Northern South America, where the greatest specific diversity is presently found, including the very peculiar species *O. latus*, with unusual wide and convex elytra and pronotum, species with wide pronotal groove and long antennae, like *O. angustithorax*, and species with narrow pronotal groove and short antennae, like *O. dufaui*, in the island of Guadalupe, close to Venezuela. Thereafter, the *Oviedinus* ancestors would have spread in the Caribbean insular dominion by stepping stone progressive colonization of the different islands. Considering that Dominican amber was formed during the late Early Miocene through early Middle Miocene (ITURRALDE-VINENT & MACPHEE, 1996), the fossil *O. hispaniolensis* tells us that *Oviedinus* ancestors had colonized Hispaniola 15 to 20 million years ago. Jamaica was largely submerged in early mid-Tertiary and only became partially emergent, and thus available for terrestrial colonization, in the early Miocene, nearly 20 million years ago (DONNELLY, 1988; PECK, 1998). Therefore, the ancestors of *O. espanyoli* should have reached Jamaica after this date, possibly from adjacent Great Antilles islands. The case of *O. strangulatus* raises the question of whether the ancestors of it reached Florida by land, through the Isthmus of Panama from the Pliocene, or from adjacent Caribbean islands following the stepping stone process initiated in Northern South America. Unfortunately, there is no data of *Oviedinus* from Mexico and other areas of Central and North America that would help to illuminate this issue. However, the close morphological similarity of *O. strangulatus* with the species of Venezuela and adjacent islands, notably with *O. angustithorax*, suggests that the first hypothesis, considering a terrestrial dispersion through the Panama isthmus consolidated in the Pliocene, some 3 million years ago, is more plausible. The alternative hypothesis contemplating the colonization of Florida from Cuba or Hispaniola from the Miocene, some 20 million years ago, in the context of the general stepping stone process of colonization of the Caribbean, would had probably led to a greater divergence of *O. strangulatus* with respect to the Venezuelan species, and to closer resemblances with the Greater Antilles species, which is not the case.

**FOSSIL PTINIDS**

The discovery of *O. hispaniolensis* is interesting from a paleontological point of view because fossil ptinids are rare, even in amber inclusions. For example, in Baltic amber, which has been thoroughly studied (LARSSON, 1978; POINAR, 1992; POINAR & POINAR, 1999), beetles belonging to Ptinidae are comparatively rare, representing only 0.4% of the total beetles recorded in museums (HIEKE & PIETRZENIUK, 1984). This is not surprising because ptinids are mainly scavengers and there are few forest species, and even less truly xylophagous. The only recorded exception is *Ptinus* (*Pseudoptinus*) *lichenum* Marsham, 1802, which is able to bore extensive galleries in *Juniperus* trees (BELLÉS, 1980). Until now, only three ptinid species had been previously described from amber: *Sucinoptinus sucini* Bellés & Vitali (2007) and *Ptinus* (*Gynopterus*) *inclusus* Bellés & Vitali (2007), from Baltic provenance, and *Electrognostus intermedius* Philips and Mynhardt (2011), from Dominican amber. The oldest citation of fossil ptinids corresponds to Berendt (1845), who mentioned *Ptinus* sp. from Baltic amber (see LARSSON, 1978). Larsson (1978) also mentions that the classical entomologist Edmond Reitter had seen 3 *Niptus* sp. and 16 *Ptinus* sp. in the Klebs collection of the Baltic amber of eastern Prussia.
Thereafter, most of the references refer to Baltic amber and identify the beetle simply at Ptinidae family level (BACHOFEN-ECHT, 1949; HANDLIRSC, 1906-08; HELM, 1886, 1896; KATINAS, 1971; KLEBS, 1889; LARSSON, 1965, 1978; MENGE, 1856; POINAR, 1992; SPAHR, 1981; WILLIAMSON, 1932). In other cases it is mentioned the genus *Ptinus*, without further specific identification (ABDULLAH & ABDULLAH, 1967; BACHOFEN-ECHT, 1949; BERENDT, 1845; GIEBEL, 1852, 1856a, 1856b; HANDLIRSC, 1906-08; KLEBS, 1910; LARSSON, 1978; SCUDDER, 1885, 1886, 1891; SPAHR, 1981; POINAR, 1992). Finally, other ptinid samples have been identified as belonging to the genus *Niptus* (ABDULLAH & ABDULLAH, 1967; BACHOFEN-ECHT, 1949; KLEBS, 1910; LARSSON, 1978; SPAHR, 1981; POINAR, 1992). Concerning to Dominican amber, there are few published records of ptinids. The first reference to the family corresponds to POINAR (1992), without going farther in the taxonomic identification, and the family Ptinidae is mentioned again in POINAR & POINAR (1999).

Concerning conventional stone fossils, MADDY et al. (1994) and FIELD et al. (2000) have reported unclassified *Ptinus* sp. from Middle Pleistocene deposits in England and France, respectively, although the taxonomic status of these «*Ptinus*» is uncertain, given the ambiguity of the fossil remains. A peculiar case has been reported by SPILMAN (1976), who described a new species, *Ptinus priminidi* Spilman, 1976 as a subfossil ptinid from Late Pleistocene rat nests found in middle and late Wisconsin middens from the Whipple Mountains of California, and the Artillery and Kofa Mountains of Arizona (SPILMAN, 1976). This species has been also found in a late Holocene (1910 yr B.P.) desert scrub midden from the Puerto Blanco Mountains (HALL et al., 1988). Similarly ancient «fossil» *Ptinus* have been identified from fossil packrat middens from Sonoran Desert, Mexico (HALL et al., 1988). *P. priminidi* challenges the concept of fossil, as discussed by its author (SPILMAN, 1976), while raises the possibility that it is a still existing species.

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REFERENCES


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