

**List of the Arsenurinae of Peru with taxonomic notes on
Titaea raveni (JOHNSON & MICHENER, 1948) stat. rev.
and *Paradaemonia castanea* (ROTHSCHILD, 1907) stat. rev.
(Lepidoptera: Saturniidae)**

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Abstract: A list of thirty-one species of Arsenurinae with records for each department in Peru is given. Taxonomic notes for *Titaea raveni* stat. rev. and *Paradaemonia castanea* stat. rev. are reported and their status revised.

Zusammenfassung: Es werden Funddaten von 31 Arten der Arsenurinae aus den einzelnen Bezirken von Peru vorgelegt. Der taxonomische Status von *Titaea raveni* stat. rev. und von *Paradaemonia castanea* stat. rev. wird diskutiert und neu festgelegt.

Key words: Lepidoptera, Saturniidae, Arsenurinae, Peru, *Titaea raveni* stat. rev., *Paradaemonia castanea* stat. rev., list, distributional record.

Introduction

The most detailed account regarding the distribution of the species of Arsenurinae in Peru may be found in the revision of this subfamily by LEMAIRE (1980). In the recent past, further distributional data have been summarized in a series of papers on Peruvian Saturniids (LAMAS 1989, 1997; RACHELI & CALLEGARI 1996, 1997; RACHELI & RACHELI 2005).

According to the available records from literature, this paper deals with a summary of information regarding the distribution of 31 species of Arsenurinae recorded for this country. Furthermore, new records for some departments of Peru based on material examined in private and public collections are given.

Taxonomic notes for two species of Arsenurinae, namely *Titaea raveni* and *Paradaemonia castanea*, are reported and their status revised. Other than the taxonomic notes for these two latter species, all the remaining species are listed according to the arrangement proposed by LEMAIRE (1996) or they are listed according to their original status (i.e. that used in their original descriptions) although some of them need further investigations.

Abbreviations and format for species account

CLRR - collection Luigi Racheli, Rome, Italy.

CRVP - collection Roberto Vinciguerra, Palermo, Italy.

MHNJP - Museo de Historia Natural "Javier Prado", Lima, Peru.

MNHN - Muséum National d'Histoire Naturelle, Paris, France.

Each record under "Distribution" refers to the record for each department. Most of these records are those reported by LEMAIRE (1980) or in other papers on Peruvian Saturniids cited in the introduction. The remaining are new records. Additional notes for these records, general information, or notes on the distribution are reported under "Remarks" The symbol "?" refers to doubtful records based on old and/or unverified records.

Genus *Arsenura* DUNCAN, 1841

Arsenura armida (CRAMER, 1779)

Distribution: Amazonas, Loreto, San Martín, Huánuco, Pasco, Junín, Cuzco, Madre de Diós, Puno.

Arsenura mossi JORDAN, 1922

Distribution: Amazonas, Loreto, Ucayali, Pasco, Madre de Diós, Cuzco.

Arsenura ciocolatina DRAUDT, 1930

Distribution: Loreto, Huánuco, Junín, Madre de Diós, Cuzco.

Arsenura delormei BOUVIER, 1929

Distribution: Junín, Madre de Diós, Cuzco, Puno.

Arsenura albopicta JORDAN, 1922

Distribution: Amazonas, Loreto, Junín, Huánuco, Madre de Diós, Cuzco.

Arsenura rebeli GSCHWANDNER, 1920

Distribution: Amazonas, Junín, Huánuco, Cuzco, Puno.

Arsenura sylla sylla (CRAMER, 1779)

Distribution: Loreto, Madre de Diós.

Arsenura thomsoni lemairei RACHELI & RACHELI, 1998

Distribution: Loreto, Cuzco, Madre de Diós.

Remarks: A male of this species labelled, Peru, Cuzco, Parque Manu, Rio San Pedro á Pillahuata, 1200/2500 m, XII.1998, was examined in the collection of C. LEMAIRE (MNHN). Although the data on this label is doubtful, and this species does not occur at this altitude but only at low elevations, its presence in the department of Cuzco was expected.

Arsenura batesii batesii (FELDER & ROGENHOFER, 1874)

Distribution: Amazonas, Loreto, Junín, Cuzco, Madre de Diós, Puno.

Arsenura ponderosa ponderosa ROTHSCHILD, 1895

Distribution: Amazonas, Loreto, Huánuco, Junín, ?Cuzco, Madre de Diós.

Remarks: The following records are based on material examined in the collection of C. LEMAIRE (MNHN): 1 male, Peru, Loreto, Yurimaguas, 300 m, VII.1998; 4 males, Peru, Madre de Dios, Rio Alto, Rio Madre de Diós, 650 m, amount of Salvacion, V/VI.1999; 4 males, Peru, Madre de Diós, Parque Manu, Rio Carbon, Camichana Chico, 800/1000 m, IV-V.1999; 1 male, Peru, Amazonas, Muyo, Oliva.

Arsenura cymonia (ROTHSCHILD, 1907)

Distribution: Cajamarca, Junín, Huánuco, Cuzco, Puno.

Genus *Caio* TRAVASSOS & NORONHA, 1968

Caio harrietae (FORBES, 1944)

Distribution: Piura, Lambayeque, ?San Martín.

Remarks: A male of this species labelled, Juanjui, San Martín, Peru, 1933, has been examined in MNHN. More detail on this record are needed to have an idea about the reliability of the data of this specimen. Given that this specimen is from a site located in an area where this species was never found, I consulted some papers regarding the entomological collections in Peru and the collectors of Lepidoptera in this country (e.g. LAMAS 1981). According to this author (LAMAS 1981: 28), it is possible that this specimen is from the collection of P. F. MARTIN (in MNHN) who received material collected by PEÑA-MEZA from Juanjui, San Martín, during 1933-1934. It is obvious that the true location where this specimen was collected is unknown and the presence of this species in the department of San Martín must be confirmed.

Dysdaemonia boreas (CRAMER, 1775)

Distribution: Cajamarca, Amazonas, Loreto, Junin, Huánuco, Cuzco, Madre de Diós, Puno.

Genus *Titaea* HÜBNER, [1823]

Titaea tamerlan amazonensis LEMAIRE, 1980

Distribution: Amazonas, Loreto, Huánuco, Pasco, Cuzco, Madre de Diós, Puno.

Titaea raveni (JOHNSON & MICHENER, 1948) **stat. rev.**

Distribution: Tumbes, Piura, La Libertad.

Remarks: Two males and one female labelled, Peru, Tumbes, El Caucho, 800 m, III.2001, have been examined in the collection of C. LEMAIRE (in MNHN). A female labelled Peru, La Libertad, Hacienda Llaguén, 15.III.46, C. PRENTICE leg., has been examined in MHNJP.

Taxonomic notes: According to LEMAIRE (1980, see also LEMAIRE & VENEDICTOFF 1989), the range of *guayaquila* (SCHAUS, 1932) extends from western Ecuador to northwestern Peru in arid and semi-arid areas. In his revision of Arsenurinae, LEMAIRE (1980, see also LEMAIRE 1996) treated the taxon *raveni* from northwestern Peru, as a junior synonym of *guayaquila*. The same author (LEMAIRE 1980) figured specimens (male and female) from Manabí province (western Ecuador) which fit the female holotype of *guayaquila* figured by OITICICA-FILHO (1957). In contrast, the male specimen of *guayaquila* figured by LEMAIRE (1980) does not fit the male holotype of *raveni* figured by JOHNSON & MICHENER (1948).

LEMAIRE (1980) pointed out that the taxon *guayaquila* is very variable and that *raveni* is only a form, hence a synonym of *guayaquila*. In recent times, we have had the opportunity to examine specimens of *guayaquila* from western Ecuador and specimens from northwestern Peru. Furthermore, additional information about specimens from both areas have been obtained from KIRBY WOLFE (pers. comm.) who collected and also reared specimens of both populations. According to KIRBY WOLFE (pers. comm.), these two populations from western Ecuador and from northwestern Peru do not show differences in the male genitalia and in the preimaginal instars but they differ in some features of the external morphology (in the shape of the wings and in their ground colours). Furthermore, some differences, comparing male specimens, have been also noticed in the male antennae. Indeed, the Peruvian specimens show broader antennae if compared with those of specimens from western Ecuador. This comparison has been based on a total of twelve male specimens from northern Peru, and a total of twenty-three male specimens from western Ecuador (in the collection of Claude LEMAIRE, in MNHN; in CLRR; in CRVP).

As pointed out by LEMAIRE (1980), *guayaquila* seems to be a small *nobilis* (SCHAUS, 1912) with darker ground colour characterized by the presence of marked basal and submarginal brownish lines in the forewing. Although the colouration of both wings in *nobilis* is very variable, the differences outlined by LEMAIRE (1980) are clearly evident when comparing specimens of *nobilis* and *guayaquila* from western Ecuador. In contrast, specimens from northwestern Peru (i.e. *raveni*) show always a greyish ground colour, they are larger if compared with *guayaquila* and they have always an irregular shape of the margin mainly on the forewing with a series of triangular brown-black points in the submarginal area. According to KIRBY WOLFE (pers. comm.), these two taxa have never been found sympatric. These two taxa are hereby considered two different species according to the differences outlined above.

Titaea lemoulti (SCHAUS, 1905)

Distribution: Amazonas, Loreto, Madre de Diós, Puno, Cuzco.

Titaea timur (FASSL, 1915)

Distribution: Amazonas, Loreto, Huánuco.

Rhescyntis hippodamia hippodamia (CRAMER, 1777)

Distribution: Amazonas, Loreto, Huánuco, Junín, Madre de Diós, Cuzco.

Remarks: LAMAS (1997) reported *R. h. colombiana* BOUVIER, 1927 for the department of Amazonas. This record needs confirmation.

Rhescyntis hermes (ROTHSCHILD, 1907)

Distribution: Amazonas, Loreto, Madre de Diós.

Genus *Parademonia* BOUVIER, 1925

Paradaemonia gravis (JORDAN, 1922)

Distribution: Loreto.

Parademonia terrena susannae RACHELI, 1995

Distribution: Loreto.

Parademonia platydesmia (ROTHSCHILD, 1907)

Distribution: Amazonas, Loreto, Junín, Puno, Madre de Diós.

Remarks: Two males of this species labelled, Peru, Amazonas, Oliva, Muyo, IV-V.1999, were examined in the collection of C. LEMAIRE (MNHN).

Paradaemonia castanea (ROTHSCHILD, 1907) **stat. rev.**

Distribution: Junín.

Remarks: Only two males specimens are here assigned to this species (see below).

Taxonomic notes: In brief, a chronological list of the events which involved *P. platydesmia* and *P. castanea* is given here. ROTHSCCHILD (1907) described both *platydesmia* and *castanea* from Peru and Costa Rica, respectively. *Paradaemonia castanea* has been described on two females only. In his revision, LEMAIRE (1980) assigned the name *castanea* to these two females from Costa Rica and to the population from SE Brazil. Later on, LEMAIRE & VENEDICTOFF (1989) treated *castanea* as a synonym of *platydesmia* based on information on recent specimens collected in Costa Rica. Indeed both *platydesmia* and *castanea* resulted to be sympatric in this country. More recently, D'ABRERA (1995) treated *castanea* as a valid species but, one year later, LEMAIRE (1996) re-considered *castanea* as a synonym of *platydesmia*. In this context, the population from SE Brazil remains undescribed but it will be described soon (E. FURTADO & C.G.C. MIELKE, pers. comm.).

The type female of *castanea* has been figured by D'ABRERA (1995) and other specimens (here tentatively assigned to *castanea*) from Costa Rica can be found on the web-site

(<http://janzen.sas.uppen.edu/caterpillar/checklists/saturniidaelist.htm>).

According to these information, and having available two male specimens from Peru (Junín, Chanchamayo, Puente S. Felix, 1100 m, 14.I.1996, M. CALLEGARI leg., in CLRR) which fit the specimens on the web-site and the type female from Costa Rica, this problematic issue becomes clearer. Excluding the basic differences in the external morphology (the two male specimens from Peru are larger and they show a brownish red ground colour if compared with typical *platydesmia*), the dissection of these two specimens and related comparisons with typical males of *platydesmia* from Ecuador, Peru, Brazil, Bolivia and French Guyana revealed some differences also in the structure of the male genitalia. Indeed, the male genitalia of the two Peruvian specimens from Chanchamayo differ from those of *platydesmia* in having a minor difference in the shape of the uncus, a different shape of the harpe at its base, and in a lateral view some differences are detected also in the shape of the saccus. According to the information summarized above, *Paradaemonia castanea* is a valid species and not a synonym of *platydesmia* as stated by LEMAIRE & VENEDICTOFF (1989) and LEMAIRE (1996). According to this new arrangement of *P. castanea*, only the specimens from Costa Rica and Peru are assigned to this species whereas the specimens from southeastern Brazil belong to another new species as reported above (E. FURTADO & C.G.C. MIELKE, pers. comm.)

Finally, the new species of *Paradaemonia* described by MIELKE & FURTADO (2005) from Maranhão, Brazil, is allied to *P. castanea*.

Parademonia ruschii MAY & OITICICA, 1943

Distribution: Loreto.

Parademonia samba (SCHAUS, 1906)

Distribution: Amazonas, Loreto, Junín, Huánuco, Cuzco.

Remarks: The following specimens were examined in the collection of C. LEMAIRE (MNHN): one male, Peru, Cuzco, Patria, Parque Manu, 800/1000 m, VI-VII.1999; one male, Peru, Amazonas, Aguas Nigras, 1200 m, X.1999.

Parademonia nycteris (JORDAN, 1922)

Distribution: Loreto, Huánuco, Cuzco, Madre de Diós.

Remarks: One male labelled Peru, Cuzco, Nat. Parque Manu, Chontacharca, 800-1200 m, I.1999, was examined in the collection of C. LEMAIRE (in MNHN).

Paradaemonia andensis (ROTHSCHILD, 1907)

Distribution: Puno.

Genus *Copiopteryx* DUNCAN, 1841

Copiopteryx semiramis semiramis (CRAMER, 1775)

Distribution: Amazonas, Loreto, Huánuco, Junín, Madre de Diós.

Copiopteryx jehovah (STRECKER, 1874)

Distribution: Amazonas, Loreto, Huánuco, Junín, Cuzco, Madre de Diós, Puno.

Genus *Loxolomia* MAASSEN, 1869

Loxolomia johnsoni SCHAUS, 1932

Distribution: Amazonas, Loreto, Huánuco, Pasco, Junín, Madre de Diós.

Genus *Grammopelta* ROTHSCHILD, 1907

Grammopelta lineata (SCHAUS, 1906)

Distribution: Loreto, Madre de Diós, Puno, Pasco.

Remarks: One female of this species labelled, Peru, PA, Cerro Jonatan, 700 m, 16.VII.1992, P. HOCKING leg., has been examined in MHNJP.

Conclusion

The present inventory is a summary of information concerning the distribution of species of Arsenurinae in the departments of Peru. Given that the field expeditions to unexplored areas in Peru are increasing, further range extensions for some species is expected. The new records for Peru reported by RACHELI & CALLEGARI (1996, 1997) for two species of *Paradaemonia* inasmuch as the discovery of a new taxon of this genus (RACHELI 1995) in the department of Loreto are two examples of the incomplete information regarding the species of this subfamily in Peru. Two other species, namely *Caio championi* (DRUCE, 1886) and *Titaea guayaquila*, could be added to the fauna of this country given the known records near the Peruvian border.

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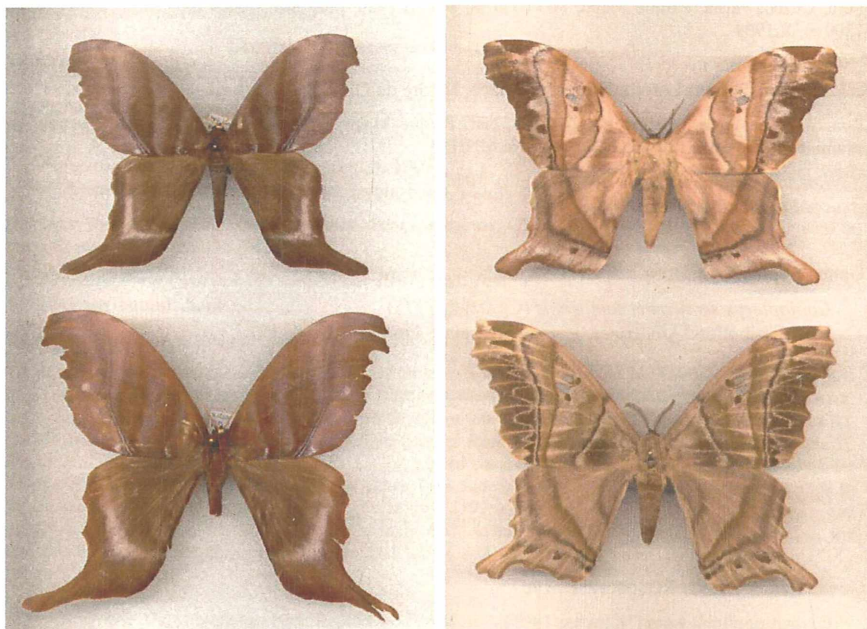


Fig. 1 (left): Above, *Titaea tamerlan guayaquila* (SCHAUS, 1932), Ecuador, Manabí prov. Below, *Titaea raveni* (JOHNSON & MICHENER, 1948) *stat. rev.*, N Peru, Piura. Both specimens in CLRR.

Fig. 2 (right): Above, *Paradaemonia platydesmia* (ROTHSCHILD, 1907), Peru, Loreto. Below, *Paradaemonia castanea* (ROTHSCHILD, 1907) *stat. rev.*, Peru, Junín, Chanchamayo. Both specimens in CLRR.

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