

Species of the Tribe Lamiini (Coleoptera: Cerambycidae) from the Reserva Biológica Alberto Manuel Brenes, San Ramón, Costa Rica

J. R. Esteban-Duran^{1*}, A. H. Salazar-Rodriguez², M. Gonzalez-Nuñez¹,
P. del Estal-Padillo³ and L. Castresana-Estrada⁴

¹ Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA). Madrid, Spain

² Universidad de Costa Rica (UCR). Tacares de Grecia. Costa Rica

³ Escuela Técnica Superior de Ingenieros Agrónomos. Universidad Politécnica de Madrid (UPM). Madrid, Spain

⁴ Escuela Técnica Superior de Ingenieros de Montes. Universidad Politécnica de Madrid (UPM). Madrid, Spain

Abstract

The knowledge of present species in protected areas has a great interest in order to estimate their biodiversity. In this work, we collected samples of the tribe Lamiini (Coleoptera: Cerambycidae) in the Reserva Biológica Alberto Manuel Brenes, San Ramón, Costa Rica. Eleven species of Lamiini were identified: *Plagiohammus albatu*s, *Plagiohammus elatus*, *Plagiohammus emanon*, *Plagiohammus rubefactus*, *Plagiohammus spinipennis*, *Deliathis nivea*, *Deliathis quadritaeniator*, *Neoptychodes cretatus*, *Ptychodes politus lecontei*, *Taeniotes praeclarus*, *Taeniotes scalatus* and *Taeniotes xanthostictus*. Two of these (*P. albatu*s and *P. elatus*) are new for the studied area. Figures, descriptions, collection dates and their abundance level are provided from each identified species.

Additional key words: biodiversity; Lamiinae; taxonomy.

Resumen

Especies de la tribu Lamiini (Coleoptera, Cerambycidae) de la Reserva Biológica Alberto Manuel Brenes, San Ramón, Costa Rica

El conocimiento de las especies de insectos existentes en zonas protegidas es de enorme interés para cuantificar su biodiversidad. En este trabajo se presentan las once especies de la tribu Lamiini (Coleoptera: Cerambycidae) registradas en la Reserva Biológica Alberto Manuel Brenes (San Ramón, Costa Rica): *Plagiohammus albatu*s, *Plagiohammus elatus*, *Plagiohammus emanon*, *Plagiohammus rubefactus*, *Plagiohammus spinipennis*, *Deliathis nivea*, *Deliathis quadritaeniator*, *Neoptychodes cretatus*, *Ptychodes politus lecontei*, *Taeniotes praeclarus*, *Taeniotes scalatus* y *Taeniotes xanthostictus*. Dos de ellas (*P. albatu*s y *P. elatus*) son nuevas citas para la zona estudiada. De todas las especies identificadas se aportan figuras, datos descriptivos, registros de capturas y nivel de abundancia.

Palabras clave adicionales: biodiversidad; Lamiinae; taxonomía.

Introduction

The Tribe Lamiini (Monné, 2005; Monné and Hovore, 2006) consists of more than 106 species that have been described all over the world and is of great taxonomic importance due to the economic effect that some of these species may have on forest areas, as well as for its origins in South East Asia and Polynesia and its development and distribution in the Western Hemisphere.

All of these characteristics make it one of the most enigmatic tribes of the subfamily Lamiinae (Coleoptera: Cerambycidae). Nineteen different species of Lamiini have been found to date in Costa Rica (Hovore, 2002), a figure which represents almost 3% of the world's total.

Some 90 articles have been published on arthropods at the *Reserva Biológica Alberto Manuel Brenes*, of which just two (Eya and Chemsak, 2003a,b; Toledo and Esteban-Duran, 2008) deal with the Cerambycidae family.

Between March and December 2003, a series of entomological studies were carried in Costa Rica, supported by the *Universidad de Costa Rica* (UCR), the *Insti-*

* Corresponding author: esteban@inia.es
Received: 12-02-10; Accepted: 28-10-10.

tuto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA) of Spain, the *Escuela Técnica Superior de Ingenieros Agrónomos de la Universidad Politécnica de Madrid* (UPM), and the *Agencia Española de Cooperación Internacional* (AECI). Just recently budgetary support from the INIA for a project covering all of 2007, 2008, and 2009 has been confirmed.

The main objective of this work was to detect the presence of the Lamiini species in the study area, as well as identifying them, describing their flight periods and their abundance level. All identified species are contrasted with records from the *Instituto Nacional de Biodiversidad de Costa Rica* (INBio). Since 1999, INBio is a recognized institution by the Co-misión Centroamericana de Ambiente y Desarrollo (CCAD), as a regional advisor on biodiversity.

Material and methods

Description of the area of study

The *Reserva Biológica Alberto Manuel Brenes* is located in Costa Rica, Sierra de Tilarán, between the district of Los Ángeles of San Ramón canton in Alajuela province and the *La Unión de Montes de Oro* district of Puntarenas province (Salazar-Rodríguez, 2006).

The prospecting areas situated near the reserve's field station and near to the access road known as «La Ventana» were the only ones that allowed for a certain degree of accessibility and are situated 850 and 950 meters above sea level, respectively.

Capture, preservation and identification

The entomological inventory methods, used at the reserve since 2007 were applied to the present capture, preservation and identification. The specimens were collected directly from tree trunks and the walls of the field station as well as from the sheets of light traps baited with 250 and 450 Watts mercury vapor bulbs situated on five meters high vertical supports. Two further light traps with mercury vapor bulbs of 125 and 100 Watts were also used; they also had vertical white sheet-screens supported by bars set in the ground.

Once the insects had been collected they were killed in cork sawdust and humidified with ethyl acetate lethal chambers. They were then labeled and placed in

sealed plastic bags and were frozen to be later examined and preserved in the laboratory.

Results

The Lamiini subfamily of the Lamiinae includes various species from the genera *Monochamus* Dejean, 1821; *Goes* LeConte, 1852; *Microgoes* Casey, 1913; *Hebestola* Haldeman, 1847; *Plectodera* Dejean, 1837; *Mimolochus* Thomson, 1868; *Plagiohammus* Dillon & Dillon, 1941; and *Deliathis* Thomson, 1860, mainly distributed in North America and others such as *Taeniotes* Audinet-Serville, 1835; *Ptychodes* Audinet-Serville 1835; *Chyptodes* Dillon & Dillon, 1941; *Neoptychodes* Dillon & Dillon, 1941, and *Mengelotes* Dillon & Dillon, 1941, mainly found in tropical and subtropical areas.

The research in the *Reserva Biológica Alberto Manuel Brenes* allowed us to capture eleven distinct species of this tribe, whose relative abundance and temporal distribution will now be looked at. We also caught sight of another example of a species collected at *Parque Braulio Carrillo*.

Species collected

*Plagiohammus albatu*s (Bates, 1880).
Plagiohammus elatus (Bates, 1872).
Plagiohammus emanon Dillon & Dillon, 1941.
Plagiohammus rubefactus (Bates, 1870).
Plagiohammus spinipennis (Thomson, 1860).
Deliathis nivea Bates, 1869¹.
Deliathis quadritaeniator (White, 1846).
Neoptychodes cretatus (Bates, 1872).
Ptychodes politus lecontei (Thomson, 1856).
Taeniotes praeclarus (Bates, 1872).
Taeniotes scalatus (Gmelin, 1790).
Taeniotes xanthostictus (Bates, 1880).

Description, distribution and abundance of the species collected

*Plagiohammus albatu*s (Bates, 1880) (Fig. 1)

Three examples collected, 19 to 24 mm in length. Long in appearance and fairly robust. Subcylindrical

¹ Just one example seen, but not captured.



Figure 1. *Plagiohammus albatus* (Bates, 1880) male, total length, 25 mm; 1-V-2006. Reserva Biológica Alberto Manuel Brenes, San Ramón (light trap), José Esteban Durán col. (Colección José Esteban Durán INIA, Madrid).

with convex elytra, reddish brown in color speckled with fine conical blackish granulations more evident at the elytral base. Pronotum with spiny mid-lateral tubercles and with a small central hard patch amounting to a small black protuberance with a white patch in the center. Elytra with patches of almost pure white color spread in longitudinal lines that stand out against the reddish brown background. The ends of the elytra display a small dentiform expansion which does not amount to a real spine.

Recordings: (3 examples) 1-V-2006; 29-V-2006 (field station terrace, dim incandescent lights). José Esteban, 11-V-2007 (light trap) and Marco A. Zumbado.

Recorded period of flight: May.

Conservation category: rare species.

Comments: not recorded at the INBio.

Plagiohammus elatus (Bates, 1872) (Fig. 2a, b)

Two examples collected, 31-38 mm in length. Long robust looking body, subcylindrical and covered by a fine pubescence, clear reddish brown in color. Pronotum with a small whitish patch in the middle and another on the upper basal part of each side tubercle. Scutellum covered by a short fine pilosity, yellowish gray in color. Elytra ending in a spine and each one with four white fairly big maculas at the base, on the side, on the oblique area and the fourth one, rather smaller, at the apex. Furthermore, the elytra are speckled with other small



Figure 2. *Plagiohammus elatus* (Bates, 1872): a) male, total length, 31.2 mm; 22-IV-2006; b) female, total length, 38.9 mm; 23-IV-2006. Reserva Biológica Alberto Manuel Brenes, San Ramón (field station incandescent lights), José Esteban Durán col. (Colección José Esteban Durán INIA, Madrid).

white spots, between two and five on each one and irregularly distributed.

Recordings: (2 examples) 23-IV-2006; 1-V-2006 (inside field station, dim incandescent lights) José Esteban.

Recorded period of flight: April-May

Conservation category: rare species.

Comments: not registered at the INBio.

Plagiohammus emanon (Dillon & Dillon, 1941) (Fig. 3a, b)

Three examples collected, 29-33 mm in length. Long, solid looking subcylindrical body. Head with eyes marginated by a dense yellow pubescence. Brown pronotum with prominent, conical, acute, side tubercle. Elytra with five white, irregularly distributed patches and also some whitish specks. The mesosternal tubercle is conspicuous, rounded and sticks out and is one of the distinctive characteristics of the species.

Recordings: 15-V-2005; 18-V-2005; 21-IV-2006 (interior of field station, on walls and roofs, dim incandescent lights) José Esteban.

Recorded period of flight: April-May.

Conservation category: uncommon species.

Comments: 14 specimens recorded at INBio. These were collected between 1990 and 1994 at elevations

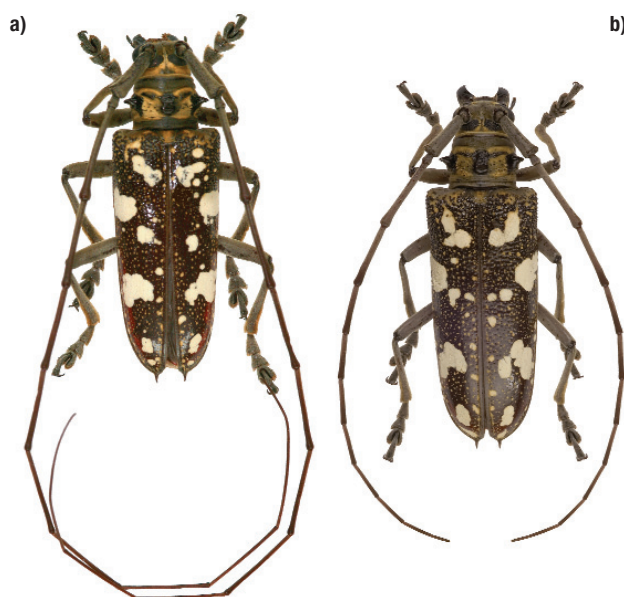


Figure 3. *Plagiohammus emanon* Dillon & Dillon, 1941: a) male, total length, 30.1 mm; 21-IV-2006; b) female, total length, 31.0 mm; 18-V-2005. Reserva Biológica Alberto Manuel Brenes, San Ramón (field station incandescents lights), José Esteban Durán col. (Colección José Esteban Durán INIA, Madrid).

ranging from 620 to 1,520 meters in the following regions: Upala, Estación Pitilla, Monteverde, Guacimal, Coto Brus, Turrialba and Arenal. Recorded period of flight runs from March to December with the greatest frequency between March and July (INBio, 2008).

Plagiohammus rubefactus (Bates, 1870) (Fig. 4)

Three examples collected. Length 30 mm. Long, subcylindrical body and of a more stylised general appearance than *P. emanon*. Each elytron with five or six large orangey brown patches which may be accompanied by similarly colored specks.

Recordings: 1-XII-2003, 18-II-2006, 21-II-2007 (interior of field station, on walls, dim incandescent lights) Marco A. Zumbado and José Esteban Durán.

Recorded period of flight: December-February.

Conservation category: rare species in the prospected area.

Comments: 12 specimens recorded at the INBio. These were collected between 1984 and 1993 in the following regions: Liberia, Monteverde, Turrialba, Braulio Carrillo, Talamanca, Coto Brus and Sarapiquí. The recorded period flight ranges from February to October (INBio, 2008).



Figure 4. *Plagiohammus rubefactus* (Bates, 1870) male, total length, 31.2 mm; 18-II-2006, Reserva Biológica Alberto Manuel Brenes, San Ramón (field station incandescents lights), José Esteban Durán col. (Colección José Esteban Durán INIA, Madrid).

Plagiohammus spinipennis (Thomson, 1860) (Fig. 5a, b)

Eight examples collected, 18-24 mm in length. Long, slim subcylindrical body with subconvex elytra. Reddish brown in color, many parts of body covered



Figure 5. *Plagiohammus spinipennis* (Thomson, 1860): a) male, total length, 22.3 mm; 24-V-2003, Reserva Biológica Alberto Manuel Brenes, San Ramón (Costa Rica) (UV light trap), José Esteban col. (Colección José Esteban Durán INIA, Madrid); b) female, total length, 21.8 mm; 21-IV-2006, Reserva Biológica Alberto Manuel Brenes, San Ramón (field station incandescents lights), Hugo Pérez col. (Colección José Esteban Durán INIA, Madrid).

by a very fine reddish grey pubescence. Its general appearance is similar to that of *P. albatrus* even if the white patches on the elytra are smaller and there is no clear round patch in the centre of the pronotum.

Recordings: 21-III-2003 (inside station, dim lights) Marco A. Zumbado col.; 24-V-2003 (UV light trap) José Esteban col.; 6-V-2005; 21-IV-2006; 31-IV-2006; 3-V-2006; 17-V-2006 (inside station, dim lights) Hugo Pérez col.; 8-VI-2007 (inside station, house dim lights) José Esteban col.

Recorded period of flight: March to June.

Conservation category: Fairly common species.

Comments: 94 specimens recorded at the INBio. They were collected at elevations ranging from 100 to 1,520 meters, between the years 1984 and 1994 in locations throughout the country.

The recorded period flight ranges from February to October with the greatest frequency between April and September (INBio, 2008).

Deliathis nivea (Bates, 1869) (Fig. 6)

A single example seen in May 2005 and a single example of this species collected in Parque Braulio Carrillo with a portable light trap on May 11th 2005.

Length 31 mm. Unmistakable appearance. Shiny black overall tegument color with a very dense covering of pubescence on the pronotum and elytra except in specific spotted areas where the shiny black color is



Figure 6. *Deliathis nivea* Bates, 1869, single example collected from Parque Braulio Carrillo, 11-V-2005, portable light trap, José Esteban Durán col. (Colección José Esteban Durán INIA, Madrid).

highlighted. Another differential characteristic, evidently unnecessary, is a large and sturdy tubercle process on the mesosternon, running from top to bottom.

Recordings: 18-V-2005 (early evening sighting on the field station path).

The only example captured, 11-V-2005, was found in Parque Braulio Carrillo, portable light trap by José Esteban.

Recorded period of flight: May.

Conservation category: rare species.

Comments: 21 specimens recorded at the INBio. All of them were collected in Guanacaste, except a specimen from Puntarenas. The recorded period flight ranges from June to December (INBio, 2008).

Deliathis quadritaeniator (White, 1846) (Fig. 7a, b)

Four examples collected, 34-40 mm in length. Long, subcylindrical, robust body. Convex elytra. Overall color dark reddish brown except for small circular areas covered with a fine and dense pubescence of a variety of colors: orangey and an almost white gray in longitudinal bands on the elytra. The tubercle process of the mesosternon is short and subconic.



Figure 7. *Deliathis quadritaeniator* (White, 1846): a) male, total length, 38.2 mm; 22-IV-2006, «La Ventana», Reserva Biológica Alberto Manuel Brenes, San Ramón (Costa Rica) (portable light trap), Marco A. Zumbado col. (Colección José Esteban Durán INIA, Madrid); b) female, total length, 40.7 mm; 24-IV-2006, Reserva Biológica Alberto Manuel Brenes, San Ramón (light trap), José Esteban Durán col. (Colección José Esteban Durán INIA, Madrid).

Recordings: 23-IV-2006; 24-IV-2006; 27-IV-2006 (light trap near the field station) José Esteban, 22-IV-2006 (portable light trap), «La Ventana», Reserva Brenes, Marco A. Zumbado, 2-VII-2007 (light trap near the field station) Marco A. Zumbado.

Recorded period of flight: April-July.

Conservation category: rare species.

Comments: 24 specimens recorded at the INBio. All specimens were collected in Alajuela, Guanacaste, Heredia and Puntarenas. The recorded period flight ranges from June to November (INBio, 2008).

Neoptychodes cretatus (Bates, 1872) (Fig. 8a ,b)

Numerous examples seen and collected, of which only fifteen were preserved and which are held in the «José Rafael Esteban Durán, collection» at the INIA, Madrid, Spain; 23-33 mm in length. Long, oval, sub-cylindrical body with convex elytra that finishes in a characteristic point. Overall color a dark reddish brown covered with a very fine and short pubescence of a lighter brown color with patches of a yellowish white color on various parts of the elytra and body. Without a doubt the most common species in the Reserve and has been recorded throughout the year even though it is not often attracted by mercury vapor lamps.

Recordings: a great number from January and February until December with the greatest frequency



Figure 8. *Neoptychodes cretatus* (Bates, 1872): a) male total length, 38.2 mm; 2-V-2005, b) female total length, 31.2 mm; 24-V-2003. Reserva Biológica Alberto Manuel Brenes, San Ramón (field station incandescents lights), José Esteban Durán col. (Colección José Esteban Durán INIA, Madrid).

from March to June. In all cases collected from the outer walls and interior of the field station.

Recorded period of flight: all year round.

Conservation category: very common and abundant species.

Comments: many specimens from the Costa Rica area have been listed by the INBio.

Ptychodes politus lecontei (Thomson, 1856) (Fig. 9)

A single example collected by hand during the day and now held in the «José Rafael Esteban Durán collection» at the INIA, Madrid, Spain; 23 mm in length. Long body with convex elytra and bidentate apices. Overall color, shiny black with a central whitish band running down the pronotum and elytra. Two incomplete transverse lines of the same color on the initial third of both elytra with spots along the edges.

Recordings: A single example captured during the day and by hand on the 13th of August 2007 at Luis Chaves cross in Colonia Palmareña, collected by Marco A. Zumbado.

Recorded period of flight: August.

Conservation category: very rare in the reserve.

Comment: 40 specimens recorded at the INBio, collected at elevations ranging from 1,200 to 700 meters, between 1990 and 1994. Collected from Liberia, Upala, Talamanca, Valle de la Estrella, Santa Cruz, Barra del Colorado, Turrialba, Pococí, Tortuguero and Barra Honda. Recorded flight period from February to



Figure 9. *Ptychodes politus lecontei* Thomson, 1856 male total length 23 mm; 13-VIII-2007. Reserva Biológica Alberto Manuel Brenes, San Ramón by hand (near of the Colonia Palmareña) Marco A. Zumbado col. (Colección José Esteban Durán INIA, Madrid).

December with the greatest frequency from April to September (INBio, 2008).

Taeniotes praeclarus (Bates, 1872) (Fig. 10a, b)

More than fifteen examples of which nine have been preserved in the reserve collection. 26-30 mm in length. Long body, oval, subcylindrical, robust and with sub-convex elytra. Overall color a very dark brown, almost black, moderately shiny with a fine and almost imperceptible grayish brown pubescence turning yellow in the central longitudinal band which runs along the entire dorsal part of the body and the patches and spots which speckle the elytra and which do not have spiky apical formations.

Recordings: numerous during February and June mainly, almost all on the walls and roof of the field station and occasionally in the light trap.

Recorded period of flight: between January and September.

Conservation category: common species.

Comment: 38 specimens recorded at the INBio, collected at a range of elevations from 720 to 1,520 meters between 1988 and 1994. Collected from Liberia, Monteverde, Arenal, Tapantí, Rincón de la Vieja and Corcovado. Recorded flight periods from February to December with the greatest frequency from April to September (INBio, 2008).



Figure 10. *Taeniotes praeclarus* Bates, 1872: a) male total length, 33.0 mm; 6-II-2006, Reserva Biológica Alberto Manuel Brenes, San Ramón (field station incandescents lights), Marco A. Zumbado col. (Colección José Esteban Durán INIA, Madrid); b) female total length, 35.1 mm; 3-V-2005, Reserva Biológica Alberto Manuel Brenes, San Ramón (Costa Rica) (field station incandescents lights), José Esteban Durán col. (Colección José Esteban Durán INIA, Madrid).

Taeniotes scalatus (Gmelin, 1790) (Fig. 11a, b)

Numerous examples seen and collected of which only a dozen are preserved in the reference collection at the INIA, Madrid. Length 22-37 mm. This species, which according to Dillon & Dillon (1941) was closely related to *T. amazonum* and *T. pulverulentus*, is today thought to in fact be *pulverulentus* and to be distinguishable from *amazonum* by the teeth on the apexes of its elytra, which in the latter are rounded and, in rare cases, slightly sharp, but not in the joint. The body is subcylindrical, long and oval, not very robust and quite stylized. Overall color dark brown, almost black and shiny with some lines of matted yellow pubescence and a few specks of a similar nature and color. The matted yellow areas are distributed in a central, fairly narrow, more or less continuous band which runs along the upper part of the insect's body from the head to the end of the elytra.

The antennae in males are more than twice as long as their bodies. The mesosternal tubercle is small but noteworthy.

Recordings: numerous from February to June, almost always on tree trunks and on the walls and roofs of the field station.

Recorded period flight: January to July.

Conservation category: common species.

Comment: 381 specimens registered at the INBio as *Taeniotes scalaris* (Fabricius, 1781) collected at a range of elevations from sea level to 1,520 meters,

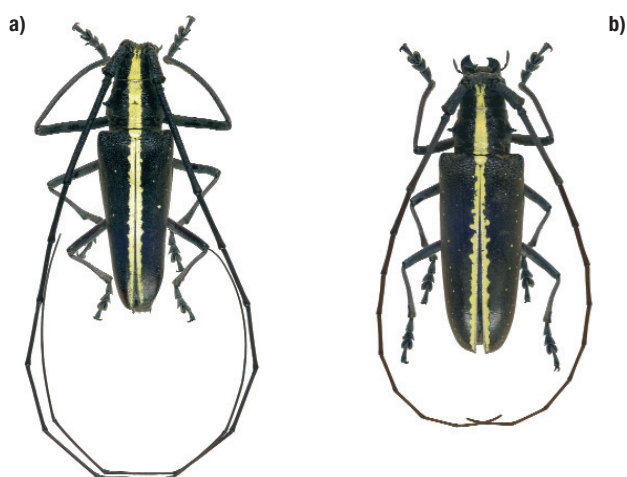


Figure 11. *Taeniotes scalatus* (Gmelin, 1790): a) male total length, 36.8 mm; 13-V-2005; b) female total length, 33.8 mm; 14-II-2005. Reserva Biológica Alberto Manuel Brenes, San Ramón (walls of the field station), José Esteban Durán col. (Colección José Esteban Durán INIA, Madrid).

most commonly from low ground, between 1977 and 1994, from all over the country. Recorded flight periods from February to December with the greatest frequency from April to September (INBio, 2008).

Taeniotes xanthostictus (Bates, 1880) (Fig. 12a, b)

Eleven examples collected. Length 25-36 mm. Fairly robust appearance, long and ovaloid from the third part of the base of the subconvex elytra which have broad basal parts square in form. Overall wood brown color with round patches of yellow pubescence on all elytra. The antennas of the females are slightly longer than their bodies but they double the length of the male bodies. An unmistakable species both in form and coloration.

Recordings: numerous, generally on the walls and roof of the field station and, with less frequency, in the light trap. Only eleven examples collected.

Recorded flight period: January to June.

Conservation category: common species.

Comments: 141 specimens registered at the INBio, collected at a range of elevations from 1520 meters to sea level, most commonly from low ground. Recorded flight periods from February to December with the greatest frequency from April to September (INBio, 2008).



Figure 12. *Taeniotes xanthostictus* Bates, 1880: a) male total length, 35.9 mm; 21-V-2006; b) female total length, 32.1 mm; 4-V-2005, Reserva Biológica Alberto Manuel Brenes, San Ramón (field station incandescents lights), José Esteban Durán col. (Colección José Esteban Durán INIA, Madrid).

Discussion

The diversity of species of the Tribe Lamiini found in the *Reserva Biológica Alberto Manuel Brenes*, some 60% of those found in the entire country, confirms the park's rich biodiversity. Two species, *P. albatrus* and *P. elatus* have never been enlisted by INBio.

The examples seen (just one of *D. nivea*) and collected, confirms the entomological biodiversity of the Lamiini tribe in the *Reserva Biológica Alberto Manuel Brenes*.

Adults of certain species, all of them of the genera *Plagiohammus* and *Deliathis* are rare or infrequent in the prospected enclaves of this ecosystem. They are concentrated in specific years such as the cases of *D. nivea* in 2005 and *D. quadritaeniator* in 2006 and 2007, *P. albatrus* and *P. elatus* in 2006, 2007 and, in very short periods during the year *P. rubefactus* in February and *P. emanon* in May and June.

The recorded species of the genera *Neoptychodes* and *Taeniotes* showed a greater range of examples in the ecosystem studied and longer periods of flight too, which confirms their area of distribution as being essentially neotropical. These abundant or very abundant species have been regularly captured every year and from January to December in *N. cretatus*.

It is noteworthy that the majority of examples collected from the *Neoptychodes* and *Taeniotes* were found on the walls and roof of the field station and on the trunks of nearby trees during the day. They may have been attracted by the building's interior illumination or they may just have been caught on the walls of the buildings. They were not generally caught by the mercury vapor bulb light traps though they sometimes were by UV light, such was the case of *T. xanthostictus*.

It must be pointed out that two of the described species (*Plagiohammus albatrus* and *Plagiohammus elatus*) had not been mentioned before by INBio, being therefore the first quotes in Costa Rica.

Acknowledgments

To the INIA (Madrid) for funding provided due to the approval of Project AT-07 (Entomobiótica); to D. Marco Antonio Zumbado Echevarría, assistant in the UCR, Sede de Occidente, of San Ramón in Costa Rica for his particular devotion; to D. Víctor Mora and D. Hugo Pérez, the staff of the Reserva Alberto Manuel Brenes for their help and logistical support; to all the

students and assistants of the UCR, who during their stays at the reserve, contributed to the recording and capture of the specimens.

References

- DILLON L.S., DILLON E.S., 1941. The tribe Monochamini of the western hemisphere. Scientific Public Museum and Art Gallery, Pennsylvania, 1, 1-135.
- EYA B.K., CHEMSAK J.A., 2003a. Review of the genus *Amphelictus* Bates, pt 1. Les Cahiers Magellanes 21, 1-24.
- EYA B.K., CHEMSAK J.A., 2003b. Review of the genus *Amphelictus* Bates, pt 2. Les Cahiers Magellanes 22, 1-21.
- HOVORE F.T., 2002. Longhorned wood-boring beetles (Cerambycidae: Coleoptera) of Costa Rica, an annotated species list. Available in <http://www.bio-nica.info/Biblioteca/Hovore2002>.
- INBIO, 2008. Especies de Costa Rica. Instituto Nacional de Biodiversidad. Available in <http://www.inbio.ac.cr/bims/k02/p05/c029/o0122/f01156.htm>. [In Spanish].
- MONNÉ M., 2005. Catalogue of the Cerambycidae (Coleoptera) of the Neotropical Region. Part II. Subfamily Lamiinae. Zootaxa 1023, 1-760.
- MONNÉ M., HOVORE F., 2006. Electronic checklist of the Cerambycidae of the western hemisphere. Available in http://www.cerambycids.com/checklist/Monne&Hovore_2005.
- SALAZAR RODRÍGUEZ A.H., 2006. Plan de manejo y desarrollo de la Reserva Biológica Alberto Ml. Brenes Universidad de Costa Rica, Sede de Occidente, Coordinación de Investigación. 282 pp. [In Spanish].
- TOLEDO V.H., ESTEBAN-DURAN J.R., 2008. Description of *Lagocheirus delestali* n.sp. (Coleoptera: Cerambycidae) from the Reserva Biológica Alberto Manuel Brenes, Alajuela, Costa Rica. Spanish J Agric Res 6(Special issue), 26-29.