

**NOTES ABOUT THE GENUS *AGRILUS* CURTIS, 1825 IN PANAMA**  
(Coleoptera, Buprestidae)

Gianfranco CURLETTI \*

\* Museo Civico di Storia Naturale, Parco Cascina Vigna, P.O. Box 89, 10022 Carmagnola Italy.

**Abstract.** A checklist of the genus *Agrilus* from Panama (58 taxa) is enumerated. In this work 22 new species are described and 11 species new for the Panamanian fauna are listed. One new synonymy is proposed. This work was possible thanks to expedition IBISCA organized by Océan Vert and the Smithsonian Tropical Research Institute, with the help of a "Short Term Visitors" grant from the Smithsonian Institute, Washington D. C.

**Riassunto. Note sul genere *Agrilus* Curtis, 1825 in Panama.** È proposta la checklist del genere *Agrilus* Curtis, 1825 per Panama che con questo contributo ammonta a 58 taxa. Vi sono descritte 22 specie nuove per la scienza: *A. adinocephalus* n. sp., *A. atlanticus* n. sp., *A. baili* n. sp., *A. bothrops* n. sp., *A. centunculus* n. sp., *A. cizeki* n. sp., *A. colonicus* n. sp., *A. faganae* n. sp., *A. hectori* n. sp., *A. incredulus* n. sp., *A. ingae* n. sp., *A. melanocerus* n. sp., *A. metropolitanus* n. sp., *A. odegardi* n. sp., *A. peresoso* n. sp., *A. rossanae* n. sp., *A. rufuscapite* n. sp., *A. schmidli* n. sp., *A. tynnanthi* n. sp., *A. unus* n. sp., *A. viridiaeris* n. sp., *A. yvesi* n.sp. Sono segnalate 11 specie nuove per la fauna di Panama: *A. angustus* Chevrolat, 1935, *A. apicalis* Waterhouse, 1889, *A. balloui* Fisher, 1938, *A. bicarinatus* Waterhouse, 1889, *A. cibarius* Fisher, 1944, *A. dentifer* Waterhouse, 1889, *A. hilaris* Waterhouse, 1889, *A. lacordairei* Gory & Laporte, 1837, *A. raventazonus* Fisher, 1929, *A. spinicaudatus* Waterhouse, 1889, *A. viridicephalus* Fisher, 1929. È proposta una nuova sinonimia: *Agrilus jenningsi* Fisher, 1938 (= *Agrilus hainesi* Hespeneheide, 1974 syn. nov.)

Il presente contributo è stato reso possibile grazie alla missione IBISCA patrocinata da Océan Vert e dallo Smithsonian Tropical Research Institute, con la collaborazione di contributi ottenuti nel progetto "Short Term Visitors" dello Smithsonian Institute di Washington D. C.

**Key words:** Coleoptera, Buprestidae, *Agrilus*, Panama, checklist, new species, new synonymy.

### Materials and methods

In 2003 and 2004 Océan Vert, in collaboration with the Smithsonian Tropical Research Institute and the University of Panama, organized an entomological expedition named IBISCA, which has involved scientists from various countries interested in the study of tropical forests. The staff, of which the author is a member, has examined the forest of the S. Lorenzo (9°17' N - 79°58' W), on the Caribbean coast near the city of Colon (Panama). The methods used for surveying the forest have been numerous: eye searching, entomological umbrella, fogging, sticky traps, window traps, malaise traps, Winkler and breeding larvae in the laboratory. The study of the canopy was possible thanks to the employment of a crane and a mobile platform (Radeau-des-Cimes) already used in other expeditions in South America and equatorial Africa and also thanks to several vertical transects predisposed from professional climbers (CURLETTI, 2000, 2002, 2004). The research gave enabled detailed studies of the entomological fauna, and the results obtained will be the object of various contributions. This paper is limited to the genus *Agrilus* Curtis, 1825 (Coleoptera Buprestidae), one of the largest genera in the Animal Kingdom (CURLETTI, 2001). The list is in alphabetical order and it is comprehensive for all species known for the Panamanian fauna. It contains, as necessary, short taxonomical or biological comments. The specimens found in IBISCA expedition are stored, except as noted, in the MCCI.

### List of abbreviations:

CGCC – Collection Curletti, Carmagnola.

CIRAD - Centre de Coopération Internationale en Recherche Agronomique pour le Développement, Montpellier.

FL – Sampling with windows traps.

FO – Sampling with swinfog.

FODC – Collection Frode Ødegaard, Trondheim.

IBISCA – Investigating the Biodiversity of Soil and Canopy Arthropods 2003-2005.

MNHN – Musée National d’Histoire Naturelle, Paris.

MCCI - Museo Civico di Storia Naturale, Carmagnola.

NHM - Natural History Museum, London.

NMPC – Národní Muzeum, Praha.

PN – Panama.

STRI - Smithsonian Tropical Research Institute, Panama City.

USNM - National Museum of Natural History, Smithsonian Institution, Washington D.C.

## List of species

### *Agrilus (Agrilus) adinocephalus* n. sp.

Type: Panama (MCCI).

Distribution: Known only from Panama.

### *Agrilus (Agrilus) angustus* Chevrolat, 1835

Type: Mexico (NHM)

Distribution: Mexico, Guatemala, Panama.

PN: Fort Kobbe (Hespenheide det.) (STRI).

New for Panamanian fauna.

### *Agrilus (Agrilus) apicalis* Waterhouse, 1889

Type: Mexico (NHM).

Distribution: Mexico, Guatemala, Panama.

PN: Altos de Mayé isla (Hespenheide det.) (STRI).

New for Panamanian fauna.

### *Agrilus (Agrilus) atlanticus* n. sp.

Type: Panama (MCCI).

Distribution: Known only from Panama.

### *Agrilus (Agrilus) baili* n. sp.

Holotype: Panama (MCCI).

Distribution: Known only from Panama.

### *Agrilus (Agrilus) balloui* Fisher, 1938

Type: Costa Rica (USNM).

Distribution: Costa Rica, Panama.

PN: Cerro Jefe (CGCC).

New for Panamanian fauna.

### *Agrilus (Agrilus) basilaris* Waterhouse, 1889

Type: Panama, Bugaba (NHM).

Distribution: Known only from Panama.

PN: S. Lorenzo Protected Area, sticky traps on *Inga oerstediana*, (IBISCA project).

### *Agrilus (Agrilus) bellus* Waterhouse, 1889

Type: Panama, Bugaba (NHM).

Distribution: Known only from Panama.

PN: Canal Zone, Barro Colorado Island (CGCC).

### *Agrilus (Agrilus) bicarinatus* Waterhouse, 1889

Type: Guatemala (NHM).

Distribution: Guatemala, Panama.

PN: Madden forest (STRI); Panama City, Parque Metropolitano (CGCC).

New for Panamanian fauna.

***Agrilus (Agrilus) bothrops* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) buscki* Fisher, 1938**

Type: Panama, Cabima (USNM).

Distribution: Known only from Panama.

PN: Canal Zone, 100 m, 5 mi. NW Gamboa, 09°10'N – 79°45'W, 26.VII.1976, canopy fogging on *Luehea seemanni* (USNM).***Agrilus (Agrilus) centunculus* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) cibarius* Fisher, 1944**

Type: Trinidad (USNM).

PN: S. Lorenzo Protected Area, 15.X.2003, F. Ødegaard leg., on *Dioclea reflexa* (MCCI).

New for Panamanian fauna.

***Agrilus (Agrilus) cizeki* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) colonicus* n. sp.**

Type: Panama. (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) confusus* Waterhouse, 1889**

Type: Panama, Val de Chiriqui (NHM).

Distribution: Known only from Panama.

With doubt I attribute to this species one female specimen found in the S. Lorenzo forest (IBISCA project, sticky trap on *Inga oerstediana*). It differs little from the type in pronotal sculpture, and the structure of the prosternal plate and prosternal lobe.***Agrilus (Agrilus) crapulellus* Thomson, 1879**syn. *Agrilus nigripennis* Waterhouse, 1889syn. *Agrilus praelongus* Kerremans, 1897syn. *Agrilus longus* Kerremans, 1900syn. *Agrilus heynei* Obenberger, 1915syn. *Agrilus tennenbaumi* Obenberger, 1933syn. *Agrilus nigripennis* var. *funebrosus* Obenberger, 1933syn. *Agrilus tenebaumi* Obenberger, 1936 (*sic*)syn. *Agrilus schmidti* Obenberger, 1939.

Distribution: Mexico, Nicaragua, Costa Rica, Panama, Colombia, Venezuela, Brazil (Maes, Hespeneheide &amp; V. Den Berghe, 1993).

PN: Arrijan (USNM); Bocas de Toro, 5 km W Almirante (STRI); Cerro Azul (CGCC); Cerro Campana (USNM); Cerro Jefe (CGCC); Chiriqui, David (87 km E) (USNM); Cocola La Mesa above El Valle (USNM); Ft. Clayton (STRI); Fort Kobbe beach (USNM) (STRI); Gamboa (USNM); 5 km NW Gamboa (STRI); Panama City (USNM); Panama City, Parque Metropolitano (MCCI); S. Lorenzo forest (IBISCA project); 0.5 mi. S. Paolo Seco (STRI).

***Agrilus (Agrilus) dentifer* Waterhouse, 1889**

Type: Mexico (NHM).

syn. *Agrilus ucalegon* Obenberger, 1935

Distribution: Mexico, Costa Rica.

P.N.: Barro Colorado Island (IBISCA), on leaves of *Acacia* sp.

Notes: I attribute with doubt a female specimen to this species found on BCI, in the absence of other material to confirm this diagnosis. It slightly differs by having a smaller size, black color, striae of pronotum and vertex more evident, prominent and thickened.

New for Panamanian fauna.

***Agrilus (Agrilus) dietzi* Fisher, 1938**

Type: Panama (USNM).

Distribution: This species is known only from the type.

***Agrilus (Agrilus) dimidiatus* Waterhouse, 1889**

Type: Panama, Bugaba (USNM).

Distribution: Panama, Brazil.

***Agrilus (Agrilus) elegantulus* Waterhouse, 1889**

Type: Panama, Taboga Isl. (USNM).

Distribution: Known only from Panama.

PN: Canal Zone, Gatun Dam area, 3 km W Gatun, 09°16'N – 79°57'W, 30.VII.1974 (CGCC); Gatun Spillway (CGCC).

***Agrilus (Agrilus) empedus* Obenberger, 1933**

Type: Panama (NMPC).

Distribution: This species is known only from the type.

***Agrilus (Agrilus) eupalamus* Gory, 1841**

Type: Colombia (MNHN).

Distribution: Bolivia, Colombia, Panama.

***Agrilus (Agrilus) excisus* Waterhouse, 1889**

Type: Panama, Bugaba (NHM).

Distribution: This species is known only from the type.

***Agrilus (Agrilus) faganae* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) gracilipes* Waterhouse, 1889**

Type: Panama, Val de Chiriqui (NHM).

syn. *Agrilus carinifer* Waterhouse, 1889syn. *Agrilus turrialbae* Obenberger, 1933

Distribution: Mexico, Costa Rica, Guatemala, Panama (Poole &amp; Gentili, 1966).

***Agrilus (Agrilus) hectori* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) hilaris* Waterhouse, 1889**

Type: Guatemala, Pantaleon (NHM).

syn. *Agrilus alferakii* Obenberger, 1932

Distribution: Mexico, Costa Rica, Panama.

PN: Madden Dam (STRI).

New for Panamanian fauna.

***Agrilus (Agrilus) inclinatus* Waterhouse, 1889**

Syntype: Panama, Val de Chiriqui (NHM).

syn. *Agrilus subobtusus* Kerremans, 1894Distribution: Nicaragua, Mexico, Panama (Maes *et al.*, 1993).***Agrilus (Agrilus) incredulus* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) ingae* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) jenningsi* Fisher, 1938**

Type: Panama, Parairo (USNM).

syn. *plagiatus* (Waterhouse), 1889 (*sub Paradomorphus*).syn. *Agrilus hainesi* Hespeneheide, 1974 **syn. nov.**

Distribution: Mexico, Costa Rica, Panama.

PN: Panama City, Parque Metropolitano; S. Lorenzo Protected Area, 9°17'N – 79°59'W, sticky traps on *Inga sp.* (IBISCA project).Study of the types confirms the identity of the two taxa described by Waterhouse and Fisher. The name *hainesi* was employed by Hespeneheide (1974) as a replacement of *plagiatus* (*nomen praeocc.*), but based on priority the name of this species is *jenningsi* Fisher.***Agrilus (Agrilus) lacordairei* Gory & Laporte, 1837**

Type: Guyana (MNHN).

Distribution: Guyana, Panama.

PN: Gamboa (Hespeneheide det.) (CGCC).

New for Panamanian fauna.

***Agrilus (Agrilus) latevittatus* (Waterhouse, 1889)**

Type: Panama, Bugaba (NHM).

Distribution: This species is known only from the type.

***Agrilus (Agrilus) laticaudatus* Waterhouse, 1889**

Type: Panama, Val de Chiriqui (NHM).

Distribution: This species is known only from the type.

***Agrilus (Agrilus) melanocerus* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) metropolitanus* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) molestus* Waterhouse, 1889**

Type: Panama, Tolé (NHM).

Distribution: Known only from Panama.

PN: 5 mi. NW Gamboa (CGCC).

***Agrilus (Agrilus) obscureguttatus* (Waterhouse, 1889)**

Syntypes: Panama, Volcan de Chiriqui (NHM).

syn. *Agrilus valerii* Fisher, 1938

Distribution: Known only from Panama.

***Agrilus (Agrilus) observans* Waterhouse, 1889**

Type: Panama, Bugaba (NHM).

Distribution: Known only from Panama.

PN: Fort Kobbe (STRI); Madden Forest (STRI); Panama City, Parque Metropolitano, sticky traps on *Acacia melanoceras* (IBISCA project); idem, *ex larva Acacia melanoceras* (IBISCA project).***Agrilus (Agrilus) odegaardi* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) peresoso* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) raventazonus* Fisher, 1929**

Type: Costa Rica (USNM).

Distribution: Costa Rica, Panama.

PN: S. Lorenzo Protected Area, sticky traps on *Inga oerstediana* (IBISCA).  
New for Panamanian fauna.***Agrilus (Agrilus) rossanae* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) rufuscapite* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) scabiosus* Thomson, 1878**

Type: Mexico.

syn. *Agrilus sopotskoi* Obenberger, 1932syn. *Agrilus tornoon* Obenberger, 1935

Distribution: Mexico, Guatemala, Panama.

PN: Val de Chiriqui (CGCC).

***Agrilus (Agrilus) schmidli* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) siren* Gory, 1841**

Type: Colombia (MNHN).

syn. *Agrilus parens* Kerremans, 1897

Distribution: Panama (Poole &amp; Gentili, 1996), Colombia, Brazil.

***Agrilus (Agrilus) spinicaudatus* Waterhouse, 1889**

Type: Guatemala (NHM).

Distribution: Guatemala, Panama.

PN: 9 km S Cierro Viejo Mine Rd. (Hespenheide det.) (STRI).

New for Panamanian fauna.

***Agrilus (Agrilus) subguttatus* Waterhouse, 1889**

Syntypes: Mexico (USNM).

syn. *Agrilus errans* Waterhouse, 1889syn. *Agrilus raptor* Kerremans, 1903syn. *Agrilus infidelis* Fisher, 1933syn. *Agrilus boviei* Obenberger, 1933

Distribution: Mexico, Guatemala, Panama.

PN: Fort Kobbe (STRI); Cerro Campana (STRI).



***Agrilus (Agrilus) tabogaensis* Fisher, 1938**

Type: Panama (USNM).

Distribution: Known only from Panama.

PN: Panama City, Parque Metropolitano (CGCC) (FODC).

***Agrilus (Agrilus) tynnanthi* n. sp.**

Type: Panama (MCCI).

Distribution: This species is known only from the type.

***Agrilus (Agrilus) turrialbensis* Fisher, 1929**

Type: Costa Rica (USNM).

Distribution: Costa Rica, Panama.

PN: Barro Colorado Island (USNM); S. Lorenzo Protected Area (IBISCA).

***Agrilus (Agrilus) unus* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) uvarovi* Obenberger, 1933**

Type: Costa Rica (NMPC).

syn. *Agrilus schwarzi* Fisher, 1938Distribution: Costa Rica, Panama (type of *A. schwarzi*).***Agrilus (Agrilus) viridiaeris* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

***Agrilus (Agrilus) viridicephalus* Fisher, 1929**

Type: Costa Rica (USNM).

Distribution: Costa Rica, Panama.

PN: S. Lorenzo Protected Area, sticky traps on *Inga oerstediana* (IBISCA).

New for Panamanian fauna.

***Agrilus (Agrilus) xanthonotus* Waterhouse, 1889**

Syntypes: Mexico (NHM).

syn. *Agrilus croceomaculatus* Waterhouse, 1889

Distribution: Mexico, Costa Rica, El Salvador, Guatemala, Nicaragua, Panama.

PN: Cerro Campana, on foliage of *Byttneria deaurata* (STRI); Madden forest (STRI);

Canal Zone, 3.5 km WNW Paradiso, 9°02'N – 79°40'W (CGCC).

***Agrilus (Agrilus) yvesi* n. sp.**

Type: Panama (MCCI).

Distribution: Known only from Panama.

**Description of new species*****Agrilus (Agrilus) odegaardii* n. sp. (Fig. 1)**

Holotype ♂: Panama, Colon prov., S. Lorenzo Protected Area, 9°17'N – 79°58'W, 24 May 2004. IBISCA project, Ødegaard leg. (MCCI).

**Description**

Length 12.4 mm. Color black with yellow pubescent spots.

Head with protruding eyes in dorsal view, sulcate at middle, nearly bilobate, with vertex glabrous, as wide as 1/3 of anterior margin of pronotum. Frons with a profound and wider sulcus, covered by a thick spot of yellow pruinose pubescence. Clypeus without transverse carina.



Pronotum glabrous, widest at midpoint, with lateral edges rounded and posterior angles subobtuse. Disc depressed at the sides, with a wide longitudinal depression at middle. Sculpture transverse very dense and thickened. Premarginal carina thin but entire, placed against the lateral margin. Lateral carinae joined at the base. Anterior margin of prosternal lobe slightly sinuate at middle. Prosternal plate widened at the top.

Scutellum oval, concave, not carinate.

Elytra elongate, depressed along the suture. Apex rounded and microdenticulate. Two pairs of yellow pubescent spots at the apical half: the first pair rounded, the distal oval.

Ventral surface black, with yellow pubescence covering metepisternum and metacoxa. Yellow spots also present at first laterotergum and lateral portion of first ventrite.

Legs black. Metatarsus shorter than the metatibia. Basal metatarsomere as long as the following two combined. All claws bifid.

Aedeagus thick, testaceous, with median lobe pointed (fig. 23).

#### Etymology

This species is named after my friend Frode ØDEGAARD, collector of this and other interesting species in several years of research in Panama.

#### Remarks

*A. odegardi* n. sp. belongs to the group of species with two pairs of rounded spots placed at the distal part of the elytra, well represented in the Neotropics. In the Central American fauna, another species has these morphological characters: *Agrilus centralis* Waterhouse, 1889 from Guatemala and Mexico. *Agrilus centralis* is immediately distinguishable by having bronze coloration, the elytra opened and divaricated at the top, with apex with three obtuse teeth.

#### *Agrilus (Agrilus) incredulus* n. sp. (Fig. 2)

Material examined: Holotype ♂, Panama, Colon Prov., Fort Sherman, 9°17'N – 79°59'W, 18 May 2001 F. Ødegaard leg. (MCCI). Paratypes 1 ♂ and 2 ♀, idem, 7 May 2004, 26 April 2002, 14 May 1996 (MCCI, FODC and STRI).

#### Description of the holotype.

Length 5.4 mm. Elongate, narrowed, brilliant metallic. Vertex and anterior half of pronotum scarlet red; frons, posterior half of pronotum and humeral calli green. Elytra brown.

Head with large eyes, vertex  $\frac{1}{4}$  as wide as the anterior edge of pronotum. Frons brilliant, almost glabrous with sparse yellow pubescence at the base only, and on the clypeus. Antennae elongate and narrowed.

Pronotum glabrous, widest anteriorly, with lateral margins straight, slightly sinuate before the posterior angles that are subacute. Disc depressed on the posterior sides, with transverse but superficial striae. Premarginal carina not entire, placed against the lateral margin and parallel to it. Lateral carinae joined at the base: the lateral right, the sublateral sinuous.

Scutellum black, convex, protruding, with transverse carina at middle.

Elytra with apex microdenticulate, rounded, but more curved near the external side. Disc of emerald green color at the base, brown beyond the base. Yellow pubescence evenly covering the brownish surface; pubescence nearly absent in the humeral depression, glabrous in the basal green area.

Ventral portion metallic bronze. Pruinose pubescent white spots at the first laterotergum, at the external sides of all ventrites, at the metepisternum, metacoxa, mesepimeron and at the proepisternum. Legs elongate: first metatarsomere less than the length of the following four combined. Anterior claws bifid.

Aedeagus black, sclerotized (fig. 24).

**Description of the paratypes.**

Length 5.5, 5.8 and 6 mm. One female has a thin stripe of pubescence that joins the humeral with the other elytral pubescence, with a glabrous area around the scutellum only.

Females differ from males by having the frons red, anterior claws mucronate, first metatarsomere shorter, less than the length of the following three combined.

**Remarks**

*Agrilus incredulus* n. sp. is very similar to *A. nevermanni* Fisher, 1929 from Costa Rica, and the study of further material of the Fisher species may confirm that this taxon is a subspecies only. However, the type of *A. nevermanni* differs by having the pronotum with diverse and more robust sculpture, external edge of the elytra sinuate before the apex, elytral pubescence interrupted at 2/3 of the length, first metatarsomere longer than the following four combined.

***Agrilus (Agrilus) centunculus* n. sp. (Fig. 3)****Material examined**

Holotype ♂: Panama, Parque Natural Metropolitano, 19 August 1995, F. Ødegaard leg., on *Matayba scrobiculata*.

**Description**

Length 6.5 mm. Brilliant metallic, multicolored. Vertex sulcate, more than half as wide as anterior margin of pronotum, emerald green, with punctiform sculpture, without striae. Frons also emerald green, but with a central brown glabrous spot in the upper half; a triangular pubescent spot at the base in a depression, separated from clypeus by transverse carina. Genae covered by white brilliant pubescence.

Pronotum wider anteriorly, with posterior angles subacute. Anterior edge straight, not protruding in middle. Disc convex, depressed at the sides and at the base. Sculpture with transverse uniform striae. Color emerald green at the base and at the anterolateral sides, grading into gold-yellow near the edges; brown anteriorly, this color extended in three vertical lines to the base: in middle and before the sides, internally to the premarginal carina that is entire. Between the base of premarginal carina and lateral edge the integument is metallic blue. Marginal carinae joined at the base. Prosternal lobe with anterior margin entire but not rounded. Prosternal plate enlarged at the back.

Scutellum green anteriorly, blue posteriorly, these two colors separated by transverse carina.

Elytra with apical spine along the external edge. Disc with white pubescence in the humeral callus and at the apex. Other longitudinal stripes of pubescence present medially, along the suture and near the external margin. Color green around the scutellum and along the external edges in anterior half; brown at the base, changing progressively to violet in middle and to the black at apex.

White laterobasal pubescent spots on the sterna, metasternum and lateroterga covered with the same pubescence, but uniform. Apex of last visible sternum rounded.

Legs black like the ventral side; first metatarsomere shorter than the sum of following three. All claws bifid.

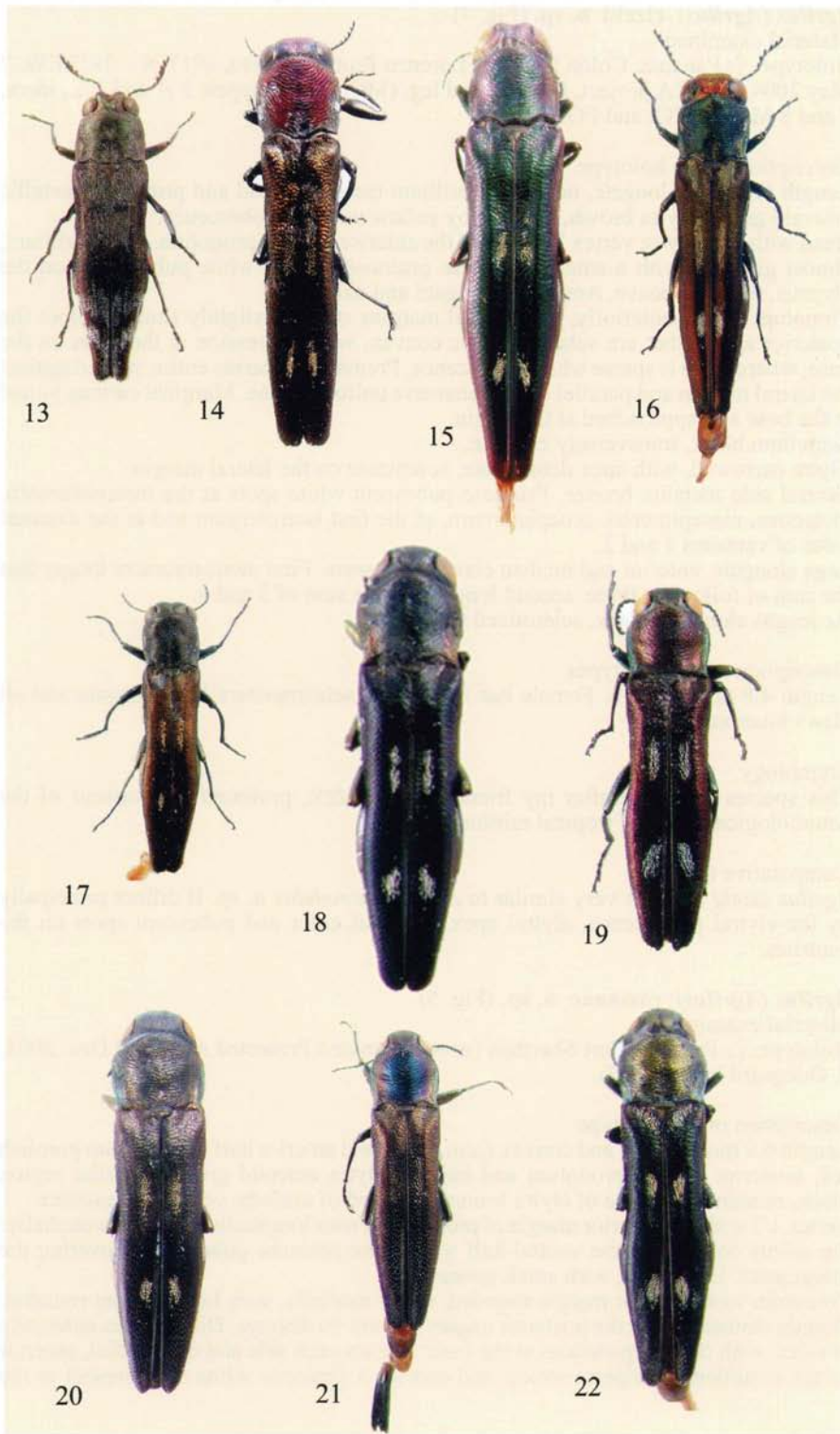
Aedeagus thin, little sclerotized. Apex of penis acute (fig. 25).

**Etymology**

From the multicolored appearance: in Latin language 'centunculus' has this meaning.

**Remarks**

This species is unmistakable because of its unique general appearance and color patterns.



***Agrilus (Agrilus) cizeki* n. sp.** (Fig. 4)

## Material examined

Holotype ♂: Panama, Colon Prov., S. Lorenzo Protected Area, 9°17'N – 79°58'W, 7 May 2004, IBISCA project, F. Ødegaard leg. (MCCI). Paratypes: 1 ♂ and 1 ♀, idem, 7 and 8 May (MCCI and FODC).

## Description of the holotype.

Length 6.1 mm. Elongate, narrowed, brilliant metallic. Head and pronotum metallic emerald green; elytra brown, covered by yellow uniform pubescence.

Head with large eyes, vertex  $\frac{1}{4}$  width of the anterior edge of pronotum. Frons brilliant, almost glabrous with a small transverse pruinose spot of white pubescence on the clypeus, that is concave. Antennae elongate and narrowed.

Pronotum widest anteriorly, with lateral margins straight, slightly sinuate before the posterior angles that are subacute. Disc convex, with depression at the sides on the base, where there is sparse white pubescence. Premarginal carina entire, placed against the lateral margin and parallel to it. Transverse uniform striae. Marginal carinae joined at the base and approached at the origin.

Scutellum black, transversely carinate.

Elytra narrowed, with apex denticulate, acuminate on the lateral margin.

Ventral side metallic bronze. Pruinoso pubescent white spots at the metepisternum, metacoxa, mesepimeron, proepisternum, at the first laterotergum and at the external sides of ventrites 1 and 2.

Legs elongate, anterior and median claws mucronate. First metatarsomere longer than the sum of following three, second longer than the sum of 3 and 4.

Aedeagus elongate, black, sclerotized (fig. 26).

## Description of the Paratypes

Length 4.8 and 5.4 mm. Female has frons red, metatarsomere less elongate and all claws mucronate.

## Etymology

This species is named after my friend Lukas CIZEK, profound connoisseur of the entomological fauna of tropical rainforests.

## Comparative notes

*Agrilus cizeki* n. sp. is very similar to *Agrilus incredulus* n. sp. It differs principally by the elytral pubescence, elytral apex, pronotal color and pubescent spots on the ventrites.

***Agrilus (Agrilus) rossanae* n. sp.** (Fig. 5)

## Material examined

Holotype ♀: Panama, Fort Sherman [now S.Lorenzo Protected Area], 29 Dec. 2001, F. Ødegaard leg. (MCCI).

## Description of the holotype

Length 6.9 mm. Stocky and convex form. Head and anterior half of pronotum purplish red, posterior half of pronotum and base of elytra emerald green, scutellar region black, remaining surface of elytra bronze, covered of uniform yellow pubescence.

Vertex  $\frac{1}{3}$  width of anterior margin of pronotum. Frons longitudinally sulcate medially: the sulcus covered on the ventral half with white pruinose pubescence covering the integument. Eyes large, with small genae.

Pronotum with anterior margin rounded, wider medially, with lateral edges rounded, slightly sinuate before the posterior angles that are 90 degrees. Disc convex anteriorly at sides, with three depressions at the base: one on each side and one medial, anterior to the scutellum. Sculpture strong and coarse. A pruinose white spot present at the

anterior angles. Additional white pubescence is observable in the central basal depression. Premarginal carina entire, joined to the lateral margin at the middle of length. Marginal carinae open anteriorly, joined at the base.

Scutellum black, triangular, elongate at the back, with transverse carina.

Elytra with three colors: green in the humeral area, black around the scutellum, this black spot enlarged as a transverse stripe forming an arrow-like marking extending 1/3 the length of elytra, and light bronze on the remaining 2/3. The bronze area covered by uniform yellow pubescence. One rounded spot of dense white pruinose pubescence, strongly evident, at the humeral callus. Apex rounded, with anomalous asymmetric tips.

Ventral surface dark bronze, with white pubescent spot at the first laterotergum and at the side of the second sternum.

Metatarsomeres very short, less than the half the length of metatibia: the first four articles practically of the same length.

#### Etymology

This species is named after Dr Rossana MOSTI who shared with the author many hours of interesting discussions on anatomy and systematic of insects.

#### Comparatives notes

*A. rossanae* is similar to *A. jenningsi* Fisher, 1938. It is easily distinguishable by its larger size and more stocky form, pruinose longitudinal spot at the base of the frons, premarginal carina entire, pronotal sculpture more rugose, depression at the base of pronotum, elytral pubescence uniform at apical 2/3, presence of white spot at the humeral calli, one spot only on the sterna, first metatarsomere as long as the second (double the length of the second in the Fisher's species).

#### *Agrilus (Agrilus) hectori* n. sp. (Fig. 6)

##### Material examined

Holotype ♂: Panama, Parque Natural Metropolitano, 30.VII.1995, F. Oedegaard leg., on *Astronium graveolens* (MCCI). Paratypes: 1 ♂ and 2 ♀, idem, 19.VI.1995, 23.X.1995, 12.I.1996, respectively on *Combretum fruticosum*, *Astronium graveolens*, *Gouania lupuloides* (MCCI, FODC, STRI).

##### Description of the holotype

Length 4 mm. Vertex and anterior half of pronotum purplish red, posterior half of pronotum and base of elytra emerald green, remainder of elytra black.

Head protruding, rounded. Vertex 1/4 width of the anterior margin of pronotum. Frons dark green, glabrous. Clypeus hollowed, without carina, with a line of pubescence. Pronotum produced at middle before the eyes, wider at the anterior 1/3. Lateral margin rounded anteriorly, 90 degrees at the back, with posterior angles subobtuse. Disc depressed at the base; sculpture with superficial sinuous striae that become obsolete posteriorly. Premarginal carina not entire, as long as 1/3 length of the pronotum. Marginal carinae joined at the base. Anterior prosternal lobe small, rounded.

Scutellum black, transversely carinate.

Elytra with rounded microdenticulate apex. Surface with white pubescence interrupted beyond middle, forming a wide glabrous transverse stripe. Glabrous area also present laterally, behind the humerus.

Ventral side with uniform short, white pubescence, denser on lateroterga and metasternum.

Legs with anterior claws bifid, medial claws with the external one bifid, internal one mucronate. Metatarsomeres short: metatarsomere 1 as long as the sum of 2 + 3.

Aedeagus acuminate, black, sclerotized (fig. 29).

**Description of the paratypes**

Length from 3.9 to 4.3 mm. One female has elytral pubescence pale yellow. No other differences are observable.

Females are distinguishable by having the frons red like the vertex, all claws mucronate and metatarsomeres shorter.

**Etymology**

This species is named for my friend and companion of several expeditions in tropical African forests: Prof. Hector BARRIOS, University of Panama.

**Comparative notes**

This species belongs, like the preceding, to the *A. jenningsi* group. In Central America only *Agrilus muscicoloratus* Hespeneheide, 1988 and *Agrilus basalis* Chevrolat, 1835, both from Mexico, have these dimensions. *Agrilus hectori* n. sp. is easily distinguishable by the head shape, presence of premarginal carina, and pattern of elytral pubescence.

***Agrilus (Agrilus) baili* n. sp. (Fig. 7)****Material examined**

Holotype ♂: Panama, S. Lorenzo Protected Area, 9°17'N – 79°58' W, fogging C1-1c, 12 Oct. 2004, IBISCA project (MCCI). Paratypes: 1 ♂ and 1 ♀, idem, 19.IX/16.X.2003, yellow sticky traps on *Inga oerstediana* (MCCI); 1 ♂ idem, Fogging B2-4 (MCCI, STRI).

**Description of the holotype**

Length 3.7 mm, with white pubescent spots.

Head protruding, rounded in dorsal view. Vertex 1/3 the width of anterior margin of pronotum. Eyes large, prolonged ventrally. Frons narrowed, with sericeous sculpture, glabrous, of dark green color. Clypeus without transverse carina.

Pronotum wider at anterior 1/3, with lateral edges evenly rounded, sinuate before the posterior angles that are subacute. Disc convex in middle, depressed at the sides, with a third rounded depression basomedially, anterior to scutellum. Sculpture with rough, transverse striae. A spot of white pubescence along the margins, more visible anteriorly. Premarginal carina not entire, curved. Lateral carinae separate at the base. Anterior prosternal lobe entire, produced medially. Prosternal plate widened at the top.

Scutellum very transverse, carinate.

Elytral apex with two small teeth along the marginal lines. Disc with white pubescence at the base, before the apex along the suture, and medially, where it ends with a transverse pubescent line, forming a reversed "T".

Ventral side with white pubescence on the metacoxa and metepisternum, rounded white spots on the first laterotergum and at the sides of ventrites 1 and 2.

Legs with all claws mucronate. Metatarsomere short, with first article longer than the sum of the following two.

**Description of the paratypes.**

Length from 4.5 to 4.6 mm. The paratypes also have a spot of white pubescence on ventrite 3. The female has the frons brown.

Aedeagus elongate, narrowed, parallel, with apex of median lobe subacute (fig. 27).

**Etymology**

Named after one of the collectors: Johannes BAIL, a young colleague working on the swing fog protocol with the IBISCA project.

## Comparative notes

Among the Central American species with a similar elytral pattern of pubescence, *A. baili* n. sp. is unmistakable by having two teeth on the elytral apex.

***Agrilus (Agrilus) faganae* n. sp.** (Fig. 8)

## Material examined

Holotype ♂: Panama, S. Lorenzo Protected Area, 4.VI.2004, IBISCA project, FL C1C28 (10 days) (MCCI). Paratypes: 1 ♂, idem, 27.V.2004, IBISCA project, FO IK 4re (STRI); 1 ♀, idem, 13.VII.2001, H. Barrios leg. (MCCI).

## Description of the holotype

Length 7.1 mm. Elongate, brilliant, metallic.

Vertex narrow,  $\frac{1}{4}$  the width of anterior margin of pronotum. Frons emerald green with sericeous sculpture. Clypeus without transverse carina. Eyes large, consequently the genae are narrow and covered by white pubescence. Antennae elongate and slender.

Pronotum glabrous, metallic green, very elongate, heart-shaped, wide anteriorly and narrowed at the base, with lateral edges sinuate before the posterior angles that are acute. Disc depressed at the sides; another small depression at the middle, just anterior to the scutellum. Sculpture forming uniform transverse striae. Premarginal carina no entire, as long as  $\frac{1}{4}$  of lateral margin. Lateral carinae joined at the base. Prosternal plate lanceolate. Anterior prosternal lobe protruding, slightly sinuate at middle of anterior margin.

Scutellum black, triangular, carinate.

Elytra darker than the pronotum, with vertex rounded and microdenticulate. Disc with longitudinal depression along the suture. Color green at the sides, darker nearly black in the perisutural depression. The entire surface covered with uniform short pale yellow pubescence.

Ventral side dark green, with pruinose white pubescence concentrated at the base of the first two ventrites, at the metacoxa, mesepimeron and mesepisternum.

Legs metallic green, elongate. Metatarsus as long as the metatibia: first metatarsomere nearly long as the sum of the following four; the second longer than the sum of the following two, as in the African subgenus *Agriphylus* Curletti, 1999. Claws: anterior ones bifid; medial ones with the external claw bifid, the internal one mucronate; posterior ones mucronate.

Aedeagus black, spindle-shaped, with apex of median lobe squared (fig. 30).

## Description of paratypes

Length 6.3 (♀) and 7.5 mm. The female has the frons black medially, pronotum bronze and all claws mucronate. The pruinose spots on the ventral part are not visible.

## Etymology

This species is named after one of the collectors responsible for the window traps protocol: Dr Laura FAGAN.

## Comparative notes

This species is unmistakable by the body form and color. Also, by having the glabrous surface and longitudinally bicolored elytra – externally green with perisutural region black – this species may be placed near *A. chrysophanus* Gory, 1841 from Mexico. It is easily distinguishable from Gory's species by several characters, but especially by having a more slender form, emerald green color, pronotum elongate and depressed, frons without central sulcus with sericeous sculpture, for the pronotal ridges.

***Agrilus (Agrilus) ingae* n. sp.** (Fig. 9)

## Material examined

Holotypus ♀: Panama, S. Lorenzo Protected Area, 9°17'N – 79°58'W, 9/28.V.2004, IBISCA project, sticky traps on *Inga oerstediana* (MCCI).

### Description

Length 5.8 mm. Color dark bronze, with sparse white pubescence on elytra. Head protruding, rounded in dorsal view, sulcate medially. Eyes posteriorly placed, hardly visible dorsally. Vertex wider than half of anterior edge of pronotum. Frons metallic cupreous, glabrous. Clypeus without transverse carina, covered by a stripe of sparse white pubescence. Genae narrow as the eyes are prolonged in lower part. Pronotum widest medially, convex, depressed at the sides and in posterior middle, anterior to scutellum. Lateral edges arcuate and sinuate before the base, with posterior angles right. Sculpture flat, composed of numerous, transverse and narrow furrows. Premarginal carina arcuate, not entire. Marginal carinae joined at the base. Anterior prosternal lobe with anterior edge straight and entire. Scutellum large, transversely carinate. Each elytron with apex rounded and microdenticulate. Disc with sparse, hardly visible white pubescence, more dense along the suture and at the apex. Ventral side darker, with the pubescence similar to that of elytra, denser on mesosternum and on lateroterga. Legs with metatarsi shorter than metatibia, with the first metatarsomere as long as the sum of following three.

### Etymology

After the name of the tree where the specimen was found.

### Comparative notes

The head shape resembles that found in the African subgenus *Robertius* Théry, 1947, together with the elytral pubescence and the peculiar pronotal sculpture, makes this species unmistakable in the Central-American fauna.

### *Agrilus (Agrilus) adinocephalus* n. sp. (Fig. 10)

#### Material examined

Holotype ♀: Panama, Parque Natural Metropolitano, 6 May 1996, F. Ødegaard leg., on *Albizia adinocephala* (MCCI).

### Description

Length 5.8 mm. Body slender. Dorsal color green changing to black with varying incidences of light. Vertex narrow, about as wide as 1/3 of anterior edge of pronotum. Sculpture punctiform. Frons emerald green, glabrous; clypeus separated from frons by transverse carina. Antennae elongate, serrate from article 5. Eyes large, easily visible in dorsal view. Pronotum black with green reflections, elongate, wider anteriorly, with lateral margins slightly arcuate and posterior angles acute. Disc convex, with a vague median sulcus at the posterior half. Sculpture with uniform transverse striae. A stripe of yellow pubescence not covering the integument at the lateral sides. Premarginal carina entire, joined anteriorly to the lateral margin. Lateral carinae with the same basal origin. Scutellum black, with transverse carina curved, having anterior convexity. Elytra glabrous, green at the base, ranging to black beyond the middle, especially with frontal light. Apex rounded and microdenticulate. Ventral side with yellow pubescence on the mesosternum and on the lateroterga. Legs metallic green. Metatarsus long as the metatibia. First metatarsomere length less than the sum of the following three. All claws mucronate.

### Etymology

From the name of the probable host plant.



### Comparative notes

The size, with the glabrous elytra, the presence of yellow pubescence not covering the integument on pronotum and on lateroterga, and the entire premarginal carina, make this species unique in the Central America.

### *Agrilus (Agrilus) schmidli* n. sp. (Fig. 11)

#### Material examined

Holotype ♂: Panama, S. Lorenzo Protected Area, 9°17'N – 79°58'W, 19.IX-16.X.2003, canopy (crane), rodendo foglie di [eating leaves of] *Simaruba amara*, IBISCA project (MCCI). Paratypes: 12 exx. ♂ and ♀, idem (MCCI, STRI); 2 ♂ and 1 ♀, idem, IBISCA project, fogging IKOS 6; 1 ♀ idem, IBISCA project, fogging I-5; 1 ♀, idem, IBISCA project, fogging R3-4; 1 ♂, idem, IBISCA project, fogging IKOS 3 (MCCI); 2 ♂, idem, 13 March 2001, 1 ♂, idem, 16 March 2001; 1 ♂ idem, 22 Dec. 2001, F. Ødegaard leg. (all on *Simaruba amara*) (FODC).

#### Description of the holotype

Length 3.5 mm. Black, with stripes and spots of white pubescence on elytra.

Head rounded, vertex 1/3 the width of anterior margin of pronotum. Frons glabrous, emerald green, separated from clypeus by transverse carina. Antennae serrate from article 4.

Pronotum convex, glabrous, wider anteriorly, with posterior angles right. Anterior edge rounded and produced at middle, before the eyes. Sculpture with uniform transverse striae. Premarginal carina not entire, curved and short. Marginal carinae separate from base. Prosternal lobe with anterior edge sinuate. Prosternal plate widened at the end. Scutellum with two parallel transverse carinae.

Elytra with apex subacute and microdenticulate. Disc with a spot of white pubescence on the humeral callus. Other similar pubescence anterior to the apex and before the middle: this last has an "X" shape, with anterior segments shorter, not reaching the lateral edges.

Ventral side black, with white spots at the first laterotergum and at the second sternum. White pubescence also at the metepisternum and metacoxa.

Legs metallic green. Metatarsus short: first article as long as the sum of the following two only. Anterior claws bifid, with the internal teeth thickened.

Aedeagus black, sclerotized, thin. Lateral edges few arcuate. Median lobe acute (fig. 28).

#### Paratypes

Length from 3.5 to 4.2 mm. The shape and the pattern of pubescence is very constant. Females are distinguishable by having the frons brown and anterior claws mucronate.

#### Etymology

This species is named after Jürgen SCHMIDL, another colleague responsible for the IBISCA fogging protocol.

#### Comparative notes

*A. schmidli* n. sp. belongs to the group characterized by having the median pubescence on the elytra forming an "X", that in Central America has several species. By having the premarginal carina that is not entire, this new species is near *A. buscki* Fisher, 1938, from Panama and *A. tezcatlipocai* Fisher, 1938 from Mexico. It differs by having the pronotal sculpture with transverse striae, that in the two Fisher species is punctiform, without transverse striae.

***Agrilus (Agrilus) metropolitanus* n. sp.** (Fig. 12)

Material examined

Holotype x: Panama, Parque Natural Metropolitano, 29 April 1996, on *Piper reticulatum*, F. Ødegaard leg. (MCCI). Paratype ♂, idem, 5 February 1995 (FODC); Paratype ♂, 5.0 mi. NE Gamboa, 09°10'00"N – 79°45'00"W, sample 1-5, 12 July 1976 Montgomery & Lubin coll., canopy fogging experiment in *Luehea seemanni*, pyrethrin fog (USNM).

## Description of the Holotype

Length 4.9 mm. Color black non-metallic, with stripes and spots of white pubescence on elytra.

Vertex 1/3 the width of anterior edge of pronotum, black. Frons olive green, glabrous. Clypeus separate from frons by a depression. Antennae long, serrate from article 4.

Pronotum elongate, with lateral margins not very curved, sinuate before the posterior angles that are acute. Disc convex; sculpture granulose, with inconspicuous short white pubescence. Premarginal carina absent. Marginal carinae subparallel, separate from base. Prosternal lobe with anterior margin sinuate; prosternal plate with lateral edges parallel.

Scutellum transverse with carina placed anteriorly.

Apex of elytra rounded and microdenticulate. Four series of pubescent spots on disc: the first, rounded, in the humeral calli; the second, V-shaped, at 1/4 of length; the third, M-shaped before the middle, and the fourth, rhomboidal and larger, at 3/4.

Ventral side with white pubescent spots at the base of first sternum, at the metacoxa, metepisternum, mesepimeron and at the posterior angle of pronotum.

Legs with anterior claws bifid inside and mucronate at the outside. Metatarsus shorter than the metatibia: First metatarsomere as long as the sum of the following three.

Aedeagus little sclerotized, black at the distal part only. Median lobe with apex rounded (fig. 31).

## Description of the paratypes

Length 5.6 and 6 mm. The only differences are in the size.

## Etymology

From the type locality.

## Comparative notes

*A. metropolitanus* n. sp. belongs to the same group of species as *A. schmidli* n. sp. As for the pattern of pubescence, it is similar to *A. signatus* Waterhouse, 1889 from Nicaragua. This species differs by having the pronotum shorter and wider, with lateral edges rounded.

***Agrilus (Agrilus) yvesi* n. sp.** (Fig. 13)

Material examined

Holotype ♂: Panama, Parque Natural Metropolitano, 25 October 1995, leg. F. Ødegaard (MCCI). Paratypes: 2 ♀, idem, 17 May 1996 on *Maeluta tinctoria* (MCCI and FODC).

## Description of the holotype

Length 5.6 mm. Color dark non-metallic, with transverse stripes and spots of grey pubescence on elytra.

Vertex 1/3 the width of anterior edge of pronotum, bilobate, and deeply sulcate in middle, forming rounded periorcular crests advanced as regards of ocular line, like the African subgenus *Robertius* Théry, 1947. Frons entirely covered by dense pruinose white pubescence concealing the integument. Clypeus glabrous, metallic bronze like the antennae.

Pronotum with green reflections, wider in the posterior  $\frac{3}{4}$ , with lateral edges evenly rounded and posterior angles obtuse. Disc with two depressions in middle, behind the eyes and before the scutellum, covered by brief and scattered pubescence. Sculpture composed of transverse striae. Premarginal carina not entire. Lateral carinae separated from base. Prosternal lobe with anterior edge entire, rounded. Prosternal plate widened at the apex.

Scutellum triangular, transversely carinate.

Elytra brown, with apex metallic bronze, rounded and microdenticulate. Disc with a wide line of pubescence along the suture in the basal half, interrupted by a thin glabrous line at the middle. Two transverse parallel stripes of pubescence before the apex, V-shaped, both joined by a thin line of perisutural pubescence.

Sterna with caducous white pruinose spots at the side, covering the integument. Metatarsomere as long as the metatibia: first article as long as the sum of following three. Anterior claws bifid.

Aedeagus elongate, black. Median lobe pointed (fig. 32).

#### Description of the paratypes

Length 6 and 6.3 mm. The differences are sexual: pronotum brown like the elytra and first metatarsomere shorter than the sum of following three.

#### Etymology

After the name of the friend Yves BASSET, working on STRI.

#### Comparative notes

In the form of the head and pronotum, *A. yvesi* n. sp. is near to *A. exustus* Waterhouse, 1889 from Nicaragua. The latter differs principally in having larger size, by the pattern pubescence and by the elytral apex. *A. paynali* Fisher, 1938 from Mexico resembles this new species by the pubescence on elytra, but it has the frons flat and pronotum quadrate.

#### *Agrilus (Agrilus) tynnanthi* n. sp. (Fig. 14)

##### Material examined

Holotype ♂: Panama, Parque Natural Metropolitano, 26 April 1996, F. Ødegaard leg., on *Tynnanthus croatianus* (MCCI).

##### Description

Length 6.6 mm. Dorsal color dark bronze. Body very slender and parallel-sided.

Vertex  $\frac{1}{3}$  the width of anterior edge of pronotum, slightly sulcate medially. Eyes large, protruding. Frons black, glabrous, with exception of a white spot of pruinose pubescence at the base. Clypeus separated from frons by a transverse V-shaped carina. Antennae short and small, serrate from article 4.

Pronotum produced medially, between the eyes, wider anteriorly, with lateral margins slightly arcuate and posterior angles obtuse. Disc with cupreous reflections, convex, but flat medially. Striae uniform and thickened. Premarginal carina absent. Marginal carinae very open anteriorly, joined posteriorly.

Scutellum black, triangular, with transverse V-shaped carina.

Elytra with bronze reflections, parallel-sided and elongate. Apex squared and microdenticulate. Pale yellow pubescence at the humeral callus, anterior to middle forming striae along the suture, and with two elongate spots at  $\frac{3}{4}$ .

Ventrites black, with white pruinose spots, as on the frons, at the sides of the first and second sternum and at the first laterotergite. Similar pubescence covers the metacoxa.

Legs black. Metatarsus very short, with the first metatarsomere only as long as the second. All claws mucronate.

Aedeagus relatively small, black, sclerotized, enlarged apically. Median lobe acute (fig. 33).

### Etymology

From the tree where the species was found.

### Remarks and comparative notes

The shortness of the antennae and of the first metatarsomere places *A. tynnanthi* n. sp. among the species assigned by Waterhouse to the genus *Paradomorphus* (1889), synonymized with *Agrilus* by HESPENHEIDE (1974).

A comparison with the two species of this group from Panama, *A. latevittatus* (Waterhouse, 1889) and *A. obscureguttatus* (Waterhouse, 1889), is not useful because of the large morphological differences. Instead, *A. tynnanthi* n. sp. is similar to *A. comsumptoris* Fisher, 1944 from Trinidad. This latter differs by being black, presence of a premarginal carina that is not entire, elytral apex more denticulate, absence of white spot on the frons, and the pronotum wider in the median part.

### *Agrilus (Agrilus) melanocerus* n. sp. (Fig. 15)

#### Material examined

Holotype ♀: Panama, San Lorenzo Protected Area, 9°17'N – 79°58'W, 9-28.V.2004, IBISCA project, on *Acacia melanoceras* Curletti & Cizek leg. (MCCI).

#### Description

Length 7.8 mm. Color dark metallic green, reddish at the apex and at the sides of pronotum and elytra.

Eyes large, not protruding. Vertex sulcate, with oblique transverse sculpture. Frons glabrous, brown, with the same sculpture and sulcus. Clypeus separate from frons by transverse carina. Antennae serrate from article 4.

Pronotum with reddish reflections at the sides. Lateral edges slightly arcuate, posterior angles acute, sculpture with strong, transversely oblique striae, without microsculpture. Premarginal carina not entire, arcuate and half as long as the pronotum. Lateral carinae joined at the base. Anterior margin of prosternal lobe rounded. Prosternal plate flat and wide.

Scutellum large, triangular, transversely carinate.

Elytra with apex rounded and microdenticulate, depressed along the suture. Three pairs of white pubescent spots: the first at the humeral callus, the second before the middle, the third at  $\frac{3}{4}$  of length; the median spots are more elongate than the other two. Sterna dark bronze, with denser pubescence on laterobasal sides. White pubescence also on the first laterotergum and on metacoxa. Apical edge of the last sternum sinuate.

Legs metallic bronze: first metatarsomere long as the sum of the following three. All claws mucronate.

### Etymology

From the *Acacia* species where the specimen was found.

### Remarks

Among the Central American species with 6 (3+3) spots on elytra, *A. melanocerus* n. sp. is unique by the shape of its pronotum and head.

### *Agrilus (Agrilus) rufuscapite* n. sp. (Fig. 16)

#### Material examined

Holotype: Panama, Colon prov., S. Lorenzo Protected Area, 9°17'N – 79°58'W, 15 Oct. 2003, F. Ødegaard leg. (MCCI). Paratypes: 1 ♀, idem, IBISCA project, 9-28.V.2004, sticky trap on *Inga oerstediana*, G. Curletti leg. (MCCI); 2 ♀, idem, IBISCA project, 27.V.2004, fogging IK 3 re, J. Bail leg. (MCCI).

#### Description of the holotype

Length 6.7mm. Head red, pronotum dark green, elytra bronze.

Frons brilliant red, glabrous. Clypeus with transverse carina. Eyes large: consequently the genae are small; white pubescence on the genae. Antennae elongate, serrate from article 4.

Pronotum convex, elongate, with lateral edges slightly arcuate, sinuate before the posterior angles that are acute. Sculpture composed of transverse striae. One spot of white pubescence at the side, before the anterior angle. Premarginal carina entire, joined anteriorly to the lateral margin. Marginal carinae open in fore part, parallel in middle and suddenly joined before the base. Anterior edge of prosternal lobe rounded. Prosternal plate flat and wide at the apex.

Scutellum darker than elytra, transversely carinate.

Elytra with apex concave, forming obtuse denticulations at the extremities. Disc slightly depressed at middle along the suture. Three pairs of white pubescent spots: the first at the humeral callus, the second before the middle, the third at 2/3 of length; the second more elongate than the other two.

Ventral side metallic bronze. Rounded pubescent pruinose white spot on the basal laterotergum, well visible from the back. Another similar spot, but bigger, at the side of the second visible sternum. White pubescence also on metacoxa, metepisterna and mesepimeron.

First metatarsomere longer than the sum of the following three. All claws mucronate.

#### Description of the paratypes

Length 4.5, 5.1 and 5.5 mm. The specimens found with fogging are smaller, with pronotum less elongate and integument melanic with only the frons pale red. However, I cannot find any morphological features to indicate these specimens are a different species. In one of this last specimen the concave apical apex is not so evident.

#### Etymology

For the color of head.

#### Comparative notes

In Central America only this species has the concave elytral apex, three pairs of pubescent spots on the elytra and another spot on the pronotum.

#### *Agrilus (Agrilus) atlanticus* n. sp. (Fig. 17)

##### Material examined

Holotype ♂: Panama, Colon Province, Fort Sherman, 9°17'N – 79°59'W, 15 May 2001, F. Ødegaard leg., on *Dendropanax arboreus* (MCCI). Paratype ♀, idem, 3 May 2002, on *Nectandra purpurascens* (MCCI).

#### Description of the holotype

Length 6.3 mm. Color dark bronze. Head strongly sulcate medially, bilobate. Eyes protruding. Vertex large, ½ the width of anterior edge of pronotum. Frons green, glabrous, wider in upper part. Antennae small and short.

Pronotum very elongate, wider in anteromedial part, slightly arcuate and acute at the posterior angles. Disc convex, with a median longitudinal sulcus in the posterior half, slightly visible. Anterior edge rounded and produced in middle. Sculpture with superficial but very thickened striae. Premarginal carina entire, joined anteriorly to the lateral edge, surrounded by white pubescence in the anterior half. Marginal carinae curved anteriorly, joined at the base.

Scutellum quadrangular, transversely carinate.

Elytra with apex rounded and denticulate. Disc with three pairs of white pubescent spots: the first, very small, at the humeral callus, the second, elongate and larger, before middle, the third, more rhomboidal, at ¾ of length.

One pubescent white spot also on the first laterotergum and at the anterolateral side of the second tergum.

Legs with anterior and median tibiae curved. First metatarsomere shorter than the sum

of the following three. All claws bifid, also the posterior have the internal hook little shorter and thinner.

Aedeagus testaceous at the base, black at the apex. Apex of median lobe acute (fig. 34).

#### Description of the paratype

Length 7 mm. The dorsal color is more brilliant. The female has the vertex and frons red. The metatarsus is shorter, with the basal metatarsomere as long as the sum of the following two.

#### Etymology

From the type locality, near the Atlantic Ocean.

#### Comparative notes

By the body structure, especially the pronotum and head shape, *A. atlanticus* n. sp. is similar to *A. tynnanthi* n. sp. The latter differs by having the premarginal carina absent, the pronotum structure, elytral apex and the elytral pubescence.

#### *Agrilus (Agrilus) colonicus* n. sp. (Fig. 18)

##### Material examined

Holotype ♂: Panama, S. Lorenzo Protected Area, 9°17'N – 79°58'W, 9-28.V.2004, IBISCA project, G. Curletti leg., sticky trap on *Inga oerstediana* (MCCI). Paratypes: 7 ♀, idem; 1 ♀ idem, 19.IX- 16.X.2003, rodendo foglie di [eating leaves of] *Inga goldmanni* (MCCI).

##### Description of the holotype.

Length 4.6 mm. Color black dorsally, with three pairs of white pubescent spots on elytra, along the suture.

Head rounded: eyes not protruding, in the same plane as the frons in dorsal view. Vertex 1/3 the width of anterior edge of pronotum. Frons glabrous, with sericeous sculpture, flat, emerald green. Clypeus without transverse carina.

Pronotum wider medially, with lateral margins sinuate before the base, forming acute basal angles. Disc convex, with bronze reflections at the base. A superficial slightly visible longitudinal sulcus medially. Sculpture with uniform transverse striae. Premarginal carina broken in two: basal part well visible, curved, 1/3 as long as the pronotum; anterior part vaguely visible, thin, parallel to the lateral edge and joined with it in the anterior angle, whereas the posterior origin is near the top of the basal part. Marginal carinae joined at the base. Anterior margin of prosternal lobe rounded. Prosternal plate parallel-sided.

Scutellum triangular with transverse carina placed posteriorly.

Elytra with apex rounded and microdenticulate. The first slightly visible pair of pubescent spots is at the humeral callus; the second, elongate, before the middle, the third, ovoid, at 3/4 of length.

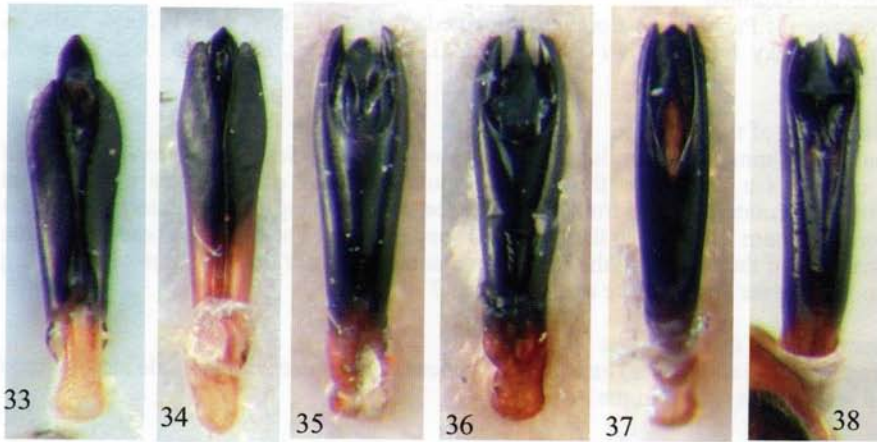
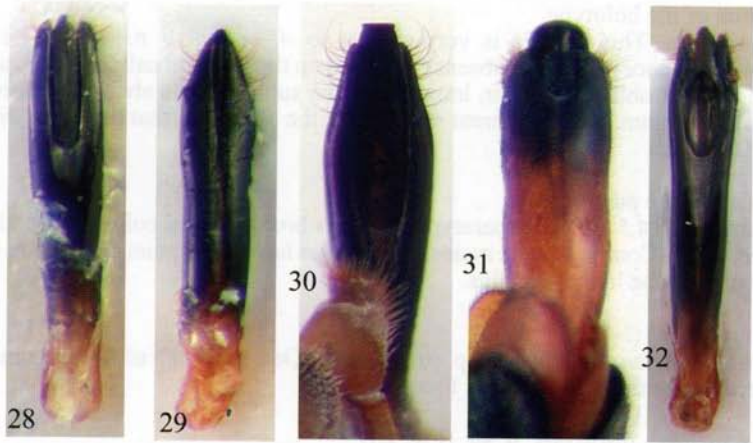
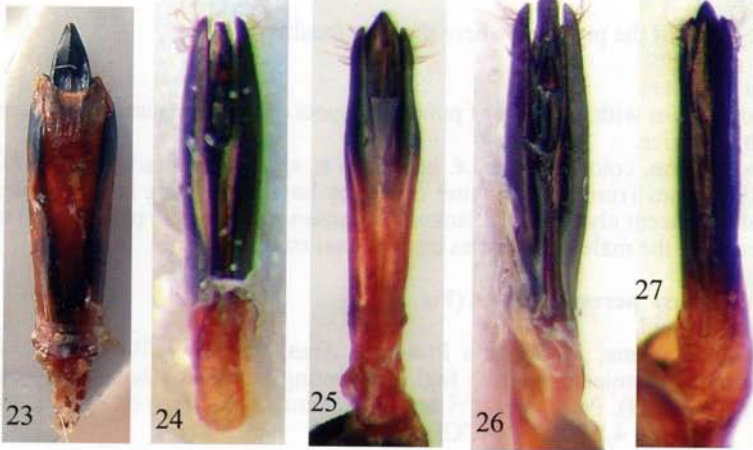
Sterna nearly glabrous. White pubescence on the first laterotergum, on metacoxa and metepisternum. Two projecting tubercles at the middle of the first sternum. Apex of the last visible sternum sinuate.

Legs metallic, olive-green. All claws mucronate. Metatarsus short: first metatarsomere as long as the sum of the following two.

Aedeagus sclerotized, as in fig. 35.

##### Description of the paratypes

Length from 4.1 to 4.8 mm. Three specimens have short but visible pubescence at the sides of the pronotum. In two specimens the anterior half of the premarginal carina is not well developed. The other differences are sexual: the females have the frons cupreous or black, legs dark bronze and do not have the two tubercles on the basal sternum.



### Etymology

From the name of the province where the type locality is placed.

### Comparative notes

Species of *Agrilus* with the pairs of pubescent spots on the elytra are well represented in Central America.

By the body form, color and size, *A. colonicus* n. sp. is very similar to *A. adamsoni* Fisher, 1944 from Trinidad. The latter differs by having the body less elongate, only 2 pairs of pubescent elytral spots, lacking the anterior half of the premarginal carina, and absence on the male of tubercles on the basal sternum.

### *Agrilus (Agrilus) peresoso* n. sp. (Fig. 19)

#### Material examined

Holotype ♂: Panama, S. Lorenzo Protected Area, 9°17'N – 79°58'W, 19.IX/16.X.2003, IBISCA project, rodendo foglie di [eating leaves of] *Inga goldmanni*, G. Curletti leg. (MCCI). Paratypes: 1 ♂ and 1 ♀, idem, sticky traps on *Inga goldmanni* (MCCI); 1 ♀ idem, 4.VI.2004 (MCCI).

#### Description of the holotype

Length 4.4 mm. This species is very similar to *A. colonicus* n. sp. The few but important differences are in the absence of a spot on the humeral callus; in elytral apex not rounded, but obliquely linear, longer near the suture; in the absence of tubercles on the basal sternum; in the different structure of the aedeagus, that has the penis very pointed (fig. 36).

#### Description of the paratypes

Length from 4 to 4.5 mm. The paratype male has bronze dorsal color and one female has green elytra. Contrary to the males, the females have three pairs of spots on elytra, with the first on the humeral callus.

### Etymology

After the local name of *Bradypus* sp. (tree sloths). One specimen of this mammal was on the tree where the holotype was found.

### *Agrilus (Agrilus) bothrops* n. sp. (Fig. 20)

#### Material examined

Holotype ♂: Panama, S. Lorenzo Protected Area, 9°17'N – 9-28/V/2004, IBISCA project, sticky trap on *Inga oerstediana*, G. Curletti leg. Paratypes: 1 ♂ and 1 ♀, idem.

#### Description of the holotype

Length 4.4 mm. Very similar to the previous two species: *A. peresoso* n. sp. and *A. colonicus* n. sp. It has three elytral spots and apex of the elytra rounded and microdenticulate. It differs from both these species by having an anterolateral pubescent spot at sternum 2 (absent in the other two species), by the scattered pubescence on the distal part of the elytra, by the first metatarsomere shorter than the sum of following two, and by the shape of the aedeagus (fig. 37).

#### Description of the paratypes

Length 4.1 (♂) and 4.5 (♀) mm. No differences are observed. The female has the frons and legs brown (green in the males).

### Etymology

After the name of the snake found in the same place.



***Agrilus (Agrilus) viridiaeris* n. sp.** (Fig. 21)

## Material examined

Holotype ♂: Panama, S. Lorenzo Protected Area, 9°17'N – 79°58'W, 19.IX – 16.X.2003, IBISCA project, rodendo foglie di [eating leaves of] *Inga goldmanni*, G. Curletti leg. Paratypes: 1 ♀, idem; 4 ♀, idem, 9-28.V.2004, sticky traps on *Inga oerstediana*, G. Curletti leg.

## Description of the holotype

Length 4.3 mm. Pronotum green, elytra bronze, with a line of white pubescence medially, along the suture.

Vertex brown,  $\frac{1}{4}$  the width of anterior edge of pronotum. Frons quadrate, glabrous, emerald green, with sericeous sculpture. Clypeus without carina. Antennae thin, serrate from article 5. Eyes large, practically without genae.

Pronotum wider anteriorly, convex, depressed at the sides. Posterior angles subacute. Anterior edge very produced in middle. Sculpture superficial, composed of uniform transverse striae. Color green, except the sides, which are bronze. Premarginal carina strong, not entire, longer than  $\frac{1}{3}$  of pronotum. Marginal carinae joined before the base. Prosternal lobe with anterior margin rounded.

Scutellum bronze, oval anteriorly, acuminate posteriorly, with transverse carina.

Elytra with apex rounded and microdenticulate. Disc depressed along the suture, the depression with pubescence covering entire surface in the posterior part.

Sterna nearly glabrous. White pubescence on metacoxa, metepisterna and at all the lateroterga. Legs metallic green; metatarsus short with the first metatarsomere longer than the sum of the following two. All claws mucronate.

Aedeagus thin, black, sclerotized, with apex of median lobe acuminate (fig. 38).

## Paratypes

Length from 3.9 to 4.8 mm. In the paratypes (all females), the elytral pubescence is more uniform, forming three pairs of elongate pubescent spots: the first at the humeral callus, the second before the middle, the third at  $\frac{3}{4}$  of length. The pronotum is entirely green. Three specimens have the frons green, two have the frons bronze.

## Etymology

From the Latin names 'viridis' = green and 'aeris' = bronze.

## Comments

This species is also similar to the previous three species (*A. colonicus*, *A. peresoso*, *A. bothrops*). It is distinguishable by its more elongate body, green pronotum, and by the aedeagus shape.

***Agrilus (Agrilus) unus* n. sp.** (Fig. 22)

## Material examined

Holotype ♀: Panama, S. Lorenzo Protected Area, 9°17'N – 79°58'W, 9-28.V.2004, IBISCA project, sticky trap 20.V.04 on *Inga oerstediana*, Curletti leg.

## Description

Length 4 mm. Pronotum and vertex bronze-brown, elytra black with four pairs of white pubescent spots along the suture.

Head rounded and protruding in dorsal view. Frons glabrous, smooth, green dark. Clypeus without transverse carina.

Pronotum glabrous, wider medially, with posterior angles acute. Disc with two elongate medial depressions, behind the eyes and anterior to the scutellum. Transverse uniform striae. Premarginal carina not entire, with basal origin not in the posterior angle, but more medial on basal edge. Marginal carinae separate from the base. Prosternal lobe with anterior margin sinuate in middle.

Scutellum black, carinate.

Elytra with apex rounded and microdenticulate. The four pairs of pubescent spots are placed at the humeral callus, before the middle, at  $\frac{3}{4}$  of length and at the apex.

This apical spot is less evident, for having the pubescence less brilliant and thinner. Pubescent rounded spots at the anterolateral sides of sterna 1 and 2, the second larger than the first. White pubescence also present at the first laterotergum, at the metacoxa and at the metepisterna. Apex of last visible sternum rounded.

Legs black. All claws mucronate. First metatarsomere less than the length of the sum of following three.

#### Etymology

From Latin. This word in this case is not employed like a number: 'unus' also means unique, single. For the single specimen known and described.

#### Discussion

With superficial observation, this species may be confused with the previous four species (*A. colonicus* n. sp., *A. peresoso* n. sp., *A. bothrops* n. sp. and *A. viridiaeris* n. sp.). However, some characters allow specific differentiation: basal origin of premarginal carina not in the basal angle, prosternal lobe sinuate, four pubescent spots on the elytra instead of three, two pubescent laterobasal spots on the sterna, are the most important.

#### Acknowledgments

Without the help, encouragement and involvement of museum curators and colleagues in the field, this work would not have been possible. In particular I am grateful to my colleague Henry Hespeneide (Dept. of Ecology and Evolution, University of California) for taxonomic help, to Norman Woodley (Smithsonian Institute, Washington) for English correction, to friends Hector Barrios (University of Panama) and Yves Basset (Smithsonian Tropical Research Institute, Panama) for logistic support; to Svatopluk Bílý (Narodní Muzeum, Praha), Alain Drumont (Institut Royal de Sciences Naturelles, Bruxelles), Malcolm Kerley (National History Museum, London) and Steven Lingafelter (Smithsonian Institution, Washington) for the help in the study of Obenberger, Waterhouse, Kerremans, Chevrolat and Fisher collections; to Frode Ødegaard (Norwegian Institute for Research Nature, Trondheim) for giving me the material collected in previous years in the Parque Natural Metropolitano near Panama City, to friends Henri-Pierre Aberlenc (CIRAD, Montpellier) and Lukas Cizek (Institute of Entomology, Ceske Budejovice); to father Giorgio Battifolo (Missions Consolata House, London) and Steven Lingafelter for hospitality on occasion of study travels to the NHM and the USNM; to the Canopy Raft Consortium (CRC: Pro-Natura International, Océan Vert, Opération Canopée), Les ACCRO-branchés and the Smithsonian Tropical Research Institute (STRI), particularly the Canopy Crane team and its crane operators, for assistance with logistics in the field. Core funding for IBISCA was provided by Solvin-Solvay, STRI, the United Nations Environment Programme, a Walcott endowment fund grant from the Smithsonian Institution, the European Science Foundation, the Global Canopy Programme and CRC. I also thank all IBISCA participants for help in the field and collegial activities.

#### References

- CURLETTI G., 2000 – In pallone sulla foresta. Piemonte Parchi, 94: 1-6.  
CURLETTI G., 2001 – The genus *Agrilus* in Australia. Jewel Beetles n. 9, 76 pp.  
CURLETTI G., 2002 – Il "Radeau des Cimes" un'appassionante avventura umana e scientifica. Piemonte Parchi, 119: 10-13.  
CURLETTI G., 2004 – Trappole nella foresta. Piemonte Parchi, 141: 36-38.  
HESPEHEIDE H. A., 1974 – Nomenclatural notes on the Agrilinae: II *Agrilus*. Entomologica News, 85: 48-53.  
MAES J.M., HESPEHEIDE H.A. & V. DEN BERGHE, 1993 – Catálogo de los Buprestidae de Nicaragua. Revista Nicaraguense de Entomología, 25: 21-35.  
POOLE R.W. & GENTILI P., 1996 – Nomina Insecta Nearctica. A Check List of the Insects of North America, Entomological Information Service, 1.

**Legends**

- Fig. 1 – *Agrilus odegaardi* n. sp., holotype, dorsal view  
Fig. 2 – *Agrilus incredulus* n. sp., holotype, dorsal view  
Fig. 3 – *Agrilus centunculus* n. sp., holotype, dorsal view  
Fig. 4 – *Agrilus cizeki* n. sp., holotype, dorsal view.  
Fig. 5 – *Agrilus rossanae* n. sp., holotype, dorsal view.  
Fig. 6 – *Agrilus hectori* n. sp., holotype, dorsal view.  
Fig. 7 – *Agrilus baili* n. sp., holotype, dorsal view  
Fig. 8 – *Agrilus faganae* n. sp., holotype, dorsal view.  
Fig. 9 – *Agrilus ingae* n. sp., holotype, dorsal view.  
Fig. 10 – *Agrilus adinocephalus* n. sp., holotype, dorsal view.  
Fig. 11 – *Agrilus schmidli* n. sp., holotype, dorsal view.  
Fig. 12 – *Agrilus metropolitanus* n. sp., paratype, dorsal view.  
Fig. 13 – *Agrilus yvesi* n. sp., holotype, dorsal view.  
Fig. 14 – *Agrilus tynnanthi* n. sp., holotype, dorsal view.  
Fig. 15 – *Agrilus melanocerus* n. sp., holotype, dorsal view.  
Fig. 16 – *Agrilus rufuscapite* n. sp., holotype, dorsal view.  
Fig. 17 – *Agrilus atlanticus* n. sp., holotype, dorsal view.  
Fig. 18 – *Agrilus colonicus* n. sp., holotype, dorsal view.  
Fig. 19 – *Agrilus peresoso* n. sp., paratype, 4.4 mm, dorsal view.  
Fig. 20 – *Agrilus bothrops* n. sp., holotype, dorsal view.  
Fig. 21 – *Agrilus viridiaeris* n. sp., holotype, dorsal view.  
Fig. 22 – *Agrilus unus* n. sp. holotype, dorsal view.  
Fig. 23 – *Agrilus odegaardi* n. sp., aedeagus, dorsal view, 4.5 mm  
Fig. 24 – *Agrilus incredulus* n. sp., aedeagus, ventral view, 1.3 mm  
Fig. 25 – *Agrilus centunculus* n. sp., aedeagus, ventral view, 1.1 mm.  
Fig. 26 – *Agrilus cizeki* n. sp., aedeagus, ventral view, 1.4 mm  
Fig. 27 – *Agrilus baili* n. sp., aedeagus, dorsal view, 0.9 mm  
Fig. 28 – *Agrilus schmidli* n. sp., aedeagus, dorsal view, 0.9 mm  
Fig. 29 – *Agrilus hectori* n. sp., aedeagus, dorsal view, 1.2 mm  
Fig. 30 – *Agrilus faganae* s. sp., aedeagus, dorsal view, 1 mm  
Fig. 31 – *Agrilus metropolitanus* n. sp., aedeagus, dorsal view, 1.2 mm  
Fig. 32 – *Agrilus yvesi* n. sp., aedeagus, dorsal view, 2 mm  
Fig. 33 – *Agrilus tynnanthi* n. sp., aedeagus, ventral view, 1,3 mm  
Fig. 34 – *Agrilus atlanticus* n. sp., aedeagus, ventral view, 1.7 mm  
Fig. 35 – *Agrilus colonicus* n. sp., aedeagus, dorsal view, 1.2 mm  
Fig. 36 – *Agrilus peresoso* n. sp., aedeagus, dorsal view, 1.2 mm  
Fig. 37 – *Agrilus bothrops* n. sp., aedeagus, dorsal view, 1.1 mm  
Fig. 38 – *Agrilus viridiaeris* n. sp., aedeagus, dorsal view, 1.2 mm