

Revision of the *Agrilus spectabilis* species-group (Coleoptera: Buprestidae: Agrilinae)

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Abstract. The *Agrilus occipitalis* species-group, with seventeen included species, is defined and diagnosed. A complete list of references, examined type and non-type material, known host plants and distribution overview are given for each taxon. A key and a table with selected diagnostic characters are given for all the taxa to facilitate their determination. Habitus and aedeagi of all taxa are pictured. The following new taxonomic and nomenclatural acts are proposed. Eight new species are described as follows: *Agrilus calcarifer* sp. nov., *A. capricornus* sp. nov., *A. fasciatus* sp. nov., *A. imitor* sp. nov., *A. lampros* sp. nov., *A. magnificus* sp. nov., *A. montanus* sp. nov. and *A. tricoloris* sp. nov. Proposed synonym: one new synonym is proposed: *motobuanus* Fukutomi, 2006 syn. nov. (synonym of *obscurcinctus* Obenberger, 1935). New lectotype designation: one lectotype is designated: *Agrilus amulius* Obenberger, 1936.

INTRODUCTION

The newly established *A. spectabilis* species-group comprises species with a contrasting dark pattern on the pronotum and elytra which rarely occurs in *Agrilus*. Some species of this group were included by Jendek & Grebennikov (2011) in the *A. smaragdinus* species-group, based on the similar body shape and reduced or missing prehumeral. However, different trends in the dorsal coloration (contrasting dark striae) and pubescence (elytral spots), as well as the unique sexual modifications in male (clusters of setae on basal ventrite, modifications of tibiae) qualify a separate group for these splendid and striking species.

Two species from *A. smaragdinus* species-group, *A. peregrinus* Kiesenwetter, 1879 and *A. notoclavus* Jendek, 2000, are intermediate species which can also be included in *A. spectabilis* species-group, mostly due to the similar dark patterns of the dorsal side. Both species were retained in the original group because of their presumed closer relation to *A. smaragdinus* Solsky, 1876. The *spectabilis* species-group consists of seventeen taxa from East Palaearctic and Oriental Regions. Despite the striking appearance, some species are very similar and can be reliably determined only from the male characters on the ventral side and aedeagus. For this reason, the key to species is exclusively based on the male characters. The female sexual modifications are mentioned in each species.

MATERIAL AND METHODS

The format of the taxonomic part, style of the new species descriptions and morphological terms follow those used in Jendek & Grebennikov (2011). According to Article 74.7.3 of the

ICZN (1999), lectotype designations after 1999 “*must contain an express statement of the taxonomic purpose of the designation*”. Lectotype designation herein is provided in order to preserve the stability of nomenclature by fixing the status of the specimen as the sole name-bearing type of a particular nominal taxon. Annotations, addenda or comments are cited in square brackets [].

Abbreviations for collections

- EJCB Collection of E. Jendek, Bratislava, Slovak Republic [currently in Ottawa, Canada];
EKCS Collection of E. Kučera, Soběslav, Czech Republic;
MHNB Muséum d’histoire naturelle, Béziers, France;
MNHN Muséum national d’Histoire Naturelle, Paris, France;
NMPC National Museum (Natural History), Prague, Czech Republic;
NMW Naturhistorisches Museum Wien, Wien, Austria;
NSMT National Science Museum (Natural History), Tokyo, Japan;
PMCL Collection of P. Moravec, Litoměřice, Czech Republic;
USNM National Museum of Natural History, Washington D.C., U.S.A.;
ZIN Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.

TAXONOMY

Agrilus spectabilis species-group

Figs 1-18 (habitus) Figs 19-35 (aedeagi)

Diagnosis. Size: 5.7-13 mm Body with a contrasting dark medial stripe along the pronotum and/or elytra. Prehumerus absent, rarely indicated in the form of short carina or tuberculus at posterior pronotal angles. Elytra without extensive and discernible pubescence; sometimes with 1-3 pairs of pubescent or tomentose spots or patches. Elytral apices separately arcuate, rarely separately subangulate or cuspidate. Sexual modifications in male are expressed by modifications of legs (bent mesotibia with spur-like apex); prosternal process (shape, protuberances, pubescence) and basal ventrite (1-2 medial clusters of setae). Female with markedly elongate ovipositor.

Distribution. East Asia: CHINA (Fujian, Guizhou, Hunan, Jiangxi, Taiwan, Yunnan); JAPAN (Ryukyu islands). South Asia: INDIA (Arunachal Pradesh, Meghalaya, Sikkim, West Bengal); NEPAL. Southeast Asia: LAOS, MYANMAR, THAILAND and VIETNAM.

Host plants. *Alnus nepalensis* D. Don (Betulaceae); *Acer oblongum itoanum* Hayata (Sapindaceae).

KEY TO MALES

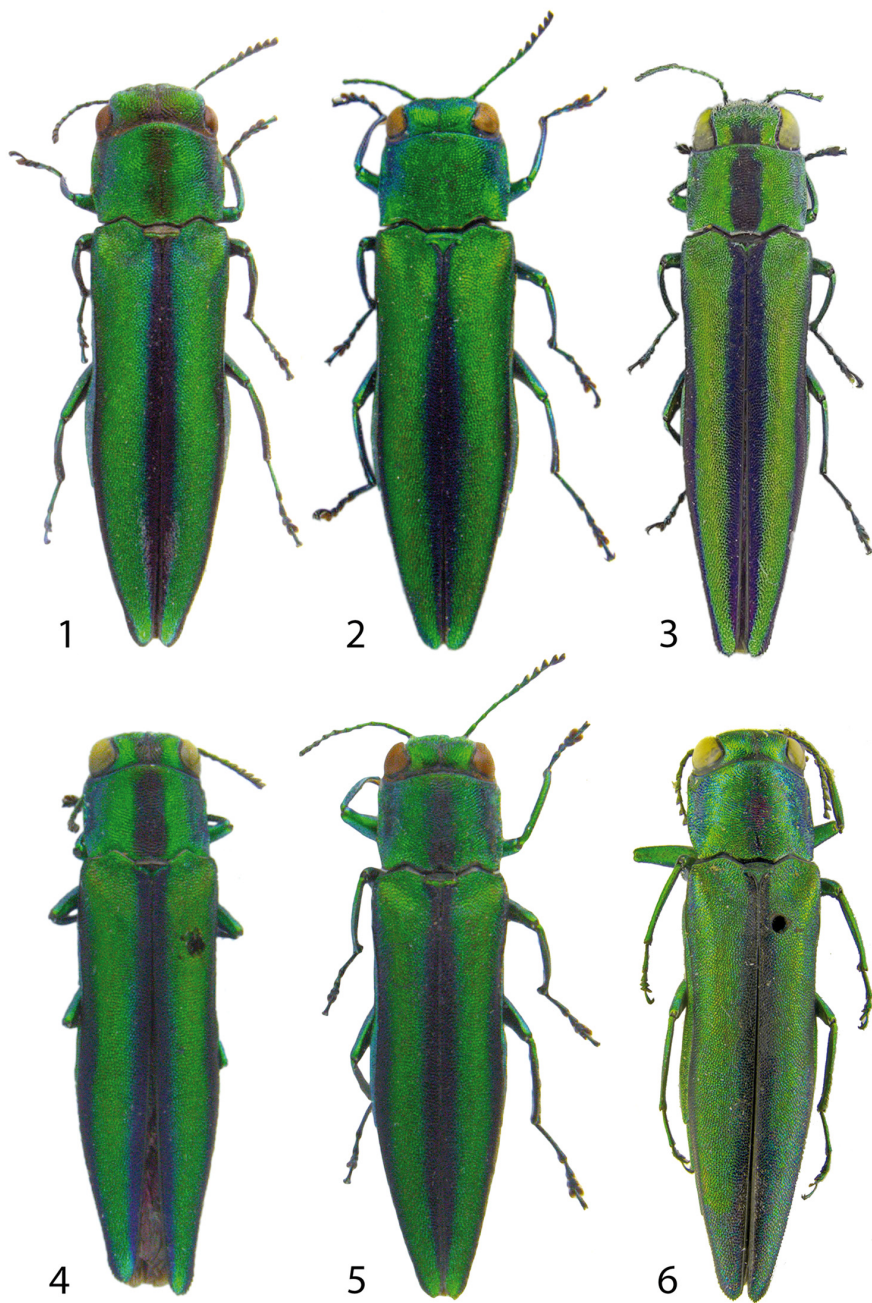
- 1 Larger species (8.2-13.0 mm), pronotum unicolored or with single dark medial fascia; elytra with dark perisutural fascia, glabrous, rarely with whitish strip of pubescence in apical fourth; prosternal process narrowed rarely subparallel, disk glabrous with medial carina or medial protuberance, rarely disk flat, with dense pubescence; basal ventrite medially with single or two small clusters of setae (Figs 1-6)2
- Smaller species (4.8-10.0 mm), body rarely over 8 mm; pronotum unicolored or with single or double dark

- medial fascia; elytra with dark perisutural fascia or whole apex, rarely the whole elytra unicolored; elytra with 1-3 pairs of pubescent or tomentose spots, which are rarely obscure or absent; prosternal process flat or convex on disk, very rarely with medial carina; basal ventrite without discernible sexual modifications (Figs 7-18) ... 7
- 2 Eyes small, distinctly smaller than half width of vertex; frons markedly convex and protruding beyond head outline; elytra with whitish, elongate perisutural strip of pubescence in apical part; basal ventrite with a single medial cluster of setae; body size: 8.6-10.4 mm *A. capricornus* sp. nov. (Fig. 1 habitus, Fig. 19 aedeagus)
- Eyes larger, about as large as or larger than half width of vertex; frons flat or convex but not protruding beyond head outline; elytra glabrous; basal ventrite with two medial clusters of setae (Figs 2-6) 3
- 3 Pronotum unicolored; prosternal process subparallel on disk, with obvious dense, erect, white pubescence; body size: 8.4-10.2 mm *A. lampros* sp. nov. (Fig. 2 habitus, Fig. 20 aedeagus)
- Pronotum with single dark medial fascia; prosternal process narrowed and glabrous on disk, with medial carina or protuberance 4
- 4 Prosternal process with elongate medial protuberance; dark medial strip on vertex obvious 5
- Prosternal process with sharp medial carina; dark medial strip on vertex missing or obscure 6
- 5 Elytral apices narrowly subangulate; aedeagus slender, long and widest at apex; body size 9.5-11.4 mm *A. loosdregti* (Fig. 3 habitus, Fig. 21 aedeagus)
- Elytral apices subarcuate; aedeagus shorter and subparallel; body size: 9.4-11.6 mm *A. fasciatus* sp. nov. (Fig. 4 habitus, Fig. 22 aedeagus)
- 6 Elytral apices cuspidate; pronotal sides feebly arcuate or almost subparallel; pronotal disk with narrow lateral impressions; aedeagus subparallel; body size: 8.2-11 mm *A. calcarifer* sp. nov. (Fig. 5 habitus, Fig. 23 aedeagus)
- Elytral apices arcuate or subangulate; pronotal sides distinctly arcuate; pronotal disk without lateral impressions; aedeagus widest at apex; body size: 10.0-13.0 mm *A. priamus* (Fig. 6 habitus, Fig. 24 aedeagus)
- 7 Elytra unicolored, black or brown-violet; pronotum bicolored with golden sides; elytra with 2-3 pairs of tomentose or pubescent spots (Figs 7-8) 8
- Elytra bicolored with dark medial fascia; pronotum bicolored, rarely unicolored; elytra with or without spots (Figs 9-18) 9
- 8 Pronotal disk with two medial fasciae; eyes larger, almost as wide as half of vertex; body size: 6.2-8.6 mm ... *A. montanus* sp. nov. (Fig. 7 habitus, Fig. 25 aedeagus)
- Pronotal disk with single wide medial fascia; sides golden; eyes distinctly smaller than half of vertex; body size 8.8 mm *A. aurinotus* (Fig. 8 habitus, Fig. 26 aedeagus)
- 9 Prosternal process strikingly dilated 10
- prosternal process narrowed or subparallel 11
- 10 Pronotal process deeply impressed on disk, with sides strikingly exerted; pronotum and vertex carmine or golden-orange without dark fascia, elytral apices arcuate; body size: 6.2-9.4 mm *A. tricoloris* sp. nov. (Fig. 9 habitus, Fig. 27 aedeagus)
- Pronotal process flat on disk, with sides faintly exerted; pronotum with obvious dark, medial fascia, Elytral apices subangulate; body size 7.5-10 mm *A. obscurecinctus* (Fig. 10 habitus, Fig. 28 aedeagus)
- 11 Elytra with dark apical third or half; body size 6.1-8.6 mm *A. fuscipapex* (Figs 11-12 habitus, Fig. 29 aedeagus)
- Elytra with dark perisutural fascia 12
- 12 Elytra with dark perisutural fascia not extending to anterior elytral margin; body smaller, rarely larger than 6 mm; body size 4.2-7.1 mm *A. lacrima* (Fig. 13 habitus, Fig. 30 aedeagus)
- Elytra with dark perisutural fascia extending to anterior elytral margin; body larger, rarely smaller than 6 mm 13
- 13 Frons markedly protruding beyond head outline, body slender, body size 6.5-9.8 mm *A. spectabilis* (Fig. 14 habitus, Fig. 31 aedeagus)
- Frons not protruding beyond head outline, body normal or robust 14
- 14 Elytra with medial and apical pairs of spots; dark perisutural fascia behind medial pair of spots abruptly expanded; body size: 5.7-7.5 mm *A. imitor* sp. nov. (Fig. 15 habitus, Fig. 32 aedeagus)
- Elytra with only apical pair of spots; dark perisutural fascia gradually expanded 15

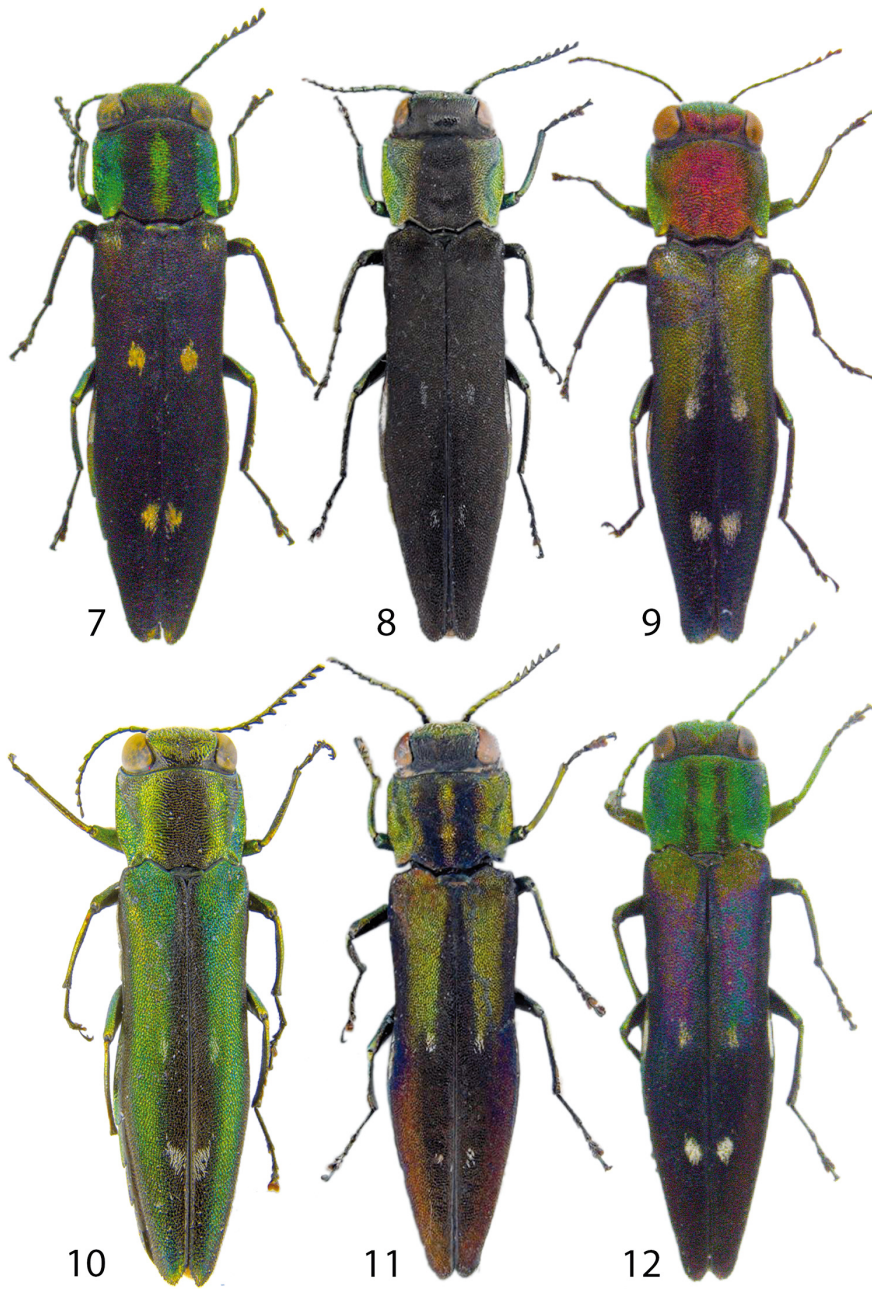
- 15 Pronotum with two obvious, dark, medial fasciae; interspace between fasciae narrower than width of fasciae; aedeagus robust, sometimes slightly asymmetric, widest around middle; body size 6.3-8.6 mm *A. odettae* (Fig. 16 habitus, Fig. 33 aedeagus)
- Pronotum unicolored, with single or two obscure fasciae, interspace between fasciae subequal to or wider than width of fasciae; aedeagus subparallel or widest before apex 16
- 16 Prehumerus absent; apical pair of elytral spots obvious; aedeagus thin and subparallel; body size together: 5.9-8.8 mm *A. magnificus* sp. nov. (Fig. 17 habitus, Fig. 34 aedeagus)
- Prehumerus very short; adjoining to posterior pronotal angle; apical pair of elytral spots very obscure; aedeagus robust and widest before apex; body size 7.0 mm..... *A. amulius* (Fig. 18 habitus, Fig. 35 aedeagus)

Table 1. Selected diagnostic characters for species of the *A. spectabilis* species-group.

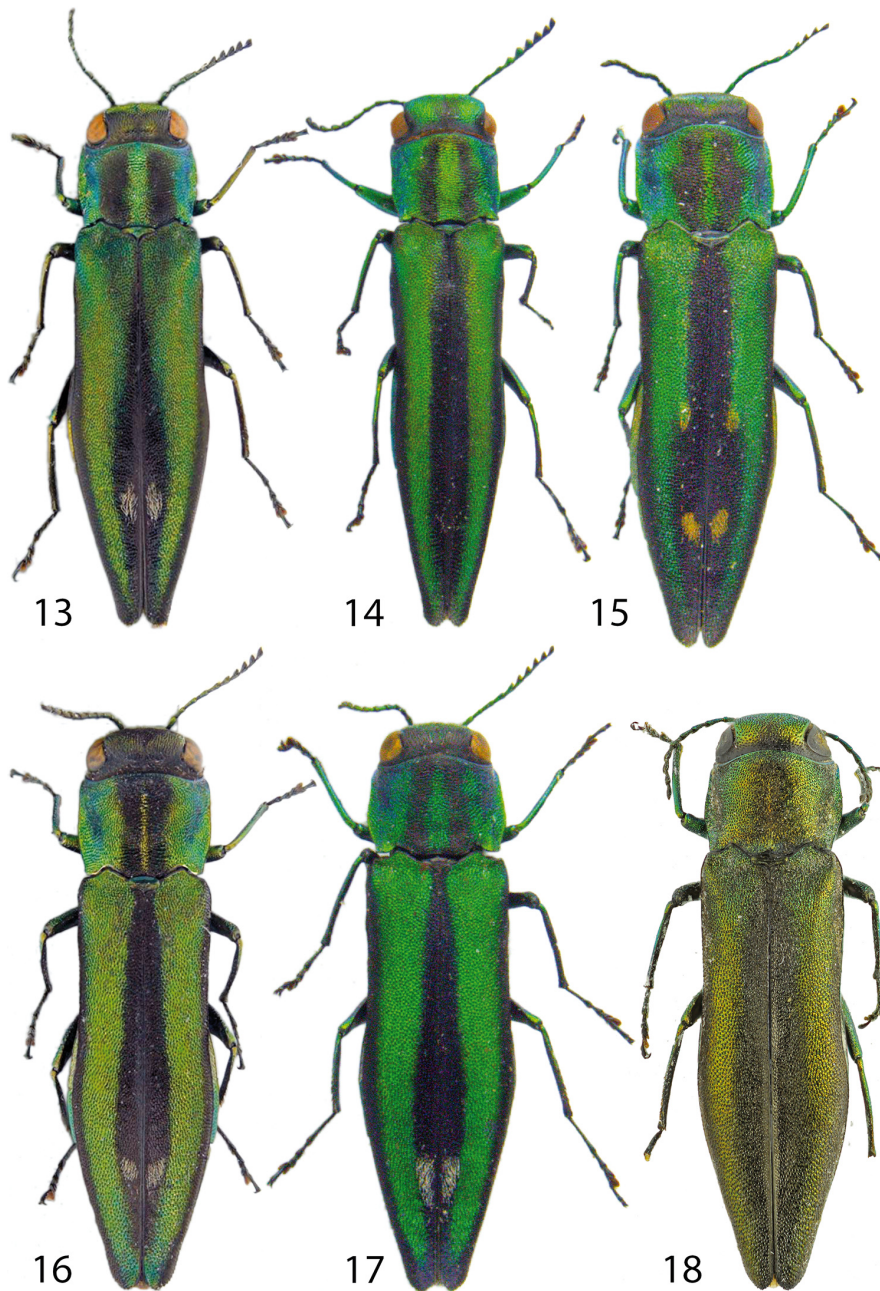
Species	Fasciae on pronotum	Dark pattern on elytra	Apex of elytra	Prosternal process	Eyes	Frons
<i>A. amulius</i>	0 or 1	fascia	arcuate	narrowed, convex	small	frons not protruding
<i>A. aurinotus</i>	0 or 1	absent	arcuate	subparallel, flat	small	frons not protruding
<i>A. calcarifer</i>	1	fascia	subangulate or cuspidate	narrowed, with medial carina	medium	frons not protruding
<i>A. capricornus</i>	1	absent	arcuate	narrowed, with medial carina	small	frons markedly protruding
<i>A. fasciatus</i>	1	fascia	arcuate	narrowed, with medial protuberance	medium	frons not protruding
<i>A. fuscipapex</i>	2	apical half and perisutural fascia	arcuate	narrowed, convex	medium	frons not protruding
<i>A. imitor</i>	2	fascia abruptly expanded posteriorad	arcuate	narrowed, convex	small	frons not protruding
<i>A. lacrima</i>	2	drop	arcuate	narrowed, flat	medium	frons not protruding
<i>A. lampros</i>	0	fascia	arcuate	subparallel, flat, densely pubescent	medium	frons not protruding
<i>A. loosdregti</i>	1	fascia	subangulate	narrowed, with medial protuberance	medium	frons not protruding
<i>A. magnificus</i>	0 or 2	fascia	arcuate	narrowed, convex or with medial protuberance	small	frons not protruding
<i>A. montanus</i>	2	absent	arcuate	narrowed, flat	medium	frons not protruding
<i>A. obscurecinctus</i>	1	fascia	arcuate or subangulate	markedly dilated, impressed	medium	frons not protruding
<i>A. odetteae</i>	2	fascia	arcuate	narrowed, flat	small	frons not protruding
<i>A. priamus</i>	1	fascia	arcuate	narrowed, with medial carina	medium	frons not protruding
<i>A. spectabilis</i>	2	fascia	arcuate	subparallel, flat	small	frons markedly protruding
<i>A. tricoloris</i>	0	drop	arcuate	markedly dilated, impressed	medium	frons not protruding



Figs 1-6. Habitus of *Agrilus*: 1- *A. capricornus* sp. nov., holotype, 9.4 mm; 2- *A. lampros* sp. nov., holotype, 8.4 mm; 3- *A. loosdregti* Baudon, 1965, holotype, 9.5 mm; 4- *A. fasciatus* sp. nov., holotype, 9.4 mm; 5- *A. calcarifer* sp. nov., holotype, 9.6 mm; 6- *A. priamus* Kerremans, 1912, lectotype, 11.5 mm.



Figs 7-12. Habitus of *Agrilus*: 7- *A. montanus* sp. nov., holotype, 6.8 mm; 8- *A. aurinotus* Jendek, 2011, holotype, 8.8 mm; 9- *A. tricoloris* sp. nov., holotype, 8.2 mm; 10- *A. obscurecinctus* Obenberger, 1935 (displayed is the lectotype of *nigricinctus* Kerremans, 1912); 11- *A. fuscipex* Jendek, 2011, holotype, 7.7 mm; 12- *A. fuscipex* Jendek, 2011, variety, 7.2 mm.



Figs 13-18. Habitus of *Agrilus*: 13- *A. lacrima* Jendek, 2011, holotype, 7.1 mm; 14- *A. spectabilis* Kerremans, 1895, 8.4 mm; 15- *A. imitor* sp. nov., holotype, 6.7 mm; 16- *A. odetteae* Baudon, 1968, holotype, 6.5 mm; 17- *A. magnificus* sp. nov., holotype, 6.4 mm; 18- *A. amulius* Obenberger, 1936, lectotype, 7.0 mm.



Figs 19-35. Aedeagus of *Agrilus*: 19- *A. capricornus* sp. nov.; 20- *A. lampros* sp. nov.; 21- *A. loosdregti* Baudon, 1965; 22- *A. fasciatus* sp. nov.; 23- *A. calcarifer* sp. nov.; 24- *A. priamus* Kerremans, 1912; 25- *A. montanus* sp. nov.; 26- *A. aurinotus* Jendek, 2011; 27- *A. tricoloris* sp. nov.; 28- *A. obscurecinctus* Obenberger, 1935; 29- *A. fuscipex* Jendek, 2011; 30- *A. lacrima* Jendek, 2011; 31- *A. spectabilis* Kerremans, 1895; 32- *A. imitor* sp. nov.; 33- *A. odetteae* Baudon, 1968; 34- *A. magnificus* sp. nov.; 35- *A. amulius* Obenberger, 1936.

***Agrilus amulius* Obenberger, 1936**

Fig. 18 (habitus) Fig. 35 (aedeagus)

amulius Obenberger, 1936 (*Agrilus*)

Obenberger, 1936b: 35 (description) - Miwa & Chûjô, 1936: 15 (catalog; Japan) - Obenberger, 1936a: 1073 (world catalog) - Peng Zhongliang, 1987: 354 (checklist; China) - Hua Li Zhong, 2002: 89 (checklist; China: Taiwan) - Mühle, 2003: 46 (checklist; Taiwan) - Jendek, 2006: 396 (Palaeartic catalog) - Bellamy, 2008: 1963 (world catalog).

Type locality. Formosa.

Type specimens. Lectotype by present designation, ♂ (NMPC): “Formosa: Musha [h] \ Agrilus Amulius m. Type [h] Det. Dr. Obenberger [p] \ Typus [p] [red label] \ Mus. Nat. Pragae Inv. [p] 26861 [h] [orange label]”. Described from unknown number of syntypes.

Specimens examined. The species is known only from the lectotype.

Sexual modifications. Unknown.

Variability. Unknown.

Differential diagnosis. Size 7.0 mm. The taxonomic concept of this species remains unclear (see Remarks). The size of eyes, shape of pronotum, shape of elytral apices and ventral side characters (prosternal lobe; prosternal process) are similar to those of *A. odettae* Baudon, 1968 and *A. magnificus* sp. nov., but *A. amulius* is distinctive by the short vestigial prehumerus, unicolored pronotum and by the form of aedeagus.

Distribution. CHINA: Taiwan.

Remarks. The lectotype was not available for this study. It was briefly studied and photographed by the author in 1999. Characters, type label data and type image were provided by the NMP curator Vít Kubáň who kindly remounted and examined the lectotype, especially ventral side characters and genitalia. The dark perisutural fascia on elytra is not clear from the latest picture (Fig. 18) but it is present as discernible on the image from 1999.

***Agrilus aurinotus* Jendek, 2011**

Fig. 8 (habitus) Fig. 26 (aedeagus)

aurinotus Jendek, 2011 (*Agrilus*)

Jendek in Jendek & Grebennikov, 2011: 44-45, 267 (description).

Type locality. China, Guizhou province, Leishan Co., southeastern Kaili, 15 km eastern Leishan, Leigong Shan, eastern slope, 26°23.39'N, 108°13.33'E, about 2.5 km eastern of pass between Leishan and Fangxiang village, altitude about 1600 m.

Type specimens. Holotype ♂ (NMW): “China: Guizhou, Leishan Co., SE Kaili, 15 km E Leishan, Leigong Shan, E-slope, 26°23.39'N, 108°13.33'E / ca 2.5 km E of pass between Leishan and Fangxiang vill., ca 1600 m, 23/24.6.2001, leg. Schillhammer (17)”. Described from holotype.

Specimens examined. The species is known only from the holotype.

Sexual modifications. Unknown.

Variability. Unknown.

Differential diagnosis. Size 8.8 mm. *Agrilus aurinotus* and *A. montanus* sp. nov. are the only species of the *A. spectabilis* species-group having elytra dark unicolorated with medial and apical pair of obscure spots. The species can be distinguished by characters given in the key.

Distribution. CHINA: Guizhou.

Agrilus calcarifer sp. nov.

Fig. 5 (habitus) Fig. 23 (aedeagus)

Type locality. Laos central, Bolikhamsai province, Ban Nape - Kaew Nua Pass, altitude 600±100 m, N 18°22.3, E 105°09.1.

Type specimens. Holotype (♂), (16 paratypes) (EJCB): "Laos centr., Bolikhamsai prov., Ban Nape - Kaew Nua Pass, 18.4.-1.5.1998, alt. 600±100 m, N 18°22.3, E 105°09.1 (GPS), E. Jendek & O. Šauša leg."; (4 paratypes) (EJCB): "Laos-CE., 1-18.v.2001, Boli Kham Xai prov., 18°21'N, 105°08'E, Ban Nape (8 km NE), ~600 m, Pacholátko leg."; (1 paratype) (EJCB): "Laos-CE., 1-18.v.2001, Boli Kham Xai prov., 18°21'N, 105°08'E, Ban Nape (8 km NE), ~600 m, Kubán leg.".

Description of holotype. (Size 9.6 mm). Body. Shape: cuneiform, Build: robust, Posterior tapering part: long with narrow apex, Profile: convex, Colour (dorsally): bicolored.

Head. Medial impression: shallow, Epistoma: in plane with frons. Frons. Shape: flat. Vertex. Sculpture elements: rugae, Sculpture aspect: subparallel, Sculpture density: dense. Eyes. Size: moderate, Lower margin: in line or below with antennal socket, Median orbit: converging ventrally. Antennae. Length: long, Serration: from antennomere 4, Antennomere 7-10: with obvious collum.

Pronotum. Shape: visually elongate or square, Sides: slightly arcuate, Maximal width: at middle, Anterior margin: subequal to posterior. Anterior lobe. Development: obvious, Shape: arcuate, Width: broad, Position: at level with anterior angles. Posterior angles. Shape: obtuse, Apex: sharp. Disk. Impressions: medial and lateral, Lateral impression (width): narrow. Prehumerus. Development: absent. Lateral carinae. Convergence: moderate, Narrowest point: at posterior 1/5-1/4 of marginal carina, Modifications: submarginal carina divergent at posterior angles.

Elytra. Colour: bicolored, Alternative colour: perisutural stripe, Humeral carina: absent. Apices. Arrangement: separate, Shape: subangulate or cuspidate. Pubescence. Presence: without discernible pubescence.

Sternum. Prosternal lobe. Size: large, Distal margin: arcuately emarginate, Emargination (depth): shallow, Emargination (width): wide. Prosternal process. Shape: narrowed, Angles: absent or obtuse, Disk: with medial carina. Metasternum. Metasternal projection: flat.

Abdomen. Tomentum: present. Pygidium. Apical margin: arcuate. Sternal groove. Extent: on all ventrites, Shape on the apex of last ventrite: arcuate.

Legs. Metatarsus. Length to mesotarsus: obviously longer than mesotarsus, Length to metatibia: about as long as or longer than metatibia. Tarsomere 1. Length to following tarsomeres: subequal or longer than 2-4.

Genitalia. Aedeagus. Symmetry: symmetric, Shape: subparallel, Profile: flat, Modifications: apex of medial lobe sharply pointed.

Sexual modifications. ♂: antennae somewhat longer; apex of protibiae and mesotibiae with obvious spur-like projection; metatibia longer than mesotibia; prosternal process with sharp medial carina; basal ventrite medially with two clusters of setae. ♀: prosternal process flat; basal ventrite glabrous.

Variability. Not apparent except for the size.

Differential diagnosis. Size: 8.2-11 mm. *Agrilus calcarifer* sp. nov. is very similar to *A. priamus*, *A. loosdregti* and *A. fasciatus* sp. nov. by the size, general appearance and mainly by the presence of small, oval, reddish clusters of setae in the middle of basal abdominal ventrite in male. It differs from *A. loosdregti* and *A. fasciatus* by the prosternal process armed with a sharp medial carina similarly to that of *A. priamus*. It can be distinguished from *A. priamus* by the characters given in the key.

Distribution. LAOS: Bolikhamxai.

Etymology. The specific name is derived from the Latin noun *calcar* (spur) and the verb *fero* (carry, bear); it refers to the obviously modified, spur-like distal end of mesotibia in male.

***Agrilus capricornus* sp. nov.**

Fig. 1 (habitus) Fig. 19 (aedeagus)

Type locality. Laos central, Bolikhamsai province, Ban Nape - Kaew Nua Pass, altitude 600±100 m, N 18°22.3, E 105°09.1.

Type specimens. Holotype (♂, 1 ♀, paratype) (EJCB): “Laos centr., Bolikhamsai prov., Ban Nape - Kaew Nua Pass, 18.4.-1.5.1998, alt. 600±100 m, N 18°22.3, E 105°09.1 (GPS), E. Jendek & O. Šauša leg.”; (8 paratypes) (EJCB): “Laos-CE., 1-18.v.2001, Boli Kham Xai prov., 18°21'N, 105°08'E, Ban Nape (8 km NE), ~600 m, Pacholátko leg.”

Description of holotype. (Size 9.4 mm). Body. Shape: cuneiform, Build: robust, Profile: convex, Colour (dorsally): bicolored.

Head. Size: very large, Modification: strongly convex, Medial impression: shallow, Epistoma: raised above frons. Frons. Outline: markedly protruding head outline. Vertex. Outline: markedly protruding head outline, Sculpture elements: rugae, Sculpture aspect: arcuate or subparallel, Sculpture density: dense. Eyes. Size: small, Lower margin: in line or below with antennal socket, Median orbit: converging dorsally. Antennae. Serration: from antennomere 4.

Pronotum. Shape: visually transverse, Sides: slightly arcuate, Maximal width: at middle, Anterior margin: subequal to posterior. Anterior lobe. Development: obvious, Shape: arcuate, Position: projecting beyond anterior angles. Posterior angles. Shape: obtuse, Apex: blunt. Disk. Convexity: strongly convex, Impressions: absent, rarely medial and lateral, Lateral impressions (depth): shallow, Lateral impression (width): narrow. Prehumerus. Development: absent. Lateral carinae. Interspace: narrow, Convergence: moderate, Junction: present, Narrowest point: at posterior angles.

Elytra. Colour: bicolored, Alternative colour: perisutural stripe, Humeral carina: absent, Epipleura: extending markedly beyond abdominal projection. Apices. Arrangement: separate, Shape: arcuate. Pubescence. Colour: unicolored, Extent: distal only, Distal (shape): perisutural stripe.

Sternum. Prosternal lobe. Size: narrow, Distal margin: arcuately emarginate, Emargination (depth): shallow, Emargination (width): wide. Prosternal process. Shape: narrowed, Sides: arcuate, Angles: absent, Disk: with medial carina. Metasternum. Metasternal projection: flat.

Abdomen. Tomentum: absent. Pygidium. Apical margin: arcuate. Sternal groove. Extent: on all ventrites, Shape on the apex of last ventrite: arcuate.

Legs. Metatarsus. Length to mesotarsus: obviously longer than mesotarsus, Length to metatibia: about as long as or longer than metatibia. Tarsomere 1. Length to following tarsomeres: subequal to or longer than 2-4.

Genitalia. Aedeagus. Symmetry: symmetric, Shape: subparallel, Profile: convex, Modifications: apex of medial lobe sharply pointed.

Sexual modifications. ♂: body usually more slender; prosternal process with sharp medial carina and basal ventrite with single cluster of setae. ♀: prosternal process flat; basal ventrite glabrous.

Variability. Not apparent except for the size.

Differential diagnosis. Size: 8.6-10.4 mm. *Agrilus capricornus* sp. nov. belongs to species with clusters of setae on the basal ventrite in male. The species is very distinctive by having only a single cluster of setae in the middle of basal ventrite and by having the frons obviously protruding beyond the head outline.

Distribution. LAOS: Bolikhamxai.

Etymology. The specific name is the Latin noun *capricornus* (goat) in apposition; it refers to the obviously protruding vertex of this species.

***Agrilus fasciatus* sp. nov.**

Fig. 4 (habitus) Fig. 22 (aedeagus)

Type locality. China, Yunnan province, Xishuangbanna, Ganlanba, altitude 570 m.

Type specimens. Holotype (♂) (EJCB): “Yun’nan’. Ganlanba, 570 m, 16.iv.1957, Van Shu-yun [in Russian] \ Yunnan: Xishuangbanna, Ganlanba, 570 m, 1957.iv.16, Shu-Yong Wang leg. [in Chinese]”; (1 ♀ paratype) (USNM): “Thailand: Doi Suthep; Chiang Mai, 1 July 1987, A. Cotton”; (1 ♀ paratype) (EJCB): “Laos centr., 3.v.1997, 95 km N Vientiane (road 13), N 18°46.0, E 102°24.3, 260 m, E. Jendek & O. Šauša leg.”.

Description of holotype. Size: 9.4 mm. Body. Shape: cuneiform, Build: robust, Profile: convex, Colour (dorsally): bicolored.

Head. Size: very large, Medial impression: shallow, Epistoma: raised above frons. Vertex. Sculpture elements: rugae, Sculpture aspect: arcuate, Sculpture density: dense. Eyes. Size: moderate, Shape: markedly protruding head outline, Lower margin: in line or below with antennal socket, Median orbit: converging ventrally. Antennae. Length: long, Serration: from antennomere 4.

Pronotum. Shape: visually transverse, Sides: slightly arcuate or straight. Anterior lobe. Development: obvious, Shape: arcuate, Width: broad, Position: projecting beyond anterior angles. Posterior angles. Shape: rectangular, Apex: sharp. Disk. Convexity: strongly convex, Impressions: medial and lateral, Lateral impressions (depth): shallow, Lateral impression (width): narrow. Prehumerus. Development: obsolete, Extent: adjoining posterior angle, to 1/3 of pronotal length. Lateral carinae. Convergence: moderate, Junction: present, Narrowest point: at posterior angles.

Elytra. Colour: bicolored, Alternative colour: perisutural stripe, Humeral carina: absent. Apices. Arrangement: separate, Shape: arcuate. Pubescence. Presence: without discernible pubescence.

Sternum. Prosternal lobe. Size: large, Distal margin: arcuately emarginate, Emargination (width): wide. Prosternal process. Shape: narrowed, Sides: arcuate, Angles: absent or obtuse, Disk: with medial protuberance. Metasternum. Metasternal projection: flat.

Abdomen. Tomentum: absent. Pygidium. Apical margin: arcuate. Sternal groove. Extent: on all ventrites, Shape on the apex of last ventrite: arcuate.

Legs. Metatarsus. Length to mesotarsus: obviously longer than mesotarsus, Length to metatibia: about as long as or longer than metatibia. Tarsomere 1. Length to following tarsomeres: subequal to or longer than 2-4.

Genitalia. Aedeagus. Symmetry: symmetric, Shape: widest in apical part, Profile: flat.

Sexual modifications. ♂: characters as those in *A. calcarifer* sp. nov. but prosternal process with medial protuberance. ♀: prosternal process flat; basal ventrite glabrous.

Variability. Not apparent except for the size.

Differential diagnosis. Size: 9.4-11.6 mm. *Agrilus fasciatus* sp. nov. and *A. loosdregti* have the prosternal process with the elongate protuberance which distinguishes them from other similar species with the small, oval, reddish clusters of setae on basal abdominal ventrite in male. Both species can be distinguished by the characters given in the key. The type specimen of this species from Yunnan was cited by Jendek & Grebennikov (2011) as *A. loosdregti*. Remounting of the specimen revealed distinctive characters on the aedeagus and ventral side.

Distribution. CHINA: Yunnan. LAOS: Vientiane. THAILAND: Chiang Mai.

Etymology. The specific name is the Latin adjective *fasciatus* (marked with a band or bands). It refers to the obvious medial fascia on the dorsal side of this species.

Agrilus fuscipex Jendek, 2011

Fig. 11-12 (habitus) Fig. 29 (aedeagus)

fuscipex Jendek, 2011 (*Agrilus*)

Jendek in Jendek & Grebennikov, 2011: 101-102, 267 (description).

Type locality. China, Guizhou province, Leishan Co., southeastern Kaili, 15 km E of Leishan, Leigong Shan, eastern slope, 26°23.39'N, 108°13.33'E, about 2.5 km E of pass between Leishan and Fangxiang village, altitude about 1600 m.

Type specimens. Holotype (♂) (EJCB): “China: Guizhou, Leishan Co., SE Kaili, 15 km E Leishan, Leigong Shan, E-slope, 26°23.39'N, 108°13.33'E / ca 2.5 km E of pass between Leishan and Fangxiang vill., ca 1600 m, 23/24.vi.2001, leg. Schillhammer (17)”. Described from holotype.

Specimens examined. INDIA: Arunachal Pradesh: 1 ♂ (EJCB): “India, W-Arunachal Pr., betw. Dirang & Bomdila Pass, 27°19'N 92°22'E; 1900±300m L. Dembický leg. 12.-16.vi.2004”; 1 ♀ (EJCB): “India, W-Arunachal Pr., Dirang vicinity, 1800±100m, 27°21', 92°13', 2006, P. Pacholátko leg., 8-22.v.”; LAOS: Houaphan: 1 ♂ (EJCB): “NE Laos, Hua Phan prov., Ban Saleui, 1300-2000m, 20°13'N, 103°59'E, 6-18.iv., Phu Phan Mt. env. 2004, F. & L. Kantner leg.”; 1 ♂ (EJCB): “Laos, Huaphanh pr. 2004, Phou Pan Mt., alt. 2000 m, 30 km S of Xam Neua, 103°59'E, 20°13'N, P. Kresl leg., 12-17.5.2004”; 2 (EJCB): “LAOS-NE, Hua Phan prov. ~20°12'N, 104°01'E, Phu Phan Mt., 1500-1900m, 17.v.-3.vi.2007, Vit. Kubáň leg.”; 2 (EJCB), 2 (USNM): LAOS NE, Hua Phan Province, Ban Saleui, Phou Pan (Mt), 20°12'N, 104°01'E, 7.iv.-25.v.2010, 1300-1900m, leg. C. Holzschuh”; 4 (EJCB), 6 (USNM): “LAOS-NE, Hua Phan Province, Ban Saleui, Phou Pan (Mt), 20°12'N, 104°01'E, 1-31.v.2011, 1300-1900m, leg. C. Holzschuh”; 2 (EJCB), 2 (NMPC): “LAOS-NE, Houa Phan prov., 20°12'-13.5'N, 103°59'.5'-104°01'E, Ban Saleuy → Phou Pane Mt., 1340-1870m, 2.-22.vi.2011, Vit Kubáň & Lao coll. leg.”; VIETNAM: Cao Bang: 2 (EJCB): “Vietnam, Cao Bang prov., Phia-Oac Mts. 1600-1900 m, 5.5 km N of Phia-Den (c.f.), N22°36'55”, E105°51'48”, E. Jendek leg. 2-3.v.2012”; 1 ♂ (EJCB): “N Vietnam, Cao Bang prov., Phia-Oac Mts, Phia-Den env., N22°34'01”, E105°52'14”, 29.iv.-5.v.2012, 900-1200m, E. Jendek leg.”.

Sexual modifications. ♂: prosternal process convex on the disk; ♀ prosternal process flat.

Variability. Two dark pronotal stripes sometimes obscure; green colour on elytra from brown-green to blue-green; dark colour on apex of elytra from blackish to brown-red; perisutural dark fascia in anterior half of elytra from wide and obvious to narrow and obscure.

Differential diagnosis. Size 6.1-8.6 mm. *Agrilus fusciapex* is very distinctive by its elytral pattern. It is the only species with the whole apical half of elytra dark.

Distribution. CHINA: Guizhou. INDIA: Arunachal Pradesh. LAOS: Houaphan. VIETNAM: Cao Bang.

Agrilus imitor sp. nov.

Fig. 15 (habitus) Fig. 32 (aedeagus)

Type locality. Central Laos, Bolikhamsai province, Ban Nape - Kaew Nua Pass, altitude 600±100 m, N 18°22.3, E 105°09.1.

Type specimens. Holotype (♂, 3 paratypes) (EJCB): “Laos centr., Bolikhamsai prov., Ban Nape - Kaew Nua Pass, 18.iv.-1.v.1998, alt. 600±100 m, N 18°22.3, E 105°09.1 (GPS), E. Jendek & O. Šauša leg.”; (1 paratype) (EJCB): “Laos-CE., 1-18.v.2001, Boli Kham Xai prov., 18°21'N, 105°08'E, Ban Nape (8 km NE), ~600 m, Kubáň leg.”; (1 paratype) (EJCB): “Laos-CE., 1-18.v.2001, Boli Kham Xai prov., 18°21'N, 105°08'E, Ban Nape (8 km NE), ~600 m, Pacholátko leg.”.

Description of holotype. Size: 6.7 mm. Body. Shape: cuneiform, Color (dorsally): bicolored.

Head. Size: very large, Medial impression: absent or shallow, Epistoma: in plane with frons. Frons. Shape: flat. Vertex. Sculpture elements: rugae, Sculpture aspect: subparallel, Sculpture density: dense. Eyes. Size: small, Lower margin: in line or below with antennal socket, Median orbit: converging ventrally. Antennae. Width: slender, Serration: from antennomere 4, Antennomere 7-10: with obvious collum.

Pronotum. Shape: visually elongate or square, Sides: slightly arcuate, Maximal width: at middle, Anterior margin: subequal to posterior or wider than posterior. Anterior lobe. Development: obvious, Shape: arcuate, Width: broad, Position: at level with anterior angles or projecting beyond anterior angles. Posterior angles. Shape: obtuse, Apex: sharp. Disk. Impressions: medial and lateral, Lateral impressions (depth): deep, Lateral impression (width): narrow. Prehumerus. Development: absent. Lateral carinae. Convergence: moderate, Junction: present, Narrowest point: at posterior 1/5-1/4 of marginal carina. Scutellum. Projection: obsolete or absent.

Elytra. Colour: bicolored, Alternative colour: perisutural stripe, Humeral carina: absent. Apices. Arrangement: separate, Shape: arcuate. Pubescence. Presence: without discernible pubescence, Pairs of spots: medial, apical.

Sternum. Prosternal lobe. Distal margin: arcuately emarginate or subtruncate, Emargination (depth): shallow, Emargination (width): wide. Prosternal process. Shape: narrowed, Sides: straight, Angles: absent, Disk: convex. Metasternum. Metasternal projection: flat.

Abdomen. Tomentum: absent. Pygidium. Apical margin: arcuate. Sternal groove. Extent: on all ventrites, Shape on the apex of last ventrite: arcuate.

Legs. Metatarsus. Length to mesotarsus: obviously longer than mesotarsus, Length to metatibia: somewhat shorter than metatibia. Tarsomere 1. Length to following tarsomeres: subequal to or longer than 2-4.

Genitalia. Aedeagus. Symmetry: symmetric, Shape: widest in apical part, Profile: flat, Modifications: apex of medial lobe sharply pointed.

Sexual modifications. ♂: frons golden-green; prosternal process more convex on the disk; ♀: frons blackish; prosternal process less convex or flat.

Variability. Not apparent except for the size.

Differential diagnosis. Size: 5.7-7.5 mm. *Agrilus imitor* sp. nov. is very similar to *A. odetteae* and *A. magnificus* sp. nov. by the size, colour, general appearance and characters on ventral side. It can be distinguished from them by the form of aedeagus (Fig. 32) and by having two pairs of elytral spots (medial and apical) unlike *A. odetteae* and *A. magnificus* sp. nov. with only apical spots.

Distribution. LAOS: Bolikhamxai.

Etymology. The specific name is the Latin noun *imitor* (mimic) in apposition; it refers to the uniform appearance of this species with other species of the *A. spectabilis* species-group.

Agrilus lacrima Jendek, 2011

Fig. 13 (habitus) Fig. 30 (aedeagus)

lacrima Jendek, 2011 (*Agrilus*)

Jendek in Jendek & Grebennikov, 2011: 116-117, 267 (description).

Type locality. China, Yunnan province, Gaoligong mts., 24°57'N, 98°45'E, altitude 2200-2500 m.

Type specimens. Holotype (♀) (EJCB): "Yunnan, 2200-2500 m, 24°57'N, 98°45'E, 8-16/5 Gaoligong mts, Vit Kubán leg., 1995". Described from holotype.

Specimens examined. LAOS: Houaphan: 1 (EJCB), 1 (USNM): “Laos-NE, Hua Phan Province, Ban Saleui, Phou Pan (Mt), 20°12'N, 104°01'E, 7.iv-25.v.2010, 1300-1900 m, leg. C. Holzschuh”; 2 (EJCB), 2 (USNM): “Laos-NE, Hua Phan Province, Ban Saleui, Phou Pan (Mt), 20°12'N, 104°01'E, 1-31.v.2011, 1300-1900 m, leg. C. Holzschuh”; 1 (NMPC): “Laos-NE, Houa Phan prov., 20°12-13.5'N, 103°59'.5-104°01'E, Ban Saleuy → Phou Pane Mt., 1340-1870 m, 2.-22.vi.2011, Vít Kubáň & Lao coll. leg.”

Sexual modifications. ♂: prosternal process with short medial carina on disk; ♀: prosternal process flat.

Variability. Two dark pronotal fasciae vary from obvious to obscure.

Differential diagnosis. Size 4.2-7.1 mm. *Agrilus lacrima* is distinctive by the small body; elytra with markedly narrow apex and by the dark elytral fascia not reaching to the humeral margin. From species with the similar size and shape of the body (*A. magnificus* sp. nov. and *A. imitor* sp. nov.), it can be easily distinguished by the prosternal process in male, which is armed with a sharp medial carina.

Distribution. CHINA: Yunnan. LAOS: Houaphan.

Agrilus lampros sp. nov.

Fig. 2 (habitus) Fig. 20 (aedeagus)

Type locality. North Eastern India, Meghalaya state, altitude 1400 m, Nokrek National Park, 3 km south Daribokgiri, 25°27'N, 90°19'E.

Type specimens. Holotype (♂) (EJCB): “NE India, Meghalaya, 1400 m, Nokrek N.P., 3 km S Daribokgiri, 25°27'N, 90°19'E, 26.iv.1999, J. Rolčík leg.”; (2 paratypes) (EJCB): “NE India, Meghalaya, 1400 m, Nokrek N.P., 3 km S Daribokgiri, 25°27'N, 90°19'E, 26.iv.1999, Zd. Košťál lgt.”.

Description of holotype. (Size 8.4 mm). Body. Shape: cuneiform, Build: robust, Profile: convex, Colour (dorsally): bicolored.

Head. Medial impression: shallow, Epistoma: raised above frons. Vertex. Sculpture elements: rugae, Sculpture aspect: subparallel, Sculpture density: dense, Sculpture intensity: rough. Eyes. Size: moderate, Shape: markedly protruding head outline, Lower margin: in line or below with antennal socket, Median orbit: converging ventrally. Antennae. Length: long, Serration: from antennomere 4, Antennomere 7-10: with obvious collum.

Pronotum. Shape: visually transverse, Sides: slightly arcuate, Maximal width: at middle, Anterior margin: subequal to posterior. Anterior lobe. Development: moderate, Shape: arcuate, Width: broad, Position: at level with anterior angles. Posterior angles. Shape: rectangular, Apex: sharp. Disk. Convexity: flat, Impressions: medial and lateral, Medial impression: entire, Lateral impressions (depth): shallow. Prehumerus. Development: obsolete or tubercular, Extent: adjoining posterior angle. Lateral carinae. Interspace: narrow, Convergence: moderate, Junction: present, Narrowest point: at posterior angles.

Elytra. Colour: bicolored, Alternative colour: perisutural stripe, Humeral carina: absent. Apices. Arrangement: separate, Shape: subangulate. Pubescence. Presence: without discernible pubescence.

Sternum. Prosternal lobe. Size: large, Distal margin: arcuate, Emargination (depth): shallow, Emargination (width): wide. Prosternal process. Shape: subparallel, Angles: obtuse,

Angles (tips): blunt, Disk: flat, Projection (extent): protruding distinctly beyond angles. Metasternum. Metasternal projection: flat.

Abdomen. Tomentum: present. Pygidium. Apical margin: arcuate. Sternal groove. Extent: on all ventrites, Shape on the apex of last ventrite: arcuately sinuate, Sinuosity (depth): very shallow.

Legs. Metatarsus. Length to mesotarsus: obviously longer than mesotarsus, Length to metatibia: about as long as or longer than metatibia. Tarsomere 1. Length to following tarsomeres: subequal to or longer than 2-4.

Genitalia. Aedeagus. Symmetry: symmetric.

Sexual modifications. ♂: ventral side with medial strip of obvious pubescence from prosternum to basal ventrite; basal ventrite with two clusters of white setae; ♀: ventral side without obvious pubescence; basal ventrite glabrous.

Variability. Not apparent except for the size.

Differential diagnosis. Size: 8.4-10.2 mm. *Agrilus lampros* sp. nov. belongs to the species with clusters of setae on the basal ventrite in male. The clusters in this species are whitish and transversely elongate unlike those reddish and oval in other species. The species is also distinctive by an indication of prehumeral at posterior pronotal angles; by lacking dark pronotal fasciae and by the prosternal process which is flat and densely pubescent.

Distribution. INDIA: Meghalaya.

Etymology. The specific name is the Greek adjective *lampros* (bright). It refers to the shiny golden-green elytra of the species.

***Agrilus loosdregti* Baudon, 1965**

Fig. 3 (habitus) Fig. 21 (aedeagus)

loosdregti Baudon, 1965 (*Agrilus*)

Baudon, 1965: 224-225 (description) - Baudon, 1963: 55 ([Note: name cited without characters]) - Descarpentries & Villiers, 1967: 149 (*sinensis* species group) - Baudon, 1968: 106, 109 (characters in key; Laos) - Bellamy, 2008: 2169 (subgenus *Sinagrilus*; world catalog) - Jendek & Grebennikov, 2011: 122 (references; types; diagnosis; faunal records; distributional summary).

Type locality. Laos, Paklay.

Type specimens. Holotype (♂) (MHNB): "Paklay 10.vi.[19]63 [h] Laos (Baudon) [p] Type [p][red label] \ Agrilus loosdregti mihi [h] A. Baudon det [p] [blue label]". Described from holotype.

Specimens examined. See Jendek & Grebennikov (2011).

Sexual modifications. ♂: characters as those of *A. calcarifer* sp. nov. but prosternal process with medial protuberance. ♀: prosternal process flat; basal ventrite glabrous.

Variability. Not apparent except for the size.

Differential diagnosis. Size 9.5-11.4 mm. *Agrilus loosdregti* is very similar to *A. fasciatus* sp. nov. from which it can be distinguished by characters given in the key. The shape of aedeagus is the most reliable character to separate these two species. See also diagnostic at *A. fasciatus* sp. nov.

Distribution. LAOS: Xaignabouri. MYANMAR: Shan State.

Remarks. The specimen cited by Jendek & Grebennikov (2011) as *A. loosdregti* from Yunnan belongs to *A. fasciatus* sp. nov. See also remarks at *A. fasciatus* sp. nov.

***Agrilus magnificus* sp. nov.**

Fig. 17 (habitus) Fig. 34 (aedeagus)

Type locality. North Laos, Phongsaly province, 21°41'-2'N, 102°06'-08'E, Phongsaly env., altitude 1500 m.

Type specimens. Holotype (♂, 3 paratypes) (EJCB): "Lao-N, Phongsaly prov., 21°41'-2'N, 102°06'-08'E, Phongsaly env., 28.v.-20.vi.2003, 1500m, P. Pacholátko leg."; (3 ♂, 2 ♀ paratypes) (EJCB): "Lao-N, Phongsaly prov., 21°41'-2'N, 102°06'-08'E, 28.v.-20.vi.2003 Phongsaly env., ~1500 m, Vít Kubáň leg."; (1 ♂ paratype) (EJCB): "Lao, Phongsaly prov., 21°41'N, 102°06'E, Phongsaly env., 6-17.v.2004, 1500 m, Vít Kubáň leg.".

Description of holotype. Size 6.4 mm. Body. Shape: fusiform, Posterior tapering part: long with narrow apex, Profile: convex.

Head. Medial impression: shallow, Epistoma: in plane with frons. Vertex. Sculpture elements: rugae, Sculpture aspect: subparallel, Sculpture density: dense, Sculpture intensity: superficial. Eyes. Size: small, Lower margin: in line or below with antennal socket, Median orbit: converging ventrally. Antennae. Width: slender, Serration: from antennomere 4, Antennomere 7-10: with obvious collum.

Pronotum. Shape: visually transverse, Sides: markedly arcuate or sinuate before posterior angles, Maximal width: at middle, Anterior margin: subequal to posterior. Anterior lobe. Development: moderate, Shape: arcuate, Width: broad, Position: at level with anterior angles or not reaching level of anterior angles. Posterior angles. Shape: rectangular, Apex: blunt. Disk. Convexity: flat, Impressions: medial and lateral, Lateral impressions (depth): deep, Lateral impression (width): broad. Prehumerus. Development: absent. Lateral carinae. Interspace: narrow, Convergence: moderate, Junction: present, Narrowest point: at posterior 1/5-1/4 of marginal carina. Scutellum. Projection: obsolete or absent.

Elytra. Colour: bicolored, Alternative colour: perisutural stripe, Humeral carina: absent. Apices. Arrangement: separate, Shape: arcuate. Pubescence. Presence: without discernible pubescence, Pairs of spots: apical.

Sternum. Prosternal lobe. Position to sternum: markedly declivous, Distal margin: angularly emarginate, Emargination (depth): deep, Emargination (width): narrow. Prosternal process. Width: narrow, Shape: narrowed, Sides: straight, Angles: absent, Disk: convex or with medial protuberance. Metasternum. Metasternal projection: flat.

Abdomen. Tomentum: present. Pygidium. Apical margin: arcuate. Sternal groove. Extent: on all ventrites, Shape on the apex of last ventrite: arcuate.

Legs. Metatarsus. Length to metatibia: about as long or longer than metatibia.

Genitalia. Aedeagus. Symmetry: symmetric, Shape: subparallel, Profile: convex.

Sexual modifications. ♂: frons golden green; prosternal process convex or with a medial protuberance on the disk; ♀: frons golden-orange; prosternal process flat.

Variability. Two dark pronotal fasciae missing, rarely slightly indicated.

Differential diagnosis. Size: 5.9-8.8 mm. *Agrilus magnificus* sp. nov. is similar to *A. odetteae*. It can be distinguished from it by medial fasciae on pronotum obscure or absent; by smaller eyes; by more transverse and flat pronotum with markedly arcuate sides and by the shape of aedeagus (Fig. 34).

Distribution. LAOS: Phôngsali.

Etymology. The specific name is the Latin adjective *magnificus* (magnificent; imposing, grandiose). It refers to the appearance of the species.

Agrilus montanus sp. nov.

Fig. 7 (habitus) Fig. 25 (aedeagus)

Type locality. North-eastern Laos, Hua Phan province, 20°13'N, 103°59'E, Ban Saleui, Phu Phan Mt. env., altitude 1300-2000 m.

Type specimens. Holotype (♂) (EJCB): "NE Laos, Hua Phan prov., 2004, 20°13'N, 103°59'E, 6-18.iv., Ban Saleui, Phu Phan Mt. env., 2004, J. Bezděk leg., 1300-2000 m"; (6 paratypes) (EJCB), (7 paratypes) (USNM): "LAOS-NE, Hua Phan Province, Ban Saleui, Phou Pan (Mt), 20°12'N, 104°01'E, 1-31.v.2011, 1300-1900 m, leg. C. Holzschuh"; (2 paratypes) (NMPC): "LAOS-NE, Houa Phan prov., 20°12-13.5'N, 103°59'.5-104°01'E, Ban Saleuy → Phou Pane Mt., 1340-1870 m, 2.-22.vi.2011, Vít Kubáň & Lao coll. leg."; (1 paratype) (EJCB), (1 paratype) (USNM): "Laos-NE, Hua Phan Province, Ban Saleui, Phou Pan (Mt), 20°12'N, 104°01'E, 7.iv-25.v.2010, 1300-1900 m, leg. C. Holzschuh"; (1 ♀ paratype) (EJCB): "Laos-NE, Hua Phan prov., Ban Saleui, Phu Phan Mt., 20°15'N, 104°02'E, 1500-2000 m, 26.iv.-11.v.2001, D. Hauck leg."; (1 ♀ paratype) (ZIN): "V'etnam, khr. Fan-ci-pan, 2200-2900 m, 25.v.1963, Kabakov [in Russian]".

Description of holotype. Size 6.8 mm. Body. Shape: cuneiform, Colour (dorsally): bicolored.

Head. Size: very large, Medial impression: absent or shallow, Epistoma: in plane with frons. Vertex. Sculpture elements: rugae, Sculpture aspect: subparallel, Sculpture density: dense. Eyes. Size: moderate, Shape: markedly protruding head outline, Lower margin: in line or below with antennal socket, Median orbit: converging ventrally. Antennae. Serration: from antennomere 4, Antennomere 7-10: with obvious collum.

Pronotum. Shape: visually elongate or square, Sides: sinuate before posterior angles or slightly arcuate, Maximal width: at middle, Anterior margin: wider than posterior. Anterior lobe. Development: obvious, Shape: arcuate, Width: broad, Position: projecting beyond anterior angles. Posterior angles. Shape: obtuse, Apex: sharp. Disk. Convexity: flat, Impressions: medial and lateral, Lateral impression (width): broad. Prehumerus. Development: absent. Lateral carinae. Convergence: moderate, Narrowest point: at posterior angles. Scutellum. Projection: obsolete or absent.

Elytra. Colour: unicolored, Humeral carina: absent. Apices. Arrangement: separate, Shape: arcuate. Pubescence. Presence: without discernible pubescence, Pairs of spots: humeral, medial, apical, rarely medial and apical.

Sternum. Prosternal lobe. Distal margin: angularly emarginate, Emargination (depth): shallow, Emargination (width): narrow. Prosternal process. Shape: slightly dilated or subparallel, Sides: arcuate, Angles: obtuse, Angles (tips): blunt, Disk: flat. Metasternum. Metasternal projection: flat.

Abdomen. Tomentum: present. Pygidium. Apical margin: arcuate. Sternal groove. Extent: on all ventrites, Shape on the apex of last ventrite: arcuate.

Legs. Metatarsus. Length to metatibia: somewhat shorter as metatibia. Tarsomere 1. Length to following tarsomeres: subequal to or longer than 2-4.

Genitalia. Aedeagus. Symmetry: symmetric, Shape: subparallel.

Sexual modifications. ♂: prosternal process with denser pubescence.

Variability. Elytra in humeral part sometimes with hue of lighter colour.

Differential diagnosis. Size: 6.2-8.6 mm. *Agrilus montanus* sp. nov. and *A. aurinotus* are the only species of the *A. spectabilis* species-group having elytra dark unicolored with medial and apical pair of obscure spots. The species can be distinguished by characters given in the key.

Distribution. LAOS: Houaphan. VIETNAM: Lao Cai.

Etymology. The specific name is the Latin adjective *montanus* (pertaining to mountains). It refers to the montane distribution of the species.

Agrilus obscurecinctus Obenberger, 1935

Fig. 10 (habitus) Fig. 28 (aedeagus)

obscurecinctus Obenberger, 1935 (*Agrilus*; replacement name for *nigricinctus* Kerremans not Saunders)

Obenberger, 1935: 59 (replacement name proposal) - Miwa & Chûjô, 1936: 19 (catalog; Japan) - Obenberger, 1936a: 1094 (world catalog) - Peng Zhongliang, 1987: 357 (checklist; China) - Hua Li Zhong, 2002: 90 (checklist; China: Taiwan) - Mühle, 2003: 47 (checklist; Taiwan) - Jendek, 2006: 400 (Palaeartic catalog) - Bellamy, 2008: 2207 (world catalog) - Jendek, 2012: 12 (synonymy; notes).

= *nigricinctus* Kerremans, 1912 (*Agrilus*; [Note: Preoccupied])

Kerremans, 1912: 206 (description) - Miwa, 1931: 123 (catalog; Formosa) - Obenberger, 1935: 59 (synonym of *obscurecinctus*) - Miwa & Chûjô, 1936: 19 (synonym of *obscurecinctus*) - Obenberger, 1936a: 1094 (cited as *nigrocinctus*; synonym of *obscurecinctus*; world catalog) - Gaedike, 1985: 83 (checklist of types in DEI) - Hua Li Zhong, 2002: 90 (checklist; China: Taiwan) - Jendek, 2006: 400 (synonym of *obscurecinctus*; Palaeartic catalog) - Bellamy, 2008: 2208 (synonym of *obscurecinctus*; world catalog) - Jendek, 2012: 12 (synonym of *obscurecinctus*; lectotype designation).

= *motobuanus* Fukutomi, 2006 (*Agrilus*) **syn. nov.**

Fukutomi, 2006: 159-162 (description) - Bellamy, 2008: 2194 (world catalog).

Type material. *Agrilus nigricinctus* Kerremans, 1912. Type locality. [Formosa] Taihorin. Type specimens. Lectotype designated by Jendek (2012). *Agrilus motobuanus* Fukutomi, 2006. Type locality. Oppa-dake, Tamashiro, Nakijin-son, Okinawa-ken. Type specimens. Described from 7 specimens (Holotype, Paratypes). Type specimens preserved in NSMT were not available for this study. The taxonomic concept of *A. motobuanus* was judged from the species description. See also remarks.

Specimens examined. CHINA: Taiwan: 2 ♂, 1 ♀ (EJCB): “Jingdashan, nr. Liukuei, Kaohsiung Hsien, Taiwan, 5.v.1988, Chen Welong leg.”; 1 (USNM): “Bukai, Formosa, VI-12-’34””; 1 (PMCL): “Rep. of China Formosa (Taiwan) Sun Moon lake 7-9.5.2002, Moravec Petr”.

Sexual modifications. ♂: prosternal process sparsely pubescent; ♀: prosternal process glabrous.

Variability. Not apparent except for the size.

Differential diagnosis. Size 7.5-10 mm. *Agrilus obscurecinctus* resembles *A. odetteae*, *A. magnificus* sp. nov. and *A. imitator* sp. nov. by the general appearance, size and elytral patterns, but it is distinctive by having only a single, dark pronotal fascia and by the prosternal process obviously dilated. From *A. tricoloris* sp. nov. which has the prosternal process similarly dilated, it can be distinguished by the characters given in the key.

Host plants. *Acer oblongum itoanum* (see Fukutomi 2006).

Distribution. CHINA: Taiwan. JAPAN: Ryukyu isl. (Okinawa incl.).

Remarks. The name *nigricinctus* Kerremans, 1912 is preoccupied by *nigrocinctus* [sic!] Saunders, 1874. The names are homonymic and represent identical variant spellings (ICZN Article 58.12).

The specimens of *A. obscurecinctus* from Taiwan (see specimens examined) were misdetermined by K. Akiyama in 1994 as *A. amulius*. This misdetermination could be the cause, why Fukutomi (2006) overlooked that his *A. motobuanus* is conspecific with *A. obscurecinctus*.

***Agrilus odetteae* Baudon, 1968**
Fig. 16 (habitus) Fig. 33 (aedeagus)

odetteae Baudon, 1968 (*Agrilus*)

Baudon, 1968: 90, 96-97 (description) - Bellamy, 2008: 2214 (world catalog) - Jendek & Grebennikov, 2011: 145 (references; types; diagnosis; faunal records; distributional summary; East Asia).

Type locality. Laos, Muong-Panh.

Type specimens. Holotype (♀) (MHNB): “Muong Panh 1.iv.64 [h] Laos (Baudon) [p] \ Type [p] [red label] \ *Agrilus odetteae* Type mihi [h] A. Baudon det. [p]”. Described from holotype.

Specimens examined. CHINA: Taiwan: 1 (USNM): “Hassenzan, Formosa vi-22-’34”. LAOS: Houaphan: 2 ♀ (EJCB): “Laos-NE, Houa Phan prov., 20°12-13.5’N, 103°59’.5-104°01’E, Ban Saleui → Phou Pane Mt., 1340-1870 m, 15.iv.-15.v.2008, Lao collectors leg.”; 3 ♀ (EJCB): “Laos, Houaphan prov., 38 km S of Sam Neua, Saleui 9.-22.v.2009, Bednařík lgt. 1350-1900 m”; 5 (EJCB), 8 (USNM): “Laos-NE, Hua Phan Province, Ban Saleui, Phou Pan (Mt), 20°12’N, 104°01’E, 7.iv.-25.v.2010, 1300-1900 m, leg. C. Holzschuh”; 4 (EJCB), 7 (USNM): “LAOS-NE, Hua Phan Province, Ban Saleui, Phou Pan (Mt), 20°12’N, 104°01’E, 1-31.v.2011, 1300-1900 m, leg. C. Holzschuh”; 3 (EJCB), 3 (NMPC): “LAOS-NE, Houa Phan prov., 20°12-13.5’N, 103°59’.5-104°01’E, Ban Saleuy → Phou Pane Mt., 1340-1870 m, 2.-22.vi.2011, Vit Kubán & Lao coll. leg.”. VIETNAM: Cao Bang: 1 ♀ (EJCB): “N Vietnam, Cao Bang prov., Phia-Oac Mts, Phia-Den env., N22°34’01”, E105°52’14”, 29.iv.-5.v.2012, 900-1200 m, E. Jendek leg.”. See also Jendek & Grebennikov (2011).

Sexual modifications. ♂: frons golden-green; prosternal process convex on disk; ♀: frons black; prosternal process flat.

Variability. Dorsal side colour from dark brown-green to golden green or golden-blue; widest part of pronotum between middle and anterior margin; interspace between pronotal fasciae sometimes narrow and obscure; shape of apical pair of elytral spots from oval to subtriangular.

Differential diagnosis. Size 6.3-8.6 mm. *Agrilus odetteae* resembles *A. imitor* sp. nov. and *A. magnificus* sp. nov. by a general appearance. The species is distinctive by obvious, dark, pronotal fasciae with very narrow interspace; by apical pair of elytral spots and by its robust, flat, medially enlarged aedeagus (Fig. 33).

Distribution. CHINA: Fujian; Hunan; Jiangxi; Taiwan. INDIA: Arunachal Pradesh. LAOS: Bolikhamxai; Houaphan; Xiangkhoang. VIETNAM: Cao Bang.

Remarks. The specimen cited as *A. odetteae* by Jendek & Grebennikov (2011) from Vietnam: Fan-ci-pan pertains to *A. montanus* sp. nov.

Agrilus priamus Kerremans, 1912

Fig. 6 (habitus) Fig. 24 (aedeagus)

priamus Kerremans, 1912 (*Agrilus*)

Kerremans, 1912: 207-208 (description) - Miwa, 1931: 124 (catalog; Formosa) - Miwa & Chûjô, 1936: 19 (catalog; Japan) - Obenberger, 1936a: 1099 (world catalog) - Gaedike, 1985: 85 (checklist of types in DEI) - Bellamy, 1994: 373 (two presumable paralectotypes in U.S. National Museum of Natural History) - Hua Li Zhong, 2002: 90 (checklist; China: Taiwan) - Mühle, 2003: 47 (checklist; Taiwan) - Jendek, 2006: 401 (Palaeartic catalog) - Bellamy, 2008: 2246 (world catalog) - Jendek & Grebennikov, 2011: 161 (lectotype designation; references; types; diagnosis; faunal records; distributional summary; East Asia).

Type locality. Kosempo et Alikang. [Remark: The type locality "Kosempo Formosa" was determined by the lectotype (ICZN, Article 76.2)].

Type specimens. Lectotype designated by Jendek & Grebennikov (2011).

Specimens examined. CHINA: Taiwan: 1 ♂ (USNM): "Kuraru, Formosa VII-'34, L. Gressitt Collection". See also Jendek & Grebennikov (2011).

Sexual modifications. ♂: antennae somewhat longer; apex of protibia and mesotibia with obvious spur-like projection; metatibia longer than mesotibia; prosternal process with sharp medial carina; basal ventrite medially with two clusters of setae. ♀: prosternal process flat; basal ventrite glabrous.

Variability. Not apparent except for the size.

Diagnosis. Size: 10.0 - 13.0 mm. *Agrilus priamus*, together with *A. calcarifer* sp. nov., are the only species with the prosternal process armed with sharp, medial carina, unlike the very similar *A. loosdregti* and *A. fasciatus* sp. nov. which have prosternal process with an elongate protuberance. See also diagnosis at *A. calcarifer* sp. nov.

Distribution. CHINA: Taiwan.

***Agrilus spectabilis* Kerremans, 1895**

Fig. 14 (habitus) Fig. 31 (aedeagus)

spectabilis Kerremans, 1895 (*Agrilus*)

Kerremans, 1895: 219-220 (description) - Kerremans, 1903: 277 (catalog) - Jakobson, 1913: 798 (catalog) - Obenberger, 1936a: 1103 (world catalog) - Jendek, 2005: 19 (lectotype designation; type locality determined by lectotype) - Jendek, 2006: 401 (Palaeartic catalog) - Bellamy, 2008: 2302 (world catalog).

Type locality. Pedong; Sikkim; Kurseong. [Remark: The type locality "Pedong" was determined by the lectotype (ICZN, Article 76.2)].

Type specimens. Lectotype designated by Jendek (2005)

Specimens examined. INDIA: Meghalaya: 1 (EKCS): "NE India, Meghalaya, 1999, 3 km E of Tura, 500-1150 m, 25°30'N, 90°14'E, 1.-8.v. Zd. Košťál leg."; 1 (EJCB): "NE India, Meghalaya, 1999, 3 km E of Tura, 500-1150 m, 25°30'N, 90°14'E, 15-22.iv. Zd. Košťál lgt."; 1 ♀ (EJCB): "NE India, Meghalaya, 1999, 3 km E of Tura, 500-1150 m, 25°30'N, 90°14'E, 1.-8.v., Dembický & Pacholátko leg."; 1 ♀ (EJCB): "NE India, Meghalaya, 3 km E of Tura, 1150 m, 25°30'N, 90°14'E, 6-12.v., Trýzna & Benda leg., 2002"; West Bengal: 1 ♂ (MNH): "Lopchu 5000, Darjeeling, Bengal, J.C.M. Gardner, 16.iv.1930, ex *Alnus nepalensis*". NEPAL: 1 (EJCB): "E-Nepal, Dhankuta, Arun-Valley, 1000-1500 m, Lamobagar Gola-Hedangla, leg. C. Holzschuh, 4.vi.1980"; 1 (EJCB): "E-Nepal, Dhankuta, Arun-Valley, Lamobagar Gola, 27.v.-3.vi.1980, 1000-1400 m, leg. C. Holzschuh"; 2 (EJCB): "E-Nepal, Dhankuta, Arun-Valley, 19.vi.1983, Chichila, 2000 m, leg. C. Holzschuh"; 6 (EJCB): "E-Nepal, Dhankuta, Arun-Valley, Chichila, 2000 m, 31.v.1983, leg. C. Holzschuh"; 3 ♂, 1 ♀ (EJCB): "E Nepal, Dhankuta, Arun-Valley, Num, 1500 m, 3-6.vi.1983, leg. C. Holzschuh"; 3 (EJCB): "E-Nepal, Koshi, Tamur Waku, Sakranti, Thaklung, 10.vi.1985, leg. Holzschuh"; 1 (USNM): "Loc. no 19, Rasuwa Langtang N.P., Dhunche, 28°06.09'N, 85°18.73'E, 1950 m, 30.iv.2000 \ Nepal Expedition A. Konstantinov, S. Lingafelter, M. Volkovitsh 2000".

Sexual modifications. ♂: prosternal process sparsely pubescent; ♀: prosternal process almost glabrous.

Variability. Two dark pronotal fasciae vary from obvious to obscure; apical pair of elytral spots sometimes obscure.

Diagnosis. Size 6.5-9.8 mm. *Agrilus spectabilis* resembles *A. capricornus* sp. nov. by having the frons and vertex markedly protruding but it differs from it by the body very slender and by two dark pronotal fasciae.

Host plants. *Alnus nepalensis* (see examined specimens).

Distribution. INDIA: Meghalaya; Sikkim; West Bengal. NEPAL.

***Agrilus tricoloris* sp. nov.**

Fig. 9 (habitus) Fig. 27 (aedeagus)

Type locality. North-eastern Laos, Houa Phan province, 20°12-13.5'N, 103°59'.5-104°01'E, Ban Saluei → Phou Pane Mt., 1340-1870 m.

Type specimens. Holotype (♂) (EJCB): "Laos-NE, Houa Phan prov., 20°12-13.5'N, 103°59'.5-104°01'E, Ban Saluei → Phou Pane Mt., 1340-1870m, 15.iv.-15.v.2008, Lao collectors leg."; (2 paratypes) (EJCB), (2 paratypes) (USNM): "Laos-NE, Hua Phan Province, Ban Saleui, Phou Pan (Mt), 20°12'N, 104°01'E, 7.iv.-25.v.2010, 1300-1900 m, leg. C. Holzschuh"; (1 paratype) (EJCB): "Vietnam, Cao Bang prov., Phia-Oac Mts. 1600-1900 m, 5.5 km N of Phia-Den (c.f.), N22°36'55", E105°51'48", 2-3.v.2012, E. Jendek leg."; (1 paratype) (EJCB): "N Vietnam, Tam-Dao NP, Tam-Dao env., 8-18.v.2012, 900-1200 m, N21°27'38", E105°38'28", E. Jendek leg."; (1 paratype)

(EJCB): “N Vietnam, 21°27'N, 105°39'E, 70 km NW of Hanoi, Tam Dao, 1-8.vi.1996, 900-1200 m, Dembický & Pacholátko leg.”; (1 paratype) (NMPC): “Laos-NE, Hua Phan Province, Ban Saleui, Phou Pan (Mt), 20°12'N, 104°01'E, 7.iv-25.v.2010, 1300-1900 m, leg. C. Holzschuh”; (1 paratype) (USNM): “Laos-NE, Hua Phan Province, Ban Saleui, Phou Pan (Mt), 20°12'N, 104°01'E, 1-31.v.2011, 1300-1900 m, leg. C. Holzschuh”.

Description of holotype. Size 8.2 mm. Body. Shape: cuneiform, Colour (dorsally): tricolored.

Head. Size: very large, Medial impression: shallow, Epistoma: in plane with frons. Vertex. Sculpture elements: rugae, Sculpture aspect: subparallel, Sculpture density: dense, Sculpture intensity: rough. Eyes. Size: moderate, Shape: markedly protruding head outline, Lower margin: in line or below with antennal socket, Median orbit: converging ventrally. Antennae. Length: long, Width: slender, Serration: from antennomere 4, Antennomere 7-10: with obvious collum.

Pronotum. Shape: visually elongate or square, Sides: sinuate before posterior angles or slightly arcuate, Maximal width: at middle, Anterior margin: wider than posterior. Anterior lobe. Development: moderate, Shape: arcuate, Width: broad, Position: at level with anterior angles. Posterior angles. Shape: acute or rectangular, Apex: sharp. Disk. Convexity: flat, Impressions: medial and lateral, Lateral impressions (depth): deep, Lateral impression (width): broad. Prehumerus. Development: filamentary or obsolete, Extent: adjoining posterior angle. Lateral carinae. Convergence: moderate, Junction: absent, Narrowest point: at posterior angles, Modifications: submarginal carina posteriorly obliterate. Scutellum. Projection: obsolete or absent.

Elytra. Colour: bicolored, Alternative colour: perisutural fascia, Humeral carina: absent. Apices. Arrangement: separate, Shape: arcuate. Pubescence. Presence: without discernible pubescence, Pairs of spots: humeral, medial, apical, rarely medial and apical.

Sternum. Prosternal lobe. Distal margin: arcuately emarginate, Emargination (width): narrow. Prosternal process. Shape: markedly dilated, Sides: straight, Angles: acute, Angles (tips): sharp, Disk: impressed with sides exerted, Projection (extent): adjoining to angles. Metasternum. Metasternal projection: flat.

Abdomen. Tomentum: present. Pygidium. Apical margin: arcuate. Sternal groove. Extent: on all ventrites, Shape on the apex of last ventrite: arcuate.

Legs. Metatarsus. Length to metatibia: about as long as or longer than metatibia. Tarsomere 1. Length to following tarsomeres: subequal or longer than 2-4.

Genitalia. Aedeagus. Symmetry: symmetric, Shape: subparallel, Profile: convex, Modifications: apex of medial lobe sharply pointed.

Sexual modifications. ♂: frons green; prosternal process obviously dilated and impressed on disk; ♀: frons golden-orange; prosternal process subparallel or slightly dilated, flat on disk.

Variability. Elytra from golden-green to golden-blue.

Diagnosis. Size: 6.2-9.4 mm. *Agrilus tricoloris* sp. nov. is the only species with the strikingly golden-orange pronotum without dark medial fasciae. The dark perisutural elytral fascia is best visible from the oblique posterior view. The most distinctive character of this species is the shape of prosternal process in male, which is wide and obviously dilated and impressed

on the disk with acute, exerted angles. See also diagnostic of *A. montanus* sp. nov.

Distribution. LAOS: Houaphan. VIETNAM: Cao Bang, Vinh Phuc.

Etymology. The specific name is the Latin adjective *tricoloris* (of three colours); it refers to the ventral side colour of the species.

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