Descriptions of three new species of Cossidae (Lepidoptera) from Vietnam, with an updated annotated checklist

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Abstract

Forty-two species of Cossidae representing 27 genera are reported for Socialist Republic of Vietnam. Three species (Paracossus zyaung Yakovlev sp. nov., Phragmacossia laklong Yakovlev sp. nov., Butaya auko Yakovlev sp. nov.) are described as new to science. Five species (Paracossus indradit Yakovlev, 2009, P. griseatus Yakovlev, 2009, Aholcocerus ihleorum Yakovlev & Witt, 2009, Skeletophyllon puer Yakovlev, 2011, Azygophleps scalaris (Fabricius, 1775) are new country records. A brief biogeographical overview of the Cossidae of Vietnam is given.

Key words: Carpenter-Moths, fauna, Southern Asia

Introduction

The Cossidae of the Socialist Republic of Vietnam have been studied extensively in recent years. Yakovlev & Witt (2009) have provided a synopsis of the fauna, and Yakovlev (2006, 2011) recorded additional species and new species. A total of 34 species had been reported so far.

Recently collected material by the staff of the Ulyanovsk Pedagogical University, Russia during expeditions in 2009–2013 has become available for study. This material included new records of genera and species for Vietnam in addition to three new species, which are described below. An updated annotated checklist of the Cossidae of Vietnam is provided.

Material and methods

Cossidae were collected using light traps. Holotypes of new species are deposited in ZISP.

Abbreviation list

<table>
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<tr>
<td>BMNH</td>
<td>The Natural History Museum (London, G.B.);</td>
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<td>MHUB</td>
<td>Museum für Naturkunde der Humboldt-Universität (Berlin, Germany);</td>
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<td>MNHN</td>
<td>Muséum National d’Histoire Naturelle (Paris, France);</td>
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<tr>
<td>MNHB</td>
<td>Museum Natural History (Bruxelles, Belgium);</td>
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<tr>
<td>MNHS</td>
<td>Museum Natural History (Stockholm, Sweden);</td>
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<tr>
<td>MWM</td>
<td>Museum of Thomas Witt (Munich, Germany);</td>
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<tr>
<td>NHMT</td>
<td>National History Museum (Tokyo, Japan);</td>
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<td>RMNH</td>
<td>Nationaal Natuurhistorisch Museum (Leiden, The Netherlands);</td>
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<tr>
<td>RYB</td>
<td>collection of Roman Yakovlev (Barnaul, Russia);</td>
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<tr>
<td>ZFMK</td>
<td>Zoologisches Forschungsinstutit und Museum Alexander Koenig (Bonn, Germany);</td>
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<tr>
<td>ZISP</td>
<td>Zoological Institute of Science Academy of Russian Federation (St.Petersburg, Russia).</td>
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Annotated list of species (* denotes a species new for the fauna of Vietnam)

Family Cossidae Leach, [1815]

Subfamily Catoptinae Yakovlev, 2009

Genus *Catopta* Staudinger, 1899


*Catopta tropicalis* Yakovlev & Witt, 2009


Type locality: Vietnam (N), Mt. Fan-si-pan, W-side, Chapa, 1700 m, 22°20N, 103°40E.

Distribution: Northern Vietnam (Fan-Si-Pang Mts.).

Subfamily Cossinae Leach, [1815]

*Genus Paracossus* Hampson, 1904

*Paracossus* Hampson, 1904: 152. Type species: *Paracossus furcata* Hampson, 1904. Designation by monotypy.

*Paracossus indradit* Yakovlev, 2009

(Fig. 1, 12)


Type locality: Thailand, Donglek, Sri Sawat, Kanchanaburi.

Distribution: Thailand, SE China (Yunnan Province), Central Vietnam.

Notes. This species is an example of a taxon that was formally considered as an endemic of northern Thailand that occurs also in central region of Vietnam as noted by Zolotuhin & Ryabov (2012).


*Paracossus griseatus* Yakovlev, 2009

(Fig. 2, 13)

*Paracossus griseatus* Yakovlev, 2009: 354.

Type locality: S. Cambodia, Sro Kiong env., Kirirom.

Distribution: Cambodia, Central Vietnam.

FIGURES 1–10. Adults of Cossidae, dorsal aspect; all specimens shown are from Vietnam. 1, Paracossus indradit Yakovlev. 2, Paracossus griseatus. 3, Paracossus zyaung Yakovlev sp. nov., holotype. 4, Paracossus zyaung Yakovlev sp. nov., paratype. 5, Aholcocerus ihleorum Yakovlev & Witt. 6, Phragmacossia laklong Yakovlev, sp. nov., holotype. 7, Butaya auko Yakovlev sp. nov., holotype. 8, Bergaris solovievi Yakovlev. 9, Skeletophyllon puer Yakovlev. 10, Azygophleps scalaris (Fabricius, 1775).

Paracossus zyaung Yakovlev sp. nov.
(Figs 3–4, 11, 17)


Male genitalia. Uncus with deep semispherical bifurcation on top and pointed lateral edges of uncus. Tegumen medium-sized. Branches of gnathos short, thick. Gnathos medium-sized, semispherical, thickly covered with small spicules. Valvae broad, with developed sacculus. Costal edge of valva with semispherical crest with uneven edge and rugose inner surface. Inner surface of valva with sclerotized crest (from middle part of costal process to
subapical zone of lower edge). Membranous (distal) end of valva very small, narrow. Transtilla a strongly sclerotized flat lamina. Processes of transtilla stout, long (reach bases of branches of gnathos), tusk-shaped. Juxta saddle-like, with thick lateral processes, bifurcated at 45°. Saccus stout, semispherical. Aedeagus thick, somewhat shorter than valva, apically broadened spearhead shaped. Aperture of vesica has a dorsoapical position and has a length of 1/5 of aedeagus length. Vesica without cornuti.

Female unknown.

**Diagnosis.** Six species are presently included in the genus *Paracossus* (=*Bifiduncus* Chou & Hua, 1988) (Yakovlev 2009): *Paracossus furcata* Hampson, 1904 (Myanmar), *Paracossus parva* Hampson, 1904 (Sri Lanka), *Paracossus longispinalis* (Chou & Hua, 1988) (China, Jiangxi), *Paracossus indradit* Yakovlev, 2009 (Thailand, Yunnan, Vietnam), *Paracossus hainanicus* Yakovlev, 2009 (Hainan Island, China), *Paracossus griseatus* Yakovlev, 2009 (Cambodia, Vietnam). *Paracossus zyaung* Yakovlev sp. nov. differs from the above species by the following characters: dark-grey hindwings, transtilla modified as a sclerotized plate, very long processes of transtilla, and apex of aedeagus strongly broadened.

**Etymology.** Zyaung—a mythological character and epical hero, defender of the Vietnamese people.

**Genus Hollowiella** Yakovlev & Witt, 2009


**Hollowiella chanwu** Yakovlev & Witt, 2009


Type locality: N. Vietnam, Yen Bai, An-Chy, 21°42N, 104°18E.

Type material: Holotype (male) in MWM, examined.

Distribution: Northern Vietnam.

**Genus Roepkiella** Yakovlev & Witt, 2009

*Roepkiella* Yakovlev & Witt, 2009: 15. Type species: *Cossus rufidorsia* Hampson, 1904, by original designation.

**Roepkiella subfusca** (Snellen, 1895)

*Trypanus subfuscus* Snellen, 1895: 134.

Type locality: [Deli, Ost Sumatra].

Type material: Syntypes in MHUB, examined.

Distribution: Java, Sumatra, Vietnam.

**Roepkiella loeffleri** (Yakovlev, 2006)

*Paracossus loeffleri* Yakovlev, 2006: 194.

Type locality: C. Vietnam, Prov. Thua Thien-Hue, Kreis A Luoi, Gemeinde A Rong, Dorf Khe Cha Lenh.

Type material: Holotype (female) in MSW, examined.

Distribution: Central Vietnam.
*Genus Aholcocerus Yakovlev, 2006*


*Aholcocerus ihleorum* Yakovlev & Witt, 2009

(Fig. 5)


Type locality: N. Thailand, Doi Kham, Chiang Mai.
Type material: Holotype (male) in MWM, examined.
Distribution: N. Thailand (Chiang Mai Prov.), Vietnam (Tre Isl.).

Genus Chinocossus Yakovlev, 2006


**Chinocossus acronyctoides** (Moore, 1879)

*Brachylia acronyctoides* Moore, 1879: 411.

Type locality: Bombay [India].
Type material: Syntypes in BMNH, examined.
Distribution: India, Pakistan, China (Yunnan, Hunan, Anhui, Jiangxi, Guangxi), Vietnam, Philippines.

**Chinocossus vjet** Yakovlev, 2006

Chinocossus vjet Yakovlev, 2006: 197.

Type locality: Vietnam, Hanoi.
Type material: Holotype (male) in ZFMK, examined.
Distribution: Northern Vietnam.

Genus Streltzoviella Yakovlev, 2006

Streltzoviella Yakovlev, 2006: 73. Type species: *Holcocerus insularis* Staudinger, 1892, by original designation.

**Streltzoviella owadai** Yakovlev, 2011


Type locality: N. Vietnam, Vinh Phu Prov., Tam Dao.
Type material: Holotype (male) in NHMT, examined.
Distribution: Northern Vietnam.
FIGURES 16–18. Habitats and type localities. 16, Habitat at the type locality of *Paracossus zyaung* Yakovlev sp. nov. near the Kon Loc village in K’Bang District (photo by Vadim Zolotuhin). 17, Habitat at the type locality of *Phragmacossia laklong* Yakovlev sp. nov. and *Butaya auko* Yakovlev sp. n. near the Dak Roong Commune (photo by Vadim Zolotuhin). 18, Distribution map of the region showing the type localities of new species.

**Genus Wittocossus** Yakovlev, 2004

**Wittocossus mokanshanensis** (Daniel, 1945)


Type locality: Mokanshan, Prov. Chekiang [S. China].

Type material (holotype by original designation) in ZFMK, examined.

Distribution: S. China (Hubei, Sichuan, Guizhou, Chekiang, Kiangsu, Yunnan), northern Thailand (Chiangmai), northern Vietnam.

**Subfamily Zeuserinae Boisduval, [1828]**

**Genus Phragmacossia Schawerda, 1924**


*Phragmacossia fansipangi* Yakovlev & Witt, 2009


Type locality: Nord Vietnam, Mt. Fan-si-pan, Cha pa, 22°17N, 103°44E.

Type material: Holotype (male) in MWM, examined.

Distribution: Northern Vietnam.

*Phragmacossia laklong* Yakovlev, sp. nov.

(Figs 6, 14, 16)

**Type material.** Holotype: male, Vietnam, Gia Lai Prov., Kon Ka Kin N.[ational] P.[ark], K’Bang distr., Dak Roong Comm., top of mountain pass, N14º4286’; E108º36’, 16−17.03.2012, H − 1210 m, leg. V. Zolotuhin (ZISP); Paratypes: 6 males, same data and locality (RYB).

**Description.** Antennae bipectinate from base, distal third of antenna simple, filiform. Thorax covered with light-yellow hairs. Upper surface of abdomen covered with black hairs, apex of abdomen with light-yellow hairs. Forewing length 16−18 mm. Forewing rather broad, light-yellow with complex pattern. Costal edge with brownish field. Discal cell with whitish field. Two diffuse black spots with uneven edges situated in middle of discal cell and near apex. Skew black line with uneven edges begins from vein M1 (from place of its origin at discal cell) and continues to base of wing. Submarginal and marginal areas with thin net pattern consisted from thin wavy lines. Black spots situated near edge at veins. Fringe light-yellow. Hindwing light-yellow with suffusion of black scales. Fringe light-yellow.

Male genitalia.


Female unknown.

**Diagnosis.** There are five species of the genus recognized in the Oriental Region (except the new species): *Phragmacossia* Schawerda, 1924 (Yakovlev 2011): *Phragmacossia fansipangi* Yakovlev & Witt, 2009 (N. Vietnam), *Phragmacossia brahmana* Yakovlev, 2009 (S. India, Tamil Nadu), *Phragmacossia dudgeoni* (Arora, 1974) (Bhutan, India), *Phragmacossia ihlei* Yakovlev, 2008 (Thailand, Prov. Tak) and *Phargmacossia kiplingi* Yakovlev, 2011 (Sri Lanka). The new species has can be distinguished by the following characters: comparatively...
small size, the more pronouncedly variegated pattern of the wings, the small and stout uncus, and the nearly even
valve (rather strongly curved in other species of the genus).

**Etymology.** Named after Lak Long Kuan, a mythological character, semi-dragon, semi-human, ancestor of the
Vietnamese.

**Genus Roerichiora Yakovlev & Witt, 2009**


**Roerichiora stigmatica (Moore, 1879)**

*Zenzera* (sic) *stigmatica* Moore, 1879: 86.

Type locality: Darjiling [India].
- Type material: Holotype (male) in MHUB, examined.
- Distribution: India, Bhutan, Vietnam, Thailand.

**Roerichiora clara (Bryk, 1949)**

*Xyleutes clara* Bryk, 1949: 47.

Type locality: Tenasserim, Mekane, 90 km östlich von Moulmein [S. Myanmar].
- Type material: Holotype (male) in MNHS, examined.

**Roerichiora bachma Yakovlev, 2011**

*Roerichiora bachma* Yakovlev, 2011: 49.

Type locality: Central Vietnam, Thua Thien Hue, Bach Ma.
- Type material: Holotype (male) in NHMT, examined.
- Distribution: Central Vietnam.

**Genus Phragmataecia Newman, 1850**


**Phragmataecia innotata (Walker, 1865)**

*Zeuzera innotata* Walker, 1865: 587.

Type locality: Shanghai [E. China].
- Type material: Holotype (male) in BMNH, examined.
- Distribution: China, Vietnam, Laos, Thailand.
**Phragmataecia impura** Hampson, 1891

*Phragmataecia impura* Hampson, 1891: 7.

Type locality: Nilgiri Distr. [India].
Type material: Holotype (female) in BMNH, examined.
Distribution: India, Nepal, southern China, Vietnam, Laos, Thailand, Java.

**Phragmataecia parvipuncta** (Hampson, 1892)

*Cossus parvipunctus* Hampson, 1892: 306

Type locality: Naga Hills [India].
Type material (holotype) in BMNH, examined.

**Phragmataecia gummata** Swinhoe, 1892

*Phragmataecia gummata* Swinhoe, 1892: 14.

Type locality: Java.
Type material (holotype) in ZMUO, examined.
Distribution: China (Fukien, Lingping), Vietnam, Thailand, Indonesia (Java, Sumatra).

*Genus Butaya* Yakovlev, 2004


**Butaya auko** Yakovlev sp. nov.
(Figs 7, 15, 17)

*Type material.* Holotype: male, Vietnam, Gia Lai Prov., Kon Ka Kin N.[ational] P.[ark], K’Bang distr., Dak Roong Comm., top of mountain pass, N14°42’6”; E108°36’, 16−17.03.2012, H – 1210 m, leg. V. Zolotuhin (ZISP); Paratypes: 2 males, same data and locality (RYB).


Female unknown.

*Diagnosis.* The new species is easily distinguished from the single known species of the genus, *B. gracilis* Yakovlev, 2004 (Yunnan, China) by the following characters: the comparatively small size, narrower valvae, the deep incisions on the lower edge of the valva, and the much narrower aedeagus.
**Etymology.** Named after Au Ko, a mythological character, mountain fairy, goddess, and mother of the Vietnamese civilization.

**Genus Relluna Schoorl, 1990**


**Relluna nurella (Swinhoe, 1894)**

*Azygophleps nurella* Swinhoe, 1894: 440.

Type locality: Cherra Punji [India].
- Type material: Holotype (male) in BMNH, examined.
- Distribution: Vietnam, northern Myanmar, Sikkim, Thailand, China (Yunnan), Borneo, Sumatra.

**Genus Lakshmia Yakovlev, 2004**


**Lakshmia sirena Yakovlev, 2006**


Type locality: Sud Vietnam, Bao Lok, Rung Kat Tien, 11°32'N; 107°48'E.
- Type material: Holotype (female) in MWM, examined.
- Distribution: Southern Vietnam.

**Genus Bergaris Schoorl, 1990**


**Bergaris ruficeps (de Joannis, 1929)**

*Azygophleps ruficeps* de Joannis, 1929: 551.

Type locality: Hanoi [Vietnam].
- Type material: Holotype (male) in MNHN, examined.
- Distribution: Vietnam.

**Bergaris solovievi Yakovlev, 2011**

*(Fig. 8)*

*Bergaris solovievi* Yakovlev, 2011: 56.

Type locality: N. Vietnam, Ninh Binh Prov., Nno Quan Distr., Bong-Cuc Fuong vill., 360 m, 20°21’N; 105°36’E.
- Type material: Holotype (male) in MWM, examined.
- Distribution: Vietnam.
Notes: This species was known only from the holotype collected in Ninh Binh Province. The new locality is from the central portion of Vietnam.


**Genus Orientozeuzera** Yakovlev, 2011


**Orientozeuzera rhabdota** (Jordan, 1932)


Type locality: Sumatra.

Type material: Holotype (male) in MNHB, examined.

Distribution: Borneo, Sumatra, Java, Philippines (Palawan), Thailand, Vietnam, Myanmar.

**Genus Zeuzera** Latreille, 1804


**Zeuzera multistrigata** Moore, 1881

*Zeuzera* (sic) *multistrigata* Moore, 1881: 327.

Type locality: Darjiling [India].

Type material: Cotypes in BMNH, examined.

Distribution: India, Pakistan, Nepal, China (Sichuan, Hubei, Jiangxi, Zhejiang, Shanghai, Liaoning, Guangxi, Guizhou, Xizang, Tibet, Chekiang, Shaansi, Yunnan), Taiwan, Myanmar, Bangladesh, Sri Lanka, Vietnam, Thailand.

**Zeuzera yuennani** Daniel, 1940


Type locality: Li-kiang, Provinz Nord-Yuennan [China, N. Yunnan].

Type material: Holotype (male) in ZFMK, examined.

Distribution: China (N. Yunnan), northern Vietnam.

**Zeuzera lineata** Gaede, 1933

*Zeuzera lineata* Gaede, 1933: 812.

Type locality: Kina-Balu [Borneo].

Type material: Holotype (male) in MHUB, examined.

Distribution: Malaysia, Indonesia (Sumatra), Vietnam.
Genus **Zeurrora** Yakovlev, 2011


**Zeurrora indica** (Herrich-Schaffer, [1854])

*Zeuzera indica* Herrich-Schaffer, [1854]: 58.

Type locality: Bangladesh, Sylhet.

Type material: Holotype (female) in MNHN, examined.

Distribution: Northern India, China (Yunnan, Hainan), Bangladesh, Yunnan to Malaya, Java, New Guinea.

Genus **Polyphagozerra** Yakovlev, 2011


**Polyphagozerra coffeae** (Nietner, 1861)

*Zeuzera coffeae* Nietner, 1861: 21–22.

Type locality: Ceylon [Sri Lanka].

Type material: lost.

Distribution: S. Japan (Okinawa), China (Guandong, Guangxi, Yunnan, Guizhou, Jiangxi, Fujian, Zheijiang, Jiangsu, Hubei, Hunan, Sichuan, Henan, Shandong, Shaanxi, Xizang, Hunan, Fukien, Kiangsu, Hainan), Myanmar, Thailand, Vietnam, Laos, Taiwan, India, Sri Lanka, Borneo, Java, San Tome and Principe Islands.

Genus **Neurozerra** Yakovlev, 2011


**Neurozerra conferta** (Walker, 1856)

*Zeuzera conferta* Walker, 1856: 1536.

Type locality: Silhet [Bangladesh].

Type material: Holotype (female) in BMNH, examined.

Distribution: Sri Lanka, India, Taiwan, Vietnam, Thailand, Bangladesh, Andaman Islands.

Genus **Tarsozeuzera** Schoorl, 1990


**Tarsozeuzera fuscipars** (Hampson, 1892)

*Duomitus fuscipars* Hampson, 1892: 309.

Type locality: Sikhim [India, Sikkim].
Type material: Holotype (male) in BMNH, examined.
Distribution: N. India, Malaya, Borneo, Vietnam, Thailand, China (Yunnan).
The species was reported for Vietnam without specific localities (Yakovlev 2011).

Genus *Xyleutes* Hubner, [1820] 1816


*Xyleutes strix* (Linnaeus, 1758)

*Phalaena Noctua strix* Linnaeus, 1758: 508.
Type locality: America Merid. (error) (Fletcher & Nye, 1982). Roepke (1957) considered that his figure possibly represented a specimen from Java and so restricted the type locality to this island. The type material is lost.
Distribution: N. India, Bhutan, China (Yunnan, Guangxi, Xizang, Qinghai), Taiwan, Malaysia, Philippines, the Indonesian Archipelago to New Guinea, New Britain Island

*Xyleutes personus* (Le Guillou, 1841)

*Cossus persona* Le Guillou, 1841: 257.
Type locality: Indonesia, Samarang.
Type material: Holotype (female) in MNHN, examined.
Distribution: China (Yunnan, Hunan), India (before Shimla), Nepal, Sri Lanka, Bangladesh, Malaysia, the Indonesian Archipelago, New Guinea.

Genus *Chalcidica* Hubner, [1820]

*Chalcidica* Hubner, [1820]: 197. Type species: *Phalaena minea* Cramer, 1779. Subsequent designation by Kirby (1892).

*Chalcidica minea* (Cramer, 1779)

*Phalaena mineus* Cramer, 1779: 52, pl. CXXI (D).
Type locality: Batavia [Jakarta, Java Isl., Indonesia].
Type material: lost.
Distribution: India, Sri Lanka, Andaman Islands, China (Yunnan, Guanxi), Bangladesh, Laos, Vietnam, Cambodia, Thailand, Nepal, Malaysia, Indonesia Archipelago, Philippines.

Genus *Panau* Schoorl, 1990

**Panau adusta (Roepke, 1957)**

*Xyleutes adusta* Roepke, 1957: 30.

Type locality: Dolok Ilir, Sumatra East Coast.
Type material: Holotype (male) in RMNH, examined.
Distribution: Malay Peninsula, Sumatra, Java, Borneo, Vietnam.

**Panau stenoptera (Roepke, 1957)**

*Xyleutes stenoptera* Roepke, 1957: 27.

Type locality: Indonesia, W. Jawa, Perbawattee.
Type material: Holotype (male) in RMNH, examined.

**Panau stenoptera sumatrana (Roepke, 1957)**

*Xyleutes stenoptera sumatrana* Roepke, 1957: 27.

Type locality: Lebong Tandai [Sumatra].
Type material: Holotype (male) in BMNH, examined.

**Genus Duomitus Butler, 1880**

*Duomitus* Butler, 1880: 68. Type species: *Duomitus ligneus* Butler, 1880. By original designation.

**Duomitus ceramicus (Walker, 1865)**

Zeuzera ceramica Walker, 1865: 587.

Type locality: Ceram [Maluku Isl., Indonesia].
Type material (holotype) in ZMUO, examined.
Distribution: China (Yunnan), N. India to Malaysia, Sumatra, Ceram, New Guinea.

**Genus Skeletophyllon Schoorl, 1990**


**Skeletophyllon puer Yakovlev, 2006** (Fig. 9)

*Skeletophyllon puer* Yakovlev, 2006: 213.

Type locality: N. Sumatra, Deli, Dolok Merangir.
Type material (holotype) in ZSM, examined.
Distribution: N. Sumatra, central Vietnam.

*Genus Azygophleps Hampson, 1892

Azygophleps Hampson, 1892: 309. Type species: Hepialis scalaris Fabricius, 1775. By original designation.

*Azygophleps scalaris (Fabricius, 1775)

(Fig. 10)

Phalaena (Hepialus) scalaris Fabricius, 1775: 590.

Type locality: China.
Type material: lost.
Distribution: Pakistan, India, China, Sri Lanka, Myanmar, Thailand, Cambodia, Bangladesh, Mauritania, Somali, Senegal, Ivory Coast, Ghana, Nigeria, Congo, Kenya, Angola, Namibia, Tanzania, Sudan, Malawi (Yakovlev 2011).


Biographical overview

The cossid fauna of Vietnam includes 27 genera and 42 species placed in three subfamilies. Thirteen species are considered to be endemic, Catopta tropicalis, Paracossus zyaung, Hollowiella chanwu, Roepkiella loeffleri, Chinocossus vjet, Streltzoviella owadai, Phragmacossia fansipangi, P. laklong, Roerichiora bachma, Butaya auko, Lakshmia sirena, Bergaris ruficeps, and B. solovievi. The Vietnamese Cossidae includes five assemblages: (1) endemic Indochine species (16 species); (2) species distributed from India or Central China to Indochina (nine species); (3) species distributed from Indochina through Malacca to the Greater Sunda Islands; (4) Panoriental species (8 species); and (5) widely distributed panpalaeotropical species (1 species).

It is significant to note that the two species of the Vietnamese fauna that have Palearctic affinities, namely C. tropicalis and Streltzoviella owadai, are restricted to northern Vietnam. The genus Catopta is widely distributed in major mountain ranges of Palearctic Asia, from Central Yakutia of eastern Siberia. The genus Streltzoviella includes two species which are known from southern areas of the Russian Far East through Central and eastern China to northern Vietnam. The other 40 cossid species known from Vietnam are members of 25 genera distributed throughout the Old World Tropics.

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References
