

A newly recorded genus *Eufallia* (Coleoptera: Latridiidae) in China

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Abstract: The genus *Eufallia* Muttkowski 1910 is newly recorded in China for the species *E. seminiveus* (Motschulsky, 1866). Morphological characters of the genus and species are given. The history of genus *Eufallia* and its distribution, feeding habits and damage by *E. seminiveus* are discussed. *E. seminiveus* may be an important household pest.

Key words: Polyphaga; Cucujoidea; taxonomy; key

中国薪甲科一新纪录属——长转薪甲属 *Eufallia* (鞘翅目: 薪甲科)

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摘要: 记述采自浙江温州的薪甲科 1 中国新纪录属——长转薪甲属 *Eufallia* Muttkowski, 1910 和 1 中国新纪录种——狭胸长转薪甲 *E. seminiveus* (Motschulsky, 1866), 描述了它们的外部形态特征, 讨论了长转薪甲属的分类历史, 狭胸长转薪甲的分布、食性及危害。狭胸长转薪甲可能成为重要的家居害虫。

关键词: 多食亚目; 扁甲总科; 分类; 检索表

Introduction

Latridiidae, whose members are commonly known as minute brown scavenger beetles, is a family of very small beetles with a body length shorter than 3 mm. The family included 30 genera and approximately 760 species (Rucker 2013). Most species in the family feed on phycomycete, deuteromycete and ascomycete fungi and are often encountered in decaying vegetation (Majka *et al.* 2009). Some species were thought to be stored product pests and a few species infest crops (Yu 1998). Latridiids were always neglected by collectors because of their small size. Only about 20 species are recorded as stored product pests in China (Zhou *et al.* 1998). In June, many latridiid specimens were collected from a house in Mayu Town of Wenzhou City. These specimens belong to *Eufallia seminiveus* (Motschulsky, 1866), a newly recorded species and genus to China.

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Material and methods

Specimens were soaked in 70% alcohol and deposited in the Entomological Collection of the Wenzhou Medical University, Wenzhou, Zhejiang, China. Illustrations were taken using a Nikon SMZ1000 stereomicroscope mounted with a camera. All measurements are given in millimeter.

Taxonomy

Eufallia Muttkowski 1910, new record to China

Belonia Fall 1899: 142.

Eufallia Muttkowski 1910: 162.

Diagnosis. Body elongate, rufotestaceous and glabrous. Epistoma wider than the labium and front, and separated from front by a strongly marked suture. Antenna 11-jointed, with a 3-jointed club, inserted anteriorly at the sides of the front and passing the hind margin of the prothorax, the 3rd–8th antennal segments slender. Eyes small, remote from the antennae. Prothorax not wider than the head, pronotum without dorsal costae, sides deeply constricted near the base, but without denticles. Elytra not connate, each with 8 punctate-striate, humeri not defined. Anterior coxal cavities closed behind and distinctly separated from each other. Middle coxae more widely separated than the anterior. Abdomen composed of five segments, the first segment longer than others. Trochanters long, cylindrical; tarsi 3-jointed, the last joint longer than the two preceding combined.

Remarks. This genus was erected for the reception of *Cartodere unieostata*, which differs remarkably from other Lathridiidi by its greatly developed trochanters, and was named *Belonia* in honor of the distinguished French entomologist, M. Marie-Joseph Belon (Fall 1899). However, the genus name *Belonia* was preoccupied for Odonata making genus name *Belonia* Fall a homonym (Muttkowski 1910). *Eufallia* Muttkowski replaced *Belonia* Fall. Only two species, *E. seminiveus* and *E. africanus* have been recorded in this genus worldwide. *E. africanus* was only recorded in Cape province of South Africa.

Key to genera of Latridiidae in China

1. Procoxae separated by a prosternal process; body glabrous or almost so; elytra frequently costate or carinate (Latridiinae)..... 2
- Procoxae not separated by a prosternal process; body pubescent; costae or carinae lacking from elytra (Corticariinae).....9
2. Trochanters two to three times as long as broad.....3
- Trochanters about as broad as long..... 4
3. Antennae 10-segmented.....*Euchionellus*
- Antennae 11-segmented..... *Eufallia*
4. Elytra with 10 punctate striae in posterior half..... *Thes*
- Elytra with eight or fewer rows of punctate striae.....5
5. Eyes small, each having fewer than 20 facets..... *Dienerella*
- Eyes larger, each with more than 70 facets..... 6
6. Pronotal disc with paired longitudinal carinae extending nearly entire length..... 7
- Pronotal disc without paired longitudinal carinae..... 8

7. Lateral margins of pronotum deeply incised..... *Cartodere*
 -. Lateral margins of pronotum inwardly curved but not sharply incised..... *Stephostethus*
 8. Prosternal process normal; pronotal margin nearly straight or only weakly sinuate; first visible sternite clearly punctate..... *Latridius*
 -. Prosternal process keeled and elevated between coxae; pronotal margin usually laterally expanded medially; all sternites lacking punctation..... *Enicmus*
 9. Antennae 10-segmented; first tarsal segment equal to second in length..... *Migneauxia*
 -. Antennae 11-segmented; first tarsal segment distinctly longer than second..... 10
 10. Pronotum near base with transverse impression extended to lateral margins..... 11
 -. Pronotum near base with median impression not extended to lateral margins..... 12
 11. First visible abdominal sternum with coxal lines; second metatarsomere as long as or longer than first.....
 *Melanophthalma*
 -. First visible abdominal sternum without coxal lines; second metatarsomere shorter than first..... *Corticinara*
 12. First metatarsomere markedly produced ventrally, nearly to the apex of the second segment; abdomen with 6 visible sterna..... *Corticarina*
 -. First metatarsomere barely produced ventrally; abdomen with 5 visible sterna..... *Corticaria*

***Eufallia seminiveus* (Motschulsky, 1866)** (Figs. 1–3), new record to China

Aridius seminiveus Motschulsky, 1866: 265.

Cartodere unicastata Belon, 1887: 225; Fall, 1899: 142; Hoffman, 1940: 810; Tanaka & Tahira, 1995: 37.

Eufallia seminivea Parsons, 1969: 15.

Eufallia seminiveus Leng, 1920: 208; Hilburn & Gordon, 1989: 685.

Diagnosis. Body length 1.2–1.4 mm. The head, thorax and abdominal segments always covered with a white, wax-like secretion. Head longer than wide; epistoma expanded to a width equal to that of the head without the eyes; the first antennal joint subglobular, the second a little narrower, elongate-oval; the 3th–8th antennal segment nearly filiform, the third more than three times as long as wide, the following joints gradually shorter; the 9th and 10th antennal segment evidently widening from base to tip and the former longer than the latter, the last joint obliquely truncate; eyes prominent, situated at about their length from the hind angles; tempora convergent posteriorly, sides before the eyes moderately convergent. Prothorax about as long as wide, not wider than the head including the eyes; sides suddenly narrowed at the front angles and the extremity of prothorax about as wide as the neck; pronotum with a transverse subbasal impressed line which is deeper at its extremities. Elytra elongate-oval, about two and one-half times as wide as the prothorax, and twice as long as the head and thorax combined; base slightly wider than prothorax and minutely rectangular each side, side margin strongly arcuate when viewed laterally; each with eight rows of coarse, deep, closely placed punctures; intervals very narrow and costate throughout the 5th interval; epipleurae marked with a similar row of punctures. Metasternum shorter than the first ventral abdominal segment and the latter with a deep, transverse, nearly straight impressed line just behind the coxae, and reaching nearly the sides of the body; the fifth abdominal segment a little longer than 2nd–4th segments. Hind coxal cavities not quite reaching the sides of the body. Trochanters about equal in length to the fourth ventral segment, femora robust, tibiae straight, gradually wider apically.

Distribution. China (Zhejiang); Bermuda; Puerto Rico; Mexico; USA.

Specimens examined. About fifty ♂ and ♀ specimens, **China**, Zhejiang, Wenzhou, Mayu, 31-VII-2014, Aifei WU.

Remarks. Motschulsky (1866) first described this species as *Aridius seminiveus* based on specimens from Cuba. It was moved to the genus *Eufallia* by Leng (1920). At the same time, *E. unicostata*, the type species for the genus *Eufallia* and distributed in Mexico and USA, was ascertained to be a synonym of *E. seminiveus*. The species was then recorded in Puerto Rico (Hoffman 1940), Bermuda (Hilburn & Gordon 1989) and Japan (Tanaka & Tahira 1995). It is now recorded from China for the first time.



Figures 1–3. *E. seminiveus*. 1. Habitus, dorsal view; 2. Habitus, ventral view; 3. Left elytra, lateral view. Scale bars = 0.5 mm.

Discussion

E. seminiveus had been found beneath empty fertilizer sacks (Blatchley 1923) and in walls with casein wash paint (Hoffman 1940), bedrooms (Parsons 1969), wicker baskets (Hilburn & Gordon 1989) and bamboo baskets (Tanaka & Tahira 1995). In Mayu, hundreds of specimens were found on the surface of objects in a newly decorated room, including floor, bed sheets, table, chairs, sofa and so on. Adults and larvae of *E. seminiveus* have been found avidly consuming fungi instead of protein, especially the fruiting bodies of fungi; fungi feeding constitutes their principal means of sustenance (Hoffman 1940). When we examined the wood through a small hole in the ceiling, some wood of the ceiling was covered with fungi and several adults were crawling on the wood.

In China, wood is usually used as materials for ceilings. When the inner-roof of a room is covered with a ceiling, the space between ceiling and roof is airtight. If the room is newly built or water penetrates, the humidity in the space between ceiling and roof increases, which accelerates the growth of fungi in the wood and provides plenty of sustenance for the development of *E. seminiveus*. The development of *E. seminiveus* is fast and three weeks is enough for the eggs to develop to mature larvae (Hoffman 1940). *E. seminiveus* might be an

important household pest. In addition, the beetle could bite humans and most of their bites are on covered parts of the body (Parsons 1969). Their bites result in pea-sized red papules and the lesion becomes itchy in a few hours (Parsons 1969).

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References

- Belon FM. 1887. Lathridiens nouveaux ou peu connus. *Revue d'Entomologie*, 6: 215–229.
- Blatchley WS. 1923. Notes on the Coleoptera of southern Florida with descriptions of new species. *The Canadian Entomologist*, 55(1): 13–20.
- Fall HC. 1899. Revision of the Lathridiidae of boreal America. *Transactions of the American Entomological Society*, 26: 101–190.
- Hilburn DJ & Gordon RD. 1989. Coleoptera of Bermuda. *The Florida Entomologist*, 72(4): 673–692.
- Hoffman WA. 1940. *Eufallia unicastata*, a fungus eating beetle new to Puerto Rico. *Journal of Economic Entomology*, 33(5): 810–811.
- Leng CW. 1920. *Catalogue of the Coleoptera of America, North of Mexico*. JD Sherman Jr., New York, 470 pp.
- Majka CG, Langor D & Rucker WH. 2009. Latridiidae (Coleoptera) of Atlantic Canada: new records, keys to identification, new synonyms, distribution, and zoogeography. *The Canadian Entomologist*, 141(4): 317–370.
- Motschulsky V. 1866. Enumeration des especes de Coleopteres rapportees de ses Voyages. 5-ème article. *Bulletin de la Societe des Naturalistes de Moscou*, 39(3): 225–290.
- Muttkowski RA. 1910. *Eufallia*, a new name for *Belonia* Fall (Coleoptera). *Bulletin of the Wisconsin Natural History Society*, 8: 161–162.
- Parsons CT. 1969. A lathridiid beetle reported to bite man. *Coleopterists Bulletin*, 23(1): 15.
- Rucker WH. 2013. Checklist Latridiidae & Merophysiinae of the World. Available from: <http://www.latridiidae.de/downloads/checklist-latridiidae-and-merophysiinae-world-.pdf> (Accessed 10 August 2014)
- Tanaka K & Tahira Y. 1995. Several lathridiid beetles new to or little known from Japan. *House and Household Insect Pests*, 17(1): 37–40.
- Yu PY. 1998. On taxonomy and morphology of *Cortinicaa gibbosa* (Herbst) (Coleoptera: Lathridiidae). *Entomotaxonomia*, 20(2): 123–126.
- Zhou YX, Cao Y & Huang JG. 1998. Six new records of Lathridiidae (Coleoptera) with stored products in China. *Journal of Zhengzhou Grain College*, 19(3): 83–86, 96.