



## First Record of the Amethyst Cedar Border, *Semanotus amethystinus* (LeConte) (Coleoptera, Cerambycidae), in Taiwan

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Received: 15 August 2023

Accepted: 9 November 2023

Available online: 24 November 2023

### ABSTRACT

The Amethyst Cedar Border (*Semanotus amethystinus*) is native to the Western United States and targets several conifer plants as hosts. Within its native range, it is considered a minor pest as it rarely inflicts on living trees. However, instances of this species appearing beyond its natural habitat have been documented, likely due to its inadvertent transportation through lumber or wooden packaging materials. Several countries have recognized both *S. amethystinus* and its congeners as potential wood pests. In mid-August 2023, a live adult of *S. amethystinus* was sighted and photographed at the Costco Neihu store, Taipei City. This is a new record of the species in Taiwan. The likely means of its arrival was concealed within wood packaging materials. Even though the specimen was not collected, identification can be reliably accomplished using the distinctive diagnostic traits visible in the photographs. Continued monitoring is strongly recommended to ascertain whether *S. amethystinus* has successfully established a population in Neihu and its nearby areas.

**Key words:** *Semanotus*, North America, alien species, Taiwan, new record

The longhorn beetle *Semanotus amethystinus* (LeConte), commonly known as Amethyst Cedar Border, is native to the Western United States, primarily in the Pacific coastal states. This species targets various conifers as its host plants, including incense-cedar (*Libocedrus decurrens* Torr.) and western redcedar (*Thuja plicata* Donn) (Hammond and Williams, 2013). The larvae typically tunnel within the large trunks or branches of the host plants, eventually pupating

in the thick bark (Boyd, 1959; Tyson, 1966). Occasionally, they may also bore into smaller trees with thin bark and pupate within the heartwood (Cope, 1984). The beetles seldom infest vigorous trees and are generally considered to be a minor or non-significant pest within their natural range (van der Kamp, 1988; Coheen *et al.*, 2000). However, a limited population in California displayed a unique behavior, concentrating their attacks solely on

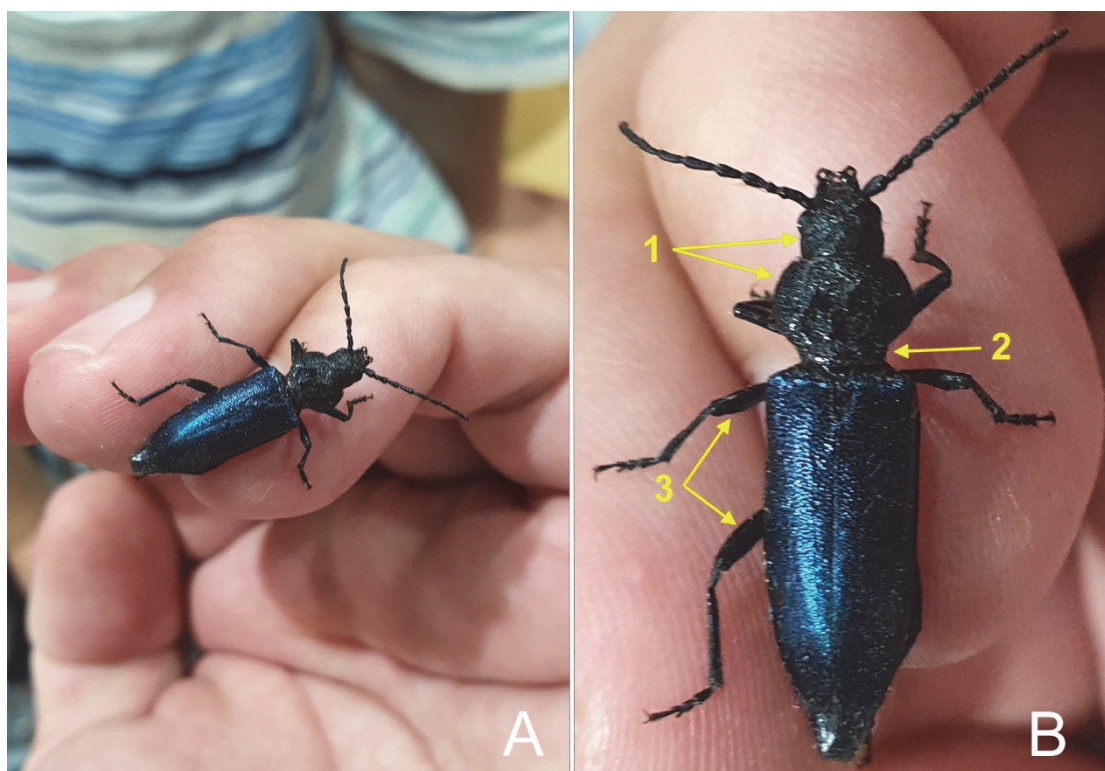


Fig. 1. A. The living adult of *S. amethystinus* spotted in the Costco Neihu Store, Taipei City, on August 12, 2023. B. A close-up showing the diagnostic characters: 1. black head and pronotum; 2. constricted base of pronotum; 3. weakly clavate femora.

圖一 A. 2023年8月12日在臺北市內湖好市多賣場被發現的藍艷杉天牛成蟲；B. 旋轉並放大以顯示其診斷特徵：1. 黑色的頭部與前胸背板；2. 前胸背板基部明顯隘縮；3. 不甚膨大的腿節。

living trees (Cope, 1984).

Beyond its indigenous habitat, *S. amethystinus* has been documented in locations such as Hawaii, Alaska, and New York in the United States. The probable means of its dispersal include the transport of lumber (Nishida, 1994; Hammond and Williams, 2013). Adults were observed emerging from pine lumber in Alaska and cedar wood in New York (Hammond and Williams, 2013). Notably, countries like Japan and New Zealand have identified *S. amethystinus* and other congeners from North America as potential wood pests due to their association with imported lumber or wooden packing material (Makihara, 2003; Corin, 2023).

Recently, a solitary adult *S. amethystinus* (Fig. 1A) was spotted in Taipei City by the first author Teng-Chuang Chen, a citizen scientist. The beetle was observed resting on the top of a paper box of dry noodles within the Costco Neihu store. It was photographed but not collected physically. Thanks to its distinct metallic blue elytra, goblet-shaped pronotum, and peculiar

callus sculpture on the pronotal disc, the beetle can be easily differentiated from its congeners (Hammond and Williams, 2013). A common Eurasian species *Callidium violaceum* (Linnaeus) shares shining blue coloration and general appearance with *S. amethystinus*, but can be separated from the latter by the following combination of characters: 1. head and pronotum are shining blue in *C. violaceum* but black in *S. amethystinus*; 2. the lateral margin of pronotum is rounded in *C. violaceum* but conspicuously constricted near base, forming a short and wide pedicel between pronotum and base of elytra in *S. amethystinus*; 3. femora are moderately clavate in *C. violaceum* but relatively weakly so in *S. amethystinus*. All these diagnostic characters can be recognized in the photo (Fig. 1B), making the identification confident. This is the first record of *S. amethystinus* in Taiwan.

The occurrence of this beetle in Neihu could be attributed to two potential pathways. Firstly, Neihu is not far from nearby Keelung or Taipei Ports, at a distance of 20-30 kilometers only. It's plausible that the beetle initially arrived at the

port area via imported lumber and subsequently dispersed to Neihu. Alternatively, and more likely, the beetle might have directly arrived at the store within wood packing material or pallets. This could explain why the beetle was spotted within a US wholesale market rather than outdoors.

Accidental importation events involving various *Semanotus* species have been reported. As early as the early 1960s, larvae of *S. amethystinus* were found concealed in Port Orford cedar wood (*Chamaecyparis lawsoniana* (A. Murray bis) Parl.) intercepted at the Port of Tokyo (Umeya and Higashi, 1962). Similarly, a female *S. lignius* (Fabricius), also native to North America, was collected near Tokyo in 1927, leading to a mistaken identification as a new species by Kano (1933) (Hayashi, 1956; Umeya and Higashi, 1962). Presently, both *S. amethystinus* and *S. litigiosus* (Casey) are occasionally intercepted at Japanese ports (Makihara, 2003). Conversely, the East-Asian endemic *S. japonicus* (Lacordaire) was once intercepted in Canadian British Columbia when a single beetle was found within a wooden box containing mandarin oranges (*Citrus reticulata* Blanco) from Japan (Hammond and Williams, 2013). Fortunately, no documented instances of *Semanotus* species colonization beyond their native range have been recorded thus far.

The risk of colonization of *Semanotus* species and their potential damage to indigenous coniferous flora remains a concern (Makihara, 2003). A Californian population of *S. amethystinus* is particularly risky because it inflicts vigorous trees (Cope, 1984). It is advised to keep monitoring whether *S. amethystinus* has indeed established a population in Neihu or its proximate areas. The utilization of pyrrole, a ubiquitous pheromone component prevalent among diverse longhorn beetles, stands as a promising modality for effective monitoring (Millar *et al.*, 2019). In addition, the involvement of citizen science holds promise in contributing to these investigations.

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# 北美產藍艷杉天牛 *Semanotus amethystinus* (LeConte) (鞘翅目：天牛科) 在臺灣的首度紀錄

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收件日期：2023 年 8 月 15 日 接受日期：2023 年 11 月 9 日 線上刊登日期：2023 年 11 月 24 日

## 摘 要

藍艷杉天牛 (*Semanotus amethystinus* (LeConte)) 原產於美國西部，以數種針葉樹為寄主。由於鮮少危害活木，在原產地並未被視為嚴重害蟲。但本種曾數度在原產地以外地區或國家被發現，可能是跟隨木材或包裝運輸之木料而散播。日本與紐西蘭等國已將其列為潛在的入侵木材害蟲，成為檢疫目標。2023 年 8 月中旬第一作者於臺北市內湖好市多賣場發現一隻活成蟲，是本種在臺灣的首筆紀錄，推測極可能是隨包裝木料直接抵達當地。由於未採集標本，無法進一步研究，但本種的藍艷翅鞘、前胸背板基部隘縮、特別的前胸背板突紋，與不甚膨大的腿節與其他杉天牛和相近屬種類明顯不同，故可從照片中做出鑑定。其他杉天牛屬種類也曾數度在不同國家的港口檢疫時被攔截。建議持續監測藍艷杉天牛是否已在內湖地區建立族群。

**關鍵詞：**杉天牛屬、北美、外來種、臺灣、新紀錄