

Sphenophorus cf. *parumpunctatus*: A case of failed introduction into Germany via the intra-European plant trade

by
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Abstract. This article discusses a case of failed introduction of *Sphenophorus* cf. *parumpunctatus* Gyllenhal, 1838 into Germany via the intra-European plant trade. A living specimen was discovered in Marburg, Germany, while planting rhizomes of *Typha* that were imported from Hungary via the Netherlands. It is possible that the specimen was feeding in the rhizomes as a larva, but conclusive evidence for *Typha* as a host plant of *Sphenophorus* in Europe is lacking. The species *Sphenophorus parumpunctatus* and *S. piceus* (Pallas, 1771) are poorly delimited and in need of revision.

Keywords. Curculionidae, Dryophthorinae, *Typha*, Invasion biology, host plant, human-mediated species displacement, horticultural imports, faunistics, Hungary.

Introduction

Biological invasions are complex processes. Any introduction of an organism into a foreign environment, which does not result in establishment, is considered a “failed introduction” in invasion biology (Blackburn *et al.* 2011), a phenomenon which is generally underreported (Zenni & Nuñez 2013).

On August 20, 2023, the image of a large *Sphenophorus* caught the interest of the author in a chat group of the DJN (Jugendbund für Naturbeobachtung). It was posted with the request for identification. While planting rhizome pieces of *Typha* into a bucket in Marburg (Germany, Hessen), the live specimen suddenly appeared on the water surface. The rhizomes had been obtained from a discounter and were packaged in plastic bags with a bit of substrate, resembling coco coir. They were stored for a longer period of time before they were planted. According to information on the packaging and the plant passport, the rhizomes were imported via a company based in the Netherlands but produced in Hungary.

The specimen was provided to the author for identification.

Difficult identification

The identity of the specimen is easily narrowed down to either *Sphenophorus piceus* (Pallas, 1771) or *Sphenophorus parumpunctatus* Gyllenhal, 1838. The separation of those two species is problematic.

The length of the rostrum relative to the length of the pronotum is the most important diagnostic character that is used by dichotomous keys. Hoffmann (1954) keyed *S. piceus* as “Rostrum and head combined longer than the prothorax, or the rostrum alone equal in length to the prothorax” and *S. parumpunctatus* as “Rostrum and head combined as long as the prothorax, or the rostrum alone shorter than the prothorax”. Pesarini (1964) used the same character, but added a threshold for the ratio of the length of the head including rostrum to the length of the pronotum: $L_{\text{head}}/L_{\text{pronotum}}$ 1.1 to 1.2 for *S. piceus* and 0.85 to 1.02 for *S. parumpunctatus*. The ratio for the specimen under study (Fig. 1) would be 1.02 when measured from an image, barely within the range of *S. parumpunctatus*, and 0.9 to 0.97 when measured with a stereo microscope. Additional characters given by Hoffmann are:

- Dorsum slightly glossy, elytral interstriae with punctures composed of fine and slightly larger dots, irregularly arranged (*S. piceus*)
- Dorsum matt, elytral interstriae with extremely fine punctures, forming one or indistinct series, the punctures towards the apex bearing extremely short microscopic hairs (*S. parumpunctatus*; Fig. 3)

Those characters are dismissed by Pesarini (1964) due to considerable variability. Stüben (2026) added the width of the scutellum as an additional character, broader in *S. piceus* than in *S. parumpunctatus*. The difficulty in separating both species was already stressed by Hoffmann (1954), who considered that *S. parumpunctatus* and *S. piceus* may be synonymous.



Fig. 1. Measuring of head and pronotum, as proposed by Pesarini (1964) for *Sphenophorus*.

There seems to be a need for revision for the two species, ideally combining morphological and molecular data. Dismissing other characters as variable while relying solely on rostrum length is risky, as it invites circular logic. Assuming that the length of the rostrum is the only reliable character, it would be necessary to exclude the possibility of sexual dimorphism by measuring a larger sample of specimens with known sex. It would be interesting to see if there is really no overlap between rostrum length ratios as reported by Pesarini, and if both clusters in rostrum length align with genetic grouping and additional morphological characters.

The specimen under study was killed by freezing and got thawed for dry-mounting, therefore no good DNA preservation was expected. An attempt to obtain a COI barcode from a leg of the specimen was unsuccessful.

Discussion

Based on the information on the packaging of the *Typha* rhizomes, it seems most likely that the specimen originated from Hungary, although *S. parumpunctatus* was never recorded in Hungary or Germany before (Alonso-Zarazaga *et al.* 2023). It has a circum-Mediterranean distribution, and has been recorded in Algeria, Austria, Bulgaria, Cyprus, France, Greece, Italy, Malta, Portugal and Spain (Alonso-Zarazaga *et al.* 2023). The record from Austria is considered doubtful by Stejskal & Trnka (2017), based on the lack of a reliable source. In France it occurs only in the south (Hoffmann 1954).

S. piceus has a similar distribution, but extends far more towards the north (including Hungary) and eastwards into Central Asia (Alonso-Zarazaga *et al.* 2023; Legalov 2024; Stejskal & Trnka 2017). There are historical records of *S. piceus* from Brandenburg and Thuringia, both before 1900 (Horion 1951, Bleich *et al.* 2024).



Fig. 2. *Sphenophorus* cf. *parumpunctatus* Gyllenhal, 1838 (lateral): The specimen (catalog number JJPC-00102) was collected from *Typha* rhizomes that were imported from Hungary into Germany.



Fig. 3. *Sphenophorus* cf. *parumpunctatus* Gyllenhal, 1838 (dorsal): The specimen (catalog number JJPC-00102) was collected from *Typha* rhizomes that were imported from Hungary into Germany.

Abbazzi & Maggini (2009) gave *Scirpus* spp. (Cyperaceae) as the host plants of *S. parumpunctatus*, while Stüben (2026) wrote “*Schoenoplectus* (= *Scirpus*) *tabernaemontani*, monophagous”. Neither author indicates the basis of the host record. Species of *Sphenophorus* in Europe are known to feed on Poaceae and Cyperaceae (Stejskal & Trnka 2017, Ellis 2001 – 2025), possibly also Juncaceae (Lohse 1983, the German term “Binse” is taxonomically ambiguous). The exact host plant spectrum of most species is only incompletely known. Some of the literature mentions host plants without explaining how the findings were obtained. The information is only reliable if it is clearly stated that larvae were observed in plant tissue, either directly or indirectly through rearing.

No published records of *Typha* (Typhaceae) as host plant for *Sphenophorus* in Europe were found. However, the Nearctic *S. australis* Chittenden, 1905 has been reared from the “roots” of *Typha latifolia* L. (Chittenden 1905). The term “roots” probably refers to the rhizome, which is not part of the root system in a botanical sense, but instead formed by the stem. In Brazil, *S. taboa* Vanin, 1990 was found to develop in stems of *Typha* sp. at soil level and *S. brasiliensis* (Hustache, 1936) below soil level in stems of *Typha domingensis* Pers. (Vanin 1990). *S. piceus* was reported to develop in the rhizomes of *Phragmites* in the European part of the USSR (Arnoldi *et al.* 1965, 1974), and in *Arundo donax* L. in France (Hoffmann 1954).

The life cycle of *S. parumpunctatus* is unknown, but it is known from other *Sphenophorus* that the larvae pupate within their host plant and emerge towards the end of summer, in August (Rheinheimer & Hassler 2013). It is thus possible that the specimen developed in a rhizome of

Typha, eclosed within the package and appeared on the water surface as the rhizome was submerged in water. However, this observation does not definitively confirm *Typha* as a host plant of *S. parumpunctatus*, as it cannot be excluded that the specimen may have simply been hiding among the rhizomes.

Displacement by human activity, also with the establishment of populations, has previously been reported for other species of *Sphenophorus*. Two subspecies of *S. vestitus* (Say, 1831), originally from North America, are established in Europe (Alonso-Zarazaga & Sánchez-Ruiz 2009). Gültekin (2013) reported the first record of *S. abbreviatus* (Fabricius, 1787) from Turkey, “collected on turfgrass recently brought and established in the campus for landscape arrangement.”, implying that the beetles may have been brought to the site with the turfgrass.

Finally, a surprising note that could help detect the species in further studies: Aliquò (1973), in a paper on the weevil fauna of Sicily, reported to have collected a large number of *S. parumpunctatus*, together with *S. abbreviatus*, using traps baited with beer and cheese.

Conclusion

Typha should be considered a potential host plant for *Sphenophorus parumpunctatus*, although records of preimaginal stages are needed to confirm the association. The presence of the species in Hungary needs confirmation. The plant trade within Europe can transport insects out of their native range. As the differentiation between *S. parumpunctatus* and *S. piceus* seems problematic, data on distribution and host plants is unreliable. Both species are in need of revision.

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