Phytobaenus amabilis R. F. Sahlberg, 1834 (Coleoptera, Aderidae) recorded for the first time in Norway

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The first record of *Phytobaenus amabilis* R. F. Sahlberg, 1834 in Norway is reported. Notes on the biology and preferred habitat of the species are provided. The locality is described, and the origin of the specimens are discussed and related to the geographical distribution of the species in Fennoscandia and Europe.

Key words: Coleoptera, Aderidae, *Phytobaenus amabilis*, new record, habitat, Norway.

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Introduction

The family Aderidae consist of around 1000 species worldwide (Chandler 2002) and is represented by 8 species in Fennoscandia which are distributed in 6 genera (Silfverberg 2010, Clayhills 2013). They are commonly called 'ant-like leaf beetles' and several of the species in Northern Europe are listed by Koch (1989) as silvicol, arboricol and xylodetriticol and/or herbicol (i.e. they are living in forests and are feeding on various types of fungi-infested decaying wood or on herbs). The body length stays under 3 mm and they resemble ants, like their close relatives of the family Anthicidae. Our only representative from the genus *Phytobaenus* R. F. Sahlberg, 1834 is *Phytobaenus amabilis* R. F. Sahlberg, 1834 and the biology of this species is poorly known (Jaloszynski *et al.* 2013).

The distribution area is wide and includes Japan, Taiwan, China, European Russia, Ukraine, Belarus and Central and Eastern Europe and Finland (Jaloszynski *et al.* 2013, Yuan *et al.* 2015 and GBIF 2020). It is a rare species in Central Europe (Palm 1959, Jaloszynski *et al.* 2013). In Sweden the beetle was recorded in 1917 and 1942 (Lundberg 1978) but is now listed as regionally extinct on the national red list (Artdatabanken 2020). Palm (1959) describes the species as a Euro-Siberian species that occurs in relict populations in North- and Central Europe. However, it is known from several records in the south-east of Finland (Atlas of the Coleoptera of Finland 2020). The species is reported for the first time from Norway.

In the literature, *P. amabilis* is associated with *Populus* sp. and *Tilia* sp. (Palm 1959, Lundberg 1978, Telnov 2016). Petri Martikainen, researcher at the Faculty of Forestry of the University of Joensuu in Finland, has recorded more than 50 and maybe as much as 100 specimens on a standing white rotten aspen, *Populus* sp. A window trap

was used and several specimens were in addition observed by searching manually on the tree. He has also found about ten specimens on a white rotten birch, *Betula* sp. The larvae seemed to develop in the soft white rotten wood (pers. com. 9. June 2020). The species of fungi infesting the wood, and other abiotic and biotic factors are likely more limiting to the beetle's choice of habitat, than the species of tree. *P. amabilis* appears to be climatically limited to the south of Fennoscandia, according to the distribution in Finland, the old records in Sweden and now the new record from Norway (GBIF 2020).

Material and methods

Reference material is kept in the insect collections at Norwegian Institute for Nature Research (NINA) in Trondheim, and in the private collection of the first author. Several partially focused images were taken with a Nikon D850 mounted on a Nikon PB-5 Bellow with a Lomo 3.7X microscopic objective.

***Phytobaenus amabilis* R. F. Sahlberg, 1834**
(Figure 1)

Material. TELEMARK coastal (TEY), Drangedal: Sannes [N 59.0297196, E 9.2954813 ±50m] (EIS 11), 3♂♂2♀♀, 26.V.2020, , leg. A. E. Laugsand & A. Staverløkk.

Note. The species was collected in the afternoon on a warm and sunny day. Five specimens were discovered using beating tray and sweep-netting on the vegetation along a forest edge.

Discussion

Phytobaenus amabilis is relatively easy to distinguish from the other Fennoscandian members of the family. Both males and females

FIGURES 1–2. *Phytobaenus amabilis* R. F. Sahlberg, 1834. **1**. Male found at Sannes in Drangedal municipality, Telemark. **2**. Female found at Sannes in Drangedal municipality, Telemark. Photos: Arnstein Staverløkk.

were recorded at Sannes. Lindroth (1933) states that males have no distinct characters. However, the males have more curved hind tibia (Freude *et al.* 1969) and, at least based on the few specimens from Norway, the hind femur is distinctly thicker (Figures 1–2).

The locality is a forest edge, on the southside of a small cliff, along agricultural grassland (Figure 3). The forest can be described as a mixed forest, with *Quercus robur* L., *Tilia cordata* Mill., *Corylus avellana* L. and *Pinus sylvestris* L., along with other boreal trees. Older trees and dead wood are present in the hillside, but the front of the forest edge is dominated by small bushes of *T. cordata*, *Q. robur* and *C. avellana*. The specimens were collected from these bushes. It was not noticed if *P. amabilis* preferred one species of tree over the other. Pesticides are, according to the landowner Anne Solbraa (pers. com. 2019), not used on the agricultural meadow laying in front of the forest edge.

The first author visited the locality on the 3. August 2019 and used the same collecting method by beating on the same bushes without any specimens of *P. amabilis* being found. Likely the activity period of the adults had ended earlier in the season. Close to the locality, a specimen of the beetle *Dromaeolus barnabita* (A. Villa & G.B. Villa, 1838) was sweep-netted on the same visit (Ulf Hanssen, pers. com. 2019, Artsdatabanken 2020). The larvae of this rare species develop in white rotten wood from *T. cordata* and indicate a high quality habitat in the area for species dependent on this type of substrate (Adebratt & Lundberg 1985).

The locality in Drangedal in Norway is situated far from the nearest known occurrences in Finland and Central Europe. The record of five specimens in short time, on a single locality and both females and males, suggests that the larvae developed in substrate in or close to the site, and thus there is presumably a population of the species in the area.

Many interesting species of beetles were registered by Thomas Georg Münster around 1920 (Artskart 2020) at Sannes. Hence the locality has been visited by entomologists for more than a century. If native to the area, then *P. amabilis* has gone undetected. In Sweden it has been recorded on timber imported from Russia (Artdatabanken 2020). Therefore, import cannot be completely ruled out, but the locality is not situated near any harbors, larger sawmills, plant schools or

FIGURES 3. The forest edge at Sannes in Drangedal where the specimens of *Phytobaenus amabilis* R. F. Sahlberg, 1834 were found. Photo: Arne E. Laugsand 3. August 2019.

other sites which could be the source of imported specimens. Although the dispersal ability of the species is not known, it is less likely that the specimens originated directly from recent import. It could therefore be interpreted as a native relict population in accordance with other occurrences in Central Europe (Palm 1959, Jaloszynski 2013). Even though the larger area at Sannes has been visited several times by coleopterists, it is possible that the specific forest edge where the specimens were found, is less investigated or not investigated at the time of the season when adults of *P. amabilis* are active. The forests surrounding Sannes houses several rare species that are native to Norway. This new record will give an increased search for the species among entomologists on the same habitat types as described above. Hopefully it will gain more data on distribution and biology of the family Aderidae in Norway.

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