

Taxonomic and faunistic news in the genus *Clavigesta* Obraztsov, 1946 with new records for the Balkan countries Albania and North Macedonia

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Abstract: The species in the genus *Clavigesta* Obraztsov, 1946 have been studied more intensively since the taxonomic and faunistic revision of the genus was published in 2010 (Larsen, 2010). This has resulted in the description of one new species (Nel & Varenne, 2023) and many new distributional records. This article presents new records with a summary of the faunistic changes. *Clavigesta fabrei* Nel & Varenne, 2023 **syn. nov.** is shown to be a junior synonym of *C. gerti* Larsen, 2010.

Keywords: *Clavigesta*, faunistics, new synonym, taxonomy

Introduction

New material presented to the authors, as well as new taxonomic and faunistic information, has inspired us to publish a new overview of the genus *Clavigesta* Obraztsov, 1946.

Methods and materials

The new information is evaluated partly by examination of genitalia of all the treated species and partly summarising and comparing information from the literature. The genitalia were mounted in Euparal on slides in accordance with standard procedures (Robinson, 1976). Photos of genitalia were taken using a Toup Tek camera mounted on a Toup Tek binocular microscope except that the image in Fig. 1 which was taken using a Canon EOS 2000D camera mounted on a compound microscope (Brunel Microscopes) using EOS remote software, followed by photo stacking using Helicon Focus software. Photographs of a specimen were taken using a Canon EOS

50D camera and a 100 mm Canon macro lens. The photograph at Fig. 5 was loaned to us by F. Graf, Germany and the photograph at Fig. 6 was loaned to us by J. Nel, France.

The terminology of genitalia and morphological structures follows Razowski (2003) and Kuznetsov (1989).

Results

Clavigesta sylvestrana (Curtis, 1850) (Figs 1 & 2)

Material examined. Albania, 1 ♂, Valamara Mts, above Bratile Village, 999 m, 7.vi.2022, leg. Stoyan Beshkov & Ana Nahirnić-Beshkova, gen.prep. CP/2626/23 (Fig. 1).

The specimen was collected in a light trap. At the end of the year of collection, the leftover material from the trap was sent to C. W. Plant for further examination; only the genitalia slide remains. The male genitalia fit with *C. sylvestrana*, but the expanded basal area of the valva has a large triangular fold (Fig.



Fig. 1. *C. sylvestrana* (Curtis, 1850) ♂ genitalia P. CP/2626/23 Albania: Valamare.



Fig. 2. Locality for *C. sylvestrana*. Albania: Valamare.

1). Examination of several male genitalia slides from this species shows a variation from no fold to smaller folds, but not to the size as in this specimen. It is accepted that variation in the genitalia occurs especially at geographical distances or just as individual variation.

The locality in Albania (Fig. 2) is a rather dry hillside with broadleaved shrubs and trees. The species is new to Albania. The only other published specimen from the Balkan countries is a male from Greece: Loutra, Kilini, Patras, 0 m, 28.vi.2007 (Viehmann leg., KL coll.) (Larsen, 2010). The species



Fig. 3. *C. purdeyi* (Durrant, 1911) ♀: North Macedonia: Galicica NP.

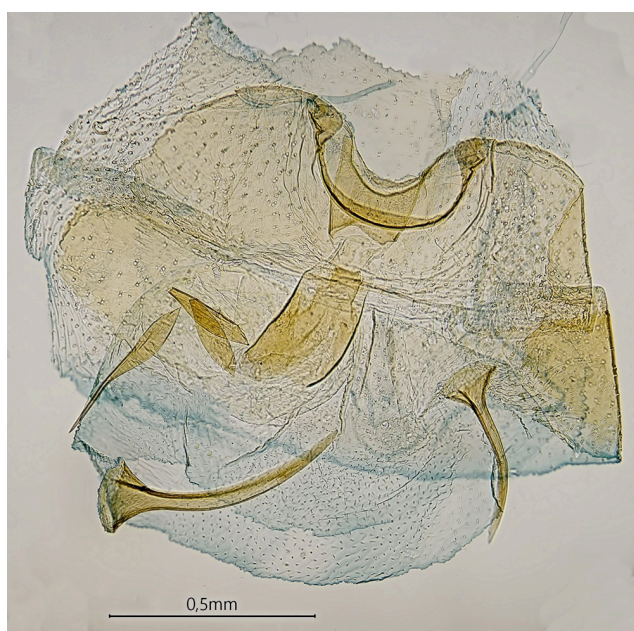


Fig. 4. *C. purdeyi* (Durrant, 1911) ♀ genitalia P. 4757 KL. North Macedonia, Galicica NP.

is widespread in southern Italy, Calabria (Trematerra et al., 2018) and central Italy, Campani, Vesuvio (Larsen, 2010).

Clavigesta purdeyi (Durrant, 1911) (Figs 3 & 4)

Material examined. North Macedonia, 1 ♀, Galicica NP: Galicica Saddle, 1580 m, 29.v.2013 (leg. P. Skou, coll. KL) (Fig. 3); gen. prep. ♀ 4757 KL (Fig. 4).

The specimen was collected in a light trap and kept in a box with cotton layers. It is not very fresh, but resembles *C. purdeyi* (Durrant, 1911) although the

collecting date 29.v.2013 does not fit with the normal flight period for this species. The usual flight period extends from the beginning of July to the beginning of October with the peak in the month of August.

The abdomen of the specimen was not complete, but the slide (Fig. 4) shows the complete female genitalia except eight segment and papilla analis with apophyses posterior and apophyses anterior which is missing as well. The U-shaped indentation of the seventh sternite with the strong sclerotisation posteriorly, the shape of ostium and the two slender signa in the bursa are very characteristic for *C. purdeyi*. The cingulum is broad and large and slightly different, but this is probably due to normal variation as this part of the genitalia in the genus *Clavigesta* obviously is rather variable.

The locality is at the top of a dry mountain slope. The finding is regarded as an occasional early out of the season occurrence. The species is new to the fauna of North Macedonia and also to the wider geographical area of the Balkan Peninsula.

This species extended its distributional range rather rapidly in the beginning of this century, reaching the northern part of central Europe including Denmark, Norway and Sweden where it now is a very common species. The species is mentioned from Finland (Trematerra, 2020). According to the Nordic-Baltic Checklist it is not found in Finland and the Baltic countries (Aarvik et al., 2021). The species has also been found much more widespread in Great Britain and Ireland in recent years including Scotland in 2018 (Weddle, 2020) and Northern Ireland ([UKmoths](#), accessed 2.2024). In contrast to this the findings in the south and southeastern part of the distributional area seems to be more stable with few new findings, and it is not common in the very southern localities of the distribution.

Clavigesta gerti Larsen, 2010 (Fig. 5)

fabrei Nel & Varenne, 2023 **syn. n.** (Fig. 6)

Material examined. 10 ♂♂, 7 ♀♀ Italy, Sicily, 5,8 km east Santo Stefano Quisquina, 1000 m a.s.l., 23–24. ix.2014 (leg. P. Skou, coll. KL) (gen. prep. ♀ 4340 KL). 1 ♀ Malta, Naxxar, Tas-Sghajtar, 108 m a.s.l., 16.x.2021 (leg. A. Seguna, coll. KL) (gen. prep. ♀ 4339 KL).

Clavigesta gerti is recently reported from Italy: Sicily: Palermo, Umgebung Polizzi Generosa, 1020



Fig. 5. *C. gerti* Larsen, 2010)♀ genitalia P. F. Graf. Italy: Sicily: Palermo.



Fig. 6. *C. fabrei* Nel & Varenne, 2023 syn. nov. ♀ genitalia P. 36762 J. Nel. France: Bouches-du-Rhone.

m a.s.l. 22–23.viii.2020 (leg. et coll. F. Graf) ([Lepiforum](#) [↗](#), accessed 2.2024). The species is also reported from Malta (Seguna et al., 2022) where it is found quite commonly in several localities.

Clavigesta gerti is also reported from the French mainland by Nel & Varenne (2023) under the name *Clavigesta fabrei* Nel & Varenne, 2023 on the basis of one female: France: Bouches-du-Rhône, La Ciotat, Bucelle, 65 m a.s.l., 27.ix.2022, gen. prep. 36762 JN (leg et coll. J. Nel).

The shape of sternite VII and cingulum is due to variation according to the production of the genital slide and the presented differences are inside the normal variation for the variation in *C. gerti*. At Fig. 5 the shape of a female specimen of *C. gerti* from Sicily is presented and there is obviously no difference to the figured female of *C. fabrei* Nel & Varenne, 2023 (Fig. 6). The main difference for *C. gerti* to other species in the genus is the stronger sclerotisation at

the costal edge of the seventh segment, the narrower cingulum and an ostium which is narrower, rounded and with a sclerotised, curved edge. These differences, especially the shape of ostium, are visible in the original paper about the genus *Clavigesta* (Larsen, 2010) and at Lepiforum more photos of female genital preparations are presented.

Nel & Varenne (2023) compare their specimen with drawings of figures 16 and 17 in the original publication (Larsen, 2010) depicting photos of the slides of female genitalia of *C. gerti* and *C. tokei*. The drawings in Nel & Varenne (2023) are misleading, as they have omitted the ostium, ductus bursa, bursa itself and the weakly sclerotised part of the cingulum in *C. gerti*. As a consequence, the drawings cannot be used as documentation for differences in the genitalia.

Until more specimens with eventually more documented differences to the described species are presented the taxon *C. fabrei* Nel & Varenne, 2023 is

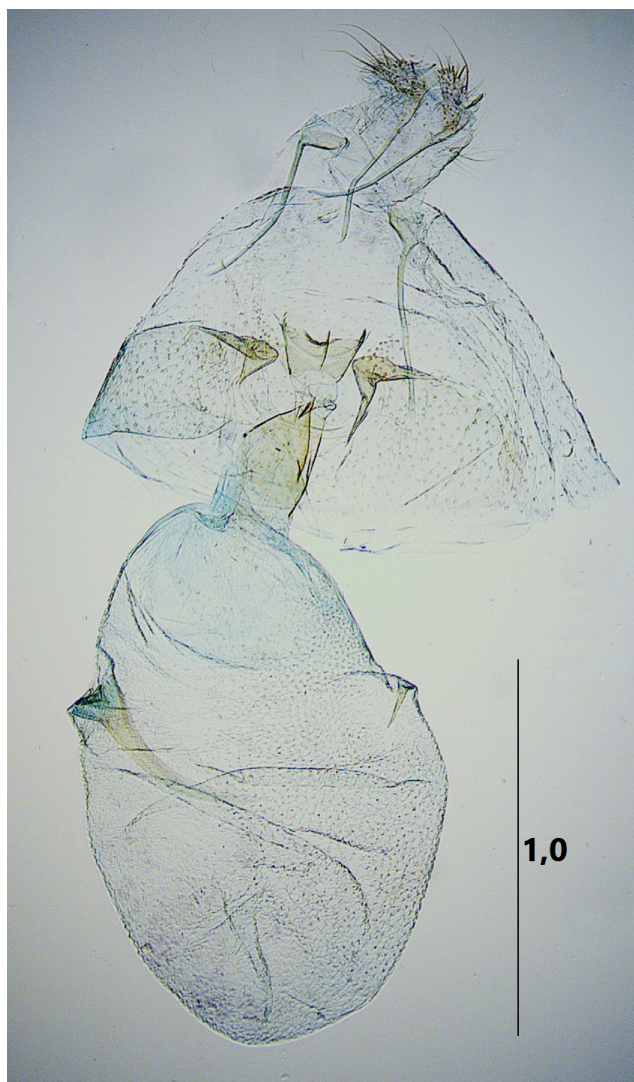


Fig. 7. *C. tokei* Larsen, 2010 ♀ genitalia P. 4939 KL. Cyprus, Northern part.

regarded as a synonym of *Clavigesta gerti* Larsen, 2010.

Clavigesta tokei Larsen, 2010 (Fig. 7)

Material examined. 8 ♂♂, 2 ♀♀ Cyprus: Southern part, Troodos Mts, north slope below Mt Altratsa, 400 m a.s.l. 10–16.x.2015 (leg. B. Skule & C. Hviid, coll. KL); Northern part, Akdeniz Plaji, 10 m a.s.l. 14–15.x.2015 (leg. B. Skule & C. Hviid, coll. KL). Gen. prep. 4939 ♀ KL (Fig. 7) and gen. prep. 4940 ♀ KL.

Clavigesta tokei was reported from Crete. 6 specimens Lasithi: Agios Ioannis, 3.xi.2004; Ferma, 7.xi.2004; Agios Georgios, 4.x.2001 (leg. W.

Ruckdeschel) (Huemer, 2016) and from Cyprus, Southern part: Oreites Forest (Barton, 2015) and Limassol: Souni Zanatzia, 354 m a.s.l. 5.xi.2021, (phot.: J. East) ([Lepiforum](https://www.lepiforum.com), accessed 2.2024).

At Fig. 7 the female genitalia are presented to make comparison with other *Clavigesta* female genitalia easier. The pronounced sclerotisation of segment vii at the indentation, the larger ostium and the broader cingulum has diagnostic value.

Discussion

The genus *Clavigesta* Obraztsov, 1946 is mainly characterised by the shape of the valve with the characteristic long and slender neck and the ball-shaped cucullus (Obraztsov, 1946). The nearest related genus is *Rhyacionia* Hübner, 1825 (Razowski, 2003). A genetic analysis will be needed to define the relationships in between those genera and the other related Tortricidae genera living on pine and spruce.

The new knowledge concerning the faunistic records of the four involved species does not change the general view stated in 2010. The two old species cover a Central European and north-west European area mainly, and they are becoming more and more scarce to the south and south-east. The two new species cover an Eastern Mediterranean and Western Mediterranean area with no overlap. The present shortest distance between localities for the two species is 1.000 km, which is not that far away from each other.

The distributional split of Mediterranean species in western and eastern sister species is a well-known characteristic of species evolution in the Mediterranean area, also known from closely related genera such as *Rhyacionia* and *Pseudococcyx* (Razowski, 2003; Larsen, 2020).



The genus *Clavigesta* is still a genus restricted to a West Palaearctic distribution north of the Mediterranean Sea.

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