

Descriptions of two new species in the genus *Pseudococcyx* Swatchek, 1958 from Spain and Turkey (Lepidoptera: Tortricidae, Eucosmini)

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Abstract

Two new species in the genus *Pseudococcyx* Swatchek, 1958 are described. *Pseudococcyx friedmariana* Larsen, sp. n. and *Pseudococcyx oskariana* Larsen, sp. n. from respectively Spain and Turkey. The two new species are regarded as sister species with western and eastern distribution in the Mediterranean area. The species are easy to recognize both externally and in the genitalia. A tentative systematic position is proposed. Photos of adults and genitalia are provided.

KEY WORDS: Lepidoptera, Tortricidae, Eucosmini, *Pseudococcyx friedmariana*, *Pseudococcyx oskariana*, Spain, Turkey.

Descripción de dos nuevas especies en el género *Pseudococcyx* Swatchek, 1958 de España y Turquía (Lepidoptera: Tortricidae, Eucosmini)

Resumen

Se describen dos nuevas especies en el género *Pseudococcyx* Swatchek, 1958. *Pseudococcyx friedmariana* Larsen, sp. n. y *Pseudococcyx oskariana* Larsen, sp. n. respectivamente de España y Turquía. Las dos nuevas especies son observadas como especies hermanas, con la distribución occidental y oriental en el área Mediterránea. Ambas especies son fácilmente reconocibles externamente y en la genitalia. Se propone una tentativa sobre la posición sistemática. Se proporcionan fotos de los adultos y genitalia.

PALABRAS CLAVE: Lepidoptera, Tortricidae, Eucosmini, *Pseudococcyx friedmariana*, *Pseudococcyx oskariana*, España, Turquía.

Introduction

The author has received pictures of imago and male genitalia of a Tortricidae species for determination. Undetermined material from Spain and Turkey in the collection of the author was respectively examined. The result is discovery of a new species for science from Turkey and another new species for science from Spain in the genus *Pseudococcyx* Swatchek, 1958. As the total number of species in the genus *Pseudococcyx* now is raised from four to six, the systematic positions of the new species in the genus are discussed. Proposal of systematic position on basis of external characters combined with the structure of male and female genitalia is given. The material is partly too old for DNA examination.

Material and methods

The specimens were collected in a light trap with eight watt super actinic tube and with mercury vapour bulbs. Collecting methods for older specimens is not known.

The genitalia slides were made according to standard procedures and mounted in euparal. Photos of genitalia were taken by a Toup Tek camera mounted on a Toup Tek binocular microscope. Photographs of specimens were taken with a Canon EOS50D camera and a 100 mm Canon macro lens.

In total eight specimens are examined. The type material is deposit in Zoological Museum of Copenhagen, the research collection of Knud Larsen, and the research collection of Friedmar Graf.

The nomenclature for adults and genitalia follow HORAK (1991, 2006) and RAZOWSKI (2003).

Abbreviations

- FG - research collection of Friedmar Graf, Bautzen, Germany
 gen. prep. - genital preparation
 KL - research collection of Knud Larsen, Dyssegaard, Denmark
 ZMUC - Zoological Museum, Natural History Museum of Denmark, Copenhagen, Denmark.

Results

Pseudococcyx Swatchek, 1958 is a genus with until now only four known species. The distributional pattern is mainly European. The genus belong to a group of Eucosmini genera, where most of the species are connected with Pinaceae and Cupressaceae as food plants. In Europe the highest diversity of these species are in Central and South Europe, Turkey and the Mediterranean Islands. (KARSHOLT & RAZOWSKI, 1996; LARSEN, 2010; VIVES MORENO, 2014).

The biology of the two new species are not known, but the known collecting sites are primary Pinaceae Forest.

Pseudococcyx friedmariana Larsen, sp. n. (Figs 1-2)

Material examined: Holotype ♂, SPAIN, Teruel, Umgebung Albarracín, 12-14-VI-1963, Buddenbrock leg., gen. prep. 3511 ♂ KL. Paratype ♂, SPAIN, Jaén, Wald bei Hornos, 38°12'25"N 02°41'20"W, 989 m, 20-VI-2019, F. Graf leg., gen. prep. ♂ Glycerin in vial (FG).

Description. Male (Figs 1-2): Wingspan 15-18 mm. Frons with grey scales tip light yellow forming a yellowish patch on top. Vertex grey. Labial pils short, terminal segment very short, grey. Antenna more than half the length of the forewing, grey, weekly whitish ringed. Thorax and tegulae grey. Abdomen dark grey. Legs grey, whitish ringed.

Forewing elongate with round apex. Termen round. Ground colour dark grey with light grey drawings forming a submedian interfascia and a week speculum. Subbasal fascia outward angled. Cilia grey with black basal line. Hindwing dark grey. Cilia lighter grey with a black basal line. Underside of wings grey.

Male genitalia (Fig. 5): Tegumen large, elongate, uncus flat rounded, socii very long, curved, irregularly edged and hairy, gnathos triangular, phallus simple with deciduous small cornuti, valve elongate, ventral incision curved sharply towards cucullus, cucullus hairy with hooked formed spines at dorsal edge, sacculus flat elongate, angled, small horn close to pronounced basal cavity, ending at costa with a small irregular edged area.

Female not known.

Biology: Not known except the collecting date and the localities. The "Wald bei Hornos" is a *Pinus* forest about 1.000 m above sea level. The precise position of the second locality is not known, but the surroundings of Albarracín is low mountainous up to 1.500 m. above sea level.

Etymology: The species name *friedmariana* refers to the collector who turned my attention to *Pseudococcyx* species.

Diagnoses: *P. friedmariana* is not resembling any other *Pseudococcyx* species. The dark and light

grey drawings and the grey frons is characteristic. The flat uncus, the elongate valve and the irregular basal cavity separate the species from all other *Pseudococcyx* species.

***Pseudococcyx oskariana* Larsen, sp. n.** (Figs 3-4)

Material examined: Holotype ♂, TURKEY, Konya, Beysehir 21-22-VI-1974, 1.300 m. Groß leg., gen. prep. 3512 ♂ KL. Paratypes five females, TURKEY, Ankara, Beynam Ornam, bei Karaali, four specimens, 19-20-VI-1979, 1.400 m, Groß leg., gen. prep. 3518 ♀ KL.; Yozgat, Yozgat Milliparki, one specimen, 9-VII-2000, 1.500 m, K. Larsen leg., gen. prep. 3513 ♀ KL.

Description male (Fig. 3): Wingspan 16 mm. Frons and vertex ochreous. Labial palps short, grey, opposite side whitish, terminal segment very short, whitish. Antenna more than half the length of the forewing, grey. Thorax and tegulae dark grey.

Forewing elongate with slightly round apex. Ground colour dark grey, drawings lighter grey rather inconspicuous. Median fascia angled one third from costa. Basal fascia dark, angled. Costal strigula lighter grey at outer half, specula weak with a dark dividing line. Cilia light grey with dark basal line and with partly darker tipped scales. Hindwing dark grey. Two patches of blackish scales expanding along veins from base of wing. Cilia as in forewing. Underside of forewing dark grey, lighter towards apex and with whitish costal strigula at outer third. Underside of hindwing dark grey.

Female (Fig. 4): Wingspan 16-19 mm. Colour and drawings as in male, but more well defined. Abdomen rather long with long visible papillae anales.

Male genitalia (Fig. 6): Tegumen large, elongate, uncus pointed, socii very long, straight, gnathos triangular, phallus short, valve elongate, ventral incision smoothly curved, cucullus long, hairy with hooked formed spines at dorsal edge, sacculus flat elongate, small horn close to pronounced basal cavity, ending at costa with circular area.

Female genitalia (Figs 7, 7a): sterigma round, elongate, weak posterior, ductus bursa long, incision at ostium, widening towards ductus seminalis, a few minor spines before ductus seminalis, signum medium sized, funnel shaped, apophyses long, thin.

Biology: Not known except the collecting dates and the three known localities, which all are primary *Pinus* forest 1.300 to 1.500 m above sea level.

Etymology: The species name *oskariana* refers to my grandson, who is engaged in activities with moth.

Diagnoses: *P. oskariana* is characterized by the ochreous frons and vertex and the pronounced median fascia. In the male genitalia by the shape of uncus, socii, cucullus, ventral incision and basal cavity and in the female genitalia by the rounded sterigma and the lack of cingulum in the long ductus bursa.

Discussion

The two new species in the genus *Pseudococcyx* are obviously very closely related. Male genitalia of *P. friedmariana* and *P. oskariana* have the exact same structure, but they are at the same time very easy to recognize both in the imagines and in the genitalia. Externally the ochreous frons and vertex in *P. oskariana* separates the species easily.

The female of *P. friedmariana* is not known.

Tentative systematic position of the two new species.

On basis of the male genitalia *P. friedmariana* and *P. oskariana* could be sister species with west respectively east Mediterranean distribution, as is seen in many other genera and also in the closely related *Pinus* feeding genera (LARSEN, 2010). The male genitalia are in structure very close to *P. posticana* (Zetterstedt, 1839) especially *P. friedmariana*.

On basis of the female genitalia *P. oskariana* have affinities to other species in the genus in the single funnel shaped signum and in the shape of sterigma. All species in the genus have a large cingulum, but in *P. oskariana* this is substituted by a few small spines close to ductus seminalis.

The conclusion is that the two new species represent early representatives with respectively west and east distribution pattern in the Mediterranean area.

The closest relation seems to be to the more widespread species *P. posticana* (Zetterstedt, 1839).

Proposed systematic position:

Pseudococcyx Swatschek, 1958

P. oskariana Larsen, sp. n.

P. friedmariana Larsen, sp. n.

P. posticana (Zetterstedt, 1839)

P. turionella (Linnaeus, 1758)

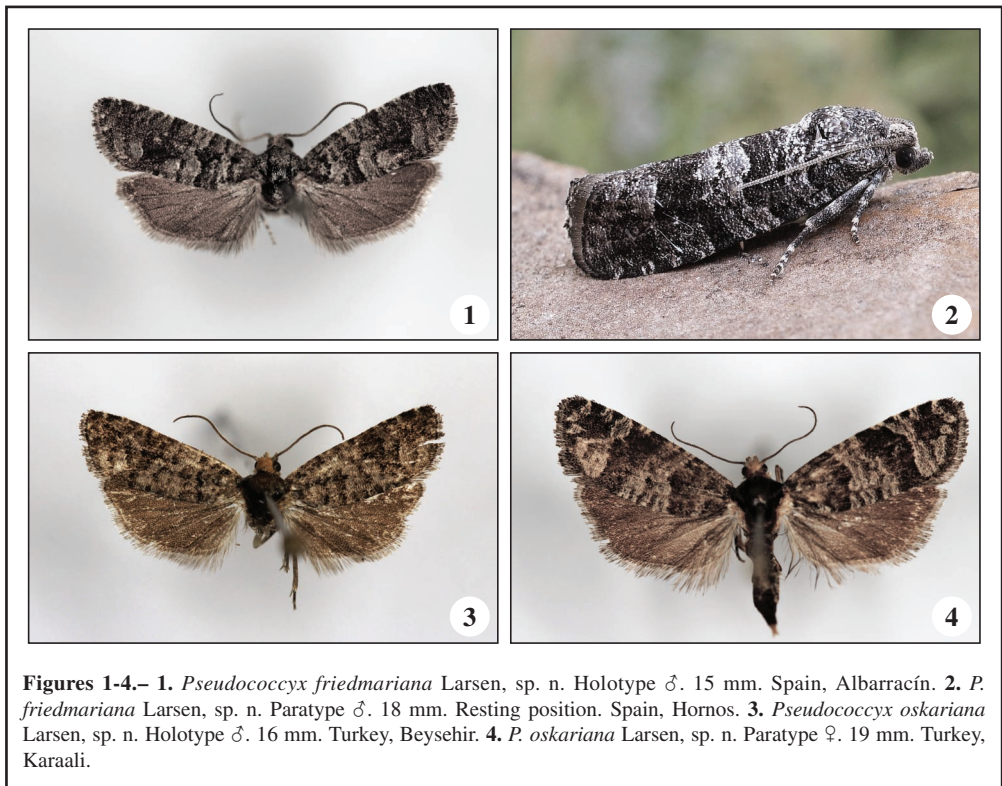
P. mughiana (Zeller, 1868)

P. tessulatana (Staudinger, 1871)

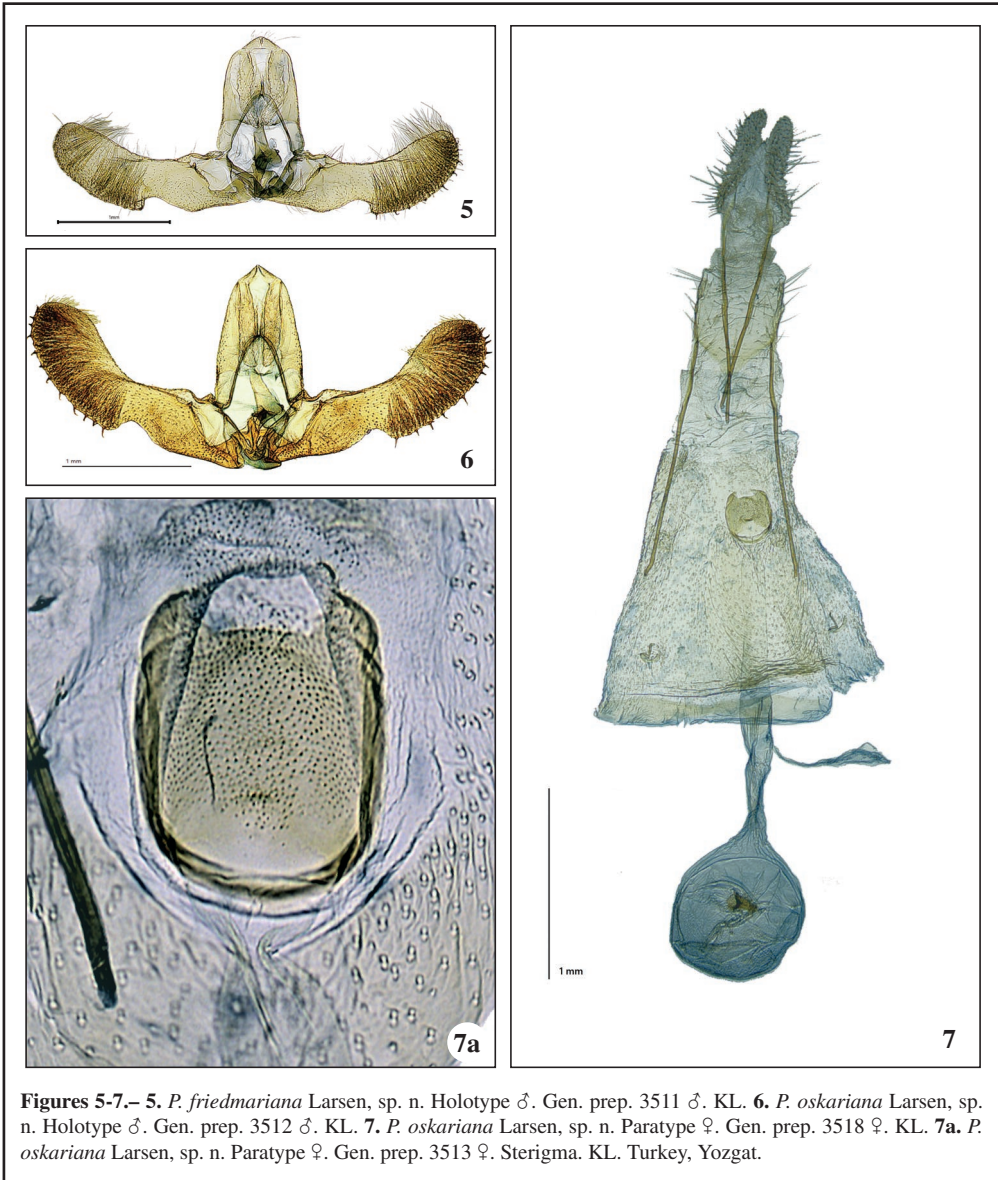
Full synonymy of genus and species can be seen in AARVIK *et al.* (2017) and GILLEGAN *et al.* (2014).

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Figures 1-4.– 1. *Pseudococcyx friedmariana* Larsen, sp. n. Holotype ♂. 15 mm. Spain, Albarracín. 2. *P. friedmariana* Larsen, sp. n. Paratype ♂. 18 mm. Resting position. Spain, Hornos. 3. *Pseudococcyx oskariana* Larsen, sp. n. Holotype ♂. 16 mm. Turkey, Beyşehir. 4. *P. oskariana* Larsen, sp. n. Paratype ♀. 19 mm. Turkey, Karaali.



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