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New information on the genus *Luffia* Tutt, 1899 (Lepidoptera: Psychidae) from the Canary Islands with description of a new species *Luffia kirsteni* sp. nov. from Fuerteventura

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Abstract: A new species from the Canary Islands is described in the genus *Luffia* Tutt, 1899 (Lepidoptera, Psychidae), *Luffia kirsteni* sp. nov. This new species differs from all other species in the genus by its larger size and the triangular shape of the forewing. In the genitalia, the sacculus and phallus are much larger than in all other species. This appears to be the first *Luffia* species that can be determined by genital means. The adult moth, details of antenna and male genitalia of two species are illustrated, along with the type locality.

Key words: Taxonomy, Psychidae, *Luffia kirsteni* sp. nov., Canary Islands.

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INTRODUCTION

In August 2018 the author visited Tenerife, La Palma, El Hierro and La Gomera in the Canary Islands searching for micromoths. During this journey new information was obtained about two endemic *Luffia* species. In February 2019 the author then spent a week at the island Fuerteventura, also searching for micromoths. Two adult specimens corresponding to the genus *Luffia* Tutt, 1899 were of a larger size with markings fitting no known species from this genus, and were possibly an undescribed species.

The genus *Luffia* is strictly Western Palaearctic, consisting of the rather common species *Luffia lapidella* (Goeze, 1783) that is widespread from Cyprus to south west Europe and also found on the Azores. It is also found as far north as in Luxembourg and on the Channel Islands. The other three species known are all endemics, each from a Canary Island: *Luffia rebeli* (Walsingham, 1908) from Tenerife; *Luffia gomerensis* Henderickx, 1996 from La Gomera and *Luffia palmensis* Sobczyk, 2002 from La Palma (Arnscheid & Weidlich, 2017; Moreno, 2014). The findings from Madeira are according to Arnscheid & Weidlich (2017) questionable, and they suggested that this population belongs to *L. lapidella*.

MATERIAL AND METHODS

The specimens of the new species were collected with light traps with 8W super actinic black light tubes. The other specimens were collected with light traps with 125W mercury vapour bulbs. The genitalia slides were made according to standard procedure mounted in Euparal. The photographs of genitalia preparations were taken by a Toup Tek camera mounted on a Toup Tek binocular microscope. Adults were photographed with a Canon 50D 100 mm lens. The pictures of the antenna were made using the Helicon Focus stacking program. The holotype, paratypes and the other mentioned specimens are deposited in the research collection of Knud Larsen. The nomenclature for adults and genitalia follow Arnscheid & Weidlich (2017).

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DESCRIPTION OF NEW SPECIES

Luffia kirsteni K. Larsen, sp. nov. (Figs. 1–2a)
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Material examined. Holotype ♂, SPAIN: Canary Islands, Fuerteventura: Barranco tras del Lomo, 28˚07′53″N 14˚17′12″W, 100 m, 25–26.ii.2019 leg. Knud Larsen. Paratype ♂, SPAIN: Canary Islands, Fuerteventura: Lajares 4.5 km. S, 165 m. 1.iii.2019 leg. Knud Larsen. Gen. prep. 3509 ♂ K. Larsen.

Description. Male. Wingspan 13 mm. (Fig. 1) Head rough haired, white. Thorax and abdomen grey. Antenna (Fig. 2a) with 24 segments, covered with light scales and strongly pectinate. Forewing triangular with costa slightly curved and pointed and termen nearly straight, dorsum straight. Ground colour whitish with two light brown crossing bands: one close to the base and a broader band beyond middle of the wing dividing into two bands close to costa. Two dark brown dots at costa close to tip. The first whitish band has two very thin brownish curved lines in the middle; the second divided with a very thin dark brown line close to termen. Termen itself has a row of minute white spots just before the brown dividing line. The hindwings are grey. All fringes are grey with a

Figure 1 – *Luffia kirsteni* sp. nov. Holotype ♂, 13 mm. Barranco tras del Lomo.

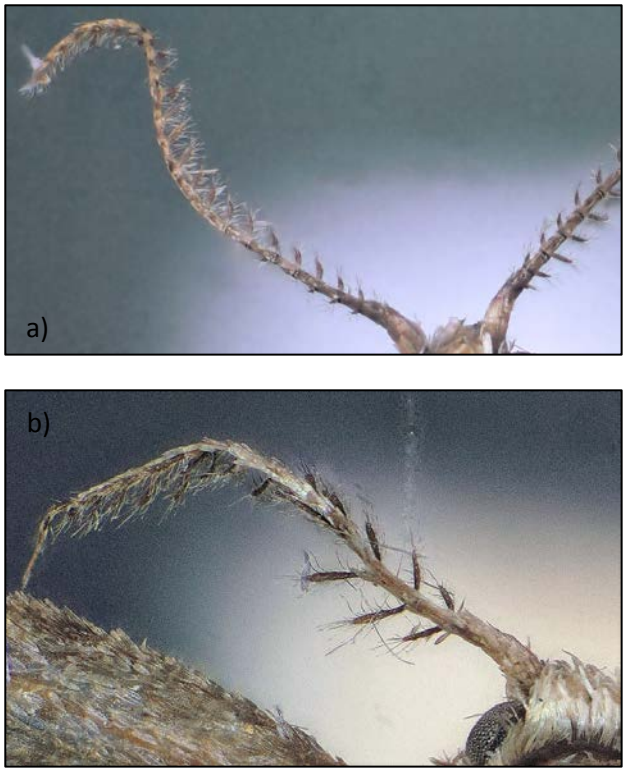

Figure 2 – a) *Luffia kirsteni* sp. nov. Antenna. Lajares. b) *Luffia lapidella* (Goeze, 1783). Antenna. France. Ariége.

brownish tint. The underside of the forewing is like the upper side but the markings are very weakly visible. The underside of the hindwing is light grey. Legs are grey with long tibia and the distal segments are brownish ringed.

Male genitalia (Figs 3a & b). Valva narrow elongate, rounded distally. Clasper very broad, rounded and long with the tip reaching 4/5 of the lengths of the valva. Tip of clasper slender and short with small spines. Tegumen strongly curved with a small indention distally. Anellus short and broad, rounded distally and pointed caudally. Juxta distinctly sclerotized. Tendon weak, covered with fine spines. Saccus slender, rounded caudally, length a little less than one third of the genitalia. Phallus longer than the genitalia, simple, same widths and curved at both ends.

Female genitalia. Not known.

Diagnosis: *Luffia kirsteni* is characterised by its much larger size than all other *Luffia* sp. The forewing is triangular and pointed. The markings are striking especially with the broad dividing bands. In the male genitalia, the valva is narrower, clasper and phallus larger and tegumen more rounded than in other species, distinctions very clear by comparison with the figures of the male genitalia of *Luffia lapidella* (Goeze, 1783) (Fig. 4).

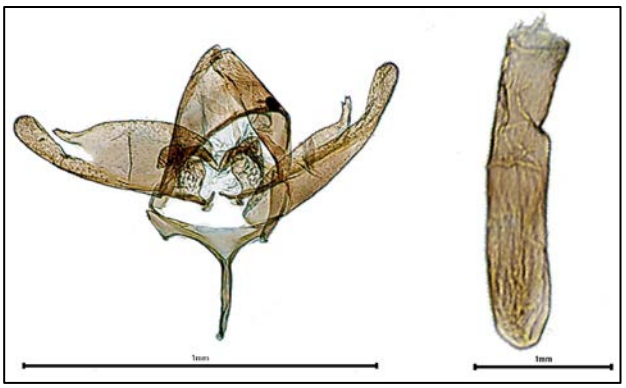

Figure 3 – *Luffia kirsteni* sp. nov. Fuerteventura: Lajares, gen. prep. 3509 ♂ K. Larsen: a) valves, b) phallus. Scale is 1 mm.

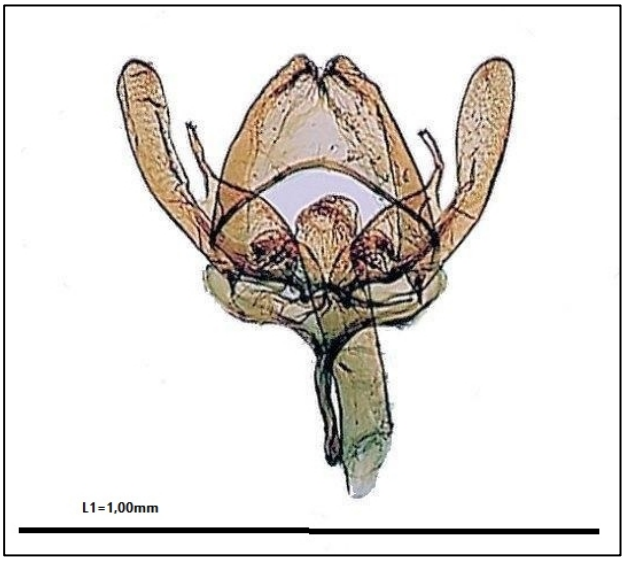

Figure 4 – *Luffia lapidella* (Goeze, 1783). France, gen. prep. 3508 ♂ K. Larsen.

Biology. Nothing known except for information from the collecting dates and the two localities. Type locality (Fig. 5) and the other locality where the species was found are both covered by rough stones and lava fields with sparse vegetation (Fig. 6), with lichens growing on the lava.

Etymology. The species is named after my ever patient and understanding wife.

Luffia lapidella (Goeze, 1783).

Material examined. FRANCE. Ariége: Sinsat, 500 m. 2 specimens, 25.vii.1999 leg. et col. Knud Larsen. The locality is a humid valley just north of Andorra in the Pyrenees.

Male genitalia. Slide nb. 3508 ♂ K. Larsen (Fig. 4) is shown for comparison with the new species *Luffia kirsteni* n. sp. (Fig. 3a). In the *lapidella* specimen from France the sacculus is much longer compared with the Fig. 129 on Plate 31 of the *lapidella* male in Arnscheid & Weidlich

(2017), which also is from France. This could be a preparation artefact. The antenna (Fig. 2b) of *L. lapidella* is also figured for comparing the size of the pecten.

Luffia rebeli Walsingham, 1908.

Material examined. SPAIN. Canary Islands. Tenerife. Anaga, Roque Negro, 615 m. 2 specimens, 7–9.viii.2018 leg. et col. Knud Larsen. The species was abundant at the locality, which is very misty, humid and with plenty of lichens everywhere. According to Sobczyk (2002) the flight period is May/June.

Figure 5 – *Luffia kirsteni* sp. nov. Type locality. Fuerteventura: Barranco tras del Lomo.

Figure 6 – *Luffia kirsteni* sp. nov. Second locality. Fuerteventura: Lajares.

Luffia palmensis Sobczyk, 2002.

Material examined. SPAIN. Canary Islands. La Palma. Barranco de las Nieves, 250 m. 3 specimens 13–16.viii.2018 leg. et col. Knud Larsen. The species was abundant at the locality which is a rather dry *barranco* just outside the city but at the edge of the large *laurisilva* forest on the east side of the island. According to Sobczyk (2002) and Arnscheid & Weidlich (2017), the flight period is April/May.

DISCUSSION

The discovery of a new *Luffia* species possibly endemic to Fuerteventura raises questions about *Luffia* from the other Canary Islands. On my visit to the islands in 2018, the author found plenty of specimens on Tenerife and Las Palmas, but none on El Hierro and La Gomera. In the original article on *Luffia gomerensis* (Henderickx, 1996), that species was discovered by finding cases with eggs. The specimens were bred out after 10 months and it was suggested that the flight period would be around February.

The flight period of different species may vary, but it seems to be established that *L. rebeli* and *L. palmensis* either have two broods or a rather long flight period. From present information, it would be expected to find *Luffia* species at least also on Gran Canaria and Lanzerote and maybe also on El Hierro. The populations of *Luffia* species on the Canary Islands result from long term isolation in the same ecological settings. The volcanic geology of Fuerteventura is special and spectacular, and different to some settings I experienced in West Africa.

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