

**Studies of Neotropical Phasmatodea XII: *Pseudophasma lakini* sp. n.  
– a new stick insect from eastern Ecuador  
(Phasmatodea: Pseudophasmatidae: Pseudophasmatinae)**

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**ABSTRACT.** *Pseudophasma lakini* sp. n., a remarkable new phasmid from the eastern Andean slopes of Ecuador (Province Napo) is described and illustrated (both sexes and eggs). The original specimens were collected by Curtis Lakin (U.K.) in 2008, after whom it is named. The new species differs from all other known representatives of *Pseudophasma* KIRBY, 1896 by the distinctly lobed meso- and metafemora and the shape of the tegmina. The holotype is deposited in the State Zoological Collections Munich, Germany (ZSMC), and the paratypes in MNHN, BMNH and in the private collections of the authors (coll. OC and coll. FH).

**KEY WORDS:** Phasmatodea, Pseudophasmatidae, Pseudophasmatinae, *Pseudophasma lakini* sp. n., Ecuador; Napo, Archidona.

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INTRODUCTION

The phasmid fauna of Ecuador is among the richest in the world and in particular is extremely diverse on the eastern slopes of the Andes. The Phasmatodea inhabiting this area are still very poorly studied and contain a large number of still new or rarely encountered species. Curtis Lakin (U.K.) collected a very distinctive species of the genus *Pseudophasma* KIRBY, 1896 at Archidona near Tena, (habitat in Fig. 11) in Napo Province in 2008, kept the single female specimen alive for some days and released it again after obtaining some eggs from it. Back home he successfully reared the species in captivity and kindly forwarded live specimens and eggs to the first author for identification. Comparison of these specimens with the types of all known species of *Pseudophasma* KIRBY, 1896, showed that they obviously represent an as yet undescribed species, which is very

characteristic for the interesting shape of the tegmina and the wave-like lobes on the meso- and metafemora.

At present, the genus *Pseudophasma* KIRBY, 1896 contains some 50 species and is widely distributed throughout Central and South America, ranging from Nicaragua in the north to Bolivia and Paraguay in the south. Since an extensive taxonomic revision of this speciose genus is in preparation by the authors, the intrageneric arrangement will not be discussed in detail here. As the new species collected by Curtis Lakin is widely distributed amongst European breeders, a scientific name is urgently required to prevent taxonomic confusion.

#### Abbreviations

BMNH: The Natural History Museum, London, England; MNHN: Museum d'Histoire Naturelle, Paris, France; ZSMC: Zoologische Staatssammlung, Munich, Germany; FH: Private collection of Frank H. Hennemann, Freinsheim, Germany; OC: Private collection of Oskar V. Conle, Bolsterlang, Germany.

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## RESULTS

### *Pseudophasma lakini* sp. n.

#### Material examined

**Holotype:** male: Ex Zucht O.C. 2011, Zuchtstamm aus Ecuador, Province Napo, Archidona near Tena, 570 m, 0°54'S, 77°48'W, ex Coll O. Conle [ZSMC].

**Paratypes:** male: Pr. Napo. Baeza/Lago Agrio: San Rafael, 02/07 XI 1997, 1300 m, 77°35'W, 0°05'S; Museum Paris, Equateur, Amédégnato/Poulain réc. [MNHN]; male, female: jungle vegetation, Ecuador: Napo Province, Coca, IV-IX 1982, G. Onore, B.M. 1985-61 [BMNH]; male: jungle vegetation, Ecuador: Napo Province, Coca, II 1982, G. Onore, B.M. 1985-61 [BMNH]; male: Kolumbien: Buga Valle, VI.1991, via Sticher [coll. FH, No. 0029-1]; male: Ex Zucht O.C. 2011, Herkunft: Ecuador, Province Napo, Archidona near Tena, 570 m, 0°54'S, 77°48'W, ex Coll O. Conle [coll. FH, No. 0029-2]; 2 males, 2 females, 10 eggs: Ex Zucht F.H. 2012, Herkunft: Ecuador, Province Napo, Archidona near Tena, 570 m, 0°54'S, 77°48'W [coll. FH]; 18 males, 12 females, 20 eggs: Ex Zucht O.C. 2011, Zuchtstamm aus Ecuador, Province Napo, Archidona near Tena, 570 m, 0°54'S, 77°48'W [coll. OC].

**Diagnosis**

This striking new species at once differs from all known species of the genus in the distinctly lobed meso- and metafemora.

**Etymology**

This distinctive new species is named after its collector, Curtis Lakin (U.K.).

**Description**

**Female.** Medium sized (body length 56.3-80.1 mm) for the genus, with fully developed alae (49.5-61.0 mm) (Figs 1, 2). Body surface granulose and with two dorsolateral and lateral rows of blunt spinules on the mesonotum. Antennae, legs, cerci and ventral surface of subgenital plate covered with very short setae. General colour of body straw to pale brown with irregularly dispersed dark brown speckles and mottling. Head, pro- and mesonotum usually with several indistinct longitudinal dorsolateral black stripes (Fig. 3). Eyes pale yellow with some dark brown markings. Scapus and pedicellus dark brown with blackish mottling, remaining antennomeres straw with irregular dark brown annulations, which taper towards apex of antennae. Tegmina straw to pale brown intero-basally with the portion above the radial vein blackish brown (Fig. 5). Costal region of alae straw to pale brown with irregular dark brown mottling, anal region transparent pale brown. Subgenital plate brown with several indistinct fine longitudinal black lines (Fig. 5). Cerci dark brown. Femora dark blackish brown and usually with three slender, transverse pale cream or straw markings; basal quarter of profemora reddish on exterior surface. Tibiae pale straw with transversely arranged dark brown mottling.

**Head.** Hardly longer than wide and slightly compressed dorsoventrally, broadest at the eyes and gently constricted towards the base. Cheeks slightly convex, vertex flattened. Eyes large, hemispherical, strongly projecting and slightly oval in outline, their length about 1.5x that of cheeks. Ocelli well developed, black. Antennae a little longer than body. Scapus dorsoventrally compressed, oval in cross-section, about 1.5x longer than wide and roughly equal in length to pedicellus. III noticeably longer than pedicellus. Following antennomeres cylindrical, elongate.

**Thorax.** Pronotum with lateral margins gently concave, noticeably longer than head, 1.5x longer than wide, with an impressed longitudinal median line and a short but fairly distinct, straight transverse median sulcus. Mesonotum parallel sided, about 1.2x longer than pronotum and 1.5x longer than wide; outer lateral margins slightly elevated and with a row of blunt spinules (Fig. 3). Mesosternum with an indistinct longitudinal median carina. Tegmina roundly rectangular with the posterior margin almost straight and reaching to posterior margin of mesonotum; venation net-like. Radial vein in anterior half strongly elevated and forming an impressive, roundly triangular, gently curved and cephalad directed shield-like extension with an acutely pointed apex, which reaches approximately to base of tegmen (Fig. 3). Alae roughly reaching to or slightly projecting over apex of abdomen.



**Figs 1-5.** *Pseudophasma lakini* sp. n., female, paratype: 1 – dorsolateral aspect, 2 – dorsal aspect, 3 – close-up of head and thorax, showing the distinctive shape of the tegmina and femora, 4 – apex of abdomen in lateral aspect, 5 – apex of abdomen in ventral aspect.

Abdomen. Segments II-VII longer than wide, parallel sided. VIII, IX and anal segment wider than long. Posterolateral angles of VII-IX extended into a blunt tooth-like lobe (Fig. 5). Sternites II-VII each with a pair of small median humps near posterior margin (Fig. 4). Anal segment about 1.5x wider than long, distinctly declining and gently tapered towards the apex with a blunt longitudinal median carina; posterior margin slender, entire and very gently rounded, the lateral margins with a faint concave indentation. Cerci short, round in cross-section, blunt and tapered towards the apex; hardly projecting over anal segment and finely bristled. Subgenital plate scoop-shaped with the apex rounded and reaching to posterior margin of anal segment (Fig. 5).

Legs. All femora distinctly carinate. Profemora as typical for the genus with the basal portion distinctly curved and constricted, slightly longer than head, pro-, meso- and metanotum combined. Meso- and metafemora with the apical portion swollen and a large sub-apical lobe on both dorsal carinae; the two outer ventral carinae with three to four rounded lobes, which considerably increase in size towards the apex of femur (Fig. 3). Hind legs hardly projecting over apex of abdomen. Tarsi elongate and more than half the length of corresponding tibiae, basitarsus 2.5x longer than 2<sup>nd</sup> tarsomere.

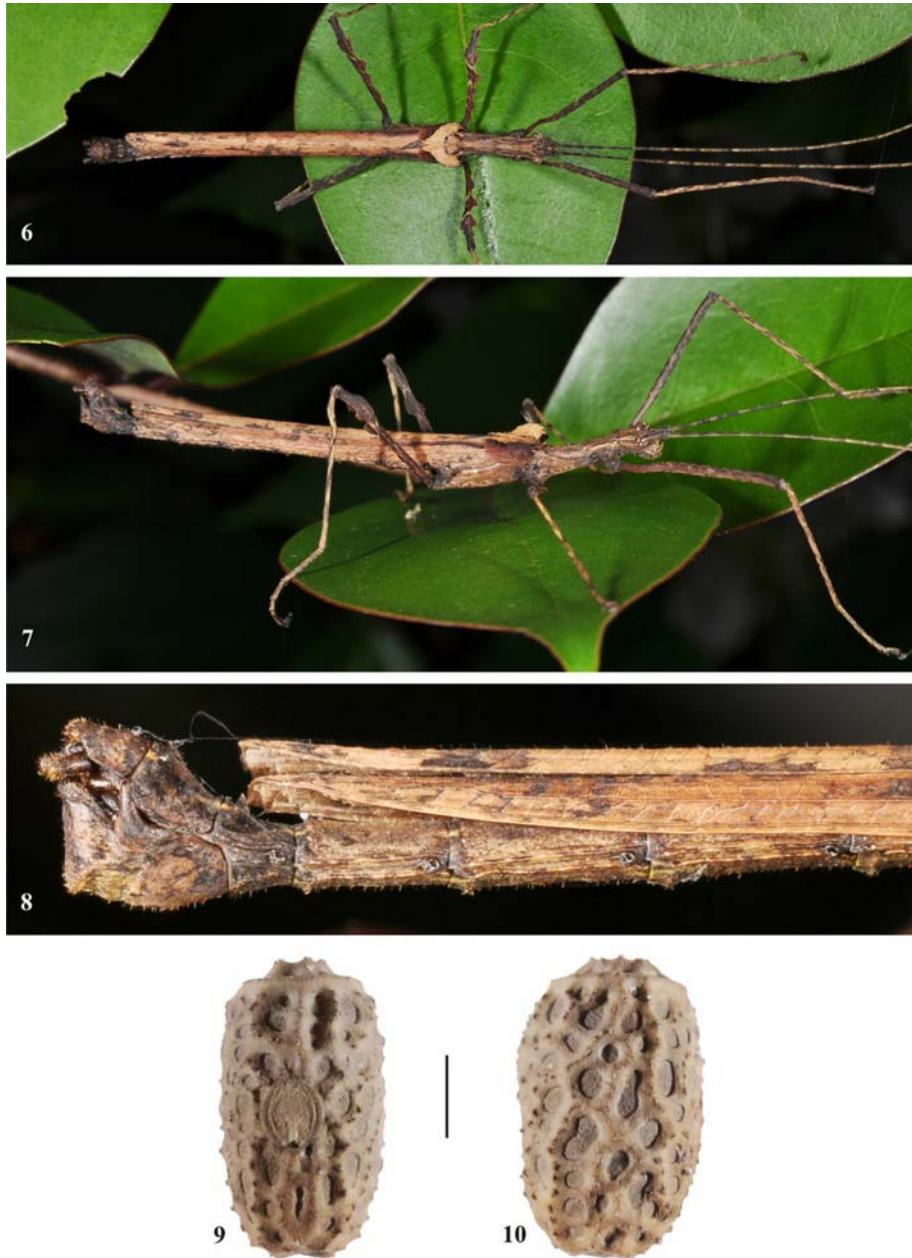
**Male.** Medium sized (body length 46.7-57.7 mm), with fully developed alae (32.4-39.0 mm) (Figs 6, 7). Body surface and colouration as in female, but abdominal segments VII-X and poculum somewhat darker in colour. Meso- and metafemora may be slightly reddish basally.

Head. As in female, but antennae much longer than body.

Thorax. Generally as in female, but more slender, pronotum 1.6x longer than wide and mesonotum about 2x longer than wide and 1.5x longer than pronotum. Alae reaching to posterior margin of tergum VIII.

Abdomen. Segments II-VII considerably longer than wide and decreasing in length. Tergum VIII gently broadened towards the posterior, slightly wider than long and with a laterally compressed, triangular tooth posteromedially. IX slightly longer than VIII, gently broadened towards the posterior and slightly wider than long. Anal segment somewhat tapered towards the posterior, the posterior margin narrowed with a small median indentation and the outer angles obtusely rounded. Vomer triangular, about as long as wide and with the apex pointed. Cerci blunt, cylindrical and with a slightly thickened, rounded apex; projecting over anal segment by about half of their length. Finger-like dextral process of sternum IX short, blunt, strongly up-curving and reaching to posterior margin of tergum VIII (Fig. 8). Poculum bulgy, angular, roundly conical posteroventrally and approximately reaching posterior margin of anal segment.

Legs. Generally as in female, but relatively longer and more slender and the lobes of the femora less developed.



**Figs 6-10.** *Pseudophasma lakini* sp. n.: 6 – male, holotype: dorsal aspect, 7 – male, holotype: lateral aspect, 8 – male, holotype: apex of abdomen in lateral aspect, 9 – egg: dorsal view (scale = 1 mm), 10 – egg: lateral view (scale = 1 mm).



**Fig. 11.** Original habitat of the species: Archidona near Tena, Napo province, Ecuador, 570 m.

**Egg** (Figs 9, 10). Uniformly greyish brown. Capsule barrel-shaped, almost round in cross-section and 1.7-1.9x longer than wide; polar area slightly impressed. Entire surface of capsule with prominent, irregularly shaped impressions, which are densely and minutely granulose. The strongly raised interveining portions with longitudinally arranged wart-like humps. Micropylar plate almost circular in outline and about 1/4 the length of capsule; outer margin slightly raised. Micropylar cup very small and positioned posteromedially. Median line very indistinct. Operculum almost circular with a crown-like raised structure in the centre.

**Measurements (mm)**

**Holotype.** Male: body 52.3, pronotum 2.9, mesonotum 5.2, metanotum 4.3, median segment 6.0, tegmina 6.0, alae 38.1, profemora 16.3, mesofemora 10.8, metafemora 13.5, protibiae 16.5, mesotibiae 10.4, metatibiae 14.5, antennae > 40.0.

**Paratypes.** Males: body 46.7-57.7, pronotum 2.9-3.1, mesonotum 3.8-5.2, metanotum 3.8-4.5, median segment 5.5-6.4, tegmina 5.0-6.6, alae 32.4-39.0, profemora 16.0-16.5, mesofemora 10.2-11.0, metafemora 13.4-13.6, protibiae 16.3-16.9, mesotibiae 10.4-10.8,

metatibiae 14.2-15.1, antennae 50.0-60.0; females: body 56.3-80.1, pronotum 4.5-5.2, mesonotum 6.5-7.3, metanotum 6.9-7.4, median segment 8.1-8.9, tegmina 8.5-10.0, alae 49.5-61.0, profemora 20.5-21.3, mesofemora 13.9-14.3, metafemora 17.8-18.5, protibiae 18.0-18.7, mesotibiae 12.0-12.8, metatibiae 17.2-17.8, antennae 72.0-78.0.

**Eggs:** length 3.5-3.8, width 2.0-2.1, height 2.2-2.3, length of micropylar plate 0.9-1.0.

#### REFERENCE

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