

## A new clearwing species from Costa Rica (Lepidoptera, Sesiidae)

Rudi GOOSSENS<sup>1</sup>, Ruben MEERT<sup>2</sup> & Theo GARREVOET<sup>3</sup>

<sup>1</sup> corresponding author: Broekkantstraat 298a, B-9200 Dendermonde, Belgium  
(e-mail: rudigoossens2@telenet.be)

<sup>2</sup> Grote Snijdersstraat 75, B-9280 Lebbeke, Belgium (e-mail: ruben\_meert@hotmail.com)

<sup>3</sup> Kampioenstraat 14, B-2020 Antwerpen, Belgium (e-mail: theo.garrevoet@telenet.be)

### Abstract

During an expedition in Northern Costa Rica, in the tropical lowland rainforest of the OTS - La Selva Biological Station near Puerto Viejo de Sarapiquí in April 2015, the first two authors captured one male specimen of a new clearwing species in a recently cut piece of rainforest, by using pheromones. The species is described as *Aegerina laselva* sp. nov. and compared with the six hitherto known species of the genus *Aegerina*.

**Keywords:** Lepidoptera, Sesiidae, *Aegerina*, taxonomy, new species, Costa Rica

### Samenvatting

Tijdens een expeditie in het noorden van Costa Rica in het tropische laaglandregenwoud van het OTS - Biologisch Station La Selva nabij Puerto Viejo de Sarapiquí, vingen de eerste twee auteurs, in april 2015, in een pas gekapt stuk regenwoud, één mannelijk exemplaar van een nieuwe wespvlindersoort met behulp van feromonen. De soort wordt beschreven als *Aegerina laselva* sp. nov. en vergeleken met de zes andere tot nog toe bekende soorten van het genus *Aegerina*.

### Résumé

Lors d'une excursion en avril 2015 dans la forêt tropicale de basse altitude de l'OTS-Station Biologique de La Selva près de Puerto Viejo de Sarapiquí dans le nord du Costa Rica, les deux premiers auteurs ont capturé, à l'aide de phéromones, un mâle d'une nouvelle espèce de Sésie dans une zone de forêt récemment abattue. L'espèce est décrite comme *Aegerina laselva* sp. nov. et comparée aux six espèces connues du genre *Aegerina*.

### Introduction

The Sesiidae are a family of butterflies with currently 1452 known species around the world (PÜHRINGER & KALLIES, 2004). *Aegerina* is a Neotropical genus with hitherto six described species. Pheromones are often used to study the distribution of Sesiidae in the Palaearctic Region. Some compositions of pheromones are known to attract several different species.

In April 2015, the first two authors had the opportunity to join an expedition in Costa Rica. Because some of the pheromone compositions that are used in Europe are also attractive for several Sesiidae species in other parts of the world, the authors examined which species could be attracted in Costa Rica. In the OTS (Organization for Tropical Studies)- La Selva Biological Station near Puerto Viejo de Sarapiquí an unknown species was attracted by a pheromone composition originally developed for *Synanthedon myopaeformis* (Borkhausen, 1789).

The specimen was kept in a coolbox and later, in Belgium, in a refrigerator at -20°C. Early August 2015 it was mounted by the third author.

This specimen appears to belong to the genus *Aegerina* Le Cerf, 1917 which has the following characteristics: Head small, slightly curved. Tufted antennae. Palpus erect, 2nd and 3rd segment hairy.

Proboscis well developed. Antennae quite short, spindle-shaped. Abdomen in male small and enclaved, in female cylindrical with quite long hind bristles. Legs thin, with hind legs shorter than the abdomen. Fore wings long (Fig. 4). Vein 1a short, v4 with the same distance to v3 as to v5; v7 and v8 stalked over 2/3rd of their length, v9 absent, v10 and v11 very close to each other and parallel. In hind wing v1a very thin, v3 and v5 stalked, v6 absent (ZUKOWSKY, 1936).

The six species that have been described in this genus are: *Aegerina allotriochora* (Zukowsky, 1936), *Aegerina alomyaeformis* Zukowsky, 1936, *Aegerina mesostenos* (Zukowsky, 1936) and *Aegerina vignae* Busck, 1929: all four from Brasil; *Aegerina ovinia* (Druce, 1896) from Mexico and Guatemala and *Aegerina silvai* (Köhler, 1953) from Argentina.

### Material and methods

In 2015, on April 7 at 10:00 AM, the first two authors placed a pheromone lure at ground level in a recently cut part of secondary and selectively-logged lowland rainforest of the OTS (Organisation of Tropical Studies) - La Selva Biological Station, in Sarapiquí (Figs 1-2). The lure (Fig. 3) was especially applied to attract male clearwings (Lepidoptera: Sesiidae) and contained a pheromone composition originally developed for *Synanthedon myopaeformis* (Borkhausen, 1789) which contains E3,Z13-18:Ac and Z3,Z13-18:Ac in a 1:20 ratio. The pheromones were put in a funnel trap (Fig. 3) and were supplied by Pherobank BV, Wijk bij Duurstede, The Netherlands.

At 10:45 AM two specimens were attracted to the lure (Fig. 4) but one of them, presumably conspecific to the other specimen based on size and general appearance, unfortunately escaped.

This specimen does not belong to one of the six already known species of the genus *Aegerina* and is therefore described here as a new species.



Fig. 1. A. Location of Puerto Viejo de Sarapiquí in Costa Rica. B. Map with exact capture site within OTS-La Selva Biological Station (arrow).



Fig. 2. Capture site of *Aegerina laselva* sp. n. (indicated by arrow).



Fig. 3. Capture site with pheromone trap (see arrow) (photo: Ruben Meert).

*Aegerina laselva* sp.nov.

TYPE MATERIAL: Holotype, 1♂ Costa Rica, Province Heredia, OTS-La Selva Biological Station nr Puerto Viejo de Sarapiquí, 45 m., 07.IV.2015, N10.422116 W84.001808, leg R. Goossens & R. Meert. The holotype of *Aegerina laselva* will be deposited in the collections of the Royal Belgian Institute of Natural Sciences (RBINS) in Brussels (Belgium) with reference I.G.: 33.692.

ETYMOLOGY. This new species is named after the Biological station 'La Selva', meaning "the forest".



Fig. 4. *Aegerina laselva* in a trap (photo: Ruben Meert).

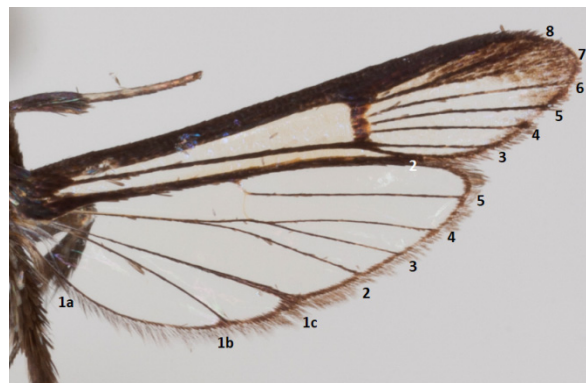


Fig. 5. Wing pattern and venation of *Aegerina laselva* (photo: Theo Garrevoet).



Fig. 6. A. Dorsal view of *Aegerina laselva* sp. nov., B. Ventral view (photos: Theo Garrevoet).

DESCRIPTION.

Male.

Wings: Wingspan 14 mm. Forewings transparent with opaque apex, discal spot brown with yellowish border with ETA, costa dark brown, veins brown. Hindwings transparent, veins brown. Fringe light-brown.

Head: Proboscis present, brown. Long greyish scales between bases of antennae, vertex black with dark hairs. Ring of greyish and black hairs around posterior side of head. Antenna darkish brown with base yellowish brown to about half of length; gradually thickened towards the tip with a few hair pencils at top; antenna with long hairs ventrally; top greyish. Compound eye black. Ocelli reddish brown. Frons covered with broad greyish brown scales. Labial palpus black; 1st segment black with broad brown scales on the outer side, white scales on the inner side; 2nd segment covered with narrow black scales with white top; basis of 3rd segment with slender white scales.

Thorax: Brownish, brown scales ventrally, with long yellow scales posteriorly and laterally. Tegula brown. Tergal tuft black.

Legs: Fore leg: femur brown, with grey scales ventrally; tibia brown; tarsus grey dorsally, black ventrally.



Mid leg: femur brown, with grey scales ventrally; tibia brown with a long spur at the end, covered with long brown hairs; tarsus brown with grey hairs distally.

Hind leg: femur brown, with grey scales ventrally; tibia brown with long brown hairs and a few white hairs, with a long spur in the middle and one at apex; tarsus brown with grey hairs distally, 1st tarsomere grey at the base.

Abdomen: Black. Enlarged in the middle. Tergite I with broad yellow band distally. Tergites II, IV and VII with narrow yellow band on posterior margin. Sternites IV and V covered with white scales. Abdominal tuft large, brown, with a few greyish hairs laterally.

Male genitalia:

Valva slender, apex rounded. Crista sacculi proximally densely covered with setae but sparsely more distally. These setae bifurcate at their tip. Crista sacculi bending sharply towards costa and there covered densely again with more orange coloured, pointed, hair like setae. Scopula androconialis very well developed, densely covered with setae. Aedeagus with some cornuti at the tip and medially.

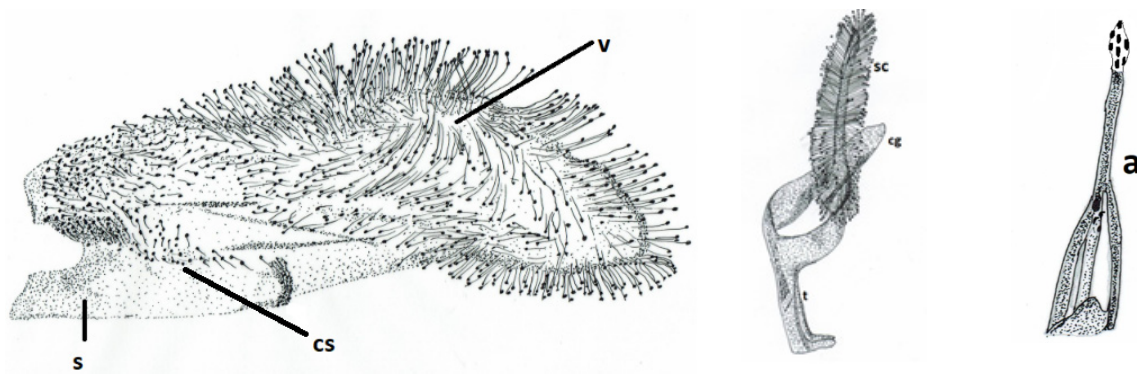


Fig. 7. Male genitalia of *Aegerina laselva* sp. nov. (drawings: Rudi Goossens): sacculus (s), valvae (v), crista sacculi (cs), scopula androconialis (sc), crista gnathi (cg), tegumen (t), aedeagus (a)

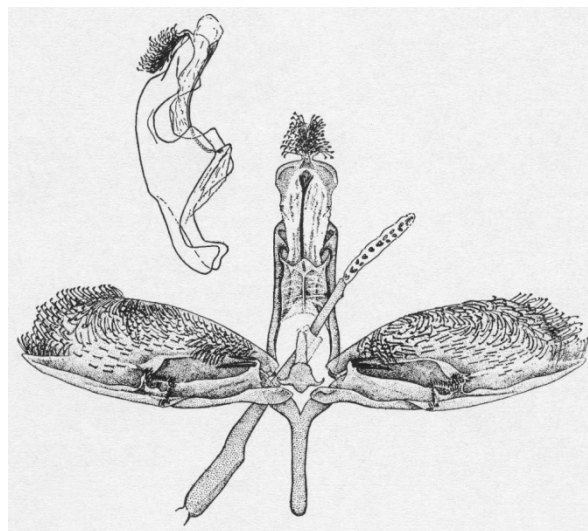


Fig.8. Male genitalia of *Aegerina vignae* (after DRUCE, 1896).

## DIFFERENTIAL DIAGNOSIS

Table 1 shows the main differences between the hitherto known *Aegerina*-species, based on the descriptions in BUSCK, 1929, DRUCE, 1900, KÖHLER, 1953 and ZUKOWSKY, 1937. (tg = tergite, st=sternite).

	<i>A. laselva</i>	<i>A. ovinia</i>	<i>A. vignae</i>	<i>A. mesostenos</i>	<i>A. alomyaeformis</i>	<i>A. allotrichora</i>	<i>A. silvai</i>
Wingspan	14 mm	30 mm		20-21 mm	21-22 mm	35 mm	31 mm
Costa	Dark brown					Dark brown with yellow spot on top	
Head	Long greyish scales between antennae, vertex black with dark hairs. Ring of greyish and black hairs around posterior side of head		With semi-erect dull black scales and a thin transverse line of yellowish white scales				
Antennae	Dark brown	Black with base and top brownish				Bluish black	
Ocelli	Reddish brown	Yellow					
Legs	Brown with grey		Metallic bluish black with yellow spurs		Rust-brown	Bluish black; hind tarsi yellow and black	Fore legs yellow, hind legs light brown
Abdomen	Yellow rings broad on tg I; Small on tg II, IV and VII. St IV and V white scales	Yellow rings on tg II, IV and VI. Tg II with 2 small yellow spots	Bluish black with each joint narrowly edged and with posterior edge yellow	Narrow white ring on tg II, st II white	Narrow yellow ring on tg IV	St I-VIII yellow. Tg I black. Tg II with yellow ring. Tg III-VIII with orange ring. Tg II and IV with 2 yellow bristles forming a quadrangle	St I-VIII with broad yellow rings

Remarks: only the male genitalia of *Aegerina vignae* (DRUCE, 1896) have been described in literature. Differences between *A. laselva* and *A. vignae* can be described as follows (see Figs 7-8): Valvae (v) longer and narrower than in *A. vignae*. Crista sacculi (cs) in *A. laselva* less sclerotised, distally with a perpendicularly oriented curved ridge with densely implanted setae; crista gnathi and notch in tegumen much longer than in *A. vignae*; scopula androconialis extremely well developed.

### Acknowledgements

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