


On the taxonomy and distribution of some Neotropical giant scale insects (Homoptera: Coccinea: Margarodidae s. l.)

К таксономии и распространению некоторых неотропических маргародид (Homoptera: Coccinea: Margarodidae s. l.)

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Abstract. A new species, *Neohodgsonius kurochkini* **sp. nov.**, is described and illustrated based on material collected in Mexico. *Neohodgsonius splendens* Foldi, 2016 is transferred to *Llaveiella* Morrison, 1927 as *Llaveiella splendens* (Foldi, 2016), **comb. nov.** *Neosteingelia texana* Morrison, 1927 is recorded from Mexico for the first time. *Cryptokermes oaxacoensis* Foldi, 2011 is recorded from the Yucatan Peninsula for the first time and the ultimolarva of this species is fully illustrated.

Резюме. В статье описывается и иллюстрируется новый для науки вид *Neohodgsonius kurochkini* **sp. nov.**, собранный в Мексике. *Neohodgsonius splendens* Foldi, 2016 переносится в род *Llaveiella* Morrison, 1927 как *Llaveiella splendens* (Foldi, 2016), **comb. nov.** *Neosteingelia texana* Morrison, 1927 впервые отмечается с территории Мексики. *Cryptokermes oaxacoensis* Foldi, 2011 впервые отмечается для полуострова Юкатан; даётся тотальный рисунок предимагинальной личиночной стадии этого вида.

Key words: scale insects, giant scales, morphology, taxonomy, Mexico, new records, new species

Ключевые слова: кокциды, маргародиды, морфология, таксономия, Мексика, новые находки, новый вид

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Introduction

The Neotropical giant scale insects (Margarodidae s.l.) are comparatively well known owing to the extensive investigations of Morrison (1928), Hughes-Schrader (1931, 1942) and Foldi (1995, 2011, 2016, 2020), however, the taxonomic composition of some genera and the distributional patterns of many species in this group are still far from completely documented. In October–November 2021, I visited several south-

ern states of Mexico and collected scale insects, one of which is new to science and two others were previously unrecorded for the local faunas; they are discussed below.

Material and methods

The material used in the study was collected by the author and Andrei Kurochkin during an expedition to Mexico in October–November 2021. The exact collection data for each species

are provided below. Methods for the preparation and study of scale insects have been repeatedly described earlier., e.g. by Gavrilov-Zimin et al. (2021).

All the material (including type specimens) is deposited in the collection of the Zoological Institute, Russian Academy of Sciences (ZIN RAS), St Petersburg, Russia.

The classification of higher taxa used here follows Gavrilov-Zimin (2018) and Gavrilov-Zimin et al. (2021).

Taxonomy

Order **Homoptera**

Suborder **Coccinea**

Family **Margarodidae**

Subfamily **Monophlebinae**

Tribe **Monophlebini**

Genus ***Neohodgsonius*** Foldi, 1999

Comments. So far, the genus has included two species: the type one, *N. cassicola* (Foldi, 1998), and *N. splendens* Foldi, 2016, both Neotropical in distribution. *Neohodgsonius cassicola* has marginal groups of peculiar multitubular wax glands, a character that may clearly differentiates the genus from the older *Llaveiella* Morrison, 1927, which also consists of two Neotropical species. However, according to the original description and figure of *N. splendens*, it does not have these multitubular wax glands, i.e. does not have the only real diagnostic character of *Neohodgsonius*, distinguishing it from *Llaveiella*. The other characters of these genera are overlapped as I remarked previously in the review of archaeococcoid genera (Gavrilov-Zimin, 2018: 158). Here a new species of *Neohodgsonius* with the multitubular glands is described, whereas *N. splendens* is transferred to *Llaveiella* as *Llaveiella splendens* (Foldi, 2016), **comb. nov.**

***Neohodgsonius kurochkini* sp. nov.**

(Figs 1a & 2)

Holotype. Adult female, K 1668, **Mexico**, *Oaxaca State*, Pochutla Distr., hills near playa Zipolite, on twigs and leaves of undetermined Fabaceae tree,

17.X.2021, Ilya Gavrilov-Zimin & Andrei Kurochkin, ZIN RAS.

Paratypes. 3 adult females (each mounted on separate slide) and a series of females with the same collecting data as for holotype, preserved in acetoethanol, ZIN RAS.

Description. Adult female. Body broadly oval, about 10 mm long, orange in life. Antennae each 11-segmented, about 1400 µm long, covered with flagellate setae of various thickness and lengths. Legs normally developed; each trochanter with three or four sensilla on each face; a claw without denticle; claw digitules setose. Mouthparts well developed, with two labial segments. Anal apparatus with internal sclerotised ring, without pores. Thoracic spiracles each with spiracularium and multilocular pores on edges of atrium. Abdominal spiracles numbering seven pairs, located on dorsum along abdominal margin; each without wax pores inside or just close to spiracular atrium (other than usual pores scattered on body surface). Cicatrices forming a semicircle, with a pair on each abdominal sternite and additionally with one larger cicatrix situated posterior to vulva. Wax glands represented by two types of discoidal pores: (1) large multilocular pores, each about 17 µm in diameter, with quadrilocular centre and 12 or 13 outer loculi, forming transverse bands and groups on both body surfaces, especially numerous around vulva; (2) smaller multilocular pores, each about 12 µm in diameter, with irregular number of central (2–5) and peripheral (8–13) loculi, scattered over body surface; also one type of multitubular glands, each with sclerotised orifice about 25 µm in diameter and internal portion 12 µm wide and 25 µm long at junction of large tubes, forming compact groups on each segment along body margin. Conical setae, each with characteristic crenate medial portion, scattered around anal opening. Body surface densely covered with flagellate setae of various sizes.

Males and morphology of larval stages unknown.

Diagnosis. The new species differs from the type species of the genus, *N. cassicola*, in having: (1) only one semicircle of cicatrices, located on the venter only (*vs.* two ventral and one dorsal semicircles); and (2) the presence of seven pairs of the abdominal spiracles (*vs.* six pairs).



Fig. 1. Natural appearance of Margarodidae species. **A**, *Neohodgsonius kurochkini* sp. nov., adult female; **B**, *Neosteingelia texana*, adult female; **C**, *Cryptokermes oaxacoensis*, three female ultimolarvae in resinous protective tests.

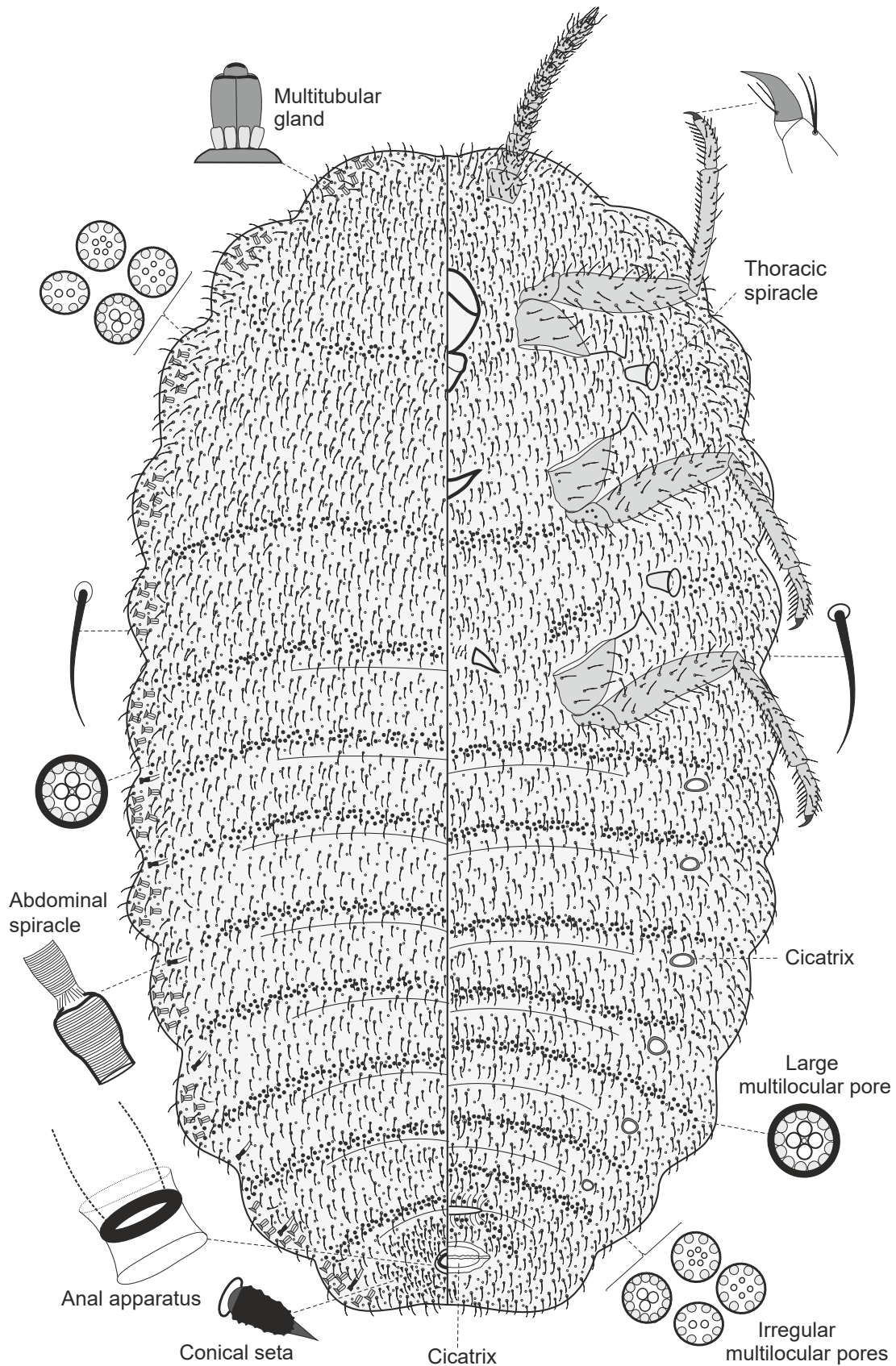


Fig. 2. *Neohodgsonius kurochkini* sp. nov., holotype.

Etymology. The species is named in honour of the coleopterologist Andrei S. Kurochkin, in recognition of his collection and photography of scale insects in different regions of the world over many years.

Subfamily **Xylococcinae**

Tribe **Kuwaniini**

Genus *Neosteingelia* Morrison, 1927

Neosteingelia texana Morrison, 1927
(Fig. 1b)

Material examined. K 1656, **Mexico**, *Oaxaca State*, Oaxaca City, Cerro del Fortin, on leaves of undetermined Fabaceae tree, 11.X.2021, Andrei Kurochkin, ZIN RAS, 5 adult females mounted on slides and large series of females and larvae preserved in acetoethanol.

Comments. The species was previously known only from USA (Morrison, 1928); this is the first record from Mexico.

Subfamily **Callipappinae**

Tribe **Cryptokermesini**

Genus *Cryptokermes* Hempel, 1900

Cryptokermes oaxacoensis Foldi, 2011
(Figs 1c & 3)

Material examined. K 1680, **Mexico**, *Kampeche State*, Kampeche City, on ornamental plants on embankment and on twigs of Fabaceae tree, probably *Samaneya saman*, 31.X.2021, Ilya Gavrilov-Zimin, ZIN RAS, 2 adult females and 7 ultimolarvae mounted on slides, also a large series of female ultimolarvae preserved in acetoethanol.

Redescription of female ultimolarva. Body broadly oval, orange in life, about 3 mm long, becoming hemispherical before molting to adult female. Antennae strongly shortened, each about 350 μm long, with seven or eight partly merged segments, covered with numerous flagellate setae of various thickness. Legs small but with all segments present; trochanter with two or three sensilla on each surface; a claw without denticle; claw digitules setose. Mouthparts well developed, with two labial segments. Anal apparatus represented by long internal tube (about

450 μm long) with two rings of multilocular pores; anterior (innermost) ring formed of four or five rows of irregular pores (each pore about 10 μm in diameter) and posterior (outermost) ring formed with two rows of multilocular pores similar to those present on dorsal side. Thoracic spiracles each with spiracularium and small group of multilocular pores near atrium. Abdominal spiracles numbering seven pairs, located on dorsum along abdominal margin; each spiracle with a small group of multilocular wax pores near atrium. Cicatrices, each about 20–25 μm in diameter, forming transverse bands across entire dorsum and sparse transverse rows across abdominal sternites. “Disc-like tubercles” (each about 8 μm in diameter) scattered throughout body surface. Wax glands represented by multilocular pores, each about 8 μm in diameter, with bilocular or trilocular centre and from eight to ten outer loculi, scattered over body surface but more numerous on venter, also forming groups near thoracic and abdominal spiracles and two rings inside anal tube. Conical setae numerous, scattered throughout dorsum, in marginal zone of venter and in medial and submedial zones of posterior abdominal sternites. Larger conical setae scattered on posterior abdominal segment, dorsally and ventrally. Flagellate setae of different lengths scattered on both body surfaces.

Comments. This species was previously known from the Oaxaca State (central part of Mexico) only. Here it is recorded for the first time from the eastern part of the country, from the Yucatan Peninsula (Kampeche City). The collected specimens differ in some details from the original description and figure in Foldi (2011), in the pattern of distribution of setae and cicatrices, and in the fine structure of anal apparatus and abdominal spiracles. Unfortunately, I was unable to study the type material of the species and cannot be sure that the differences are real, but not the result of the different approaches to drawing figures. However, I provide a detailed figure of the slide-mounted female ultimolarvae (Fig. 3) and a colour photograph of these larvae in their resinous tests (Fig. 1c). This instar was predominant in the colony at the date of collecting (31.X.2021), while there were few adult females and larvae of other stages.

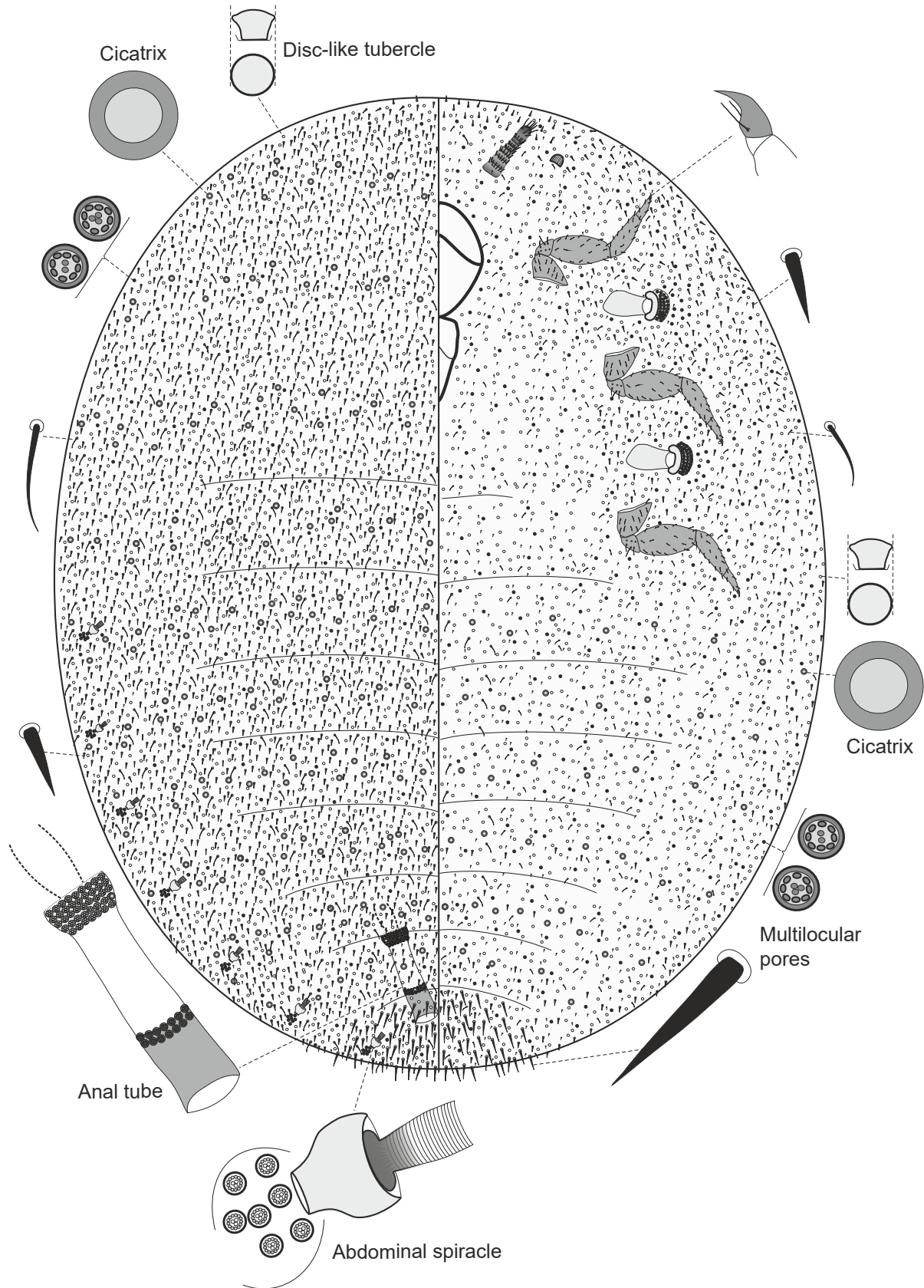


Fig. 3. *Cryptokermes oaxacoensis*, female ultimolarva, Mexico (Kampeche).

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