

http://doi.org/10.11646/zootaxa.4121.2.8
http://zoobank.org/urn:lsid:zoobank.org:pub:F56719C9-7D43-42A7-96A4-62A36E90DECD

New cockroach species of the genus *Panchlora* Burmeister (Blaberidae, Panchlorinae) from Ecuador

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Abstract

The genus *Panchlora* includes 49 species, but only 45 are widely distributed in Central and South America. Most of them are green. The new species herein described presents an ornamental coloration markedly different of all until now described species. *Panchlora kozaneki* sp. n. is similar to *Panchlora pulchella* Burmeister, 1838. The number of species known from Ecuador is increased to eight.

Key words: Blattaria, South America, taxonomy

Introduction

The subfamily Panchlorinae consists of 54 species (Princis 1964, Rocha e Silva & Lopes 1977, Lopes & de Oliveira 2000a, b) belonging to 5 genera (Gurney & Roth 1972). The species richest genus *Panchlora* contains 49 species, which are distributed mainly in South America (32 species) and Central America (13 species). Additional 4 species have been described from Africa. The key for determination of the genera of Panchlorinae has been prepared by Gurney & Roth (1972). According to these authors, the genus *Panchlora* is characterized by smooth pronotum and tegmen, and well-developed tegmen and wings. There are some additional characters that may help to distinguish this genus from related genera; however, these characters are not uniform at the genus level. Hebard (1916) and subsequently Rocha e Silva (1959) have divided this large genus into 3 groups: 1) green species, 2) species with annulated antennae and without narrow dark lateral lines on pronotum and 3) species with annulated antennae and narrow dark lateral lines on pronotum. Roth (1971) proposed a division of the genus into 5 groups on the base of the presence or absence of genital phallomeres: G1) all three basic phallomeres are present, including an L2d; G2) L2d is absent, L1, L2vm, and R2 are present; G3) L2d and R2 are absent, L1, and L2vm, are present; G4) L2d, R2, and apparently L2vm are absent, only L1 is present and G5) apparently no sclerotized structures are present. Central and South American species belong to groups G3 to G5 (Roth 1971). Most of *Panchlora* species are green, but certain species are grey or cream and have dark marking on the pronotum (Gurney & Roth 1972). Whitish or bluish individuals are known too.

Seven species, namely *P. exoleta* Burmeister, 1838, *P. nivea* (Linnaeus, 1758), *P. peruana* Saussure, 1864, *P. festae* Giglio-Tos, 1898, *P. irrorata* Hebard, 1924, *P. nigricornis* Walker, 1868 and *P. pulchella* Burmeister, 1838, have been recorded in Ecuador (Vidlička 2013). The first three of them belong to the Hebard's group 1, the following three species to the group 2, and the last one to the group 3.

Material and methods

Description is based on one dried specimen—male, which was collected during Slovak expedition to Ecuador in 2004. The abdomen of specimen was treated by 10% KOH, washed in ethyl-alcohol and subsequently mounted on permanent microscopic slide using Liquido de Swann medium.

Samples were photographed using a compound microscope, Nikon Eclipse 600 with Nomarski DIC optics, and an attached Coolpix 990 camera (Nikon, Tokyo, Japan). A series of images, stained by ISH, were stacked using CombineZP software.

The drawings were made and the images were assembled and labelled using Adobe Photoshop CS6 ver. 13.0 (Adobe Systems, San Jose, CA).

Terminology of genitalia was used according McKittrick (1964) and Roth (1971) because they dealt with genus *Panchlora*. Terminology of Klass (1997) is used in parenthesis, because his work deals with Blaberidae only marginally and it is not possible make responsible synonymy.

Order Blattaria Latreille, 1810

Family Blaberidae Brunner von Wattenwyl, 1865

Subfamily Panchlorinae Saussure et Zehntner, 1893

Genus *Panchlora* Burmeister, 1838

Type of genus: *Panchlora pulchella* Burmeister, 1838

Diagnosis. Antennae not very long, shorter than body; pronotum smooth with greatest width in caudal third, lateral margins often with dark or black lines; tegmen elongated, 3 or more times as long as wide, often green-unicoloured, white or cream with or without dark dots; wings well developed; femoral spines variable, about half of species with a definite small spine near middle of postero-ventral margin of hind femur; phallomeres of male genitalia usually more or less reduced (see Roth 1971, Roth & Gurney 1972).

Distribution. Central and South America, southern region of North America, Africa.

The genus *Panchlora* shows close relationship to *Achroblatta* Saussure, 1893, *Anchoblatta* Shelford, 1909, *Bolleya* Saussure, 1897, and *Pelloblatta* Rehn, 1903 (after Gurney & Roth 1972).

Panchlora kozaneki sp. n.

Figs. 1–3

Type material. Holotype male (No. E002/2004) (mounted on pin, genitalia on slides with same number), Ecuador east, Orellana distr., Yasuni N.P., 00°40'28"S; 76°23'51"W, 230 m a.s.l., primary rainforest, 14–21 March 2004, M. Kozánek & M. Labuda leg., deposited in the collection of the Institute of Zoology SAS, Bratislava, Slovakia.

Description. Medium size species. General colour of body yellowish white with ornamental drawing on pronotum and tegmina (Fig. 1a).

Head with reddish brown narrow vertex. Frons, clypeus, labrum and genae pale yellow with darker lunate spots above antennal sockets. Eyes dark brown with distinct facet surface, ocellar spots (fenestrae) present, but inconspicuous (Fig. 1c). Antennae relatively thick, shorter than body, annulate; scapus, pedicel and first joint of flagellum brown, following 35 joints black, 10 joints white, 8 joints black and final four preserved joints white (flagellae are not complete). Maxillary palps yellowish, first joint very small, second joint shorter as remaining three, last joint depressed. Labial palps three-jointed, pale yellowish.

Pronotum widest in caudal third, anterior margin rounded, posterior margin towards centre angulate convex; central part pale yellow, lateral margins narrowly reddish brown lined with black lines (Fig. 1a, b). Tegmina and wings fully developed, folded and overlapping apex of abdomen. Almost whole surface of tegmina nearly white with delicate bluish tinge. Nearly whole costal margin of tegmina with narrow reddish brown band lined with black line, which expand along the radial branches into radial field. Anal fields of forewings distinct with dense network of cross veins, medial branches obviously cross-connected. Legs yellow, relatively short. Tarsal joints with small pulvilli. Tarsal claws symmetrical, inner side subtly serrated, between claws small but distinct arolium. Antero-ventral margin of front femur (Fig. 2a) armed only with delicate spines: 11 longer and sparse, 26 shorter and dense—type C₀ (sensu Bey-Bienko 1950 and Roth 2003). Antero-ventral margin of hind femur only with small inconspicuous spines (Fig. 2b).

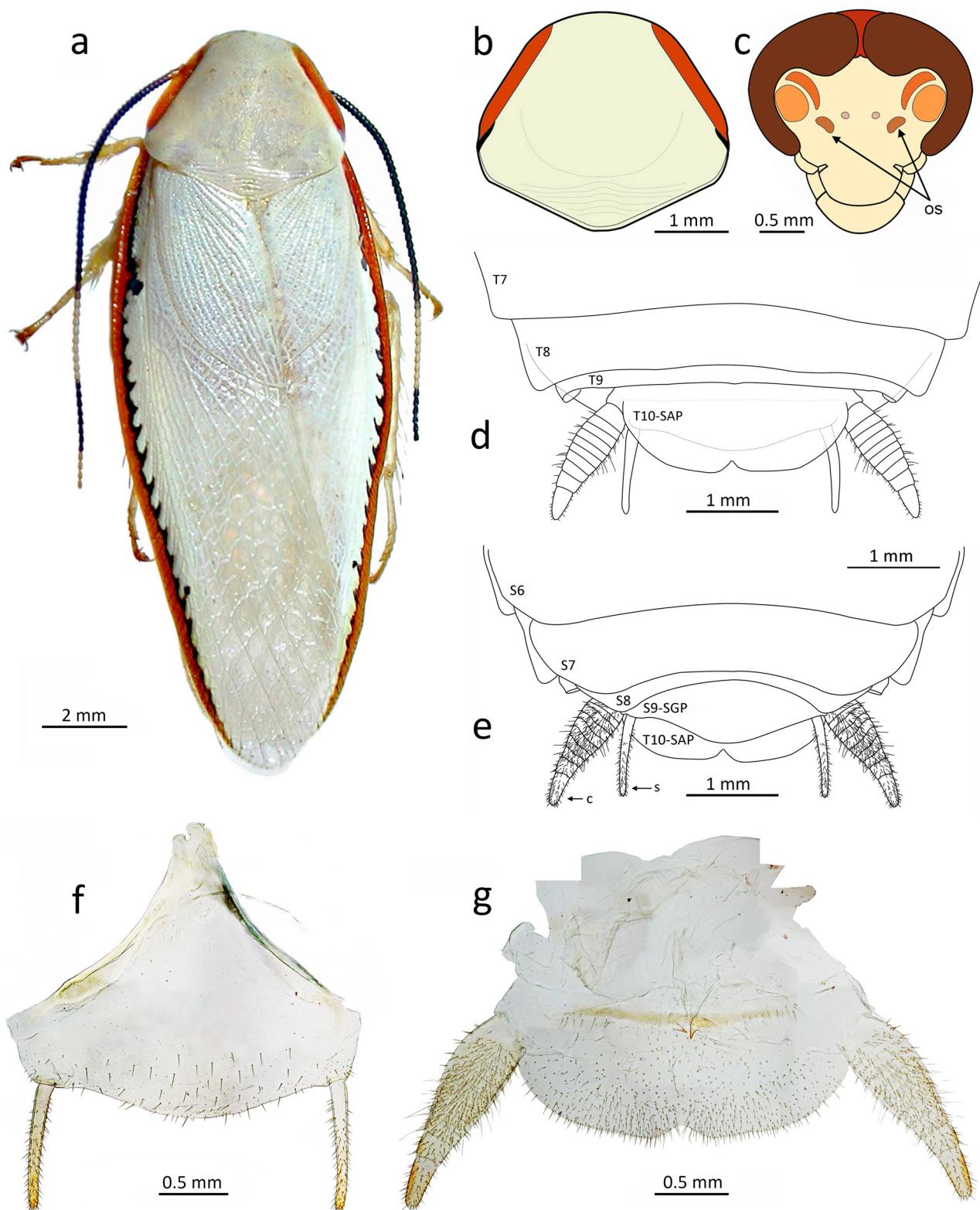


FIGURE 1. *Panchlora kozaneki* sp. n.—male. a) habitus, dorsal view; b) pronotum, dorsal view; c) head, ventral view; d) apex of abdomen, dorsal view; e) apex of abdomen, ventral view; f) subgenital plate, ventral view; g) supra-anal plate, ventral view. T7-T10—tergite 7–10, S6–9—sternite 6–9, SAP—supra-anal plate, SGP—subgenital plate, c—cercus, s—stylus, os—ocellar spots.

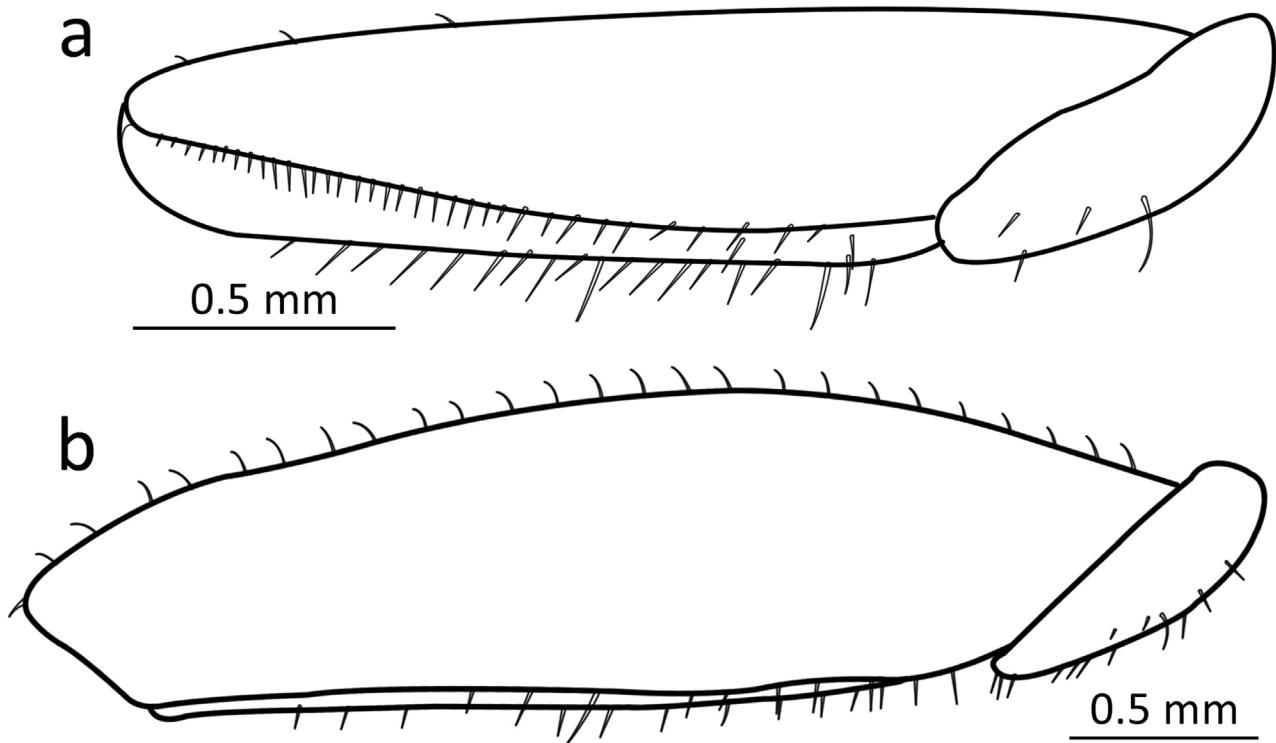


FIGURE 2. *Panchlora kozaneki* sp. n.—male. a) front femur, antero-ventral view; b) hind femur, ventral view.

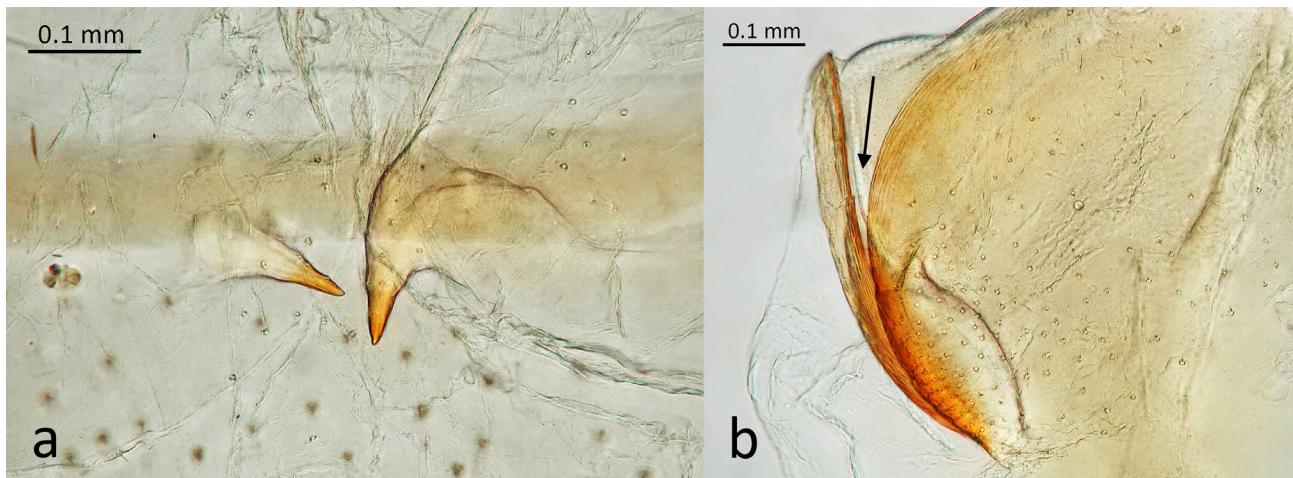


FIGURE 3. *Panchlora kozaneki* sp. n.—male. a) two spiky apex of paraprocts on the central part of ventral face of the supra-anal plate; b) furcate phallomere L1 on membranous part of genitalia (arrow show location of bifurcation).

Abdomen with unspecialized dorsal surface. Supra-anal plate short, posterior margin rounded, shallowly emarginated in the middle (Figs. 1d, e, g). Two small, but distinct, strongly sclerotized thorn-like apex of paraprocts present in the middle part of supra-anal plate (Fig. 3a). Cerci short, composed of 10 separated segments (Figs. 1d, e, g). Subgenital plate nearly symmetrical, rounded. Styli very long, symmetrical (Figs. 1d, e, f). The phallomere L1 (R sensu Klass 1997) is distinctly sclerotized, bifurcate (Fig. 3b). Phallomeres L2vm (L2 sensu Klass 1997) and R2 (L3 sensu Klass 1997) are not present.

Measurements. Holotype ♂ (mm): total length 17.4, length of body (without tegmina) 14.5, length of pronotum 3.9, width of pronotum 4.7, length of tegmen 13.8, width of tegmen 4.0.

Etymology. This new cockroach species is named in honour of Milan Kozánek, a well-known entomologist and one of the collectors of type specimen.

Differential diagnosis. *Panchlora kozaneki* is by coloration most similar to *P. pulchella* and *P. signata*

Brunner von Wattenwyl, 1897, but it differs in a white pronotum and tegmen with reddish brown margins. *P. kozaneki* is very similar to *P. serrana* Rocha e Silva, 1958 by the form of supra-anal and subgenital plates and the phallomere L1. However, coloration of these two species is different—*P. serrana* have lateral margins of pronotum hyaline and tegmen hyaline with black dots disperse at the whole surface.

Discussion

Panchlora kozaneki sp. n. belongs to Hebard's (1916) group 3 that on the present includes 17 American species: *P. alcarazzas* (Serville, 1838), *P. aurora* Hebard, 1926, *P. azteca* Saussure, 1862, *P. cahita* Hebard, 1922, *P. erronea* Saussure, 1870, *P. irrorata*, *P. latipennis* Saussure et Zehntner, 1893, *P. mexicana* Saussure, 1862, *P. moxa* Saussure, 1862, *P. najas* Dohrn, 1888, *P. nigritraversis* Shelford, 1912, *P. pulchella*, *P. quadripunctata* (Stoll, 1813), *P. regalis* Hebard, 1926, *P. signata*, *P. tolteca* Saussure, 1873 and *P. zendala* Saussure, 1862. Based on Roth's (1971) classification, *P. kozaneki* belongs to group G4. Roth (1971) included five species *P. bidentula*, *P. minor*, *P. sagax*, *P. dumicola*, *P. peruana* into the group G4 and two species *P. nivea* and *P. thalassina* into group G3. Unfortunately, he did not study any representatives of Hebard's (1916) group 3.

Panchlora kozaneki sp. n. is the first species that belongs to both Hebard's (1916) group 3 and Roth's (1971) group G4. Based on the description of coloration and figures (Rocha 1958) we assume, that *P. serrana* Rocha, 1958 can be classified into the same groups as *P. kozaneki* (group 3 and G4). Unfortunately, Rocha (1959) did not classify *P. serrana* into the Hebard's system.

Coloration of antennae and general ornamental pattern of pronotum and tegmina of *P. kozaneki* is very similar to that of *P. pulchella* and *P. signata*. *P. signata* is forgotten species, which is not included into Princis (1964) catalogue of cockroaches. Brunner von Wattenwyl (1897) relatively correctly described and figured this species. Burmeister's (1838) description and Hebard's (1929) illustration of tegmen of *P. pulchella* suggest that *P. signata* is synonym for *P. pulchella*. Both taxa share green main coloration with black pattern on tegmen. Moreover, both species come from Brazil.

Acknowledgements

I thank Dr. Ladislav Roller and Dr. Juraj Majtan (both Institute of Zoology, SAS) for their valuable comments. My gratitude is also extended to Raymond Novotny M.Sc. (Ohio, USA) for comments and suggestions that improved the manuscript. This research was funded by the Operational Program of Research and Development and co-financed by the European Fund for Regional Development (EFRD)—Grant ITMS 26220220087 and was supported by Scientific grant agency VEGA—Grant 2/0186/13.

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