

The millipede *Cylindrodesmus hirsutus* (Pocock, 1889) new to the fauna of Costa Rica (Diplopoda: Polydesmida: Harplogesomidae)

Диплопода *Cylindrodesmus hirsutus* (Роскок, 1889), новая для фауны Коста-Рики

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KEY WORDS: Diplopoda, *Cylindrodesmus hirsutus*, new records, Costa Rica.

КЛЮЧЕВЫЕ СЛОВА: Diplopoda, *Cylindrodesmus hirsutus*, новые находки, Коста-Рика.

ABSTRACT. The pantropical millipede *Cylindrodesmus hirsutus* (Pocock, 1889) is newly recorded from the Costa Rican provinces Cartago and Limon. Establishment of parthenogenetic populations on plantations treated by pesticides was observed.

РЕЗЮМЕ. Пантропическая диплопода *Cylindrodesmus hirsutus* (Роскок, 1889) впервые отмечен в Коста Рике в провинциях Картаго и Лимон. Там наблюдалось становление партеногенетических популяций на плантациях, обработанных пестицидами.

No major contribution to the millipede fauna of Costa Rica has been made since Loomis [1972]. The present paper puts on record one more diplopod new to Costa Rica, more precisely to the provinces Cartago and Limon. This species is *Cylindrodesmus hirsutus* (Pocock, 1889), a small millipede remarkable for a pantropical distribution [Golovatch et al., 2001]. The map shows the current records of *C. hirsutus* in Costa Rica. Samples (2 males, 19-segmented; 2 females, 20-segmented) will be deposited in the Invertebrate Collection of the Zoological Museum at the University of San José, San Pedro, with only one male specimen to be retained in the Collection of the Zoological Museum at the University of Moscow.

I collected 69 specimens (6 males, 28 females, 35 immatures) in March 2005, i.e. during the dry season, in moist, decomposing stems on the ground in two banana plantations (*Musa* sp.; Musaceae) on the Atlantic lowlands east of San José.

The strong bias to females shows the establishment of parthenogenetic populations on the plantations. Further support for this was observed at the Max-Planck-Institute in Plön, Germany, where eight introduced females were able to reproduce solitary without any males emerging in the following three generations.



Map. Distribution of *Cylindrodesmus hirsutus* in Costa Rica, asterisks indicating the new localities:

Cartago Province, vicinity of Esperanza, banana plantation (10°00.979'N, 83°19.703'W), 159 ft; Limon Province, vicinity of Penshurt, banana plantation (09°47.240'N, 82°54.809'W), 613 ft.

Карта. Распространение *Cylindrodesmus hirsutus* в Коста-Рике, звездочками отмечены новые точки находок:

пров. Картаго, близ Эсперанса, банановая плантация (10°00.979'N, 83°19.703'W), 159 футов; пров. Лимон, близ Пенсурта, банановая плантация (09°47.240'N, 82°54.809'W), 613 футов.

C. hirsutus tends to comprise bisexual populations in apparently more beneficial environments, while thelytokous populations rather appear in adverse conditions, e.g. European hothouses [Golovatch et al., 2001]. The occurrence of parthenogenetic populations on the plantation sites polluted by regularly applied pesti-

cides seems to confirm the hypothesis. The sex ratio of 4.7 females per male observed in the field reveals that *C. hirsutus* populations are capable of flexible demographic responses to their changing environment. Gradual shifts from thelytoky, after treatments with pesticides, to sexual reproduction, upon a sufficient recovery of the area, and back are plausible. These observations reconfirm that *C. laniger* Schubart, 1944 is indeed only a parthenogenetic form of *C. hirsutus*, as shown by Golovatch et al. [2001].

This apparently anthropochoric millipede seems to have originated from Indonesia, Melanesia or New Guinea [Golovatch et al. 2001], but it could have become introduced into Costa Rican cultivated areas from any tropical country, presumably with shipped banana plants or soil material.

ACKNOWLEDGEMENTS. I am grateful to Dr. Wolfgang Böckeler, who organized the scientific excursion to

Costa Rica. Special thanks go to M.Sc. Monika Springer, who supported the authorization of the sample collection and transportation. Prof. Dr. Sergei I. Golovatch kindly confirmed the identification of the species and commented upon an advanced draft. Special thanks go to my supervisor, Prof. Dr. Joachim Adis, as well as to Prof. Dr. Wolfgang Junk, Head of the Tropical Ecology Group at the Max-Planck-Institute for Limnology, Plön, Germany, for their support.

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