

The centipede genus *Lamyctes* MEINERT, 1868, in the environs of Manaus, Central Amazonia, Brazil (Chilopoda, Lithobiomorpha, Henicopidae)

by

Nadezhda T. Zaleskaja

Dr. Nadezhda T. Zaleskaja, Institute of Evolutionary Morphology and Ecology of Animals, Russian Academy of Sciences, 33 Leninsky prospekt, 117071 Moscow V-71, Russia.

(Accepted for publication: April, 1994).

Abstract

Lamyctes adisi n. sp., a terricolous non-migrant species with a dormant submerged egg stage, is described from a blackwater inundation forest in the valley of Rio Negro, environs of Manaus, Central Amazonia, Brazil. The cosmopolitan *Lamyctes fulvicornis* MEINERT, 1868, reported from a non-flooded area at Manaus for the first time, is redescribed.

Keywords: Chilopoda, Lithobiomorpha, Henicopidae, *Lamyctes*, Amazon, inundation forests.

Resumo

Lamyctes adisi n. sp., uma espécie terrícola não migrante com um estágio de ovo dormente submerso, é descrita de uma floresta inundável de água preta no vale do Rio Negro, nos arredores de Manaus, Amazônia Central, Brasil. Além disso é redescrito o sinantrópico cosmopolita *Lamyctes fulvicornis* MEINERT, 1868, relatado pela primeira vez de uma área não inundada de Manaus.

Introduction

The centipede genus *Lamyctes* MEINERT, 1868, is nearly cosmopolitan in distribution, altogether encompassing several dozen species. Within the Neotropical realm alone, this genus comprises over 20 nominate species or subspecies. Most of these species have been described from Peru, Chile, and Bolivia, being largely encountered in forest litter and in the soil (CHAMBERLIN 1944, 1956, 1957; KRAUS 1954, 1957). Yet the taxonomy of the genus is far from satisfactory, requiring a lot of revisionary work, and many characters used to separate species of *Lamyctes* may prove to be intraspecifically variable and of limited taxonomic value.

The present paper does not aim at such a revision. It puts on record another distinctive congener deriving from an inundation forest in the environs of, as well as a cosmopolitan from a non-flooded area at, Manaus, Central Amazonia, Brazil. This contribution makes part of a long-term project aimed at revealing the survival strategies of various arthropod groups in the extreme conditions of Amazonian inundation forests (see reviews by ADIS 1992a, b).

Except for a single paratype retained in the author's collection (CZ), all type material has been housed in the Instituto Nacional de Pesquisas da Amazônia, Manaus (INPA).

Systematics

Lamyctes adisi n. sp. (Figs. 1-5)

Holotype: ♀ (INPA), Brazil, Edo. Amazônas, environs of Manaus, *igapó* of Rio Tarumã Mirim (= blackwater inundation forest), ca. 20 km NW of Manaus, affluent of Rio Negro, 60°17'W, 3°2'S, 17.II.1976; leg. J. ADIS. -

Paratypes: ♀ (INPA), same data, 24.III.1977. - ♀ (INPA), same data, 3.II.1976. - ♀ (INPA), same data, 20.X.1976. - ♀ (CZ), same data, 27.X.1976; all leg. J. ADIS.

Other material: Several larvae of various instars, taken in 1975-1976, deposited in INPA.

Etymology: Honours PD Dr. Joachim ADIS, the collector of this fascinating species.

Diagnosis: Differs from congeners by relatively small body size (representing one of the smallest *Lamyctes* sp.) combined with the spiniform porodonts, antennae composed of 30-36, mostly 35 segments, etc. (see also Tab. 1).

Description of holotype: Length 6.9, width 0.7 mm. Coloration uniform dull yellowish-brownish.

Cephalic shield subequal in length and width (Fig. 1), 1.2 times as wide as tergite 1. One small, pigmented ocellus on each side of head. Tömösváry organ present, small, inconspicuous. Antennae with 36 stout segments, length ca. 5 times as long as head capsule and 0.63 times as long as entire body with head. Forcipular coxosternite broad, 1.8 times broader than long, with 2+2 rather big, pointed teeth and 1+1 small spiniform porodonts (P) at external corners of dental edge, both porodonts being well-removed from bigger neighboring teeth (T), and their tips failing to reach the base of bigger teeth (Fig. 2). Lateral sides of coxosternite rather moderately sloping behind porodonts, forming an obtuse angle of ca. 104°. Median notch broad (distance between bases of bigger paramedian teeth being 1.75 times as great as distance between tips of both bigger teeth on each side), obtusangular (ca. 100°), about twice as deep as median tooth length. All terga without posterior projections.

Tarsi 1-12 one-segmented, tarsi 13-15 two-segmented. Tibial process present on legpairs 1-13. Anal legs a bit shorter than antennae, 0.55 times as long as body with head. Anal claw with two accessory

apical claws, with a basal seta between them about a half the length of either. Length ratios of anal tibia, tarsus 1, and tarsus 2 as 1:0.9:0.8; anal tibia 4.6 times, tarsus 1 ca. 10 times, tarsus 2 ca. 9.6 times as long as broad.

Coxal pores on coxae 12-15, large, rounded, formula 2(3), 2, 3, 3. Gonopods as typical for the genus: 2+2 spurs (each spur 2.5 times longer than wide) and simple claws (Fig. 3).

Notes: Paratypes can somewhat differ from the holotype in the following details. Antennal segments are usually 35, the variation range being from 30 to 36. The distance between the porodonts and the neighboring bigger tooth is sometimes larger than in the holotype (Fig. 4). The coxal pore formula can be 2-3, 2-3, 2-4, 3-4, more commonly 2, 2, 2, 3 or 3, 3, 3, 3. In two paratypes, one of the gonopods supports three spurs (Fig. 5).

This new species seems to be most closely related to *L. andinus* KRAUS, 1954, and *L. taulisensis* KRAUS, 1954, both from Peru. However, they all can be separated by some characters given in Tab. 1.

Table 1: Diagnostic features of *L. adisi* in relation to its immediate allies

Character/species	<i>L. adisi</i>	<i>L. andinus</i>	<i>L. taulisensis</i>
Body length, mm	6.9	14	11
Number of antennomeres	30-36(35)	30-32	38
Forcipular teeth	2+2	2+2	3+3
Porodonts	1+1 (spiniform)	(1+1) (vague knobs)	absent
Angle between forcipular coxosternal sides	104-106°	95-110°	100°
Tibial process present on legpairs	1-13	1-14	1-13

Ecological and biological observations on this presumably parthenogenetic species, referred to as *Lamyctes* sp., can be found in ADIS (1992a, b). This is a terricolous non-migrant species with a dormant submerged egg stage.

Lamyctes fulvicornis MEINERT, 1868 (Figs. 6-8)

Material: 26 ♀ (INPA), 4 ♀ (CZ), Brazil, Edo. Amazônia, Manaus-Adrianópolis, 60°1'W, 3°8'S, garden litter, 29.II.1988; leg. Bethania ADIS.

Redescription: Length 7.5, width 1.0 mm. Coloration of head capsule and tergite 1 blackish-brown; ocelli strongly pigmented due to retina; other tergites brown, growing gradually a bit paler toward midbody; lateral and caudal margins of all tergites darkened; a distinct axial stripe on all tergites; antennae and forceps amber yellow, antennomere 1 and proximal half of antennomere 2 dark brown; sternites and legs grey-yellowish, distal half of femora darkened; legpairs 14-15 annulated in appearance

sternites and legs grey-yellowish, distal half of femora darkened; legpairs 14-15 annulated in appearance due to paler proximal parts of prefemur, femur, and tibia as well as to pale tarsi except for a somewhat darkened proximal part of tarsus 1; a pale yellowish, ocellus-like spot just behind ocellus.

Cephalic shield only slightly broadened, 1.8 times as broad as tergite 1. One big, strongly pigmented ocellus on each side of head. Tömösváry organ present, rather evident (Fig. 6). Antennae with 27 small segments, relatively short, only 0.4 times as long as entire body with head. Forcipular coxosternite 1.5 times broader than long, with 2+2 moderately big, pointed teeth and 1+1 rather small, spiniform porodonts (P) at humeri of dental edge (Fig. 7). Lateral sides of coxosternite more strongly sloping behind porodonts, forming an acute angle of ca. 77°. Median notch broad (distance between bases of bigger paramedian teeth being 1.4 times as great as distance between tips of both bigger teeth on each side), acutangular (ca. 55°), ca. 3.3 times as deep as median tooth length. All terga without posterior projections.

Tarsi 1-12 one-segmented, tarsi 13-15 two-segmented. Tibial process present on legpairs 1-12. Anal legs 1.2 times as long as antennae, 0.48 times as long as body with head. All claws with two accessory apical claws, only legpairs 14-15 without basal seta between them. Frontal accessory claw on legpair 15 ca. 0.37 times, caudal accessory claw ca. 0.3 times as long as claw proper; basal seta on legpair 13 about half as long as claw proper. Length ratios of anal tibia, tarsus 1, and tarsus 2 as 1:1:0.8; anal tibia 6.3 times, tarsus 1 ca. 12 times, tarsus 2 ca. 13 times as long as broad.

Coxal pores on coxae 12-15, large, rounded, formula 3, 3, 3, 3 to 4, 4, 4, 4, sometimes even 3, 4, 4, 4 on one body side and 3, 3, 3, 3 on the other. Gonopods with 2+2 equal spurs (each spur ca. 2.0 times longer than width), simple claws (Fig. 8). Gonopod segment 1 with 11-12 ventral setae, segment 2 with five long ventral and two small dorsal setae (DS), claw with two long ventral setae and two small dorsal spinicles (DSP).

Remarks: The above redescription provides some new insight into the variation range of *L. fulvicornis*, a largely synanthropic, subcosmopolitan species obviously represented at Manaus (on non-flooded terrains only?) solely by parthenogenetic populations as well. In addition, it allows a secure separation of the two more or less sympatric congeners in the area concerned. Also the fact deserves special attention that the anal tibia is 6.3 times, tarsus 1 ca. 12 times, tarsus 2 ca. 13 times as long as broad, this being unusually slender for European *L. fulvicornis*, especially tarsi 1 and 2.

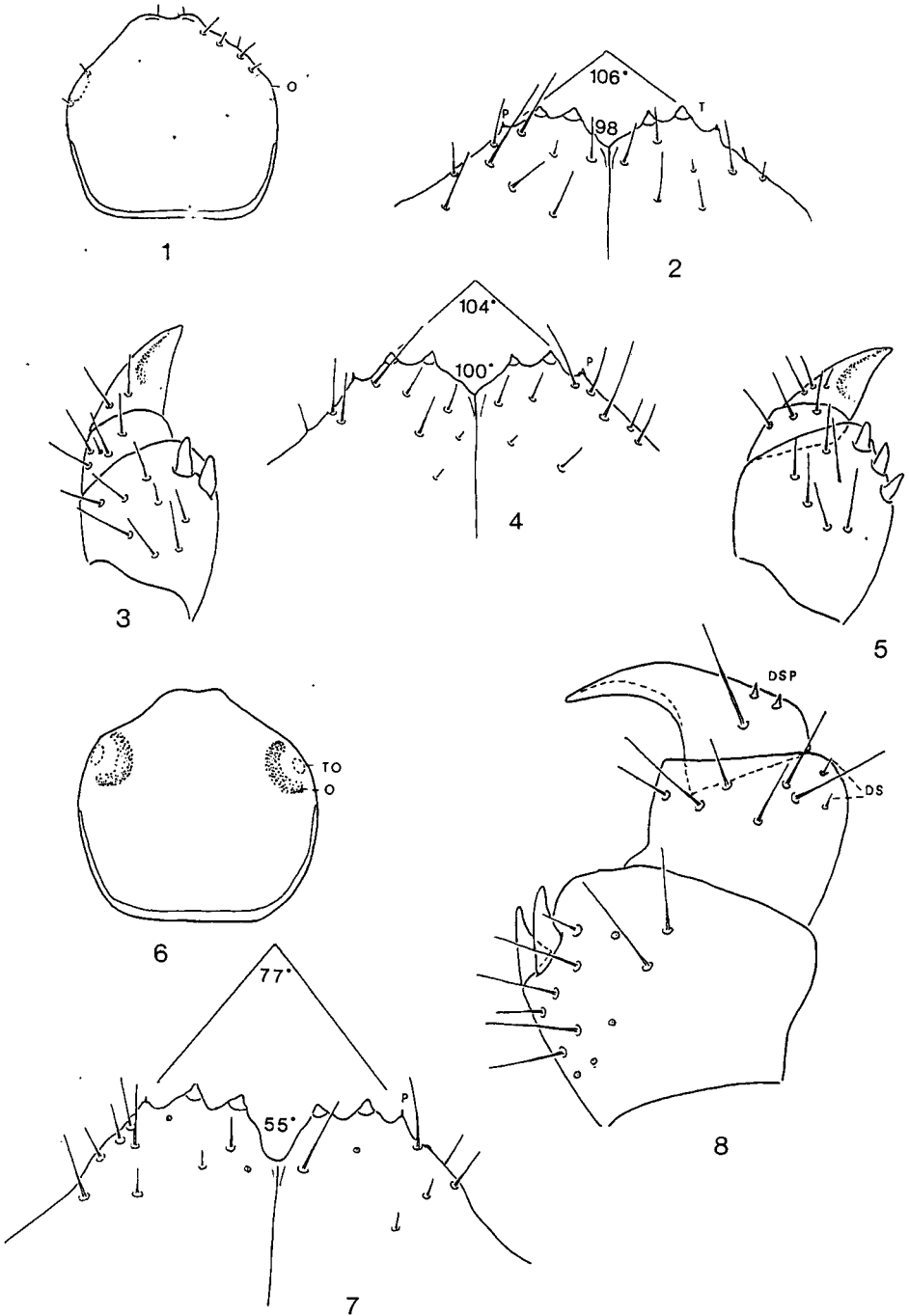
Acknowledgments

I am most grateful to PD Dr. J. Adis who placed his valuable material at my disposal. Dr. S. Golovatch (Moscow) kindly checked the English of an earlier draft, whereas both Prof. A. Minelli (Padova, Italy) and Dr. E.H. Eason (Moreton-in-Marsh, Ú.K.) have provided both constructive criticism and linguistic corrections. This paper has been supported in part by Mr. G. Soros' International Science Foundation, Biodiversity Project. The field-work in Brazil has been carried out in co-operation with the INPA, Manaus.

References

- ADIS, J. (1992a): How to survive six months in a flooded soil: strategies in Chilopoda and Symphyla from Central Amazonian floodplains. - Stud. Neotrop. Fauna Environment 27(2-3): 117-129.
- ADIS, J. (1992b): Überlebensstrategien terrestrischer Invertebraten in Überschwemmungswäldern Zentralamazoniens. - Verh. naturwiss. Ver. Hamburg 33 (N.F.): 21-114.
- CHAMBERLIN, R.V. (1944): Chilopods in the collections of Field Museum of Natural History. - Field Mus. Nat. Hist. Zool. Ser. 28(4): 175-216.

- CHAMBERLIN, R.V. (1956): The Chilopoda of the Lund University and California Academy of Science Expedition. Reports of Lund University Chile Expedition 1949-49. - Lunds Univ. Årsskr., N.F., Avd. 2, 51(5): 1-61.
- CHAMBERLIN, R.V. (1957): A new hemicopid chilopod from Peru. - Ent. News 68(5): 126-127.
- KRAUS, O. (1954): Myriapoden aus Peru, I: Chilopoda. - Senckenberg. biol. 34(4-6): 311-323.
- KRAUS, O. (1957): Myriapoden aus Peru, VI: Chilopoden. - Senckenberg. biol. 38(5-6): 359-404.



Figs. 1-8:

Lamyctes adisi n. sp. (1-5), ♀ holotype (1-3) & paratype (4-5), and *Lamyctes fulvicornis* MEINERT, 1868, ♀ (6-8).

1 & 6: head capsule; 2, 4 & 7: dental edge of forcipular coxosternum; 3, 5 & 8: gonopods.