

# A NEW GENUS OF HOLOTHYRINA: NEOTHYRIDAE (ARACHNIDA, ANACTINOTRICHIDA) FROM THE MANAUS AREA, AMAZONAS STATE, BRAZIL

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**ABSTRACT** — A new genus of Neothyridae, type species *Diplothyrus schubarti* sp. n., is described from the leaf litter of a primary forest in the Reserva Florestal Adolpho Ducke, Manaus, Amazonas, Brazil. The two pairs of lateral excretory orifices instead of a single one in the type genus *Neothyrus* of the family Neothyridae, are diagnostic. A protonymph of *Neothyrus ana* Lehtinen, 1981, is also described as the first known nymphal stage of this family.

**Key words:** Holothyrina, Neothyridae, Amazonas, new genus

**Um Novo Gênero de Holothyrina: Neothyridae (Arachnidae, Anactimootrichidaa) da Área de Manaus, Estado do Amazonas, Brasil**

**RESUMO** — Um novo gênero de Neothyridae, espécie tipo *Diplothyrus schubarti* sp.n., é descrito da liteira de uma floresta primária na Reserva Florestal Adolpho Ducke, Manaus, Amazonas, Brasil. Os dois pares laterais de orifícios excretores, em vez de um único, como no gênero tipo *Neothyrus* da família Neothyridae, são usados como característica. Uma protoniínia de *Neothyrus ana* Lehtinen, 1981, também é descrita como o primeiro estágio ninfal conhecido desta família.

**Palavras chave:** Holothyrina, Neothyridae, Amazonas, novo gênero

## INTRODUCTION

The third family of Holothyrina, Neothyridae, was based on the first described New World species of this suborder, *Neothyrus ana* Lehtinen, 1981, from the Amazonian region of Peru. Since that, a specimen from Venezuela was listed, but not described, as a *Neothyrus* sp. by Travé (1982). Alberti & Mittman (1989) and Alberti (1991) described the type of neothyrid spermatozoa according to material collected from central Peru and apparently belonging to *Neothyrus ana*. Johnston (1982) mentioned the presence of Holothyrina in various parts of the New World, but he was apparently not aware of the creation of Neothyridae (Lehtinen, 1981). Dr. John Kethley, Field Museum of Natural History, Chicago, also knew the

presence of neothyrids in several parts of the Neotropical region (personal communication 1982).

During a field trip to the Peruvian and Brazilian parts of the Amazonian region, a male specimen of Neothyridae was found in the Reserva Florestal Ducke, vicinity of Manaus, Amazonas, Brazil. A juvenile specimen of *Neothyrus ana* from the type locality of this species is the first known nymphal stage of this family. Intensive application of Berlese funnel technique as well as sifting in various habitats of the ground layer in numerous places within the Amazonian region did not yield additional specimens of Holothyrina. This seems to prove that representatives of Holothyrina are not common or abundant in many parts of the Amazonian region, although they are

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expected to be found through intensive search throughout this region. During a longrange programme of soil Oribatida in the Manaus region, a few specimens of Holothyrida had been seen by Dr. Herbert Schubart (personal communication 1983). Most probably these specimens belong to the species described here and named in honour of him.

The new species deviates in many respects from the type species of Neothyridae, and it represents a new genus of Neothyridae. It shares most of the family characters of Neothyridae, originally listed by myself (Lehtinen, 1981), the most striking difference existing in the pattern of the "posterior stigmata". The function of this structure was misunderstood until the recent correction by Travé (1982) and Johnston (1982). Their opinion was also shared by Hammen (1983) and Lehtinen (1991; 1995). *N. ana* has a single pair of these excretory glands, furnished with a protruding membranous funnel, while *D. schubarti* has one pair with membranous funnel in slightly more posterior position and another pair without funnel-like extensions immediately posterior to the stigma.

## DESCRIPTIONS

Neothyridae. Following corrections are necessary for the diagnosis of Neothyridae (cf. Lehtinen, 1981, table 1): leg I/idiosoma 0.8 - 1.05; leg IV/idiosoma 0.9-1.15; number of infracapitular setae > 8 pairs (Holothyridae: 6-8 pairs)

### *Diplothyrus* gen. n.

Type species *Diplothyrus schubarti* sp.n. from Amazonas, Brazil.

As long as only a few specimens of

Neothyridae have been studied it is premature to try to list all generic characters of this new genus. The widely different structure of Thon's organ is a striking difference in comparison with *Neothyrus*, while the other characters are simply listed here in the specific description. The description of additional, related species will later show, which of the differences could be regarded as generic characters.

### *Diplothyrus schubarti* sp. n.

Figs. 1, 3, 5, 7-15

Types. Holotype male from Brazil, Amazonas, 23 km NE Manaus, Reserva Florestal Ducke, in leaf litter of primary forest, 13.IX.1983, P.T. Lehtinen, will be deposited in INPA, Manaus.

Male 1.9 x 1.4 mm. Idiosoma short oval, relatively shorter and wider than in *Neothyrus ana* (Figs. 1, 3). Rostrum shorter and less protruding. Coloration pale brown. The whole idiosoma is densely covered with colourless hairs, those on the anterior part relatively longer than in *N. ana*. Most parts of the surface more or less smooth (with low magnification), but sublateral ring finely granulate in a pattern similar to *N. ana*. Profile of idiosoma relatively high.

Position of the stigma and the shape of the peritreme as in *N. ana*. Two pairs of orifices of excretory glands (Fig. 5), the anterior pair of them slightly posterior to the level of the stigma, the posterior pair with a distinct membranous funnel. These orifices are connected with each other by a slightly darker strip of the idiosomal surface. Both pairs are situated from the same distance of the ventral margin of the idiosoma.

Ventral plate more or less pitted, but with much less distinct modifications than in the male of *N. ana*. There are no paired sternal cavities at all and no raised areas anterolateral to the genital plate. The posterior part of the epiandrium is almost even, without the distinct depression present in *N. ana*. (Figs. 3, 5).

The genital plate has two horizontal halves as males of other Holothyridina, surrounded by a raised, rounded circular elevation. The diameter of the male genital plate is distinctly smaller than its distance from coxae IV. So the genital plate is relatively much smaller than in *N. ana*.

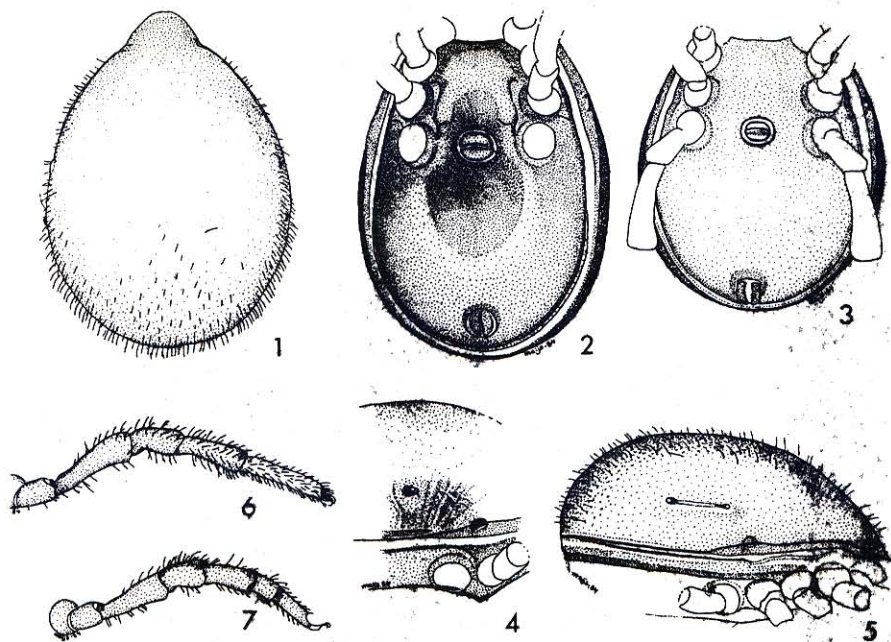
Chelicerae (Figs. 14-15) with two wide, strong teeth on both fingers, the fixed finger with serrate structure of minute teeth

close to the more distal wide tooth.

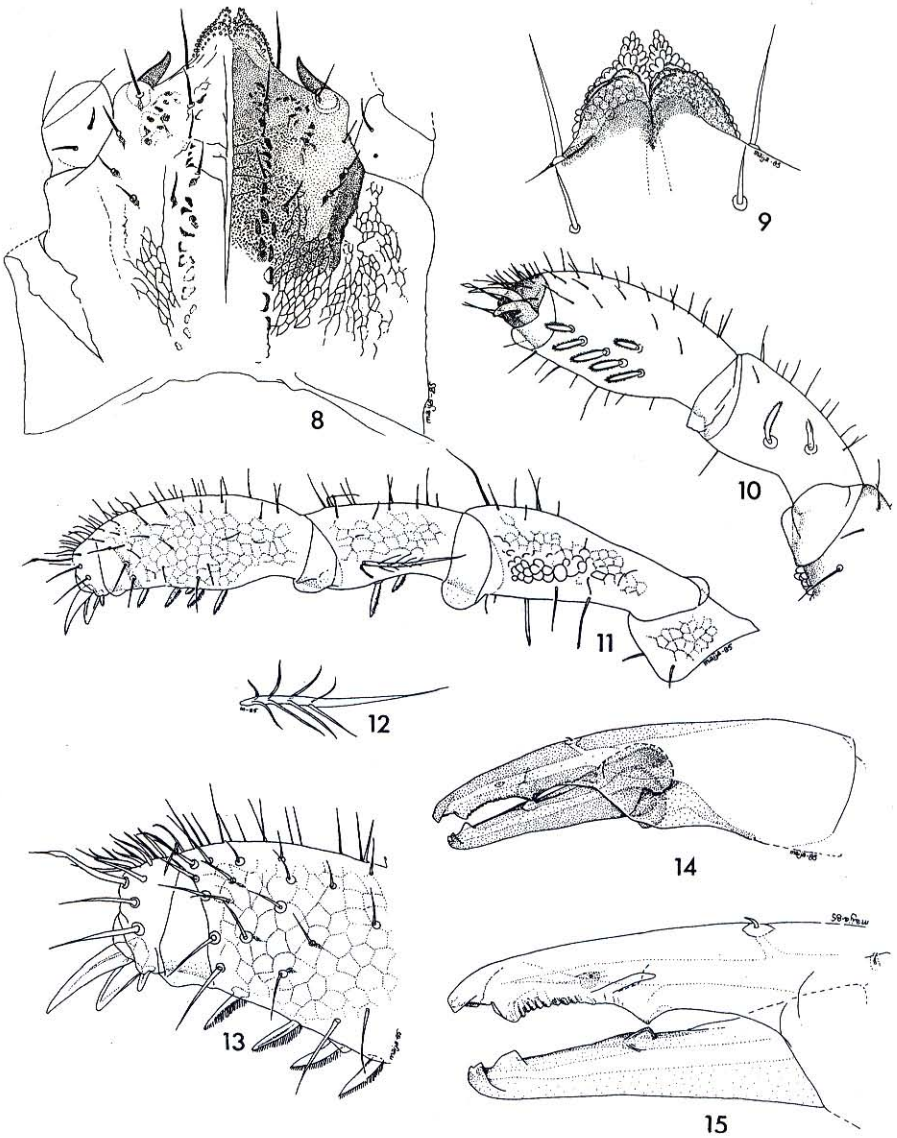
Palpal femora slightly swollen retrolaterally and with two subcentral prolateral spines. Surface of palpal femora with large, rounded scales. Palpal genu with two short prolateral spines in the basal half. The specialized seta of the palpal genu is situated in the basal half. It is very long in comparison with its holothyrid homologue and distinctly branched throughout its whole length (Fig. 12).

Palpal tibia short and thick. The tibial comb consists of 4-5 sparsely spaced, short and thick spines (Figs. 10-11), while the tip of tibia has numerous short hairs.

The mentum is wider than long, trapezoidal. There are nine pairs of



Figs. 1, 3, 5, 6, 7. *Diplothyridus schubarti* sp. n., 2, 4: *N. ana* Lehtinen, 1981. - 1: idiosoma dorsally, 2-3: idiosoma ventrally, 4: stigma and Thon's organ in lateral view, 5: idiosoma laterally, 6: leg I, 7: leg II.



**Figs. 8-15:** *Diplothyrus schubarti* sp. n. - 8: gnathosoma in ventral view, 9: anterior margin of mentum with labral papillae, 10: pedipalpal genu, tibia, and tarsus ventrally, 11: pedipalp laterally, 12: special fringed seta of palpal genu, 13: distal part of the pedipalp, 14: chelicera, 15: details of the cheliceral armature.

subcapitular hairs (Fig. 8), those on the anterior margin distinctly longest. Corniculi strong, inwards directed, simple. Lateral lips with a dorsal, anteriorly rounded boss and a distal, rounded conical apex. The papillae of the lateral lips are short, club-shaped.

The legs are throughout slenderer than the legs of *N. ana*, and also relatively slightly longer. The empodial stalks are distinctly longer than those of *N. ana*, otherwise the leg structure is similar to that of the type-species of the family.

#### Length of legs:

I: 0.20 + 0.53 + 0.33 + 0.38 + 0.50 mm, I leg / idiosoma 1.03

II: 0.19 + 0.43 + 0.25 + 0.28 + 0.38 mm, II leg / idiosoma 0.81

III: 0.18 + 0.40 + 0.25 + 0.28 + 0.55 mm, III leg / idiosoma 0.88

IV: 0.32 + 0.53 + 0.36 + 0.38 + 0.57 mm, IV leg / idiosoma 1.14

#### *Neothyrsus ana* Lehtinen, 1981

Since the description of this species, it has been found in Peru, Huanuco, Panguana, leg. M. Verhaagh (Alberti & Mittman, 1989). They also described the type of spermatozoa of this species and Alberti (1991) compared it with the spermatozoa of other groups of mites.

New records: Peru, Loreto, Maynas, Iquitos district, Rumo Cocha, in litter among dense stand of *Selaginella*, 16.8.1983, in MZT (1 female, 1 protonymph); Quistococha, litter of lakeside rain forest, 13.8.1983 (1 protonymph). These localities are both within 5 km from the type locality of this species.

Protonymph: 0.95 x 0.67 mm,

short oval, relatively wider than adult specimens. Colour pale, whitish grey, hair covering and structure of stigma, peritreme, and funnel of the excretory gland as in adult. Rostrum short.

Ventral plate slightly convex, without any modifications typical of adult specimens.

Legs colourless, their structure essentially as in adult specimens, except that they are relatively shorter: leg I 0.90 mm (= 0.09 + 0.24 + 0.10 + 0.17 + 0.30 mm), leg IV 1.02 mm (= 0.13 + 0.24 + 0.13 + 0.16 + [0.10 + 0.26] mm).

Gnathosoma and palp similar to adult specimens, but colourless.

Nymphs of Neothyridae are easily placed into correct family according to structure of the excretory glands, leg structure, and hairiness of idiosoma.

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