

**New species of *Neoncylocotis* (Heteroptera: Enicocephalidae)
from Ecuador, with some morphological considerations**

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ABSTRACT. *Neoncylocotis kotejai* sp. n. (male, Ecuador) is described, compared with other small *Neoncylocotis* species, and keyed. Morphology of cephalic neck, collum area of pronotum (precollum, new term), sensilla and vestiture of forelegs, and male genitalia are discussed.

KEY WORDS: Heteroptera, Enicocephalidae, *Neoncylocotis kotejai* sp.n., Ecuador, taxonomy, key, morphology, head, pronotum, foreleg sensilla.

INTRODUCTION

The genus *Neoncylocotis* WYGODZINSKY et SCHMIDT, 1991 has been established for species distributed in Central America (less Antilles) and South America (less southern parts), and described either as new (WYGODZINSKY & SCHMIDT 1991) or transferred to *Neoncylocotis* from *Oncylocotis* STÅL, 1856. WYGODZINSKY & SCHMIDT (1991) differentiated *Neoncylocotis* from *Oncylocotis*, keyed the genus among the American genera of the Enicocephalomorpha, keyed and illustrated all its species, and duly noted ŠTYS's unpublished exceptions to global validity of diagnostic characters of the genus. Provisionally, we accept *Neoncylocotis* in WYGODZINSKY et SCHMIDT, 1991 sense as a genus vicariant to *Oncylocotis*, the latter distributed in numerous and mostly undescribed species in all biogeographic regions of the Old World (less New Zealand). ŠTYS (2002) keyed both genera in his global generic key to Enicocephalomorpha, and repeated his exceptions to the conception of *Neoncylocotis* - the validity of his arguments can be tested only by revisions of Oriental and Pacific *Oncylocotis* species.

Nobody has paid any attention to alpha-taxonomy of American Enicocephalomorpha after the publication of the excellent WYGODZINSKY & SCHMIDT (1991) monograph, possibly

discouraging other student by its detailed and in-depth treatment. This is a first of a planned series of papers on American fauna, considerably richer than WYGODZINSKY & SCHMIDT (1991) could have supposed. We describe here a new species of *Neoncylocotis* from Ecuador differing in several character states from all the known species of the genus, and add some morphological observations as well.

Acknowledgements

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SYSTEMATICS

Neoncylocotis kotejai sp. n. (Figs 1–15)

Holotype

Male (the only specimen available), Ecuador, Pastaza Province, 2 km W of Santa Clara (01.18 S, 77.52 W), 900-1000 m, 23. xi. 2004, leg. P. Baňář, to be deposited in the collection of QCAZ Museum of the Pontificia Universidad Católica del Ecuador, Quito, Ecuador.

Distribution

Ecuador (Pastaza Province).

Diagnosis

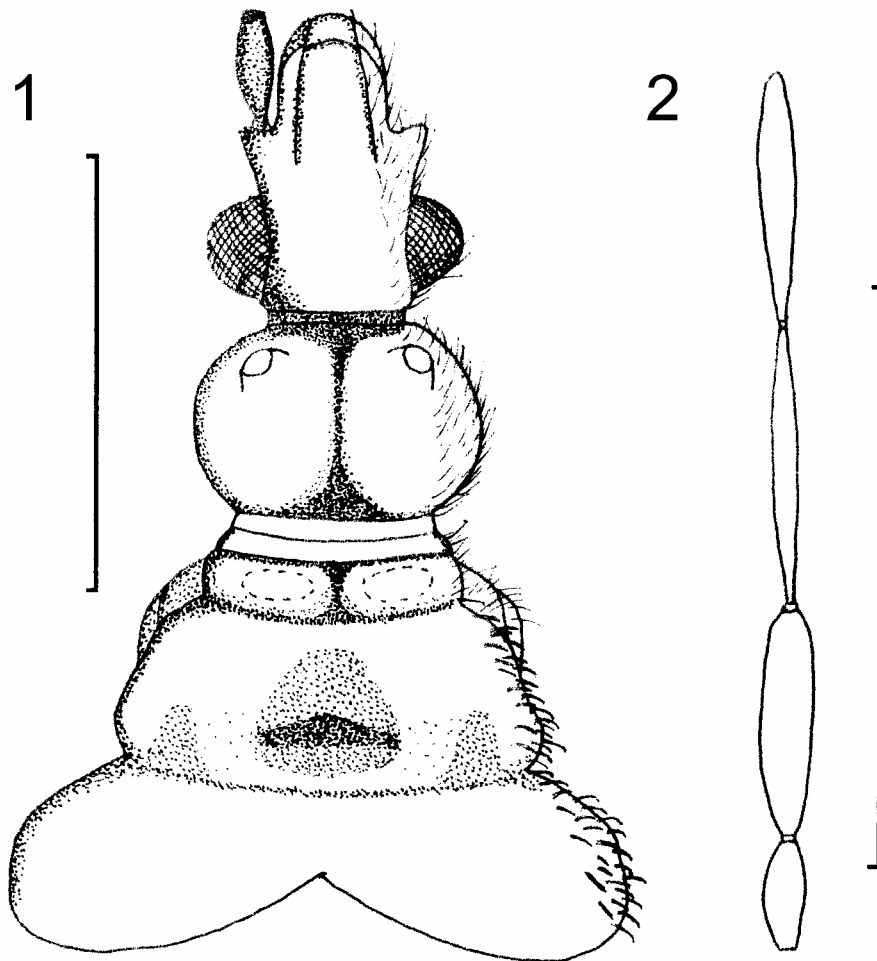
A dark brown, unicolorous, small species differing from other species of the genus by unique construction of midlobe of pronotum (extensive posteromedial impression with a sharply delimited, transversely triangular, deeply impressed posteromedial sector), and possible presence of only five spines in the apicitibial armature.

Description

Small species, total length 3.35 mm. For other measurements see Table 1, for ratios the text.

Coloration

General body colour uniformly dark brown; head, pronotum and scutellum blackish brown. Eyes and narrow ringlet around ocelli carmine. Labium: dorsal facies of labial segments 1 and 2, and the segment 4 pale brown. "Knees" of all pair of legs contrastingly pale brown (mainly the tibial part). Undersides of forewing veins contrastingly beige to cream-white; also dorsal and ventral sides of some hindwing veins (the cell and proximal part of the emitted vein) contrastingly beige.

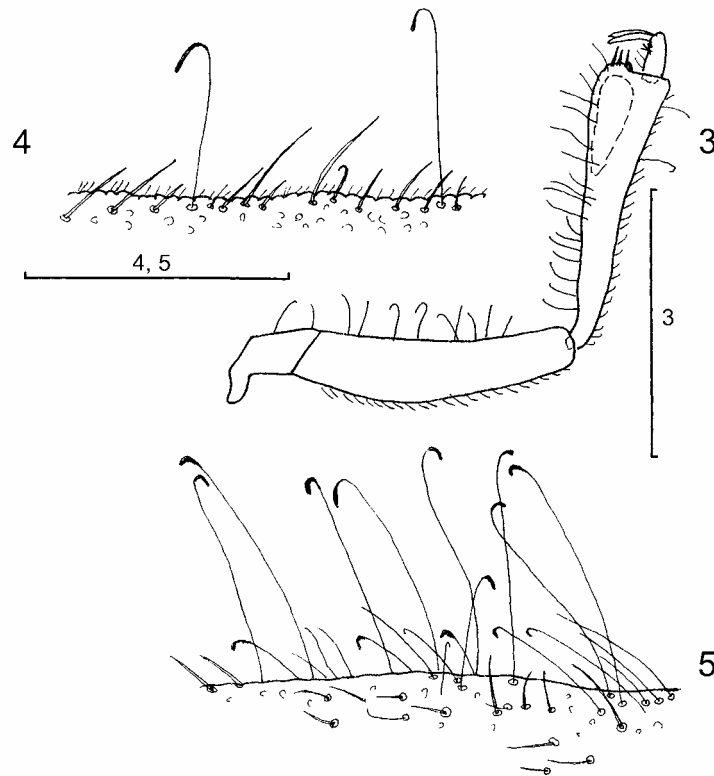


Figs 1–2. *Neoncylocotis kotejai* sp. n., holotype, male. 1 - head and pronotum. 2 - right antenna. Scale bars 0.5 mm.

Vestiture and cuticle

Pilosity strikingly diverse (described under body parts concerned), including many kinds of macrotrichia (long, trichobothria-like pliable setae, long to short modal straight setae, long to extremely short curved bristly setae, scales) and microtrichia. All the head and pronotum with granular setigerous tubercles (more scarcely present also on forefemur and foretibia). Cuticle essentially matt, but slightly lustrous (head, pronotum, forewings).

Head (Fig. 1) slightly longer than pronotum (ratio 1.06). Ratio length to width of hind lobe of head 0.71. Ratio length of eye to distance eye – apex of antennifer 1.38. Ocular index 2.0. Eyes strikingly prominent, in lateral view slightly exceeding the ventral margin of head, much distant from the dorsal one. Ocelli directed laterad and situated on distinct tubercles. Posterior lobe of head strikingly transverse, laterally regularly rounded, with a deeply grooved median. “Neck” subdivided in two parts by a circumferent constricting sulcus.



Figs 3–5. *Neocylocotis kotejai* sp. n., holotype, male. 3 - right foreleg, anterior view (all further illustrations concerning foreleg, excepting Figs 12 and 14, seen in anterior view). 4 - vestiture of ventral edge of femur (in 2nd fifth of length). 5 - vestiture of ventral edge of tibia (in second fifth of length). Scale bars 0.5 mm for Fig. 3, 0.01 mm for Figs 4, 5.

Setae on dorsum short, dense and bristly, curved anterad; extremely short, adpressed and mixed with scales at the preocular part, becoming somewhat longer, scales gradually disappearing posterad. Lateral parts of head: preocular part like dorsum, postocular lobe with very dense and long setae (particularly dense beneath ocellar tubercles), curved anterad. Venter of head (lateral view): anterior lobe and the anterior part of posterior lobe with dense and long simple pilosity, directed posterad; posterior part of posterior lobe with qualitatively different pilosity, erect to suberect (then curving anterad), dishevelled, longer, softer, sparser. Eyes rather densely pilose (short, straight setae). Setae dark brown, those laterally and ventrally situated yellowish silvery.

Labium short, directed posterad, segment 3 moderately incrassate, its adcephalic margin regularly and moderately convex.

Antennae (Fig. 2) short, ratio length of antenna: length of head 1.34. Segment II strikingly incrassate, spindle-shaped, dark brown, segment IV paler. Proportions of antennal segments: 1 : 2 : 2.3 : 2.2. All segments with modal, short and mostly adpressed setae, segments II-IV with several prominent long setae.

Pronotum (Fig. 1). Collum preceded by a narrow, sharply delimited, very short, simply ring-like precollum (new term). True collum bearing a pair of flattish, low tubercles. Ratio width midlobe : width hindlobe 0.64. Midlobe of pronotum uniquely constructed: very short, its deep and sharply delimited posteromedial impression short and broad, transversely triangular, situated in a broad depression with no anteromedially directed component; posterolateral impressions broad and shallow, interrupting the posterior margin; no posterolateral pits. Posterior lobe broad, its posterolateral angles obtuse, rounded, posterior margin with a shallow, broadly obtuse, angular emargination.

Medial parts of mid- and hindlobes with very short adpressed pilosity (like on the dorsum of head). Collum, and dorsolateral and lateral parts of midlobe with medium long, straight to short, moderately bristly curved setae directed posterad, lateral parts of hindlobe with conspicuously dense, strikingly bristly, stiff, short setae curving and directed posterad. Scales sparsely distributed over mid- and hindlobes.

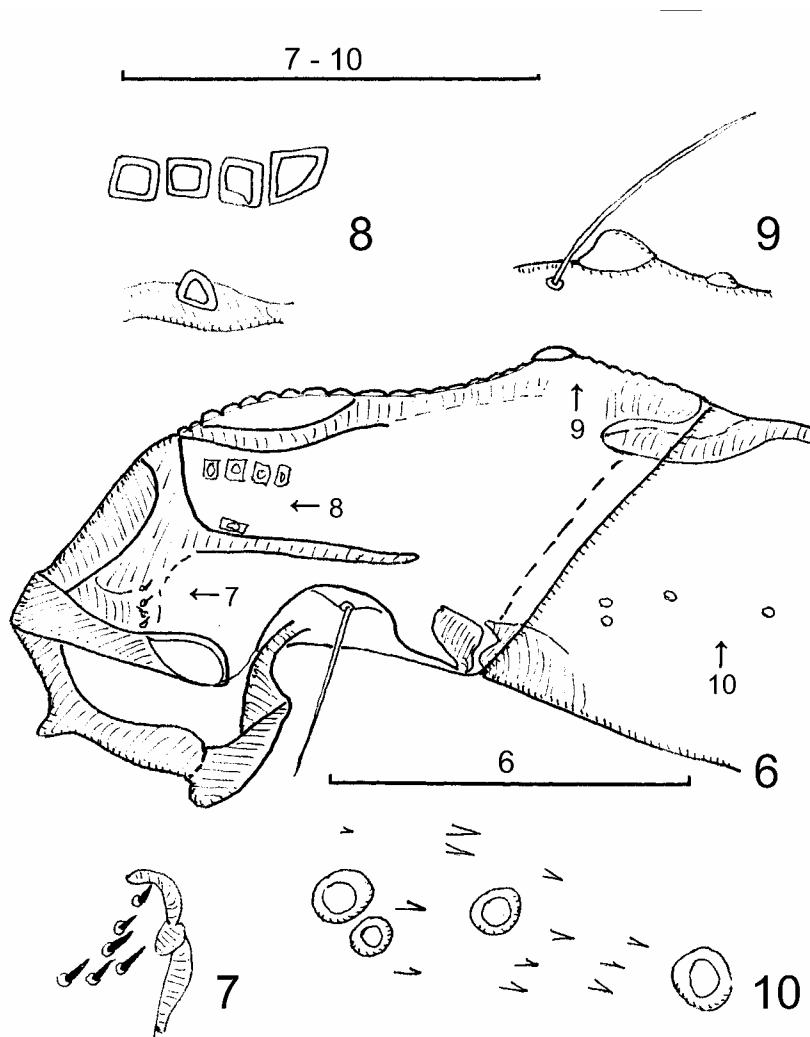
Mesonotum. Mesoscutum concavely depressed, with a pair of lateral parapsidal sulci, which enter the scuto-scutellar keel. Mesoscutellum without particulars, with a short, stiff pubescence.

Forewings. Venation modal. C+Sc, R proximad to branching off Rs, ambient vein, and a broad basis of An1+2 with several rows of short, bristly, curved macrotrichia, all other veins with regular two rows of similar macrotrichia. Only occasional single macrotrichia on the membrane among veins, 0 or 1 per cell. Microtrichia present all over wing membrane, always in small clusters.

Foreleg (Fig. 3) strikingly slender. A - anterior (inner) view (face), P - posterior view (face) in the following descriptions.

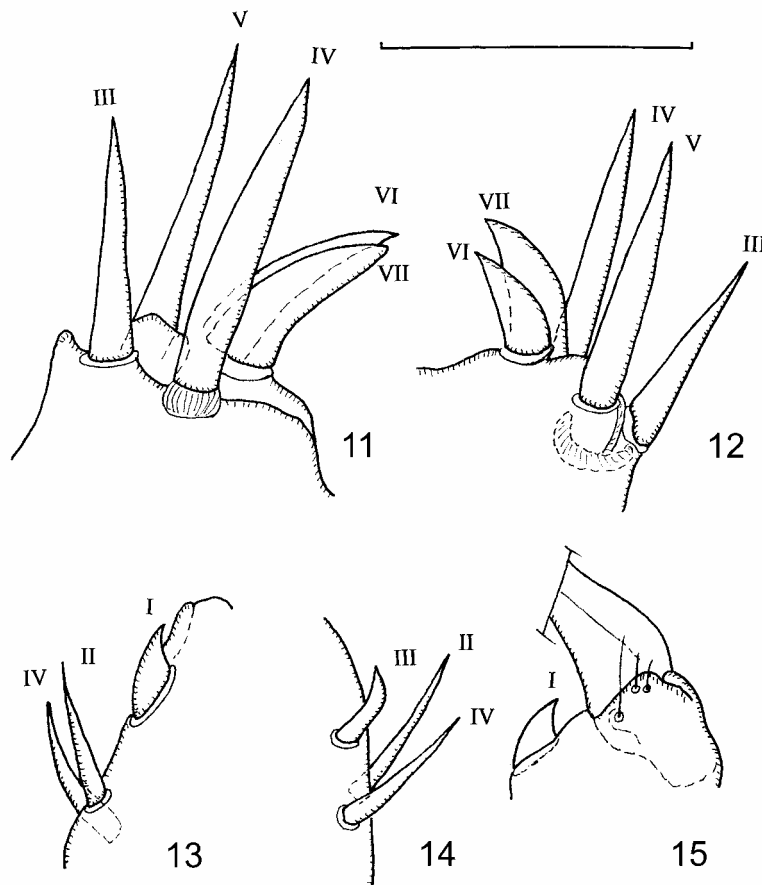
Vestiture. Coxa probably without concentrated tuft of hairs. Long, subcapitate, curved setae, apically mainly bent proximad, occurring on anteroventral edges of trochanter (2), femur (about 10), tibia (numerous, also subventrally and on distidorsal edge) - see Figs 3-5.

Ventral edges of femur and tibia also with many straight short or long macrotrichia, that of femur crenulate and with numerous short hairs (microtrichia?). Dorsal edges of both femora and tibiae with dense, short, curved, bristly hairs. Ventral surfaces of femora and tibiae finely granulate.



Figs 6–10. *Neoncylocotis kotejai* sp. n., holotype, male. 6 - trochanter and basis of femur, (cleared, vestiture omitted except for coxal guard seta, inner apodemes lightly hatched; positions of 7–10 indicated). 7 - condylar trochanteral organ. 8 - anterior trochanteral organ. 9 - largest lens-like structure of the ventral edge of trochanter. 10 - anterior femoral organ. Scale bars: 0.1 mm for Fig.6, 0.05 mm for Figs 7–10.

Trochanter modal, but with a strong apodemal endoskeleton (Fig. 6). Anteroventral edge for the most part covered by lens-like, basally sharply delimited tubercles, one of them (Figs 6–9) strongly prominent. Articulation trochanter-femur (Fig. 6) for the most part syndesial, but ventral and dorsal condyles retained internally. Anterior trochanteral organ (Figs 6, 8) formed by a row of four quadrangular and one isolated subrectangular rims containing quadrangular to conical (in outline) membraneous parts of campaniform sensilla. Posterior trochanteral organ similar to the anterior one, the isolated sensillum closer to the row. Basis of trochanter with a deep dorsal cavity guarded by 1+1 conspicuous, long setae (coxal guards?). Condylar trochanteral organ (Fig. 10) formed by five, minute spiniform setae situated at the anterior rim of trochanteral foramen.



Figs 11–15. *Neoncylocotis kotejai* sp. n., holotype, male. 11, 12 - apicitibial armature, anterior and posterior views, respectively. 13, 14 - tarsal armature, anterior and posterior views, respectively. 15 - tarsus: claw-guarding setae. Symbols in Figs 11–15 follow that used by WYGODZINSKY & SCHMIDT (1991: Fig. 10B). Scale bar 0.05 mm for Figs 11–15.

Femur. Surface sparsely covered by simple spiniform microtrichia (Fig. 10). Anterior femoral organ (Fig. 10) of 4 campaniform sensilla (posterior organ absent). Ratio length: maximum width 5.5.

Tibia (Fig. 3) with a prominent distal armature-bearing tubercle. Distal third of anterior surface with a vaguely delimited, triangular, subventrally shifted field of shorter spinose setae. Distal bristle comb modal. Ratio length: maximum width 3.7.

Apicitibial armature (spiniform setae; symbols after WYGODZINSKY & SCHMIDT 1991), Figs 11, 12 – III+IV ectal anterior; VII (slightly more mesal); VI + V ental; I and II missing (or simply trichoid). III, IV, V simply spiniform, (IV and V with complex bases), VI and VII short, curved, robust, pointed spines (outlines nearly aligned). Altogether five elements.

Tarsus (Figs 13–15). Armature (symbols after WYGODZINSKY & SCHMIDT 1991) with II+IV proximal, thick and long spiniform setae, and I and III (outlines aligning, each visible in anterior or posterior view only) – shorter, thickened, pointed, I blade-like, III hook-shaped. Anterior apex of tarsus provided with anteapical tubercle bearing three thin claw-guarding setae (Fig. 15). Length 0.08 mm, width 0.04 mm.

Claws moderately curved, moderately shorter than tarsus, nearly isomorphic and of the same length (actually the posterior one slightly shorter and more robust than the anterior one).

Mid- and hindlegs. Only an anterior bristle comb seen on apices of mid- and hindtibiae (in contrast to WYGODZINSKY & SCHMIDT 1991: see Discussion 3b).

Abdomen (and terminalia). Laterotergites with long, prominent posterolateral setae, and fully covered by numerous, short, straight, bristly setae continuing along lateroposterior sectors of intersegmental margins. “Scale-like elements” minute, scarce and trichoid on proximal terga, well distinct, truly scale-shaped, frequent on distal terga. Male genitalia very small, pygophore globular (dorsal wall well developed, with 1+1 long lateral trichobothria-like setae and 1+1 close similar seate on posteroventral margin. Guide not fused to the wall of pygophore (contra WYGODZINSKY & SCHMIDT 1991!), long (in lateral view exceeding tergum 10), bent cephalad, subrectangular, its dorsolateral angles projecting (dorsal view), its opening small, subterminal. Parameral sclerites and tergum 10 well developed and strongly sclerotized.

Habitat

The specimen was collected in leaf litter among stones on the islet in a stream in a shaded tropical forest.

Etymology

The patronymic specific name is derived from and dedicated to our colleague and senior author’s friend JAN KOTEJA from Krakow, an eminent student of both extant and extinct scale-insects.

DISCUSSION

1. List of *Neoncylocotis* species

Fourteen valid *Neoncylocotis* species have been described till now. They can be conveniently subdivided into three size groups (data modified from WYGODZINSKY & SCHMIDT 1991 and KRITSKY 1978). F – female, M – male.

A. Relatively large-sized species, body length over 4.0 mm, legs not scarlet.

1. *N. albovenosus* WYGODZINSKY et SCHMIDT, 1991: 167 (Colombia: Sierra Nevada de Santa Maria, 4.7-5.0 mm), M, F; *

*** Note**

Some specimens of *N. albovenosus* and *N. clavisetosus* from Colombia: Cundinamarca are only doubtfully identified (WYGODZINSKY & SCHMIDT 1991).

2. *N. annulipes* (CHAMPION, 1898: 160) – as *Henicocephalus* (Panama, 4.2–4.5mm), F;
3. *N. clavisetosus* WYGODZINSKY et SCHMIDT, 1991: 176 (Colombia: Cundinamarca, 5.3-5.9 mm), M; *
4. *N. concolor* (CHAMPION, 1898: 160) – as *Henicocephalus* (Guatemala, 4.6 mm), F;
5. *N. meridionalis* WYGODZINSKY et SCHMIDT, 1991: 180 (Argentina: Tucuman, 4.2 mm), F;
6. *N. montanus* WYGODZINSKY et SCHMIDT, 1991: 183 (Venezuela: Aragua, 4.1-4.7 mm), M;
7. *N. weyrauchi* WYGODZINSKY et SCHMIDT, 1991 (Peru: Cajamarca, 5.5–6.3 mm), F.

Undescribed species of group A – fide WYGODZINSKY & SCHMIDT 1991:

- a. *Henicocephalus concolor* CHAMPION, 1898: 160 *partim* (some or all specimens of *N. concolor* from Panama: Chiriqui), M, F;
- b. *Stenopirates concolor*: JEANNEL 1944: 127 *non* CHAMPION 1898: 160 (Ecuador, as sp. n. near *N. weyrauchi*), sex?;
- c. *Oncylocotis rhyparus*: KRITSKY 1978: 195 *non* STÅL 1860: 82 (Peru: Tartna, 5.0 mm), M.

B. Intermediate-sized species, body length 3.9–4.2 mm, all legs brightly scarlet.

8. *N. rubripes* WYGODZINSKY et SCHMIDT, 1991: 186 (Peru: Huanuco), M.

C. Small-sized species, body length 2.7–4.0 mm, legs not scarlet.

9. *N. alverengai* WYGODZINSKY et SCHMIDT, 1991: 173 (Brazil: Mato Grosso, 3.1 mm), M;
10. *N. mexicanus* (KRITSKY, 1978: 195) – as *Oncylocotis* (Mexico: Chiapas and Vera

Cruz, (3.5 mm), F;

11. *N. pisinnus* WYGODZINSKY et SCHMIDT, 1991: 185 (Brazil: Para, 2.7–2.8 mm), F;
12. *N. rhyparus* (STÅL, 1860: 82) – as *Oncylocotis* (Brazil: Rio de Janeiro, 3.7mm), M;
13. *N. slateri* WYGODZINSKY et SCHMIDT, 1991: 189 (Peru: Junin, 3.6–3.7 mm), F;
14. *N. stannardi* (KRITSKY, 1978: 196) – as *Oncylocotis* (= *Oncylocotis braziliensis* KRITSKY, 1978: 196, syn. by WYGODZINSKY & SCHMIDT 1991) (Brazil: Parana and Santa Catarina) 3.5–4.0 mm), F.

Undescribed species of group (C) *fide* WYGODZINSKY & SCHMIDT 1991

- d. *Stenopirates rhyparus*: JEANNEL, 1944: 128 *non* STÅL, 1860: 82 (Bolivia, ?CostaRica);
- e. *Neoncylocotis* nr. *slateri*: WYGODZINSKY et SCHMIDT 1991: 189, 256–257 (Peru: San Ramon, Junin).

In addition to exploitation of numerous species-specific quantitative and structural characters (as dimensions, shape of pronotum and head, microsculpture, vestiture, armature of forelegs), WYGODZINSKY & SCHMIDT (1991) put a great diagnostic weight on species-specific coloration and size of *Neoncylocotis* species. Each species is known from only one to few specimens, and, moreover, nearly all species (except *N. albovenosus*) are known from one sex only. Some utilized characters are sexually dimorphic, but, nevertheless, the intraspecific variation is much smaller than the interspecific gaps. The areas of *Neoncylocotis* species are small, and, undoubtedly, many undescribed species abound in C and S America.

2. Differential diagnosis

Neoncylocotis kotejai sp. n. differs from other species of the group C by the following characters. (a) Antennae very short, with strikingly incrassate, spindle-shaped segment II; (antennae longer, segment II less incrassate in other species). A similar situation obtains in *N. alvarengai* and *N. stannardi* (*cf.* figs WYGODZINSKY & SCHMIDT 1991: 124 A, 136 A). (b) Uniquely constructed pronotal posteromedial impression (see description and key). (c) Nearly complete absence of macrotrichia on wing membrane among veins is unique. (d) White or beige, contrasting underside of forewing veins of *N. kotejai* is shared with *N. mexicanus* and *N. alvarengai*, while only C+Sc is pale in *N. slateri*, and all the veins are dark in *N. pisinnus*, *N. rhyparus* and *N. stannardi*. (e) The subglobular setigerous tubercles of *N. kotejai* (head, pronotum, forefemur) are shared with *N. mexicanus* (*ditto*) and *N. stannardi*, while they are missing in *N. rhyparus* and *N. slateri* (unknown in *N. alvarengai* and *N. pisinnus*).

For potential further autapomorphic characters of *Neoncylocotis kotejai* see sub (3) and (4).

3. Relationships

Neoncylocotis kotejai is apparently most similar (and related?) to *N. mexicanus*, but some character states (in addition to unique construction of posteromedial depression of the midlobe of pronotum) would put it out of the limits of *Neoncylocotis* as defined by WYGODZINSKY & SCHMIDT 1991. We cannot draw any taxonomic conclusions from that, since only one specimen has been examined, not all its body parts cleared, and unique teratological conditions abound in the family.

(a) Male genitalia. Males of *Neoncylocotis* species are characterized (WYGODZINSKY & SCHMIDT 1991: 166, fig. 122 A) by the guide fused to the pygophore. In *N. kotejai* the guide is clearly separate from the wall of the pygophore, arising deep from the cavity of the latter.

(b) Apical combs on mid- and hindtibiae. Presence of an anterior and a posterior comb connected by spines and forming a half-ring around the apices of mid- and hindtibiae is a characteristic of *Neoncylocotis* species (WYGODZINSKY & SCHMIDT 1991, see e.g. Fig. 122 C). This character seems to be stable at the genus level in the family (senior author's experience). However, there is only one simple anterior comb in *N. kotejai*.

(c) Apicitibial armature. All *Neoncylocotis* species known (WYGODZINSKY & SCHMIDT 1991) possess 7 spiniform setae, I–V being straight or moderately curved, VI straight or abbreviated and curved, VII always abbreviated and curved. *N. kotejai* is conforming to this general pattern but I and II are missing or non-distinguishable from normal setae. This character state may be a clear-cut autapomorphic species-specific diagnostic character, or a teratology of the one available specimen, or, when considered jointly with characters (a) and (b) and other possibly unique traits of *N. kotejai*, a character indicating that this species is not congeneric with other *Neoncylocotis* species.

4. Morphological observation

When describing *Neoncylocotis kotejai* we have noticed some features which have not been described and/or interpreted in the Enicocephalomorpha. We are confident that the sensilla mentioned sub (b)–(e) are common in enicocephalids and other Heteroptera as well (see, e.g. ANDERSEN 1982) having obviously a proprioceptive functions. ŠTYS (1988) stressed presence of (b)–(d) on all the three pairs of legs.

(a) Double-neck and precollum of *Neoncylocotis kotejai*

The “neck” of head is black and entirely glabrous and shiny, and is clearly subdivided by an constricting circumferent sulcus in anterior and posterior sectors, the former seemingly attached to the posterior (postocular, ocellar) lobe of head, the latter corresponding to the usual “neck” of most Heteroptera. The function of “neck” is clear: it enables the head to be smoothly protracted forwards or retracted into anterior pronotal cavity. Its morphological origin is less clear, but it probably represents an enlarged and specialized posterior part

of occiput. At present, we cannot assess the morphological and evolutionary significance of the subdivision of “neck”.

Precollum is a very short ring preceding the collum (collar), delimited from the latter by a percurrent sulcus, continuous all around the anteriormost part of prothorax. Vestiture consists of very short, anteriorly directed continuous row of minute hairs (microtrichia?) extending over the cephalic neck. Function of the hairs is obviously prevention of contamination the contact area between inner surfaces of precollum and collum and outer surface of neck. Tentatively, we can suggest the following three alternatives of the identity of precollum: (a) a formerly overlooked anteriormost part of actually tetralobate pronotum (and the whole of the prothorax), i.e. simple continuation of double-layered cuticle of the collum with no corresponding lumen containing inner organs; (b) a simple anterior out-growth of the collum; (c) an anterior part of the collum resulting from fusion and ring-like organization of collar tubercles occupying the whole of surface of the collum proper.

(b) Anterior and posterior trochanteral organs of forelegs

The modal number of campaniform sensilla in the Enicocephalidae is 6+6 (ŠTYS 1986, 1988), the aberrant number has been found in *Vuorilinna carayoni* ŠTYS, 1986 (6+7), a smaller number in the aenictopecheid *Nymphocoris hilli* ŠTYS, 1988 (5+5) as in *N. kotejai*. The former species shares with the latter also the angular shapes of rims and membranes (certainly unusual in insect sensilla), although this shape is limited to the posterior organ, which shares also the same topography of sensilla with *N. kotejai*, but is situated near trochantero-femoral junction.

(c) Other trochanteral sensilla have never been studied except in *Nymphocoris hilli*. ŠTYS (1988) illustrated the coxal guard setae and described the condylar trochanteral organ similar to that of *Neoncylocotis kotejai* allegedly provided also with unspecified number of campaniform sensilla in the former.

(d) Anterior femoral organ in enicocephalids was first discovered by ŠTYS (1986, 1988) in *Vuorilinna carayoni* and *Nymphocoris hilli*, respectively. It consists of 3 campaniform sensilla in both the species; they are similarly situated as 4 sensilla in *Neoncylocotis kotejai*. The posterior femoral organ is absent in all the species concerned.

(e) Claw-guard setae have been illustrated (ŠTYS 1986, 1988) in *Vuorilinna carayoni* and *Nymphocoris hilli*, and are probably present in all the Enicocephalomorpha.

An easy key to small *Neoncylocotis* species of the group C

(body length at most 4.0 mm, legs not scarlet)

F – female, M – male

- 1 (6). Underside of all forewings veins dark, concolorous with the wing membrane.
- 2 (3). Extremely small species, length 2.7 to 2.8 mm *N. pisinnus*, F
- 3 (4). Larger species, at least 3.5 mm long.

- 4 (5). Setae arising from rounded (sand grain-like) setigerous tubercles distributed on head, pronotum and femora *N. stannardi*, F
- 5 (4). Setal insertions simple *N. rhyparus*, M
- 6 (1). At least the underside of anteromarginal forewing vein (C+Sc) contrastingly pale (white-to beige), contrasting with the dark wing membrane.
- 7 (8). Only the underside of C+Sc whitish, the other veins concolorous with forewing membrane *N. slateri*, F
- 8 (7). Underside of all forewing veins contrastingly whitish.
- 9 (10). Strikingly colourful, variegate species. With whitish, yellow, orange, and red areas on the dorsum *N. alvarengai*, M
- 10 (9). Uniformly brown.
- 11 (12). Groundcolour medium brown. Ratio length : width, hind lobe of head, 0.53. Antennal segment 2 not strikingly incrassate, nearly stick-shaped *N. mexicanus*, F
- 12 (11) Groundcolour dark brown to blackish. Ratio length : width, hind lobe of head, 0.71. Antennal segment 2 strikingly incrassate, markedly widening distad. *N. kotejai* sp. n., M

Table 1. Maximum measurements of small species (group C) of *Neoncylocotis* (from WYGODZINSKY & SCHMIDT 1991 and original data), mean / range in mm; * holotype and 1 paratype.

	Species							
	<i>kotejai</i>	<i>alvarengai</i>	<i>pisinnus</i>	<i>mexicanus</i>	<i>slateri</i> *	<i>nr. slateri</i>	<i>stannardi</i>	<i>rhyparus</i>
Sex/number	M/1	M/1	F/4	F/3	F/2	F/3	F/6	M/1
Length antennal segment I	0.10	0.13	0.11	0.15	0.13	0.12	0.15	—
Length antennal segment II	0.20	0.20	0.19	0.30		0.24	0.31	—
Length antennal segment III	0.23	0.26	0.21	0.29	0.29-0.30	0.21-0.29	0.31-0.33	—
Length antennal segment IV	0.22	0.23	0.22	0.28	0.26	0.26	0.30	—
Total length antenna	0.75	0.82	0.73	1.02		0.87	1.00	—
Length head	0.56	0.50	0.55	0.72		0.65	0.68	0.68
			0.54-0.56	0.65-0.76	0.68-0.71	0.61-0.73	0.65-0.70	

	Species							
	<i>kotejai</i>	<i>alvarengai</i>	<i>pissinus</i>	<i>mexicanus</i>	<i>slateri*</i>	<i>nr. slateri</i>	<i>stannardi</i>	<i>rhyparus</i>
Width head across eyes	0.31	0.28	0.31	0.41		0.36	0.36	—
			0.31-0.31	0.38-0.42	0.38-0.39	0.36-0.36	0.34-0.39	
Length eye	0.11	0.11	0.10	0.13		0.12	0.11	0.11
			0.10-0.10	0.11-0.14	0.10-0.10	0.11-0.13	0.10-0.11	
Width eye	0.08	0.07	0.06	0.09		0.08	0.08	—
			0.06-0.06	0.09-0.10	0.08-0.08	0.08-0.08	0.06-0.09	
Distance eye-apex of antennifer	0.08	0.09	0.10	0.13		0.12	0.14	0.10
			0.10-0.10	0.12-0.16	0.15-0.15	0.11-0.13	0.13-0.15	
Synthlipsis	0.16	0.14	0.19	0.22		0.21	0.21	0.18
			0.19-0.19	0.20-0.24	0.23-0.24	0.21-0.21	0.20-0.23	
Width hind lobe head	0.33	0.31	0.35	0.43		0.40	0.40	0.34
			0.35-0.35	0.42-0.45	0.40-0.43	0.40-0.40	0.38-0.43	
Length hind lobe head	0.24	0.18	0.18	0.24		0.23	0.23	0.23
			0.18-0.20	0.21-0.26	0.24-0.25	0.21-0.25	0.21-0.25	
Maximum length pronotum	0.53	0.50	0.51	0.63		0.60	0.62	—
			0.50-0.53	0.57-0.67	0.63-0.68	0.58-0.63	0.60-0.63	
Width pronotum mid lobe	0.48	0.48	0.53	0.66		0.61	0.64	0.50
			0.51-0.55	0.60-0.72	0.66-0.68	0.58-0.63	0.63-0.66	
Width pronotum hind lobe	0.75	0.68	0.70	0.89		0.82	0.86	0.84
			0.70-0.70	0.82-0.94	0.93-0.93	0.80-0.85	0.83-0.91	
Length fore femur	0.52	0.50	0.51	0.69		0.59	0.64	—
			0.50-0.53	0.60-0.75	0.60-0.66	0.53-0.63	0.63-0.68	
Width fore femur	0.10	0.11	0.17	0.21		0.18	0.20	—
			0.16-0.18	0.19-0.24	0.20-0.21	0.16-0.20	0.19-0.21	
Length fore tibia	0.44	0.53	0.48	0.73		0.56	0.67	—
			0.48-0.50	0.71-0.75	0.63-0.63	0.53-0.61	0.65-0.70	
Width fore tibia	0.12	0.15	0.17	0.21		0.19	0.21	—
			0.15-0.19	0.20-0.23	0.23-0.23	0.18-0.23	0.19-0.21	
Length hind femur	0.62	0.60	0.57	0.80		0.71	0.77	—
			0.55-0.58	0.76-0.85	0.78-0.80	0.65-0.78	0.73-0.80	
Width hind femur	0.12	0.11	0.14	0.15		0.17	0.16	—
				0.14-0.16	0.18-0.19	0.15-0.19	0.15-0.18	
Total length	3.35	3.10	2.70-2.80	3.50	3.60-3.70		3.50	3.70

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