ADDITIONAL RECORDS OF NEMATODE PARASITES FROM PAPUA NEW GUINEA AMPHIBIANS WITH A LIST OF RECORDED ENDOHELMINTHS BY AMPHIBIAN HOSTS

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Abstract. An examination of a small sample of four species of frogs (Cophixalus riparius, Phrynomantis hemicola, Ph. stipotogaster, Ph. wilhelmensis) from Papua New Guinea yielded altogether 5 species of nematodes, 2 of them being new to science. These include: Cunucuella phrynomantis sp. n. (type host: Ph. hemicola), Spinicaecumae gen. sp., Paradoxolobus andersoni sp. n. (type host C. riparius), Oneiactinoptaxis bakeri, and Pseudocapillaria spratzi. Ph. phrynomantis sp. n. differs from congenic species mainly in the length of spicules (0.180 mm) and the character, arrangement and number of caudal papillae in the male, while P. andersoni sp. n. is characterized mainly by the presence of four well-developed spines on the male tail. Pseudocapillaria spratzi is redescribed in detail and it is transferred to Paracapillaria as P. spratzi (Moravec et Sey, 1966) comb. n. Capillaria combesi Chabaudi et Knoepfler, 1983 is transferred to Amphicapillaria Moravec, 1982 and Capillaria petit Justine et Bain, 1987 to Pseudocapillaria Freitas, 1959. A survey of the endohelminths (excluding Hirudinea) hitherto reported from New Guinea amphibians is presented.

In recent years, several papers were published dealing with the helminth parasites of amphibians from New Guinea (Mann and Tyler 1983, Johnston 1967, Mawson 1972, Sprent 1985a, b, Moravec and Sey 1986, 1989, 1990), but the present knowledge of the helminth fauna of amphibians in this zoogeographically very interesting area remains poor. In 1986, Moravec and Sey established a new capillarid species, Pseudocapillaria spratzi from the New Guinea frog Phrynomantis stipotogaster. Unfortunately, the species description was inadequate as it was based only on several body fragments of the nematode. In an attempt to obtain new topotypic specimens of this interesting parasite species, we received, through the courtesy of Dr. Richard B. Zweifel, an additional material of fixed specimens of Papua New Guinea frogs for examination from the Department of Herpetology, American Museum of Natural History in New York, USA. This material included four microfilarid frog species and in addition to the above mentioned capillarid, also several other helminths were found in them. The systematic evaluation of them is presented in this paper.

According to Frost (1985), all the four examined frog species are distributed only over the central mountain ranges of Papua New Guinea.

MATERIALS AND METHODS

The nematode specimens were collected from fixed host frogs from the collections of the Department of Herpetology, American Museum of Natural History in New York, USA. Only alimentary tracts were removed and examined for the presence of internal parasites. Then the animals were returned to the museum. The following four species of microfilarid frogs were examined: Cophixalus riparius Zweifel (3 specimens — Cat. No. 112885, 113004-5); Phrynomantis wilhelmensis Loveridge (3 specimens — Cat. No. 65903, 65905, 78361); Phrynomantis humicola Zweifel (3 specimens — Cat. No. 113672, 113676, 113681 — all paratypes); Phrynomantis stipotogaster Zweifel (1 specimen — Cat. No. 74897 — paratype).

All these frogs were collected by the 8th Archbold Expedition of the American Museum of Natural History in 1959 and by Fred Parker in 1964.

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The nematode specimens were killed in situ by formalin preservation of the hosts which were later stored in 65% ethanol. For examination, these were cleared with glycerine and re fixed in ethanol prepared according to Anderson’s (1936) method. All drawings were made with the aid of a camera lucida. All materials are deposited in the lepidopterological collection of the Institute of Plant Protection, Czechoslovak Academy of Sciences, České Budějovice. In the following account of the species encountered, measurements are given in millimeters.

**REVIEW OF SPECIES**

FAM. COSMOCERCIDAE RAILET, 1916

1. Cosmocercella phyromonantis sp. n.

**Description** (based on specimens from Ph. humicola): Small, whitish nematodes of fusiform body. Cuticle longitudinally striated. Very narrow lateral also extending from head end to anterior part of tail. Oral opening triangular, surrounded by three lips, each with thin anteriorly projecting cuticular flange. Cephalic extremity with large papillae. Osophagus anteriorly with short pharynx, posteriorly with bulb. Excretory pore slightly in front of bulb level.

**Male** (5 specimens; measurements of holotype in parentheses): Length of body 1.36—1.70 (1.36), maximum width 0.095—0.109 (0.095). Numerous somatic papillae present. Length of entire oesophagus including bulb 0.405—0.417 (0.405); length of cylindrical part of oesophagus 0.336—0.342 (0.336), its maximum width 0.024 to 0.030 (0.024); length of bulb 0.086—0.072 (0.072), width 0.060—0.063 (0.060). Length of pharynx 0.021 (0.021), its width 0.018 (0.018), length of isthmus 0.054 (0.054), width 0.018—0.021 (0.018). Nerve ring and excretory pore 0.171—0.174 (0.171) and 0.267 (0.267), respectively, from anterior extremity. Two well sclerotized spicules, 0.180 (0.180), long, present; their distal tips sharply pointed. Gut very short, wide. Nerve ring and excretory pore in lateral view, 0.042—0.046 (0.042) long. Testis anteriorly by far not reaching junction of oesophagus and intestine. Five pairs of large vesiculated subventral preanal papillae present, each of them being provided with a ring of minute punctations surrounding top of papilla, representing thus a kind of interstage between rosette and vesiculated papillae. Some of these papillae may be reduced in size. In addition to them, also numerous small, irregularly distributed somatic papillae present on subventral and subdorsal surface in preanal region. Anterior lip of cloacal opening with one large unpaired and one large pair of papillae. Ventral surface surrounding cloacal opening with slightly elevated cuticle resembling small caudal alae in lateral view; this region containing 4 pairs of ventral and 4 pairs of subventral papillae. Tail conical, 0.075—0.081 (0.075) long, with 2 pairs of subventral and 2 pairs of subdorsal papillae and a pair of phasminids. Mid-region of tail with pair of prominent subventral papillae and one pair of smaller subdorsal papillae. One pair of lateral papillae situated slightly below cloacal opening level.

**Female** (10 specimens; measurements of allotype in parentheses): Length of body of gravid females 1.77—2.00 (2.00), maximum width 0.190—0.245 (0.190). Length of entire oesophagus including bulb 0.444—0.447 (0.447); length of cylindrical part of oesophagus 0.366 (0.366), its maximum width 0.027—0.039 (0.027); length of bulb 0.078 (0.078), width 0.072—0.078 (0.072). Length of pharynx 0.027 (0.027), its width 0.024—0.027 (0.024), length of isthmus 0.045, width 0.024 (0.024). Nerve ring and excretory pore 0.171—0.189 (0.188) and 0.291—0.297 (0.297), respectively, from anterior extremity. Vulva, sometimes with elevated lips, situated in posterior half of body, 0.63—0.64 (0.64) from posterior end. Vagina short, directed anteriorly. Uterus short, containing small number (4—9 (9)) of large eggs with uncleaved content or with already formed larvae; exceptionally freed larva observed in uterus. Both ovaries situated so...
mewhat below oesophagus end, anterior to vulva. Eggs thin-walled, size 0.135–0.189 by 0.099–0.120 (0.171–0.189 x 0.114–0.120). Tail conical, 0.120–0.125 (0.120) long.


Type locality: southern slope of Mt. Otto, 2,100–2,400 m elevation, Eastern Highlands Province, Papua New Guinea (18 August 1959 – in *P. humilo*).

Other localities: Irumbiofo, West Goroka, 2,000 m elevation (11 July – *P. stictogaster*) and Dumon, East Highlands Province (23 August 1959 – *P. wilhelmaea*), both Papua New Guinea.

Occurrence: in 1 of 3 *P. humilo* examined from type locality (intensity 39 specimens), in the only *P. stictogaster* from Irumbiofo (intensity 760 specimens), and in 1 of 3 *P. wilhelmaea* from Dumon (intensity 52 specimens).


Etymology: The specific name of this species is derived from the generic name of its type host.

Comments: — According to Chabaud (1978), the main difference between *Cosmocercella* Steiner, 1924 and *Cosmoceroeides* Wilkie, 1930 is the character of their caudal rosette papillae that are raised on surface of cuticle in the latter genus; in addition, the eggs of *Cosmocercella* should be few in number and large (more than 0.100 mm), whereas those of *Cosmoceroeides* are to be numerous, of normal size (less than 0.100 mm). Also Baker and Adamson (1977) characterize the genus *Cosmocercella* by the presence of large, preanal vesiculated rosette caudal papillae. On the other hand, Baker and Vaucher (1983) report that "rosette caudal papillae in males normally occur only in *Cosmoceroeides* and vesiculated caudal papillae are characteristic only of *Cosmocercella*"; however, these authors themselves had a problem with assigning their newly described species *C. phylomedusa* to a genus, because the males of this species possessed both vesiculated and rosette papillae. Therefore, I consider it reasonable to assign the specimens of the present material to *Cosmocercella*; most species of this genus are the parasites of hyloid frogs.

The morphology of nematode specimens from all the three species of *Phrynomastus* (*P. humilo*, *P. stictogaster* and *P. wilhelmaea*) is very similar and, consequently, I consider them all to be conspecific. Small biometrical differences (Table 1) as well as some slight morphological differences can be taken for an intraspecific variability (for example, there are somewhat greater body measurements and more numerous eggs in gravid females from *P. wilhelmaea* which, in my opinion, may be associated with the general advancement of these nematodes).


From all these species *C. phrynomastus* sp. n. differs, in addition to other features, in the character, arrangement and number of caudal papillae in the male and in the length of spicules. In contrast to *C. phrynomastus* sp. n., *C. habeli* and *C. nothaeae* possess markedly longer spicules (0.26–0.36 mm and 0.406–0.511 mm), well developed caudal alae and there are present several pairs of digitiform papillae in them (see Baker and Adamson 1977) that are absent from the new species. On the other hand, the length of spicules in both South American species, *C. minor* and *C. phyllo-
modius, is considerably smaller (0.80–0.97 mm and 0.70–0.80 mm) than that in *C. physonemati* sp. n. and also the character and arrangement of caudal papillae in the male are different. As to *C. nevleri* from a rain frog of China, its morphology reminds rather a member of *Cosmocercoides* Dissing, 1861 and it should be reexamined (see also Baker and Adams 1977). Nevertheless, *C. nevleri* can be distinguished from *C. physonemati* sp. n. by smaller spicules (0.09–0.11 mm), different character and distribution of caudal papillae in the male, and by a considerably larger body of femaleacious papillae. *Osphragia* sp. anteriorly provided with *C. physonemati* sp. n., mainly in possessing a greater number of preanal pairs of large vesiculated papillae in the male (3–5 pairs as compared to 5 pairs in *C. physonemati*), somewhat smaller spicules (0.131–0.147 mm versus 0.162–0.189 mm), host type (skeaks versus frogs), and some other features (see Cress and Ching 1978, Baker and Cress 1980). *C. inuakii* can be distinguished from the new species mainly by the absence of a gubernaculum, somewhat smaller spicules (0.128–0.145 mm versus 0.162–0.183 mm) and different arrangement of caudal papillae in male and by postpuberal position of the posterior ovary in female. In 1986, Moran and Sey described a new cosmoeolid, *Apectea zoei*, from *Phalanx eremita* humicola* from Papua New Guinea; since only considerably damaged specimens were available, some features could not be studied in them. Although this species seems to be morphologically close to *C. physonemati* sp. n. and it cannot be excluded that in fact it also belongs to *Cosmocercoides*, this species is easily distinguishable from the latter by the length of spicules that are more than twice as long as those in *C. physonemati* sp. n. (0.450–0.466 mm versus 0.162–0.189 mm). However, it is possible that the two species considered by Moran and Sey (1986) as the immature males of *A. zoei* (length of spicules about 0.150 mm) belonged to *C. physonemati* sp. n. Both species of these nematodes were recorded from the same host species (*Ph. humicola*) from the nearby localities (southern slope of Mt. Otto, Eastern Highlands Province).

The occasional presence of freed larvae in the uteri, as it was observed, e.g., in the females of *C. physonemati* sp. n., indicates, in the opinion of Baker and Vaucher (1983), a tendency towards viviparity in some *Cosmocercoides* species. According to them, *Cosmocercoides* species are, however, mainly oviparous and apparently eggs only rarely hatch in utero before being expelled. This is the main difference from the closely related family Actinidae in which freed larvae are usually retained in utero until they develop to the third larval stage. Viviparity is the key characteristic distinguishing the family Actinidae from the oviparous *Cosmocercoides* (see Chabaud 1978, Baker 1982).

**F.A.M. HETERAKIDAE BAIIILLET ET HENRY, 1912**

2. **Spinicaudinae gen. sp.**

**Description of female (3 specimens):** Medium sized nematodes, body comparatively short and wide, tapering to both ends. Length of body 4.73–6.85, maximum width 0.449–0.666. Narrow lateral alae extending along body. Mouth surrounded by three lips; anterior end withdrawn. Body cuticle conspicuously thick (0.054), with numerous somewhat resembles *C. physonemati* sp. n. 0.063–0.072 long. Length of entire oesophagus 1.02–1.05; length of its anterior cylindrical part 0.843 to 0.870, width 0.042–0.045, length of bulb 0.150–0.174, width 0.138–0.144. Nerve ring and excretory pore 0.381–0.435 and 0.625–0.721, respectively, from anterior extremity. Vulva situated 2.45–3.44 from posterior end of body. Genital organs indistinct. Tail conical, 0.544–0.680 long.

**Host:** *Phalanx eremita* humicola and *Ph. sticogaster* humicola.

**Location:** Large intestine.

**Locality:** Southern slope of Mt. Otto, 2,100–2,400 m elevation, Eastern Highlands Province (19 August 1983, in 2 of 3 *Ph. humicola* examined, intensity 1 specimen) and Irubungo, West Goroka, 2,000 m elevation (11 July 1984, in single *Ph. sticogaster* 1 specimen was found), both Papua New Guinea.

**Deposition of specimens:** Institute of Parasitology, Czechoslovak Academy of Sciences, Prague (Cat. No. N. 428).

![Fig. 2. Spinicaudinae gen. sp. female from Ph. humicola. A — anterior end of body; B — tail; C — anterior extremity.](image)

**Comments:** Only two complete female specimens and one female body fragment with missing posterior end were recovered. The morphology of these nematodes, especially the thickness of their cuticle, shape of the tail, structure of the oesophagus and mouth elements, etc., shows their belonging to the subfamily Spinicaudinae of the family Heterakidae. Since males are absent, it is impossible to assign these nematodes to a genus. According to Baker (1984), members of the Spinicaudinae have a markedly wide host range, occurring both in amphibians and reptiles; according to him, species of the following three genera have hitherto been recorded from frogs (*Bunoderoides* and *Rana*): *Spinicauda* Travassos, 1920, *Africanara* Travassos, 1920, and *Strongylurus* Muellner, 1894. None of them has so far been reported from New Guinea and from microchiroptere frogs. The only species of *Spinicaudinae* reported from New Guinea is *Moecia kanshophus* from the snake *Chondropython vivipara* (Boidae) (Gibbons 1979). It may well be that the specimens of the present material represent a new species which can be described only when also males are available.
3. Paratheladors andersoni sp. n.

Description: Small nematodes, females distinctly larger than males. Lateral alae extending along body present in both sexes. Tail of both sexes narrowing rapidly, posterior to anal opening, to form a long terminal spike. Anterior part of oesophagus with short, slightly outlined pharynx. Mouth opening triangular, surrounded by three slightly outlined lips; four double cephalic papillae and two small lateral amphids present. Cuticle with fine transverse striation.

Male (10 specimens; measurements of holotype in parentheses): Body of larger specimens rather plump. Length of body including tail spike 0.97—1.90 (1.40), maximum width 0.068—0.245 (0.177). Lateral alae 0.060—0.068 (—) wide, extending posteriorly slightly below cloacal opening after constricting sharply. Body region round cloacal opening raised as genital cone. Oesophagus including bulb 0.218—0.286 (0.258) long; length of bulb 0.048—0.063 (0.057), its width 0.048—0.060 (0.057); width of cylindrical part of oesophagus 0.021—0.024 (0.024). Nerve ring encircling oesophagus 0.120—0.150 (0.135) from anterior extremity. Excretory pore well below end of oesophagus, 0.286—0.430 (0.340) from anterior end of body. Testis extending anteriorly below excretory pore level. Genital cone bearing 2 pairs of papillae, one pair of smaller papillae anterior to cloacal opening and one pair of larger papillae posterior, and posteriorly directed process situated between more posterior pair of papillae. Tail conical, tapering to form thin and long caudal spike. Large double ventral papilla situated on tail 0.045—0.114 (0.066) below cloacal opening; phasmids visible in some specimens somewhat in front of ventral tail papilla. Middle third of tail provided with four distinct spines gradually diminishing posteriorly; most anterior spine located 0.090—0.189 (0.141) below cloacal opening. Spicule thin, well sclerotized, with sharply pointed distal tip; length of spicule 0.057—0.066 (0.066). Small, poorly sclerotized gubernaculum, some 0.015—0.021 (0.021) long, supporting posterior lip of cloacal opening.

Female (10 specimens; measurements of allotype in parentheses): Body including tail spike 1.92—5.80 (5.80), maximum width 0.150—0.394 (0.394). Smallest gravid female 3.88 long and 0.296 wide. Lateral alae 0.018—0.027 (0.027) wide, extending along whole body up to base of tail. Oesophagus including bulb 0.313—0.544 (0.517) long; length of bulb 0.102—0.108 (0.108), its width 0.102—0.126 (0.126). Nerve ring and excretory pore 0.138—0.147 (0.138) and 0.381—0.925 (0.870), respectively, from anterior extremity. Vulva slightly below excretory pore, 0.42—1.02 (0.96) from anterior end of body. Both excretory pore and vulva situated relatively far posterior to posterior end of oesophagus in larger specimens; in smaller specimens vulva and excretory pore situated relatively more anterior, but always posterior to anterior end of oesophagus. Vagina ponting backwards. Narrow uterus forming coils extending posteriorly almost to anal opening. Anterior ovary near vulva level, posterior ovary in mid-length of body. Mature eggs elongate, spindle-shaped, thin-walled, with uncleaved content; size of eggs 0.108—0.129 × 0.039—0.048 (0.111—0.129 × 0.039—0.045). Tail suddenly tapering slightly below anal opening to form very long, smooth tail spike; length of entire tail 0.52—1.70 (1.70).

Type host: Cephalicus riparius Zweifel (fam. Microhyllidae).

Localization: large intestine.

Type locality: eastern slopes of Mt. Wilhelm, 2,400—4,200 m elevation, Chimbu Province, Papua New Guinea (23 and 39 August 1959; holotype and allotype on 23 August 1959).

Fig. 5. Paratheladors andersoni sp. n. from C. riparius. A, B — anterior end of female, larger and smaller specimens; C — head end, spiral view; D — egg; E — tail of male; F — tail of female; G, H — male, lateral and ventral views.
Occurrence: in all 3 C. riparius examined (intensity of infection 8—19 nematodes per frog). Deposition of types: Institute of Parasitology, Czechoslovak Academy of Sciences, České Budějovice, Czechoslovakia (holotype, allotype, paratypes — Cat. No. N-446).

Etymology: This species has been named in honour of Prof. Roy C. Anderson, Department of Zoology, University of Guelph, Ontario, Canada, an outstanding nematologist who contributed greatly to the knowledge of parasitic nematodes.

FAM. TRICHOSTRONGYLIDAE LEIPER, 1912

4. Osuladoceras bakeri Moravec et Sey, 1986

Hosts: Phrymanantorum unicola Zweifel and P. wilhelmae (Loveridge).

Localization: small intestine and stomach.

Locality: northern slope of Mt. Otto, 2,100—2,400 m elevation, (10 August 1989); in all 3 Ph. unicola examined, intensity 3—21 nematodes per frog and Dumun (23 August 1989) in 1 of 3 Ph. wilhelmae 1 nematode was found, both Eastern Highlands Provinces, Papua New Guinea. Deposition of specimens: Institute of Parasitology, Czechoslovak Academy of Sciences, České Budějovice — Cat. No. N-169.

Comments: — The morphology of nematodes from the present material fully corresponds to the original description of this species given by Moravec and Sey (1986), who described it from Phrymanantorum stigmatophorus from the same general area and, therefore, I refrain from describing this species again in this paper. Phrymanantorum unicola and Ph. wilhelmae represent new host records for O. bakeri.

FAM. CAPILLARIIDAE NEVEU-LEMAIRE, 1986


Description (based on newly collected specimens): Small, thread-like nematodes. Two lateral baccillary bands distinct, fairly wide. Male (fragment of posterior body end): Length of body fragment 1.82, maximum width 0.048. Spicule medium sized, well sclerotized, with smooth surface; its proximal end slightly expanded, distal tip blunt. Length of spicule 0.309, width 0.006—0.009, width of its proximal end 0.014. Surface of spicular sheath smooth, without spines. Tail rounded, 0.1015 long, provided with cuticular membrane forming short bursa. Bursa supported by two wide lateral projections adhering to body, their ends being, in lateral view, at level of posterior border of body. One pair of conspicuously large spherical subventral papillae present at base of lateral lobes, being situated at level of cloacal opening. Length of whole bursa in ventral view 0.018, its maximum width 0.030, in front of bursa 0.024; length of membranous margin of bursa 0.003. Lateral caudal also absent. Female (2 specimens): Length of body of gravid females 5.64—5.74, maximum width 0.082. Anterior end rounded. Two distinct lateral baccillary bands, 0.027 to 0.030 wide, extending along almost whole body length. Muscular oesophagus comparatively long. Length of entire oesophagus 2.01—2.24 (35—40% of body length). Length of muscular oesophagus 0.270—0.282, of stichosome 1.73—1.97; stichocytes 32—33 in number. Stichocytes elongate, subdivided into 5—8 transverse annuli; some stichocytes darker than others, this difference being indistinct in cleared specimens. Nerve ring 0.081—0.084 from anterior end. Two glandular cells present at junction of oesophagus and intestine. Vulva situated 0.036—0.045 below end of oesophagus; vulvar lips not elevating. Only some ten eggs present in uterine, being arranged in one row. Eggs oval-shaped, thin-walled, with distinctly protruding polar plugs; eggs wall two-layered, outer layer thin. Surface of eggs seeming to have very fine, almost indistinct sculpture. Eggs 0.066—0.072 long (including polar plugs) and 0.027—0.030 wide, thickness of egg wall 0.0015; width of polar plugs 0.006, their total height 0.006, hight of their protruding part 0.003. Content of mature eggs uncleared. Anus subterminal, tail bluntly rounded, 0.012 long. Length of rectum 0.066 to 0.081.

Fig. 5
Host: Phrynomantus humicola Zwirfel (fam. Microhylidiae).
Localisation: small intestine.
Locality: southern slope of Mt. Otto, 2,100–2,400 m elevation, Eastern Highlands Province, Papua New Guinea (19 August 1939).
Occurrence: in 2 of 3 Ph. humicola examined (intensity of infection 1 and 13 specimens).

Comments: — This species was inadequately described by Moravec and Sey (1986) from a few nematode body fragments recovered from the digestive tract of the microhylid frog, Phrynomantus stictogaster, from Papua New Guinea. These authors provisionally assigned it to the genus Pseudocapillaria Freitas, 1959, but later Justine and Bain (1987), who have not recognized the new system of Capillariidae proposed by Moravec (1982), transferred it to Capillaria s.l. Unfortunately, the posterior end of this species could not be described in the original description and, accordingly, the generic belonging of this nematode was uncertain.

The nematodes of the present material seem to be morphologically and biometrically practically identical with “Pseudocapillaria” spratti, they come from the closely related host species from the same geographical area and, therefore, I consider them conspecific with this species. The structure of the male posterior end shows clearly that this species should be placed in the genus Paracapillaria Mendoza, 1963 instead of Pseudocapillaria in which it was originally listed.

Until now, the genus Paracapillaria includes 14 species, six of them parasitizing freshwater and marine fishes and eight of them being known as the parasites of snakes (see Moravec 1986a, b, c, 1987b). P. spratti (Moravec et Sey, 1986) is the first representative of this genus parasitic in amphibians. Moravec (1986) divided Pseudocapillaria into two subgenera of which Ophidioacapillaria comprises all the Paracapillaria species known from snakes; members of this subgenus differ markedly from P. spratti by their morphology (e.g., by the structure of stichocytes, length of spicule) and considerably larger body measurements.

The general morphology of P. spratti is rather similar to that of the congeneric species parasitizing fishes (see Moravec 1987b). Of them, only P. plesiota (Travenos, Artigas e Pereira, 1928), P. pleotropilis (Johnston et Mason, 1940) and P. parophyssi (Moravec, Margolis et McDonald, 1981) have the spicule of about the same size as that in P. spratti. However, in contrast to P. parophyssi, the eggs of P. plesiota and P. pleotropilis are with non-protruding polar plugs and the male bursa of the second species is conspicuously more developed, supported by finger-shaped lateral caudal lobes. The eggs of P. parophyssi, a species parasitizing marine fishes in western Canada, are provided by distinctly protruding polar plugs like those in P. spratti, but their wall is thin, with a distinct fine superficial sculpture; also the shape of caudal lobes in P. parophyssi is different (finger-shaped versus obtusely rounded).

According to the revision of capillaritid nematodes parasitic in amphibians and reptiles, recently presented by Moravec (1986a, b, c, 1987a), the species parasitizing amphibians belong to the genera Capillaria Zeder, 1800, Amphihocapillaria Moravec, 1982, Anocerhoca Lopez-Seyra, 1947 and Pseudocapillarioidea Moravec et Cosgrove, 1982. However, while revising these parasites, the species described as Capillaria combesi Chabaud et Knoepflier, 1985 from the elicit caudate amphibian in Corsica (Chabaud and Knoepflier 1985) was omitted; this species is evidently a representative of the genus Amphihocapillaria to which it should be transferred as A. combesi (Chabaud et Knoepflier, 1985) comb. n.

Another capillariid parasite, Capillaria petiti Justine et Bain, 1987, has recently been described from Bufo marinus from Brazil (see Justine and Bain 1987), but the authors think that it may well be that its amphibian host is only accidental and that this
species is probably a parasite of snakes. According to Moravec (1986c), all capillariids parasitizing snakes belong to the genus Paracapillaria (subgenus Ophidiocapillaria), but the morphology of "C. petiti" shows that this species is a member of Pseudocapillaria Freitas, 1959 rather than Paracapillaria; accordingly, it should be transferred to Pseudocapillaria as P. petiti (Justine et Bain, 1987) comb. n. 

Phrynomantis hunicola represents a new host record for Paracapillaria spratti.

LIST OF ENDHelmINTHS HITHErTO RECordED FROM NEW GUINEAN AMPHIBIANS ARRANGED BY HOSTS

(T = Trematoda; N = Nematoda; C = Cestoda; Hirudinea have not been included)

ORDER ANURA

Fam. hylidae:
Litoria infrafrenata (Günther):
  N — Mazacaenia adamsoni Moravec et Sey, 1990

Litoria nasuta (Grey):
  N — Mazacaenia ewersi Mawson, 1972

Nyctimystes marinosa Zweifel:
  N — Ozyonamatam sp.

Fam. microhylidae:
Phrynomantis hunicola Zweifel:
  C — Tetrachrytidium sp. (larva) Moravec — unpublished
  N — Aplictana zweifeli Moravec et Sey, 1986
  N — Cosmocerca phrynomantisii Moravec, 1989
  N — Spinaecidinae gen. sp.
  N — Oswaldocruzia baksi Moravec et Sey, 1986
  N — Paracapillaria spratti (Moravec et Sey, 1986)

Phrynomantis stictogaster Zweifel:
  N — Spinaecidinae gen. sp.
  N — Oswaldocruzia baksi Moravec et Sey, 1986
  N — Paracapillaria spratti (Moravec et Sey, 1986)

Phrynomantis wilhelmana (Loveridge):
  N — Cosmocerca phrynomantisii Moravec, 1989
  N — Oswaldocruzia baksi Moravec et Sey, 1986

Cophixalus parkeri Loveridge:
  T — Opisthiophyge cophixali Moravec et Sey, 1989

Cophixalus riparius Zweifel:
  N — Paracapillaria andersoni Moravec, 1989

Fam. Ranidae:

Platymanitis papuensis Meyer:
  N — Cosmocerca novaeguineae Moravec et Sey, 1990
  N — Ozyonamatam sp. (larva) Moravec et Sey, 1986
  N — Cosmocercidae gen. sp.
  N — Desmognathini papuensis Moravec et Sey, 1990

Rana greise van Kampen:
  T — Dolichobrachus grandiscabies Moravec et Sey, 1989
  N — Cosmocercidae gen. sp.

Rana grinnelli Somini et Latreille:
  T — Haliplagurus zweifeli Moravec et Sey, 1989
  N — Cosmocercidae gen. sp.

Rana novaeguineae, (ex Sprent 1985b):
  N — Neuraturus novum (Seurat, 1917)

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Ф. Моравец


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