

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Faculty Publications from the Harold W. Manter  
Laboratory of Parasitology

Parasitology, Harold W. Manter Laboratory of

---

1979

*Neopronocephalus orientalis* Sp. n. (Digenea:  
Pronocephalidae) and *Spirhapalum elongatum*  
Rohde, Lee, and Lim, 1968 (Digenea:  
Spirorchiidae) from *Cuora amboinensis* (Daudin) in  
Malaysia

Daniel R. Brooks

University of Notre Dame, [dnlbrooks@gmail.com](mailto:dnlbrooks@gmail.com)

James R. Palmieri

Notre Dame University, Notre Dame, Indiana

Follow this and additional works at: <https://digitalcommons.unl.edu/parasitologyfacpubs>



Part of the [Parasitology Commons](#)

---

Brooks, Daniel R. and Palmieri, James R., "*Neopronocephalus orientalis* Sp. n. (Digenea: Pronocephalidae) and *Spirhapalum elongatum* Rohde, Lee, and Lim, 1968 (Digenea: Spirorchiidae) from *Cuora amboinensis* (Daudin) in Malaysia" (1979). *Faculty Publications from the Harold W. Manter Laboratory of Parasitology*. 839.

<https://digitalcommons.unl.edu/parasitologyfacpubs/839>

This Article is brought to you for free and open access by the Parasitology, Harold W. Manter Laboratory of at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Faculty Publications from the Harold W. Manter Laboratory of Parasitology by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

***Neopronocephalus orientalis* sp. n. (Digenea: Pronocephalidae)  
and *Spirhpalum elongatum* Rohde, Lee, and Lim, 1968 (Digenea:  
Spirorchiiidae) from *Cuora amboinensis* (Daudin) in Malaysia**

DANIEL R. BROOKS AND JAMES R. PALMIERI

Department of Biology, Notre Dame University, Notre Dame, Indiana 46556,  
and University of California, ICMR, Institute for Medical Research, Kuala Lumpur 02-14, Malaysia

ABSTRACT: *Neopronocephalus orientalis* from *Cuora amboinensis* in Malaysia most closely resembles *N. spinometraterminis* from *Kachuga tectum tentoria* in India by possessing postovarian cecal tips and an average of more than 30 vitelline follicles, but differs by having equatorial rather than preequatorial testes which are mostly intercecal rather than extracecal and a slightly smaller cirrus sac. *Neopronocephalus spinometraterminis* purportedly has spines in the metraterm and a common genital pore, whereas *N. orientalis* exhibits nonstaining wrinkled epithelium lining the metraterm and separate genital pores. *Spirhpalum elongatum* was also collected from its type host near the type locality.

Specimens forming the basis of this report were collected by the second author as part of a continuing survey of the helminth fauna of Malaysian reptiles and amphibians. Worms were collected from hosts, flattened with minimal coverslip pressure, fixed with AFA, and stored in 70% ethanol. They were stained with acetocarmine and mounted in Histoclad for study as whole mounts. Figures were drawn with the aid of a drawing tube; measurements are in micrometers unless otherwise stated.

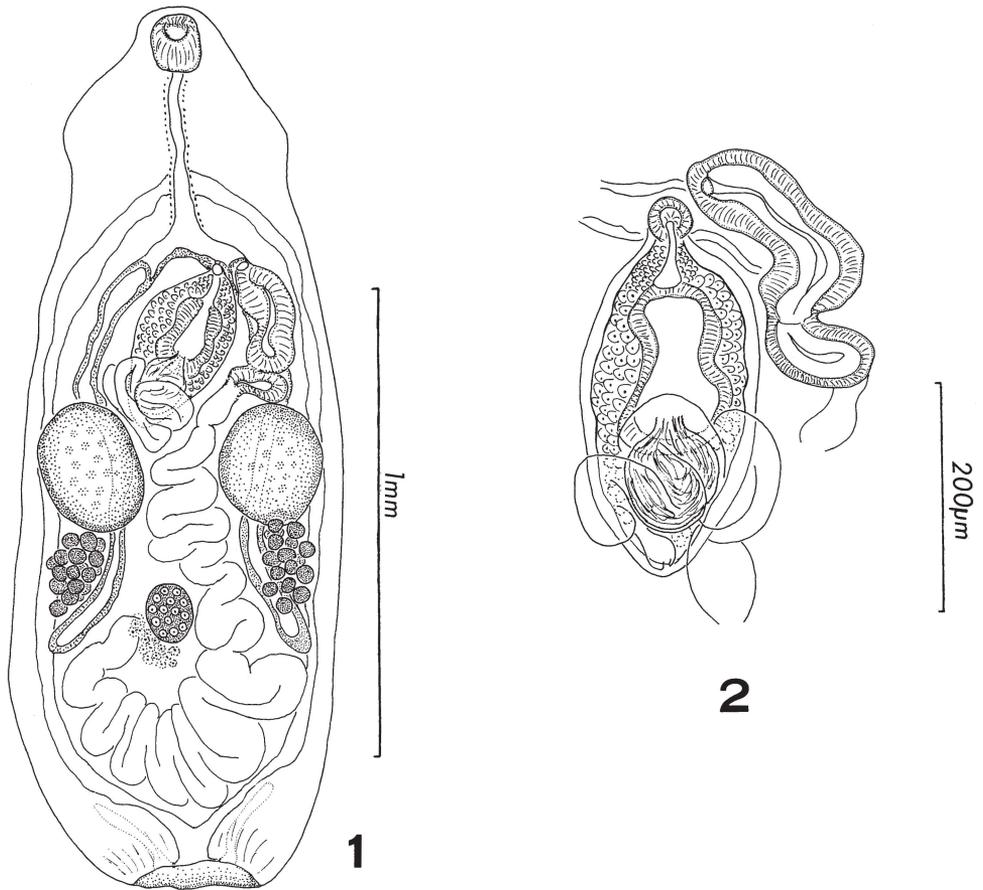
***Neopronocephalus orientalis* sp. n.  
(Figs. 1-2)**

DESCRIPTION (based on 14 specimens, 10 measured): Body elongate with truncate posterior end, 1.08-2.01 (1.60) mm long by 0.46-0.78 (0.63) mm wide at midbody. Tegument aspinose; diffuse eyespot pigment present anteriorly. Cephalic collar 340-510 (450) wide. Oral sucker subterminal, 87-125 (103) long by 81-116 (99) wide. Esophagus 218-392 long, unlined; cecal bifurcation 23.0-28.6% (26.3%) of total body length from anterior end; ceca extending to within 22.7-27.3% (24.4%) of total body length from posterior end; ceca lined.

Testes equatorial, symmetrical, ventral to ceca, subspherical. Left testis 116-261 (190) long by 128-232 (201) wide, right testis 125-290 (201) long by 125-238 (174) wide. Posttesticular space 35.7-47.2% (40.3%) of total body length. Cirrus sac intercecal, pretesticular, surrounded at distal end by coiled external seminal vesicle; cirrus sac 160-405 (303) long by 87-183 (137) wide, not reaching dextral testis; wall of cirrus sac 10-15 thick. Cirrus sac containing saccate internal seminal vesicle 70-120 long, eversible cirrus, and prostatic cells; prostatic cells globular surrounding seminal vesicle and spherical surrounding cirrus. Male genital pore sinistral, 30.7-36.1% (33.1%) of total body length from anterior end, ventral to or immediately medial to cecum.

Ovary posttesticular, slightly but consistently anterior to level of cecal tips,

<sup>1</sup> This study was supported in part by a grant AI 10051 (UC ICMR) to the Department of International Health, School of Medicine, University of California, San Francisco, from the National Institute of Allergy and Infectious diseases, National Institutes of Health, U.S. Public Health Service.



Figures 1-2. *Neopronocephalus orientalis*. 1. Ventral view of holotype. 2. Terminal genitalia.

submedian, subspherical, 90–174 (121) long by 81–131 (103) wide. Mehlis' gland and Laurer's canal dorsal to ovary. Vitellaria paired, follicular, extracecal posterior to testes; 15–20 (17.5) sinistral follicles, 15–19 (16.9) dextral follicles, 32–38 (34.4) total follicles; follicles 23–29 (26) long by 18–29 (23) wide. Uterus coiled from postovarian region to near cecal bifurcation, extending posteriorly to 8.6–16.7% (12.9%) of total body length from posterior end; uterus terminating with extracecal muscular metraterm 110–304 (183) long by 52–102 (74) wide. Female separate from but proximate to male pore. Eggs mostly collapsed, 20–30 long by 10–13 wide, nonfilamented.

Excretory system composed of Y-shaped excretory vesicle bifurcating immediately posterior to posteriormost uterine extent; arms extending anteriorly, uniting dorsal to midesophagus; pore dorsal, subterminal. Portion of body containing excretory pore enclosed in velumlike posterior portion of body.

HOST: *Cuora amboinensis* (Daudin), Malaysian box turtle.

SITE OF INFECTION: Upper third of small intestine.

LOCALITY: Vicinity of Kuala Lumpur, Malaysia.

HOLOTYPE: USNM Helm. Coll. No. 73053.

PARATYPES: USNM Helm. Coll. No. 73054; Univ. Nebraska State Museum, Manter Laboratory No. 20866.

ETYMOLOGY: The specific name means "eastern" and refers to the fact that all previously named species of *Neopronocephalus* occur west of Malaysia.

#### Remarks

Six species of *Neopronocephalus* Mehra, 1932 have previously been described, five from Indian freshwater turtles and one from a Burmese freshwater turtle. Only one of those, *N. spinometraterminis* Rao, 1975 from *Kachuga tectum tentoria* Gray in India, possesses postovarian cecal tips and more than 30 vitelline follicles as exhibited by *N. orientalis*. The latter species differs from the former by having equatorial rather than preequatorial testes which are primarily intercecal rather than extracecal, and a slightly smaller cirrus sac (160–405 vs. 330–580  $\mu\text{m}$  long). Additionally, Rao (1975) described *N. spinometraterminis* as possessing a common genital pore and spines lining the metraterm. The new species possesses separate genital pores and exhibits nonstaining, wrinkled epithelium lining the metraterm which gives the appearance of tegumental spines.

We also collected, from the same host species (type) and near the type locality, a single specimen of *Spirhapalum elongatum* Rohde, Lee, and Lim, 1968 which agreed in all respects with the original description by Rohde et al. (1968) and which has been deposited as USNM Helm. Coll. No. 73055.

#### Literature Cited

- Rao, S. L. 1975. Studies on the trematode parasites of turtles from India. Further contributions to our knowledge of the family Pronocephalidae Looss, 1902. Riv. Parassitol. 36:137–151.
- Rohde, K., Lee, S. K., and Lim, H. W. 1968. Ueber drei malayische trematoden. Ann. Parasitol. 43:33–43.