Occurrence of *Ophionyssus natricis* on Zoo Snakes in Japan (Mesostigmata, Macronyssidae)

Meng-Yu ZHANG¹ and Kimito UCHIKAWA

Department of Parasitology, Shinshu University School of Medicine, Matsumoto, 390 Japan.

¹ Present Address: *Department of Parasitology, Hebei Medical College, Shijiazhuang, Hebei Province, People's Republic of China.*

(Accepted 30 July 1993)

ABSTRACT

Zhang, M.Y. and K. Uchikawa, 1993. Occurrence of *Ophionyssus natricis* on zoo snakes in Japan (Mesostigmata, Macronyssidae). *J. Acarol. Soc. Jpn.* 2(2): 75–78.

Ophionyssus natricis (Megnin) is recorded from Japan for the first time. Since this mite is foreseen to occur on zoo snakes frequently, its morphology is given, basing on the specimens taken from the snakes in the Zoological Park of Ehime Prefecture, Tobe, and Ueno Zoo. The control measures for this mite can be found in any textbook. The Japanese name, hebi-oosashidani, is proposed for *O. natricis*.

Key words: *Ophionyssus natricis*, zoo snake, new record

INTRODUCTION

The genus *Ophionyssus* Megnin (in Greece: *Ophis* = a snake; *nysso* = to prick, afflict) belongs to the family Macronyssidae. *Ophionyssus natricis* (Gervais, 1844), the generic type, has been found on diverse species of snakes and lizards in captive (Domrow, 1987; Fain, 1962). Further, this mite is known to transmit mechanically *Proteus hydrophilus*, the etiologic agent of highly fatal hemorrhagic septicemia, to snakes (Camin, 1948). Consequently, *O. natricis* has been regarded as one of the most problematic ectoparasites of zoo snakes and lizards, though the mite has not been recorded in Japan.

O. natricis is very similar to *Ornithonyssus bacoti* (Hirst, 1913) to the naked eye. However, both the adult and protonymph of these two species are easily separable from each other microscopically.

Measurements below are in micrometers, and are taken from five female, three male and five protonymphal specimens unless otherwise mentioned.

MORPHOLOGY OF *O. natricis*

Female (Fig. 1). Dorsal shields consisting of propodosomal and pygidial shields. Two pairs of shieldlets posterior to propodosomal shield. Submedian setae F_3 on pro-

Fig. 1. *Ophionyssus natricis*, female. A: Dorsal view, B: Ventral view.

podosomal shield (a generic character). Propodosomal shield broad and short (270–310 long by 265–325 wide), and bearing only 10 pairs of setae, with D_4 as terminal ones (a specific character). Pygidial shield small (50–60 $\times$ 50–60), with some pores and without setae. Sternal shield square (40–45 $\times$ 103–110 at level of second sternal setae), bearing only two pairs of setae and pores marginally (a generic character). Third pair of sternal setae, metasternal setae and genital setae on soft integument (a generic character). Genital shield tapering, 290–320 long. Peritreme extending to posterior one third of coxa II; length of stigmata and peritreme 128–145. Anal shield inverse pear-shaped (110–145 $\times$ 68–85). Many setae on dorsum and venter. Legs and leg chaetotaxy as in Fig. 1. Chelichera and chelae similar to those of *Ornithonyssus bacoti*; fixed digit 45–50 long.

Male (Fig. 2). Dorsal shield entire (475–525 $\times$ 250–260), abruptly narrowed at level of D_4 . Ventral armature divided into sternogenital (200–210 $\times$ 80–88 at level of second sternal setae) and anal (80–95 $\times$ 60–70) shields, with sternogenital one ending at level of coxa IV and bearing only first two pairs of setae (generic and specific characters). Chelicera and chelae as in Figure 2C; spermadactyl 30–35 long. Other structures including gnathosoma and legs as in female.

Protonymph (Fig. 3). Propodosomal shield as wide as long (180–235 $\times$ 190–240), bearing 11 pairs of setae, inclusive of anteriormost ones (F_1). Pygidial shield 50–75 long by 75–90 wide ($n=4$), and bearing only three pairs of setae. Sternal shield 110 long by 75–80

Fig. 2. *Ophionyssus natricis*, male. A: Dorsal shield, B: Ventral armature, C: Chelicera and chelae.

Fig. 3. *Ophionyssus natricis*, proto-nymph. Propodosomal and pygidial shields.

wide ($n=2$), with three pairs of setae marginally. Anal shield 55–65 long by 42–55 wide.

MATERIAL EXAMINED

Three males, 23 females and 2 protonymphs taken by Mr. Yasunori Miyauchi from the body surface of *Chondropython viridis* (Schlegel) in the Zoological Park of Ehime Prefecture, Tobe, on June 3, 1989. (The host snake was imported from New Guinea in March, 1988.); 6 females and 3 protonymphs taken from *Boa* sp. in the Ueno Zoo on September 20, 1992. (No further data were available.)

REMARKS

The females of the genus *Ophionyssus* are characterized by their entire dorsal shield, sternal shield bearing only 2 pairs of setae and pores, and genital setae off the genital shield. Among some 15 congeners, the females of the three species, *O. natricis*, *O. eremiadis* Naglov and Naglova and *O. mabuyae* Till, are aberrant in having the propodosomal shield and fragmentary pygidial shield (Micherdzinski, 1980). The propodosomal shield of *O. natricis* is broad and short and bears only 10 pairs of setae. Consequently, *O. natricis* is easily differentiated from the other congeners, based on the

above female characters. Since *O. natricis* is the generic type that will be found frequently on zoo snakes in Japan, the Japanese name, hebi-oosashidani, is proposed for this species.

Some endo- and ectoparasites often infect or infest very heavily captive host animals. *O. natricis* is a typical one of such ectoparasites and, further, this mite has been noted from many parts of the world as a pest of zoo snakes and lizards. So we can find brief comments on its biology and control measures for it in many books and papers (Fain, 1962; Flynn, 1973; Krantz, 1978; McDaniel, 1979).

Acknowledgements

We are grateful to Dr. Kazuo Ishikawa, Matsuyama Shinonome College, Matsuyama, and to Dr. Satoshi Shinonaga, Tokyo Medical and Dental University, Tokyo, for providing us with the specimens from the Zoological Park of Ehime Prefecture and Ueno Zoo, respectively.

摘 要

ヘビオオサシダニの日本からの記録 張 孟余・内川公人(信州大学医学部寄生虫学教室)

世界各地の動物園で飼育される蛇類に広く多数寄生して宿主に被害を及ぼすことで知られるヘビオオサシダニが、愛媛県立砥部動物園のミドリニシキヘビと上野動物園のボアから見つかった。本邦新記録種であるうえ、肉眼的にイエダニに酷似する種類であるので、本種の形態を示した。

REFERENCES

- Domrow, R. (1987): Acari Mesostigmata parasitic on Australian vertebrates: an annotated checklist, keys and bibliography. *Invertebr. Taxon.*, 1: 817-948.
- Fain, A. (1962): Les acariens mesostigmatiques ectoparasites des serpents. *Bull. Inst. roy. Sci. natur. Belg.*, 38: 1-149.
- Flynn, R.J. (1973): Parasites of laboratory animals. pp. 884, Iowa State Univ. Press, Ames.
- Krantz, G.W. (1978): A manual of acarology (2nd ed.). pp. 509, Oregon State Univ. Book Stores, INC., Corvallis.
- MacDaniel, B. (1979): How to know the mites and ticks. pp. 335, Wm. C. Brown Comp. Publ., Iowa.
- Micherdzinski, W. (1980): Eine taxonomische Analyse der Familie Macronyssidae Oudemans, 1936. I. Subfamilie Ornithonyssinae Lange, 1958 (Acarina, Mesostigmata). pp. 263, Polska Akademia Nauk, Warszawa.