

Vampirolepis ezoensis sp. nov. (Cestoda: Hymenolepididae)
from the Japanese northern bat, *Eptesicus nilssoni parvus*
Kishida, with a list of known species of the genus
Vampirolepis Spassky from bats

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Abstract

Hymenolepidid cestode, *Vampirolepis ezoensis* n. nov. was described from the Japanese northern bat, *Eptesicus nilssoni parvus*, of Hokkaido. The length and shape of rostellar hooks distinguish the present new species from all of 24 known species of *Vampirolepis* armed with 30–40 rostellar hooks from bats.

Key words: hymenolepidid cestode, *Vampirolepis*, tree roosting bat

Introduction

In Hokkaido, no cestode parasites except *Hymenolepis bacillaris* Gieze have been described from the tree-roosting bats (Yamashita and Mori, 1953) although the cestode parasites from the cave-dwelling bats are known (Sawada, 1978, 1979, 1988). This time, the digestive tracts of 15 tree-roosting bats, *Eptesicus nilssoni parvus* Kishida, 1932, rare in Hokkaido, were donated by Mr. Mukooyama. On investigation, one of them was found infected with a specimen of new cestode. The purpose of the present paper is to give a note of this new cestode species and a list of 72 known species of the genus *Vampirolepis* Spassky, 1954 from bats.

Materials and Methods

On August 1, 1989, 15 specimens of the Japanese northern bats, *Eptesicus nilssoni parvus* Kishida, 1932 were captured by Mukooyama in a lecture hall of Hokumon Elementary School at Kamishihoro-chô, Hokkaido. The bats were autopsied immediately after capture and their in-

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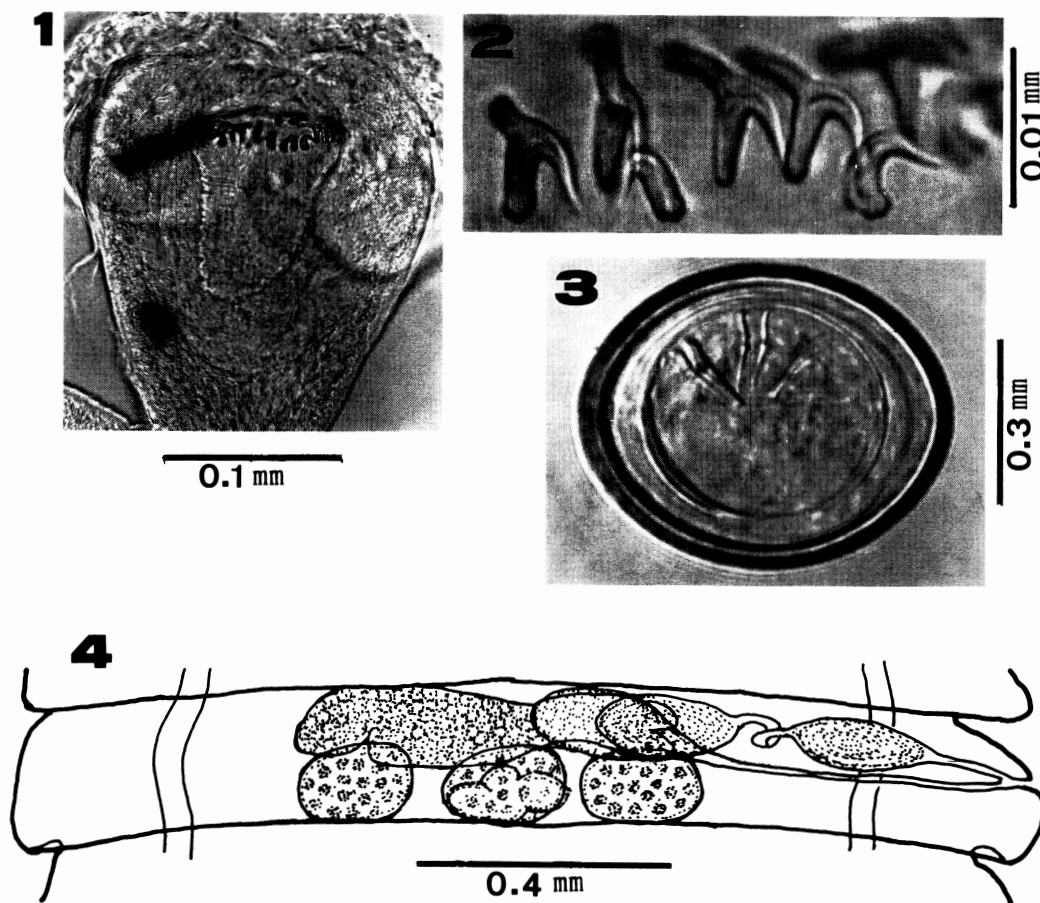
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testinal tracts were fixed in Carnoy's fluid and sent to the author. After being soaked in 45% acetic acid for about five hr for expanding, the intestinal tracts were cut open in 70% alcohol and examined for cestodes. The morphological features of scoleces, eggs and a part of mature segments were observed under the interference contrast microscope. The strobila was stained with alcohol-hydrochloride-carmin, dehydrated in alcohol, cleared in xylene, and mounted in Canada balsam. Measurements are given in millimeters.

Vampirolepis Spassky, 1954
Vampirolepis ezoensis sp. nov.
(Figs. 1–4)

Description: Medium-sized hymenolepidid: total length of strobila 85; maximum width 1.6. Senile segments somewhat distended by egg-filled uteri. Metamerism distinct, craspedote, segment margins slightly serrate. All segments wider than long. Scolex inverted flask-shaped, 0.245 long by 0.231 wide, distinctly set off from neck. Rostellum 0.126 long by 0.105 wide; provided with a rostellar sac longer than rostellum, measuring 0.189 long by 0.119 wide; distal end armed with a single row of 35 small hooks, each measuring 0.011 long. Hook handle short; guard prominent, round at its end, slightly shorter than



Figs. 1–4 *Vampirolepis ezoensis* sp. nov.

1: Scolex, 2: Rostellar hooks, 3: Egg, 4: Mature segment.

blade; blade shape at its end. Sucker discoid, 0.098–0.105 in diameter. Neck slender 1.1 long by 0.11 wide.

Genital pores unilateral, located slightly posterior or to middle of each segment margin. Testes three in number, subspherical, 0.098–0.105 by 0.063, two antiporal and one poral in a transverse row in posterior field of extended segment. Cirrus sac well developed, 0.133–0.154 long by 0.042–0.049 wide, extending beyond longitudinal excretory canals. Internal seminal vesicle 0.091–0.098 long and 0.042 wide; dorsal to vagina and soon connecting to external seminal vesicle by a narrow duct. External seminal vesicle 0.105 long by 0.049 wide. Vagina opening in genital atrium, extending

medially, then enlarging and forming voluminous seminal receptacle measuring 0.175–0.182 long by 0.049–0.063 wide. Ovary transversely elongate, bilobate, 0.336–0.350 across. Vitelline gland trilobate, 0.119–0.126 long by 0.063–0.070 wide, directly posterior to ovary and in transverse plane of testes but ventral to them. Uterus filling large part of ripe segment. Eggs spherical or oval 0.053–0.056 by 0.042–0.046, surrounded by four envelopes; outermost chorion comparatively thick measuring 0.0035 in thickness. Onchospheres spherical 0.035–0.039 in diameters; embryonic hooks 0.014 long.

Host: *Eptesicus nilssonii parvus*.

Location: Small intestine.

Locality and date: Kamishihoro-chô, Hok-

Table 1 List of *Vampirolepis* spp. from chiroptera

Cestode species	Rostellar hook		Arrangement of testes	Host	Locality
	No.	Length			
1) <i>acollaris</i> Sawada and Harada, 1985	25	0.028–0.032	T†	<i>Rhinolophus coelophyllus</i>	Thailand
2) <i>acuta</i> (Rudolphi, 1819) Murai, 1976	38–54	0.037–0.040	L‡	<i>Myotis myotis</i> , <i>M. nattereri</i> , <i>Nyctalus noctula</i> , <i>Eptesicus serotinus</i> , <i>Plecotus austriacus</i>	Europe
3)* <i>aelleni</i> Mahon, 1954	40	0.026–0.030	T or L	<i>Epomophorus wahlbergi haldemanni</i>	Zaire
4) <i>artibeti</i> Zdzitowiecki et Rutkowska, 1980	20–27	0.019–0.020	L	<i>Artibeus jamaicensis</i>	Cuba
5) <i>baeri</i> Murai, 1976	45–49	0.026–0.027	T	<i>Nyctalus noctula</i>	Hungary
6)* <i>balsaci</i> (Joyeux et Baer, 1934) Spasskii, 1954	30	0.020–0.022	L	<i>Myotis bechsteini</i> , <i>M. myotis</i> , <i>Eptesicus serotinus</i>	France, Hungary, Czechoslovakia
7) <i>bihamata</i> Sawada and Harada, 1986	88–90	0.063–0.070	T	<i>Micronycteris minuta</i>	Bolivia
8) <i>bidentatus</i> Zdzitowiecki et Rutkowska, 1980	18–22	0.016–0.017	L	<i>Phyllonycteris poeyi</i>	Cuba
9) <i>brachysoma</i> Sawada and Harada, 1988	22	0.05	T	<i>Hipposideros armiger</i>	Taiwan
10) <i>brevihamata</i> Sawada, 1988	26	0.018	T	<i>Myotis nattereri bombinus</i>	Japan
11) <i>chalinolobi</i> (Andrews et Daniel, 1974) comb. n.	23	0.020	T	<i>Chalinolobus tuberculatus</i>	New Zealand
12) <i>chiangmaiensis</i> Sawada and Harada, 1985	24	0.021	T	<i>Rhinolophus siheno</i>	Thailand
13)* <i>christensoni</i> (Macy, 1931) Spassky, 1954	40	0.030–0.035	L	<i>Myotis lucifugus</i> , <i>M. evotis</i> , <i>M. keeni</i> , <i>Ptericus fuscus</i> , <i>Chilonycteris parnelli</i> , <i>M. yumenensis</i> , <i>M. californicus</i>	North America, Cuba
14)* <i>chiropterophila</i> (Vigueras, 1941) Yamaguti, 1959	32–34	0.030–0.032	L	<i>Molossus tropidorhynchus</i>	Cuba
15) <i>copihamata</i> Sawada, Harada and Kobayashi, 1984	many	0.005–0.007	L	<i>Tadarida plicata</i>	Malaysia
16) <i>curviamata</i> Sawada and Harada, 1986	22	0.053	L	<i>Molossus molossus</i>	Bolivia
17)* <i>curviamata</i> Sawada and Harada, 1985	30	0.018	T	<i>Rhinolophus marshalli</i>	Thailand
18) <i>decipens</i> (Diesing, 1850) Spassky, 1954	44–46	0.025–0.029	T	<i>Eptesicus fuscus</i> , <i>Tadarida laticauda</i> , <i>T. minuta</i> , <i>Molossus perotis</i> , <i>Chilonycteris rubiginosa</i>	Brazil, Cuba, Australia, Paraguai
19)* <i>elongata</i> Régo, 1962	32	0.017–0.018	L	<i>Glossophaga soricina</i> , <i>Phyllostomus hastatus</i> , <i>Mollossus rufus</i>	Brazil
20) <i>fiujiensis</i> Sawada, 1978	28	0.018	L	<i>Rhinolophus ferrumequinum nippon</i>	Japan
21) <i>gertschi</i> (Macy, 1947) Spassky, 1954	41	0.026–0.029	L	<i>Myotis californicus</i> , <i>Eptesicus fuscus</i> , <i>Plecotus townsendi</i>	U.S.A.

22)	<i>guarany</i> Rêgo, 1961	24–26	0.050	L	<i>Molossus crassicaudatus</i>	Brazil
23)	<i>haradai</i> , Sawada, Harada and Kobayashi, 1984	24–25	0.0175	L	<i>Miniopterus magneter</i>	Malaysia
24)	<i>hidaensis</i> Sawada, 1967	26–28	0.018–0.021	L	<i>Rhinolophus ferrumequinum nippon</i> , <i>Miniopterus schreibersii fuliginosus</i> , <i>M. s. blepotis</i>	Japan
25)	<i>hipposidera</i> (Lin, 1959) Sawada, 1988	22–24	0.021–0.024	L or T	<i>Hipposideros pratti</i>	China
26)	<i>hipposideri</i> (Prudhoe and Manger, 1969) Sawada, Harada and Kobayashi, 1984	16–19	0.022–0.024	T	<i>Hipposideros pomona</i>	Malaysia
27)*	<i>ikezakii</i> Sawada, 1988	34	0.028	L	<i>Rhinolophus cornutus cornutus</i>	Japan
28)	<i>iragensis</i> Sawada and Molan, 1988	24	0.018	T	<i>Taphazous nudiventris</i>	Iraq
29)	<i>iritomomensis</i> Sawada, 1983	28	0.018–0.021	L	<i>Rhinolophus imaizumii</i>	Japan
30)	<i>isensis</i> Sawada, 1966	22–25	0.032–0.035	L	<i>Rhinolophus ferrumequinum nippon</i> , <i>R. cornutus cornutus</i> , <i>R. imaizumii</i> , <i>R. c. orii</i> , <i>R. perditus</i>	Japan
31)*	<i>kaguyae</i> Sawada, 1987	35	0.032	L	<i>Myotis frater kaguyae</i>	Japan
32)	<i>kawasakimensis</i> Sawada, 1986	25	0.025	L	<i>Nyctalus lasiopterus aviator</i>	Japan
33)	<i>kerivoulae</i> (Hübscher, 1937) Yamaguti, 1959	20–22	0.022–0.023	T	<i>Kerivoula picta</i> , <i>Hipposideros caffer tephros</i> <i>Nycterus gambiensis</i>	Java, Nigeria
34)	<i>kobayashii</i> Sawada, Harada and Kobayashi, 1984	20	0.0385	L	<i>Rhinolophus creaghi</i>	Malaysia
35)	<i>longicollaris</i> Sawada and Harada, 1985	28	0.018	T	<i>Rhinolophus coelophyllus</i>	Thailand
36)*	<i>longisaccata</i> Sawada and Harada, 1986	36–38	0.035	L	<i>Molossus molossus</i>	Bolivia
37)	<i>macrostrobiloides</i> Sawada, 1984	18	0.025	L	<i>Hipposideros terasensis</i>	Taiwan
38)*	<i>macroti</i> Zdzitowiecki et Rutkowska, 1980	29–34	0.028–0.030	T	<i>Macrotus waterhousei minor</i>	Cuba
39)*	<i>malayensis</i> (Prudhoe et Mangor, 1969) Schmidt, 1986	32–34	0.020–0.022	T	<i>Rhinolophus</i> sp., <i>Kerivoula</i> sp., <i>Tylonycteris</i> sp.	Malaysia
40)*	<i>mazanensis</i> (Vaucher, 1986) comb. n.	37–40	0.0335–0.0336	L	<i>Saccoteryx bilineata</i>	Peru
41)	<i>mesopotamiana</i> Sawada et Mohammad, 1989	27–28	0.018	L	<i>Asellia tridens murraina</i>	Iraq
42)	<i>minatoi</i> Sawada, 1983	20	0.021	L	<i>Miniopterus schreibersii fuliginosus</i>	Japan
43)	<i>molani</i> Sawada and Molan, 1988	28	0.012	L	<i>Pipistrellus kuhli</i>	Iraq
44)*	<i>multihamata</i> Sawada, 1967	40–42	0.032–0.035	L	<i>Vespertilio superans</i>	Japan
45)	<i>novadomensis</i> Rysávy, 1971	27	0.016	L	<i>Myotis mystacinus</i>	Czechoslovakia
46)*	<i>ogaensis</i> Sawada, 1974	30	0.021	L	<i>Rhinolophus ferrumequinum nippon</i>	Japan
47)*	<i>ozensis</i> Sawada, 1980	30	0.021	L	<i>Plecotus auritus sacrimontis</i>	Japan

48)	<i>pandonensis</i> Sawada and Harada, 1986	41	0.035	L	<i>Eptesicus furinialis</i>	Bolivia
49)	<i>phyllostomi</i> (Vaucher, 1982) Sawada, 1986	42-52	0.024-0.026	T	<i>Phyllostomus hastatus hastatus</i>	Peru
50)	<i>pipistrelli</i> (López-Neyra, 1941) comb. n.	22-24	0.021-0.023	L	<i>Pipistrellus pipistrellus</i>	Spain
51)	<i>promopsis</i> (Vaucher, 1986) comb. n.	45	0.023-0.028	L	<i>Promops accultus</i>	Paraguay
52)*	<i>rikuchuenis</i> Sawada, 1987	29-30	0.018	L	<i>Myotis hosonoi</i>	Japan
53)	<i>roundabushi</i> (Macy et Rausch, 1946) Spassky, 1954	41-48	0.038-0.043	L	<i>Eptesicus fuscus</i> , <i>Nycticeius humeralis</i> , <i>Lasionycteris noctivagans</i>	U.S.A.
54)*	<i>ryšavyi</i> Tenora et Barus, 1960	34-39	0.037	L	<i>Myotis myotis</i>	Czechoslovakia
55)	<i>sandogroundi</i> (Baer, 1933) Yamaguti, 1959	16-18	0.024	T	<i>Pipistrellus nanus</i>	Zimbabwe
56)	<i>santacruzensis</i> Sawada and Harada, 1986	23	0.046	T	<i>Molossus molossus</i>	Bolivia
57)	<i>schmidti</i> Jensen et Howell, 1983	16	0.016-0.021	L	<i>Trienops persicus</i>	Tanzania
58)*	<i>shirotanii</i> Sawada, 1985	31	0.018	T	<i>Rhinolophus ferrumequinum nippon</i>	Japan
59)	<i>siamensis</i> Sawada and Harada, 1985	23	0.0245	T	<i>Hipposideros armiger</i>	Thailand
60)	<i>skriabiniana</i> (Skarbilivitch, 1946) Spassky, 1954	45	0.038	L	<i>Eptesicus turcomanus</i>	Russia
61)	<i>srenocephala</i> Sawada, 1988	21-26	0.025	L	<i>Nyctalus lasiopterus aviator</i>	Japan
62)	<i>tadaridae</i> Sawada, Harada and Kobayashi, 1984	45	0.028	T	<i>Tadarida plicata</i>	Malaysia
63)*	<i>tanegashimensis</i> Sawada, 1984	40	0.032	L	<i>Myotis macrodactylus</i>	Japan
64)	<i>taiwanensis</i> Sawada, 1984	22-24	0.018-0.021	T	<i>Miniopterus schreibersii fuliginosus</i>	Taiwan
65)*	<i>temmincki</i> (Vaucher, 1986) comb. n.	28-34	0.034-0.042	L	<i>Molossus temmincki</i>	Paraguay
66)*	<i>toohokuensis</i> Sawada, 1988	32-34	0.018	L	<i>Nyctalus lasiopterus aviator</i>	Japan
67)	<i>uchimakiensis</i> Sawada, 1988	27-28	0.021	T	<i>Myotis hosonoi</i>	Japan
68)	<i>urawaensis</i> Sawada, 1989	24-25	0.035	T	<i>Pipistrellus abramus</i>	Japan
69)*	<i>versihamata</i> Sawada and Harada, 1985	35	0.035	T	<i>Rhinolophus affinis</i>	Thailand
70)	<i>wakasensis</i> Sawada, 1984	42	0.035	L	<i>Myotis macrodactylus</i>	Japan
71)*	<i>yakushimaensis</i> Sawada, 1987	28-35	0.021	L	<i>Murina aurata ussuriensis</i>	Japan
72)*	<i>yoshiyukiiae</i> Sawada, 1980	32	0.0245	L	<i>Myotis frater kagiyae</i>	Japan
73)	<i>ezoensis</i> sp. nov.	35	0.011	L	<i>Eptesicus nilssoni parvus</i>	Japan

* Species armed with 30-40 rostellar hooks. †T = triangular row ‡L = longitudinal row

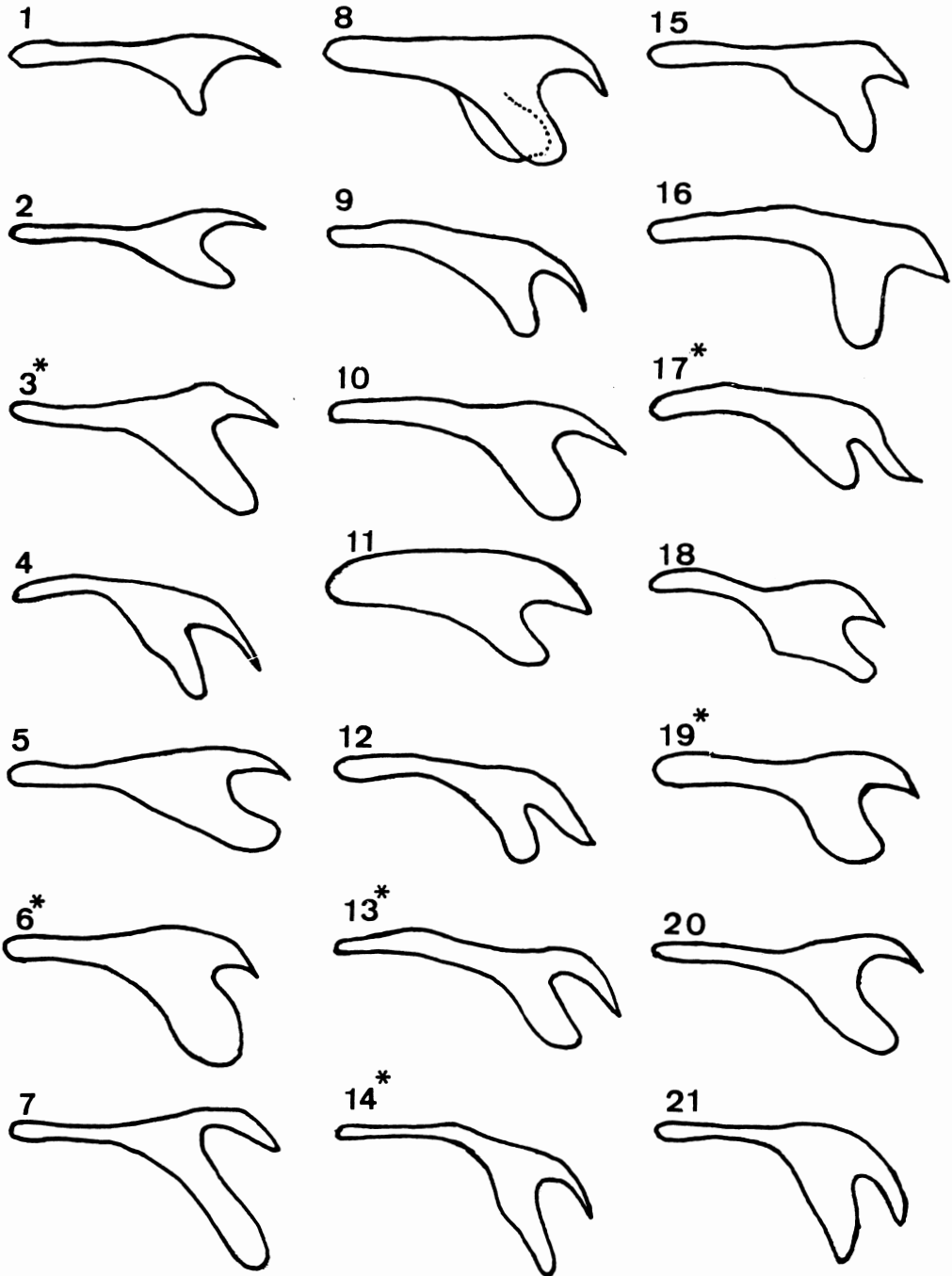
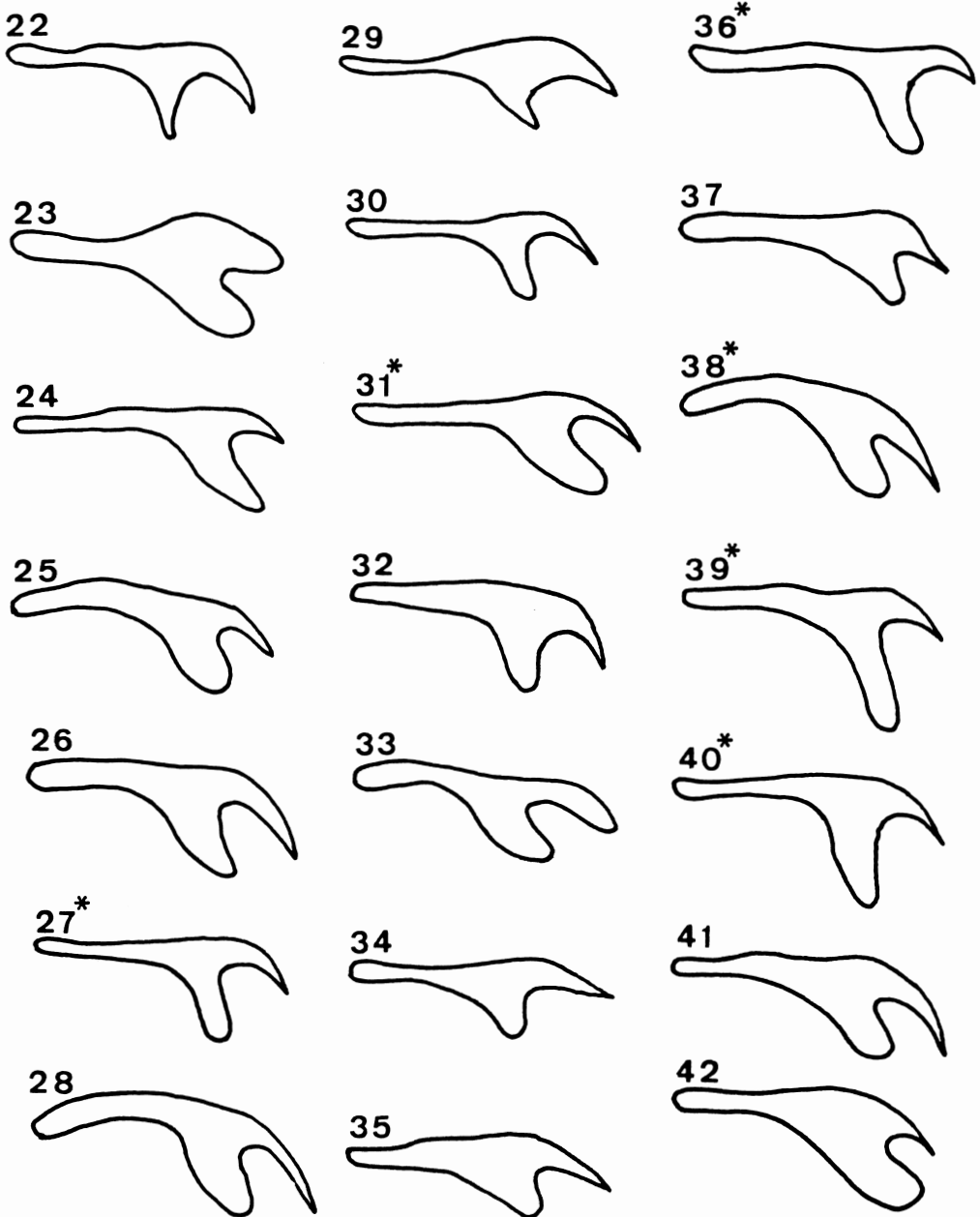


Fig. 5 Rostellar hooks of 72 known species of *Vampirolepis* from bats presented without relation to respective size.



kaido; August 1, 1989.

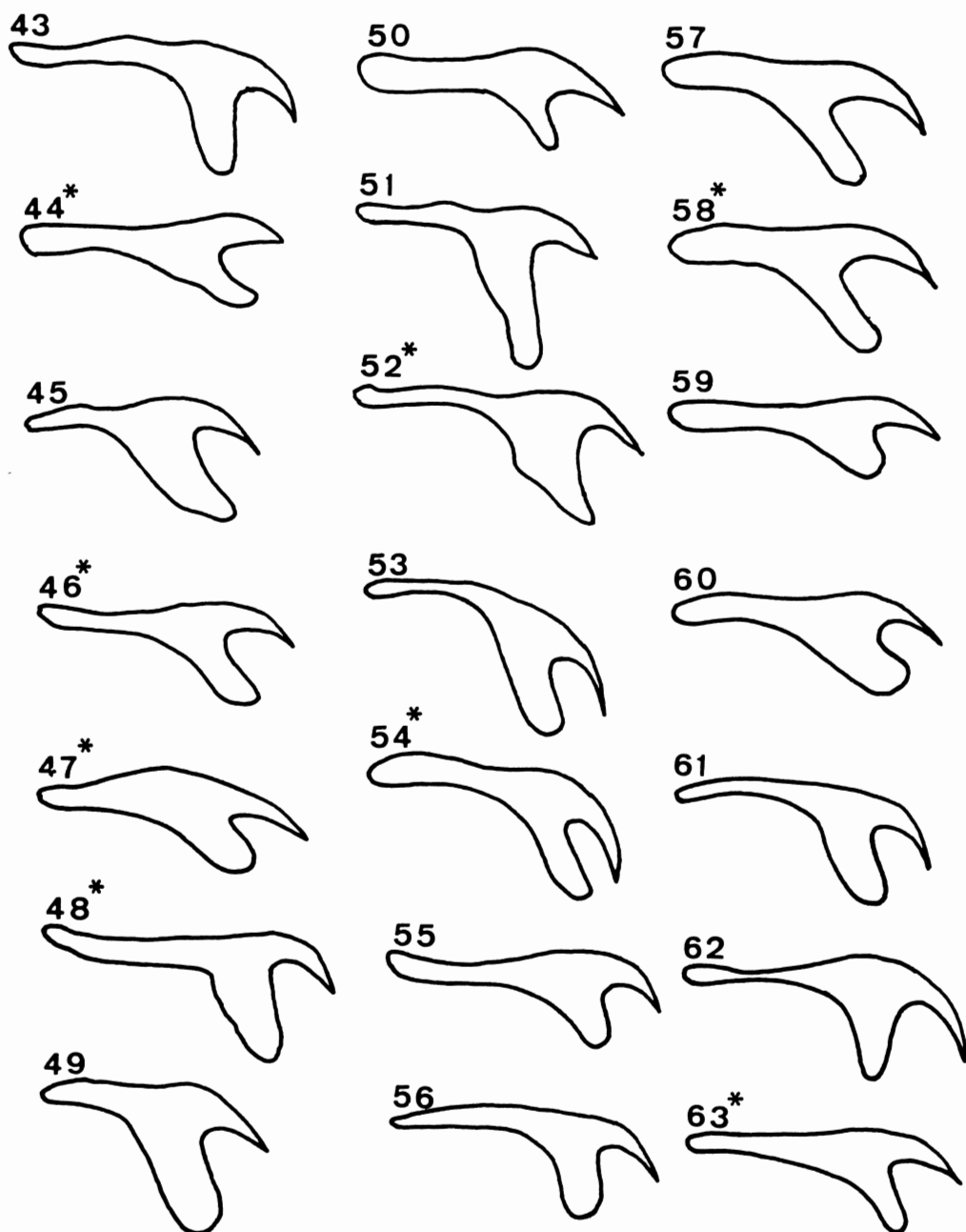
Type specimen: Holotype: NSU Lab. Coll. No. 9004.

Remarks: Out of 72 known species of *Vampirolepis* from bats, 25 harbor rostellum armed with 30–40 rostellar hooks (Table 1, asterisk). *Vampirolepis ezoensis* sp. nov. differs from all

of them in the length and shape of rostellar hooks (Table 1 and Fig. 5, asterisk).

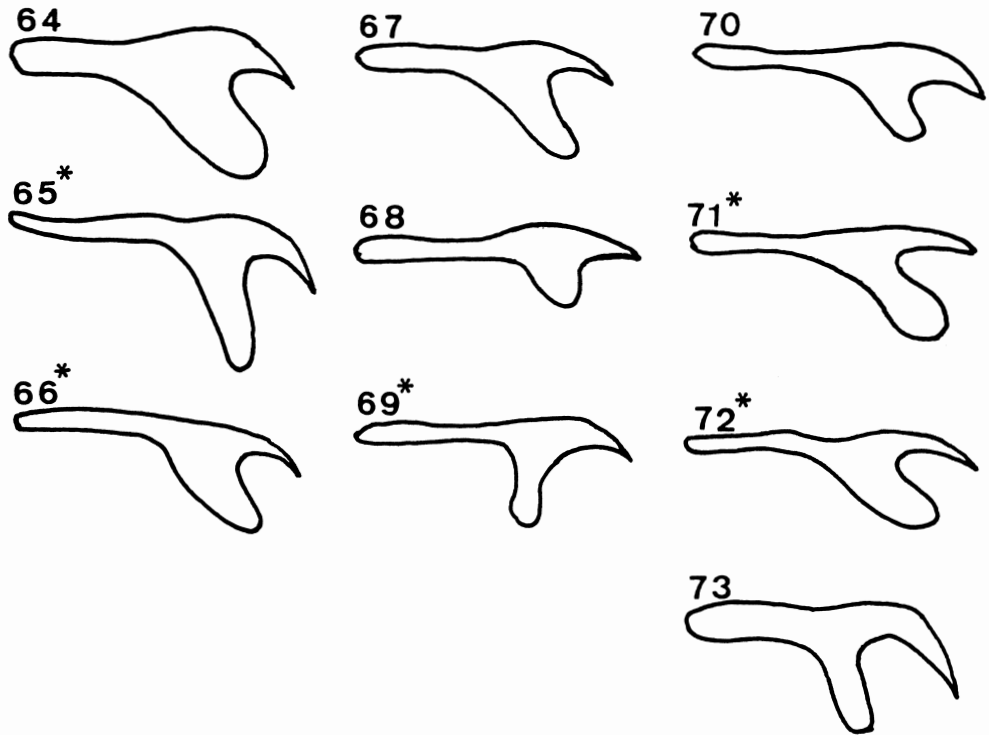
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Scale of magnification of hooks not uniform. After various authors. Hook numbers correspond to species numbers in Table 1.

* Species armed with 30–40 rostellar hooks.

- pirolepis schmidti* sp. n. (Cestoidea: Hymenolepididae) from *Triaenops persicus* (Hipposideridae) of Tanzania. Proc. Helminthol. Soc. Wash., 50, 135–137.
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