□寄生虫学□ Research note

New Host Records of Arthropod Parasites from Sea Birds in Hokkaido, Japan

Shigeru NAKAMURA[1)], Tohru MORITA[2)] and Mitsuhiko ASAKAWA[1)]

1) Department of Parasitology (Wildlife Zoology), School of Veterinary Medicine, Rakuno Gakuen University, Ebetsu, Hokkaido 069-8501, Japan
2) Utonaiko Wildlife Center, Tomakomai, Hokkaido 059-1365, Japan
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北海道産海鳥における寄生性節足動物の新宿主報告

中村 茂[1)], 盛田 徹[2)], 浅川満彦[1)]

1) 酪農学園大学獣医学部寄生虫学教室（野生動物学）〒069-8501 北海道江別市文京台緑町 582-1
2) 環境省ウトナイ湖野生鳥獣保護センター 〒059-1365 北海道苫小牧市字植苗 156-26

ABSTRACT. One species of pentastomid (*Reighardia sternae*) was found from a kittiwake (*Rissa tridactyla*) in Hokkaido I., Japan. This parasite species and one species of hypoderatid (*Hypodectes* sp.) were obtained from a crested auklet (*Aethia cristatella*) in this island. A case of *Hypodectes* sp. was the first record of the order Charadriformes.

Key words : *Reighardia sternae*, *Hypodectes* sp., *Rissa tridactyla*, *Aethia cristatella*, Japan

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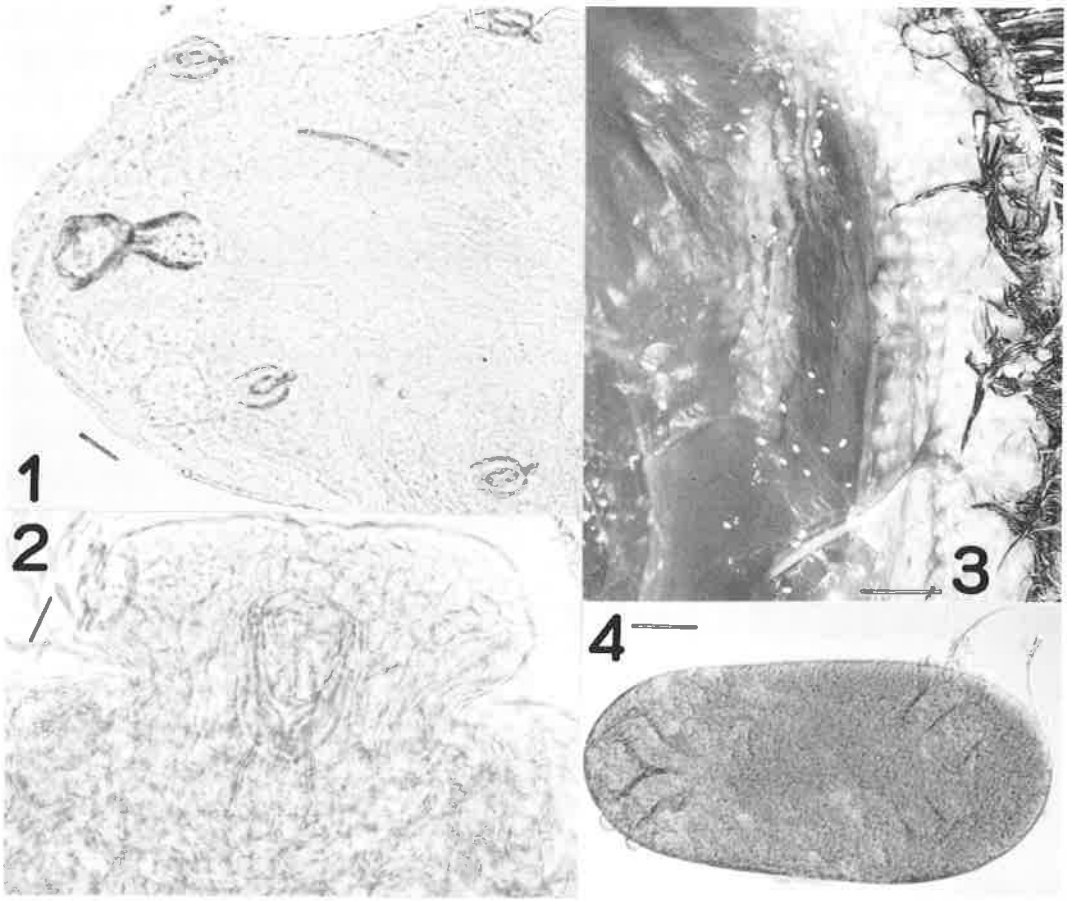
In this paper, two arthropod parasites (pentastomids and hypoderatids) found in sea birds (Order Charadriiformes) in Hokkaido, the northernmost island of Japan, are described as new host records in Japan.

Pentastomids: We found each tongue worm (Order Pentastomida: Class Crustacea) in the abdominal cavities of a kittiwake (*Rissa tridactyla*) (Host specimen serial number registered in our laboratory, As 179: Coll. date, November 10, 1995; Coll. locality, Otobe-Cho, Hokkaido, Japan) (Fig. 1) and a crested auklet (*Aethia cristatella*) (As 2371: Coll. date unknown; Coll. loc., Tomakomai-Shi, Hokkaido) (Fig. 2).

The body of the worms was cylindrical in shape without annulation and 2 pairs of small hooks each surrounded by inconspicuous parapodial lobes. All measurements of the worms (As 179 and As2371 respectively) are in μ m, unless otherwise mentioned: body length, 14.95 mm (As 179) and 3.63 mm (As 2371) ; intestinal length, 14.85 mm (As 179) and 2.61 mm (As 2371) ; central hook length, 227.8 (As 179) and 162.0 (As 2371) ; right anterior hook length, 112.5 (As 179) and 138.1 (As 2371) ; left anterior hook length, 77.0 (As 179) and 29.5 (As 2371) ; right posterior hook length, 118.3 (As 179) and 13.0 (As 2371) ; left posterior hook length, 113.0 (As 179) and 55.8 (As 2371).

There are 17 genera belonging to 6 families of the tongue



Figs. 1-4 Two arthropod parasites from sea birds in Hokkaido, Japan.
1 : Apical view of *Reighardia sternae* obtained from *Rissa tridactyla* (bar=0.1 mm)
2 : Apical view of front hooks of *R. sternae* obtained from *Aethia cristatella* (bar=0.05 mm)
3 : Nymphs of subcutaneous mites of *Hypodectes* sp. at hypoderm of *A. cristatella* (bar=10mm)
4 : One of the nymphs of subcutaneous mites of *Hypodectes* sp, ventral view. (bar=0.1 mm)

worms (Order Pentastomida), and most of the worms parasitize snakes as final hosts and mammals as intermediate hosts. However, among avian parasitic tongue worms, only 2 species of the genus *Reighardia* (Family Reighardiidae), namely, *R. sternae* (Diesing, 1864) and *R. lomviae* Dyck, 1975, have been reported throughout the world. The latter was found in guillemots (*Uria aalge*) in northern Europe, whereas *R. sternae* has been found in gulls, terns and alcids in various localities of Europe, Russia, China, North America and Brazil [1, 2], as well as Japan [1]. Based on the morphology and the measurements [1,2], the worms were identified as an adult female (As 179) and male (As 2371) of *Reighardia sternae*, respectively.

R. sternae has been found in *Larus argentatus, L. atricilla, L. canus, L. delewarensis, L. dominicanus, L. fuscus, L. hyperboreus, L. philadelphia, L. ridibundus, L. schistisagus, Pagophila eburnea, Sterna fluviatilis, S. hirundo, S. macrura, S. paradisaea, Rissa tridactyla, Hydroprogne tschegrava, Chlidonias hybrida, C. leucopterus, Uria aalge* and *Fratercula artica* [1, 2]. However, no pentastomid species has been found in the genus *Aethia*, although the present cases of this pentastomid species were the second record from Japan. The life-cycle of *R. sternae* is unknown although there was an experimental investigation of a direct transmission [3, 4].

Hypoderatids: From a subcutaneous tissue of a pectral muscule of a crested auklet (As No. 182, Coll. date unknown) donated by Utonai Nature Center, Tomakomai-Shi in Hokkaido in 1996, many individuals of nymphs or hypopes belonging to the family Hypoderatidae (Order Acariformes: Class Arachnida) were obtained (Fig. 3). The body length and widths of three specimens were 291 to 742 and 127 to 357, respectively (Fig. 4). Nymphs of subcutaneous mites have been found in wild and captive birds through the world [5], including those in a zoo in Japan [6]. According to Fain [5], Fain and Bafort [7], and Fain and Laurence [8], the general feature of the present specimens almost coincides with those of the genus *Hypodectes*.

Generally, the hypoderatid host range is 12 avian orders, viz., Anseriformes, Ciconiiformes, Coraciiformes, Columbiformes, Cuculiformes, Falconiformes, Gruiformes, Passeriformes, Pelecaniformes, Piciformes, Psittaciformes and Strigiformes [5, 7, 8], but this case is the first record of the order Charadriformes.

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要　約

北海道産ミツユビカモメ（*Rissa tridactyla*）およびエトロフウミスズメ（*Aethia cristatella*）から，舌虫 *Reighardia sternae* の未熟虫体が得られ，同じく北海道産エトロフウミスズメからヒカダニ科 *Hypodectes* sp. のヒポプスが発見された。*Hypodectes* sp. の例はチドリ目で初記録となった。

キーワード：ミツユビカモメ，エトロフウミスズメ，舌虫，ヒカダニ科，日本

REFERENCES

1. Ooi HK, Ohbayashi M. 1982. *Reighardia sternae*, a pentastomid from a slaty-backed gull in Hokkaido, Japan. *Jpn J Vet Res* 30: 112-114.
2. Brosens L, Jauniaux T, Siebert U, Benke H, Coignoul F. 1996. Observations of the helminths of harbour porpoises (*Phocoena phocoena*) and common guillemonts (*Uria aalge*) from the Belgian and German coasts. *Vet Rec* 139: 254-257.
3. Banaja AA, James JL, Riley J. 1975. An experimental investigation of a direct life-cycle in *Reighardia sternae* (Diesing, 1864), a pentastomid parasite of the herring gull (*Larus argentatus*). *Parasitology* 71: 493-503.
4. Banaja AA, James JL, Riley J. 1976. Some observations on egg production and autoreinfection of *Reighardia sternae* (Diesing, 1864), a pentastomid parasite of the herring gull. *Parasitology* 72: 81-91.
5. Fain A. 1967. Les hypopes parasites des tissus cellulaires des oiseaux (Hypodectidae:Sarcoptiformes). *Bull K Belg Inst Nat Wet* 43: 1-139.
6. Shichiri S, Nakamura Z, Kitaoka S, Totake Y. 1981. Hypopial nymphs of mites recovered from the subcutaneous tissues of pigeons, touraco and ibis. *J Jpn Assoc Zool Aqua* 23: 58-61. (in Japanese).
7. Fain A, Bafort J. 1996. Les hypopes parasitant les tissus cellulaires des pigeons sont les deutonymphes d'un acarien libre et pas celles d'un acarien plumicole. *Rev Zool Bot Afr* 74: 313-316.
8. Fain A, Laurence BR. 1974. A guide to the heteromorphic deutonymphs or hypopi (Acarina:Hypoderidae) living under the skin of birds, with the description of *Ibisidectes debilis* gen. and sp. nov. from the scarlet ibis. *J Nat Hist* 8: 223-230.