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## Two parasite species of arthropods found in a nest and the nestling of the pied wagtail, *Motacilla alba* Linnaeus, 1758, in Hokkaido, Japan

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北海道産ハクセキレイ *Motacilla alba* Linnaeus, 1758 の巣  
および雛から得られた外部寄生虫 2 種について

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### Abstract

Two arthropod species, one flea and one fowl mite species, were obtained from a nest and the body surface of a nestling of the pied wagtail, *Motacilla alba*, in Ebetsu, Hokkaido, Japan. The flea and the fowl mite were identified based on morphology as *Ceratophyllus tribulus* (Siphonaptera: Ceratophyllidae) and *Ornithonyssus sylvialum* (Acari: Dermanyssidae), respectively. This report is the first of *C. tribulus* found on *M. alba*.

### Introduction

In this paper, we report two species of parasitic arthropods (flea and mite) obtained from a nest and a nestling of the pied wagtail, *Motacilla alba* Linnaeus, 1758 (Passeriformes: Motacillidae) in Hokkaido, the northernmost island of Japan. These parasitic arthropods were identified to species based on morphological characteristics.

### Materials and Methods

We found the parasitic arthropods, fleas (Insecta: Siphonaptera) and mites (Arachnida: Acari), in a nest and on the body surface of a nestling of *M. alba* at Koei-cho, Ebetsu, Hokkaido, Japan, on July 10, 2003. The arthropods

were fixed in 70% ethanol and cleared in lactophenol solution. They were then identified using an optical microscope based on their morphological characters. The specimens, including the host and parasites, were deposited in the Wild Animal Medical Center, Rakuno Gakuen University, under the accession number WAMC/As/3263.

### Results and Discussion

Fleas (Fig. 1, plates A and B): The pronotal comb of the fleas consisted of 28 or 30 teeth and another, longer tooth approximately equal in length. The frontal tubercle was relatively minute, and the labial palp did not extend to the apex of the fore coxa. There are 37 genera belonging to nine families in the order Siphonaptera, but only three species of avian parasitic fleas, all belonging to the family Ceratophyllidae, in Japan<sup>[15,17]</sup>. The eighth sternum of male specimens had long, slender and parallel-sided membranous processes and three setae at the apex of the sternum. In females, the spermatheca was narrow and cylindrical, and there was a clear papilla on the apex of the hilla. Based on morphology and dimensions, the fleas were identified as *Ceratophyllus tribulus* Jordan, 1926 (syn. *Ceratophyllus gallinae dilatus* Dudolkina,

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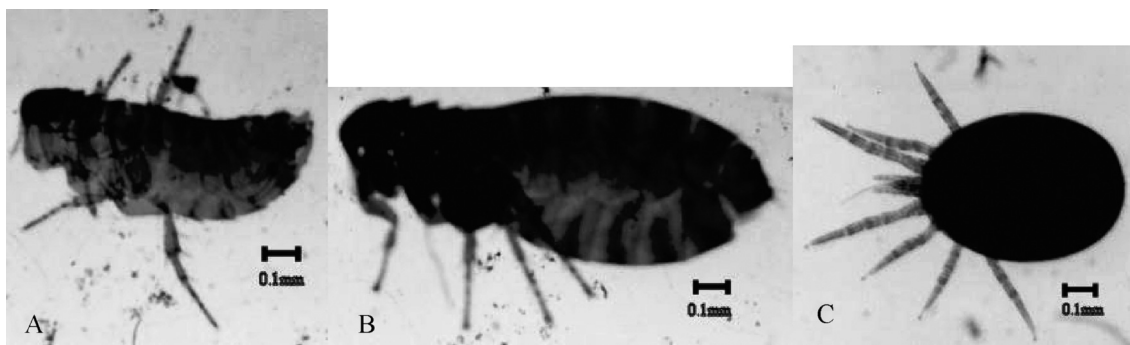


Fig. 1 *Ceratophyllus tribulus* male (A) /female (B), and *Ornithonyssus sylvialum* (C)

1946) (Family Ceratophyllidae)<sup>[8,10,17]</sup>. Although *C. gallinae sensu stricto* and *C. garei* have been found in several species of wild birds, including *M. alba*, worldwide, there has been no prior report of *C. tribulus* on *M. alba*<sup>[3,6-8,14,16]</sup>. In Japan, *C. tribulus* (reported as *C. g. dilatus*) has been reported from the nest of the gray wagtail, *M. cinerea* Tunstall, 1771; the Eurasian wren, *Troglodytes troglodytes* (Linnaeus, 1758); the blue-and-white flycatcher, *Cyanoptila cyanomelana* (Temminck, 1829); the great tit, *Parus major* Linnaeus, 1758; the tree sparrow, *Passer montanus* (Linnaeus, 1758); the white-cheeked starling, *Sturnus cineraceus* Temminck, 1835; the chestnut-cheeked starling, *S. philippensis* (Forster, 1781); and the rock dove, *Columba livia domestica* Gmelin, 1789<sup>[10,15,17]</sup>.

Mites (Fig. 1, plate C): The mites measured 680–750  $\mu\text{m}$  long and 290–360  $\mu\text{m}$  wide. We identified the mites as *Ornithonyssus sylvialum* (Canestrini and Fanzago, 1877) based on the following characteristics: female chelicerae were not whip-like, and the corniculi were not membranous. The setae on the dorsal shield were shorter than those on the adjoining integument, and there were only two pairs of setae on the sternal plate, while the third pair was on the integument<sup>[11,18]</sup>. This species of mite has previously been reported from domestic and wild bird species in Japan<sup>[12,18]</sup>.

Both *C. tribulus* fleas and *O. sylvialum* mites are well known to cause anemia, feather damage, nestling mortality, and nest destruction in birds<sup>[4,12,17]</sup>. These arthropods may also act as vectors of microbial or protozoan infections in birds<sup>[1,4,12,18]</sup>. In addition, these two arthropod species have been reported to be causative agents

of human dermatitis. Thus, the presence of these arthropod species in wagtail nests must be addressed for public health reasons. The possible source of the infestations was a nest of sparrows near the wagtail nest in a broken ventilation hood<sup>[2,5,9,9-11,13,18]</sup>.

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#### 和文要約

北海道江別市にて採集されたハクセキレイ *Motacilla alba* の巣およびヒナの体表からノミの一種である *Ceratophyllus tribulus* (隠翅目 Ceratophyllidae 科) およびトリサシダニ *Ornithonyssus sylviarum* (ダニ目ワクモ科) が採集された。ハクセキレイからの *C. tribulus* 採集例は本報告が初記録である。