

Ornithomya fringillina (Diptera: Hippoboscidae) collected from a goldcrest, *Regulus regulus* in Kushiro, Hokkaido, Japan

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Abstract: The carcass of a juvenile male goldcrest, *Regulus regulus*, was collected in November 14, 2016 at Kushiro, Hokkaido, Japan. Postmortem examination was performed and a louse-fly was obtained from its body surface. The findings suggested that the bird collided with a window and died by cerebral contusion and circulatory disorder due to pulmonary contusion. In addition, the fly was identified as *Ornithomya fringillina* based on morphological characters. To the best of our knowledge, this is the first record of *O. fringillina* from *R. regulus* in Kushiro region.

Key words: first host and geographical record, louse-fly, *Regulus regulus*

The goldcrest, *Regulus regulus* (Linnaeus, 1758) (Passeriformes: Regulidae) is a widely distributed species in the Palearctic region from Europe to the Far East, including Japan. In Japan, this is the resident species that breeds in conifer and mixed forests, including those in Hokkaido, and overwinters in lowland areas of Hokkaido and Honshu (Brazil 2009, Fujimaki 2012, Fujimaki and Hashimoto 1987, Ornithological Society of Japan, 2012). Goldcrest is one of the common species, but little biological data was available (Takagawa *et al.* 2010). Information on disease causing agents such as viruses, bacteria and parasites, is important for the conservation of birds (Asakawa *et al.* 2002). Therefore, we investigated the cause of death and the parasites present in this bird.

On November 4, 2016, the carcass of a juvenile male goldcrest was collected under a window at Kushiro city, Hokkaido, Japan, and the bird was taken for Kushiro Zoo (specimen ID: 16-16). Postmortem was performed in the zoo. During the postmortem examination, one of the authors (TY) collected a female louse-fly (Diptera: Hippoboscidae) from the body surface of the bird (Fig. 1a), which was fixed by 70% ethanol, followed by mounting using Hoyer's medium for microscopic identification. Specimen of the louse-fly and stuffed body of host bird were preserved in Kushiro Zoo.

The bird was not infected with Avian Flu and West Nile Virus by rapid screening test (Espline A Influenza; Fuji Rebio Inc. and WNV/SLE Vec Test; Medical Analysis Inc.). The measurements were; body weight: 6 g, total length: 95 mm, wingspan: 164 mm, unflattened wing length: 57 mm, maximum wing length: 58 mm, width of wing: 42 mm, tail length: 41 mm, exposed culmen: 6.96 mm, total culmen: 9.93 mm, height of bill: 2.31 mm, width of bill: 3.03 mm, total head

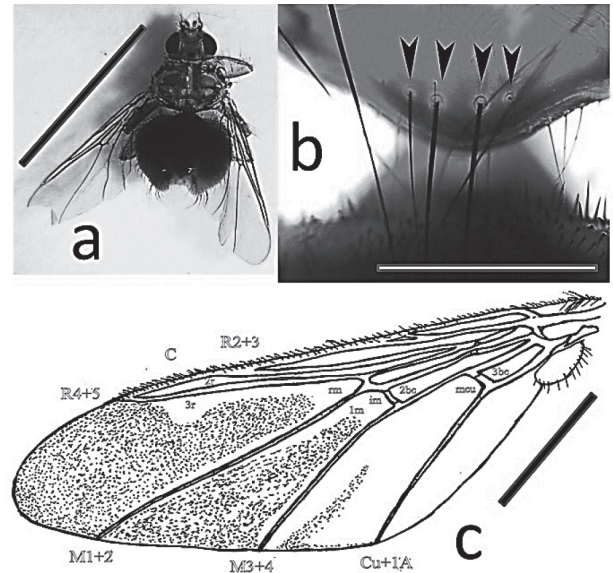


Fig. 1. A female of *Ornithomya fringillina* from a goldcrest, *Regulus regulus* in Kushiro, Hokkaido, Japan.

-a: Whole body, dorsal site (bar = 5 mm), -b: Scutellar bristles (arrows, bar = 0.5 mm), -c: Wing (bar = 1 mm)

length: 25.73 mm, and tarsus length: 17.14 mm. The bird stored sufficient subcutaneous fat and the pectoral muscle did not contract. Therefore, the nutrition condition appeared good. Hemoptysis was observed, but no fracture was apparent. Postmortem findings resulted in stasis of the jugular vein, pulmonary contusion, bleeding, and brain contusion, but no other abnormality. The above findings are common in some collision accidents, and the bird was collected at just under the glass window. Therefore, it seemed that the bird had collided with the glass window and died from organ contusion and circulation failure. In Hokkaido, it is well known that several wild birds get injured and die owing to collisions and traffic accidents in spring and autumn migration seasons (Yanagawa

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and Shibuya 1996, Yoshino *et al.* 2014). Goldcrest is a resident species, but it is known that they move from their breeding area to their wintering area, such as plains or low altitude area (Brazil 2009, Ornithological Society of Japan 2012). Because sufficient subcutaneous fat was stored, it was thought that the bird had encountered an accident during migration. Moreover, no helminths were found from the visceral organs.

The louse-fly was identified as *Ornithomya fringillina* based on the following morphological characters: tarsal claws bifid, wing length is 4.27mm, the wing has three cross veins (rm, im, mcu), veins R4+5 and C well apart from each other except at extreme apices, setae on veins M1+2 and M3+4, presence of less extensive setae on wings, cell 2r entirely bare, 3r bare at basal corner (Fig. 1b), the presence of four scutellar bristles (Fig. 1c), and markings of ventral side of the head are absent (Maa 1963, 1967, 1969, Mogi *et al.*, 2002, Peterson *et al.* 2008).

O. fringillina is widely distributed in the northern part of Europe, Russia, Korean Peninsula, and Japan, and recorded from passerine birds such as Fringillidae, Emberizidae, and Regulidae (Maa 1963, 1969, van den Broek and van Erk 1968, Walter *et al.* 1990). In Japan, the fly has been recorded from *Emberiza rustica* Pallas, 1776 collected at Echizen-cho (Fukui Prefecture) and *Prunella rubida* (Temminck and Schlegel, 1848), *Poecile montanus* (Conrad von Baldenstein, 1827), and *Parus minor* (Temminck and Schlegel, 1848) collected at Nukabira-cho, and *Periparus ater* Linnaeus, 1758 and *R. regulus* at Rishiri island (Hokkaido Prefecture) (Maa, 1967, Mogi *et al.* 2002, Sato and Mogi, 2008). The present finding represents the first record of *O. fringillina* from *R. regulus* in Kushiro region.

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