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短 報（Note）

Stump nests of the Ural owl *Strix uralensis* in Hokkaido

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Abstract

Nest sites of the Ural owl *Strix uralensis* widely vary, and stump nests, i.e., nests set on trees with broken stems, are not rare in Europe. However, few stump nests of the Ural owl have been reported in Japan. This study was conducted at a suburban forest of Sapporo, Hokkaido, northern Japan. The forest stands, which had regenerated after a wildfire, mainly consisted of broad-leaved trees. We observed 2 stump nests, one in 2007 and one in 2009, both located on the white birch *Betula platyphylla*. Here, we briefly describe the nest sites and breeding ecology of the Ural owl.

Key words : Ural owl, *Strix uralensis*, nest site, stump nest

Introduction

The Ural owl *Strix uralensis* is widely distributed in the middle range of the Palearctic region; from Scandinavia and eastern Europe to the Okhotsk coast, south to Sakhalin, Korea, and Japan (Cramp, 1985; Ornithological Society of Japan, 2000). These owls breed in diverse forest types (coniferous, mixed, and broad-leaved forests) and have a variety of nesting sites (Cramp, 1985). The typical nest sites of the Ural owl in Japan are large tree cavities, old stick nests of raptors and crows, ground, buildings, hollows of rocks, and nest boxes (Yamashina, 1941; Kiyosu, 1965; Brazil, 1990; Kakizawa and Kogaito, 1999). One of the additional nest types described in European countries is a stump nest, which is a nest set on trees with a broken stem (Burton, 1973; Cramp, 1985). Further, stump nests of the Ural owl are not rare in Europe; e.g., Cramp (1985) and Korpimäki (1986) reported that in Finland, 23 - 28 % of Ural owl nests were stump nests. However, to our knowledge, few stump nests have been reported in Japan (Kakizawa and Kogaito, 1999).

This study describes 2 stump nests of the Ural owl observed in Hokkaido, northern Japan.

Study area and methods

Studies were performed in the suburban forests of the Hokkaido Research Center of the Forestry and Forest Products Research Institute in southeastern Sapporo. The forest stands, which had regenerated after a wildfire, consisted mainly of natural broad-leaved trees (the dominant species are *Betula platyphylla*, *Quercus mongolica*, *Kalopanax pictus*, and *Tilia japonica*). The forest floor was covered with dwarf bamboo, *Sasa cernua* and *S. senanensis* (Kitamura and Kawahara 2007).

We observed Ural owls and their nests only from the ground with a binocular or a telescope and did not inspect the eggs and nestlings in the nests. Observations were performed at irregular intervals.

Results and discussion

On April 24, 2007, we found a Ural owl sitting on the top of a white birch (*B. platyphylla*) with a broken stem, height of 7.1 m (Photo 1A, Table 1). The stem was almost straight and perpendicular to the ground, and was 5 m away from a forest road. The bark of the tree left by the broken stem, which was approximately 20 cm in width, protruded partly from the standing stem and both ends of the bark flagged from the stem (Photo 1B). The owl faced the sticking bark and thus we only got a rear view of the owl (Photo 1B). At this time of the year, foliation of the trees did not occur, and the dorsal parts of the owl were clearly visible if viewed from above. The bark attached to the stem came off by mid May, and we could thus observe the head of the owl (Photo 1C). Because the owl always sat on the stem when observed during the daytime, we thought that it either incubated eggs or brooded nestlings. Only female Ural owls incubate their eggs (Cramp, 1985). Further, although we searched for her mate around the nest tree, we could not find him. The owl was last observed on the stem on May 25, 2007. We did not find the owl on the stem on May 27 but found 2 fledglings, 1 m apart from each other, on the ground approximately 4 m from the nest tree (Photo 1D). The

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nestlings were similar in appearance to the 23 day-old nestlings in a photo in Shiraishi and Kitahara (2007). Dwarf bamboo moderately covered the ground, and thus it was difficult to see the fledglings from above. We searched for the adult birds around the same area but could not locate them. One fledgling looked larger than the other, but both fledglings were covered in whitish grey down and feathers. Two days later, we could not find the fledglings by the nest tree. The stem broke again at about 5m above the ground by the April 2008 and seems not suitable for nesting any more.

On April 25, 2009, we observed an adult Ural owl perched on the branch of *B. platyphylla* near the nest tree observed in 2007. On May 22, we found a Ural owl in the hollow at the top of a broken stem of *B. platyphylla*; this stem was almost straight and perpendicular to the ground. The hollow, approximately 90 cm deep, was formed because the core wood was absent and a part of the sapwood had peeled off; this enabled us to observe the owl. The height of the stem was 9.9 m (Table 1). The stem, which was 51 m away from the nest tree observed in 2007, was located in the forest across the forest road and was 24 m away from the road. The owl's face could be seen in the break in the sapwood (Photo 2A), and at times we could see the faces of nestlings. On May 24, the owl stood in the nest and caught a feathered prey with its toes; it tore the prey with its beak, and fed the pieces to the nestlings. In the evening of May 27, the adult owl perched on a branch near the nest tree. We found 3 nestlings in the nest, and the one that was covered with whitish grey down and feathers was smaller than the other 2, which had whitish grey and dull-brown feathers. Sometimes 1 or 2 Eurasian jays *Garrulus glandarius* were seen mobbing the owl perched on the branch (Photo 2C); we saw the jays perched on the top of the nest tree several times but they did not attempt to enter the nest hollow. Thereafter, the adult owl was rarely observed in the nest; instead, it perched on branches near the nest tree. Only 2 nestlings were observed in the nest on June 8, and these looked older than the 25 day-old nestlings in another photo in Shiraishi and Kitahara (2007) because of the darker feather coloring of the former. In the morning of June 9, we found that 1 nestling perched on top of the stem and the other was inside the nest (Photo 2B); however, in the afternoon these were not found in the nest. We looked for the fledglings around the nest tree but could not locate them. At 19:34 on June 12, we heard food-calls of the fledglings (Cramp, 1985) uttering from 2 different locations, which were approximately 120 m away from the nest, and observed 1 fledgling perched on a branch (Photo 2D).

Kakizawa and Kogaito (1999) reported a nest of a Ural owl located on a pine stump; they confirmed egg laying but did not find nestlings in the nest. They stated that the stump nest was unfit for breeding of the Ural owl. However, in our study, the 2 nests successfully fledged young. A clear difference was observed in the ages of the young at the fledging stage between the nests observed in 2007 and 2009. Desertion of the nest by the nestlings was observed at an earlier stage in 2007 than in 2009 (by comparing the plumage color of the fledgling in Photo 1D and those of the nestlings in Photo 2B during a short period before fledging). The nestlings of the Ural owl usually desert their nests at the age of 34-37 days; however, they desert their nest at an earlier stage (at the age of 23-25 days) when they are disturbed (Glutz and Bauer, 1980). The early fledging of the nestlings in 2007 might have resulted from interference by crows and jays. Although the nestlings of the Ural owl in stump nests, as those in stick nests, should be at a higher risk of attacks or mobbing by birds of prey and crows, there are few studies that compared the breeding success between open (stump and stick nests) and cavity nests. Comparing stick nests and the nests of other types, including cavity and stump nests, Lõhmus (2003) did not find any difference in the mean annual number of fledglings per clutch (mean ± SD: 1.09 ± 1.00 for stick nests, 1.01 ± 0.50 for nests in snags and holes). Although the comparison is not straightforward, the result suggests that the difference between open and cavity nests could be small. Pietinen (1989) and Brommer et al. (2002) have shown that breeding success is not much affected by nest types because other factors, such as food supply, have larger effect on it.

The variety of habitats and nest sites selected by the

Table 1. Measurements of nest trees and nest sites of Ural owls.

Year	Tree species	Tree status	Tree height (m)	Diameter at breast height (cm)	Nest height (m)	Diameter at nest height (cm)
2007	*Betula platyphylla*	dead (broken top)	7.1	32.8	6.9	30.0
2009	*Betula platyphylla*	dead (broken top)	9.9	38.5	9.0	34.0

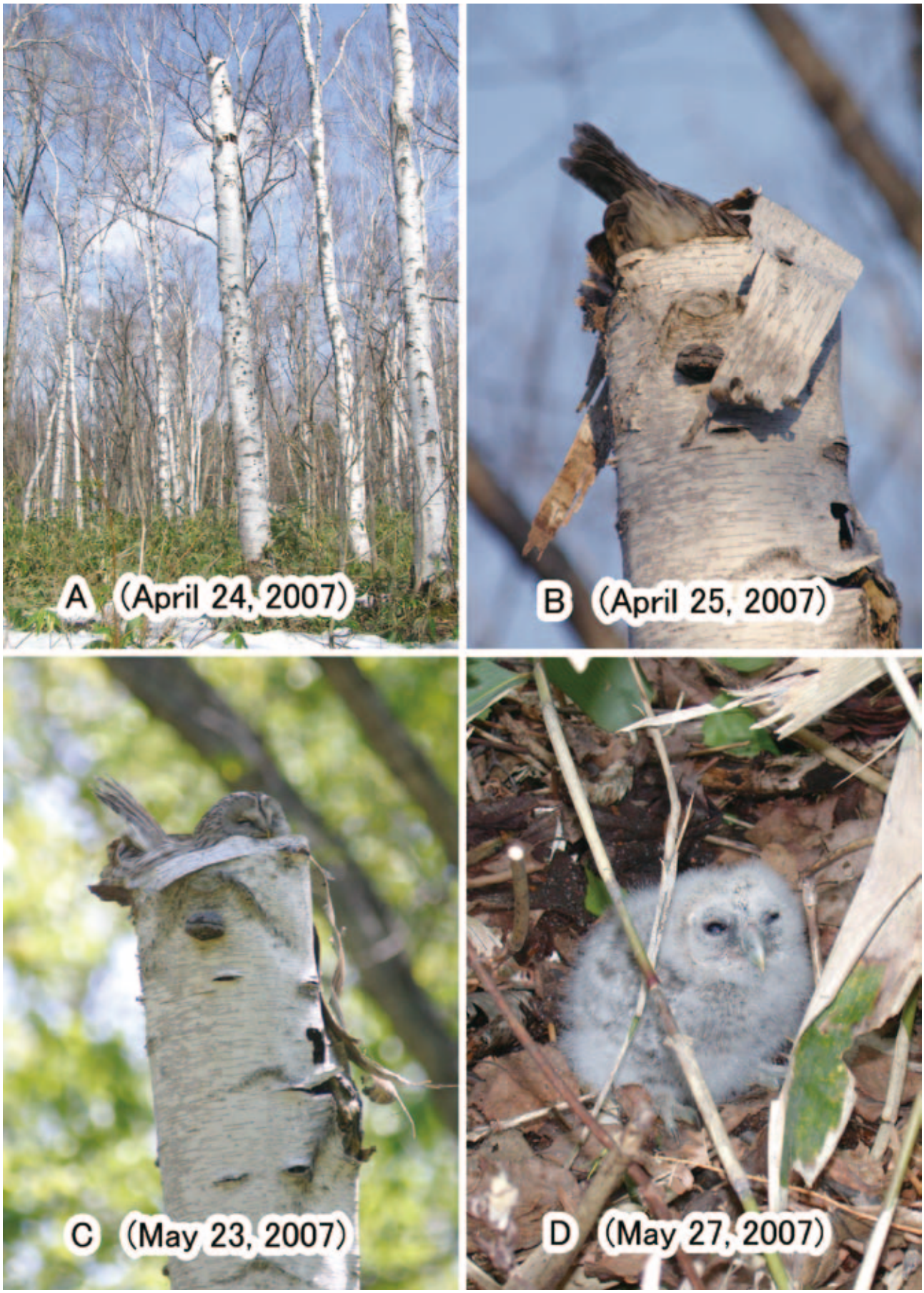

Photo 1. A: Stump nest of a Ural owl on a white birch in 2007; B and C: an adult owl sitting on the nest; D: a fledgling on the ground.

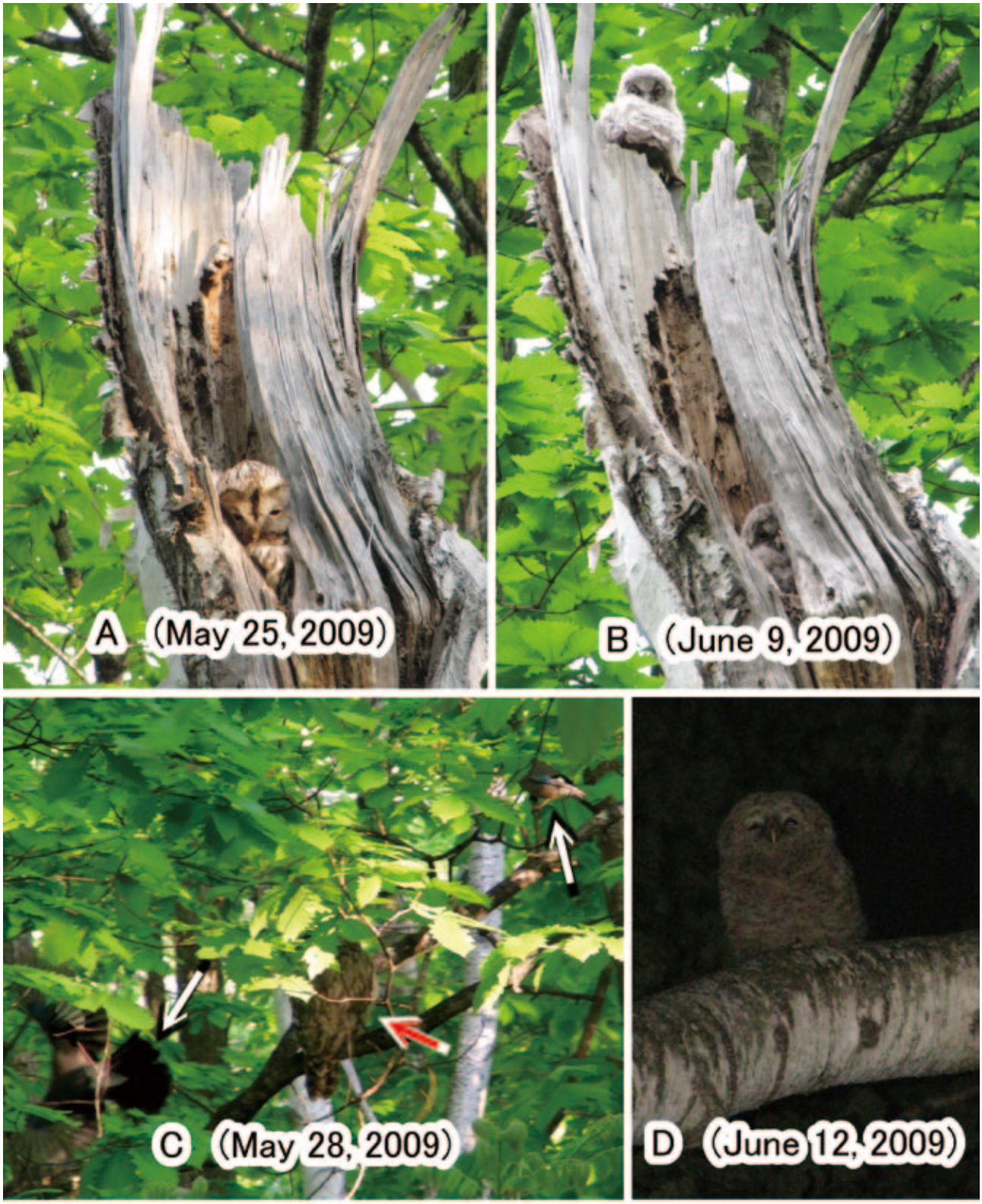

Photo 2. A: Stump nest and an adult Ural owl on a white birch observed in 2009; B: 2 nestlings several hours before fledging; C: 2 Eurasian jays (white arrows) mobbing the Ural owl (red arrow) perched on a branch; D: a fledgling on a branch

Ural owl, as mentioned above, seem to be attributable to their flexible response to changing environments. When the size of the owl population increased in northern Europe in the 1950s, the nest sites and habitats of the Ural owl had become more varied (Burton, 1973). In Japan, Ural owls typically built their nests in tree cavities, but began to lay eggs on stick and ground nests when the number of big trees, and subsequently tree cavities, decreased as a result of modern forestry practice (Abe, 1997). In Japan, Ural owls, which encounter environmental changes, would also be expected to adapt to the stump nests, but currently, this would not be the case. The reason for the rare use of stump nests by Ural owls in Japan remains unclear. In this study area, a number of stumps were generated as a result of the unusually strong wind resulting from a tropical cyclone that struck the area in 2004 (Matsuoka, 2006). The time of breaking of the 2 stumps used by the owls is not clear; however, the increased availability of stumps in this study area might have resulted in the formation of stump nests of the Ural owls.

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北海道で観察されたフクロウ *Strix uralensis* の幹折れ木上の巣

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要旨

北海道札幌市羊ケ丘の山火再生林の落葉広葉樹林で、幹折れしたシラカバの樹上でフクロウ（*Strix uralensis*）の繁殖を 2007 年と 2009 年に観察した。フクロウの幹折れ木での営巣（stump nest）は、ヨーロッパでは珍しくないが、日本での記録はほとんどなく、また繁殖が孵化まで進んだ例は報告されていない。今回観察した巣では、２例とも雛の巣立ちを確認した。この報告では、営巣木や繁殖行動について簡単な記述を行った。

キーワード：フクロウ、*Strix uralensis*、営巣場所、幹折れ木上の巣

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