

Japanese Buzzards (*Buteo japonicus*) Nesting in a Basket on an Electricity Pylon

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KEY WORDS: *anthropogenic structure; breeding; nesting; orchard; reproduction; suburban.*

Many bird species nest on or in human-made structures. Such nesting behavior can be classified as one of two types: (1) a bird selects an artificial structure as a nesting substrate not originally intended for nesting, such as electric poles and pylons, and (2) the nesting platform itself is constructed of human-made materials to induce bird nesting, such as nest boxes (Mainwaring 2015). Nesting on artificial structures may have negative effects on human life, e.g., through fecal contamination in nesting areas or electrical malfunctions (Moreira et al. 2018, Reynolds et al. 2019, Liu and Li 2024). On the other hand, this behavior may be beneficial for the conservation of threatened species and for improving pest control in the surrounding environment (Chace and Walsh 2006, Mainwaring 2015, Murano et al. 2019).

The Japanese Buzzard (*Buteo japonicus*) inhabits East Asia (Nakahara et al. 2022), typically nests on trees and sometimes on rock cliffs, and feeds mainly on voles during the breeding season (Kojima 1992, Kato and Yatsugi 2007, Watanabe et al. 2017). In this letter, we describe a tagged Japanese Buzzard that nested on an artificial nesting platform on an electricity pylon in an orchard area in northern Japan.

We used a clap net trap to trap a female Japanese Buzzard at its wintering site in the town of Okagaki in Onga District, Fukuoka Prefecture, Japan, on 5 December 2022. We attached a GPS tracking device

(Debut LEGO 3G Holder-40, 26 g Druid Technology Co., Ltd., China) to the backpack harness system. The tag and harness weighed 2.7% of the bird's body mass (968 g) at the time of capture, which was less than the widely used threshold of 3% (Bridge et al. 2011). After the bird migrated to Tendo City, Yamagata Prefecture, Japan, 1012 km northeast of its wintering site, we located its nest using GPS tracking data and monitored its behavior using binoculars on 1–2 May, 17–18 May, and 19–22 June 2023.

On 1 May 2023, we found the tagged female nesting in a steel basket on an electricity pylon (Fig. 1). The basket had been installed to encourage crows to nest in a location on the pylon with a lower risk of electrical accidents (Takeuchi and Kobayashi 2012). The nest, which was built with twigs, was located on one of the pylons situated in an approximately 400-ha area of large orchards, including cherries and pears. Four eggs were observed in the nest by an inspector from an electric power company on 1 May. On 17–18 May, we observed at least two nestlings in the nest, which were fed by the parents (Fig. 2A–B). On 19 June, we recorded two nestlings still in the nest (Fig. 2C). On 20–21 June, only one nestling remained in the nest, while two fledglings were nearby. We also observed some wing feathers with sheaths just beneath the nest, which probably indicated that one nestling had fallen from the nest and was depredated on the ground during the late nestling period. On 22 June, the last nestling left the nest and perched on

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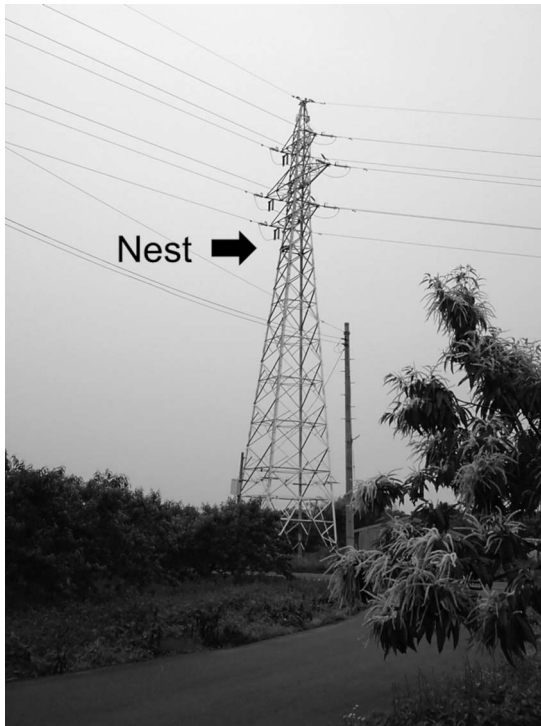


Figure 1. A Japanese Buzzard nest on an electricity pylon at Tendo City in Yamagata Prefecture, Japan (photo by T. Nakahara on 22 June 2023).

a frame of the pylon beneath the nest (Fig. 2D) but also flew back to the nest. These observations suggest that three of the four offspring of the tagged female had successfully fledged by 22 June. In the spring of 2024, GPS tracking data indicated that the tagged female had returned to and nested at the same site, although we lacked direct observations. This inference was based on the similarity of the high proportions of GPS locations (recorded approximately every 5 min) that fell within 30 m of the pylon during April and May in 2023 (10,558 out of 18,527 points, 56.9%) and 2024 (10,586 out of 18,304 points, 57.8%).

To the best of our knowledge, this is the first report of the use of a pylon as a nesting site by a Japanese Buzzard. Previous reports noted that Japanese Buzzards rarely build nests on artificial structures, with only a few documented cases in Japan of nests on window awnings under roof eaves, on bridge piers, and on metal frames attached to tree branches (Hasegawa et al. 2016, Watanabe et al. 2017). The Eurasian Buzzard (*B. buteo*) also tends to avoid nesting on human-made structures, although a

few records exist of them nesting on pylons and buildings (Walls and Kenward 2020). However, some species in the genus *Buteo* are known to use artificial structures as nesting substrates more frequently. The best-studied example is the Upland Buzzard (*B. hemilasius*) in Mongolia, of which more than 47% of pairs built nests on artificial structures, including pylons, wooden and concrete poles, and artificial nest platforms (Gombobaatar et al. 2010). Meanwhile, the Red-tailed Hawk (*B. jamaicensis*), sometimes builds nests on pylons (Bechard et al. 1990). In southeast Wisconsin, 6% of nests were on high voltage pylons or on billboards (Stout et al. 1998). Moreover, the Ferruginous Hawk (*B. regalis*) sometimes builds nests on artificial nest platforms (29% of nesting attempts and 7% of nesting sites in southwestern Wyoming, Ramirez et al. 2025) and achieves higher reproductive success than when nesting in natural sites (Houston 1982, Tigner et al. 1996, Ramirez et al. 2025).

Compared to nests in trees, nesting on pylons is often advantageous for reproduction, as reported for many raptor species, storks, and ravens (Mainwaring 2015, Moreira et al. 2018). In terms of predator avoidance, it is difficult for terrestrial predators to climb to nests located high on a pylon (Steenhof et al. 1993), and it may be easy for birds to observe their surroundings given the unobstructed visual field provided by these structures. Our observations at one nest suggest a good fledging success (75%), which aligns with the other studies. However, there is possibly an increased risk of nestlings falling from the nest, because pylons lack surrounding structures to impede their fall. Indeed, one nestling may have fallen from the nest we observed. Although there is also a risk of nestlings falling out of tree nests, structures such as dense branches may decrease the severity of such accidents.

We note that the nest was not on the pylon itself but on a basket designed to facilitate the nesting of crows. The Japanese Buzzard probably would not have nested on the pylon itself, as it would have been difficult to stabilize the nesting materials, and there are no other observations of this species nesting on pylons. It is possible that the buzzards may have used an old nest built by crows, because the Japanese Buzzard sometimes reuses the old nests of other species (Hirai and Yanagawa 2013, Watanabe et al. 2017). Because crows nested in the basket of the next pylon in this line (T. Nakahara unpubl. data), it is possible that crows had nested on the pylon before the buzzards occupied the basket. However, it was impossible for us to determine whether the buzzards built their nest from scratch or reused an old crow's nest.

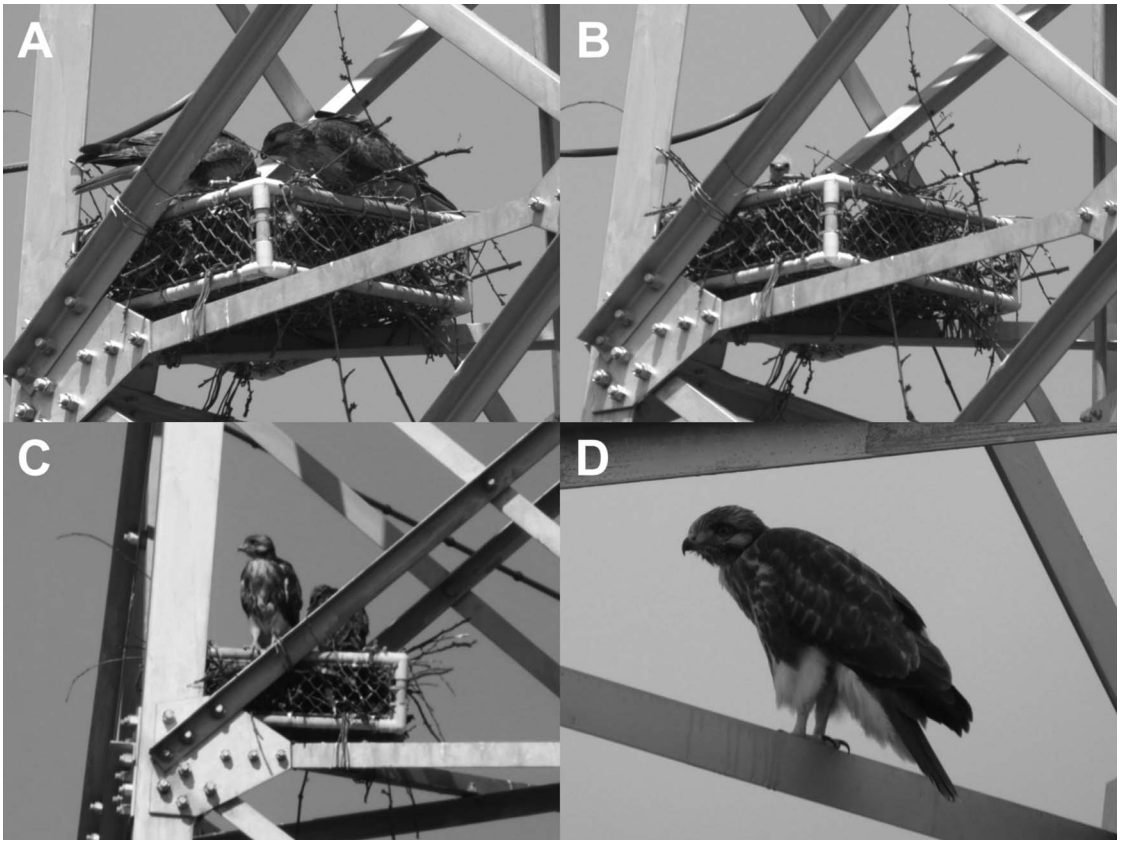


Figure 2. Japanese Buzzards observed on an electric pylon nest during the 2023 breeding season: (A) parents on 18 May, (B) a nestling on 17 May, (C) two nestlings on 19 June, and (D) a fledgling on 22 June.

This anecdotal report showed that the Japanese Buzzard established a home range within the orchard during the breeding season. Many Japanese Buzzards live near orchards, but it is likely that they rarely build nests in orchards without suitable nesting trees. However, our observation suggests the possibility of inducing nesting by the Japanese Buzzard within orchards by combining a tall artificial substrate and a nesting basket. This could contribute to the control of voles, which cause serious damage to the trunks and roots of fruit trees, as demonstrated by the successful attraction of the Ural Owl (*Strix uralensis*) to apple orchards (Murano et al. 2019). Further research is required to investigate this possibility.

ACKNOWLEDGMENTS

We are grateful to Toshinobu Onuma, Seizi Takiguchi, Kazuaki Oizumi, and other farmers in Tendo City for their support of field surveys. Birds were captured with permission from Fukuoka Prefecture, Japan. This study was supported in

part by Grants-in-Aid for Early-Career Scientists (19K15869 and 22K15190) from the Japan Society for the Promotion of Science (JSPS).

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Received 27 March 2025; accepted 24 August 2025
Associate Editor: Ian G. Warkentin