

# First confirmed breeding record of Eurasian Sparrowhawk *Accipiter nisus* in Gyeonggi province, Republic of Korea

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Since the study of the ornithology of the Korean peninsula began in earnest during the 1880s, various authorities have reported that the Eurasian Sparrowhawk *Accipiter nisus* is a resident, a winter visitor and a passage migrant. Despite its supposed resident status, no confirmed breeding records from any part of the peninsula south of the Chinese border have been recorded in the literature. On 10 May 2015, a Eurasian Sparrowhawk nest was found in Pocheon, Gyeonggi province, Republic of Korea, at 340 m on a mountain ridge. The nest was located in a Japanese Pine *Pinus densiflora* 8.5 m above the ground; five eggs were laid, with four chicks surviving to fledge. Nestlings fledged between 30 June and 2 July and were provisioned by the adults for up to 24 days thereafter. This is the first documented record of successful breeding by this species in Korea, although its status as a year-round resident remains to be confirmed.

## INTRODUCTION

The Eurasian Sparrowhawk *Accipiter nisus* is a small to medium-sized bird of prey, globally classified as Least Concern (BirdLife International 2017), although in the Republic of Korea (ROK) it is protected as a Class II Endangered Wild Species by the Ministry of Environment. The species is widely distributed throughout Europe, north and east Africa, the Middle East and across much of Asia (Newton 1986, Morioka *et al.* 1998, Ferguson-Lees & Christie 2001, Meyburg *et al.* 2017); six subspecies are recognized, with race *nisosimilis* being found in central Asia, central and east Siberia to north-east China, Korea and Japan. Breeding populations from northern Eurasia and Siberia migrate south to winter in north-east Africa, the Middle East, south and south-east Asia and southern China (Ferguson-Lees & Christie 2001, Brazil 2009, Meyburg *et al.* 2017). On the Korean peninsula the species has been widely reported as a winter visitor and passage migrant and, despite the lack of confirmed breeding records, several authors have reported that it both breeds and is a resident.

The objective of this paper is to provide substantive evidence of breeding by Eurasian Sparrowhawk in Gyeonggi province, ROK, in the central part of the Korean peninsula, which can be used as a reliable basis for future research on the status of the species on the Korean peninsula and for the protection of breeding sites.

## OBSERVATIONS

On 10 May 2015 an active Eurasian Sparrowhawk nest was found at 340 m on a ridge in the Pocheon area (37.9°N 127.4°E), Gyeonggi province, ROK (Figure 1). The surrounding vegetation consisted mainly of native deciduous broadleaf trees, including Mongolian Oak *Quercus mongolica*, Korean Oak *Q. dentata* and Sawtooth Oak *Q. acutissima* as well as Japanese Pine *Pinus densiflora*, with a plantation of Korean Pine *P. koraiensis* located 20 m from the nest site.

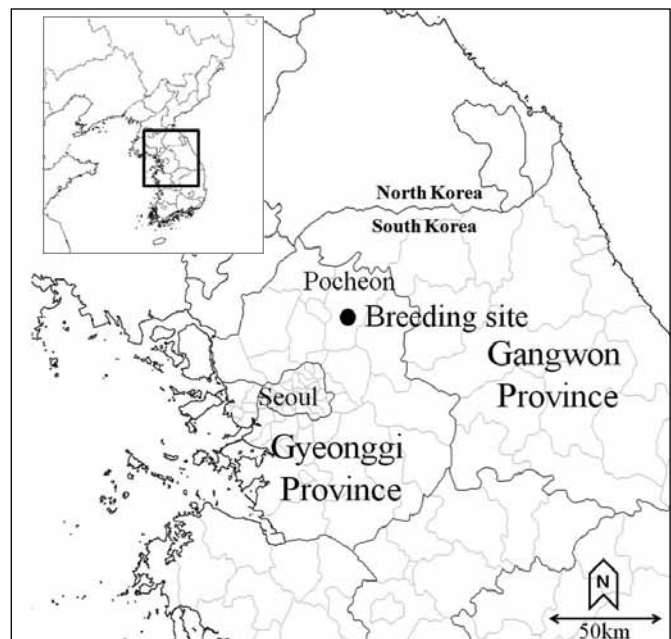
In order to document the breeding chronology from incubation to fledging, I installed a motion camera 6 m from the nest. Once hatched, the nestlings were observed and images obtained weekly between 14 June and 2 August, using 10 × 30 binoculars and a camera (Nikon D300) with a telephoto lens (Nikon AF-S Nikkor 400 mm 1:2.8 DII) to record development (Plates 1–6).

The nest was located about 8.5 m above the ground in a 13 m-tall Japanese Pine (dbh 14 cm). The nest was a large platform of sticks and measured about 95 × 75 cm and about 25 cm-deep. Unlike the normal practice of the two other *Accipiter* species—Chinese Sparrowhawk *A. soloensis* and Japanese Sparrowhawk *A. gularis*—

which are known to breed in this area, I noted that the nest had not been lined with freshly plucked vegetation (e.g. live pine sprigs, broadleaf leaves). Both those species build generally similar although rather smaller nests which they line with green vegetation gathered from the immediate area; the vegetation is replaced/added to from time to time when it withers (for evidence of this practice by other sparrowhawk species in Gyeonggi province, see Choi *et al.* 2015). Five eggs had been laid in the central depression and at the time of the discovery the female was incubating her eggs while the male perched on the alert about 15 m away, although he subsequently departed. Based on the plumage descriptions of Forsman (1999) and Arroyo *et al.* (2009), I aged the female as in her second moult cycle, definitive plumage characters being the deep rusty tipping on the breast feathers, whereas the male showed definitive plumage characters attained by birds in at least their third calendar year.

The eggs were a light blue colour, with brown to reddish-brown blotches (Plate 1). On 7 June I observed four nestlings, which I estimated to have hatched about four days previously. It is probable that a fifth nestling died after hatching, as only four chicks were seen and the fifth egg was missing. The female brooded the chicks until 15 June, about 12 days after hatching. Eurasian Sparrowhawks have a pronounced size dimorphism which can be used to distinguish

**Figure 1.** Location of the Eurasian Sparrowhawk *Accipiter nisus* breeding site near Pocheon, Gyeonggi province, South Korea.



between the sexes from about three weeks old (adult females are about 16% larger and substantially heavier than males, see Meyburg *et al.* 2017); this enabled me to determine that the brood consisted of one male and three females. The young fledged between 30 June and 2 July. I therefore estimated the nestling stage to last 27–29 days. Both adults continued to provision the young for another 22–24 days.

## DISCUSSION

On the Korean peninsula the Eurasian Sparrowhawk is universally reported as a winter visitor and passage migrant (Austin 1948, Wolfe 1950, Newton 1986, Morioka *et al.* 1998, Chae *et al.* 2009, Lee *et al.* 2014, Moores *et al.* 2014). For example, about 1,500 Eurasian

Sparrowhawks were reported as passage migrants in Busan, ROK, during autumn migration in September and October (Kim *et al.* 2013). However, despite the lack of confirmed data on breeding, several authors have also reported that the species is a year-round breeding resident (Kang 1962, Won 1963, Won 1969, Gore & Won 1971, Won 1981, Brazil 2009). According to Austin (1948), the first report of breeding originated with Taczanowski (1888), who documented avifauna specimens collected in Korea by Kalinowski during his visit between 1886 and 1888; he also published the latter's field notes and the entry for *Accipiter nisus* reads, 'Sédentaire et assez commun dans toutes les saisons' [sedentary and fairly common in all seasons]. Won Hong-gu (Won H.-G.), who lived from 1888 to 1970, was the first eminent Korean ornithologist (Austin 1948); he lived and worked in a very difficult period and overcame many

All images taken by SEUNG-GU KANG, Pocheon, Gyeonggi province, Republic of Korea.

**Plate 1.** Clutch of five eggs of Eurasian Sparrowhawk *Accipiter nisus*, 30 May 2015.



**Plate 3.** Four nestlings, an estimated 11 days after hatching, 14 June 2015.



**Plate 5.** Adult female feeding 24 day-old nestlings, 27 June 2015.



**Plate 2.** Adult female Eurasian Sparrowhawk incubating her eggs, 30 May 2015.



**Plate 4.** The nestlings 18 days after hatching, 21 June 2015.



**Plate 6.** Recently-fledged juvenile, 31 days after hatching, 4 July 2015.





difficulties both during the Japanese regime and subsequently when the country was partitioned into Russian and American zones after liberation from Japanese rule in 1945. During this period his family became divided and whilst he resided in the Russian zone, which approximated to today's Democratic Peoples' Republic of Korea (DPRK), his children were in the American zone, today's ROK, where his son Won Pyong-oh (Won P.-O.) later became the ROK's pre-eminent ornithologist. In 1934, Won senior (Won 1934) claimed that Eurasian Sparrowhawk was common and that it bred 'deep in the mountains', and the Japanese ornithologists who took an interest in the avifauna of Korea until the end of the occupation, e.g. Yamashina (1941), also continued to report that the species bred in Korea.

Although Austin (1948) and Wolfe (1950), both enthusiastic field ornithologists in their free time, served as members of the American military presence in the 1940s and were resident in (central) Korea, they found no evidence that the species was anything but a passage migrant and winter visitor in the areas they could access, mainly in Gyeonggi and Gangwon provinces. Nonetheless they both subscribed to the hypothesis that the Eurasian Sparrowhawk could breed in the mountains of the central and northern areas of the Korean peninsula and move southwards and to the plains in winter, although they were unable to find confirmatory evidence.

Austin (1948) lists 46 Eurasian Sparrowhawk specimens collected from the Korean peninsula between 1883 and 1946—37 of these were taken between 1 October and 31 March whilst the remainder were from April (3), May (4), August (1) and September (1). Wolfe (1950), commenting on his field observations of the species between July 1947 and December 1948, said: 'Rather common spring and fall migrant; many were seen during the spring and in the fall but none between early April and October. There is no evidence that this species breeds in Kyonggi Do Province [Gyeonggi province], but it is probably a summer resident in the highlands farther north. Specimens were shot on February 23, March 14, October 31, and November 21, 1948.' In contrast, Wolfe found the Chinese Sparrowhawk to be a summer resident 'common in suitable localities' and the Japanese Sparrowhawk to be a rare summer resident which he confirmed bred about 30 km north of Seoul in June 1948 (Wolfe 1950).

Unfortunately, publications by Won H.-G. frequently included only sparse data relating to records/specimens. Won (1963) includes eight records of single Eurasian Sparrowhawks taken during the breeding season (May–July) in the period between 1909 and 1957. Four of these were attributed to Gyeonggi province, the other four were from provinces lying further north (all now in the DPRK) where Austin and Wolfe had considered breeding could occur. Typically, all these records lack detail and their significance is unclear, but all were obtained in May, except one taken on 24 July 1929 from North Hamgyong province, which lies in the north-east corner of the peninsula close to the border with Far East Russia. It is therefore not realistically possible to confirm whether these individuals were residents, summer breeding visitors or passage migrants, as migrants could also have been present at this time of year (Kang 1962, Morioka *et al.* 1998, Kim *et al.* 2013). More recently, Won P.-O. also recorded a single bird in Sorak-san National Park, Gangwon province, ROK, on 28 May 1966 (Won 1969). Again, pertinent details such as sex, habitat and altitude are lacking, although given that the Taebaek mountain range reaches 1,700 m in this area, it might well be a potential breeding site for the species.

Most recently, on 2 June 2005 a pair of Eurasian Sparrowhawk was at Baegunmyeon, Jecheon (37.2°N 127.96°E), North Chungcheong province, ROK, although without tangible evidence of breeding (Don-Hong Choi pers. comm.), whilst on 26 July 2013 three juveniles were at Buksanmyeon, Yanggu (38.0°N 127.94°E), Gangwon province, ROK (Seon-Deok Jin pers. comm.), but no

adults were seen. Finally, on 10 June 2014 and 14 June 2015 single adult males were seen at two nearby locations at Eomjeongmyeon, Chungju, North Chungcheong province (Don-Hong Choi pers. comm.), but neither females nor nests were discovered.

To the best of my knowledge, only one other nest reported to be that of Eurasian Sparrowhawk in Korea has been described in the literature. In summer 1965, Won P.-O. and colleagues described and photographed a nest containing five *Accipiter* chicks at the Gwangneung experimental forest, Pocheon, Gyeonggi province (Won *et al.* 1966). However, there are no descriptions or photographs of adults. Moreover, the nest was described as containing leaves of Japanese Pine, Japanese Larch *Larix kaempferi* and Three-flowered Maple *Acer triflorum*. Indeed, the photograph showed that the nest was lined with broadleaf leaves and pine needles that are typically found in Chinese and Japanese Sparrowhawk nests (Kwon & Won 1975, Ferguson-Lees & Christie 2001, Meyburg *et al.* 2017) but not in Eurasian Sparrowhawk nests, which rarely contain such leaves. According to Newton (1986), Eurasian Sparrowhawk nests can be distinguished from other raptor nests by their size, light airy structure and virtual absence of green sprays. This species uses twigs without leaves and dry bark-chippings in the nest to prevent heat loss (Newton 1986, Newton 1997, Ferguson-Lees & Christie 2001, Dykstra *et al.* 2009, Meyburg *et al.* 2017). Won was unable to clearly identify the chick photographed on 5 July 1965 as a Eurasian Sparrowhawk, mainly because of the morphological similarity of the chicks of *Accipiter nisus*, *A. soloensis* and *A. gularis*. Thus, without other specific contextual evidence (e.g. adult birds or eggs), it was difficult to identify the chicks to species level. Thus, there is reasonable evidence that the nest and chicks described and shown in Won *et al.* (1966) were not those of a Eurasian Sparrowhawk.

Taking into account the records of Eurasian Sparrowhawk in the north and central parts of the Korean peninsula and the results of the present study, it is probable that there is a small breeding population of this species in these parts of the peninsula. Although the breeding record of Won *et al.* (1966) may not be accurate, with some circumstantial evidence pointing to the chicks observed being another *Accipiter* species, the present study provides a reliable and accurate breeding record of Eurasian Sparrowhawk in Korea, which can be used as a baseline for future research on the status of this species on the Korean peninsula.

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