

Observation of four different bird species nesting on one tree

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Abstract. In 2022 and 2024, in the outskirts of the village of Malko Kadievo, located in Stara Zagora Municipality, observations are made of a tree from the species European Wild Pear (*Pyrus pyraster*), on which nesting birds and their young from four different species have been spotted - Common Kestrel (*Falco tinnunculus*), Long-eared Owl (*Asio otus*), Common Magpie (*Pica pica*) and Spanish Sparrow (*Passer hispaniolensis*). To our knowledge, this is the first time such a case is reported in Bulgaria. In addition, it is a rare event as some of these bird species occupy similar ecological niches and there could be competition between them.

Key words: Wild Pear (*Pyrus pyraster*), nests, Common Kestrel (*Falco tinnunculus*), Long-eared Owl (*Asio otus*), Common Magpie (*Pica pica*).

Introduction

Wild Pear (*Pyrus pyraster* (L.) Burgsd.) is a tree species which belongs to the family Rosaceae. It can reach a height of 22 m and lives about 80-150 years. Wild Pear grows mostly at the edges of forests, in farmland hedges or on very extreme, marginal sites (Paganová, 2003; Stephan et al., 2003). Birds nesting on this species of tree prefer it because of its dense crown, which provides good cover from predators, and its food resource represented by fruit and various types of insects and worms.

The Common Kestrel (*Falco tinnunculus* (L.), 1758) is a bird of prey species belonging to the Kestrel group of the falcon family Falconidae. It is widespread in Europe, Asia, and Africa, as well as occasionally reaching the east coast of North America. They are small compared with other birds of prey, but larger than most songbirds (Ramel, 2023). They feed on rodents (mainly voles), insects and small birds and are the most common falcon species in Bulgaria (Bulgarian Society for the Protection of Birds, 2024a). A wide distribution of this falcon probably comes from its ability to adapt to any kind of open land (Village, 1990).

The Long-eared Owl (*Asio otus* (L.), 1758) is another widely spread species in Bulgaria. It has a relatively small body mass (280–350 g) and a wide wing length (≈300 mm) (Cramp & Simmons, 1986). It feeds on small rodents and birds. This species is found throughout the whole country, being less abundant or completely absent in the highlands and extensive treeless agricultural areas (Bulgarian Society for the Protection of Birds, 2024b). The reason owls tend to use anthropogenic and agricultural territories is associated with diversity, easy foraging, and more effective protection from predators during the breeding season (Sharikov et al., 2023)

The Eurasian Magpie (*Pica pica* (L.), 1758) is a medium-sized non-migrating and omnivorous corvid (also considered a generalist predator) (Madden et al., 2015) inhabiting a variety of open or semi-open habitats, including anthropogenic landscapes (Šálek et al., 2020). It is also widespread in Bulgaria and is one of the most common birds in urban areas. Magpies feed on wild plant seeds, carrion meat, nestling birds, terrestrial molluscs, woodland insects, spiders, woodlice, centipedes, ticks (Ixodoidea), and the most impor-

tant food of the species are grain (*Triticum*, *Avena*, *Hordeum*), live small mammals, other birds' eggs and grassland insects (Holoyak, 1968). Due to their predation on eggs and bird chicks, Magpies are considered a harmful bird species by some conservationists and hunters (Birkhead, 1991).

In the Upper Thracian Plain, near the town of Stara Zagora, Bulgaria, Saker Falcons (*Falco cherrug*) were released via wild hacking between 2020 and 2024 as part of the species reintroduction programme in Bulgaria (Dixon et al., 2020; Lazarova et al., 2021). A team implementing the project was there daily to provide food and monitor the released falcons, and it has been noted that other species as well take advantage of the food (Petrov et al., 2022). This paper reports the observations of four different bird species nesting on one tree in the Saker Falcon hacking area - in 2022 and in 2024.

Materials and methods

The four species - *Falco tinnunculus*, *Asio otus*, *Pica pica* and *Passer hispaniolensis* - were observed on a lone-standing Wild Pear tree (Fig. 1), situated in the territory for wild hacking of Saker Falcons in the Upper Thracian Plain, near the town of Stara Zagora, Bulgaria. It was located in a pasture grazed by cow and sheep herds, present were other scattered trees (oaks) as well. Saker Falcons were released there between 2020 and 2024 as part of a species reintroduction programme. They were provided food and monitored. The monitoring was carried out during the implementation of the project activities by the team of the Wildlife Rehabilitation and Breeding Centre, part of Green Balkans - Stara Zagora NGO. The area was visited daily in the months of May-July from 2020 to 2024. Observations were made in optimal meteorological conditions with good visibility, no strong winds or rain. Used were spotting scopes, binoculars, and superzoom cameras.

Results

The numerous smaller nests were present throughout the whole monitoring period (2020 - 2024). The two larger nests were spotted in 2021 when Long-eared Owls were observed nesting in the southern nest (Fig. 1).

In 2022, on 16 May, a nesting of Common Kestrels in the southern nest was registered. Two birds were spotted - a female in a brooding beha-

viour and a male, perched on a branch next to the nest. On 31 May, five juvenile Long-eared Owls in down plumage were spotted on the branches of the tree. The owls most likely used the northern nest. On the same day, a Magpie was observed entering the southern nest. A bird with brooding behaviour was noted.

Two years later, during observations taking place on May 26, 2024, two juvenile Kestrels were observed. Three weeks after that, on June 16, they were seen on the oak tree next to the pear. During the period from June 5 to June 18, two juvenile Owls were seen on the branches of the oak. In the period between July 4 and July 14, two juvenile Magpies were spotted quite often on both the pear tree and the neighbouring oak. On June 16 during the observations an assumption was made that the couple may have raised a third Magpie chick (Table 1).

Discussion

Different bird species exhibit different territorial behaviour. Usually during the breeding season, both male and female Kestrels can attack other species approaching their nests (Carrillo & Aparicio, 2001). However, they can be tolerant to species breeding in the immediate vicinity of their nests as well (Šumrada & Hanžel, 2012). Long-eared Owls aren't known for being aggressive, but they are active at a different time of day than the rest of the described species (Craig et al., 1988). Bent (1938) describes a couple encounters with these birds during their breeding season, in which he climbed trees to observe their nests, and was threatened by the parents, which were crying and snapping their bills, but didn't attack him directly. It is known that nest predation is high in this species and may account for as much as 88% of the nest failures (Marks, 1986).

Magpies, however, are noted for being very territorial, especially during their nesting period. They are known for their vigorous nest defense, consisting of intense mobbing with accompanying vocalizations (Erpino, 1968). There were no observations of the Magpies attacking the other birds' nests and feeding on their eggs and nestlings, which is something they are reported to perform often (Holyoak, 1968).

Based on Schoener's (1983) classification of interspecific competition, three mechanisms are possible: consumptive, territorial, and encounter

competition. The first occurs when, for example, food is consumed by a species, thereby depriving other species of it. Territorial competition occurs when a species aggressively defends, or by its behaviour signals its intention to defend, a unit of space against other species. Encounter competition results from direct interactions between mobile animals, in which some harm, such as food piracy, fighting, or death by predation, comes to

one from another. However, none of these was noted during the observations of the birds nesting on that current tree.

In 2023, there were no observations of nesting on the tree. A likely reason for this was the presence of a large number of cowherds and shepherds who rested daily under the pear tree in that year. This could have provoked the birds to move to other nests in the area in 2023.

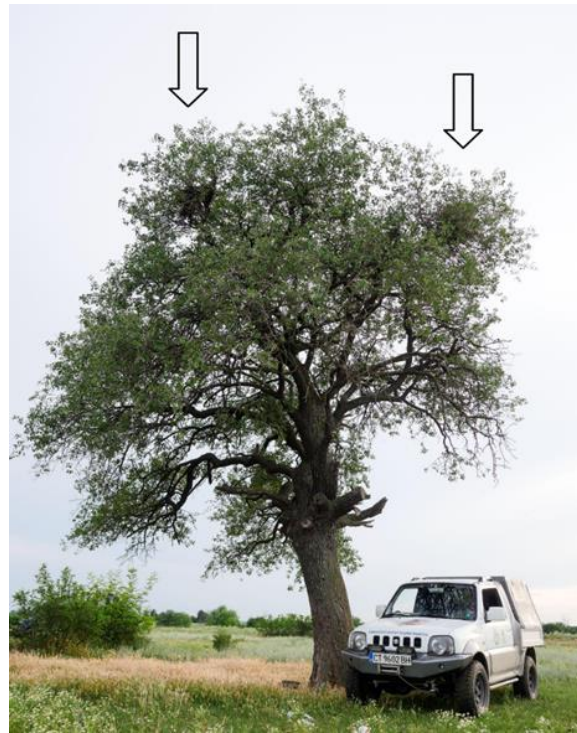


Fig. 1. The wild pear with the two nests marked with arrows - the left nest is facing south, and the right - north.

Table 1. Observations of the birds made during the monitoring.

Date	Birds observed	Nest	Notes
2021	Long-eared Owls	Southern	
2021	Spanish Sparrows		
16 May 2022	Common Kestrel	Southern	A female in a brooding behaviour and a male.
31 May 2022	Long-eared Owl	Northern	Juvenile birds perched on branches.
31 May 2022	Eurasian Magpie	Southern	A bird with brooding behaviour.
2022	Spanish Sparrows		
2023	Spanish Sparrows		
26 May 2024	Common Kestrel		Two juveniles were seen.
5 June - 18 June 2024	Long-eared Owl, Common Kestrel, Eurasian Magpie		Two juvenile owls were often seen perched on the branches of the nearby oak. The juvenile Kestrels mentioned before were observed on the oak on 16 June. On the same date observations of the Magpies was done.
4 July - 14 July 2024	Eurasian Magpie		Two juvenile Magpies were spotted often on both the pear tree and the oak.
2024	Spanish Sparrows		

Conclusions

Both nests on the pear tree were likely old abandoned nests of birds from the Corvidae family, as owls and kestrels do not nest-build. Nest availability together with the rich food base of a grazed pasture made it suitable for these four species - Common Kestrel, Long-eared Owl, Common Magpie and Spanish Sparrow - to successfully utilize the tree in at least two breeding seasons without competition. The birds were taking advantage of the provided for the Saker Falcons food too, in addition to the naturally available resources.

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Author contributions

Supervision - Rusko Petrov; Writing - original draft, Eva Pastir.

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