

Italian Sparrows (*Passer italiae*) breeding in black kite (*Milvus migrans*) nests

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Abstract — Italian Sparrows were found breeding in Black Kite nests in a woodland in Central Italy. The sparrows usually bred only in active raptor nests and their reproductive cycle seemed to be synchronized with that of the kites, the highest number of sparrow broods occurring when the raptor nests were occupied by the chicks. The adult sparrows were seen feeding in the raptor platforms when adult kites were away.

Introduction

This report illustrates breeding habits of Italian Sparrows (*Passer italiae*) in active Black Kite (*Milvus migrans*) nests.

House Sparrows (*Passer domesticus*) are known to utilize the twig platforms made by raptors, storks and other large birds to build their domed nests (Summers-Smith 1988), but this behaviour has never been found associated exclusively with nest actively occupied by larger birds.

In the present paper the Italian Sparrow is regarded as a true species, according to Johnston (1969).

Study area and methods

The study area lies on the coast of Bracciano, a volcanic lake 200 m above sea level, north of Rome, in Central Italy.

It consists of a steep slope on the south coast of the lake, covered by 50 hectares of dense coppice woodland of oaks and chestnuts with average density of 5.1 trunks per 10 sqm, measured in ten plots of 100 sqm each.

On the top of the slope, there is a plateau covered with cattle pastures and cultivated fields crossed by gravel roads with scattered farmhouses. In this typical farmland, Italian and Tree Sparrows (*Passer montanus*) are common.

From 1987 to 1989, I observed the Black Kites that nested in the area and I visited the nests weekly during the whole breeding season to weigh the chicks and to analyse food remains. Thus I was able to

check some sparrow nests and to collect data on their contents.

I made a complete survey of the woodland at least twice during the breeding season, covering a grid of transects spaced 50 metres apart, looking for sparrow nests.

Results

I did not find Italian and Tree Sparrow nests in the woodland except those associated with the active nests of the Black Kites. The closest Italian Sparrow pairs not associated with the kites were nesting in the farmland, at the edge of the woodland, on telephone poles and in concrete buildings.

Each year 4 pairs of Black Kite nested in the area, forming a loose colony on the slope facing the lake. The distance between nests averaged 367 m (SD \pm 108.9; range 250-500 m; N = 12). The density was one nest/12.5 hectares.

The 12 kite broods occupied 7 different nests, since in most cases the same nest was used for at least two consecutive breeding seasons. At the same time, in each breeding season there were some unused kite nests.

The kite nests are surrounded by woodland, 128.5 m being the average distance from the nest trees to the open land on the top of the slope (SD \pm 59.0) and 332.8 m the average distance from the nest-trees to the coast of the lake (SD \pm 88.8).

The mean height of 7 nests above the ground was 8.1 m (SD \pm 3.9, range 4.5-15 m) and the diameter

of the trunk at breast height measured 35.4 cm (SD \pm 8.6; range 25-50 cm). One nest was in an evergreen Oak (*Quercus ilex*), four in deciduous Oaks (*Quercus cerris*), one in a dead Chestnut (*Castanea sativa*) and one in a Hornbeam (*Carpinus orientalis*).

The nests consisted of a platform of twigs, averaging 50 cm in diameter and 40 cm in height, with a layer of food remains and waste materials, which became thicker and thicker as the season progressed.

The kite nests had one or more sparrow nests hidden well inside the bottom of the platform. The sparrow nests were typically domed and made of grasses and feathers. Out of the seven kite platforms, four had one, two had two and one had three Sparrow nests: some sparrow nests were probably built in different years.

During the whole study period, I checked the active (N=12) and deserted kite nests (N=5) and I found Sparrow broods only in the active raptor nests except in one instance. This was when the old platform (occupied in the previous year) was used by the kites to handle their preys. The observed association between Sparrow broods and active kite nests was highly significant (Fisher's exact test; $P=0.002$). I monitored the sparrow nests in four kite nests weekly: they had at least one brood during the breeding season.

Out of eight sparrow broods, two had three eggs, 1 had four and four had five. Thirty eggs were laid, 23 hatched and 21 nestlings were well feathered. I assumed they successfully fledged.

Mean clutch size was 4.28 (SD \pm 0.95) and mean number of young fledged per pair was 3.0.

Most sparrow broods (either eggs or pulli) occurred when the Black Kites had young in the nest (Fisher's exact test, $P=0.001$). The number of sparrow nests still occupied decreased sharply as soon as the young kites fledged.

In one instance I observed two consecutive successful broods in the same sparrow nest.

The second clutch was completed one week after the young of the first one fledged. In one more cases I recorded at the same time two different broods in two nests of sparrows built in the same kite platform. On 8 June one nest had 4 naked pulli, the other one had 5 eggs. The next check on 15 June found the first nest with 4 feathered young and the second one with 4 naked pulli. The third check on 22 June gave the first nest with a new clutch of 5 eggs and the second one with 4 feathered young. Sometime later, the new clutch of eggs in the first nest went deserted and the 4 young of the second nest successfully fledged.

I was unable to record the number of adult House

Sparrows around these nests, since they flew on neighbouring crowns as I climbed the tree.

Each time I visited the four kite nests, the adult raptors left the nest-tree. Before starting the ascent, I had the opportunity to see the adult Sparrows hopping on the raptor nest collecting something (presumably prey remains and detritivorous invertebrates).

Discussion

The breeding by several sparrow species in the large nests of raptors, herons, corvids and storks is quoted by Summers-Smith (1988), but a positive coincidence with the use of occupied nests had never been recorded.

This could be attributed to the use of the raptor platform as a feeding place by the adult sparrows. In addition to providing the sparrows with the structure for nest building and probably with the main food resources (although I cannot exclude that the sparrows fed in the farmland surrounding the woodland), the third advantage of this breeding strategy may be the defense from other predators. This association gave the sparrows the opportunity to colonize a dense woodland with closed canopy and thick undergrowth which would prevent them from collecting food on the ground.

The timing of the sparrow nesting attempts seemed to depend on the stage of kite broods. Most Sparrows had their broods in the kite breeding interval (incubation and nestling), which extends over 80 days on average.

Through double brooding and overlapping clutches the sparrows were probably able to maximize their reproductive efforts in this interval.

Double brooding is common among House Sparrows and usually about a week elapses after the young successfully leave a nest until the next clutch is started (Summers-Smith 1963). Overlapping broods attributed to the same female are seldom recorded in House Sparrows (Lowther 1979) and never in the Italian Sparrow.

My data are too scanty to draw any conclusion, but

Table 1 - Italian Sparrow breeding attempts (Sba) associated with active Black Kite nests

Black Kite nest	Sba		
	n. nests	n. broods	n. successful broods
AE88	1	2	2
CD88	2	3	2
CD89	2	2	2
FG89	1	1	1
TOTAL	6	8	7

I cannot rule out that overlapping broods might be due to bygamy, which is known only for the first species. Polygamy among House Sparrows is considered rare and the broods produced are usually unsuccessful (Summers-Smith 1988).

No previous clutch size and breeding success figures for Italian Sparrow had been reported, although my data are in close agreement with those reported for the similar House and Spanish (Willow) Sparrows (Summers-Smith 1988).

Riassunto — Viene descritta l'associazione riproduttiva fra il Passero d'Italia (*Passer italiae*) e il Nibbio bruno (*Milvus migrans*) nei boschi di caducifoglie lungo le rive del lago di Bracciano, in Italia Centrale.

Nidi di Passero d'Italia sono stati trovati solo in piattaforme di Nibbio bruno ed è stata riscontrata una positiva associazione fra la nidificazione dei passeri e la nidificazione dei nibbi bruni.

Il ciclo riproduttivo del passero sembra sincronizzato con quel-

lo del nibbio, dal momento che gran parte delle nidificazioni di passero si riscontrano quando i nidi dei rapaci contengono i nidiaei.

I Nibbi bruni sembrano così offrire alle coppie di Passero d'Italia la struttura per la costruzione del nido, una risorsa trofica (attraverso resti e rifiuti accumulati nel nido) e una difesa dai predatori.

References

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