Tiscia (Szeged) Vol. XV, pp. 119—124 (1980)

INVESTIGATION INTO THE NEST COLONIES AND NESTING BEHAVIOUR OF THE STARLING (STURNUS VULGARIS L.) IN THE FLOOD PLAIN OF THE TISZA

GY. MOLNÁR
István Vedres builders' technical secondary school, Szeged
(Received 25 November, 1979)

Abstract

The nest colonies of the starling play an important role in the living-space of the birds nesting in the flood plain of the Tisza. The colonies are formed in the sections, rich in hollows, of the willow plantation in the flood plain, after the arrival of starlings at the end of March. The birds, which nest in the forest but fly out to the neighbouring culture area, as well, could be followed with attention and counted from the dike, from which the number of nesting pairs could be concluded. Starlings bring at the same time more than one insect to their nestlings, their rhythm of feeding is fast, thus they destroy a large amount of insects. Their customs, conduct forms during the nesting time contain particular elements, as well, which cannot be observed in other singing-bird species.

*

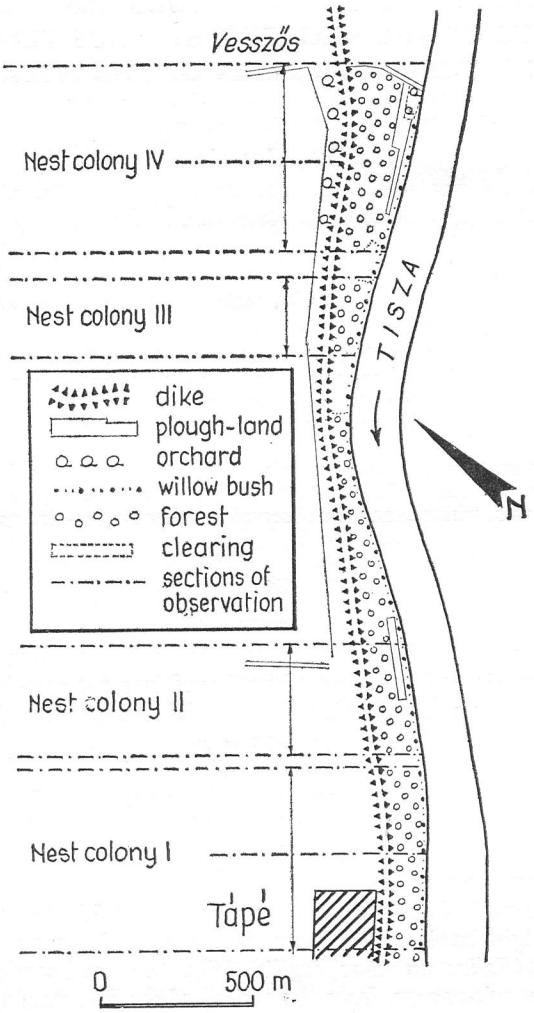
The situation and role of the nesting colonies of the starling in the flood plain of rivers is not cleared. In the flood plain of the Tisza it has not been investigated, as yet. I have therefore decided to take this question, which is important from scientific and economic points of view, under examination.

I have observed the starling not-systematically since 1958, systematically since September 1977. The main area of observation was the sector at Tápé—Vesszős, at the right bank of the Tisza, in the neighbourhood of Szeged (Fig. 1), besides which the hobby-gardens at Szeged, Makra-szék (Szatymaz) and Tőserdő (flood-plain of the Tisza Dead-Arm) were control areas.

Seven km north-east of Szeged, a 3400 m long, 20 to 250 m broad section of the flood plain at the right bank of the Tisza, is covered with a characteristic willow-poplar gallery forest (*Salicetum albae fragilis*). (Fig. 1). Here I carried out in Summer 1978 a quantitative stock-survey, from the arrival of the first starling pair (27 March) till the taking flight of the nestlings from the first hatching (1 July).

The starling pairs gradually occupied the sections of the gallery forest that were suitable for nesting, abounding in natural hatching hollows. The selection of hollows and then pairing began (6 April). After laying the first eggs (15 April), the formed nest colonies could already be estimated with good chance. The result of the estimation performed on 21 April agrees well with the data, established more exactly later, in the time of feeding. On 21 April, I observed a strong movement of starlings. The birds moved between the forest and the agricultural area, a number of males sang on the top or crown of willows.

At the end of April the Tisza inundated the flood plain, thus I chose a farther nest, for observing the bird behaviour during feeding. In Makra-szék (Szatymaz) four starling pairs nested in tree-hollows, cut by woodpeckers in an abandoned farm-yard. On 19 May, the birds fed some 10—12 days old nestlings.



One of the pairs gave food to nestlings eleven times in 30 minutes. Averagely, 2.5 to 3 minutes pass between two feedings. The extreme values were: the shortest time 10 seconds, the longest time six minutes. The birds flew for nourishment to the nearby meadow of wet grass or to the farther agricultural area.

In the flood plain between Szeged—Tápé and Vesszős, I undertook a quantitative stock-survey in feeding time. My aim was to establish the number of nesting pairs,

the extent of nest colonies. I carried out observation with the following method: As the starlings moved between their nesting places in the forest and the culture areas beyond the dike, I stood on the top of the dike and counted, in a definite section, for ten minutes, the birds flying into the forest, with some food in their bills. As a control, I also counted the birds, flying out of the forest. I have divided the obtained number with the 2.5—3 minutes feeding time, established beforehand. In this way, I have got the number of nesting pairs. I have completed this method by observing that the feeding pairs mostly fly by the same air-line towards their nest in the forest. Thus, recording and counting these directions, I have always got results that were similar to the previous counting. The forest sections were always chosen so that they had well-observable boundaries (e.g., forest clearance, dike passage leading down, high-voltage line). It was easy to count the feeding starlings between these boundaries (Table 1).

Table 1. *Number of nesting and feeding starlings*

	Designation of the nest colony	Length of the observed forest section in m	Number of indiv. flying in	Number of indiv. flying out	No. of nesting pairs	Total number of nesting pairs		
						V.20	V.25	V.31
I	The first section of nest colony I	400	25	28	10	15	12	4
	The second section of nest colony I	400	16	9	5			
II	Nest colony II	400	16	17	6	6	5	2
III	Nest colony III	350	17	16	5	5	5	0
IV	The first section of nest colony IV	300	107	80	35	53	25	2
	The second section of nest colony IV	300	51	57	18			

Note: The duration of observations was 10 minutes.

In the rather long forest section between nest colonies II and III no starling nested, probably owing to the considerable narrows of the forest and for lack of natural hollows (Fig. 1). At the re-enlarging of the forest, a pair nest separately.

According to my observations, the food-taking districts of starlings are the following, in a sequence of frequency: 1) the slopes of dike, 2) the air-space above the agricultural areas, 3) the top of dike and the gallery forest, 4) the orchard, the trees and underwood of the forest belt, 5) the grassy parts of the agricultural areas, 6) farther gardens, plough-lands.

Most starlings collect food for their nestlings in the grass on the slopes of dikes. They rarely fly farther. In the agricultural area, in the nesting period, the corn is 0.5 m high. Here the starlings do not alight but catch flying, like fly-catchers, the insects swarming above this area. They do this often, even if flying towards their nests for feeding, their bills are full of insects. They almost always bring more than one insect simultaneously. Their manner of gathering food also tends to catch as many insects as possible: they pick up insects, hopping about fast in the grass. Sometimes they

jump up repeatedly into the air after the insects flying up. They often together gather the easily observable insects climbing over the top of the dike.

The most starlings are in nest colony IV: 53 pairs in a 600 m forest section. Here, at the slope of the dike, only few birds gather their food. (The number of insects is probably strongly rarified). On the other hand, a lot of individuals hunt flying or bring the food from farther slopes of dikes. Once a starling brought a smaller lizard in its bill for feeding.

One bird brings on average two insects in its bill. During the daily feeding time of 14 hours, it brings 616 insects to its nestlings, the 80 pairs bring daily 98,560 insects, and during the 21 day long period of breeding the nestlings: 2,069.760 insects.

Between nest colonies II and III, at the side of the dike, a pack of starlings, consisting of 14 individuals, holding strikingly together, took nourishment for a long time. As none of them flew up to feed nestlings, they must have been, as I suppose, males unable to proliferate, which, in the time of hatching, avoid the feeding district of the nest colony, thus they don't eat the food given by the area from the hatching pairs and their nestlings (LORENZ 1931). I also saw a pack like this, of 30 individuals, close to nest colony IV, in the underwood of an orchard, in the grass. I observed these later, too, on 25 May, in the same place.

The following stock-survey took place on 25 May (Table 1). The differences (nest colony I : 3 pairs; nest colony II: 1 pair; nest colony IV: 24 pairs) arise from that these pairs had their nestlings already flown out. Then I observed two flying nestling.

The starlings of nest colony IV often fly into the small gardens of the houses in Tápé and catch the insects there. Beyond the houses, there are cornfields, in that direction only a few starlings flew. They prefer, in the agricultural areas, as well, mainly fallow grounds, with low grass. At the slopes of the dike, the grass is already high, only a few birds flew down there for gathering food. But I already observed several of them in the mown places at Tápé. Now, they have not hunted at all, like fly-catchers, because, owing to the bad weather, cold wind, there was no insect swarming, either. A few starlings looked for food in the foliage of the crown of trees in the orchards, too, but they also flew to the farther thin-sown rape-sowing, as well.

The stock was at the survey on 31 May: in nest colony I 4 pairs, in nest colony II 2 pairs, in colony III none, in colony IV not more than 2 pairs feeding (Table 1). The sound of young birds flying out of the forest or being just before flying can be heard. I have seen in the grass at the slope of the dike a pack consisting of five young and three old birds, as well. Sometimes one or two young starlings, just learning flying, describe a short circle at the fringe of the forest, in the company of the parents. Then, in a day free from wind, the old birds hunt in the manner of fly-catchers, too. One of them brought even two mole crickets *(Gryllotalpa gryllotalpa)* to its nestlings. The nestlings of the birds of nest colonies III and IV flew out earlier. It is to be noted that I have observed the first arriving pairs in this forest section; and nest-building, too, began here a few days earlier than in nest colonies I and II. Now, more than one individual even sing: they are about to hatch for the second time.

In case of the first control nest (Újszeged), the male sings, the second hatching began here, as well.

In case of the second control nest (Szatymaz, Makraszék), on 2 June: two nestful birds, which flew out, sit in the leafy crown of one of the poplars. The old birds fly into the grass, 15 to 40 m far, and feed their nestlings with insects brought from there, often, in every two — three minutes. I have observed twice that the parents, flying

down into the grass, were sometimes followed by a young but these soon returned on the tree (instinct of following the parent, LORENZ 1931).

In the same place, there were some nestlings in the hollow of a willow-tree, just before flying out. The parents first fed them twice, then tried to swindle them out of the hollow: in quick succession, they held on several times to the opening of the hollow, then they sang, hopping on the neighbouring branches of the tree, giving bird-calls. I have observed two times that one of the birds flew to the opening with a green leaf, detached from an elder-bush, standing before the nest, and put it into the hollow. Later on, returning to a branch, it shook the leaf out of its bill. Once they did the same with a blade of grass, too. During this time (for two hours!) they did not feed their nestlings at all. Thus, they probably tried to induce them by starving to leave the hollow. During the scene, two other starlings "assisted" at the event but only in so far as they repeatedly returned, hopped on the branches around the hollow and sang.

They similarly swindle the nestlings out of the hollow on 3 June, in the same way as on the former day. From the opening of the hollow a long blade of grass stands out.

On 7 June, there is no more nestling in the neighbourhood.

Besides the starling, a frequent hatching bird is here the tree-sparrow, as well. It similarly nests in hollows and flies to the dike, agricultural areas to feed and gather food to its nestlings. This does not mean, after all, any competition to the starling because it nests in hollows of much more confined opening, and the number of insects, to be found in the grassy areas, supplies enough nourishment to sparrows. It only hunts very rarely like a fly-catcher. In the observed section 35—40 pairs hatched.

In the flood plain of the Tisza, one of the most populous species is the starling. Its role is much debated even today, particularly in economic relation. The starlings, nesting in the flood plain, acquire their food mainly from the neighbouring agricultural areas. They have two hatchings a year, thus they destroy a huge quantity of insects during the feeding period. Their role may, therefore, be by all means positive.

*

My investigations have been promoted by the grant of the Hungarian Academy of Sciences, obtained as a teacher of a specialized secondary school, working in the field of education. I am deeply indebted to the Academy for this.

References

GALLÉ, L. (1973): Az állatökológia alapjai (Bases of the animal ecology). — Attila József University. (Manuscript.) — Szeged.

HARRISON, C. (1975): A Field Guide to the Nests, Eggs and Nestlings of British and European Birds. — Glasgow.

LORENZ, K. (1977): Válogatott tanulmányok (Selected papers). — Budapest.

MAGYAR, L. (1976): Újabb adatok a seregély táplálkozásbiológiájához (Recent contributions to the food-biology of the starling). Juhász Gyula Tanárk. Főisk. Közl. — Szeged.

MARIÁN, M. (1965): A Tisza ártér téli madárvilága és gazdasági vonatkozásai (Winter avifauna of the flood plain of the Tisza and its economic aspects). — Móra F. Múz. Évk. — Szeged.

MARLER, P.—HAMILTON, W. J. (1975): Az állatok viselkedésének mechanizmusai (Mechanisms of animal behaviour). — Budapest.

MÓCZÁR, L. (1969): Állathatározó (Animal identification book). I—II. — Budapest.

PETERSON, R. T.—MOUNTFORT, G.—HOLLOM, P. A. D. (1969): Európa madarai (The birds of Europe). — Budapest.

SCHENK, J. (1902, 1903, 1905, 1906): A madárvonulás Magyarországon (Bird migration in Hungary). Aquila IX, X, XII, XIII. — Budapest.

SZÉKESSY, V. (1958): Aves — Madarak (Birds). — Budapest.

A seregély (Sturnus vulgaris L.) fészektelepeinek és fészkelési magatartásának vizsgálata a Tisza hullámterén

MOLNÁR GY.
Vedres István Építőipari Szakközépiskola, Szeged

Kivonat

A seregély fészektelepei fontos szerepet töltenek be a Tisza hullámterén fészkelő madarak életterében. A kolóniák a hullámtéri füzesek öreg fáinak odvaiban alakulnak ki a seregélyek március végi megérkezése után. Az erdőben fészkelő, de a szomszédos kultúrterületekre is kirepülő madarakat az árvédelmi gátról jól figyelemmel lehetett kísérni és megszámolni. Ezek alapján következtetések voltak levonhatók a fészkelő párok számára vonatkozóan. Megfigyelhető volt, hogy a seregélyek egyszerre több rovart is képesek csőrükben fiókáik etetéséhez fészkükbe szállítani. Etetési ritmusuk is gyors, s ezáltal nagy mennyiségű rovart képesek elpusztítani. Fészkelési idő alatti szokásaik s magatartási formáik különös elemeket is tartalmaznak, melyek más énekes madárfajoknál nem figyelhetők meg.

ИССЛЕДОВАНИЕ ГНЕЗДОВЫХ КОЛОНИЙ СКВОРЦОВ И ИХ ПОВЕДЕНИЯ ПРИ ГНЕЗДОВАНИИ В ЗОНЕ ПРИЛИВА ТИСЫ

Д. Молнар
Строительная профшкола имени Иштвана Ведреша, г. Сегед

Резюме

Гнездовые колонии скворцов составляют значительный удельный вес в жизненном пространстве гнездящихся в зоне прилива Тисы птиц. Колонии формируются в дуплах старых ив поймы после прилёта скворцов в конце марта. Гнездящиеся в лесу, но вылетающие на соседние культурные территории птицы легко поддаются подсчёту. На основе подсчётов были сделаны выводы относительно числа гнездящихся пар. Наблюдалось, что за один прилёт скворцы способны принести птенцам в клюве нескольких насекомых. Ритм кормления быстрый, за короткое время способны уничтожить большое количество насекомых. Привычки и формы поведения в период гнездования включают и такие элементы, которые не наблюдаются у других видов поющих птиц.

Ispitivanje kolonija i ponašanja čvorka (Sturnus vulgaris L.) pri gneždjenju na plavnom području reke Tise

MOLNÁR GY.
Gradjevinska srednja škola Vedres István, Szeged

Abstrakt

Medju gnezdaricama plavnog područja reke Tise kolonije čvoraka imaju značajnu ulogu. Formiranje kolonija se odvija nakon pridolaska čvoraka krajem marta, u dupljama starih stabala u vrbacima plavnog područja. Sa nasipa je bilo moguće veoma uspešno posmatranje i prebrojavanje ptica koje su se gnezdile u šumi i obletale susedna područja pod kulturama. Na osnovu toga moguće je bilo utvrditi broj parova ptica gnezdarica. Takodje je pri osmatranjima uočeno da čvorci pri ishrani mladunaca donose odjednom i više insekata. I ritam ishrane im je brz, stoga uništavaju veliki broj insekata. Za vreme gneždjenja u njihovim navikama i bolicima ponašanja javljaju se specifični elementi koje kod ostalih ptica pevačica nedostaju.