

DATA ABOUT THE BIOLOGY AND THE ECOLOGY OF THE SPECIES ASIO OTUS LINNAEUS, 1758 (LONG-EARED OWL) IN THE AREA OF TINCA VILLAGE (BIHOR COUNTY, ROMANIA)

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Abstract

The study presents the results of the researches performed by the authors between January 1, 2013 – March 1, 2016, on the biology and the ecology of the species Asio otus L. (Long-eared Owl) in the conditions of Tinca village. Biotope, breeding, behaviour, number of generations, food and winter census were studied. This species has generally 1 – 2 generations per year and the food consists in animal produces.

Keywords: Asio otus, Tinca village, biology, ecology

INTRODUCTION

The Long-eared Owl is sedentary or partial migrant species at national level (Ciochia V., 1992).

Data regarding the biology and ecology of this species in different locations from Romania were published by different authors (Cătuneanu I., 1951; Linția D., 1954; Radu D., 1984; Ciochia V., 1992; Petrescu A., 1997; Sandor A., Kiss B., 2008; Ilie A.L., 2008; Munteanu D., 2012).

The climatic changes registered in the last years who influenced the number of yearly generations and the number of specimens, all these determined the study of the biological and ecological aspects of this species in the conditions of Tinca area.

Tinca locality is situated in the south-western part of Bihor county, at the contact between Miersig plain and the Holod depression. The average altitude is 110 m, the climate is temperate-continental and the vegetation belongs to the oak forest.

The hydrographic system is represented by the Crișul Negru river.

MATERIAL AND METHOD

The researches regarding the presence of the species in Tinca area began sporadically in the year 2006, then investigations were systematically realized beginning with the year 2013 till 2016.

The observations were realized with the help of binoculars with specifications 8x25, being completed with the direct observations.

The observations were realized next to one abandoned building situated in the environs of Tinca village and in park situated in the middle of Tinca village where we collected pellets in winter and were realized the daily census of Long-eared Owl during the winter.

RESULTS AND DISCUSSIONS

During the analyzed period were observed the biotope, breeding, brooding, number of generations, ethology, food and the winter census of Long-eared Owl.

1. The biotope

Is represented by deciduous forests or by agricultural cultures in alternation with little afforested areas or isolated trees and in the species nests in parks who presents big trees with rich foliage who secure a visual protection during the day (coniferous like arbor vitae or pine tree).

2. Breeding

It materializes generally in isolated, abandoned nests of rooks (*Corvus frugilegus* Linnaeus, 1758). The height of those nests above the ground varied from 6 to 9 meters, the trees where we observed the breeding of the species were only pine trees. The nest could be used by same pair even much more years, without to be restored. The nest situated in an extremity of a pinetree in the park from the middle of Tinca village was used only one year (2015) and the nest situated in a pinetree near an abandoned building from the neighbourhood of Tinca village was used three years successively (2013, 2014, 2015).

Form the end of February till the middle of March, the couples leaves the winter colonies and makes one's way to the areas where will breed.

In the last decade of March – the first week of April the female laid the clutch. Sometimes it exists exceptions of these rule. Example – till April 12, 2015 were observed some specimens (3) in a winter colony.

Beginning with April 13, 2015, all the specimens were leaved the winter colony situated in the park from the middle of Tinca village.

Generally, complete clutch contents 4-5 eggs, rarely 3 or 6. In Tinca area, clutches observed presented 4-5 eggs and one clutch registered in August 2014 presented only 3 eggs (table 1).

The eggs are short elliptical, with feeble lustre and fine pores, white colour. The size of the eggs was less variable. Measuring ten eggs, we obtained the following results: 41x 32,7 mm; 40,9 x 32,7 mm; 40,9 x 32,5 mm; 41 x 31,9 mm; 41 x 32,6 mm; 40,8 x 32,6 mm; 40,9 x 32,8 mm; 40,9 x 32,7 mm; 41 x 32,6 mm; 41 x 32,7 mm (average 40,8 x 32,7 mm).

The yearly number of clutches is generally 1-2, depending on the number of rodents (the food of Long-eared Owl). In the year 2014, as a result of increase rodents number and the effects of a global heating, when registered an autumn with raised temperatures, appeared the third clutch (August – September) – table 1.

Table 1

The number of clutches and eggs of Long-eared Owl in Tinca area in the analysed period (original)

Year	Clutch I	Clutch II	Clutch III
	Number eggs	Number eggs	Number eggs
2013	4	5	-
2014	4	4	-
2015	5	4	3

The first clutch is laid in the period: the last decade of March (majority) – the first decade of April (table 2).

The second clutch is laid in the period: the end of May – the first days of June (table 2).

The third clutch (exceptionally) : the second half of August. The existence of the third clutch at this species is not mentioned in the scientific literature.

The brooding is effected by the female and the male feed her.

The length of incubation is variable. Some authors (Radu D., 1984) mentions 27 -32 days and Linția D. (1954), 27 – 30 days. In Tinca area, the length of incubations in analyzed period was included between 26 – 29 days.

The post-embryonic development lasts approximately 24 – 25 days. The feather of nestlings is whitish and at beginning the plumage is white-grey. After the of nest, the nestlings remains some days around the nest, being feeded by parents till they could fly and could catch alone the prey (fig. 1)



Fig. 1. Nestling of Long-eared Owl (original)

3. Behaviour

This species is very sensitive at the human presence. If the bird observes that she is insistently looked for a long time, leaves the respective place, returning later.

If the process happens again, the bird leaves definitively the respective place. This phenomenon was observed in the case of winter colonies.

We observed that the stopping of the specimens at the winter place happens every day on the same branch and near or even in same place!

A surprising, inexplicable precision!

At the approaching from a nest with nestlings, the adults executes menacing flights and then disseminates some excrements over the intruders.

If the nestlings are attacked, they ruffles menacingly the feathers, scrapes and nips with the beak.

Table 2

Data about the lay of clutches of Long-eared Owl in Tinca area, in the analysed period (original)

Yaer	Clutch I	Clutch II	Clutch III
2013	March 29	May 30	-
2014	March 27	June 2	August 16
2015	April 2	June 3	-

4. Food

There is only from animal source and is different depending on season. Generally, consists in different species of rodents, little birds, insects and frogs.

The keratinous, chitinous and osseous remains are regurgitated in pellets with different sizes (fig.2).



Fig. 2. Pellets of Long-eared Owl (original)

For the identification of prey animals we used additional references: Janossy D., 1983; Cuisin J., 1989; Popescu A., Murariu D., 2001.

Analysing 70 pellets collected during spring – summer at the breeding place, were obtained the following results (table 3):

Table 3

The food (pekkets) of Long – eared Owl from Tinca area during spring – summer (original)

Mammals	Number
Apodemus flavicollis Melchior, 1834	19
Mus musculus Linnaeus, 1758	7
Apodemus agrarius Pallas, 1771	62
Apodemus sylvaticus Linnaeus, 1758	12
Neomys fodiens Schrank ,1760	2
Birds	
Passer montanus (nestlings), Linnaeus, 1758	3
Sturnus vulgaris (nestlings), Linnaeus, 1758	2
Insects	
Coleoptera	3
Orthoptera	2

Analysing of 100 pellets from the winter colonies, were obtained the following results (Table 4):

Table 4

The food (pellets) of Long-eared Owl from Tinca area during winter (original)

Mammals	Number
Apodemus flavicollis Mel.	96
Mus musculus L.	3
Apodemus agrarius Pall.	6
Apodemus sylvaticus L.	40
Rattus rattus Linnaeus, 1758	1
Birds	
Turdus merula	1

From the analysis of the both tables we could find that during the spring – summer period, the food of Long-eared Owl from Tinca areas formed in percentage of 94% from rodents, 2 % - insectivorous mammals, 4 % - little birds and insects. From the rodents prevails Apodemus agrarius Pall.

The analysis of the food from the period of winter indicates the predominance of the rodents – 99% and the birds represents only 1 % from nutritive preferences.

Also, from rodents, prevails Apodemus flavicollis Mel. On the other hand, distinguish the big number of forest rodents identified, while the rodents identified in crops were identified in insignificant number.

5. Winter census

During the winter, northern populations from Romania or Europa, migrates to south searching for food. They join in colonies who comprises sometimes tens of specimens, particularly during of some severe winters. Example – at January 10, 2012, on single arbor vitae we identified 62 specimens.

For estimate the impact of those migrations and associations we realized the winter census of this species during 2014-2105 and 2015 – 2016, in November – March 1 (table 5, table 6).

Table 5

The winter census 2014-2015 at *Asio otus* L. in Tinca area (original)

November		December		January		February	
12	5	1	20	1	23	1	28
13	4	2	18	2	23	2	30
14	6	3	19	3	24	3	27
15	8	4	19	4	22	4	26
16	7	5	19	5	24	5	28
17	9	6	21	6	25	6	29
18	9	7	20	7	25	7	30
19	10	8	20	8	24	8	30
20	12	9	20	9	26	9	32
21	14	10	19	10	26	10	32
22	13	11	19	11	27	11	34

23	13	12	18	12	25	12	35	
24	16	13	18	13	26	13	35	
25	16	14	20	14	27	14	35	
26	18	15	21	15	27	15	33	
27	19	16	22	16	29	16	33	
28	20	17	22	17	30	17	34	
29	21	18	22	18	30	18	32	
30	21	19	21	19	30	19	34	
Average 12, 68		20	23	20	31	20	34	
		21	22	21	28	21	36	
		22	22	22	29	22	32	
		23	23	23	30	23	33	
		24	24	24	26	24	33	
		25	21	25	26	25	33	
		26	22	26	27	26	34	
		27	23	27	29	27	34	
		28	22	28	29	28	34	
		29	22	29	29			
		30	24	30	28			
		31	21	31	28			
		Average 20, 83		Average 27, 51		Average 32, 14		

Table 6

The winter census 2015 – 2016 at *Asio otus* L. in Tinca area (original)

November		December		January		February	
Day	Number of specimens	Day	Number of specimens	Day	Number of specimens	Day	Number of specimens
10	3	1	32	1	8	1	16
11	4	2	30	2	8	2	16
12	4	3	29	3	8	3	13
13	4	4	34	4	9	4	13
14	5	5	32	5	9	5	12
15	13	6	25	6	10	6	12
16	14	7	16	7	11	7	9
17	22	8	17	8	11	8	14
18	17	9	17	9	12	9	15
19	20	10	18	10	12	10	15
20	20	11	10	11	15	11	11
21	20	12	15	12	16	12	11
22	20	13	20	13	11	13	10
23	19	14	18	14	12	14	9
24	19	15	18	15	13	15	9
25	19	16	19	16	12	16	3
26	22	17	16	17	11	17	3
27	23	18	15	18	11	18	7
28	30	19	14	19	11	19	5
29	33	20	13	20	13	20	5
30	32	21	13	21	11	21	7

Average 15, 95	22	12	22	10	22	1
	23	10	23	18	23	4
	24	8	24	18	24	1
	25	8	25	18	25	1
	26	8	26	18	26	4
	27	9	27	17	27	4
	28	9	28	15	28	3
	29	9	29	16	29	5
	30	9	30	16	Average 8, 20	
	31	8	31	14		
	Average 16, 48			Average 12, 70		

The analysis of the both tables indicates that numerical variations from winter colonies at *Asio otus* L. are conditioned by more much elements: weather conditions, human presence, brightness degree of the day.

We found that in the days with reduced temperatures, intense wind, ample precipitations, the number of specimens grows, those agglomerating.

In favourable days (sunny weather or grown brightness, raised temperatures, absent precipitations, absent wind or with feeble intensity) the number of specimens is more reduce, those migrating in other territories for hunting.

On the other hand, the number of specimens could changes too during of one day depending on human presence, temperature, brightness degree, etc.

The winter colonies are formed beginning with November, depending on weather conditions who influenced the food quantity and refuge places.

The effects of global heating exerts too over the specimens of Long-eared Owl from the both winter periods analysed. During the winter 2014 – 2015 the number of specimens was much more big comparatively with the winter 2015-2016.

When the temperatures are more raised in winter, those winter colonies divides into much little colonies who spreads in different places and could hunt more easy.

CONCLUSIONS

During January 1 2013 – March 1 2016, after the biological and ecological researches of the species *Asio otus* L. in Tinca area, we observed the followings: the species is sedentary or partial migrant in winter; the species presents 1-2 yearly generations, exceptionally 3 depending on food quantity and weather conditions; the clutch comprises generally 4 – 5 eggs, rarely 3; the food consists in animal produces. Eating on different species of rodents, this bird is useful of man, requiring his protection; the number of specimens form winter colonies changes depending on weather conditions, human presence, the brightness degree of a day.

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