

**DATA ABOUT THE BIOLOGY AND THE ECOLOGY
OF THE SPECIES *Streptopelia decaocto* (Frivaldzky, 1838)
IN THE AREA OF TINCA VILLAGE (BIHOR COUNTY, ROMANIA)**

ILIE Aurelian Leonardo, MARINESCU Mariana

Abstract. The paper presents the results of the researches performed by the authors between January 1, 2012 – December 31, 2014, on the biology and the ecology of the species *Streptopelia decaocto* (Collared Doves), in the conditions of Tinca village. Breeding, clutch size, behaviour, number of generations and food were studied. A complete clutch contains 2 eggs. This species has 1 – 6 generations per year. The food generally consists in vegetal produces.

Keywords: *Streptopelia decaocto*, Tinca village, breeding, clutch size, food.

Rezumat. Date asupra biologiei și ecologiei speciei *Streptopelia decaocto* (Frivaldzky, 1838) în zona comunei Tinca (județul Bihor, România). Lucrarea prezintă rezultatele cercetărilor efectuate de autori în perioada 1 ianuarie 2012 – 31 decembrie 2014, asupra biologiei și ecologiei speciei *Streptopelia decaocto* (Collared Doves) în condițiile comunei Tinca. S-au cercetat reproducerea, mărimea ponteii, comportamentul, numărul generațiilor și hrana. O pontă completă conține 2 ouă. Această specie are 1- 6 generații anuale, iar hrana constă în general din produse vegetale.

Cuvinte cheie: *Streptopelia decaocto*, comuna Tinca, reproducere, mărimea ponteii, hrană.

INTRODUCTION

The Collared Dove is a common bird in the human settlements from Tinca area.

Data regarding the biology and ecology of this species in different locations from Romania were published by different authors (CĂLINESCU, 1933; RADU, 1984; MUNTEANU, 1970, 2000, 2012; CIOCHIA, 1992; ILIE, 2012, 2013; MESTECĂNEANU, 2011).

The presence of more and more numerous populations, its accentuated adaptation, the nesting and the climatic modifications registered in the last years, 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 METHODS

The researches regarding the presence of the species in Tinca area began sporadically in the year 2000, then investigations were systematically realized beginning with the year 2012 till 2014.

The observations were realized with the help of binoculars with specifications 8x25 and 20x50, being completed with the direct observation, looking after breeding, food, behaviour and influence of air temperature on the biology of this species. The observed nests were placed in different locations from Ilie A. L.'s private farm, the farms of his neighbours, at "Nicolae Jiga" Theoretical High School and in different locations from some streets from Tinca village.

RESULTS AND DISCUSSIONS

The researches regarding the presence of the species in Tinca area began sporadically in the year 2000; then, the investigations were systematically realized beginning with the year 2012 till 2014.

The observations were realized with the help of binoculars with specifications 8x25 and 20x50, being completed with the direct observation, looking after breeding, food, behaviour and influence of air temperature on the biology of this species. The observed nests were placed in different locations from Ilie A. L.'s private farm, the farms of his neighbours, at "Nicolae Jiga" Theoretical High School and in different locations from some streets from Tinca village.

1. Breeding

With regard to breeding, we investigated the location of the nests, the material of construction, the size of nests, the clutch size and the development of the nestlings.

The height of nests above the ground varied from 1.68 meters (one nest identified, on the branches of a cherry tree) to 10-15 meters (the majority of nests) - Fig. 1

The nest is installed generally inside the human settlements, on trees (even conifers like pines), household annexes, concrete pillars, different industrial and civilian buildings (sometimes in unexpected places), in parks, vine plants, cemeteries, orchards, rarely outside the village (on the trees situated not further than 1 – 1.5 kilometres from the village).

The material of construction was extremely different: branches, wires or stems of some gramineae. The nest is a simple platform, without lining and can be used by the same pair for several years (generally to 4 years) – Figs. 2, 5.



Figure 1. Nest of Collared Dove (original).



Figure 2. Nest of Collared Dove (original).

The diameters of the nests are variable, from 10 to 15 cm. A complete clutch generally contains two eggs. The young pairs can have a clutch with one egg. This rule is not always valid. Thus, in a nest installed on a concrete pillar and observed during the year 2014, the first clutch contained one egg, the second, the third and the fourth contained 2 eggs and the fifth contained only one egg, although the pair was not young. Another reason that could limit the number of eggs is probably the tight space where the nest is installed. Thus, at the nest observed in 2012, situated under eaves, between a drain pipe and a wall of A.L Ilie's house, all the clutches had only one egg, despite the pair was not young. An exceptional case, probably unmentioned until now in the scientific literature, indicates one clutch with three eggs. The nest was observed on my vine arbour, on June 1, 2013.

The eggs are oval, smooth, with feeble lustre. The colour of the eggs is white (Fig. 3).



Figure 3. Egg of Collared Dove (original).

The size of the eggs was less variable. Measuring seven eggs, we obtained the following results: 31,8 x 23 mm; 31,9 x 23,1 mm; 32 x 23 mm; 31,7 x 22,9 mm; 32,2 x 23 mm; 32,1 x 23,1 mm; 31,9 x 22,9 mm (average 32 x 12 mm). During the entire research period, all the yearly clutches of some breeding pairs were laid in the same nest. If some perturbations appear (presence of some raptors, human activities, strong sounds), the pair leaves the nest. Thus, the nestlings of a nest situated in my garden on a vine plant, in 2014, were hunted by a cat. After this event the pair left the nest.

The clutch sizes between 2012 and 2014 in Tinca area are rendered in Table 1.

Table 1. The clutch size of the Collared Doves in Tinca area, in the analyzed period.

Year	Clutch I		Clutch II		Clutch III		Clutch IV		Clutch V		Clutch VI	
	Nest number	Eggs number	Nest number	Eggs number	Nest number	Eggs number	Nest number	Eggs number	Nest number	Eggs number	Nest number	Eggs number
2012	4	1	1	1	-	1	2	1	2	1	-	1
	7	2	8	2	8	2	6	2	6	2	3	2
2013	3	1	2	1	2	1	1	1	1	1	-	1
	7	2	6	2	8	2	8	2	8	2	4	2
	1	3	-	-	-	-	-	-	-	-	-	-
2014	4	1	3	1	2	1	2	1	2	1	-	1
	6	2	5	2	8	2	7	2	7	2	3	2

Analysing the data rendered in the aforementioned table, we find that the yearly number of clutches is variable (1 – 6), but generally the number of clutches is 5. At the last clutches (V and VII), the number of nests with one egg is very small: 1- 2 (clutch VI). The absence of the nests with one egg within the clutch VI proves that only the mature and prolific pairs could lay such clutch.

The early average of the number of eggs from all the clutches is rendered in Table 2.

Table 2. The yearly average of the number of eggs from all clutches of the Collared Doves in Tinca area between 2012 and 2014.

Year	Yearly average of the number of the eggs from all clutches
2012	7,08
2013	7,83
2014	7,25

Analysing Table 2 we notice the relatively high values in all analysed periods (7.08 -7.83), due to the high number of the yearly clutches (Fig. 4).

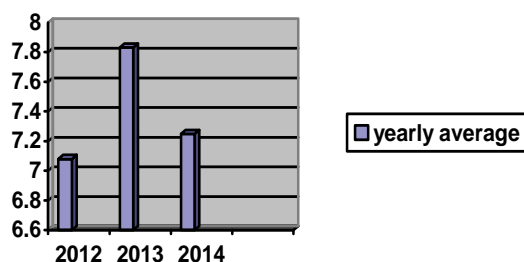


Figure 4. The yearly average of the number of eggs from all clutches of the Collared Dove pairs living in the analysed period in Tinca area.

This relatively high value could be an explanation of the extension of the specific distribution area, as well as the high adaptability of the Collared Dove to the anthropogenic conditions.

The clutches- the first clutch is laid in the period: second decade of March (majority) - the first days of April. Sometimes, when temperature is increased (over 14⁰C), the first clutch is laid in the first decade of March (example – March 9, 2013; March 8, 2014).

The hatching period generally lasts 14-15 days, generally 14 days, being realized both by the male and the female.

Data about the lay of the first clutch of the Collared Dove in Tinca area rendered in the following table (Table 3).

Table 3. The data of the laying of the first clutch by the Collared Dove in Tinca area in the analysed period.

Year	Nest 1	Nest 2	Nest 3	Nest 4	Nest 5	Nest 6	Nest 7
2012	March 12	March 16	March 13	April 1	March 12	April 2	March 11
2013	March 8	March 14	March 19	March 30	March 15	March 13	March 10
2014	March 9	March 18	April 1	March 20	March 14	March 12	March 14

Explanation:

Nest 1, 2, 3 = nests situated on concrete pillars

Nest 4 = nest situated on vine plants

Nest 5, 6, 7 = nests situated on trees

The post-embryonic development lasts 13-15 days. The complete reproductive cycle lasts 45 days.

The nestlings are fed by both parents. After the departure of the nestlings from the nest, they remain for another 3-5 days, in this neighbourhood being fed sporadically by the parents and their flights go on with difficulty and on relatively short distances.

The second clutch is laid generally in the first half of May (Table 4).

Table 4. The data (May) of the second clutch laying of the Collared Dove in the analysed period in Tinca area.

Year	Nest 1	Nest 2	Nest 3	Nest 4	Nest 5	Nest 6	Nest 7
2012	6	8	11	6	9	6	6
2013	8	10	9	8	7	7	9
2014	9	7	10	8	10	9	7

Under favourable conditions (low precipitations amounts, average temperatures), there can be registered even six generations per year (Tables 5, 6, 7, 8). The third clutch is laid in the first half of June.

Table 5. The data (June) of the third clutch laying of the Collared Dove in the analysed period in Tinca area.

Year	Nest 1	Nest 2	Nest 3	Nest 4	Nest 5	Nest 6	Nest 7
2012	9	8	11	8	10	7	9
2013	8	10	9	12	8	10	8
2014	10	7	10	9	9	8	10

The fourth clutch is laid in the first half of July.

Table 6. The data (July) of the fourth clutch laying of the Collared Dove in the analysed period in Tinca area.

Year	Nest 1	Nest 2	Nest 3	Nest 4	Nest 5	Nest 6	Nest 7
2012	10	11	13	11	13	13	11
2013	9	9	12	14	10	11	10
2014	12	10	12	12	12	11	12

The fifth clutch is laid in the second half of August.

Table 7. The data (August) of the fifth clutch laying of the Collared Dove in the analysed period in Tinca area.

Year	Nest 1	Nest 2	Nest 3	Nest 4	Nest 5	Nest 6	Nest 7
2012	17	18	19	17	19	18	17
2013	16	17	18	16	17	16	19
2014	19	17	18	19	16	18	17

The sixth clutch is rarer and is laid in the period: the last week of September - the first ten days of October.

Table 8. The data of the sixth clutch laying of the Collared Dove in the analysed period in Tinca area.

Year	Nest 1	Nest 2	Nest 3	Nest 4	Nest 5	Nest 6	Nest 7
2012	-	September 24	October 2	-	-	-	October 1
2013	-	-	October 3	-	September 26	-	-
2014	October 1	-	September 26	-	-	-	September 24

Under favourable conditions, the period of time between two reproductive cycles is very short (3 – 4 days). The nestlings have a grey-yellow colour or even white – yellowish (Fig. 5).



Figure 5. Nestlings of the Collared Dove (original).



Figure 6. A Collared Dove killed by goshawk (original).

In the analysed period we identified the harmful species which had access at the nests situated on trees or on vines: the man and the cat. Other species hunt the adult birds: goshawk (*Accipiter gentilis* Linnaeus, 1758) - Fig. 6.

During the analysed period were observed some behaviour of the local birds. In September 1, 2012, A.L.Ilie observed in his garden a behaviour named by this ‘pseudo-brooding’: one female sat on the turf in a position that was the brooding, turning round on ground in the same place, as if it brooded, then tore to pieces some blades of grass and arranged those as if she was building a nest. She stood still for some moments then the behaviour repeated. The ‘pseudo-brooding’ lasted for about 10 minutes and then the bird flew away. This behaviour was recurrent, in the same place, on November 6, 2012, although the grass was wet and the temperature was relatively reduced (9⁰ C).

During winter, when the weather conditions are favourable (low precipitation amounts, temperatures over 9-13⁰ C) there were observed copulations between male and female and songs of male. Example: December 3, 2012; January 7, 2013; December 16, 2013; January 7, 2014. Often, during the brooding of the male, this one sings some minutes. The song of the male can be heard during the entire year, irrespective of the weather conditions, but at the end of autumn and in winter its intensity decreases, the song having other roles (the attraction of the female, the marking of the territory, etc.).

When the nestlings, ready for flight, are in the nest, the parents are together in neighbourhoods, made closet and sometimes there were registered sexual copulations. Maybe this is the justification for the short time between the flight of nestlings and the beginning of the next reproductive cycle (2 – 3 days).

In winter, this bird often shares in large groups, sometimes up to one hundred individuals. Example: December 3, 2014, on the telegraph wires (102 individuals).

CONCLUSIONS

The researches realized during the period 2012 – 2014 on the species *Streptopelia decaocto* Friv. emphasized the following aspects:

- that species is very anthropophilic;
- it presents 1 – 6 generations per year depending on the prolificacy of the pair, the beginning of the first brooding, the food availability, the weather conditions, the peace and quiet of the place where they live;
- generally, a complete clutch consists of 2 eggs, exceptionally 3 eggs;
- the length of brooding is 14-15 days;
- the post-embryonic development lasts 13-15 days;
- different behaviours were observed: ‘pseudo-brooding’, copulations during winter, the song of male during his brooding.

ACKNOWLEDGEMENTS

Special thanks to Mr. Academician Dan Munteanu, Romanian Academy, Nature Monuments Commission, for his constructive comments, references and publishing advice.

REFERENCES

- CĂLINESCU R. 1933. *Turtur risorius* în România. *Buletinul Societății Naturaliștilor din România*. București. **4**: 4-6.
- CIOCHIA V. 1992. *Păsările clocitoare din România*. Edit. Științifică. București. 386 pp.
- ILIE A. L. 2012. Noutăți faunistice, aspecte etologice și fenologice ale faunei de vertebrate și de insecte din zona Tinca (jud. Bihor, România). *Educația Omului de azi pentru ziua de mâine*. Edit. Universității din Oradea. **9**: 152-156.
- ILIE A. L. 2013. New taxonomical, ecological and ethological data of the fauna of vertebrates and insects from Tinca area (Bihor county, Romania). *Educația Omului de azi pentru ziua de mâine*. Edit. Universității Oradea. **10**: 173-177.
- MESTECĂNEANU A. 2011. Studiul complex (sistematic, biologic, ecologic, etologic și de răspândire) privind fauna de păsări (Aves) din bazinul Râul Doamnei-Argeș. *Teză de doctorat*. Universitatea București. Facultatea de Biologie. 682 pp.
- MUNTEANU D. 1970. Expansiunea recentă a guguștiucului (*Streptopelia decaocto*) pe valea intramontană a Bistriței moldovenești. *Lucrările Stațiunii de Cercetări Biologice, Geologice și Geografice Stejarul*. Universitatea „A. I. Cuza” Iași. **3**: 347-350.
- MUNTEANU D. 2000. *Avifauna bazinului montan al Bistriței moldovenești*. Edit. Alma Mater. Cluj-Napoca. 250 pp.
- MUNTEANU D. 2012. *Conspectul sistematic al avifaunei clocitoare din România*. Edit. Alma Mater. Cluj-Napoca. 262 pp.
- RADU D. 1984. *Păsările în peisajele României*. Edit. Sport-Turism. București. 216 pp.

Ilie Aurelian Leonardo

“Nicolae Jiga” Theoretical High School Tinca,
Republicii Street, No. 36/A, county Bihor, Romania.
E-mail: aurelian_ilie@yahoo.fr

Marinescu Mariana

University of Oradea, Didactic Staff Training Departament (DTS),
University Street, No. 1, Oradea, Romania.
E-mail: marinescum54@yahoo.com

Received: March 17, 2015

Accepted: June 24, 2015