

U N I V E R S I T Y O F D E B R E C E N

FACULTY OF AGRICULTURAL, FOOD SCIENCES AND

ENVIRONMENTAL MANAGEMENT

DEPARTMENT OF NATURE CONSERVATION, ZOOLOGY AND GAME MANAGEMENT

Head of the Department:

Lajos Juhász, Ph.D.

associate professor

R E S E A R C H P R O P O S A L

*Wing/Patagial tag program of Hooded Crow (*Corvus cornix L.*)*

in Debrecen, Hungary

Supervisor:

László Kövér, Ph.D.

assistant lecturer

Debrecen

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Introduction

Formerly, Hooded Crow (*Corvus cornix* L.) used to be specifically an agri-environment bird species, however, they colonized many cities in recent decades. Their population is growing in Debrecen as well, due to the structure of the city. It provides everything needed by the crows, from diverse food sources to nesting opportunities.

On the other hand, the drastic increase of their urban population causes numerous negative effects on the bird fauna (e.g. nest predation), and for inhabitants of the city (e.g. noise, aggression). Being aware of these threats, extensive study related to their behaviour, motion patterns, and expansion is getting more and more important.

Our knowledge about Hooded Crows' movements, and area fidelity is highly incomplete. The aim of this study is to gather information regarding these matters, by marking the birds individually, then observing their movements throughout the city.

Objectives

- Studying the territory-size and motion pattern of Hooded Crows.
- Gathering other data (e.g.: biometry, ethology)

Material and methods

During autumn and winter, Hooded Crows are going to be captured with different types of traps (Larsen, Swedish and ladder trap) at the area of the Böszörményi Street Campus of the University of Debrecen. One ladder trap, two Swedish traps, two side-entry Larsen traps, and two top-entry Larsen traps will be installed. Baits and a live Hooded Crow as decoy bird will be placed in the ladder trap. One Swedish trap, and one from both types of Larsen traps will be used with only baits. In case of the remaining traps baits and decoy birds will be used as well (Figure 3.). The caught crows will be marked individually and biometric data will be noted. The scheme ring will be put on the left tarsus, furthermore, every crow will be marked with a wing/patagial-tag on each wing. We are going to use white wing tags with black numeric codes

written to them (Figure 1.). The marking method will be based on Caffrey (2000), and personal consultation with László Tóth Ph.D (he works with the on Western Marsh Harrier, *Circus aeruginosus* with the same technique (Figure 2.). Using patagial-tags is more advantageous than marking with colour rings, because wing-tagged individuals are easier to observe, and notice their identification is much easier even from greater distance. Marked birds will be observed in different areas of the city, according to the method given in advance. As a result of this, we can expand our knowledge about Hooded Crows' life in urban environment. Hopefully, we can get more detailed information about their area fidelity, their motion patterns, and the main features of their expansion.

Study area

Debrecen is the second largest city of Hungary. It is divisible into several macro-habitats due to its structure. These biotopes offer different opportunities to the bird fauna. We can talk about completely built-up zones like the downtown area or housing estates; about green areas like parks, tree rows; and about suburban areas as well. These different factors combined (e.g. nesting-, feeding opportunities) offer several benefits for crows. Due to their ecological flexibility and high level of intelligence, Hooded Crows colonized Debrecen, breeding pairs divided nearly the whole city among themselves.

The Böszörményi Street Campus at the University of Debrecen is an excellent place for trapping, because the rear of the campus is less affected by traffic and human disturbance. A demonstration garden, a botanical garden, a large grassy area where the Farmer-Expo takes place, and several smaller units are located here. As an example of these small units, the horticulture garden is responsible for the green environment of the campus. Our traps will be settled in this enclosed garden (Figure 4.).

Research period

Continuously from 01.11.2016

Participants

Persons responsible for the research:

- **László Kövér Ph.D.:** assistant lecturer, supervisor
- **Lajos Juhász Ph.D.:** associate professor, head of department, bird bander

Further persons taking part in the research:

- Petra Paládi

nature conservation engineer BSc student

- Dávid Tóth

wildlife management engineer BSc student

- Norbert Tóth

technical assistant

- Sámuel Zsolt Varga

Ph.D. candidate

Place of the study

University of Debrecen

Böszörmény Street Campus

4032 Debrecen, Böszörményi út 138, Hungary

Financial background

The project is going to be financed by the Department of Nature Conservation, Zoology and Game Management of the University of Debrecen.

Tools required for the banding will be supplied by Lajos Juhász Ph.D.

Data analysis

Data will be analysed by statistical tests, with GIS methods involved. Ways of publication: articles (online, offline), peer-reviewed journals, conferences (international, Scientific Student Conference).

Literature

- Bub, H. (1995) Bird Trapping and Bird Banding. Cornell University Press, Ithaca, New York, 330 p.
- Caffrey, C. (2000): Marking crows. North American Bird Bander, 146-150.
- Juhász, L. – Kövér, L. – Gyüre, P. (2009): The urbanization of the Hooded Crow (*Corvus cornix* L.) in Debrecen (Hungary). II. European Congress of Conservation Biology (ECCB, 2009), Prague, Czech Republic, Book of Abstracts, 227.
- Juhász L. – Kövér L. 2010. The Hooded Crow as an aggressive conqueror. (in Hungarian) Nimród, 2010/1: 7-9.
- Kövér L. – Juhász L. 2007. The expansion of Hooded Crow (*Corvus cornix* L.) in Debrecen. (in Hungarian) Annual Book of the Déri Museum, Debrecen, 2007: 17-24. (ISSN 0418-4513)
- Kövér L. – Juhász L. – Gyüre P. 2008. The habitat change of Hooded Crow (*Corvus cornix* L.) in Debrecen. (in Hungarian) IV. Conference of Environmental Science of the Carpathian-basin, Debrecen 2008, II. Book of Proceeding, 197-204. (ISBN 978-963-06-4626-0)
- Kövér L. – Juhász L. 2012. The methodology of the Hooded Crow's (*Corvus cornix* L.) colour ringing and the previous results. (in Hungarian) Acta Agraria Debreceniensis, 48, 43-48. (ISSN 1587-1282)
- Kövér, L., Gyüre, P., Balogh, P., Huettmann, F., Lengyel, Sz., Juhász, L. (2015) Recent colonization and nest site selection of the Hooded Crow (*Corvus corone cornix* L.) in an urban environment. Landscape and Urban Planning, 133: 78-86.
- Kövér, L., Tóth, N., Juhász, L. (2016): Corvid control in urban environment: a comparison of trap types, especially against Hooded Crow (*Corvus corone cornix* L.). North-Western Journal of Zoology, under review.

Figure 1.

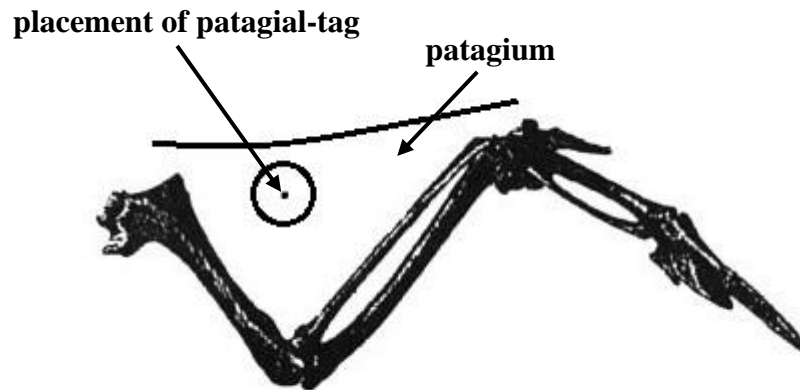
Marking protocol of Hooded Crow

	No.	Colour-code	Num-code	No.	Colour-code	Num-code	No.	Colour-code	Num-code	No.	Colour-code	Num-code	No.	Colour-code	Num-code	No.	Colour-code	Num-code	No.	Colour-code	Num-code	No.	Colour-code	Num-code			
L	1	white	1	10	white	10	19	white	19	28	white	28	37	white	37	46	white	46	55	white	55	64	white	64	73	white	73
R		white	1		white	10		white	19		white	28		white	37		white	46		white	55		white	64		white	73
L	2	white	2	11	white	11	20	white	20	29	white	29	38	white	38	47	white	47	56	white	56	65	white	65	74	white	74
R		white	2		white	11		white	20		white	29		white	38		white	47		white	56		white	65		white	74
L	3	white	3	12	white	12	21	white	21	30	white	30	39	white	39	48	white	48	57	white	57	66	white	66	75	white	75
R		white	3		white	12		white	21		white	30		white	39		white	48		white	57		white	66		white	75
L	4	white	4	13	white	13	22	white	22	31	white	31	40	white	40	49	white	49	58	white	58	67	white	67	76	white	76
R		white	4		white	13		white	22		white	31		white	40		white	49		white	58		white	67		white	76
L	5	white	5	14	white	14	23	white	23	32	white	32	41	white	41	50	white	50	59	white	59	68	white	68	77	white	77
R		white	5		white	14		white	23		white	32		white	41		white	50		white	59		white	68		white	77
L	6	white	6	15	white	15	24	white	24	33	white	33	42	white	42	51	white	51	60	white	60	69	white	69	78	white	78
R		white	6		white	15		white	24		white	33		white	42		white	51		white	60		white	69		white	78
L	7	white	7	16	white	16	25	white	25	34	white	34	43	white	43	52	white	52	61	white	61	70	white	70	79	white	79
R		white	7		white	16		white	25		white	34		white	43		white	52		white	61		white	70		white	79
L	8	white	8	17	white	17	26	white	26	35	white	35	44	white	44	53	white	53	62	white	62	71	white	71	80	white	80
R		white	8		white	17		white	26		white	35		white	44		white	53		white	62		white	71		white	80
L	9	white	9	18	white	18	27	white	27	36	white	36	45	white	45	54	white	54	63	white	63	72	white	72	81	white	81
R		white	9		white	18		white	27		white	36		white	45		white	54		white	63		white	72		white	81

We studied the relevant running programmes on www.cr-birding.org website, which are different from ours.

Figure 2.

Method of patagial-tag marking based on Caffrey (2000)



Tag placement should be such that the washer does not rub against bones or associated tissues



Corretly attached from the inside out: head of the tag, washer, bird wing, tag, washer



Marked crow

Figure 3.

Placement of the traps in the study area



- Swedish trap
 - Larsen trap (side-entry)
 - Larsen trap (top-entry)
 - Ladder trap
- X: decoy bird

Figure 4.

The study area in the Bösörményi Street Campus

