

Breeding of the Rook (*Corvus frugilegus*) in the Czech Silesia – the past and the present

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Abstract: A historical survey was compiled of Rook (*Corvus frugilegus*) rookeries in the Moravian-Silesian region based on literature and private data covering period 1945-2015. Altogether, eighteen rookeries have been documented. During the second half of the 20 century the numbers of the Rook population in the Czech Silesia increased slowly from zero to ca. 500 breeding pairs, but the number of rookeries has decreased at the latest after 1990. Since 2000, probably only two local Rook's breeding sites exist in the town of Opava and Ostrava and only Rook's population inhabits Opava seem to be stable. It cannot be excluded that the extinction of the Silesian rookeries in the 1990s is a temporary phenomenon, whose consequence will be a further increase in the mean rookery size in town of Opava.

Key words: *Corvus frugilegus*, rookery, distribution, Czech Silesia, extinction, agricultural intensification

Introduction

The Rook is passerine found in the Palearctic region. It breeds from South Scandinavia to North Spain and across Eurasia to river Yenisei (Del Hoyo *et al.* 2009). It ranks among the strongly colonial social birds, forming rookeries of a few pairs up to thousands of pairs in stands of tall mature trees (Del Hoyo *et al.* 2009; Šťastný & Hudec 2011). The occurrence of breeding Rooks is connected to a presence of used meadows and pastures in West Europe (Atkinson *et al.* 2002; Schoppers 2004; Gimona & Brewer 2006). However in Central Europe, a large proportion of breeding sites is situated in agricultural landscapes as well as in urbanized areas (Orłowski & Czapulak 2007; Lemberk 2011).

The Rook is unfrequently breeding bird species in the Czech Republic. Our population inhabits lowland open agricultural landscape, often in urban agglomerations or in small field wood fragments (Šťastný *et al.* 2006). Majority of Czech Rook's population breeding in catchment area of river Elbe and Vltava (Šťastný *et al.* 2006; Šťastný & Hudec 2011). Rooks have nested regularly in just one rookery in the Moravia situated in Znojmo district (Balát & Hudec 1961, Klejdus 2013).

Rooks colonized region of Czech Silesia in the 1940s as consequence of increasing Rook's population in Poland (Hudec *et al.* 1966). However gradual decrease in Rook numbers has been noted in last two decades in the agricultural regions of the Polish Silesia, probably due to change in crop structure of sown fields (Czapulak & Betleja 2002, Kuźniak *et al.* 2005). Recent decrease in core Poland Rook's population could negatively affect edge population in the Czech Silesia.

The aim of the present paper is to summarise all accessible informations about the breeding occurrence of the Rook in the Czech Silesia based on literature, electronic databases, and questionnaire survey and nest census.

Methods

Informations about Rook's breeding occurences in the Czech Silesia were sourced from published regional biological journals and books. Further, data from private Drahomír Kondělka's ornithological card index and from on-line databases *birds.cz/avif* and *portal.nature.cz* were included and questionnaire survey about Rook's breeding sites was distributed to the members of Silesian ornithological society Ostrava via e-mail in december 2014. Moreover I realized census of nests in rookeries located within the administrative boundaries of the town Opava and Ostrava between March 1 and April 30, 2014 (Opava) and 2015 (Opava, Ostrava). This always took place before the appearance of foliage on trees, which facilitated the counting of nests in rookeries. Nest success and proportion of active nests was not evaluated due deficit of time.

Results

I found informations about eighteen historical Rook's breeding places in the Czech Silesia (Fig 1). Current local Rook's population could be assed at ca. 500 breeding pairs. Majority of Rooks breeds in town of Opava (Fig 2).

Overview of documented rookeries in the Czech Silesia

Opava district

1. Boundary mixed wood „Gruby“ (Kateřinky cadastre, quadrate 6073, coordinates 49°58'29.9"N 17°54'48.1"E, altitude 255 m a.s.l.) – Rookery established early before 1945 (Hejl 1958), 1954: several nests (Hudec *et al.* 1966), 1957: 16 (Hejl 1958), 1958: 12 (Hejl 1958), last breeding in 1966. Downfall caused by opening of gravel pit in vicinity of the rookery (Kapler 1979).

2. Opava city (6073, 49°56'00"N 17°52'40"E, 270 m a.s.l.) – First dataless records of 16 Rook's nests in 1960 (A. Pola in Hudec *et al.* 1966), 1962: 13 (A. Pola in Hudec *et al.* 1966), 1967: unknown number of nests in Dvořákovy sady and Sady Svobody (Kapler 1979), 1976: 52 nest/4 rookeries, Rooks have permanently settled Opava city (Kapler 1979), 1977: 33 (J. Ticháčková in litt.), 1978: 5/1 (J. Ticháčková in litt.), 1985: 106/7 (M. Přibyla in litt.), 1987: 231/8 (M. Přibyla in litt.), 1988: 227/5 (M. Štefková in litt.), 1990: 302/8 (F. Škrabal & M. Štefková in litt.), 1991: 333 (Šťastný *et al.* 2006), 2014: 428/4 (Praus 2014), 2015: 446/4 (own survey). Number of nests in individual rookeries are listed in Table 1.

3. Košetice, small mixed wood (6072, 49°57'53.5"N 17°41'37.7"E, 450 m a.s.l.) – Rookery established before 1959 (Hudec *et al.* 1966), 1958: 30 (A. Pola in Hudec *et al.* 1966), 1960 – 1961: 80 – 90 (A. Pola in Hudec *et al.* 1966). Nowadays defunct, year and reason of downfall unknown.

4. Oldřišov, small deciduous wood (6073, 49°58'53.5"N 17°58'05.6"E, 275 m a.s.l.) – Rookery established early before 1946, majority nests on ashes (*Fraxinus excelsior*), 1955: 54. Rooks banished by huntsmen in 1956 (Folk & Velecký 1960, Hudec *et al.* 1966).

5. Arnoštov, small deciduous wood (6073, 49°58'20.9"N 17°58'43.2"E, 295 m a.s.l.) – Temporary rookery incurred after downfall of nearby Oldřišov rookery in 1956. Number of nests and years of breeding unknown (Folk & Velecký 1960).

6. Velké Hoštice, small deciduous wood (6073, 49°56'36.6"N 17°57'43.5"E, 275 m a.s.l.) – Rookery discovered in 1961: 30–50 nests (A. Pola in Hudec *et al.* 1966), 1975: 120 (D. Kondělka in litt.), 1977: 238 (D. Kondělka in litt.), 1984: 162 (D. Kondělka in litt.), 1986: 140 (D. Kondělka in litt.). 1987: rookery banished by huntsmen (D. Kondělka in litt.), 1988: 2 abandoned nests (D. Kondělka in litt.), 1989: reestablishing of rookery, 146 (D. Kondělka in litt.), 1990: 128, Rooks definitively banished by huntsmen (D. Kondělka in litt.).

Ostrava district

7. Přívoz, vicinity of Ostrava main station (6175, 49°51'01.4"N 18°16'01.4"E, 230 m a.s.l.) – Rookery established in 1953: 6/1, majority of nests placed on plane trees (*Platanus* sp.) (Oliva 1959), 1954: 17/2 (Oliva 1959, Folk & Velecký 1960), 1955: 17/3 (Folk & Velecký 1960), 1956: 12/2 (Kříž & Marsa 1957), 1957: 4/1 (Oliva 1959), 1958: 15 (Oliva 1959), 1959: 8 (Oliva 1960), 1960: 13 (Oliva 1960), 1990: 5 (J. Stolarczyk in litt.), 1995: 2/1 (V. Holec in litt.), 1996: 2/1 (V. Holec in litt.), 1997: 6/1 (V. Holec in litt.), 2009: 4/1 (Mandák 2011), 2014: 8/2 (own survey, V. Holec in litt.), 2015: 6/1 (M. Mandák in litt.).

8. Moravská Ostrava (6175, 49°50'19.0"N 18°17'17.4"E, 240 m a.s.l.) – Regular rookery in Husův sad, occasional breeding occurrence in Černá louka and surroundings. First recorded breeding in 1955: 7 nests on maples (*Acer* sp.) in Husův sad (Folk & Velecký 1960), 1956: 15/1 (Folk & Velecký 1960), 1957: 15/1 (Folk & Velecký 1960), 1958: 5/1 (Oliva 1960), 1959: 20/2 (Folk & Velecký 1960, Oliva 1960), 1960: 23/1 (Oliva 1960), 1973 several nests (J. J. Hudeček in litt.), 1974: 1/1 (D. Kondělka in litt.), 1975: 12/2 (Mayer & Pospíšil 1976), 1976: 13/1 (D. Kondělka in litt.), 1977: 9/1, last year of breeding (D. Kondělka in litt.).

9. Vítkovice (6175, 49°48'35.7"N 18°16'17.4"E, 230 m a.s.l.) – Several rookeries in industrial zone, repeatedly especially in Mírové náměstí, Důl Hlubina, Těžká mechanika, Vysoké pece and Koksovna Šverma, majority of nests on plane trees. 1955: 9/1 (Folk & Velecký 1960), 1956: 38 (Folk & Velecký 1960), 1957: 48/2 (Oliva 1959), 1958: 38 (Oliva 1960), 1960: 77/4 (Oliva 1960), 1963: 137/7 (Hudec *et al.* 1966), 1973: 35 (J. J. Hudeček in litt.), 1975: 41/5 (Mayer & Pospíšil 1976), 1976: 33/4 (D. Kondělka in litt.), 1977: 38/2 (J. J. Hudeček in litt., L. Boucný in litt.), 1979: 23/2 (L. Boucný in litt.), 1983: 5/1 (D. Kondělka in litt.), 1984: 19/2 (D. Kondělka in litt.), 1985: 37/5 (R. Zenkl in litt.), 1988: 30/4 (R. Zenkl in litt.), 1990: 50/5 (R. Krzykala in litt.), 1991: 21/2 (D. Kondělka in litt.). Nowadays defunct, downfall in 1990s, reason of deserting unknown.

10. Mariánské Hory, surroundings of railroad (6175, 49°50'20.4"N 18°14'24.9"E, 240 m a.s.l.) – 1986: 4 (D. Kondělka in litt.), 1988: 3 (D. Kondělka in litt.), 1992: 58 (Stolarczyk & Juřík 1994), 2015: 23 (own survey).

11. Koblov (6175, 49°52'27.7"N 18°17'05.2"E, 250 m a.s.l.) – 1971: 16 (A. Kubenková in litt.), 1989: 27 (J. Šuhaj in litt.), 1990: nesting trees cutted down (J. Stolarczyk in litt.).

12. Kunčice (6275, 49°47'27.2"N 18°18'26.8"E, 240 m a.s.l.) – 1998: several nests in plot of ArcelorMittal factory (J. J. Hudeček in litt.).

Karviná district

13. Starý Bohumín (6076, 49°54'01.6"N 18°21'38.9"E, 205 m a.s.l.) – 1957: 2 (Hudec *et al.* 1966), 1958: 3, destroyed (Hejl 1958), 1959: 13 on alders (*Alnus* sp.) (Hejl 1958, Hudec *et al.* 1966), 1960: 6 (Hudec *et al.* 1966), 1964: 15, unsuccesfull, last year of rookery (Hudec *et al.* 1966), 1987: 106 (J. Stolarczyk in litt.), 1988: 125 (J. Stolarczyk in litt.), 1990: 55 (D. Kondělka in litt.). Nowadays defunct, year and reason of deserting unknown.

14. Kopytov (6076, 49°56'24.6"N 18°21'21.0"E, 200 m a.s.l.) – 1952: several nests (Hudec *et al.* 1966). Nowadays defunct, year and reason of deserting unknown.

Nový Jičín district

15. Jistebník (6274, 49°45'10.3"N 18°07'55.6"E, 245 m a.s.l.) – 1961: 20 nests (Hudec *et al.* 1966), 1964: 34 nests (Hudec *et al.* 1966), 1979: 2 nests (D. Kondělka in litt.).

16. Studénka (6274, 49°42'32.9"N 18°03'32.0"E, 250 m a.s.l.) – 1963, 1964: temporary rookery of 6 nests (J. Balušek in Hudec *et al.* 1966).

Bruntál district

17. Osoblaha, urban park (5772, 50°16'36.4"N 17°42'47.1"E, 230 m a.s.l.) – 1977: 13 nests (J. Holuša in litt.), 1978: 15 (J. Holuša in litt.), 1990: 7 (D. Kondělka in litt.), 1991: 5 abandoned nests (D. Kondělka in litt.).

18. Slezské Pavlovice, church surroundings (5672, 50°18'39.4"N 17°42'01.6"E, 200 m a.s.l.) – 1981: 10 nests (D. Kondělka in litt.).

Discussion and conclusions

Data about the number of the rookeries in Czech Silesia are very incomplete, especially for the postrevolutionary period (1990-2013, Fig 2). Even so, there is evident that after colonization of the Czech Silesia in the middle of 20th century, the size of Rook's breeding population was increasing slowly at least until end of 1980s. However the number of rookeries has already decreased from this period. Rooks abandoned all rural rookeries in small wood fragments to the end of 1980s. Dislocation of Rookeries from agricultural landscape to urbanized areas could be affected by repeated legal mass destruction of rural rookeries by huntsmen (J. Sitko in verb.) and /or by worsening feeding conditions following changes in the structure of the sown fields (Kasprzykowski 2003, Mason & MacDonald 2004). Urban areas provide more stable feeding resources and higher legislative protection against causeless destroying of Rook's nests by the people. Although, too urban rookeries were

irregularly legally exterminated by workers in technical services in Opava and Ostrava (Kapler 1979, Hudec 1994, V. Holec in litt., J. J. Hudeček in litt.).

Since 2000, probably only two local Rook's breeding sites exist in the town of Opava and Ostrava and only Rook's population inhabits Opava seem to be stable. Surprisingly, reduction of number of rookeries was not followed by a dropping of the overall abundance of the Rook population in the Czech Silesia.

Observed trend is in accordance with directions of changes and dynamics of the Rook's rookeries in Polish Silesia region, where between 1983 and 1999, 39% of rookeries got extinct, which was accompanied by a simultaneous 16–20% decline in the population numbers of the Rook (Orłowski & Czapulak 2007). This Polish study documented that the most intense abandonment of the rookeries occurred throughout the 1990s, particularly at the end of that decade.

It cannot be excluded that the extinction of the Silesian rookeries in the 1990s is a temporary phenomenon, whose consequence will be a further increase in the mean rookery size in town of Opava (Fig 1). In spite of the fact that the European population of the Rook is currently regarded as not endangered (Brenchley & Tahon 1997), the intensification of agriculture in the countries of Central Europe implies a need for continuous monitoring of this species considering its marked population decline in bordering Polish region.

Tab 1: Number of nests in individual Rook (*Corvus frugilegus*) rookeries in Opava.

Lokality / year	1960	1962	1976	1977	1978	1985	1987	1988	1990	1991	2014	2015
Kylešovická street			5									
Dvořákovy sady and Sady svobody			20			19	9	79	117		5	4
Rybí trh			13			3	7					
Sady u muzea			14			45	65	89	60		26	22
Maternal clinic Vančurova						41	50	60				
Housing estate Olomoucká					28						7	5
Janáčkovy sady						4	38					
Evangelic church						6	29	7	16			
Pekařská street						1						
Tyršova street							35		10			
Čapkova street							7		1			
Psychiatry Olomoucká street								2	18		390	415
Jiráskovy sady									20			
Total number of nests	16	13	52	33	5	106	231	227	302	333	428	446

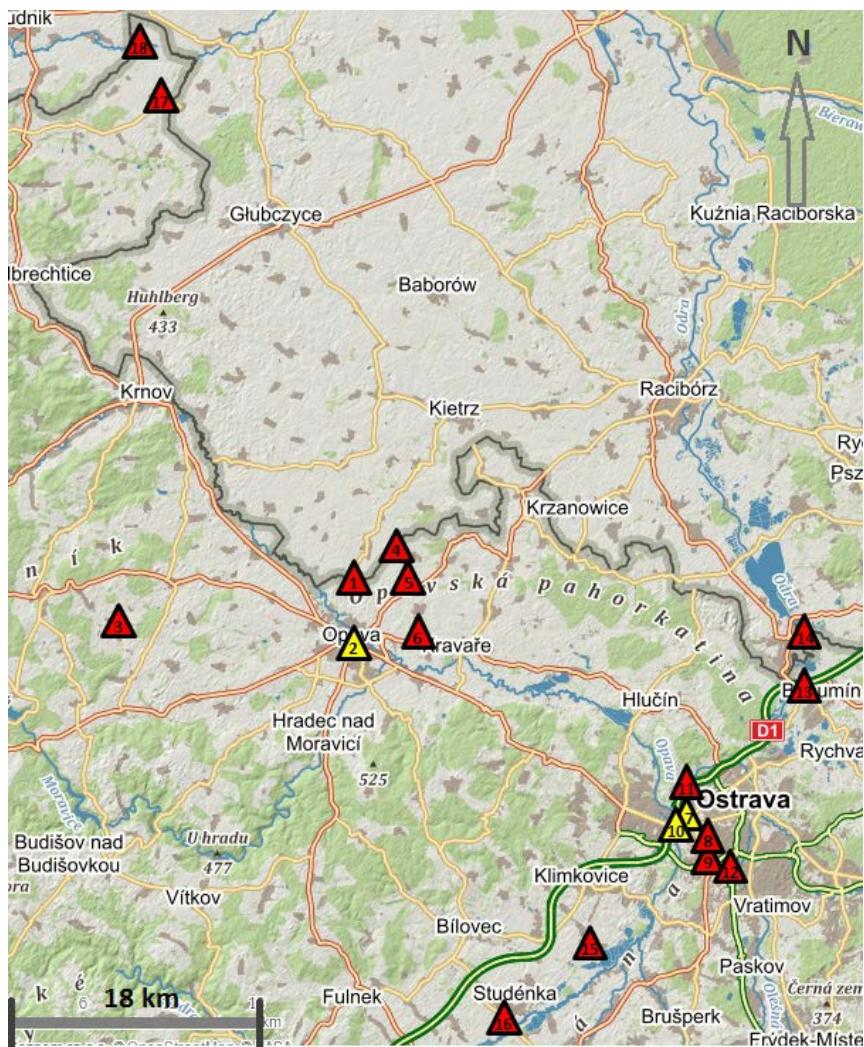


Fig 1: Map of documented Rook's (*Corvus frugilegus*) rookeries in the Czech Silesia from 1945 to 2015. Red triangles – extinct rookeries, yellow triangles – active rookeries. Legend of ciphers in the text.

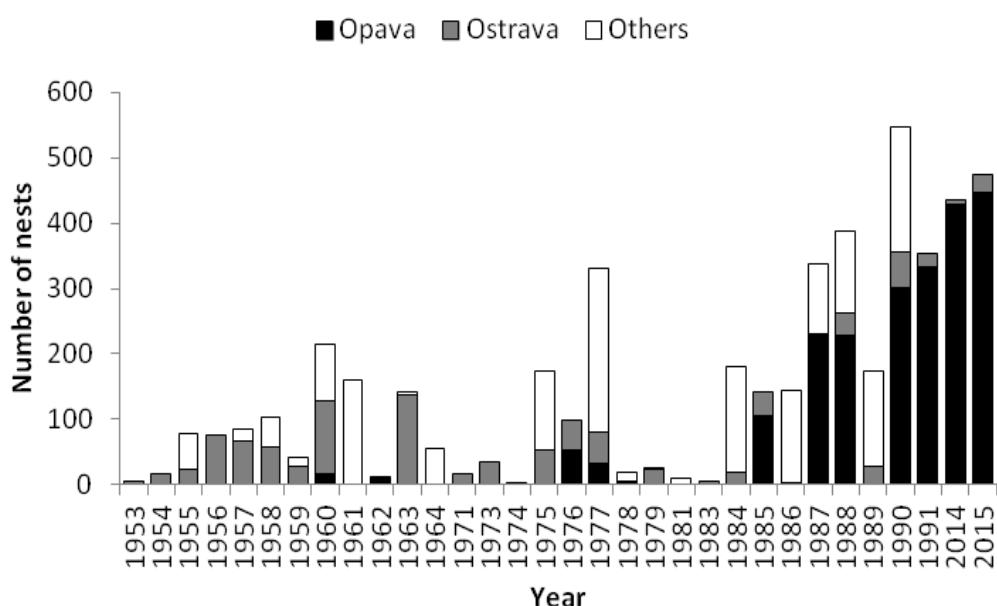


Fig 2: Recorded number of Rook's nests in the Czech Silesia from 1953 to 2015. Black parts of columns: rookeries in Opava, grey parts of columns: rookeries in Ostrava, white parts of columns: other rookeries.



Fig 3: Rook's nests on plane tree (*Platanus sp.*) in Opava's Psychiatry, 11. 3. 2014. Photo by L. Praus.

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Hnízdění havrana polního (*Corvus frugilegus*) v Českém Slezsku – historie a současnost

Na základě literárních údajů a soukromých faunistických záznamů byl sestaven historický přehled hnízdních kolonií havrana polního (*Corvus frugilegus*) v Moravskoslezském kraji. Havrani původem z polských hnízdišť osídlili region Českého Slezska po roce 1945 a jejich hnízdní populace postupně vzrůstala na dnešních přibližně 500 párů. Během posledních sedmdesáti let bylo zaznamenáno osmnáct hnízdních kolonií. Na počátku devadesátých let zanikla všechny hnízdiště havranů v zemědělské krajině a havrani dnes v regionu hnizdí pouze

na katastru měst Opava a Ostrava. V Opavě se v současnosti nachází největší kolonie havranů polních v Moravskoslezském kraji, kde hnízdí více než 90 % krajské populace. Klesající počet obsazených kolonií byl zaznamenán i v Polském Slezsku. K odpovědi na to, zda přesun havranů do měst a zánik menších kolonií povede k úbytku, či vzrůstu celkové populace je třeba dlouhodobého pravidelného monitoringu všech hnízdišť.

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