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ZOO report

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Black storks almost faded back from our nature

Black storks nesting *Photo by Libor Dostál*

Although black storks are not relatives of sea eagles, they have a lot in common with them. We can even find many places in the Czech Republic where we can meet both species. They don't need much: only older, widespread forests with trees suitable for building a nest, the vicinity of water courses or water areas, and a peaceful environment. Both these bird species are sensitive to disturbance and landscape changes caused by unsuitable forestry interventions, especially at the early stage of nesting. This may be the reason why black storks and sea eagles search for protected areas for nesting: The limitation of forest management and the suppression of disturbing human activities create conditions suitable for bringing up the young. The occurrence of both species is tied up with a Palaearctic area and, among others, they have had similar fates also, in that nature almost lost them! Their numbers significantly dropped over the last hundred-plus years, and only in the second half of the 20th century have nesting populations begun to grow again. The dramatic fall in their numbers was caused by humans-especially by direct hunting and thoughtless or unsuitably scheduled interventions in forests. The insert in this Zooreport has an article about black storks, and an article about sea eagles will be published in the next edition.

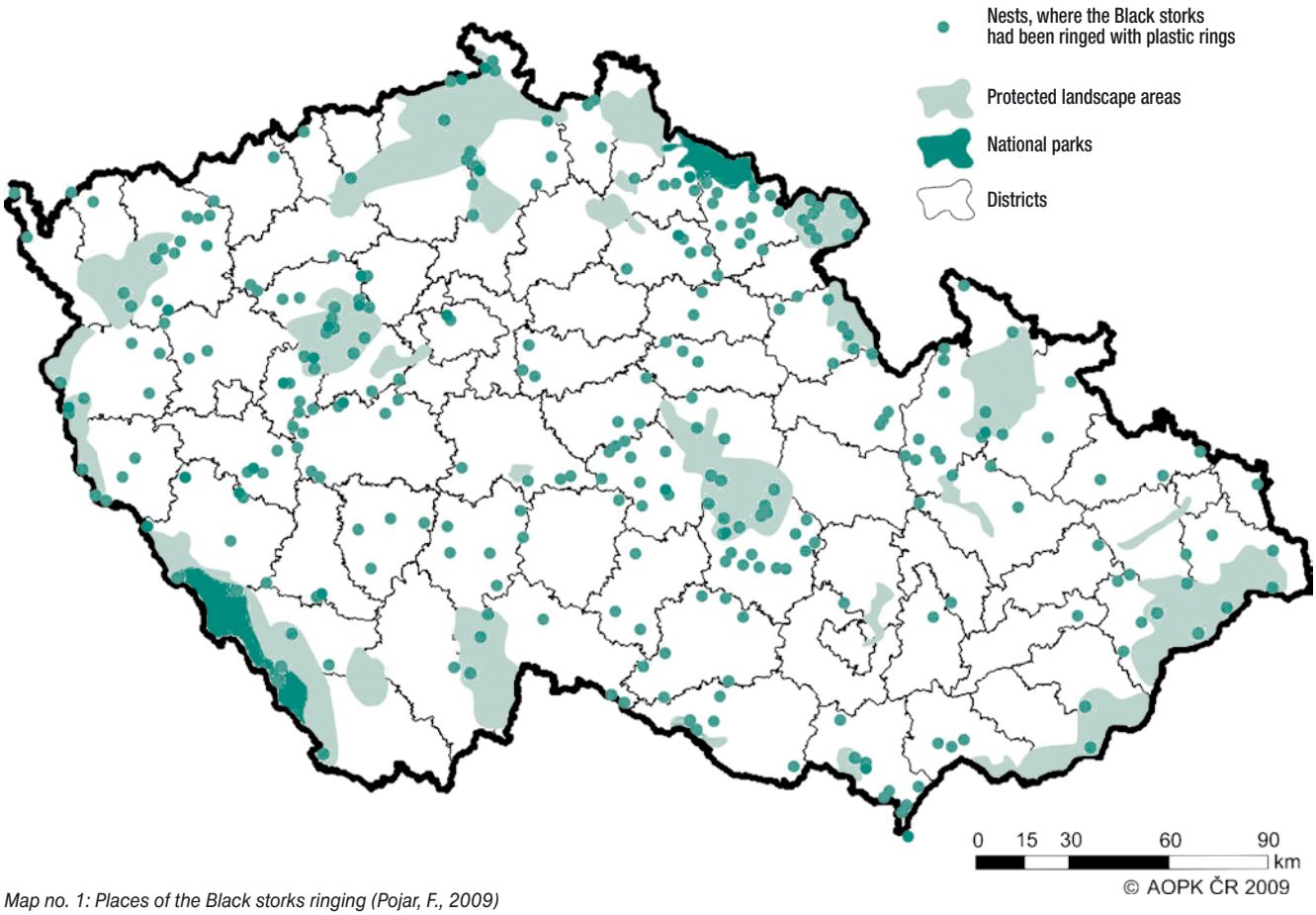
Black storks [Ciconia nigra] belonging to the order of waders [Ciconiiformes] and the family of Ciconiidae are found in a strip which passes through the centre of Eurasia from the west European coast through Central Europe, the Baltic states, the Ukraine, the central part of European Russia and southern Siberia up to the Far East (the coastal part of the Russian Federation, the north of China, and the Korean peninsula). The species also occurs in north Turkey, Transcaucasia, and the Middle East. It does not occur in Italy, Scandinavia,or the British Isles.

Beautiful birds which live in close proximity to us really almost faded out from the European countryside. They disappeared from western Europe in the 19th century, and the current population in the Pyrenees peninsula is considered relict. They reached their lowest numbers in the west part of the area and Central Europe in about 1930. Then the numbers of nesting couples started increasing and their area has spread out. Nowadays, approximately 7,800-12,000 couples, which is more than half of the world population, nest in Europe. The Carpathians and the flooded forests of the Carpathian Curve were an important refuge for our black stork population.

Within the Czech Republic until the end of the 19th century black storks only nested in south Moravia. The new expansion only began during the 20th century; the first proven nesting in Bohemia was near Trutnov in 1952 and, since 1960, nests have been found in the Orlické Mountains, the Novohradské Mountains, and the Lány Game Preserve. During 1960s and 1970s the stork population gradually occupied suitable locations in the whole territory of the Czech Republic. Fortunately, the spreading of the species to new areas has continued. Approximately a third of the Czech population lives in protected areas, particularly in protected landscape areas, national parks,

Numbers of nesting black storks in the territory of the Czech Republic

Period	*Quantity (couples)*	*Occupation rate (percentage ratio in quadrates of uniform zoological mapping)*
until 1930	4–5	
1934	5–6	
1942–1945	20–25	
1964–1966	50	
1973–1977	100–150	26 % of quadrates
1985–1989	200–300	62 % of quadrates
1994	320–330	
2000–2003	300–400	79 % of quadrates
2004–2009	300–400	



Map no. 1: Places of the Black storks ringing (Pojar, F., 2009)

and bird areas. The development of their numbers is shown in the table below.

When monitoring the occurrence of black storks in the Czech Republic and Slovakia from 1934 to 1986, ornithologists ringed 1,048 individuals. Since 1994, storks started to be marked with special coloured plastic rings with a unique identification for a longer distance in Europe. From 1994 to 2008, ornithologists marked 2,084 black storks with these rings. There are many earlier reports telling, for instance, about where the young which were ringed at specific places were caught (see map no. 1). The oldest ringed bird lived to be eighteen in nature. (In captivity, storks can even live to be 30).

Except for an isolated population in South Africa, which probably originated at the beginning of the 20th century, black storks are solely migrating. Some winter in equatorial and southern Africa, some in France and Spain, and others in south Asia. Our territory lies on the migration boundary. Birds from the western part of the Republic migrate to winter grounds to the southwest via Spain and Gibraltar; others migrate using the traditional southeast way via the Balkans and Asia Minor.

The project of Český rozhlas (Czech Radio) called Africká odysea (Africa Odyssey) contributed highly to the popularity of black birds and to the interest of the public in their monitoring. In 1995-2000, the migration of eighteen black storks was tracked by means of satellite telemetry. Thanks to the monitoring results of this project, it was shown that an average migration route covered 6,227 km. The southwest path is shorter as far as the distance and time necessary for travelling it is concerned. (The average southwest distance of 5,667 km takes 37 days, whereas the southeast path has an average distance of 7,000 km and takes 80 days due to longer breaks.) Our storks arrive at nesting grounds from the end of March to the middle of April and usually both birds of a couple arrive together. If one does not arrive, the other looks for a replacement.

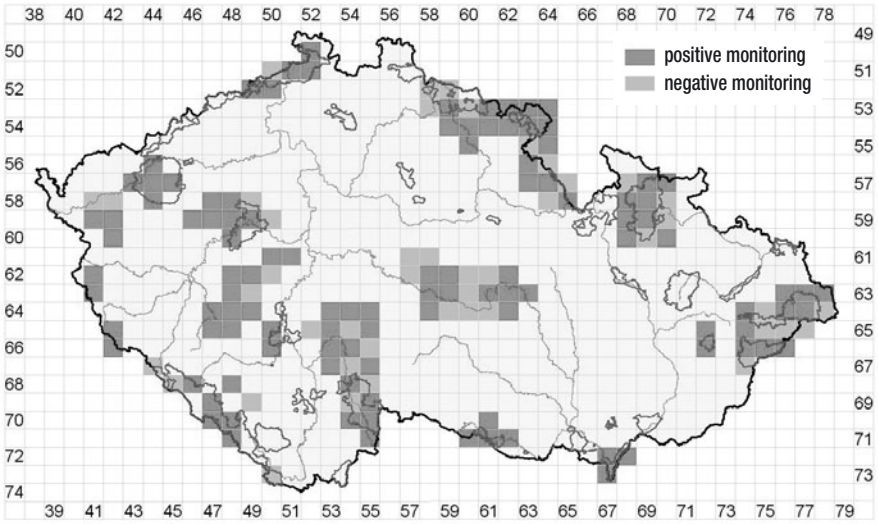
Black stork *Photo by Petr Hůla*

They depart for their winter grounds during August and the first half of September, although there are records of later departures as well. They usually migrate in the afternoon, often individually, and rarely in flocks. They usually fly 150-300 km per day at a speed of 126 km/hour.

They fly faster and make longer distances above deserts, about 250-480 km per day. The migration lasts for 5-15 weeks depending on the chosen route and the duration of the daily flight. Storks repeatedly return to the same winter grounds or winter grounds nearby, and the majority of them have their favourite nesting grounds.

They nest in forests. These can be flood plains with marshes and ponds, lowlands, or up to the upper boundary of mountainous forests. The highest known nesting location is in the Orlické Mountains at an elevation of 1,088 m above sea level. They prefer larger hardwood trees and mixed stands with water courses and standing waters with enough fish, but they also nest in purely coniferous forests. Map No. 2 shows the areas in which regular monitoring proved nesting (the map contains results of 2006). Black storks mostly nest on trees, but they can also nest on rocks, and rarely on the ground or a stump. The same place serves them for many subsequent years.

Although they sometimes use an old buzzard or goshawk nest, they usually build a nest themselves, most frequently on an old solitary tree (beech, oak, fir, spruce, or pine), often on a steep slope near open areas such as streams and small rivers, i.e. at locations with a low level of disturbance and at the same time with good access. They often build their nest within 1 km of a food-hunting area. Storks most often build tree nests on the lower branches of leafy trees away from the trunk, on side branches of confers immediately next to the trunk, or on a broken-away or distorted top. The most preferred nesting tree in the Czech Republic is common beech. Nests hidden among leaves are situated at an average height above ground of 8.25 m. The shortest distance between nests is around 500 m. The border of the hunting area of a couple is formed by a circle with an approximate diameter of 20 km, in the middle of which the nest is situated.



Map no. 2: Results of the Black storks monitoring in 2006 (Hora et al. 2010)


Black stork *Photo by Zdeněk Patzelt*

Black storks feed solely on animal food mostly on fish, especially trout in the Czech area, but also on frogs, reptiles, invertebrates, and small mammals. They hunt while wading in streams and small rivers of all types, and they sometimes pick up a kill from dry ground. During its time in the nest, each young bird consumes approximately 14-20 kg of food; the daily consumption is approximately 250 g. Adult birds usually feed their offspring 4-5 times a day at an interval of 2-6 hours depending on weather and availability of the food, particularly in the morning and late afternoon.

The black stork belongs among especially protected animals in accordance with Act No. 114/1992 Coll. on nature protection and landscape preservation and its implementation Regulation No. 395/1992. It is included in the category of strongly endangered species. The Red List of the Czech Republic and the Red List of IUCN classify it as a critically threatened species (C 1). The European legislation classifies the black stork in Annex I, Council Directive No. 79/409/EEC, the Bird Directive. According to this Directive it is subject to protection in six bird areas of our country, which include the Třeboň Region, the Šumava Mountains, the Doupovské Mountains, the KrkonošeMountains, Horní Vsacko and the Beskydy Mountains; but we find them in other areas as well.

Despite international legal protection, we still unfortunately pose a direct threat to these birds, especially caused by their illegal shooting during migration. It oc-

Young Black storks in nest *Photo by Zdeněk Patzelt*

curs both in the territory of Europe (Italy, France, and Spain), and in the Near East, and winter grounds in Africa. Some storks die from flying into electrical lines, or of electric shock. Storks are endangered at their winter grounds by a change of the character of the landscape, by pressure on water sources, and by the use of pesticides.

Disturbance at nesting places causes the biggest adverse effect in our country. Human activities, especially the greater movement of people at forestry works near a nest, bring a risk especially at the time of arrival, when a couple is forming, and at the beginning of nesting. Another factor endangering the life of storks can be the fragmentation of forest complexes, the lack of nesting trees, and the disappearance of their hunting areas as a result of unsuitable forestry and water management.

To keep and develop populations of black storks, it is necessary to preserve locations suitable for nesting. Forests need to offer sufficient nesting trees. It is also important that forest works are postponed until the end of the nesting period or, even better, to the time after the young have left their nests.

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