



White-tailed Eagle Protection Programme in Hungary





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Facts about white-tailed eagles

The white-tailed eagle is a species with a wide distribution range, its continuous population existing in the northern part of Europe and Asia. Towards the east, its breeding area extends as far as Kamchatka. It occurs in substantial numbers in Scandinavia, Poland, Germany and the Baltic states. The pool of white-tailed eagles breeding in the Carpathian Basin seems to be an isolated inland population. By the 1980s, this population survived only in Hungarian South-Transdanubia, and in some areas of Croatia and Serbia. Since the 1990s, a more or less continuous population growth has been witnessed, with a result that white-tailed eagles have resumed breeding in the northern and eastern parts of Hungary, as well as in Austrian and Slovakian areas from where they were missing for decades. Consequently, the conservation of white-tailed eagles is a common objective shared by nations in the Carpathian Basin.

The white-tailed eagle is the largest bird of prey existing in Hungary. Its wingspan can be between 220-245 cm, body length 70-91 cm, and its weight between 3,5-6,5 kg. Mature white-tailed eagles can be easily distinguished by their size, white wedge-shaped tail and huge, yellow beak. The young birds have variable, dark and light brown plumage, their tail also being predominantly brown. Because the colour of the beak and the eye changes continuously from dark brown to light yellow, it is a good indication of age. Adult coloration will be acquired only by the age of 5-6 years when the eagles reach sexual maturity.

White-tailed eagles prefer to settle near wetland areas where there are, in addition to the required type of food, old forest stands suitable for nesting. The majority of their diet is made up by fish which are taken without plunging into the water, unlike in the case of the osprey. Among waterfowl, coots and mallards are taken the most often. In South-Transdanubia, shells of pond terrapins are also regularly found under white-tailed eagle nests.

The most important habitats in Hungary are the floodplains of our larger rivers, and the forested surroundings of fishponds in Transdanubian areas.



Typical eagle habitats



In most of the cases, white-tailed eagles nest in old forests growing near wetland areas. Most of the nesting sites are located in softwood or hardwood gallery forests and oakwoods, but also in hybrid poplar forestations, beech woods and alder bogs. Increasingly often, they are found to breed in alleys and smaller groups of trees. About 8-10% of the population occupy artificial nests (Békés, Somogy and Fejér counties Hortobágy). The majority of trees supporting the nest belonged to the main species making up the forest associations of the nesting location.

Thus, most of the breeding pairs had their nest in poplar trees (black, white and hybrid poplars), oaks (pedunculate, sessile and Turkey oak), and also there are a few cases of nesting in beech, narrow-leaved ash, Scots pine, alder and black walnut trees. The size of individual nests keeps growing year after year, resulting in several decades old nests measuring 3 metres high and 2 metres in diameter. Normally, white-tailed eagle nests are 60-80 cm high and 80-120 cm wide.



The status of white-tailed eagle populations in Europe and Hungary

It is assumed that centuries ago, before the major river regulations white-tailed eagles used to breed in entire Europe. Today they nest in Northern-Europe and in the northern areas of Western-Europe. The critical period, with the lowest population sizes was in the 1970s. Owing to the successful conservation measures and due to the banning of poisonous agricultural chemicals, today the populations appear to be increasing all around Europe: the number of breeding pairs is estimated at around 6000.



The white-tailed eagle is a strictly protected bird in Hungary, its official nature conservation value amounting 1.000.000 HUF. The growth of the Hungarian population started in the 1990s, and it has increased continuously ever since then. The success of the programme is well signified by the fact that the size of the population was 25 breeding pairs in 1987 which grew to 200 pairs in 2009. Because the core of the population in the Carpathian Basin is located in Hungary, Croatia and Serbia, its protection is our common duty. Currently, the most significant negative factors are illegal poisoning, accidental electrocution and disturbance by forestry activities.



The history of white-tailed eagle protection

As a consequence of river regulations that were launched in the 19th century, the proportion of wetland areas decreased substantially, that also meant the shrinkage of habitats suitable for white-tailed eagles. White-tailed eagle populations then continued to diminish as a result of the unfavourable effects of the 20th century, including shooting, removal of eggs or chicks, DDT and non-selective poisons, forestry activities and other types of disturbance. The deepest point of the decline was in the 1970s when the number of breeding pairs was only about 10-12. Upon recognising the critical situation, it became necessary to initiate a nation-wide co-operation and elaborate a species protection programme.

After such antecedents, the I. Conference on White-Tailed Eagle Protection was held on 20-21 February 1987 in Somogy County Museum, Kaposvár. This is when the White-tailed Eagle Protection Programme was officially launched in Hungary. The conference was followed by another four, discussing the results and current problems of species protection. In recent years, the annual results of white-tailed eagle protection have been announced at the „Sólyomcsalogató” event organised by the Birds of Prey Section of Bird Life Hungary. Besides, we regularly have lectures, and provide details about current white-tailed eagle protection results and problems, in several media appearances.



In 2007, Bird Life Hungary (one of the launchers of the programme in 1987) and Somogy Nature Conservation Society signed a co-operation agreement with Duna-Drava National Park Directorate. Currently, these are the three organisations directing the programme and providing the necessary funds. The Hungarian White-tailed Eagle Protection Programme is one of the first nation-wide Bird Life programmes achieving successful results during implementation. In 1987 the number of known white-tailed eagle pairs was 16, and the population was estimated at about 25 pairs. Throughout the years, the programme has relied on field studies, harmonisations with the competent authorities, and experience gained at conferences, which has resulted in the fact that well-prepared nature conservation specialists are now involved in the programme. The general strengthening of nature conservation, at the levels of both state and non-governmental organisations, has further assisted the successful running of the programme. People involved in the programmes perform observation tasks in almost entire Hungary (about 80 people altogether), who have provided detailed breeding success data since the program was launched. Based on our results we can estimate the Hungarian white-tailed eagle population to number about 200 pairs.

Practical activities of the white-tailed eagle protection programme

- Surveying and continuous control of habitats, searching for new nesting pairs.

- Bringing the most important habitats under protection, harmonising the conservation measures with the authorities, implying the required temporal and spatial restrictions.

- Performing monitoring activities, recording breeding results, surveying the wintering populations, recording data of other types.



- Installing artificial nests to encourage the settling of more eagles, and to improve the breeding conditions of eagle pairs nesting in forest stands with unfavourable tree and branch structure.

- Marking the eagle chicks as part of the European colour ringing programme.

- Winter feeding that assists the overwintering of mostly the young birds through the provision of poison-free food, and also facilitates the reading of coloured rings.

- Establishing co-operation with stakeholders.

- Insulation of the supporting structure of mid-voltage electric lines near the breeding and feeding areas.

- Medical treatment of injured or weak individuals, and releasing them later, if possible.

- Awareness-raising and education, establishing co-operation with the affected or involved social and economic groups.



Colour ringing

When the project was launched, an important objective was to provide undisturbed conditions near nesting localities and around the nests themselves (in cases when it is reasonable, even the initiation of area protection was recommended). Besides the necessary discussions, checkings were done solely to assure protection and to document the success rate of nestings. It was not until 2004, after an approving decision released by the Birds of Prey Section of Bird Life Hungary that we started climbing up to occupied nests too. This is when we joined the European white-tailed eagle colour-ringing programme. Hungary's colour code (shared by neighbouring countries in the Carpathian Basin) is a combination of black upper and green lower band on the ring. In May each year, just before the fledged chicks are about to leave the nests, one of these coloured rings bearing identification numbers is attached to one foot, and another one, which signs the year of ringing, also with an identity code, is fixed on the other.



Interesting information have been collected during the ringing programme about the feeding of white-tailed eagles. In the case of pairs nesting around fishponds of South-Transdanubia, prey consisted of the following food types (in decreasing order of frequency): carp, grass carp, silver carp, mallard, coot, pond terrapin. In the surroundings of natural waters primarily rivers they prey on white fish (breams), pike, mallard and coot. In the plain region, further away from larger water bodies the most frequent food items are pheasant, coot and hare. In areas with game animals: remains of roe deer, fallow deer, wild boar and red deer, left in situ by hunters. More rarely it can happen that larger waterbirds are taken by the eagles, such as grey heron, sometimes even black stork. One of the most interesting observations is the case of buzzard nestlings found in white-tailed eagle nests, which has been recorded four times in Hungary so far. The most probable reason for such cases is that the parent birds take buzzard chicks from their nest as prey, and if the chicks survive the transportation, their food-begging call stimulates feeding from the eagles.

As revealed by observation data of colour-ringed birds, the northern populations arrive in Hungary mostly from Poland, Russia, Finland, Sweden and the Baltic states, to stay in the plain region areas of the country (areas of the North-Western Plain, Hortobágy and Békés county). Birds with Hungarian rings have been observed and their numbers read in Romania, Poland, Russia and Austria. Within our country, it is mostly young birds that tend to migrate, mostly to the Hortobágy region.



Surveying the wintering population

Regular synchronous surveys of birds of prey are done in the plain regions (Békés, Csongrád counties, Hortobágy and the North-Western Plain), and since 2004 the annual national eagle synchronous census has been organised by Bird Life Hungary in January every year.



During winter censuses, volunteers all around the country perform a recording of birds of prey observed on that particular day. The locations of individual observations are determined on the basis of UTM grid cells measuring 16x16 kilometres. Uncertain observations are usually records collected in the boundary zones of UTM cells, denoting birds that could possibly be recorded in more than one cell. The number of observations greatly depends on weather conditions and the number of people participating in the census. (Data from the monitoring Centre of BirdLife Hungary.)

The breeding population in Central-Europe, including Hungary, is permanent, whereas the young, immature birds migrate. Migrating and wintering eagles arrive in wintertime mostly from northern areas. According to observations, the arrival of individuals from the north starts around the second week of September, and reaches its peak with the arrival of goose flocks, during the period between 15th October and 15th November. In milder winters they stay for the entire season, but in harsh winter weather they continue their journey towards the south-southeast. Migration towards the north normally reaches its peak in February, sometimes in January or March, depending on the weather. Because this is the time when individuals of the northern populations and those from the Carpathian Basin are likely to meet, it can happen that Hungarian pairs are already brooding their eggs, and the eagles from the north are still in their migration. The size of migrating and wintering populations in Hungary can reach or even exceed 800-1000 individuals.



Major threatening factors



The majority of white-tailed eagles dying mostly in the winter period are killed by electric shock, and another increasing proportion fall victim to poisoning. Furthermore, in the case of the strengthening South-Transdanubian populations, birds killed in fights for territories are found more frequently, either near the nests or even inside the nest.

The number of eagle casualties caused by electrocution can be reduced by a bird-friendly transformation of the electric line network, in co-operation with the electricity companies. As part of such activities, the dangerous poles and transformers are changed or replaced, and insulated cables are installed with them.



Post mortem analyses of white-tailed eagles killed by poisoning indicated carbofuran toxication in many cases but also heavy metals were identified in a few occasions.

In the case poisoning with carbofuran, if the eagles are handed over to the nature conservation ranger service shortly after exposure to the chemical, atropine injections are applied and the eagles can be usually saved from being killed.

Nest guarding, buffer zones



Nest guarding was done only in a few cases, mostly in the Hortobágy region. In the case of white-tailed eagles this does not have great importance apart from a few special cases, because disturbance can arrive from all directions, and by blocking the entire area and guarding it, we could be just as disturbing. It is very important in white-tailed eagle protection that the necessary protection measures are made separately in each individual case. There are breeding pairs especially new, young ones that build their nests in areas already affected by certain degree of disturbance (near roads, railway lines, inhabited areas, farmhouses, fishponds, etc.), thus they tolerate disturbance. However, in the case of pairs nesting in undisturbed localities, nesting can become unsuccessful even if minor disturbance is experienced.

It is important that disturbance directly affecting the nest be avoided, and it is a basic principle in eagle protection that disturbing works are launched only after the completion of breeding, around the designated protection zone, and it should be advancing away from the nest and not the other way round. If done so, the eagles arriving for the following season to occupy and renovate the nest will be able to see the changes, and if the surroundings of the nest are untouched, they will occupy the nest and start breeding (area-fidelity is very strong in well established pairs). In Hungary, tree felling can be done with a restriction of a circular zone around the nest of 100 m diameter, within which tree removal is prohibited throughout the year. During the nesting season, a circle of 300–400 m diameter is established, inside which tree removal and other forestry activities are allowed only after nesting has been finished, excluding the inner circle of 100 metre radius. Of course, these general rules can be

modified based on individual sensitivity and particular cases. For example, in the case of pairs nesting in tree lanes, on solitary trees or beside glades, it is not necessary to mark half of a 100 m radius circle, because it is assumed that the birds selected the nesting location because of the particular structure of forest, allowing easy access by gliding. Thus, in such a case a protection zone with a radius of about twice the tree height (cca. 50–60 m) can be enough, also considering the strength of the tree stand in the surroundings.



Artificial nests

If it is considered necessary (e.g. to assist settling in; to replace a fallen nest; after repeated nest damage in a forest with unsustainable tree branch structure; to improve weak, "practising" nests of young breeding pairs), it is possible to install artificial nests. We use metal nest base (a hemisphere shape of cca. 1 m diameter), filled in situ with branches, leaf litter and finally some soil. These artificial nests are created and installed by ourselves.



Artificial nests have been installed since 1976, first in Csongrád county, in the Middle-Tisza region, Somogy county, Hortobágy, in Békés county, Komárom-Esztergom county, the North-Western Plain Region, all these totalling about 80 nests. The first instances of success with artificial nests occurred where they were installed to replace a nest that had vanished for some reason, or just near the location the old one used to exist. Later on, artificial nests were installed also in habitats where there had not been any records of earlier nesting. Today, there are several white-tailed eagle pairs nesting in such artificial nests. In 2007, there were 14 pairs breeding in or near artificial nests, either in the artificial nests themselves or in a newly built one just near the artificial one. The importance of artificial nests gradually decreases as the populations continuously grow.



Winter feeding

The first winter feedings were done in Csongrád county occasionally from 1966 on, then from 1976 in the Middle-Tisza valley, and it has remained most typical in the Great Plain region: Békés county (Biharugra), Csongrád county, Hortobágy, but sometimes also in the Lower-Danube valley and Somogy county. It is important that by artificial feeding, the eagles have access to chemical-free, non-toxic food. Feeding is beneficial for young birds mostly, and another advantage is that a proportion of wintering eagles can be kept within a protected area. In South-Transdanubia's areas abounding in game animals, eagles often find animal innards left in the field during winter hunting. In the same areas, there is also an abundance of game animals killed by natural winter mortality or wounding.



It is during winter feedings that the chances are the best for recording birds with coloured rings; at such times, members of the public interested can also be invited to the programme, and photographing is best done in that period. Just like with artificial nests, feeding is becoming less important as the populations gradually increase. In special cases, however, it can be justified, firstly in order to encourage new settling of eagles (the first successful white-tailed eagle nesting in the Hungarian Great Plain in 1987 occurred in the Middle-Tisza region probably due to winter feeding that had been launched back in 1976), and partly for replenishing food in cases of water pollution or contamination with toxics (e.g. the case of cyanide-contamination in river Tisza). First it is always food availability that determines the wintering places of eagles.



The “Danubeparks” co-operation

Crossing Europe along a 2800 km long stretch and connecting nine countries, the Danube is Europe's second longest river. Although the regulation works during the past centuries have greatly reduced the naturalness of the river, there are still a number of protected natural sites preserving what has survived from the original flora, fauna and riverine terrain morphological features. The role of these protected areas is to demonstrate the extremely rich biological, morphological and geological complexity of the Danube and its floodplain to people of future generations. This common mission is what brought to the surface the need for Danubian protected areas to formulate a project in which they can further deepen their co-operation and can jointly act against factors threatening the wildlife of the Danube, its floodplain and its natural values. The “Danubeparks” project proposal was accepted, the project is now up and running as part of a transnational scheme promoting the collaboration of South-East-European EU member states and partner countries, financed by the European Union. Either as partners or as observer partners, protected areas from each of the countries along the Danube have a representative in Danubeparks. White-tailed eagle protection is one of the important activities implemented as part of the project, as this large-bodied, spectacular bird of prey occurs almost all along the Danube, and as such its conservation and research can symbolise co-operation activities carried out along the river. More information is available on the project website at www.danubeparks.org.

