

Eagles and Black Stork in Estonia



Golden Eagle

Haliaeetus albicilla

“We walk, weighed down by our backpacks, along the seemingly endless road from Arvila to the village of Tarumaa. Beyond the forest to the south are the Ratva and Muraka bogs. The bright April sun burns our faces and the rubber boots chafe our feet, but the flight of the Golden Eagle high above inspires us to carry on. Our destination is an old Golden Eagle’s nest at Kuivassaar, which was recorded 30 years ago by Johannes Lepiksaar, who studied the birds of the Alutaguse region. One of Estonia’s greatest eagle nests, which has survived on the branch of a grand old dried-out pine for a good half a century, turned out to be several meters thick, and could have weighed a tonne. Although the eagle pair was inhabiting the neighbouring bog island on our excursion day, we were still able to find some feathers under this nest. It turns out that this nest was well known in the surroundings as a kind of real nature monument.” This is how Tiit Randla described the event in his field journal from 1963. In the same place in 1935, the Estonian Cultural Film Company created its first eagle film, which two years later ran in cinemas in England.

PHOTO: EGERT TAVITA 2009, ESTONIA



The Estonian Golden Eagle population is a small part of a unique northwest European population on the miry flats. This differs from the alpine Golden Eagle population in Norway, Scotland and in the Alps. The Golden Eagle is a bird with a very indiscriminate lifestyle, whose nest sites may be found only by forest wanderers, berry gatherers or hunters. Its hunting territories are widespread over vast mire complexes. You may spot a Golden Eagle when you hear the alarmed call of a Raven. Then, yes, you may see a bird sitting high on a watching post or see the stunning silhouette of an eagle under the clouds.

The Golden Eagle sets the first green pine bough on the nest in the depth of winter, when its life cycle begins. Eggs are incubated in the deep cold, sunshine, or snow storms of March, and some 44 days later, sometime in late April, the chicks hatch. During this time any visits to the nesting site are surely pernicious. Nest life proceeds through late July, and it is during this time that any disturbance should be avoided. Winter hiking expeditions, ski trails, snow mobiles and ATVs pose a serious threat to the well-being of Golden Eagles. But so long as sturdy nest trees on empty bog islands or bog banks can be found, and as long as Black Grouse, Capercaillies, Cranes, Mountain Hare, Foxes and Pine Martens can be found, then it will be possible to also find Golden Eagles. Eagles are a symbol of natural diversity and balance in such habitats.

◀ The Golden Eagle's gold head and powerful presence have given him stature in many different cultures. An adult bird's plumage viewed from afar is uniformly brown. During the first five years of life, young birds are speckled white under their wings and on their tail shaft. Pictured is an adult bird.

► In northern Europe, Golden Eagle nestlings are banded using a color-coded system. The right leg's band shows the birthplace (a green band for Estonia) and the left leg's band the year of birth (for example, blue – 2004). In addition, both bands carry a unique code, from which can be determined in which nest the bird hatched and whether he's been spotted before.



PHOTO: VALERI ŠTŠERBATŌH 2009, ESTONIA

Numbers of Golden Eagles have been more stable than other eagle species. A pair of Golden Eagles lives (and probably has always lived) in virtually every larger mire complex. Only during the years 1930–1970 were there fewer, as a result of the war on raptors, as well as of destructive chemicals polluting the nature. The last decades have again been supportive of the eagle, and its nesting has again become sustainable. The nearly 50 breeding Golden Eagle pairs in the low-density mire complexes speak of Estonia's good habitat quality and sufficient food sources for these eagles. The Golden Eagle is not a migrant, though he may venture out on longer flights and spend time in neighbouring mires. In the winter period he may take the opportunity to feed on carrion, on the entrails of game animals left by hunters, or from carcasses left over from the feeding of wolves. The majority of the known Golden Eagle nests are found in protected areas.

▲ As a hunter, the Golden Eagle is capable of hunting large prey – in the southern steppe he has been known to take wolf. But his usual prey is about the size of a rabbit.

PHOTO: URMAS SELLIS 2004, ESTONIA



White-tailed Eagle

Aquila chrysaetos

If we speak of a positive eagle miracle, then we speak of the White-tailed Eagle. As recently as 30 to 40 years ago the White-tail was disappearing from northern Europe. Its decline was mostly the influence of dangerous environmental chemicals. At that point, eagle conservationists in Finland and Sweden began supporting them with clean food. At the same time, the use of especially poisonous pesticides and chemicals containing heavy metals were banned. The eagles rebounded, and by the approach of the 21st century, the bird, which had already become a national monument, had become a common inhabitant of coastal landscapes. The number of breeding pairs in Estonia increased ten-fold, and a similar tendency is present across the sea in neighbouring countries. A large number of eagles come to winter on Estonia's unfrozen sea coast, more than doubling the Estonian breeding population of about 200 pairs. The population size of wintering White-tailed Eagles is at least 500 individuals.

For more than 30 years, the nestlings of White-tailed Eagles in northern Europe have been banded with coloured leg rings. Estonia joined this initiative in 1984. So it is now possible to learn the origin of a specific bird by viewing it at a winter

► **Adult White-tailed Eagles have a distinctive yellow beak and eyes, as well as a white tail which is easy to spot in flight. Some White-tailed Eagles' heads turn almost white with age. This bird hatched in 2002 in Matsalu Bay (in the same nest, pictured next) and now nests in the Alam-Pedja Nature Reserve.**



PHOTO: KAIRI TARASSOVA 2009, ESTONIA



PHOTO: URMAS SELLIS 2004, ESTONIA

◀ A White-tailed Eagle's next on the edge of Matsalu Bay. The chicks are banded, but it will be another couple of weeks until their first flight.

▶ A raven teases this young White-tailed Eagle. The young White-tailed Eagles are generally darker than the adults, lack the uniformly white tail and golden beak. By the fifth birthday, the adult bird's plumage and gold beak gradually appear, and finally the light eyes.



PHOTO: VALERI ŠTŠERBATŌH 2009, ESTONIA

feeding site or from a hide near a nest. More than half of the eagles visiting winter feeding sites are not banded, which indicates their origins from eastern areas. In winter, inland birds visit coastal areas of western Estonia, as do birds from Latvia, Sweden, the Finnish coast and from Lapland. At the same time, our breeding eagles have been spotted in Poland, Latvia, Lithuania, Sweden, Finland, Hungary and elsewhere. Banding data as well as genetic information confirm the belief that the northern region is inhabited by a related population of White-tailed Eagles and that casual migration across the Baltic Sea is not unusual. In winter, besides supplemental feed, eagles feed on seal cubs, swans stuck in the ice and other water birds, including those endangered by oil spills. Since the population of White-tailed Eagles has recovered, conservationists have decided to reduce the amount of supplemental feeding.

When hiking in eagle territory 40 or 50 years ago, we felt like folklorists collecting stories and information about the former life of eagles. Today, the eagles are back and inhabit coastal pine forests,

small islands, forested sea islets and have become a competitor to humans also pushing their way to the previously closed-off seacoast. But conflict can be lessened through better understanding of eagles on the part of humans and by the fact that the intimate and more sensitive period of the eagle's life cycles falls in early spring, as well as the fact that they are becoming less sensitive to human presence. Spotting White-tailed Eagles in the airspace around the towns of Haapsalu, Kuressaare, Paljassaare (close to Tallinn) and around Vormsi, Vilsandi, Aegna or Naissaar islands has become an every-day occasion. Viewing hunting eagles from the observation tower in Haapsalu is something that can be enjoyed the whole year round. In summer, dozens of White-tailed Eagles gather in the shallow fish-rich bays in Saunja and Matsalu. With some luck, it is even possible to spot a White-tailed Eagle from an office window in downtown Tallinn. Nonetheless, the White-tailed Eagle has not been re-classified as an ordinary bird. The threats to its life have by no means disappeared, if we shortly recall lost eagles due to the recent oil catastrophe, death in electri-

cal wires, or death in traffic accidents. Also, in the more densely populated areas in southern Europe, we cannot speak of anything very favourable regarding living conditions for the White-tailed Eagle.

In 1935, a scientist from Tartu University, Mihkel Härms wrote, "The White-tailed Eagle exists as a breeding species in the counties of Läänemaa, Hiiumaa and Saaremaa, and nests along the water course of the Emajõgi River." Seventy years later it can be found in all regions where there are larger lakes and rivers, or shallow coastal areas. Its nest site and feeding grounds may be separated by distances of up to 20 kilometres, but usually by only a few kilometres. And the White-tailed Eagle also lived in Estonia thousands of years ago, evidence of which comes through recovery of eagle bones near Kunda and Tamula. In any case, the White-tailed Eagle has been a valued symbol decorating the coat of arms for the county of Läänemaa and the town of Kuressaare, and is also a positive example confirming belief in the nobility of conservation and in the ability for humans to improve their environment.

Osprey

Pandion haliaetus

“The flight of the Osprey is splendid: he flaps his wings with great wide flaps over a body of water; suddenly he freezes in the air, pumps into the wind and then drops like a stone into the water, disappearing for a moment beneath it, then reappearing with a large fish hanging from its talons.”

This is a description written by Mihkel Härms, an Estonian ornithologist, in 1935. This spectacle can be observed from the window of the lake-side nature center of Karula National Park in southern Estonia, but also at the ponds of a few fish farms. Estonia's Ospreys most densely inhabit the northeast areas of the country, in the vicinity of the Narva River and Lake Peipsi, and also in the hilly, lake-rich landscapes of southern Estonia. In other areas, it is rare to see this bird. During migration time, however, the Osprey can be seen rather frequently, as the thousands of birds from Finland and north-east Russia migrate to Africa through Estonia. This was proven by Finnish researchers who equipped test eagles with satellite transmitters. The eagles which Estonians monitor also winter in Africa, near the equator.

- **The Osprey is a true specialist: other than fish, nothing interests him. When hunting (fishing) he can occasionally become completely wet, especially when repeated diving is required. At the nest, the adult female does the housekeeping while the male brings the food.**



PHOTO: URMAS SELLE 2008, ESTONIA

PHOTO: ARNE ADER 2009, ESTONIA



PHOTO: HANNU VAINIOPEKKA 2009, FINLAND



PHOTO: HANNU VAINIOPEKKA 2009, FINLAND



The summer feeding grounds of the Osprey – fish-rich lakes, rivers, or fish farms – may be tens of kilometres from the nest. Ospreys generally need old, tall pines, and only in bog landscapes may he accept a lower, stubby tree. The nest itself is always built at the very crest of the tree. Elsewhere in the world, the cosmopolitan Osprey may nest in colonies and even on artificial structures, similar to our White Storks. There is one record in Estonia of an Osprey moving into the nest of a white stork atop an electric pole. If a person or other potential enemy gets close to an Osprey's nest, the bird becomes very noisy and aggressive. The Osprey is able to deter any bird of prey which nears the nesting site; it is only the eagle owl at night who could be potentially threatening. Prey fish are most commonly Pike, Crappy, and Roach – generally, these are the most abundant species in Estonia's fresh waters. In some of the better fishing places, the White-tailed Eagle has learned to steal fish from the Osprey, which means that the latter must catch double the amount, in order to feed its young.

Estonia's smallest eagle is a slender and swift fisherman bearing black and white plumage, whose abundance is now limited by a scarceness of fish in home waters and a scarcity of suitable nesting trees. At one time, it was all very different: after the last Ice Age there were as many Ospreys in the area of Estonia as there are today in all of Finland – some one thousand pairs. As the Osprey, similarly to the White-tailed Eagle, is at the very tip of the food chain, it suffered significantly from the uncontrolled use of poisonous chemicals in the middle of the last century. And only 25 years ago there were known to be fewer than 10 pair of Osprey throughout Estonia. Now, the numbers are increasing and

PHOTO: URMAS SELLIS 1994, ESTONIA



▲ An Osprey's nest is always situated in the tree's crown to permit full surveillance of the surroundings. It's hard to believe, but a bear is capable of climbing to this nest in order to eat the Osprey eggs. (It's happened several times!)

have passed the 50-pair mark. The building of artificial nest platforms has helped the Osprey population, as it seems that summer lightning storms tend to send natural nests down in pieces along with the young. Even if in the course of such a fall the nestlings survive, the adult birds are not likely to feed them on the ground. In the case that the nest can be restored, the adults are pleased to reoccupy it and continue to feed their young. Nests resting in older pines with flatter shaped crests are more resistant to the force of storms.

Lesser Spotted Eagle

Aquila pomarina

When a Lesser Spotted Eagle, which was banded on the 24th of July 1954 by famous Estonian naturalist Fred Jüssi, reached Victoria Lake in central Africa by the 3rd of March the following year, the population of the Lesser Spotted Eagles in Estonia was still doing quite well. The Lesser Spotted Eagle was a regular inhabitant of unravaged forests and carefully managed flood-plain meadows. During the following two decades, however, more and more nests were not re-occupied and there were predictions of the species's disappearance. Fortunately, this did not come true. The Lesser Spotted Eagles did in fact lose their hunting grounds as a result of overgrown hay fields and flood-plain meadows, though they were able to learn to hunt in fields, clear-cut areas and other agricultural areas. Their numbers started to increase again in the 1980s. At the end of the last century there were already 500 pairs of Lesser Spotted Eagles, and the numbers seem to have stabilised at this level. So the Lesser Spotted Eagle is a good example of how a large and long-living bird species is able to successfully adjust to a change in environmental conditions.

- In summer and especially in fall after nesting time, the Lesser Spotted Eagles are rather bold and come often to investigate working mowers or combines.

PHOTO: URMAS SELLIE 2008, ESTONIA



The distribution range of the Lesser Spotted Eagle is not especially wide. It spans East and Central Europe. Areas well inhabited include Latvia, Lithuania, Poland, Slovakia, Belorussia, as well as western Russia. At the same time, there is evidence of the distribution expanding eastward. Since Estonia is located at the northwest part of the Lesser Spotted Eagle's distribution range, there is a low density of birds in northern and western Estonia, and no nesting is known on the Estonian islands, though eagles can often be seen circling in the skies overhead, or stalking from a tree on the forest edge, or atop an electric post or bale of hay.

The nest of the Lesser Spotted Eagle is most frequently found in spruce forests (or mixed forests with spruce) nearby meadows and fields, up to a couple hundred metres from the forest edge. The eagles usually hunt for food within two kilometres

of their nesting site. Prey animals are mostly mice, voles and moles, occasionally birds and frogs. Frogs are more frequent prey in areas where spring floods inundate expansive low-lying areas, the floodplain meadows of Soomaa National Park, for example. Cyclic fluctuations in breeding success are characteristic to the Lesser Spotted Eagle, as they are for most raptor species whose prey is largely composed of small mammals. This means that the success of birds fledging is largely dependent of the number of small rodents. Numbers of rodents differ from year to year, and it has been found that they tend to follow approximately three-year cycles. A good year for Lesser Spotted Eagles means that one young bird is raised in the nest. Usually two eggs are laid, but through the course of evolution, the Lesser Spotted Eagle seems to have adopted the strategy of raising only one, though very strong, nestling. At least at the present time, this strategy seems to be justifying itself.

The hunting areas for the Lesser Spotted Eagle – various types of grasslands – must be regularly mowed or grazed, in order for prey to be caught. Mowing doesn't have to occur every year, though areas overgrown with bush are no longer suitable for hunting. Tall and dense vegetation also make hunting difficult. Large grain fields, especially oilseed rape fields, which are too dense and have few prey animals, are unsuitable for the eagles.

Lesser Spotted Eagles winter in the southern part of Africa and their migration route is usually around the eastern side of the Mediterranean Sea. Based on knowledge available today, the eagle found near Lake Victoria in 1955 was already on its return journey from its wintering grounds further south.



PHOTO: GABRIELE GRILLI 2008, EGYPT

▲ Spotted eagles also have their own colored banding program. Estonian-born specimens wear a metal band on one leg and a plastic band on the other, from which the code can be easily read. This photo was taken in Egypt near Sharm-el-Sheik in October. The young Lesser Spotted Eagle is from Järvamaa County in central Estonia.

PHOTO: URMAS SELLIS 2008, ESTONIA



Greater Spotted Eagle

Aquila clanga

It was only a couple of decades ago that even ornithologists were not able to reliably differentiate the two spotted eagle species in field observations. A bit more as 10 years ago, the first certain nesting of a Greater Spotted Eagle was recorded. New identification guides enabled more exact identification, though spotted eagles which met both descriptions were still being described. Although there has been discussion about hybrids in journals for more than a century, this received scientific confirmation only in recent years. Using methods of modern genetics, Estonian ornithologists Asko Lõhmus and Ülo Väli proved that the two species of spotted eagles form mixed pairs, provide offspring, and – what's most surprising – the hybrids give offspring. While these findings received only smirks some 10 years ago, now the study of spotted eagles, and especially of their hybridisation, is recognised at the international level and accepted by serious scientists. The majority of the mixed pairs consist of female Greater Spotted Eagles and male Lesser Spotted Eagles. It is not known if perhaps the male Greater Spotted Eagles die more during migration, for example, than females, or are there other reasons for forming such (mixed) pairs. It is known, however, that the pairs with the larger female birds are more successful in raising young. It may be that the male Lesser Spotted Eagle actually selects the largest available



PHOTO: RENNO NELLIS 2007, ISRAEL

female, which may in fact turn out to be rather a Greater Spotted Eagle. In any case, the occurrence of such mixed pairs is a clear indication either of the dying out of one pure species, or the formation of a new one.

The Greater Spotted Eagle is an exceptionally rare bird in Europe, and Estonia is in the extreme western part of its range. Of birds breeding in Estonia, the Greater Spotted Eagle is the only one which belongs to World Conservation Union's (IUCN) list of the world's most vulnerable species. The Estonian Greater Spotted Eagles live along the floodplains of our largest rivers and their nests are hidden in the deciduous and mixed forests at the edges of the floodplains. In addition to small mammals, the Greater Spotted Eagle preys on ducks, crows, Corncrakes and other birds. For the Greater Spotted Eagle, like his smaller cousin the Lesser Spotted Eagle, only one chick is usually raised to full fledgling, though the larger eagle is less well adapted to today's agricultural activity. The Greater Spotted Eagle tends to nest more in the wet alluvial forests, not in the more mosaic landscapes which the Lesser Spotted Eagle inhabits. Certainly, this preference is one of the reasons for its noticeable decline in num-



bers – much of the forests and wetlands have been ditched and drained, which make for unsuitable habitat for the Greater Spotted Eagle.

Over the last few years, satellite receivers have given us much new knowledge about Greater Spotted Eagles. It has become evident, for example, that male birds, who fly away from their nests to a maximum



PHOTOS: ÜLO VÄLI 2006, ESTONIA

■ Haymaking is extremely essential for the Greater Spotted Eagle to raise its young – during the day one growing chick can eat a dozen mice plus a few frogs. Catching them in the high grass would take more than a full day ...

distance of two or three kilometres, are much more “home bound” than female birds, which may even travel a couple of days over dozens of kilometres. Modern methods also allow us to confirm that the winter discovery of an Estonian-banded eagle in Italy was not accidental – our Greater Spotted Eagles begin their migration journey rather late, in mid-October, and often winter over in Europe.

◀ The Greater Spotted Eagle is brawnier than the Lesser Spotted Eagle. Young birds have more large, light flecks on the wings and hindquarters, and the remaining plumage is, as a rule, quite dark.

PHOTO: URMAS SELLIS 2006, ESTONIA



Short-toed Eagle

Circaetus gallicus

When southerly cyclones bring us lots of warm air in spring, it might just happen that the warm air masses bring the Short-toed Eagle with them to our northern nature. The actual home of the Short-toed Eagle is rather in the steppe and partial desert landscapes, which are rich in reptiles. It is true, however, that in earlier years the Short-toed Eagle was spotted here more frequently, so apparently there were more prey here and along its migration route. Over the last few decades, it seems that it prefers certain parts of Estonia, where it is seen more frequently. These include the burned forest and bog landscapes in the Nõva and Vihterpalu areas, but also in Pärnu counties and on Saaremaa and Hiiumaa islands. Nest data from earlier times also indicate a favouring of western Estonia, though nest records also come from Tartu County, the Alutaguse forest region in northeast Estonia, as well as from southern Estonia.

Unfortunately, though, there are no records of certain nesting in Estonia since 1970. Even in the spring following the last nesting record, a pair was seen in mating flight games over the marshy forest in central Estonia, but the nest in the fairly sparse pine tree was left unoccupied, and then the pair disappeared. It is probable that the Short-toed Eagle nested later in Estonia, as there is some indirect evidence – for example a photo of a chick from the same summer in the photo album of a forest appraiser, or sightings of pairs keeping together in Northeast Estonia and on Saaremaa island.

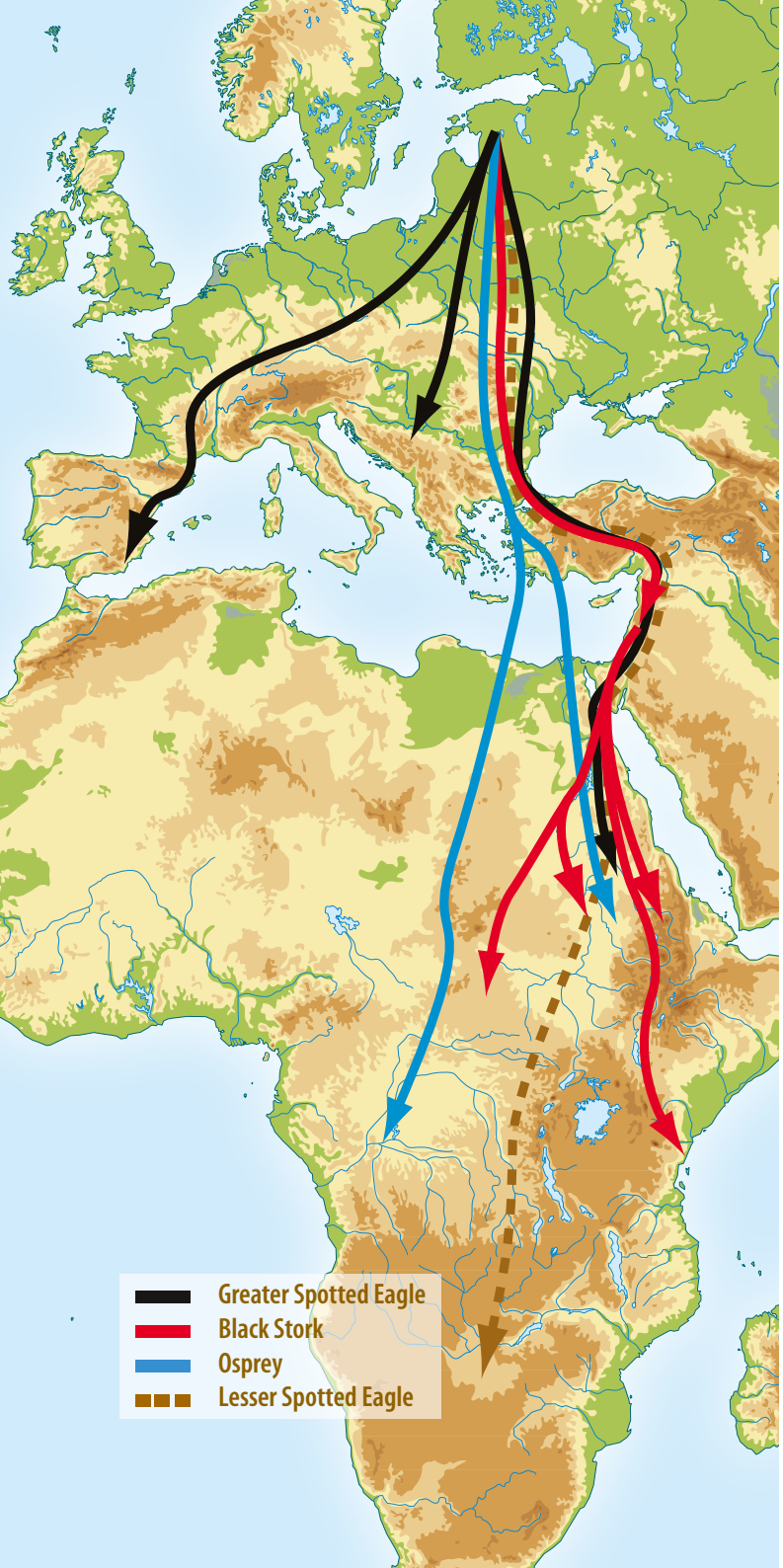
While the majority of eagle species tends to make use of the same nest for years or even for tens of years uninterrupted, it is known that Short-toed Eagles build a new nest every year. Building a new nest every year is hard work, though for incubating one egg and raising a maximum of one nestling, a very large nest is not needed. Additionally, the Short-toed Eagle begins its nesting rather late in the season (May) so a thick mattress is not needed in order to keep a stable incubating environment for the egg.

The appearance of the Short-toed Eagle is unique – no other eagle species has such a light silhouette against the background sky. When Short-toed Eagles take food to their offspring, they swallow their prey – snakes and lizards – whole, and so it is possible that a rather long end of a snake can protrude from the beak of an eagle in flight. The vocalisation of the Short-toed Eagle is a unique squeal, the likes of which no other bird makes (with the exception of, perhaps, a song thrush or jay who has learned this voice).



PHOTO: TOMI MUUKONEN 2007, SPAIN

Migration



Our largest eagles, the **White-tailed-** and **Golden Eagles**, don't usually migrate from Estonia. Only in the coldest winters will some of the full-grown White-tailed Eagles move a bit southward (as far as Hungary). During the first four to five years of their lives the birds do not range far: the young birds spend their time in Estonia and in its neighbor states on both sides. In this respect, they are not typical migratory birds.

But it's a completely different story when it comes to our smaller eagles. **Ospreys** are unable to catch fish in the Estonian winter and therefore make quite long journeys. Two Estonian Ospreys equipped with GPS transmitters have wintered near the equator at the Congo River and in the Sudan near the Ethiopian border (7,000- and 5,200 kilometers from their nesting locations, respectively). Unlike other eagles, Ospreys have no fear of flying over the Mediterranean.

The **Greater Spotted Eagles** can winter in a variety of different places. Our Greater Spotted Eagles have most often wintered in the Balkan states (Croatia, Bosnia, Serbia), though one has made it

as far as the Sudan and one young bird has wintered in Spain. In a mild winter, our Greater Spotted Eagles may also winter in Poland.

Lesser Spotted Eagles probably migrate the farthest. We haven't equipped a single Lesser Spotted Eagle with a transmitter, but according to data from other nations like Germany and Poland, the birds winter in South Africa where there are summer temperatures. Banded Estonian birds have been spotted on the Sinai Peninsula over which they fly on their migratory journeys.

We lack information about the **Short-toed Eagles**, but it's likely that the specimens which nest in Estonia winter in Africa between the Sahara desert and the equator.

Black Storks mostly migrate over the Bosphorus Strait and around Mediterranean Africa. A few individual birds winter at fish hatcheries in the Near East, but the main wintering grounds are located in the Sudan and Ethiopia, and a few specimens even fly as far as Tanzania.

Older eagles and Black Storks consistently winter each year in the same areas.

Black Stork

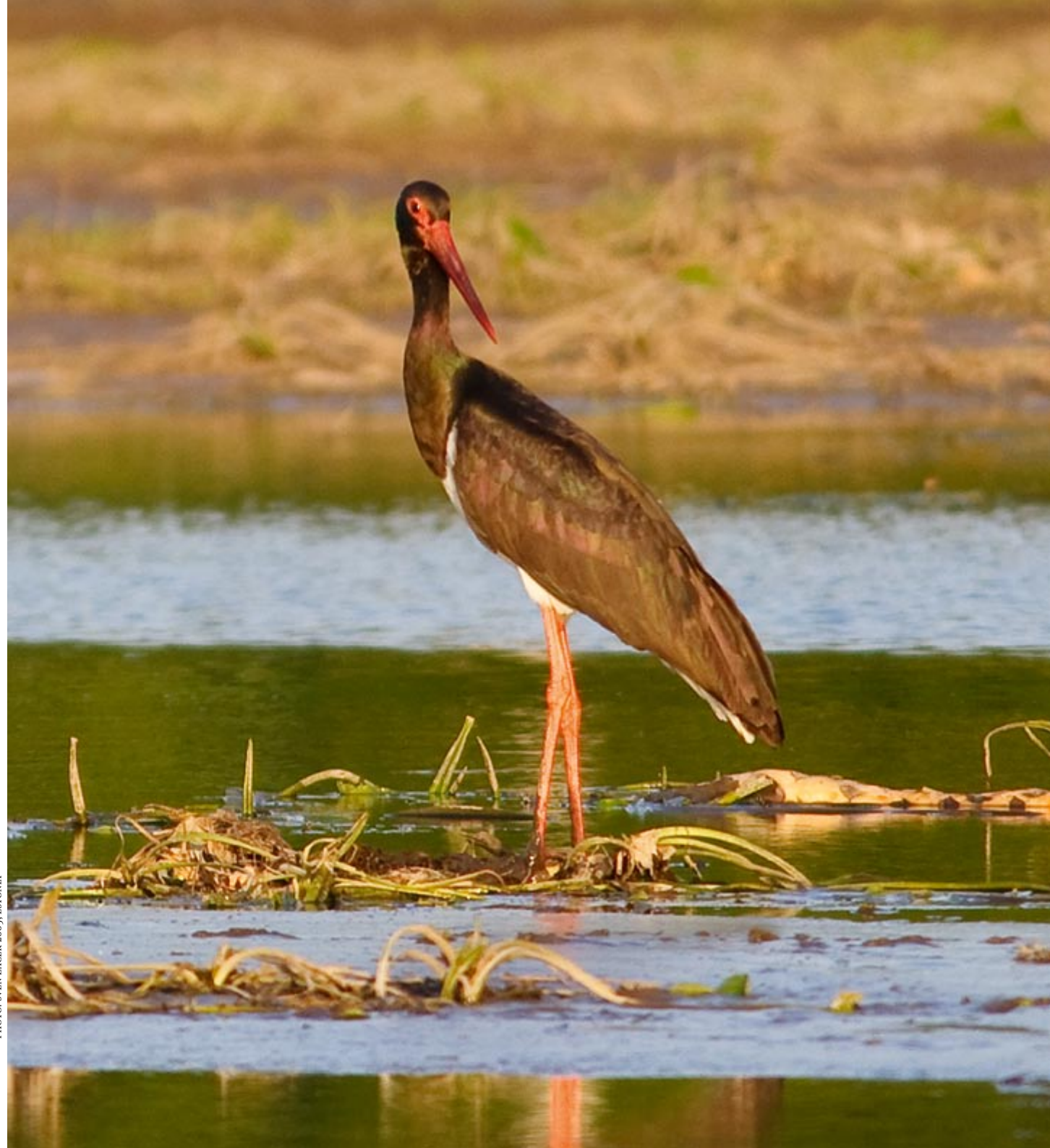
Ciconia nigra

Every year those checking the nests of this "bird of the underworld", the Black Stork, are faced with a disturbing sight at several of the nests – nestlings have starved to death before fully fledging. What can we do to help this species which is vanishing from this area? Is it enough to fill a fridge with small fish for the stork nestlings, carrying it in the back of the field worker's car? Obviously, this tactic hasn't been used and surely it would seem mysterious to the adult storks who don't want to see people around their nest site. Evolution up to this time has led the Black Storks ever further from areas of human inhabitation. Could this adaptation, which through the past has been the key to its survival, now have negative effects? Or is it possible that the species can change its millennia-old behaviour in response to new conditions?

The Black Stork is rather widely distributed in the temperate zone of Eurasia, to the east and south of Estonia. This area, however, is covered very sparsely. The Black Stork more or less disappeared from Western and Central Europe over the past two- to three-hundred years, mostly as a result of ever-diminishing forest cover and intensive land melioration activities, as well as with the uncontrollable

► **Wetlands and especially moving water are an essential part of the Black Stork's habitat. Drained water bodies, where a surplus of food is easily available on a temporary basis, attract the Black Stork – fish on a dry lakebed are easy to catch.**

PHOTO: SVEN ZAČEK 2005, ESTONIA





use of chemical pesticides in the middle of the last century. The Baltic States, Poland, Belorussia and probably also western Russia remained more natural and cleaner as a result of climatic as well as political influences. The population, which remained stable in these parts, migrated to Africa, flying over areas that they had previously inhabited. So it is not so unusual that after the improvement of conditions there, some pairs of Black Storks again reoccupied western European nesting sites. Improved natural conditions and a positive attitude help provide a new chance for numbers in those areas to increase.

On the other hand, conditions for this "ambassador of the underworld" in its native environments have continued to worsen, including in Estonia. Numbers decrease and fewer young are raised. At the moment, fewer than 80 pair of Black Storks are breeding, and the numbers have been decreasing over the last several decades. It is possible to assume that the intensive melioration of forested lands dur-

ing the second half of the last century – the creation of extensive ditch systems – significantly worsened the feeding conditions for the species.

The construction of ditches has changed the ecological balance of the Black Stork's feeding waters in a manner which provides too little food (fish, amphibians) for raising chicks. Just when a food source for the chicks is most critical, the ditches dry, and the fish disappear along with the water. It isn't enough for a water body to be present: an entire feeding ecosystem is required. The Black Storks' hunger may indeed be sated by an artificial population of fish in the ditches, but is such a system sustainable? Probably not...

The Estonian Black Stork chooses nesting habitat that is significantly more concealed than that of its western European counterpart. Though the Black Stork is indeed vulnerable to forestry operations, a direct influence of the forest economy on the Storks' nesting success has not been confirmed. The species, however, has proved itself to be very selective when it comes to nesting sites. If at all possible, our Black Storks locate themselves in natural virgin forest where the biggest trees with the strongest branches grow for nesting, and where fir trees are present to provide shelter from the sun, wind, and from the threatening eye of predators. Forests delineated as refuges are essential for the Black Stork, as well as for other less prominent creatures. It has been found that as many as 400 endangered species characteristic of old natural forests live in the Black Stork's protection sites. In light of this, we may treat the Black Stork in Estonia and its near proximity as we treat eagles – as the umbrella- or flag species for the entire natural forest's ecosystem.

- ◀ Until the chicks are able to defend themselves, one of the adult birds must stand guard at the nest.
- ▼ These white chicks don't look like the offspring of the black...



Protection

According to the law on Nature Conservation, the Black Stork and all nesting eagles belong to Category I, the most endangered species in Estonia. This means that all nesting habitats are protected by law regardless of what human beings may have planned for a given area.

A discovered nest automatically constitutes a circular zone of protection. In the case of the Lesser Spotted Eagle, a 100-meter radius is protected. For Osprey and White-tailed Eagle the radius is 200 metres, with 250 metres for the Greater Spotted Eagle and Black Stork – with even 500 metres allotted for the Golden Eagle.

Since it's difficult to construct a circle in nature, expert help is consulted in order to use natural and other existing boundaries to delineate the species protection sites (micro-reserves). Species protection sites are generally larger than the automatically protected circular zones, and human movement during nesting time is forbidden in these areas.

These species are protected at the state level by the Ministry of Environment and voluntarily by members of the Eagle Club (2004–2009 under



Text: Fred Jüssi, Tiit Randla, Urmas Sellis, Ülo Väli *Translations:* Robert Oetjen, Scott Diel
Front cover: White-tailed Eagle (photo: Arne Ader 2008, Estonia) *Back cover:* Black Stork
(photo: Sven Začek 2005, Estonia) *Layout:* Eesti Loodusfoto © Kortaklubi, 2009 MTÜ
Kortaklubi: 5034799 (Urmas Sellis), urmas@korkas.ee, www.korkas.ee

Printed with the support of the LIFE-Nature project,
LIFE04 NAT/EE/72 Arrangement of Spotted Eagles and
Black Stork Conservation in Estonia (EAGLELIFE).

