

COMMON

Alcedo atthis

KINGFISHER



Common Kingfisher (*Alcedo atthis*)

The common kingfisher is one of our most colourful birds, but it is rather discreet in the nature. It appears unexpected – often revealed by a sharp and piercing call “tsiii” – when flying swiftly just above the water. It shines with blue-green colours on the back and orange-brown bottom.

Identification

It is a smaller bird. It is a bit larger than a sparrow, with large head and long pointy beak. The tail is short, and colours are striking – a shiny blue-green upper part, and the bottom in contrasting orange-brown. The adult individuals have coral red legs.

The gender of an adult individual can be determined by the colour of the beak. Male's beak is all black, while the bottom part of the female's beak is reddish, at least at the base.





Geographical Distribution

The common kingfisher nests in Africa, on the Sunda Islands, in Eurasia from the Iberian Peninsula and the British Islands, through south Scandinavia, Asia Minor (Anatolia), to Sakhalin and Japan.

It can be found in most parts of Slovakia, from lowlands to mountains. If found in higher altitudes, it is usually due to hunting.

The bird ringing revealed that some of our kingfishers are migratory. They are mostly young individuals without their own territory. They leave their birth place and fly to a wintering site.

Behaviour and Ecology

The common kingfisher is not a social bird. Throughout the year, except for the mating period, they live mostly solitary. They stay nearby water bodies, most frequently natural flowing waters – rivers and streams – but can also be found nearby lakes, gravel pits filled with water, ponds and artificial channels. Typically, the bird sits still, watching for movement from a favourite perch. Then it plunges into the water to get the fish.

Outside of the nesting season, the kingfishers wander about the country. They can be spotted on different places even further away from the water.

In Slovakia, some kingfishers stay in their territories even during the winter. It is crucial the water does not freeze, so they can still hunt. In case the water freezes over, the kingfisher is forced to relocate to find food. This is the time they can be seen in unusual locations – industrial water bodies, outlets of sewage treatment plants, water bodies in cities or outlets of the dams, where the water is warmer and does not freeze.



The kingfisher always eats the fish head first. If you see it carrying the fish in the beak, head out, it is probable there is a nesting hole nearby and it is about to feed the nestlings.

Feeding

As the name suggests, the kingfisher's main course is small fish. It also hunts tadpoles and smaller frogs. Sometimes, it catches a mollusc, an insect or a larva. The kingfisher requires clean water, where the prey is well visible. It is important there is enough small fish and trees on the banks, so it can perch on branches and look out for the prey. When hunting, it plunges into the water head first. In only a few seconds under the water it catches the prey, and quickly resurfaces. If the hunt is successful, often the fish is still alive. The kingfisher kills it by smashing it against a tree branch.

The kingfisher needs about 10 small fish a day. To catch one fish, approximately 10 dives are needed.



The Family Life of Kingfishers

■ Nesting Habitat

The common kingfisher nests nearby flowing waters from the lowest altitudes up to 800 m above sea level. Steep clay or sandy walls to dig the nesting holes are a must. Less frequently they dig the hole into the banks of stagnant water bodies, such as ponds, gravel pits or sandpits). Sometimes, they chose to nest in forests nearby the water, e.g. root plates of windthrown trees. If there is no opportunity to nest by the water, the kingfisher can nest in gravel or earth pits, steep grooves on forest or field roads that are hundreds of meters away from the hunting site. If there is not enough food nearby the water, it flies over to another water body.

■ Mating

Mating period is quite a busy time for the kingfisher. High-pitch calls can be heard as the partners chase each other above the water, and around the river bank vegetation. As a closing ceremony, the male often brings “a present” to the female – several small fish. If she accepts, the mating follows.

■ Building a Nesting Hole

Building a nest is an exceptionally demanding task. The nest is placed inside a hole with a corridor up to one meter long. Both partners participate in digging. When one is digging, the other one guards the surroundings. At the beginning, the birds fly against the wall feet first, later on they dig with their beaks, pushing the loosen dirt out with their feet. Depending on the conditions (type of soil, weather), it takes days or even weeks to dig the hole. The nesting corridor goes in and upwards, and at the end, there is a round nesting chamber. Kingfishers never bring any material to cosy up the place, neither they weave a real nest. They lay their eggs on the bare bed of the hollow. The rests of food and pellets accumulate there, too.

How to Recognize an Active Nesting Hole?

Popular nesting holes are used many times during decades and often have some of the following qualities:

- the nesting wall is made of erosion-resistant material (clay, sand);
- there are no bumps nor mouldings that could facilitate the access of predators;
- the kingfishers visit the hole even outside the nesting season and maintain it;
- old birds repeatedly nest in the hole and their offspring returns there, too;
- migrating individuals or flying birds can be seen in the vicinity.



One
nesting hole
can serve the
purpose for years.
The record is
17 years!



■ Caring for the Offspring

The reproduction of kingfishers is remarkable. They are able to mature really fast, nest multiple times in one season, swiftly lay secondary broods, have numerous offspring and even multiple partners at the same time. All that to achieve one goal – to survive and produce viable offspring. Since they face many –often fatal –threats (see chapter Threats), no wonder they employ even the less common strategies to achieve survival of as many youngs as possible.

If young kingfishers don't learn to hunt before the parents force them to leave, the weaker individuals may die of hunger.

For example, it is a known fact the kingfishers do not always nest in couples, they may have multiple partners at the same time. The female lays 6 –8, occasionally up to 11 eggs, and nest repeatedly twice, three, or even four times a year. It takes about 18 –21 days for the eggs to hatch. Both parents care for their offspring for about 23 –27 days. After leaving the nest, the young birds wander about the nesting site and learn to hunt. In about 10 days, the family falls apart and the adults chase the young ones away.

Similarly to the other birds species, the first year is the hardest for the new generation of kingfishers. Up to 80% of them die in the first year of life. In the second year, mortality rate drops to 15%.



Threats



Suitable conditions for successful breeding are crucial to the survival of entire populations and for the species itself. The common kingfisher is not an exception. While the species is well adjusted to negative impacts of natural environmental factors – after all, they spent generations adapting – the birds are often helpless when facing sudden changes caused by human activities.

The common kingfisher, too, is threatened the most by human activities, which cause degradation or a complete loss of natural nesting opportunities – the steep river banks.

What is that river had in the past, but now it's missing? Why it is so exceptional to find a kingfisher nesting in the banks of Danube main stream?

- The most palpable reason is **the loss of river dynamics** in alluvial ecosystems – 19th and 20th century was characterized by massive river regulations. Straightening the main stream, cutting off the meanders and entire river branch systems, building the dams and diverting the water to artificial channels. —All that affected the Danube, and partially the Morava. For more than 30 years, all larger side branches of Danube were being cut off from the main stream. Progressively, fine sediments filled the side arms and overall degradation started. As a result, there are dying rests of arms and branches, mostly overgrown and filled with deposits.
- Another nail in the coffin for the birds nesting in steep river banks were **quarry stone embankments**. During the river regulations in 19th and 20th century, the majority of Danube and Morava banks was fortified with quarry stone even in zones, where it was not necessary, including natural beaches and islands. Bird species that require steep and eroded banks and walls cannot nest in these embankments at all.
- Last but not least, the lack of traditional meadow management along the rivers negatively affects steep and eroded river banks. Absence of **traditional grazing** along the rivers contributed to overgrowing of the remaining bare parts. Due to lack of grazing, the nearby vegetation could grow stronger and even grow over the high and otherwise inhospitable vertical banks and walls.



- When choosing a nesting site, lack of food is a limiting factor. The main issue along the Danube and Morava is absence of suitable fish spawning sites. In Morava river, the average fish biomass dropped from 500 kg/ ha to only 50 kg/ ha during the course of the 20th century. In Danube, the situation isn't any better. In the last 50 years, the amount of fish dropped by more than 60%. Since the kingfisher feeds on small fish, the lack of young fish individuals in the stream and side arms negatively affects the carrying capacity of the environment and the kingfisher must fly further away to hunt.

Disturbance caused by fishermen and tourists has a negative effect, too. Camping, parking or barbecue next to nesting sites may scare away the parents and lower the feeding frequency, resulting in starvation or death of the youngs.

■ Environmental Factors

Like all other animals, kingfishers are threatened by natural environmental factors. The most dangerous are hard winters, floods, and predators that ransack the nests, destroy the brood and kill the youngs. However, the kingfishers have spent long time adapting to these disturbances and under normal circumstances, they are able to recover from the loss.

Water bodies, frozen for an extended time period, are a great threat to kingfishers. Exhausted birds cannot access food and die. One very hard winter can kill an entire local population of kingfishers.

Heavy rains and elevated water levels can cause a nesting wall to fall or flood the nests. The predators are yet another danger. Foxes and badgers can dig into the nesting holes, destroy the eggs and kill the youngs. Lately, an allochthonous species has become a danger – the American mink.



Conservation

■ Conservation in the EU Legislation

In European Union, the common kingfisher is protected under NATURA2000 network. Out of 41 Special Protection Areas in Slovakia, the common kingfisher is listed as a protected species in three areas, and 10 areas are nesting sites to a significant part of its population (over 1% of the nesting population in Slovakia).

■ Conservation in the Slovak Legislation

Conservation of the common kingfisher in Slovakia falls under the Act No. 543/2002 Coll. on Nature and Landscape Protection that treats legal aspects of animal conservation, including the birds. The Nature and Landscape Protection in Slovakia covers protection of species and areas. The protection of species covers protected animal species. The protection of areas is indirect, via the Landscape Protection.

What is NATURA2000?

NATURA2000 covers two types of protected areas:

- Special Protection Areas (SPA, Special Protection Areas) – declared by the Birds Directive,
- Special Areas of Conservation (SAC, Special Areas of Conservation) – declared by the Habitats Directive. Birds are not counted here among the species of plants and animals, since in their case the procedure is according to the older directive.

A target species—a key species for which the Special Protection Area (SPA) is declared in order to assure their protection and proper management of their habitats. Target species are mostly those endangered within the entire European Union, plus some species of national importance and groups of migratory bird species.

1% species—an endangered species not considered target in the respective SPA, however, their numbers represent more than 1% of national population and they are subject to protection in these areas. This provides more efficient protection within the existing SPA network.



All wild birds, with exception of feral pigeons, are protected under the Nature and Landscape Protection Act. They cannot be disturbed, touched or otherwise harmed. Their breeding sites, including the nests and nesting habitats, and different stages of development (e.g. eggs) are also protected. If the law is violated, the perpetrator can get fined or imprisoned, depending on the social damage and character of the crime.



What Needs to be Done to Improve Nesting Opportunities for the Common Kingfisher near our Rivers?

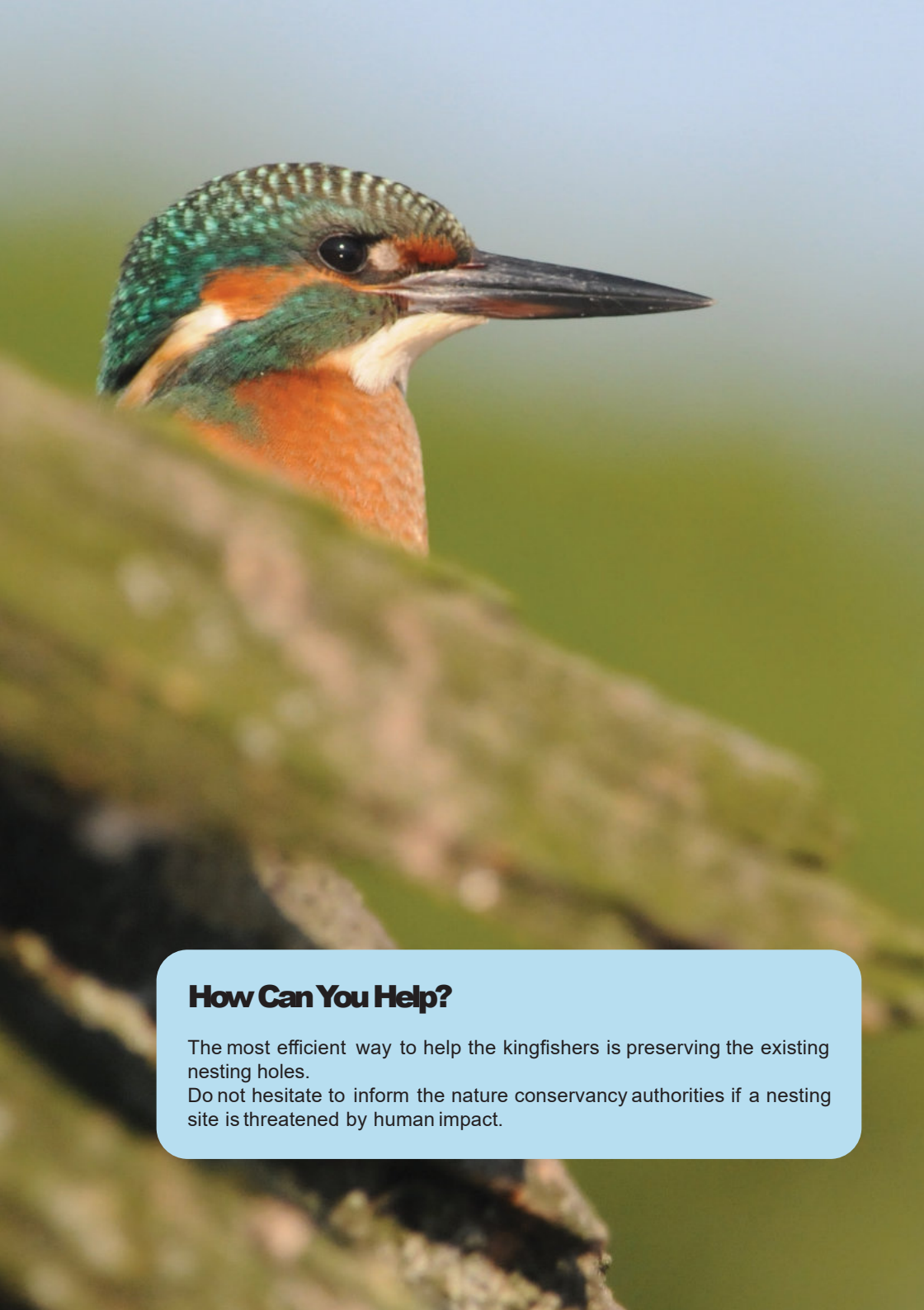
There are several options how to bring back the nesting opportunities in river banks. Long-term measures are the most efficient for the species and the entire ecosystems—Measures that allow natural processes to restore steep river banks on one shore, and create beautiful natural gravel or sandy beaches on the other one, or down the stream.

- From a long-term perspective, the most efficient measure is **restoring the river dynamics** where possible. That means letting the water flow wherever needed – open the side branches that were cut off, reconnect them to the main stream, restore the meanders and let the water raise and drop naturally. In restored branches, or even better, in entire river stretches, the water only needs a few years to restore the habitats that have been degrading for decades. Steep river banks form spontaneously and quickly. Kingfishers and other species are quick to find them and use for nesting.
- **Removing the embankments** wherever not necessary. Removing the longest stretches of the paving or stone fortification possible is imperative for improvement of the conditions for the birds that nest in steep banks.
- From a long-term perspective, it is beneficial to restore **the traditional extensive grazing** along the rivers.

Moreover, the areas will become more attractive for tourism, which is an added value of these measures. A river without ugly and impassable embankments is more attractive and much safer place not only for animals, but also for canoeists and people who wish to enter the water or take a walk along the picturesque shore to recharge their batteries. Such river bank is safer and more attractive to the children, too. They like to look for pebbles, shells or

build sandy or stony structures. Grazing nearby the river makes the place more appealing just by simple presence of the animals. At the same time, a grazed meadow makes for easier access to the river. Grazing along the river is an exceptionally powerful tool to contain spreading of invasive plants that spread quickly along our streams. All these measures are considered suitable solutions to improve flooding capacity of rivers. What is it good for? It means the area between the dykes will be able to absorb more water. That is a great help during a flood – it will slow down and flatten the flood wave, thus mitigating its negative impacts.





How Can You Help?

The most efficient way to help the kingfishers is preserving the existing nesting holes.

Do not hesitate to inform the nature conservancy authorities if a nesting site is threatened by human impact.



Restoration of nesting and feeding habitats of Sand Martin, Kingfisher and European Bee-eater in Danube-Morava region

EULIFE Programme under European Commission is there to improve the status of endangered species and habitats. LIFE Projects implement restoration measures in Natura 2000 locations.

The BeeSandFish is one of these projects. As the name suggests, it aims to protect and restore nesting sites and hunting habitats of three interesting bird species—the sand martin (*Riparia riparia*), the common kingfisher (*Alcedo atthis*) and the European bee-eater (*Merops apiaster*). What do they have in common? A specific way of nesting in steep river banks or walls.

Four organizations collaborated closely on the project: BROŽ—the Regional Association for Nature Conservation and Sustainable Development as the main partner and coordinator, while experts from Water Research Institute prepared the studies on restoration of water regime in Danube branches, wetlands, and restoration of steep river banks. Project documentation and necessary engineering works were carried out by experts from VODOHOSPODÁRSKAVÝSTAVBA, š.p. Throughout the project, the specialists from The Faculty of Natural Sciences of Comenius University, Bratislava (PRIFUK) monitored the target species and fish, as well as socio-economic impacts of the project.

The achieved results—in particular, restored steep river banks, restored nesting walls, reconnected river branches with restored water regime, return of autochthonous tree species to river banks and return of grazing and mowing to the alluvial meadows can all be seen on the project:

www.broz.sk/BeeSandFish



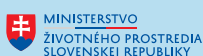
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[www. biomonitring.cz](http://www.biomonitring.cz)



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