



LAYMAN'S
REPORT

BG

2017



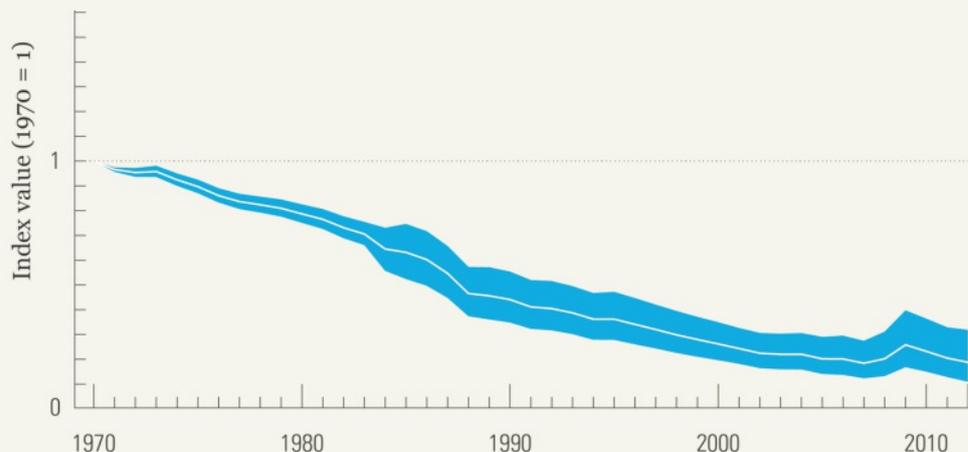
FREE FISH

“Conservation and restoration of Natura 2000 rheophilic fish species and their migratory routes in key SCIs in Bulgaria” LIFE12 NAT/BG/001011

Free Rivers and Free Fish - Why our work is important

Of all animal species in the world, populations in the freshwater system decline at the fastest pace. According to WWF's latest "Living Planet" report, the number of freshwater inhabitants has dropped by a whopping 81% in 40 years, compared to a 58% overall decline in wild animal populations.

THE NUMBER OF
FRESHWATER INHABITANTS
HAS DROPPED BY A WHOPPING
81% IN 40 YEARS



Loss of habitat is the most serious threat to populations in rivers, according to the same report. Various man-made barriers in river beds lead to loss of habitat because barriers prevent fish from swimming to places where they can find food or spawn. All this significantly reduces fish populations, makes wild life disappear from many parts of rivers, and threatens many species.

Therefore, WWF has focused its efforts to solve the problem with barriers, the so-called migration barriers, and their impact on six small fish species and one mollusc species. The species chosen are of Community Importance to the European Union and are included in the Bulgarian Biodiversity law, and their habitats have been designated as protected sites under the EU network of protected areas Natura 2000.

Despite the fact that small fish are often unnoticed, they are a very important indicator of the status of ecosystems. Small fish are an important food source for the larger species that are of fishery interest. Over the past few decades small fish have been silently disappearing from Bulgarian rivers.

To allow small fish to return where they belong, at the end of 2013 WWF launched an ambitious project which included research and collection of scientific data about the Danube tributaries, the status of the populations in them, the barriers and their impact on life in the rivers. We have released almost 1,000 fish in Bulgarka Nature Park, removed two barrages in Rusenski Lom Nature Park, restored part of the riverbed of the Cherni Lom River, and built a fish pass on the Rusenski Lom River that can serve as a model for similar constructions allowing fish to pass through man-made barriers.

As part of the project, we have collected scientific data about six fish species and one mollusc species and about 506 kilometres of river sections in 18 sites of Natura 2000.

506 km

OF RIVER
SECTIONS
EXPLORED

Nearly 1,000 rare fish released in the heart of the Balkan Mountains

WWF experts released hundreds of fish of the European bullhead (*Cottus gobio*) and golden spined loach (*Sabanejewia balcanica*) species in the Panicharka river in Bulgarka Nature Park.



EUROPEAN BULLHEAD, photo: © Hans Hillewaert / bg.wikipedia.org



GOLDEN SPINED LOACH, photo: © Josef Lubomir Hlasek / www.hlasek.com

These species have not been seen in the river for years, and today, even after the ecological status of the basin has improved, they can't return alone because they face a barrier—the wall of the Hristo Smirnenki dam.

The bullhead has been listed in the Red Data Book of Bulgaria since it was first published. This small demersal fish has too few preserved viable populations in Bulgaria. One of the most unusual populations lives in the watershed of the Yantra River—the unusual thing is that such low above-sea level is not the typical habitat of this species.

WWF experts found that this population from the area of Stara Reka numbers more than 15 000 fish and considered that it was appropriate to relocate about 200-250 of them. The relocation would not have threatened the original population in any way; rather, it would have given the species a chance to disperse. The relocation took place in the autumn of 2016 in two batches of around 100 fish each, while research in 2017 found that the fish had adapted well in their new habitat.

WWF experts have also relocated more than 800 fish of the golden spined loach species. They were caught in the Vidima River above Sevlievo, and their new home is also the Panicharka River above Gabrovo.

The original idea was to reintroduce four other freshwater species, but population studies showed that for two of them the source populations were not healthy enough, so relocation would pose a risk, while the rivers earmarked for new habitats contain nitrates above safety levels.

WWF will continue to monitor the new population in Bulgarka Nature Park and follow its growth rate.

more than
1000

FISH RELOCATED

Study of Migration Barriers' Passability

Migration barriers are studied to see how they affect life in rivers. This assessment is necessary when there is doubt whether a barrier is passable or not.



Photo: © WWF Bulgaria

AS PART OF THE “FREE FISH” PROJECT, WE STUDIED THE PASSABILITY OF A RELATIVELY LOW BARRAGE WITH A FISH PASS ON THE VIT RIVER NEAR THE VILLAGE OF TOROS.

Migration barriers are studied to see how they affect life in rivers. This assessment is necessary when there is doubt whether a barrier is passable or not. As part of the “Free Fish” project, we studied the passability of a relatively low barrage with a fish pass on the Vit River near the village of Toros.

The barrage, built to prevent erosion, is just 90 cm high and is around 100 meters long, barring river Vit along its entire width. There is a fish pass at the centre of the barrage. When waters are high the fish pass probably serves its purpose, but it is often blocked by tree branches and plastic bottles. When waters are low, however, the fish pass is impassable because its lowest point is inaccessible for fish. Due to the uncertainty regarding passability and the possibility of fish to pass through the fish pass, we tested the passability by tracing the fish movement through the fish pass and the barrage.

For this purpose, in the spring of 2015 and 2016 we caught a total of 43,916 fish of 20 different species (mostly barbel, chub and gudgeon).

We tagged more than 7,400 fish from 7 species via subcutaneous injection of fluorescent material.

The coloured compound leaves a well-visible mark. It stays beneath the skin for years without disturbing the fish, and is clearly visible, especially when lit with a UV light. After being marked, the fish were released back into the river.



A fish marked with a fluorescent material



The team of volunteers after a marking activity

7400

FISH FROM 7 SPECIES MARKED

Many experts and volunteers took part in the catching and tagging of the fish. A month after the tagging and the release of the fish downstream the barrage, we again caught fish downstream and upstream the barrage to check how many of the tagged fish have managed to pass the barrage.

Upstream the barrage we found just one single fish, a Mediterranean barbel. The results unequivocally proved that the barrage is an impassable barrier for most of the fish swimming against the current, although single fish can swim through the fish pass. The researchers concluded that the fish pass should be modified or built anew.

Unfortunately, such are the conditions in many places in Bulgaria, and even in habitats with fish passes, those passes don't serve their purpose and barriers remain impassable.

Fish passes should not look good just on paper

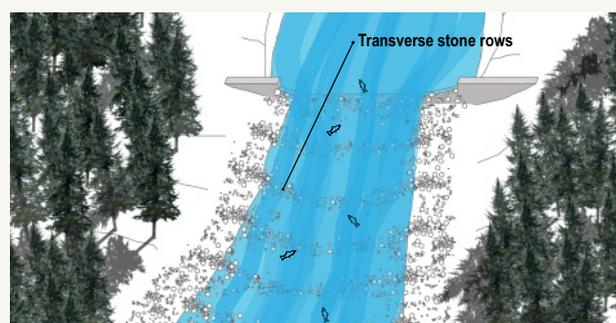
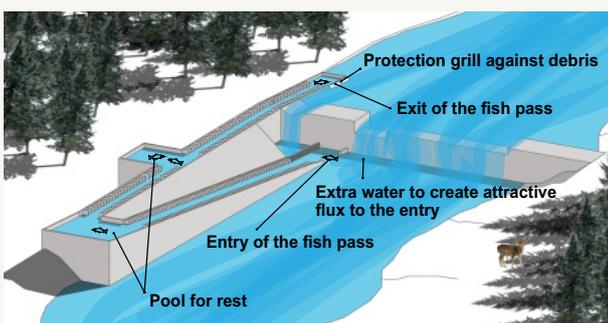
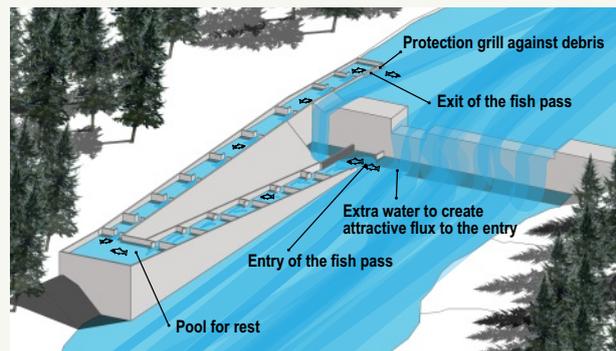
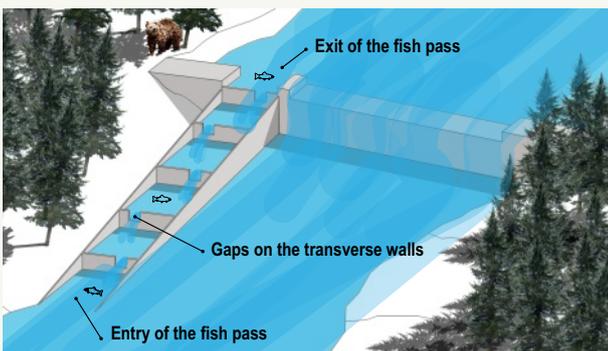
Fish passes are constructions allowing fish to pass freely through a barrier.

Due to lack of construction regulations, although many fish passes have been built in Bulgaria, fish just can't pass through them.

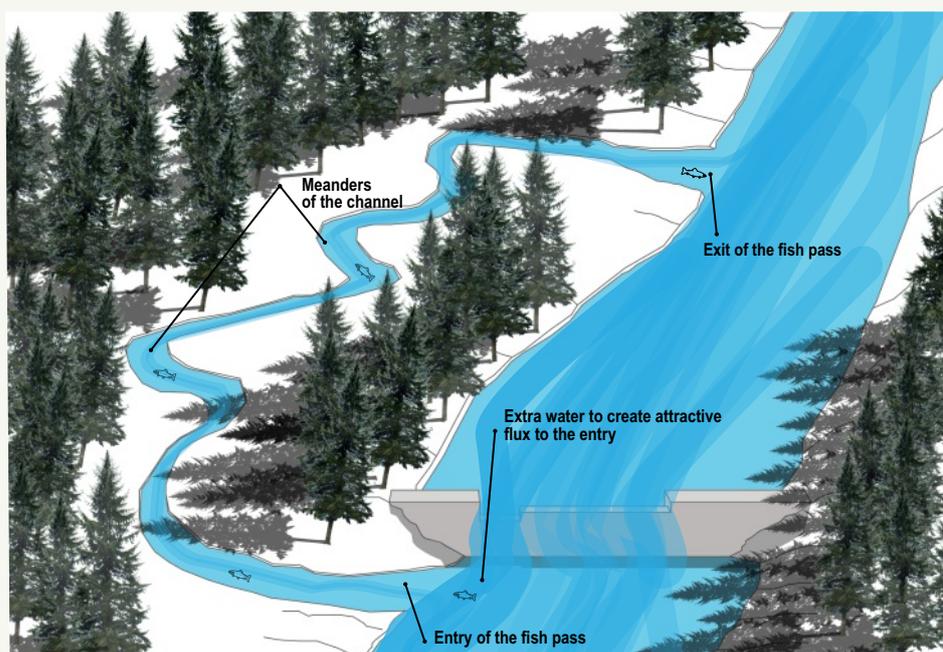
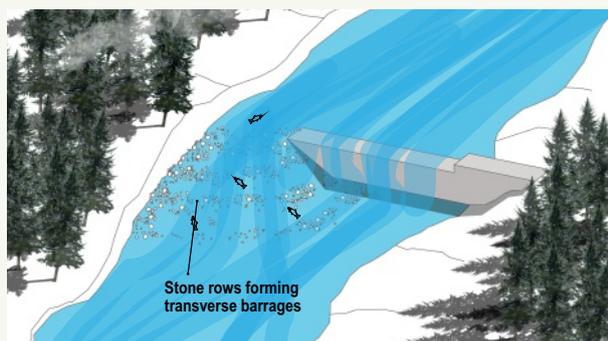
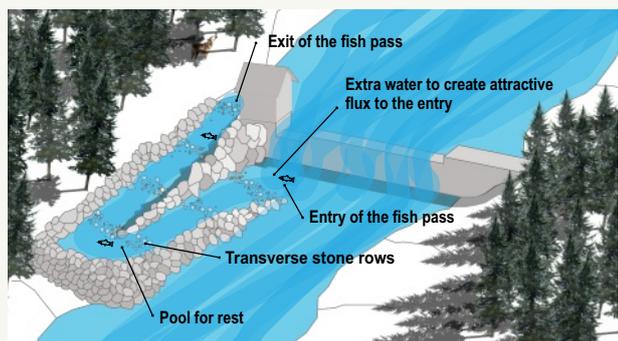
Therefore, WWF calls for an ordinance on fish passes be adopted and is taking part in an interdepartmental working group on the issue. Despite the fact that they have admitted that such ordinance is needed, the Ministry of Environment and Water and the Ministry of Agriculture, Food and Forestry are not actively working on the issue and the group has not met after 2016.

In order to make information collection easier, WWF has compiled a special guidebook on the types of fish passes. The methodology is developed by scientists from the Sofia University and from the Bulgarian Academy of Sciences and reflects the Austrian know-how shared by Prof. Stefan Schmutz from the University of Natural Resources and Life Sciences in Vienna.

SKETCHES OF VARIOUS TYPES OF FISH PASSES



SKETCHES OF VARIOUS TYPES OF FISH PASSES



New fish pass on the Rusenski Lom River

A one-of-a-kind fish pass for Bulgaria was built on the Rusenski Lom River near the village of Basarbovo. The facility was opened in 2017 to mark the Danube Day which is celebrated on 29th June.

The decision to build the fish pass was taken after an in-depth study which found that many Danube species (white-finned gudgeon, common barbel, common roach, common rudd, white and vimba bream) reach the barrage at Basarbovo, which shows that even small demersal species such as the white-finned gudgeon can reach the barrage at times of high waters, but cannot pass upstream. The barrage is in use, so it cannot be removed, that is why a fish pass—a special passageway—was built, through which the river inhabitants can bypass the barrier. WWF has studied the international know-how and following consultations with leading Austrian experts, and together with the Rusenski Lom Nature Park Directorate — constructed a novel for Bulgaria fish pass that is a close to nature by pass.

The partners will monitor the usage of the fish pass and whether improvements in its construction would be necessary.

THE PARTNERS WILL MONITOR THE USAGE OF THE FISH PASS AND WHETHER IMPROVEMENTS IN ITS CONSTRUCTION WOULD BE NECESSARY

Fish pass near the village of Basarbovo

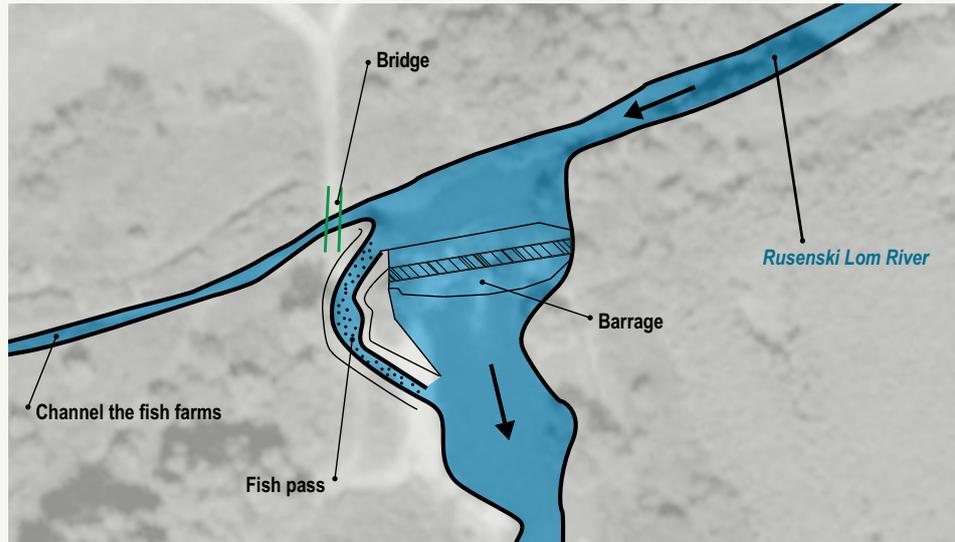


Photo: © WWF Bulgaria

The moment when the fish pass channel was filled with water for the first time

More than 120 kilometres of Cherni, Rusenski Lom Rivers are now free of barriers

More than 120 kilometres of the rivers Cherni Lom and Rusenski Lom are passable for fish again after a fish pass was built and two migration barriers were removed.

In the first half of the 20th century many watermills were built along the rivers in the area. These facilities were modern for their time and had concrete and stone water intake structures.

Later some of the watermills were electrified and people stopped using energy from water, while the other watermills were abandoned. Nowadays the watermills are either disused or used for other purposes. Due to lack of maintenance, most of the water intake structures had collapsed, except for those at the villages of Cherven and Koshov, which continued to hamper the fish routes in the river despite the fact that the watermills had not been used for decades.

Thanks to the efforts of the Directorate of Rusenski Lom Nature Park and WWF, those barriers were removed, which ensured connectivity for more than 120 kilometres of Cherni Lom and Rusenski Lom, near the site of Rusenski Lom's confluence into the Danube.

THE REMOVAL OF THE WEIR NEAR KOSHOV VILLAGE CONTRIBUTED TO REDUCING THE RISK OF FLOODS

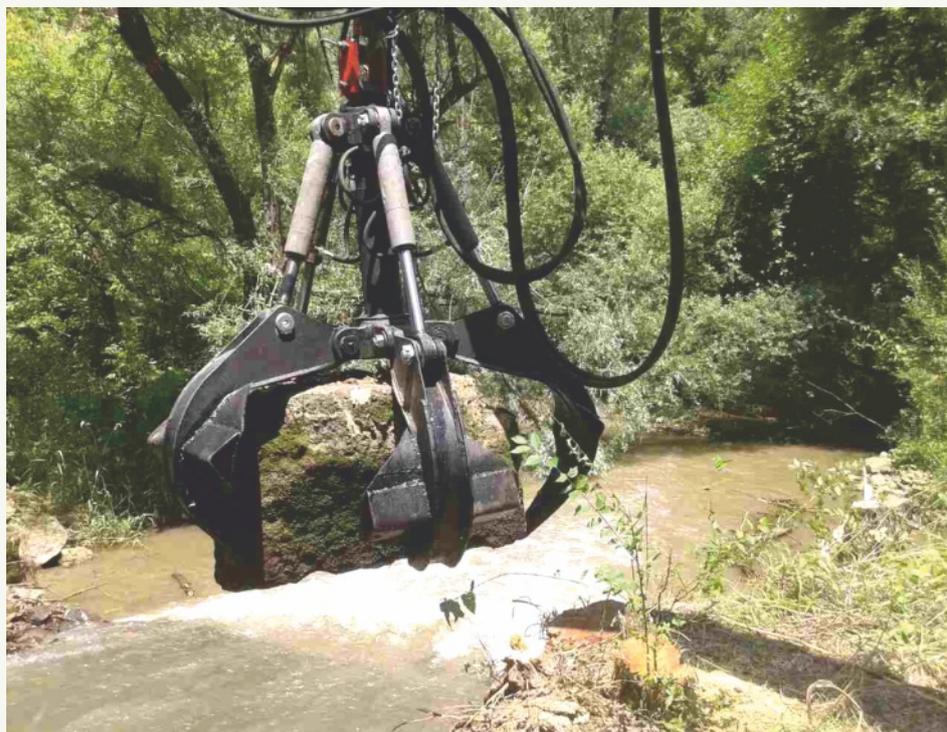


Photo: © WWF Bulgaria

Not only biodiversity in the park benefits from the removal of the barriers, people also see the benefits. For example, removing the barrier near Koshov reduces the risk of flooding because the barrier used to create conditions for blocking the river and flood the land in the village.

Freeing the rivers from barriers also encourages practicing of water sports such as canoeing and kayaking, therefore, it benefits tourism.

Restoration of pilot section on Cherni Lom River

Like the lower courses of most Bulgarian rivers, the riverbed of Cherni Lom has also been modified. The river bed has been narrowed and straightened, which has altered the water course and the bed.

Photo: © WWF Bulgaria



The beds of the rivers in the region, including Cherni Lom, have been additionally altered due to the heavy erosion at the watershed as a result of deforestation followed by intensive agriculture. Fine clay sediments have ended up in the river and in many places the original gravel river bed has been replaced by a bed of fine clay substrate. This has destroyed the habitats of fish such as the Danube gudgeon. The area around Ostritsa used to be a habitat for the species, according to the few old data available about the species in Bulgaria.

THE STRENGTHENING THE LEFT DYKE OF THE RIVER AND THE INCREASE OF THE CONDUCTIVITY OF THE BRIDGE INCREASED THE FLOOD PROTECTION OF OSTRITSA VILLAGE

The original idea was to replace the stream bottom substrate of a pilot section of the river by introducing gravel substrate from another river (the Danube). Later on, we changed the approach and focused our efforts on eliminating the reasons for the silting of this particular section of the river. It turned out that there was river gravel below the silt-clay deposit. So we decided to remove the clay-silt substrate and remove the barriers that had led to sediment deposition in this section. We also lowered the right bank of the river, which is important not only for the river landscape but also for animal farming, because farmers from the Ostritsa village use this section of the river as a watering place for their cows and other livestock. Our activities also led to another benefit: the left embankment of the river was strengthened and the flow capacity at the bridge was increased, which boosted Ostritsa's protection against flooding. Samples taken from the river bed a year after the reconstruction showed that it was successful and the river bed now contains suitable substrate.



Photos: © WWF Bulgaria

Samples taken from the river bed a year after the reconstruction showed that it was successful and the river bed now contains suitable substrate.

How did we reach people?

Apart from field work, one of the goals of the “Free Fish” project was to reach as many people as possible and tell them the stories about the rivers and their inhabitants, the problems and their solutions.

In 2015 we visited seven Bulgarian towns and showcased an aquarium full of live fish from the Danube tributaries. After the tour ended, all fish were returned to the Vit River at the exact same place where they had been caught.



Photo: © Katerina Rakovska / WWF

In 2016 we organized a swimming challenge in Sofia. Nearly 30 people joined the initiative “Swim So They Can Swim Too!”



Photo: © Ivelina Georgieva / WWF

More than 800 children took part in the drawing competition “The River and Its Inhabitants” which Britanica language school and WWF organized. The bitterling and the thick shelled river mussel—two of the target species of the “Free Fish” project -- were among the species that the little artists had the chance to draw.

We organized a trip for journalists in 2017 and showed them what we have done to improve the life of fish in the Rusenski Lom River and its tributary Cherni Lom.

Project Description

Free Fish. “Conservation and restoration of Natura 2000 rheophilic fish species and their migratory routes in key SCIs in Bulgaria” LIFE12 NAT/BG/001011

Duration: September 1, 2013 through September 30, 2017

Total budget: 411,057 euro, including 205,528 euro of EU co-funding and 190,179 euro contribution from WWF, with the support of Coca-Cola and Michael Otto Foundation.

Project beneficiaries: WWF Danube-Carpathian Programme, Directorate of Rusenski Lom Nature Park

Partner: Directorate of Bulgarka Nature Park

PROJECT OBJECTIVES:

- Improve the conservation status of six threatened and protected small rheophilic fish species and a mollusc species through improving river connectivity, studying populations, and restocking into selected river sections;
- Collect comprehensive scientific information about those species in Natura 2000 sites in northern Bulgaria;
- Survey and assess existing barriers in Natura 2000 sites, and draft a proposal for an action plan to make them passable for fish;
- Draft a guidebook with requirements for building fish passes;
- Restore at least 200 m of the Rusenski Lom river at selected appropriate sections with a suitable gravel substrate to ensure suitable habitats for *Romanogobio keslleri* and *Barbus meridionalis*;
- Build a fish pass on the Rusenski Lom river to connect a section of at least 15 km downstream to a section 15 km upstream of the fish pass;
- Remove two barrages on the Rusenski Lom river in the “Lomovete” Natura 2000 site and reduce river fragmentation;
- Manage a public awareness campaign reaching directly at least 15,000-20,000 people and attracting at least 30 volunteers to take part in project activities.



Founded in 1961, international conservation organization WWF works in more than 100 countries, thanks to the help of 4,000 staff and more than 5 million volunteers. WWF works to improve the status of the planet's environment so that people can live in harmony with nature. In Bulgaria, WWF works to conserve protected areas and habitats in the Sites of Community Importance (SCIs) of the Natura 2000 network, protect forests and freshwater ecosystems, promote sustainable rural development, and fight climate change.



At least 60% of animals and plants of Community importance and at least 77% of their habitats are threatened. The one of a kind trans-national network of protected areas Natura 2000 was created by the European Union to stop habitat loss and environmental destruction. The goal of Natura 2000 is to conserve and protect the species and habitat types of community importance. Bulgaria still has relatively well-conserved nature and the Natura 2000 network spans on nearly 33% of the country's territory, which includes the habitats of the target species of the “Free Fish” project.

Target species of the project

Thick shelled river mussel (*Unio crassus*)



Photo: © Douda K / bg.wikipedia.org

European bullhead (*Cottus gobio*)



Photo: © Piet Spaans / ro.wikipedia.org

Kessler's gudgeon (*Romanogobio kessleri*)

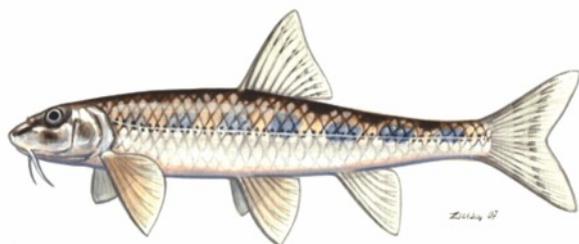


Illustration: © Zsoldos Márton / vi.wikipedia.org

Golden spined loach (*Sabanejewia balcanica*)



Illustration: © Zsoldos Márton / ro.wikipedia.org

Bitterling (*Rhodeus sericeus amarus*)



Photo: © George Chernilevsky / bg.wikipedia.org

Drawing: Ekaterina Yuliyana Kilieva, 8 years, Sofia



Mediterranean barbel (*Barbus petenyi*)

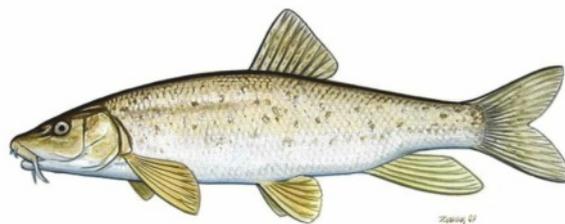


Illustration: © Zsoldos Márton / en.wikipedia.org

Danube gudgeon (*Romanogobio uranoscopus*)

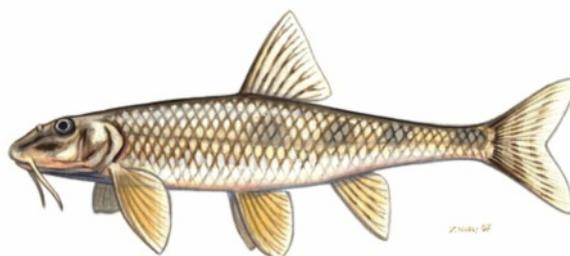


Illustration: © Zsoldos Márton / en.wikipedia.org

WWF in numbers

1961

WWF was founded in 1961

+100

WWF is in over 100 countries, on 5 continents



+5M

WWF has over 5 million supporters

+5,000

WWF has over 5,000 staff worldwide

	<p>Why we are here. To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.</p> <p>www.wwf.bg facebook/wwfbulgaria</p>
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