WWF

REPORT

BG

2019

PROJECT LIFE13 NAT/BG/000801

RIPARIAN FORESTS – THE WEALTH WE HARDLY KNOW

Riparian forests – the wealth we hardly know
Layman's report

Project: LIFE13 NAT/BG/000801
Conservation and restoration of riparian forests (habitat type *91E0) in Natura 2000 sites and model areas in Bulgaria
http://www.wwf.bg/what_we_do/forests/riparian_forests/
The Project is implemented with the **financial support of the EU LIFE Programme** (EU's funding instrument for the environment).

Duration: September 2014 – February 2019
Total budget: € 537 056

Partners:
The Executive Forest Agency;
WWF – Bulgaria;
Regional Forest Directorate – Plovdiv;
Regional Forest Directorate – Rousse

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Print: „Multiprint"

Cover photo: © Michel Günter

This brochure is published by WWF-Bulgaria.

WWF (World Wide Fund for Nature) is an international environmental organization, found in 1961. WWF operates in over 100 countries; it has more than 6000 employers and over 6 million supporters.

Sofia, 2019

Abbreviations

SFE	State Forestry Enterprise
SHE	State Hunting Enterprise
SCI	Site of Community Importance (protected Natura 2000 site)
EFA	Executive Forest Agency
NGO	Non-Governmental Organisation
PS	Primary School
RFD	Regional Forest Directorate
WWF	World Wildlife Fund

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INTRODUCTION

Almost everything from our environs has been here for millennia. We take it for granted and we have no eyes for that *almost everything*. We see it only when someone deliberately focuses our sight on it. Or when something goes wrong and rescue measures have to be taken...

This report is focused on a wealth that we most often do not know or just do not think about – **the riparian forests.** And when we have no knowledge and eyes for the value of this wealth, we do not take care of it. And when it is not taken care of it begins to change and sometimes even becomes extinct.

The exuberance, the richness of plant and animal species, the diversity and mystery of these forests have attracted people since ancient times. Today, however, the dynamics of life, the new needs of societies, as well as the climate changes have a significant impact on riparian forests.

The connectivity of forests to rivers naturally predetermines their limited distribution. Nowadays, the main areas of the five types of riparian forests are included in the conservation sites of the European Ecological Network Natura 2000. Considering their poor coverage in national protected areas, this is an important step forward.

The most serious threats causing loss and deterioration of riparian forest habitats are the fellings undertaken to make space for farmland, for fast-growing wood production plantations, for riverbed diversion and aggregate extraction, as well as illegal logging, etc.

To keep these forests for future generations, we need focused efforts and investments in their restoration and development.

The purpose of this publication is to outline the activities undertaken under the **Riparian Forests** project, the outcomes and effect achieved, as well as the organisations and the people who enthusiastically joined in to implement the initiative. We also hope that information included herein will make readers appreciate the role and significance of riparian forests and will motivate them to keep these forests.

THE ROLE OF RIPARIAN FORESTS

Riparian habitats preserve **rich biological diversity.** They have formed and developed under specific conditions: high humidity furnished by river levels, periodic flooding and water absorbed into soil. Riparian forests are an **integral part of bird migration corridors;** they play an important role in maintaining **water quality** and in **soil conservation** and have a positive effect on aquatic ecosystems.

THE RIPARIAN FORESTS

ARE ONE OF THE MOST VULNERABLE AND RARE HABITATS.

Riparian forests are one of **the most vulnerable and rare habitats**. The type we are working on under the project (91E0) is a type of riparian forest in lowlands and plains that develops on rich soils periodically flooded by the swelling of river. Although occurring throughout the country, it occupies only **a half per cent** of the area of woodlands in Bulgaria. Due to their accessibility and proximity to settlements, riparian forests have always been subject to adverse human impacts resulting in a continuous decrease of their area.

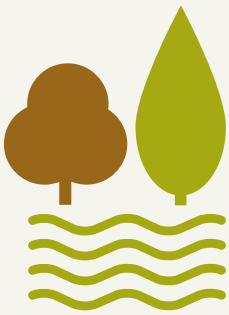
What types of riparian forests occur in Bulgaria?

- **Riparian forests in lowlands and mountains (alluvial forests).**
  Occurring on rich alluvial soils periodically flooded by river. These forests have a limited distribution along the lower reaches of Batova, Kamchia, Ropotamo, Tundzha and other inland rivers; around the rivers in the low mountain range (300 – 1000 m) and in the mid-mountain fir-and-beech belt (1000 – 1500 m) and along the Danube and the downstream of its tributaries;
- **Periodically flooded mixed broadleaf riparian forests.**

  These forests have developed on younger river alluviums. Depending on the water balance, the dominant tree species belong to the genus of ash, elm or oak trees;
- **Riparian galleries of white willow and white poplar.**

  These riparian forests occur in the lowlands and the foothills of mountain slopes in the most southern parts of the country, but mostly along Maritza, Struma, Mesta, Tundzha rivers and their tributaries;
- **Oriental plane forests.**

  These occupy the unstable river alluviums of major rivers, the gravel or sand deposits from the permanent or temporary streams, and particularly the lowest parts of steep shady gorges.
- **Southern riparian galleries and thickets.**
  This habitat features riparian galleries and thickets along permanent or temporary streams and wetlands. The habitat occurs along the Danube river valley, the lower reaches of Maritsa, Tundzha, and Struma rivers, in the Eastern Rhodope



THE RIPARIAN FORESTS
ARE COMPLEX ECOSYSTEMS AND AN IMPORTANT REGULATOR OF WATER BALANCE.

Riparian forests are of huge importance both for nature and for people. They are one of the most complex ecological systems, and at the same time – among the most critical ones for maintaining the stability of rivers.

© NELLY DONCHEVA / WWF

Some of the key functions of riparian vegetation:

- strengthening the riversides and restraining erosion of waterside areas;
- improving the water quality;
- creating habitats for plants and animals (spawning, feeding, nesting, etc.);
- sustaining the soil;
- contributing for reduction of the flow velocity in the watercourse and for steadier balance of water quantities and levels.

Besides their practical use riparian forests make rivers even more attractive for the fans of different water sports.

OVER 65%
OF THE BULGARIANS USE THE FOREST AREAS FOR RECREATION AND ENTERTAINMENT.

It is important to note yet another role of the riparian forests: they offer an unique opportunity for relaxation and enjoyment – in the shade, near the river. Actually for many this is the first association when they hear the term 'riparian forests' – how pleasant it is 'to sit for a while under a willow tree'.

Riparian forests are an excellent place for recreation, relaxation and entertainment out in the nature. There are beautiful forests along the lower reaches of the larger rivers in Bulgaria, and holiday villages and recreation facilities are being built in their environs.

THE PROJECT

Floodplain forests have been widespread in Bulgaria in the past. Currently, such are partially preserved only along the Danube islands, the streams of Kamchia, Ropotamo and Tundzha, and the islands of Maritza river.

These forests are almost completely destroyed along the reaches of Iskar, Vit, Osam, Yantra and Struma rivers.

Many people in Bulgaria are unaware of the benefits of having these forests in place and are not involved in any way in their conservation and restoration.

Therefore, at the end of 2014, WWF Bulgaria, in partnership with the Executive Forest Agency and the Regional Forest Directorates of Rousse and Plovdiv, started a project for restoration and conservation of natural riparian forests of local tree species along the Danube and Maritza rivers.

The main objective of the initiative is the conservation of riparian forests featuring type 91E0*

This habitat covers riparian floodplain forests in the lowland and mountainous parts of the country. They develop on rich alluvial soils, periodically flooded by seasonal high waters of rivers.

This is implemented through:

- **Direct restoration** and enhancement of the quality of riparian forests in two protected Natura 2000 sites (Maritza River and Marten-Ryahovo) by applying a range of techniques and testing alternative methods;
- **Enhancing the experience and knowledge base** for restoration and management of riparian forests by compiling *Guidelines for experts;*
- **Enhancing the capacity** of EFA, two RFD and WWF Bulgaria, and – indirectly – of the forestry and NGO sectors in restoration and management of natural habitat type 91E0*;
- **Building awareness and support** among society and local stakeholders for the conservation of riparian forests.

Within the project framework covering the period 2014-2019, we restore together 48.1 hectares (481 decares) of natural riparian forests.

WE RESTORED RIPARIAN FORESTS

Riparian forest in SCI Maritza River, in the area of Merich Orman near the village of Manole, Maritza municipality

We restored 12.8 hectares (128 decares) of riparian forest in the area of Merich orman near the village of Manole, Maritza municipality.

481 DCA

OF RIPARIAN FORESTS HAVE BEEN RESTORED IN SCI MARITZA RIVER AND SCI MARTEN-RYAHOVO

The wish and the aim of the project partners was for the new forest to have quite a natural appearance – not in apple-pie order, and including species typical for the region. And this is achieved by planting **47,960 saplings of common oak, field elm, white elm, narrow-leafed ash, black alder, grey alder and black poplar.**

© DIANA ANDREEVA / WWF

Afforesting with tree species typical for the region is an essential aspect of the project implementation as **it contributes to the restoration of habitats of other typical plant communities as well as of various animal species** inhabiting the riparian forests.

© ЯНА БАРЗОВА / WWF

Afforested in 2016, the riparian forest currently looks like this.

The forest growing is taken care of by the Regional Forest Directorate – Plovdiv.

Riparian forests in SCI Marten-Ryahovo, Aleko Island

Within the framework of the **Riparian Forests** project in SCI Marten-Ryahovo, we afforested **98 decares with native species of white willow and black poplar typical for the area** which are best are best adapted to the regime of flooding of the nearby river stretches.

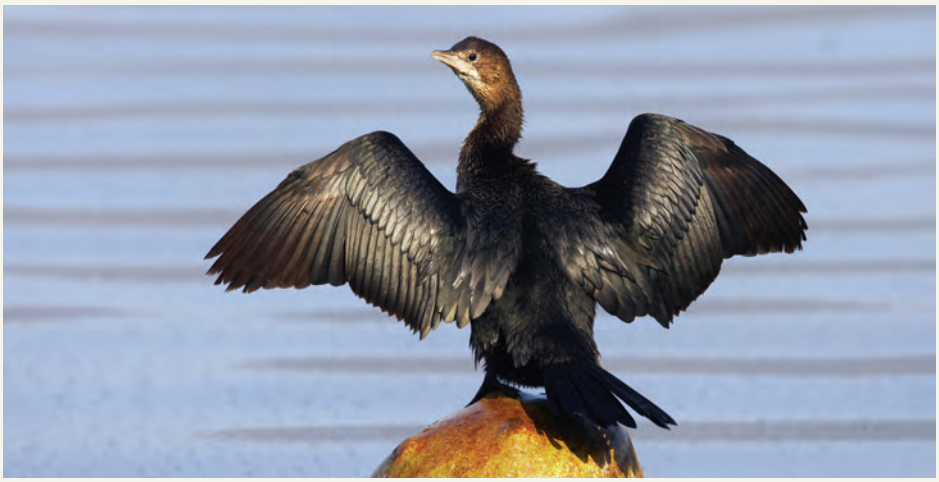
Until recently, this area was occupied by plantations of hybrid poplars for rapid production of wood. The Regional Forest Directorate – Rousse, together with the local hunting enterprise (SHE Danube) restored the **typical riparian forest** at a section of the former plantation. These forests are featured by their rich biodiversity, as well as their important role in erosion control and formation of a specific microclimate.

In early 2015, the newly created forest looked like this.

For 4 years, under the care of RFD Rousse and SHE Danube, the new forest is unrecognizable.

Natural riparian forests of poplar are a suitable habitat for a lot of rare and protected species of higher plants, such as large-fruited horseradish, summer snowflake, marsh sowthistle, as well as of various fungi species of conservation significance. These forests are a source of precious healing plants – nettle, comfrey, blackberry, hops, etc., and are important for the reproduction of water-related species such as herons, cormorants, eagles, woodpeckers and others.

Pygmy cormorant



Riparian forest in SCI Maritza River, in the area of Gushterova odaya near the village of Popovitza

Since 2015, in partnership with SFE Asenovgrad, we worked on the establishment of 14 decares of riparian forest in the area of Gushterova Odaya near the village of Popovitza. We used **7,000 saplings of native species typical of the region – white willow, black poplar, black alder, common oak, ash-tree and elm.**

The second stage of this restoration was the follow-up care of the saplings: weed removal, soil loosening, weeding and watering.

The work in Gushterova Odaya was also one of the challenges of the project. The lesson learned is that good intentions and efforts put into it are not enough. The crucial aspect is weather conditions, which, unfortunately, proved to be adverse for some of the saplings and did not allow them to develop. We found that each of the afforested species had quite a different rate of striking roots. Black poplars, ash-trees and oaks were most adaptive, while alders and willows turned out to be the most capricious.

Hugely aware of how important the role of riparian forests for biodiversity is, we from WWF Bulgaria and SFE Asenovgrad put a lot of efforts to maintain the surviving saplings and to restore the forest. Volunteers from various parts of the country, with various professional backgrounds supported us. With their help, we trenched the earth round the saplings, cut out the shoots and removed the invasive species.

In 2018 the saplings that had not survived were replenished. Based on the lessons learnt, we used species with a higher rate of striking roots and, instead of spring-time, autumn afforestation was undertaken.

We hope the efforts of everyone this time would be crowned with success.

© WWF

One of the stages of the riparian forests restoration is the care of saplings – removing weeds, loosening the soil and watering

THE SAARLAND METHOD

One of the innovative elements of the Riparian Forests project was application of the Saarland method.

What is it essentially?

The Saarland concept is designed to improve the resilience of forests with even-sized trees whose roots and crowns interfere with each other. Under potential climate variations, 'artificial forests' are much less resilient and in the case of severe wind every tree with a small crown and poorly developed roots would fall and take along the next one as per the domino principle.

Around the 'tree of the future' (a typical native species), several 'rival trees' (unwanted or alien aggressive and invasive species) that hamper its development are marked down. These are removed by environmentally sound methods: employing manual devices that do not make noise during the birds nesting season.

We applied elements of the Saarland method on an area of 223 decares in SCI Marten-Ryahovo and an area of 18 decares in SCI Maritza River near Parvomay.

Removal of bark in the form of a ring.

Breaking of the top offshoots of rival trees.

This suspends the juices that feed the tree and within a few years it dries and dies. The deadwood is left in place.

The method also includes breaking of the top offshoots of rival trees.

The result is the same – after a while these trees will dry out and die to allow native species take their place.

Applying the Saarland method has several advantages:

- It is closer to nature as compared to the removal of invasive species related with felling and plowing;
- It is more environmentally friendly to local biodiversity because it does not cause stress on animal species and allows those who have adapted to the foreign plant species to find other suitable trees;
- In addition, the application of the method leads to a smooth enhancement of the structure of plantations and a gradual removal of exotic species. This creates better conditions for growth and development of species typical for the habitat. This activity will provide us with valuable information on the applicability of the Saarland method for the purposes of restoring habitat type 91E0.

It is still too early to conclude on the effect of applying the Saarland method, but one of the inferences drawn is that it will have to be repeatedly applied for a period of 5 years.

WE INVOLVED COMMUNITIES

We started this narrative about the riparian forests stating that many people are not aware of many things...

Therefore, one of the tasks of our initiative was to present as much information as possible to as many people as possible.

We launched a riparian forests exhibition – with impressive photos and information. Within four years, we organized eight expositions, giving the opportunity to over 5,000 persons to see the exhibition.

© WWF

We organized large-scale events related to the River and Forest Day.

On April 1, 2016 WWF, together with the State Forestry Enterprise of Asenovgrad, teachers and fifth-graders from Hristo Botev Primary School, Popovitsa, launched the celebration of the traditional for Bulgaria week of the forest. Together we visited the area of Gushterova Odaya, where the newly planted forest was already growing up.

Besides field work, we included exciting games for the children aiming to enrich their knowledge about the riparian forests, the interrelation between forest and river, the typical inhabitants of riparian forests, and the need for their conservation.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On the 2nd of June next year, a group of volunteers went with kayaks in the Danube with an important mission: to clean the shores of Aleko Island near Rousse. The Aleko Island is within SCI Marten-Ryahovo, where riparian forests are being restored by the Regional Forest Directorate of Rousse together with WWF. The Prista Tourist Society was also a partner to the event. With joint efforts we managed to fill up as many as 11 bags of waste.


© WWF


© WWF

On next day, we celebrated the River and Forest Day with nearly 50 children from the Organization of Bulgarian Scouts who cleaned the area of Prista hut near Rousse.

'*We have to keep the forest clean to have plants. If there are no plants, there is no life*', shared his opinion the scout Slav. Krassimir Kirov from the Eco Museum in Rousse told the scouts about the biodiversity in the area – what animals occur there, which of them are threatened, how the water gets naturally purified, and other curious things.

We drew in volunteers

Within the project timeframe, about 90 volunteers wholeheartedly participated in the project activities. There were pupils, IT experts, biologists, NGO activists. People from other countries (Ukraine and the USA) also joined in, with the age of enthusiasts ranging from 9 to 60. Several business companies also contributed to the development of forests. With their help we carried out the afforestation and after-care activities, as well as the clearing of forest areas.

Involving volunteers was one of the ways for us to see that what we are doing is important to people and that they are clearly aware of the benefits of it.

We informed a wide range of citizens

We published a **brochure about the riparian forests**. It describes in plain language the benefits, the current state and the possibilities for conservation of the forests.

We distributed the run of 500 copies to a wide range of people and organizations. The depletion of printouts proved that citizens are increasingly interested in the riches of nature we have in hand.

© WWF

We restored tourist and information infrastructure

We restored a gazebo in the Oxbow ('Murtvitzata') protected area (SCI Maritza River) near the village of Popovitza and turned it into an information recess for the riparian forests. Our main purpose was the gazebo to show the diversity of plant and animal species along the Maritsa River.

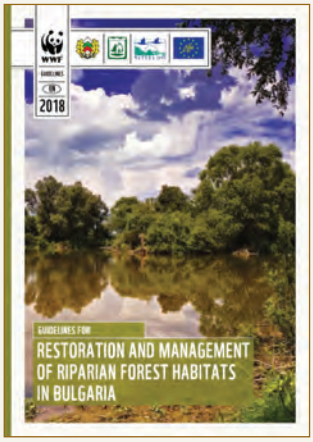
Behind its walls people will be able to get acquainted with currently occurring or already extinct species from the region of Maritza River. Among those is the emblematic for the area of the Oxbow white water lily.

WE WORKED TO ENHANCE CAPACITY

Restoration of natural riparian forests is an extremely important process for both people and the environment.

In this relation, providing information to citizens, involving volunteers, celebrating target events and building infrastructure are definitely essential.

However, it is equally important to enhance the capacity – both of individual experts and of the institutions whose task is to ensure the conservation of forests and rivers.



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We made a step in this direction by issuing **Guidelines for restoration and management of riparian habitats.** More than 15 experts on the subject joined in the drafting of the Guidelines, providing useful information and practical advices on the restoration and management of these fragile habitats.

The objectives of the Guidelines are quite specific: to raise the awareness of relevant owners and managers with regard to the special status and particularities of these areas and to assist the experts in the future efforts for restoration and management of riparian habitats. The document is published on the web-sites of WWF Bulgaria, the Executive Forest Agency, RFD Plovdiv and RFD Rousse.

To enhance capacity and to exchange experience, WWF experts together with their project partners from the RFD Rousse, RFD Plovdiv and the Executive Forest Agency spent two days in the Danube-Drava National Park in 2016. The participants exchanged experience on the restoration of riparian forests with their colleagues from the National Park, the Hungarian forest management organization, and the Forest Programme coordinator of WWF Hungary.

The Danube-Drava National Park includes the third most significant fish breeding habitat on the Lower Danube (after the Danube Delta and Kopački Rit). It also covers the Europe's largest continuous floodplain forest area, which determines its high nature value. The waters abundant in fish and the old oaks and white poplars offering nesting places are believed to be the reason for one of the black stork populations of highest density in the world to inhabit the park.

In October 2017, RFD Rousse and WWF Bulgaria in turn hosted a meeting for exchange of experience with Hungarian colleagues working under the LIFE13 INF/HU/001163 Project 'Improved communication, cooperation and capacity building for preserving biodiversity in Natura 2000 Forests'. The objective of the Hungarian project is to identify, develop and implement a set of tools to support the development of skills, active communication and cooperation among key institutions in the management and conservation of forests in Natura 2000 network.

© WWF

To enhance the capacity of those working in the field of riparian forests, we organized a meeting of all project partners in November 2018. It took place in Plovdiv and its main objective was exchange of experience among the participants, identification of challenges, and drawing up specific recommendations for future joint actions related to restoration and conservation of riparian forests.

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PARTNERSHIP

Such a large-scale initiative could not be successfully implemented unless its partners work in coordination, with enthusiasm and faith in the cause.

Who are the partners?

- Executive Forest Agency – coordinating organisation;
- WWF Bulgaria;
- Regional Forest Directorate – Rousse;
- Regional Forest Directorate – Plovdiv.

Who else took part?

- State Forestry Enterprise – Asenovgrad;
- State Hunting Enterprise 'Danube', Rousse.

Who we collaborated with?

- South-Central State Enterprise;
- North-Central State Enterprise.

The success of the project is due to them all!

'THE OUTMOST ACHIEVEMENT OF THE PROJECT IS THE COOPERATION. VARIOUS PARTIES WOULD SET VARIOUS OBJECTIVES AND PURSUE THESE, BUT THE STRENGTH COMES WHEN MANY PEOPLE JOINT EFFORTS TOWARDS ONE AIM. THE PROJECT IS ALSO AN OPPORTUNITY FOR PEOPLE TO ENHANCE THEIR KNOWLEDGE, DEVELOP THEIR SKILLS AND GAIN SELF-CONFIDENCE. COOPERATION IS INDISPENSABLE....'

Tzenko Tzenov,
Project Director, Executive Forest Agency

RESULTS (THE PROJECT IN FIGURES)

Forests restored	481 decares
Locations	Merich orman (the Maritza River) – 128 decares, Marten-Ryahovo (the Danube River) – 98 decares, Gushterova odaya (the Maritza River) – 14 decares
Locations Saarland Method	SFE Parvomay – 223 decares, SHE Danube, Rousse – 18 decares
Species used	11
Institutions involved	9
Volunteers	more than 50
Children participating in the events	80
Publications under the project	2
Exhibition	1, exposed 8 times and viewed by about 5,000 persons
Exchange of experience	Hungary and Bulgaria
Analysis of Natura 2000 sites connectivity	1

CONCLUSION

Imagine there are riparian forests along all the rivers!

What opportunities would that merely provide for the nature, climate and the people! It has been like that once. It is not impossible to be so today.

The Riparian Forests Project is just one small step towards this.

To work for this part of nature which has been overlooked, underestimated and deteriorated is not only a serious challenge for all of us but also a new beginning.

After all the project outputs achieved, we are hopeful that the attention of institutions and experts, and above all of the citizens will be drawn to this issue. And that this attention will be sustainable and will lead to solid responsiveness for the restoration and conservation of riparian forests.

Let us keep this natural wealth the way we want our children to see it!

WWF and the riparian forests

12 years

Since its foundation in Bulgaria, WWF has been actively working for the preservation of the riparian forests

1961

WWF is founded in 1961

481 decares

of riparian forests have been restored in two protected areas – Maritsa River and Marten-Ryahovo

5

There are 5 types of riparian forests in Natura 2000 areas in Bulgaira

WWF

Why we are here?

To stop the degradation of the planet's environment and to build a future in which humans live in harmony with nature.

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