



Layman's Report on the LIFE Nature Programme

# 7 years Isar river experience

## 7 exciting tours



Flusserlebnis Isar

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# Preface

Dear readers,

the name of the LIFE Nature project „River Experience Isar“ speaks for itself! Since the project started in 2015, we have primarily pursued two goals: to make the river and floodplain landscape of the Isar in the district of Dingolfing-Landau more natural again, but at the same time to win over and inspire people for it.

This idea of a river experience was ultimately also our guiding principle for this report. It describes which measures have been implemented within the framework of the project and which animal and plant species benefit significantly from them.

The core of the report, however, are suggestions for seven adventure tours that will take you to interesting points in the project area where we have carried out various ecological measures.

A big Thank you to everyone who has contributed to the success of this ambitious project over the past seven years!

I hope you enjoy the lecture of this report and of course also all the wonderful „river experiences“ on our new Isar.



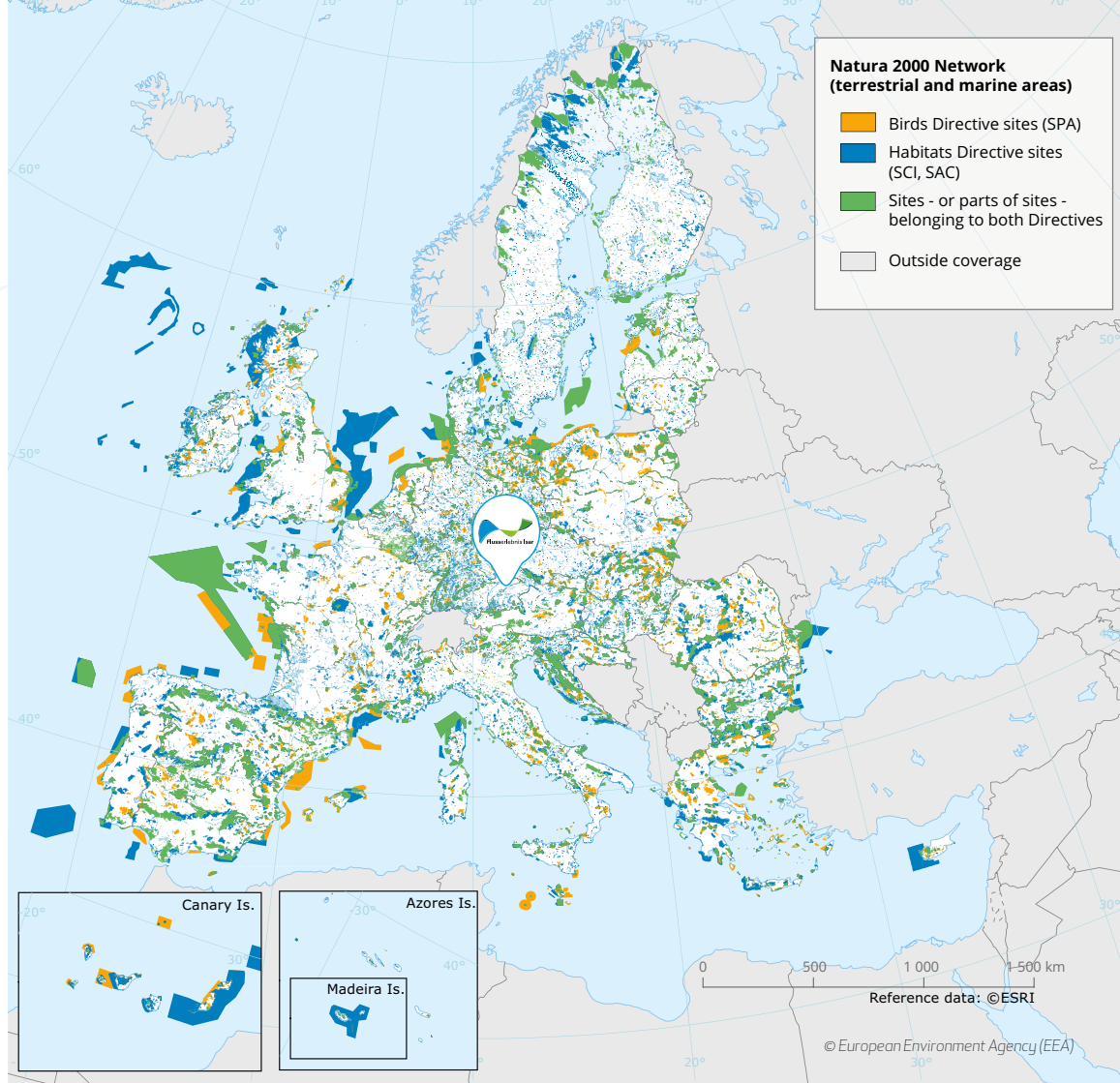
**Rainer Haselbeck**  
District President

## From the Arctic Ocean to the Azores

### The European network of protected areas NATURA 2000

Natura 2000 is a Europe-wide network of protected areas, defined by the Habitats Directive and the Birds Directive which serves to preserve our European natural heritage. This heritage includes rare and endangered animals, plants and habitats. The LIFE Nature Project River Experience Isar is a component of the large Natura 2000 network of protected areas.





The map shows the Natura 2000 network (terrestrial and marine areas).

Areas under the Birds Directive are marked in orange; areas under the Habitats Directive are marked in blue. The green marking shows (partial) areas that fall under both directives.

## From eagle to toothed whale

With „LIFE“, the European Union funds high-profile nature conservation projects and thus protects threatened animal and plant species

In order to preserve our rich European natural heritage, there are LIFE Nature projects: high-profile nature conservation projects funded by the European Union. They are specifically designed to conserve and promote the Habitats Directive and bird sanctuaries and to preserve the animal and plant species found there. Examples of LIFE projects are the successful rescue of the European Bison as well as the return of the Crane to the Netherlands.

Parts of the lower Isar valley are also part of the European Natura 2000 network as Habitats Directive sites and thus enjoy special protection. It is precisely for these sections that the LIFE Nature Project River Experience Isar was launched. It is the largest of the 27 Bavarian LIFE

Nature projects to date. The aim of the project was to preserve and promote the Isar and the accompanying floodplain with its rare habitats as well as its animal and plant species. These include river fish species that have become rare, such as the Danube Roach, the Danube Ruffe or the Asp. Especially the fish species typical for the Isar have benefited greatly from the project.

Crane ►



European Bison ►

Presentation of the LIFE Nature project  
“River Experience Isar” in Brussels ►►



**EXAMPLE**  
*Restoration near Landau*

- Removed rock protection - Alternative Gravel and sand banks*
- New flat-angled banks - shallow water as spawning ground*
- Narrowed river - more dynamic*

LIFE14 Kick-off Meeting, 02.10.2015, Brussels ANRW UK, Department Wasser- und Wirtschaftszentrum Landau

A woman in a bright blue long-sleeved shirt and dark skirt stands on the left side of the stage, holding a microphone and addressing the audience.

At the front of the room, a long wooden table serves as a panel desk. Three people are seated behind it: a woman in a dark jacket on the left, a man in a grey suit in the center, and another woman on the right. A Dell monitor and a water bottle are on the table. A man in a dark suit stands to the right of the table, also speaking into a microphone.

The audience, consisting of men and women of various ages, is seated in rows of black chairs, facing the stage. Some are looking towards the speaker, while others are looking towards the panelists. The room has large floor-to-ceiling windows on the right side, providing a view of a cityscape under a clear sky.



## How it all began

### The Isar and the LIFE Nature Project River Experience Isar

Originally, the Isar was a wild and untamed river. The widely branched course, the extensive gravel banks and shores used to display the untamed power of the Alpine river.

However, the human has gradually robbed the Isar of its natural temperament in favour of land and energy production and to protect the surroundings from floods: since the beginning of the 19th century, the course of the river has been straightened and large parts of the floodplain have been converted into meadows and fields or have been built on. Gradually, eight dams resp. supporting reservoirs were built, turning the lower Isar into a chain of reservoirs. The formerly typical gravel banks and islands, tributaries, riparian breaks and floodplain waters have disappeared. Many animal and plant species have become rare and their continued

existence is threatened. The river is no longer the lifeline, but a foreign body in the landscape.

With the EU-funded LIFE Nature project „River Experience Isar“, the Landshut Water Management Authority and the Government of Lower Bavaria as the higher nature conservation authority - together with numerous partners and supporters from the region - have restored the Isar and its floodplains to a more natural state. Especially the extensive river engineering measures (renaturation of the riverbanks in Loiching, Dingolfing and Landau), the creation and maintenance of riparian forests and floodplains, as well as the seeding of species-rich meadows and rough grasslands have made a valuable contribution to the preservation of the European Natura 2000 network and the implementation of the EU Water Framework Directive.

◀ *Bank shoring: Stonewashed bank before the start of the measure*





▲ 1820: The untamed Isar near Landau  
(original photograph)




▲ 2000: Canalised river between  
barrages




▲ 2020: Scope regained for the Isar  
through LIFE


# Overview LIFE Nature Project

Complementary to the LIFE Nature project: Passage project

 Project sponsor Uniper Kraftwerke GmbH

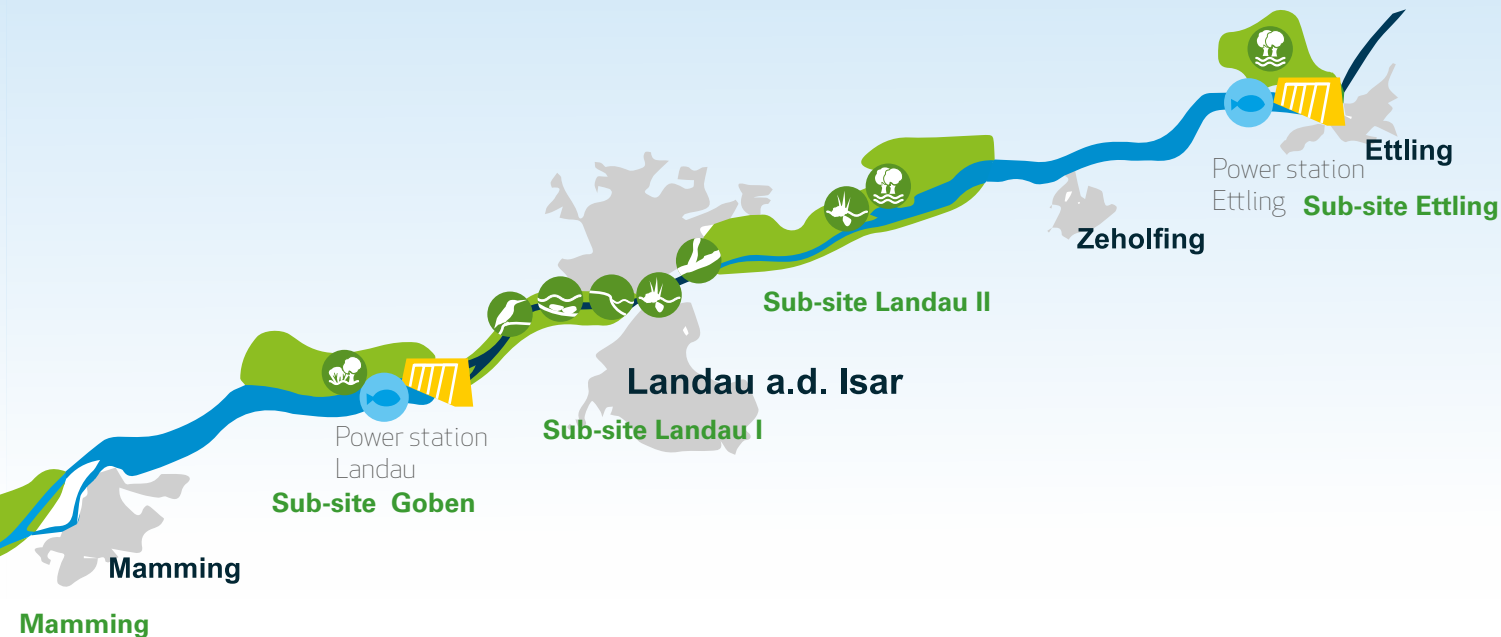
 flowing stream

 river impoundment

 Dam

 Project sponsor Uniper Kraftwerke GmbH & Water Authority Landshut





## Measures in the LIFE Nature project



Creation of structurally rich embankments



Development of gravel banks and shallow water zones



Restoration of unobstructed riverbanks



Creation of near-natural bank and riverbed structures



Ecological upgrading of a seepage trench



Near-natural design of an existing floodplain channel



Creation of a new branch of the Isar



New creation and optimisation of floodplain waters

## LIFE Nature Project River Experience Isar, LIFE 14 NAT/DE/000278.

### Figures, data and facts



Project area: **Isar valley** in the Lower Bavarian district of Dingolfing-Landau; **7** stepping stones on the Isar: Loiching, Dingolfing, Mamming, Goben, Landau I, Landau II, Ettling with a total area of approx. **699** hectares.

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Project executing agency: Bavarian State Ministry of the Environment and Consumer Protection

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Project partners: District of Dingolfing-Landau, City of Dingolfing, City of Landau a.d. Isar  
Co-financier: Bavarian Nature Conservation Fund.

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Project costs: **6.35** million euros, 60 % funding through the LIFE programme. Budget increased to **8** million euros through additional funding from the Free State of Bavaria

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Project duration: October **2015** to December **2022**

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Project management: **Government of Lower Bavaria as higher nature conservation authority** and **Landshut Water Management Authority**.

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Project objectives: Creation of new habitats, of which **7** habitat types of European importance. Improvement of living conditions for animals, especially for **6** fish species of pan-European interest.

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Main measures

**Creation** of **6.5 ha** of gravel banks and shallow water zones in the Isar on a bank length of **4.3 km** through the addition of **400,000 m<sup>3</sup>** gravel and fine sediment.

**Creation** of a near-natural branch of the Isar with a length of **650 m**

**Creation** and optimisation of **8** floodplain waters with a total area of **5 ha**

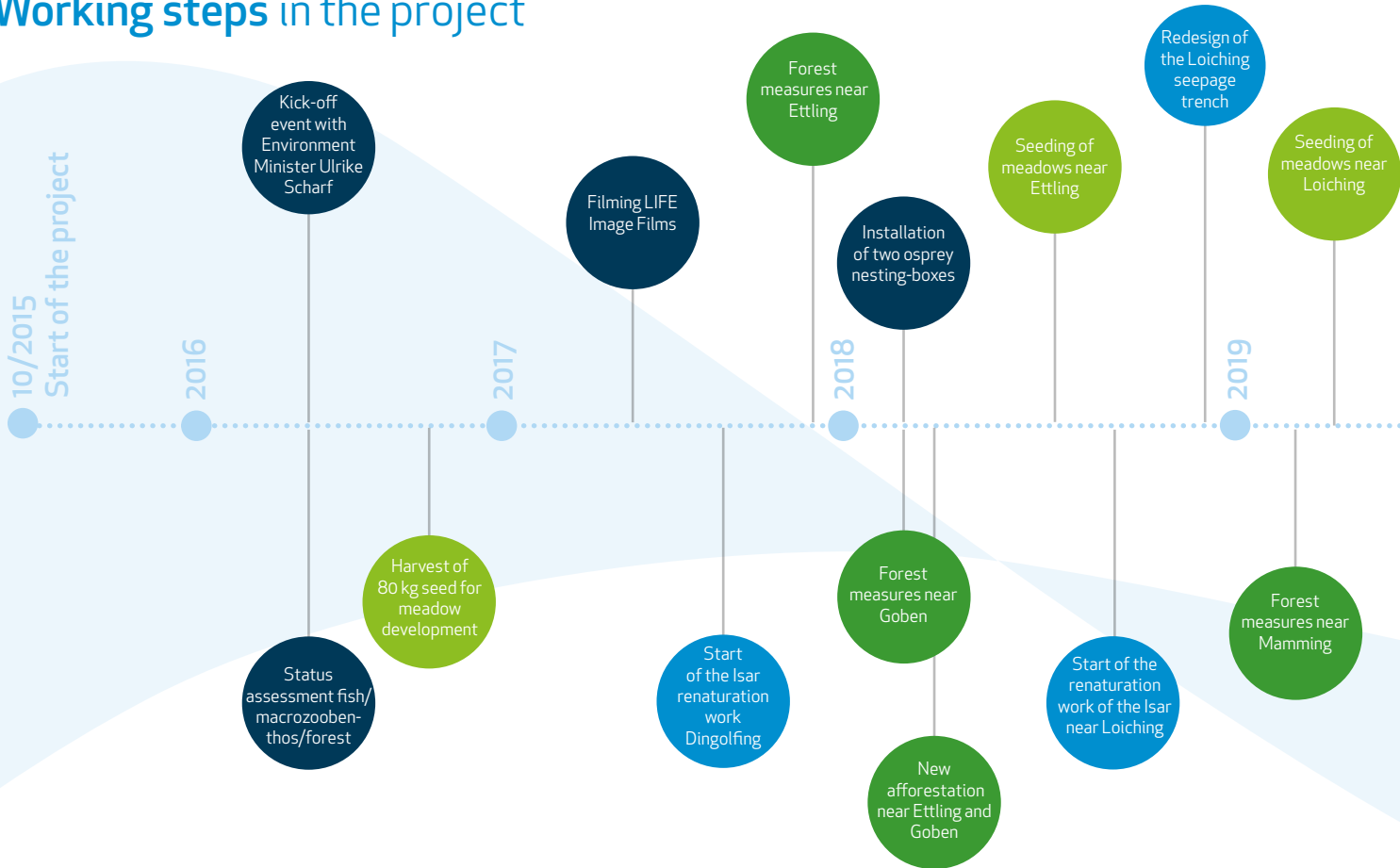
**Optimisation** of **55 ha** of floodplain forest areas and replanting of **5 ha** of floodplain forest

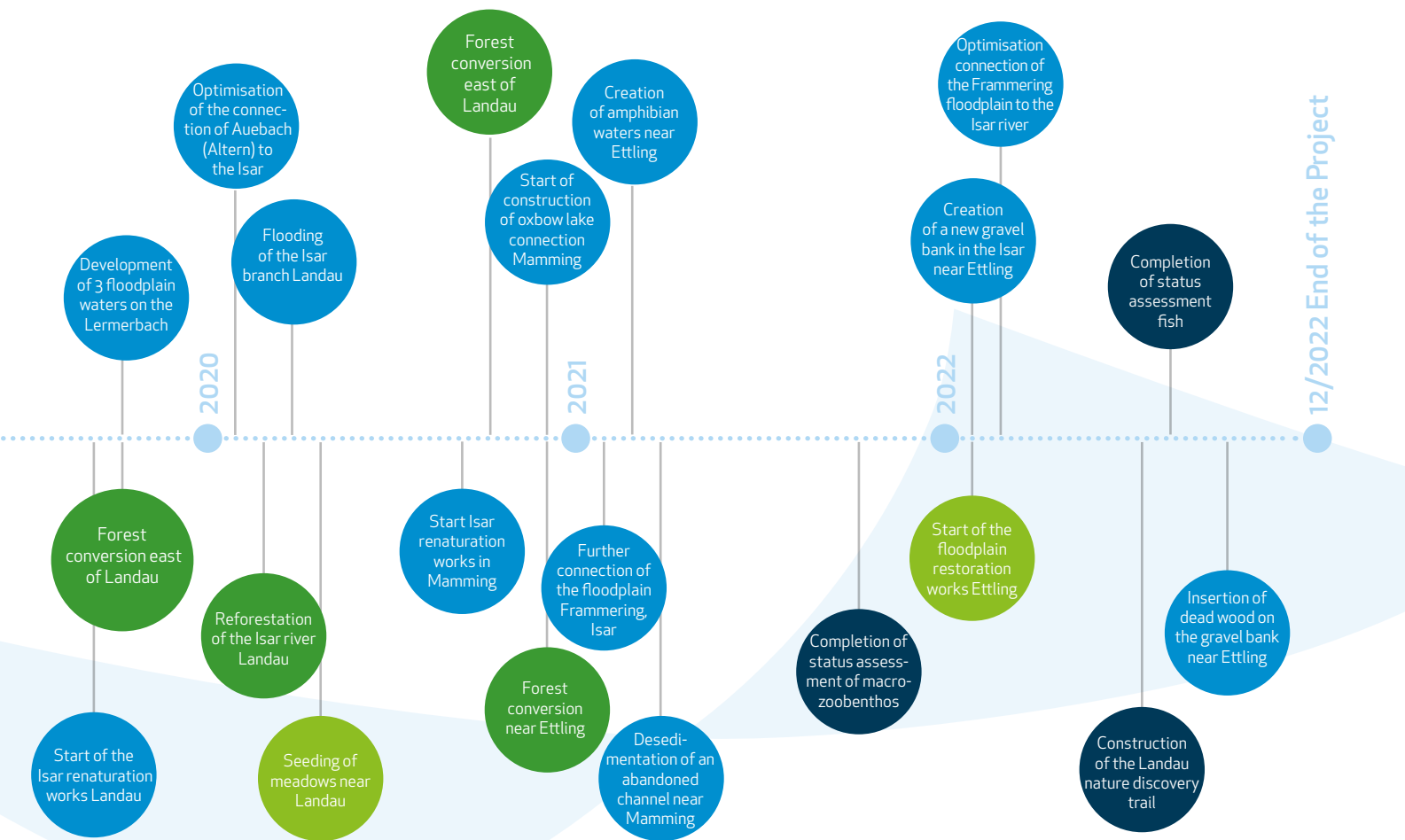
**New planting** of **25,000** trees, maintenance of **98** old pollard willows

**Creation** of **14 ha** of extensive used grasslands

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# Working steps in the project





# Habitat design: Water bodies

## From the canal back to the river

Under the topic “water bodies”, the focus was on the near-natural transformation of riverbanks, i.e. the removal of bank reinforcements, the development of gravel banks and shallow water zones as well as the creation of new, structurally rich riverbanks, including a new river branch. Spawning sites and habitats for juvenile fish were thus created in different water depths and at different flow rates. Before and after the construction work, the fish stocks were counted (electrofishing). In the course of this, the Danube Ruff, which is particularly protected throughout Europe, was detected for the first time in the areas surveyed.

### The measures on the river

- Design, approval and implementation planning for ecological hydraulic engineering measures
- Creation of structurally rich embankments
- Development of gravel banks and shallow water zones
- Restoration of unobstructed riverbanks
- Creation of near-natural bank and riverbed structures
- Creation of a new branch of the Isar
- Selective optimisation measures based on fish monitoring
- Impact monitoring for fish as a protected resource

The natural river includes tributaries: rivulets, pools and side channels. The LIFE Nature project has created new tributaries and improved existing ones.

### The measures on the floodplain waters:

- Ecological upgrading of a seepage ditch
- Near-natural redesign of an existing floodplain channel
- Creation and optimisation of floodplain waters
- Creation of temporary small water bodies, deep adits and flood depressions



*A central place in the river's food web is occupied by the "Common Nase".*

*In the past, large shoals of Common Nase migrated upstream to spawning grounds, strongly flowing gravel banks in the Isar and its tributaries. Common Nase graze the gravel surfaces in swarms as adults and reveal themselves by briefly flashing their silvery body sides.*

*The survey in autumn 2016 brought evidence of only a few animals. In Landau, the number of electrofishing catches increased a hundredfold after the renaturation.*

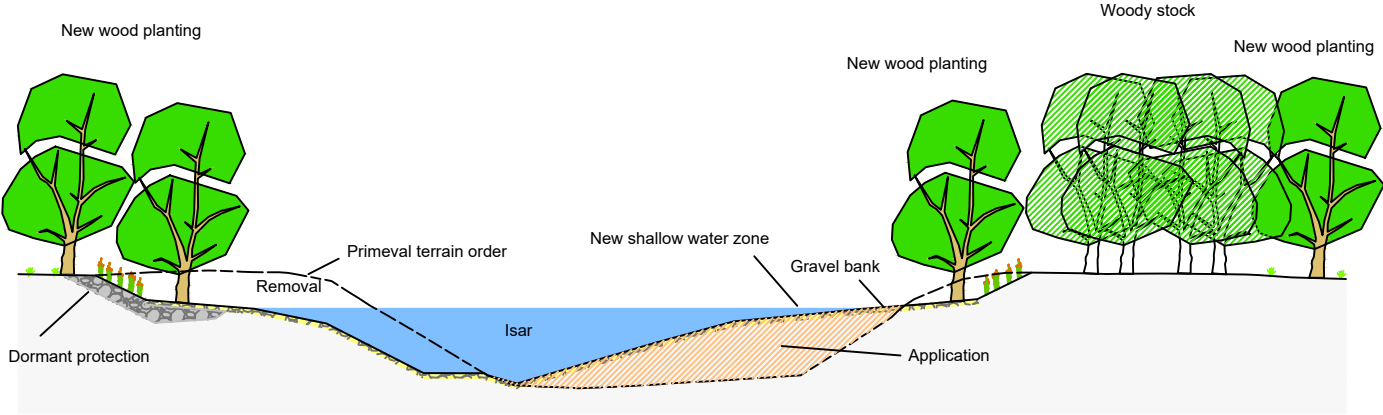




*Movement of 2,000 m<sup>3</sup> soil  
is a logistical challenge for a  
construction company*

*- Roland Wach, IB Schlegel,  
Projekt manager*

# Schematic representation of material relocation within the construction site



# Habitat design: Forest

## The Bitter Willow is back

In the LIFE Nature project, the softwood floodplain forests were restored to a more natural state by promoting native tree species and by planting new ones. By redesigning and flattening the banks of the Isar in sections, they are flooded and form new sites for a regrowing generation of alluvial forests. This is how Bitter Willow riparian woodlands were created - habitats that are of European interest. In order to restore the hardwood floodplain forests along the Isar as habitats for rare animal and plant species, spruce stands, treeless scrub forests and dying ash stands were transformed into semi-natural hardwood floodplains by planting native tree species such as oaks, elms and linden trees. Many old pollard willows were also rehabilitated.

### The measures in the floodplain forest

- Implementation planning for the nature conservation optimization of forest habitats
- Purchase of forestry land
- Acquisition of rights of use to secure biotope trees
- Conversion of dense riparian bushes into near-natural riparian forests
- Development and optimisation of site-typical hardwood and softwood forests
- Creation of new hardwood and softwood forests
- Rehabilitation of pollard willows
- Neophyte control
- Artificial nesting aids



◀ Forestry mulcher  
during clearing

▶ The White Elm is a tree species that made its way to us from the Baltic region after the last ice age. It feels most at home on the banks of water bodies and in hardwood meadows, if these are only periodically flooded. In other words, it prefers moist soils and can tolerate flooding for several weeks. It is much less susceptible to Dutch elm disease, the disease that has killed millions of its kind in Europe.

The blossom of the White Elm appears in early spring before the leaves emerge. The flowers themselves are inconspicuous, but sit in clusters on flower stalks up to four centimetres long that flutter conspicuously in the wind.

◀ Small water bodies  
in the floodplain forest  
in front of newly  
planted White Elms



# Habitat design Meadows

## Colourful habitat of grasshoppers

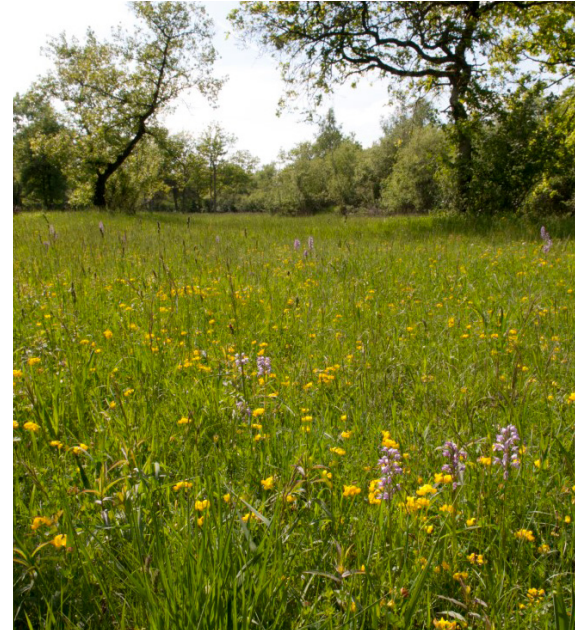
There are traditional meadows and pastures in the floodplain. Some meadows in the river section of Goben are a blooming example (see picture on the right below). Extensively used, species-rich meadows have unfortunately become very rare and are therefore specially protected and promoted by the EU as a habitat type. The LIFE Nature project has made it possible to establish such high quality nature conservation meadows on former arable land in the Isar floodplains. The meadows have to be maintained regularly even after the end of the project. They are mown gently to give also small animals such as grasshoppers a chance to survive.

### The measures for meadows

- Seed production of lean lowland meadows
- Purchase of agricultural land
- Development of calcareous dry grasslands
- Development of lean lowland meadows
- Floristic enhancement in the grassland area
- Success control

▲ *Harvested threshings from species-rich meadows*

► *Flower-rich lowland meadow in the Goben river section*



► *The Large Gold Grasshopper needs tall grass, as it finds food there and reproduces on tall blades of grass. From the end of June, the females are attracted by "singing" for minutes. Thus, late mowing of the meadows is important for this species.*



# Experience nature – but the right way!

## Harmonious coexistence of man and nature

Through the LIFE Nature project, the Isar, previously channelled, is accessible again. Humans and nature can largely harmonise on the river. A few rules can ensure coexistence:

1. Back to nature - with your own power. Park your car in front of the barriers and in such a way that it does not obstruct those who need to pass through. There are large car parks in Landau and Dingolfing.  
dangerous. Pay attention to the water level, weather, season and location so that your stay outdoors is a pleasure.
2. You are not alone - there are people or animals somewhere that you should not disturb unnecessarily. Act accordingly.
3. The Isar is a wild river. Whirlpools, stones, mosquitoes, streptococci: some are annoying, some are interest you - but they might interest others. In any case, their destruction interests the public prosecutor.
4. Rubbish belongs in a bin – surely, you have one at home.
5. Game is put in mortal danger by any uncontrolled dog.
6. The age of the explorers is over - leave the remote corners of the Isar floodplain to the shy creatures.
7. Information boards do not have to
8. Respect the prohibition to enter for your safety (maintenance work) or for the safety of nature (birds nests).



*This is a very emotional moment: for the first time in decades, people are coming back to the river.*

*– Hubert Schacht,  
Site Manager, Water Management  
Authority Landshut*



## INTERESTING FACTS

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### The rapid river

#### Experiences along the wild Isar

Some linguists have translated the ancient river name Isar into German as “the tearing one”. Whether it is to be interpreted so luridly or simply as “river” is open to question. In the recent past, it was no longer possible to get acquainted with the river, which had been squeezed between steep embankments. When the excavators for the LIFE Nature project removed the stones from the banks, one could once again step to the river, which had been inaccessible for decades. Many did, as it is also comfortable to wade in the shallow water of the new gravel banks.

But the river, the raging river, had yet to be reacquainted. Shortly after the completion of the tributary near Landau, the press reported on a large-scale rescue operation. The reason: in fine weather but high water levels, a father had put his child on a standup paddle board to row down the side arm with him. They got into

turbulence and fell into the water. The father was able to save himself by swimming. The child floated away. Its first rescuer was one of the trees that had been placed in the Isar to improve the biotope: The child got stuck on the tree. The water rescue team brought the child safely from there to the bank. No one was seriously injured and the rescue helicopter could fly away.

It is not forbidden to go into the water on the Isar, but it is not a bathing water. Anyone who nevertheless bathes in the wild river must reckon with its dangers - strong currents, turbulence, irregular bottom and more - especially when the water level is high.

► Flooding in the Isar  
construction site near  
Landau, February 2020



# Tours in the project area



Reptile trail  
page 30

River section  
Loiching

Nieder-  
viehbach

Loiching

Dingolfing

River section  
Dingolfing

Relaxing at the Isar  
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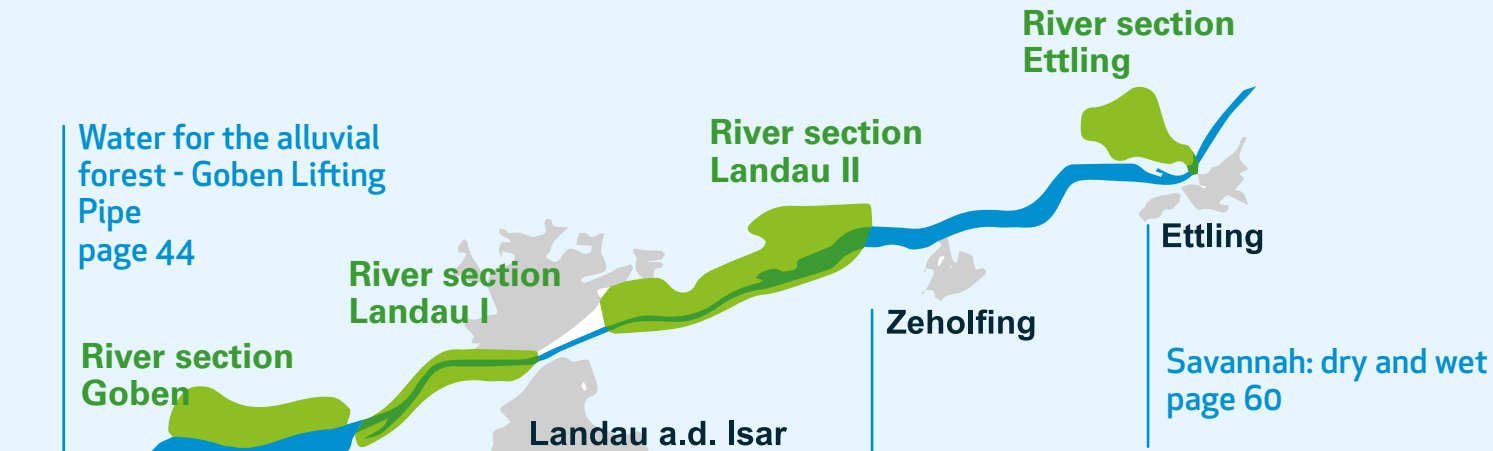
Around forest  
and river land  
page 40



River section  
Mamming

Gottfrieding





# Tour!

The male Sand Lizards in particular are very striking with their green bellies. The flattening of the banks near Loiching not only helps the Isar fish, but also benefits (among others) the lizards on land. Why that is the case and what the way of life of the Sand Lizards is like will be explained on the next page and best experienced on your own in Loiching.

Deadwood pile



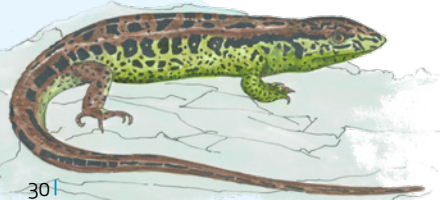
Direction  
Wörth a.d. Isar

Gummering barrage Isar

Flat bank

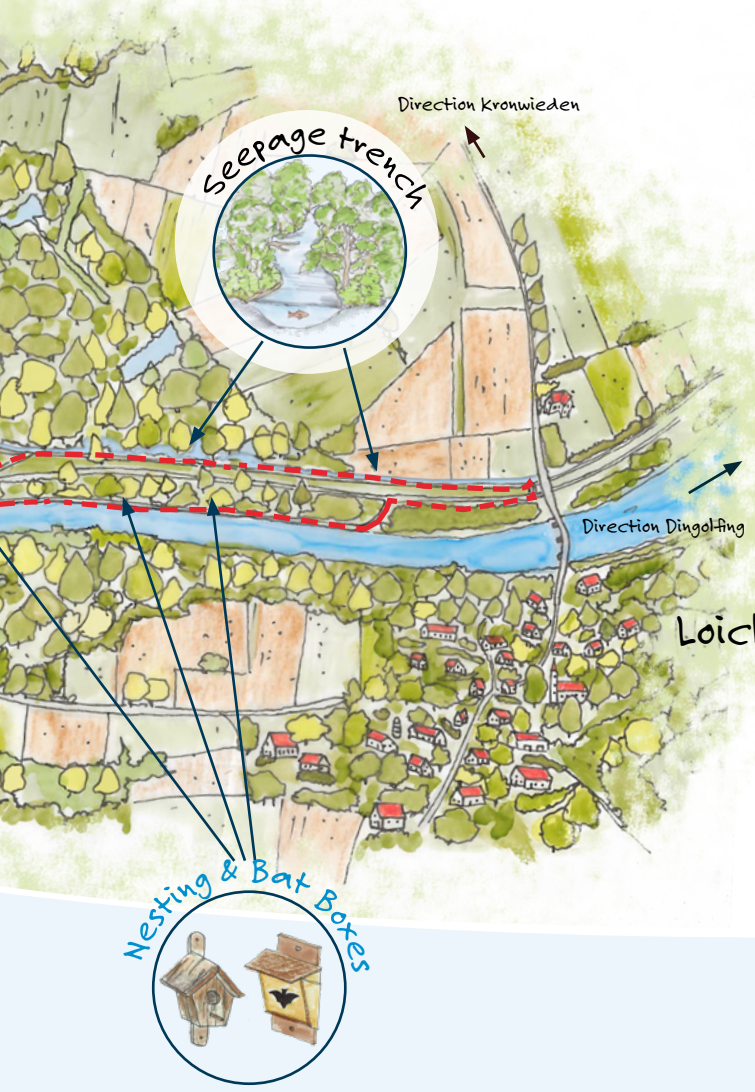


Info board



# River Section Loiching Reptile trail

Reptiles have been on earth much longer than humans - in the time of the dinosaurs, most of them looked exactly like they do today! On the sunny, shallow gravel bank, the chances of spotting Common or Sand Lizards are good. In the seepage trench along the path, Slow Worms feel very much at home. A little discovery tour will certainly be worthwhile! Part of the circular trail is a trampling path. However, if you are travelling with a wheelchair or Baby stroller, you can easily bypass this part.



Landmark  
St. Peter und Paul



## The Reptile Trail

The path first leads along the seepage trench, which was renaturalised in the LIFE Nature project. Instead of the former dead-straight course, which offered little shelter for fish and other animal species, deep and shallow areas now alternate. In addition, rootstocks and other structures ensure that fish find a place of refuge during floods or in winter.

### Dinosaur in miniature

The path continues to a flattened section of the shore. On warm, sunny days, the chances of catching a glimpse of special fellow inhabitants are good: Sand Lizards live here. The males sparkle emerald green on their underside and are thus

unmistakable. The females and young animals are much more inconspicuous with their grey-brown colouring and can easily be confused with Common Lizards.

### Living space for sun worshippers

In contrast to us, lizards are poikilothermal - this means that they do not keep their body temperature constant, but influence it through their behaviour. To get fit for the day, they therefore like to sunbathe. By the way, the piles of stone and deadwood were not deposited by chance, but serve lizards as a place to sunbathe and warm up.

### Space for new nature

Before the Isar was straightened and dyked, it repeatedly changed its course during floods, creating new open sites. This is no longer possible in our densely populated landscape. That is why the previously steep, forested banks of the Isar were flattened, so that the biodiversity is increasing again. While reptiles appreciate the open areas on land, young fish benefit from the shallow gravel areas in the water. They use these areas as nurseries.

The way back to the starting point is via a narrow trail directly along the shore.



## Grass Snake

The Grass Snake likes to live near bodies of water, as it feeds on amphibians such as frogs or toads, among other things. Unlike other snakes, Grass Snakes do not bite. In case of danger, they try to flee or to drive away the attacker by spraying a smelly liquid. If that doesn't help, they pretend to be dead until the danger has passed.



## Asp

The adults of this species prefer strongly flowing sections of larger rivers and streams though they lay their eggs on shallow overflowing gravel banks. The juveniles grow up in calm oxbow lakes. The relative of the Carp, which has become rare due to fragmentation and monotonisation of its habitat among other things, can grow up to 1 m long.

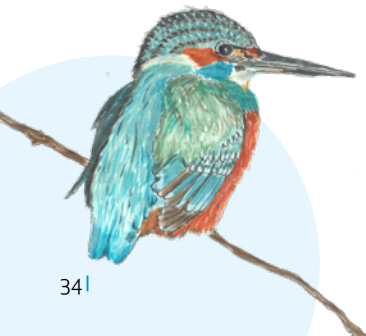
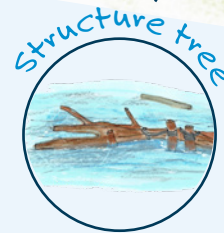


## Worth seeing

The village of Loiching received a gold medal in 2004 as one of the twelve most beautiful villages in Germany. Among other things, the many rural estates with several intact three- and four-sided farmsteads are remarkable. A detour to the parish ensemble in Loiching with the late Romanesque parish church of Saint Peter and Paul, which impresses with its splendid high altar, is also worthwhile. Old, shady lime trees in the parishes courtyard invite you to take a short break.

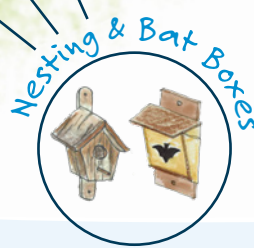
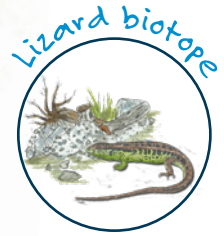
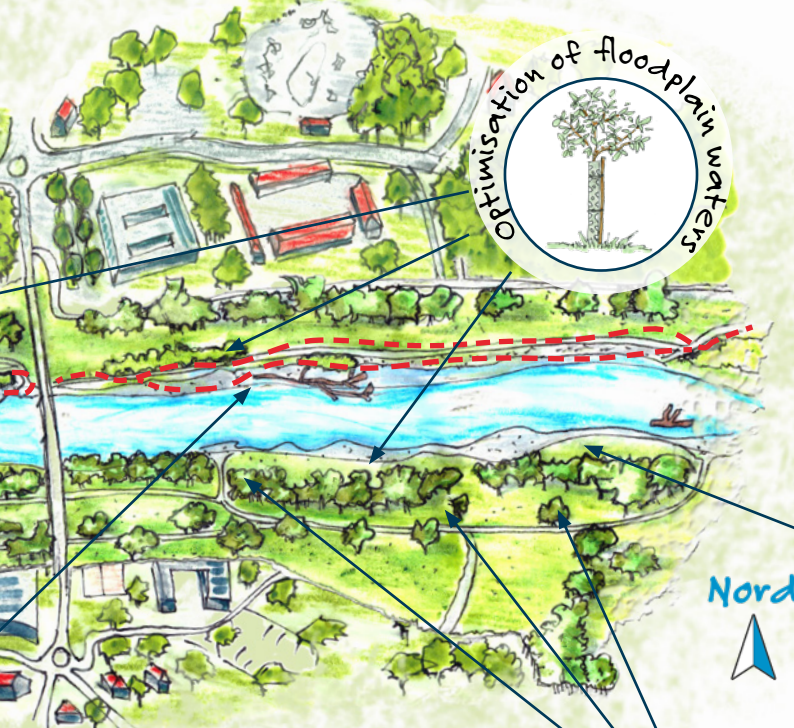
# Tour 2

The turquoise-blue kingfisher feeds on small fish, tadpoles or insects. That is why it is easiest to see it when it flies as fast as an arrow over flowing waters or plunges head-first into the water from overhanging branches to capture its food. Undeveloped, steep banks are particularly important for it, as this is where it creates elongated nesting cavities for its brood. Many new steep banks have been re-established as part of the Isar restoration.



# River Section Dingolfing Relaxing on the Isar

To take this little round tour it is best to take off from the town of Dingolfing. The shallow banks invite you to cool off on hot days and there are also various measures from the LIFE Nature project to discover along the way. The paths are barrier-free, but can also be easily integrated into a bicycle tour along the Isar.



Landmark  
Dingolfing  
High bridge



## Special features in the Dingolfing area

The approximately 2.8 km long footpath can be started near the city centre and leads along the renaturalised section of the Isar river as well as to an information board.

### A piece of nature in the city

Right in the town of Dingolfing, the Isar has been freed from its fortified banks over a length of more than one kilometre. Following the path to the west, you reach the larger one of the two flattened banks. The steep and inaccessible embankments have been replaced by flat gravel banks that invite you to swim and relax. Here, an information board presents interesting facts about the renaturation measures.

### Bank protection further guaranteed

Even during floods, the Isar cannot break away. The river stones from the old bank were reinstalled underground further inland as so-called dormant protection.

### Fish on the move

On the way back while walking directly on the shore, some trees that are anchored in the water catch the eye. They provide current diversity. At the same time, young fish and insect larvae can find hiding places.

In the area after the bridge, the footpath passes another gravel bank. On land,

reptiles benefit from the dry and warm conditions, while in the water, typical Isar fish such as the Common Nase, Barbs or Danube Roach can reproduce in spring. They lay their eggs in the loose gravel substrate, which protects them from predators and provides them with oxygen.

## Danube Roach

The damming of water bodies has made the species rare: Transverse structures hinder migration, and the shallow overflowing, structurally rich spawning grounds have been lost due to bank obstruction.

The measures in the LIFE Nature project will restore spawning sites for the Danube Roach.



## White Willow

In order to survive in the softwood meadows, the White Willow has developed several strategies. In spring, it lets countless willow seeds fly around. The seeds germinate quickly on open, moist ground near the watercourse, broken pieces of branches can form roots and damaged young willows quickly sprout again. In old age, the White Willows with their caves and crevices provide an important habitat for many animal species.



## Worth seeing

In addition to its old town, the town of Dingolfing offers a wide range of cultural and leisure activities. The Dingolfing Museum, which was awarded the Bavarian Museum Prize in 2009, presents the town's history and industrial history - from the original car company "Glas" with the legendary Goggomobil to the latest BMW models.

A detour to the north leads to the "Königsauer Moos", one of the last large lowland moor areas in Bavaria. Provided you behave considerately, you can observe a variety of rare birds here.



## KNOWLEDGE

# At the Copacabana of Dingolfing

## Where are the fish?

The local press reported on the “Copacabana of Dingolfing” at the beginning of the 2018 bathing season. A little more reserved, wrapped up in a question, was the headline two weeks later: “Pack your swimming trunks for the Isar too?” The winter before, the Isar in Dingolfing’s urban area had been freed from its canal-like corset, the first major construction project in the LIFE Nature project. Now it was accessible again and easy to reach via shallow gravel banks. And many people from Dingolfing took the opportunity. It is true that the primary goal of the nature conservation funds used was not to move thousands of tons of gravel just to build a nice bathing beach for the people of Dingolfing. The construction should rather benefit the river fish, which previously had to eke out a miserable existence in the canal-like river, which was also limited at the top and bottom by the barrages and turbines of the river power plants. And the fish have indeed

benefited greatly from the project: While there were not even two fish per metre before the project, their number rose to over six per metre afterwards, i.e. about three times as many. Among them were species of pan-European interest, such as the Asp, Danube Roach or Danube Ruffe.

Consequently, the cooperation between man and nature works: When the fish spawn in shallow water, it is late winter or early spring and thus much too cold for most sun-hungry bathers. The sensitive spawning period therefore proceeds with little disturbance. When high summer temperatures attract people to the river, fish like to retreat to deeper, cooler water anyway. The renaturation of the Isar has achieved both: more space and habitat for nature and a better quality of life for people.



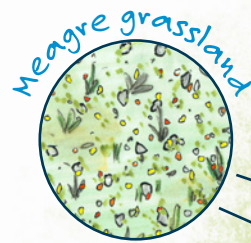
► Juvenile fish on the Isar beach

► A summer day in Dingolfing attracts people to the banks of the Isar River

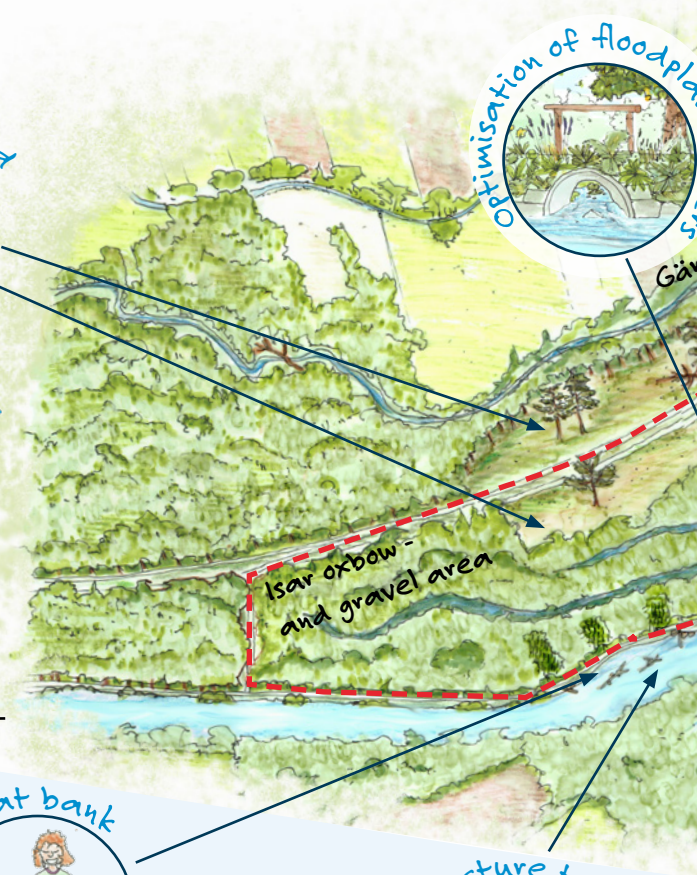


# Tour 3

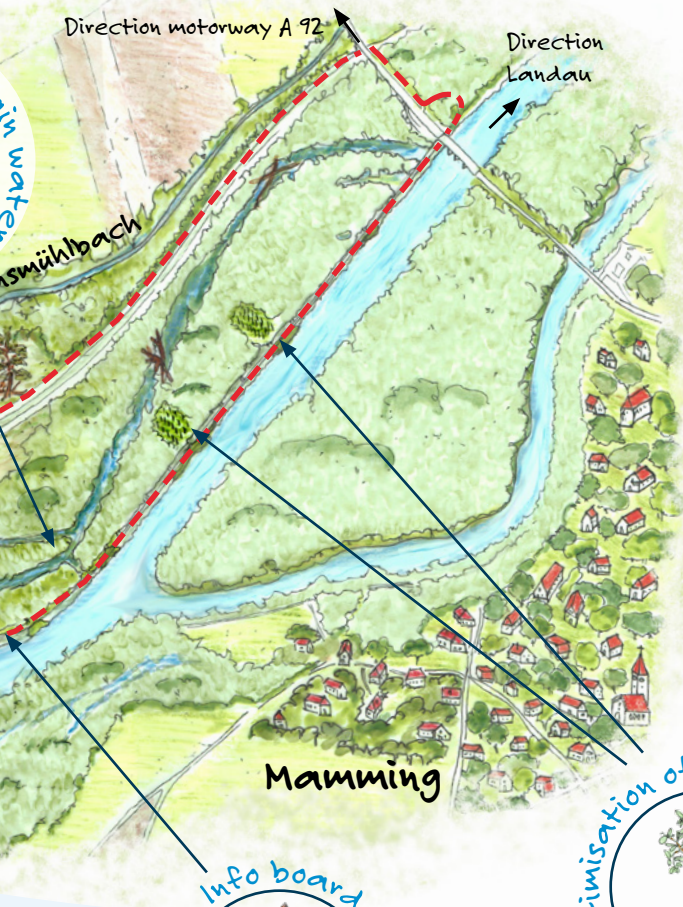
Barbs are sociable fish that like to swarm. They feed on mussels, snails or worms, which they search for at night at the bottom of the water. The proboscis mouth and the four thick barbels, which can already be seen in young fish, help them to do this. To procreate, they need shallow places with a gravel bottom, just like the brown trout, for example. Since such sections have become rare due to river straightening and regulation, they gratefully accept flattened banks as a nursery, as here in Mamming.



Direction  
Dingolfing  
←







# River Section Mamming

## Around forest and river land

This circular trail leads through various river habitats: in addition to flattened, near-natural banks of the Isar, you can gain insights into a floodplain as well as into valuable, sensitive meadow habitats along the Isar dyke. The gravel paths are also accessible with wheelchairs or baby strollers.

In the LIFE project, site-appropriate, near-natural alluvial forests were promoted and partly replanted - this is also an important contribution to the implementation of Natura 2000 in Bavaria.



## Oxbow and gravel area near Mamming

This circular route is very easy to do by foot but also invites you to take a short detour from the Isar cycle path. Special attention is required here, as it is a nature reserve.

### Water for the alluvial forest

The path first leads along the Isar. Between the Isar and the dyke is an oxbow course through which the floodplain forest is connected to the water levels of the Isar. In the LIFE Nature project, an additional connection to the Isar was created. Over time, the oxbow lake would otherwise be silting up. If regularly flooded, softwood riparian forests consisting of willows, Grey Alders or occasional Black Poplars can survive. Due to the straightening of rivers and the

installation of barrages, this habitat has become rare. This is why the European law protects softwood floodplain forests in the Habitats Directive.

### Nursery for Isar fish

The next station is a bank flattening, which was realised in the LIFE Nature project and is explained with an information board. The new shallow overflowing gravel areas are spawning grounds and nursery grounds for typical Isar fish such as the Common Nase. The deadwood in the water provides shelter for insects and small fish. Bats, birds or reptiles such as the Grass Snake or Slow Worm can feed on them.

### Home of rare orchids

On the way back, another treasure chest of the nature reserve can be discovered from the dyke. In the middle of the alluvial forest are dry gravel sites. These were created by the Isar hundreds of years ago from coarse gravel. Cypress Spurge and Viper's Bugloss thrive on the lean, dry sites, as do rare native orchid species. Therefore our urgent request: Stay on the paths so that the tread-sensitive vegetation is not damaged!

## Pyramid Orchid

The orchid impresses with its strong purple-violet colour. It is highly endangered and is to be found only on very special sites. It needs a lot of light and warmth, sufficient dryness and calcareous soils, which can be provided by the rare dry limestone grasslands. Butterflies provide pollination for the plant.



## Oriole

You hardly ever see it, at most you may have the chance of hearing its characteristic song: the fluting "didlio". The Oriole is a typical bird for the alluvial forest on the lower Isar. At the beginning of May, the colourful, blackbird-sized bird returns to the Isar from its African winter quarters and builds its artful nest in crutches of tall trees.



## Worth seeing

The Nepomuk Chapel is located on the southern bank of the Isar near Mamming. It is dedicated to the bridge and water saint John Nepomuk and commemorates the victims of past flood disasters.

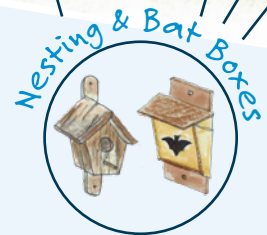
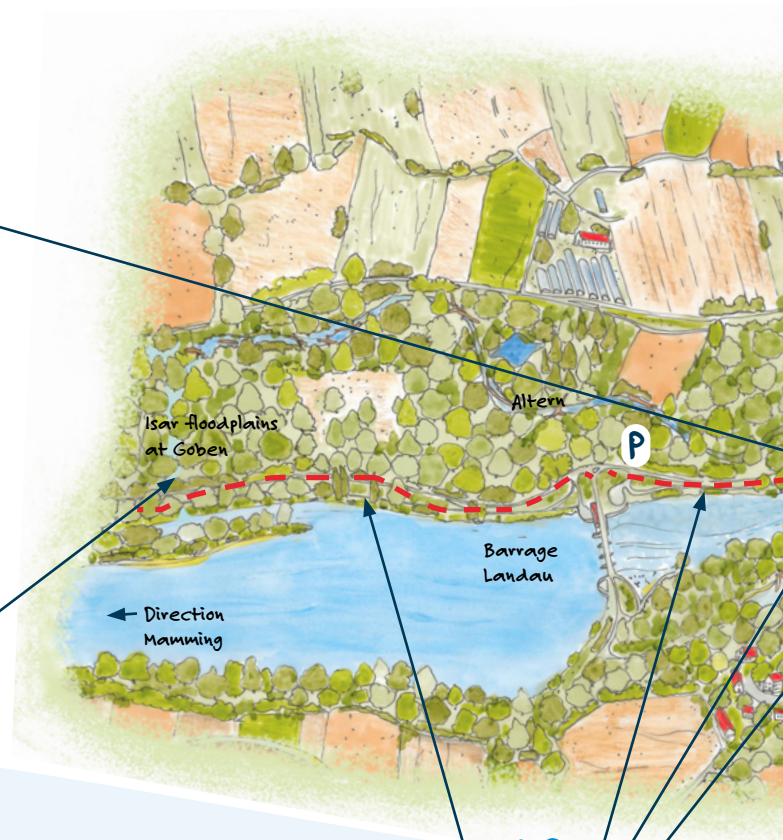
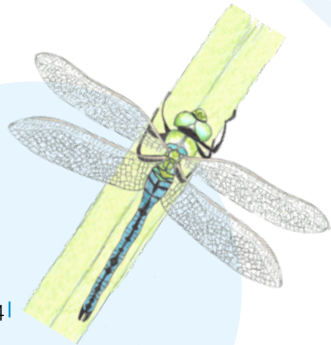
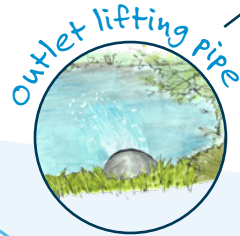
In the town itself, the parish church of St. Margaret is worth a detour.

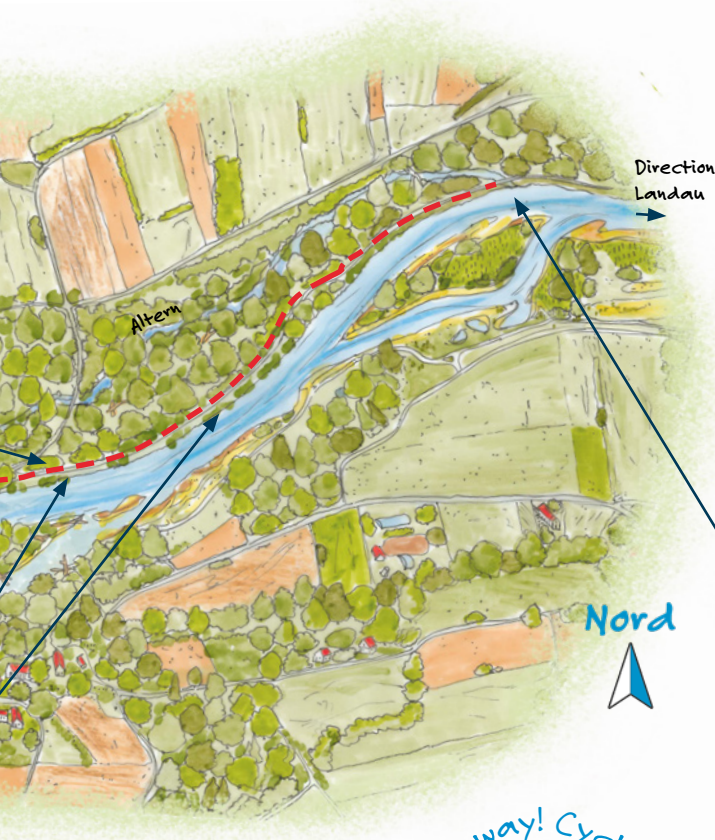
If instead you are looking for a cool refreshment and want to drift along without a current, you will find your Eldorado at a small branch off to the north: the large Mossandl pond offers pebble beaches, shady shore areas and a good infrastructure.

# Tour A



The Emperor Dragonfly is one of the largest dragonflies in Europe. It can be seen from June to August. As a particularly persistent flyer, it spends most of its time in the air to drive intruders away from their territory. Here in the Goben section of the river, it is ensured that the alluvial forest and the floodplain waters are once again supplied with sufficient water. This is also very important for the Emperor Dragonfly, because their females cannot lay their eggs if the water level is too low.





# River Section Goblen

## Water for the floodplain forest - Goblen Lifting pipe

Starting from the car park at the barrage, you can visit the lifting pipe the LIFE Nature Project has made possible to build. It has since been supplying the dyked floodplain forest with water. More ambitious hikers can also take a detour downstream to the estuary of the floodplain and enjoy the view of the newly created Isar side arm on the other bank.



Landmark  
„Growing Rock“



## Water for the floodplain forest - Goben lifting pipe

This short tour runs adjacent to the "Isarauen bei Goben" nature reserve. The car park near the barrage is a suitable starting point, but the combination with a cycle tour is also very recommendable.

### Technical assistance for the floodplain forest

The path leads along the dam crest to an inconspicuous but very effective structure built as part of the LIFE Nature project. The only thing visible is a metal basket in the River. However, this represents the water inlet of a lifting pipe that was laid underground over the dam and thus transports up to 200 litres of Isar water per second down into the floodplain forest. Due to the former regulation of the Isar, the floodplain forest was cut

off from the Isar and was suffering more and more from drought.

### Water on!

The new construction does not need a pump or electricity at all. The principle is the same as changing water in an aquarium: the floodplain forest is deeper than the Isar River, so the pipe only had to suck the water in at the beginning and then it continues to run on its own. A built-in regulator controls the water. This way, the alluvial forest receives the water it needs for sustainable survival in an alternative way.

## Black Poplar

As a pioneer tree species, it is one of the first to grow on washed-up gravel and sand banks of the riverbanks. Not only changes and the loss of natural riverine floodplains have led to this characteristic tree species of the softwood floodplain becoming so rare. Competition from non-native poplar species and hybrids has also led to a decline, so that the Black Poplar is now on the Red List of endangered species.



## Alpine Newt

The Alpine Newt is a specially protected species. In search of spawning grounds, it often covers long distances unprotected from predators. However, the newt can often survive minor attacks, because newts are able to regrow bones, muscles and joints.



## Worth seeing



In Usterling, directly on the Isar, you will find an hydraulic ram, a historic system for pumping water. The name “ram” comes from the characteristic noise produced when the valve opens and closes in a jerky manner: It is reminiscent of the jerks of a ram. Right next to it is the “Growing Rock” (Johannisfels-en), a 5,000-year-old stone furrow that has grown to a height of five metres and a length of 40 metres and is one of Germany’s most important geotopes. Further downstream, in Zulling, the Church “Mariä Empfängnis” (of the Immaculate Conception) awaits you with its “Devil’s Step”: the once rich furnishings of the church prompted an impoverished knight to steal it. In the process, he killed the sacristan. On his escape through the church window, he was struck dead by lightning. His footprints have survived to this day as two bare spots in the ground.

## KNOWLEDGE

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# Getting a little closer to the Osprey

## High-tech in the nature conservation project

Ospreys used to be a familiar sight in the river valleys of the Bavarian foothills of the Alps. After they had disappeared from Bavaria, there are currently a few breeding pairs in the Upper Palatinate again. The eagles roam widely in search of a suitable habitat and food. So the project team is hopeful that they will sooner or later find the new nesting boxes for large birds on the Isar.

### The Osprey likes the overview – humans first have to work to get it

The Osprey family has quite high demands on its home. It must be a place with a view. It also has to be in rather quiet and undisturbed surroundings. Modern aerial surveillance was therefore used in the search for a suitable tree for the nesting aid: with a drone, you can easily recreate the eagle's view and spot a suitable nesting tree.

### It can take a long time before the eagle settles down

But what is going on up there in the nest now? Who is looking over? Has an Osprey already been there for a housing inspection? Thanks to the impatience of the project manager, we now have more clarity about this. Housing surveillance was launched in 2022 with a wildlife camera. The device sends pictures as soon as a feathered animal passes by. So far, however, the circle of visitors interested in moving in has been limited to greylag geese. In consequence, patience remains the order of the day as well as hope that the Osprey will spot the nest during its forays next spring.



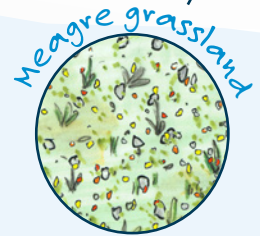
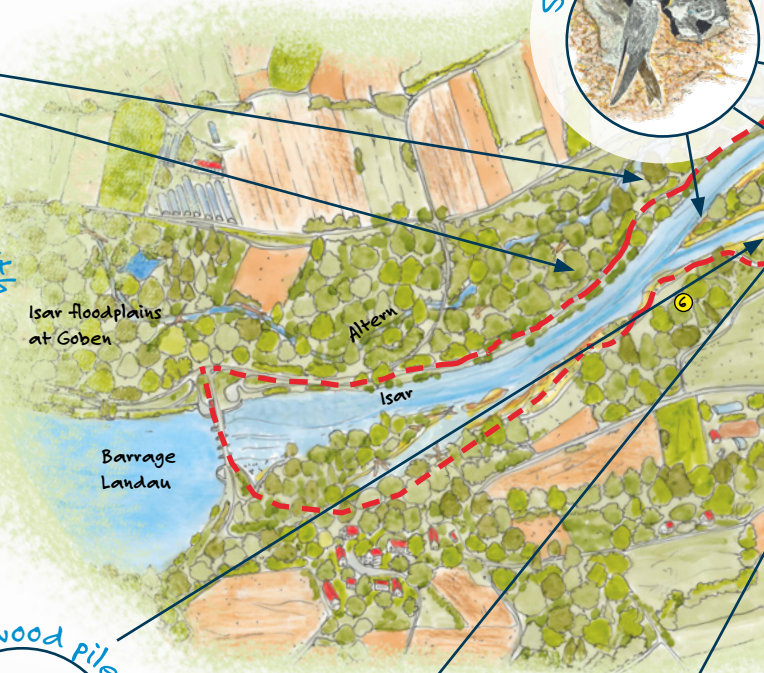
► Working on an Osprey nesting box in spring 2018



# Tour 5



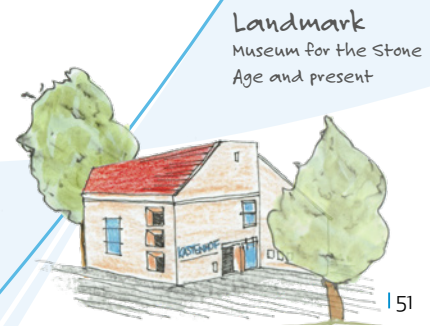
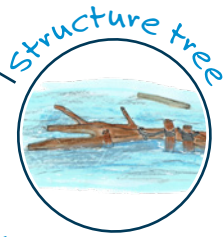
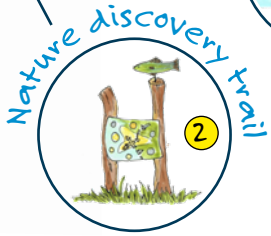
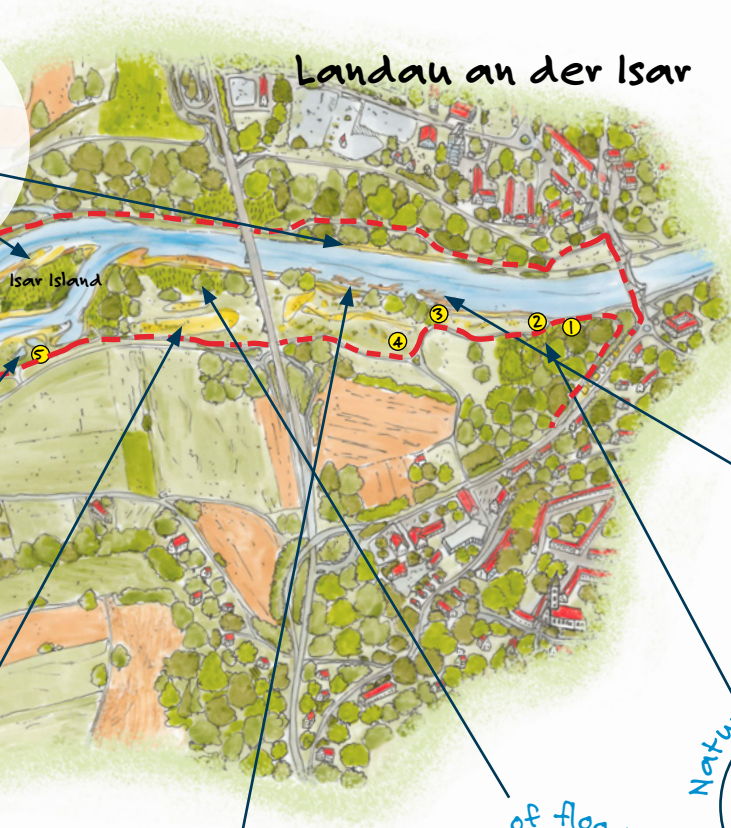
The Sand Martin is the smallest European swallow species and has a slightly forked tail. To build their nest tubes, Sand Martins need loamy-sandy steep banks or brims. In the district of Dingolfing-Landau, most breeding colonies of Sand Martins are located in substitute habitats such as construction pits or large piles of earth. With the renaturation of the Isar and the new side arm, a flock of Sand Martins has now been able to recolonise their natural habitat.



## Landau an der Isar

# River Section Landau I Island landscape

This circular trail is one of the highlights of the LIFE Nature project River Experience Isar, as it combines the two main aspects: on the one hand, you can see the large river engineering measures that give the Isar space again; on the other hand, the experience value for the population is particularly high here, as a nature discovery trail with interesting information and hands-on stations invites people to explore. The path is barrier-free.



Landmark  
Museum for the Stone  
Age and present

## Island landscape

Several highlights of the Isar renaturation can be discovered around Landau. The starting point is the car park on the old bypass road. From there, a footpath leads directly to the Isar.

### Entrance to the nature discovery trail

This is also the starting point of the nature discovery trail, which invites you to participate with many stations along the rest of this tour. On the left, a new generation of hardwood alluvial forest has been planted, consisting mainly of White Elms and English Oaks. Above all, however, the large flattening of the banks is evident, inviting visitors to take part in local recreation. Wood artist Werner Poschmann made a special seating accommodation. The gravel banks are similarly inviting for the fish, as they offer good conditions for their offspring. The anchored deadwood logs are also

not only beautiful to look at, but offer retreats for the Isar fish.

### Paradise for ascetics

In the summer months, along the rest of the trail, you can see the colourful flowers of meadows and rough grasslands developed in the LIFE Nature Project. Whether Carthusian Pink, blue-violet Meadow Sage or delicate white Grass Lilies, they have one thing in common: they are all very frugal and feel most at home where most other plants are too low in nutrients. Such conditions are rare, however, which is why many of these species are very endangered.

### New river-branch

The path leads to what is probably the most impressive measure of this LIFE Nature project. Here, a new river branch

was dug over a length of 650 metres, which within a very short time has created further diverse structures under its own steam. Thus Sand Martins have found a new home along the banks. The new gravel banks have also been discovered by the Little Ringed Plover, whose nest is well camouflaged directly in the gravel.

About 1 km upstream, the Isar can be crossed via the barrage. The path winds through the alluvial forest, where numerous nesting boxes have been installed. In addition, the other part of the new Isar island is easily visible from this side, which continues to be in a state of constant change.

## Little Ringed Plover

The Little Ringed Plover lives mainly on gravel banks and shallow banks of semi-natural rivers. There, it trundles over the stones at high speed to seek out its food such as worms, insects and larvae. As a gravel breeder, it lays its eggs in a shallow nesting hollow directly on the gravel. The well-camouflaged eggs can therefore be easily overlooked and trampled on. The breeding and rearing period lasts from April to July.



## Rough Hawksbeard

The Rough Hawksbeard is a typical species in lowland meadows. It flowers between June and September and is mainly pollinated by bees. The leaves and young flower buds are valued by humans as wild lettuce. But beware, the Rough Hawksbeard can easily be confused with other yellow so-called “composite plants”, which include, for example, the dandelion species.



## Worth seeing

Landau's old town with its medieval structure is situated at an altitude of 390 metres, which is why Landau has the nickname “the mountain town”.

The “newer” town lies more than 50 metres lower in the valley floor of the Isar valley. The town of Landau is home to numerous museums and cultural attractions. The Kastenhof in the upper town houses an archaeological museum for the Stone Age and the present. The town's landmark, the parish church of the Assumption of the Virgin Mary, one of the largest baroque churches in the area, is enthroned in the immediate vicinity.

## KNOWLEDGE

# When the dormant protection awakens

## The new Isar: limited in its dynamic

When the Isar broke into the half-finished side arm during the ongoing construction site, the headline of the “dam break” in Landau was quickly in the newspaper. Fortunately, it was not that dramatic. During an unexpectedly high winter flood, the Isar had already made its way over the temporary gravel dam into the new side arm. Even though not much happened in this case, it was a good illustration of the power and force of the river during floods.

This force, which the Isar can exert on the unprotected gravel banks even during small floods, is enormously important for the floodplain ecosystem. On the one hand, the gravel is relocated and polished: a crucially important process for the spawning grounds of the Isar fish. On the other hand, the banks in the steep area slide back and create fresh building ground for shorebirds such as the

Kingfisher or the Sand Martin. They build their nesting holes in the steep banks. The new branch of the Isar in Landau has changed dramatically in the first two years after construction was completed. The Isar has created new gravel banks and doubled the width of its bed.

But this dynamic development is not possible without limits. In our densely populated landscape, there are imperative boundaries that must not be crossed by the river. Here it is the flood protection dike, in the other case a road bridge or a power pole, before which the natural development of the river must stop. This can only be achieved with a massive protection by armourstones. The Isar cannot wash these away as easily as its usual pebbles. Technically, the armourstones are sunk into a trench in front of the point to be protected.

There, the protection then waits “asleep” underground. This cosiness is over when the river has worked its way to the border. Then the fuse is exposed and protects e.g. the flood protection dike from the force of the water. In the meantime, we can marvel at the natural dynamic work of the Isar in its corridor that has been opened up for change. Because the next time we visit, it will certainly look a little different again.

- ▶ *Dingolfing: The bank reinforcement was removed and reused for “dormant protection”.*



# Tour 6



As a pure herbivore, the Beaver feeds mainly on the bark of softwoods in the alluvial forest, especially willows. It cuts down trees to reach the young twigs and fresh buds. The Beaver uses the peeled wood, twigs and branches for its castle or for building dams. Its tracks are therefore very easy to discover. In such near-natural floodplain forest sections, the Beaver feels particularly comfortable, as it has sufficient food and building material available within a short distance.



Landau an der Isar



Direction Mamming

Böckerbahn Bridge





# River Section Landau II

## Traces of Nature



The circular path in the east of Landau is well suited as a walking tour, but also as a worthwhile diversion on a bicycle tour along the Isar. Two pipe passages were renewed in the LIFE Project Isar, so that the floodplain waters as well as the alluvial forest are more connected to the Isar. In order to ensure that the alluvial forest is fit for the next decades, appropriate floodplain forestry measures were also carried out.

Landmark  
Bockerbahn Bridge



## River landscape east of Landau

This small circular trail just east of Landau takes you on a discovery tour between the forests and waters in the floodplain.

### River and floodplain belong together

A river landscape does not only include the water body itself. The adjacent terrestrial habitats are closely connected to the river in their natural state. A great variety of species has adapted to the special conditions, so that rivers and their floodplains are among the most species-rich ecosystems in Central Europe.

### Hidden Biodiversity

You get an insight into this special habitat after about 500 metres of the trail. In the near-natural, wild alluvial forest, a floodplain meanders. Reeds can develop here,

gravelly and shallow banks alternate with deeper areas. Branches and water plants lying in the water are used by dragonflies to lay their eggs. The Beautiful and the Banded Demoiselles with their shimmering turquoise-blue wings are easy to spot and beautiful to look at.

### Water urgently needed

The two pipe passages along the way provide additional water to the floodplain, which has become scarce due to the regulation of the Isar and additionally due to climate change.

### Alluvial forest habitat

The second half of the path leads through the alluvial forest. In order to make it fit for the future, a near-natural forest conversion has taken place in the LIFE Nature Project. More information on this is written on the display board.

### Deadwood is full of life

An ecologically particularly valuable component of near-natural forests is deadwood. In managed forests, often little of it remains. However, fungi and insect larvae feed on dead trees. Some of them, such as the Scarlet Beetle, can even survive only on deadwood. Woodpeckers and other birds feed on them.

## Green Woodpecker

The Green Woodpecker is in German also called the ground woodpecker or "laughing woodpecker". The males mating call, a monotonous, fast and loud "klewklewklew", that resounds far across the meadows, is reminiscent of laughter. The Green Woodpecker feeds mainly on ants. Thanks to its sticky tongue, it can poke up to 10 cm into holes in the ground for them.



## Chicken-of-the-woods

It's quite easy to remember the name: its hats are bright sulphur-yellow, just as those of chicken, and grow out of the tree sideways, close together, as if in sticks. It is a true world champion in digesting "hard" food like wood - preferably oak. It penetrates the trees through injuries in the bark, eats them hollow from the inside and thus creates new deadwood.



## Worth seeing

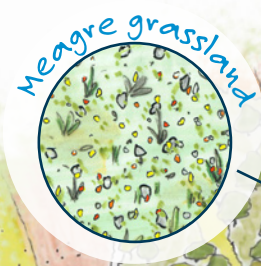
A popular photo motif spans the Isar shortly after Landau: the Bockerlbahn bridge. It is named after the "Bockerlbahn" railway that once ran here, whose locomotives sometimes "bucked" ("bocken" in German) at ascending points. Built in 1903, the bridge is now disused and a listed industrial monument. The Bockerlbahn cycle path, which runs along the Landau-Arnstorf railway line that was closed in 1994, also crosses here.

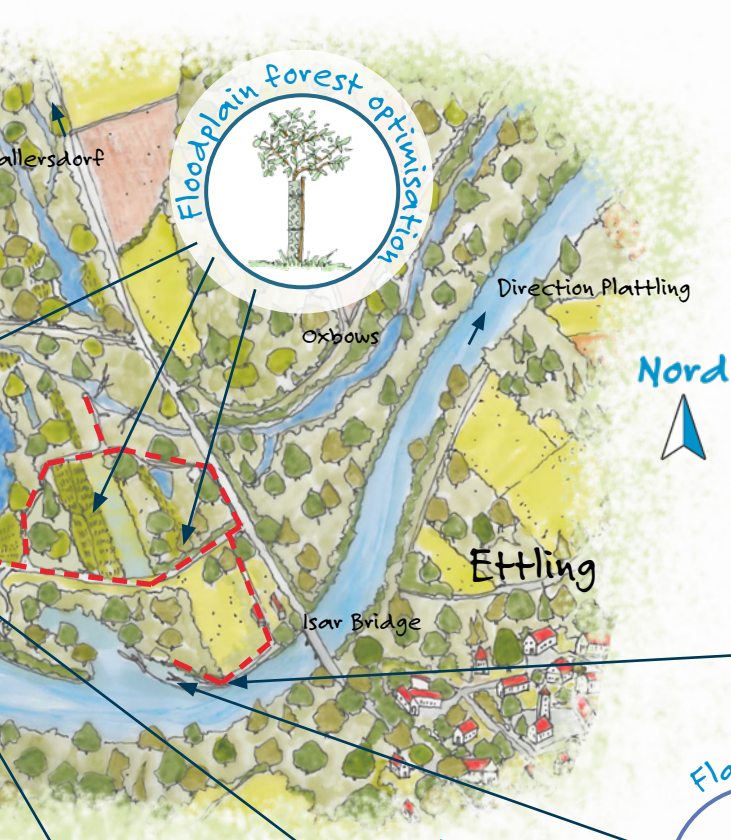


# Tour 1



Yellow-bellied Toads are very small toads with a body size of only 3-5 cm. Their spawning grounds are sun-exposed, easily warmed small and very small bodies of water. Originally, such spawning waters were created again and again by the power of the rivers in the floodplains. Due to river bank obstructions and a lack of floodplains, the animals are now dependent on man-made replacement biotopes, such as those created here in Etting.





# River Section Ettling

## Savannah: dry and wet

The approximately 2 km long circular trail offers an insight into a mosaic of different floodplain habitats right at the beginning. Here, diverse nature can develop second-hand, so to speak, over the next few years. The detour down to the gravel bank below the Ettling barrage is also worthwhile.



## Floodplain restoration near Ettling

This short but very varied tour offers insights into a wide variety of habitats. From dry gravel areas and flowering meadows to calcareous swamps and shallow overflowing gravel banks, everything is represented.

### New diversity

The starting point is located on a large area that was completely redesigned in 2022. Where there was previously a meadow, a branch of the Lermerbach now meanders. The Kingfisher finds a home in the steep banks, as it builds its nest as a tube in the steep bank. An orchard meadow has also been planted, which in a few years will surely delight not only insects but also the odd walker. Further information can be found on

the information board on site. The small path leads through the floodplain forest. Here, willows and White Elms have been planted, but also an oxbow has been desilted to preserve the area for the next decades.

### Gravel delivery for the Isar included

The detour to the Isar reveals the masses that were moved during the renaturation. A large gravel bank can now be seen in the formerly uniform and unnatural riverbed. Most of it lies under water and serves as a spawning ground for Isar fish such as the Common Nase or Barbs.

## Dusky Large Blue

The endangered butterfly is at home in moderately moist meadows. It is absolutely dependent on the presence of a certain plant, the Great Burnet. The flower of this plant serves as a food source, roosting and mating site and for egg laying. Equally important is the *Mymicinae*, an ant sub-species, which brings the caterpillar into its nest and nourishes it until its final transformation into a butterfly.



## Danube Salmon

As a resident of the Danube and its tributaries, the Danube Salmon still finds its habitat in Bavaria, which has become rare throughout Europe, e.g. in the Isar near Ettling: rivers with strongly flowing and oxygen-rich water. While adult fish often stay in deep water, the spawn is deposited in shallow water with coarse gravel substrate.



## Worth seeing

A six-kilometre-long fishing nature trail of the Fischereiverband Niederbayern e.V. and the Kreisfischereiverein Landau e.V. (both regional fishing associations) runs on the left side of the Isar from Oberframmering to Zeholfing and then on the right side on the dam crest up the Isar. 40 native fish species are presented on 32 panels.

A joint project of the Government of Lower Bavaria, Higher Nature Conservation Authority and the Landshut Water Management Office.

Project  
executing  
agency



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