

## REVITALIZATION OF ČIHADLA DRY RETENTION RESERVOIR

2008

Revitalization of the channels of the streams in the area of the Čihadla dry retention reservoir is the largest and most extensive nature close revitalization of watercourses in Prague and its surroundings.

The Čihadla dry retention reservoir was built in the 80's of the 20th century and serves for capturing torrential rainfall in the basin of Rokytka. The dry retention reservoir is located in area where a big pond used to be in the 18th century, which was then drained and modified into the field. Within the construction of the dry retention reservoir the channel of the Hostavický stream, the Svěpravický stream and Rokytka was straightened and fortified by concrete blocks starting at the confluence with the Hostavický stream.

With regard to the fact that the entire area is designated for water overflows, straightened and fortified channels are completely unfounded and this nature locality has been devalued. Moreover, it is a part of the Natural Park Klánovické-Čihadla.

The revitalization involved filling in the old fortified and



The Svěpravický Stream



New pools

capacity channels and excavation of new, close to nature, shallow and meandering channels. Small ponds were built in places where the new channels crossed with the original channels. The banks of ponds were modified both gradually and steeply with respect to the evolvement of potential of fauna and flora. Other pools were formed from the original channel of Rokytka in places where mature trees grew.

As a part of the revitalization new footbridges over the streams were built, as well as information panels informing about the revitalization and nature preservation.

Along the new channels of the streams 200 young trees were planted, mainly Alder, Ash, Maples and Oaks. There are also shrub groups consisting only of different species of indigenous trees, such as Blackthorn, Viburnum, Spindle and Willows. The pools and some of the channel parts were also planted with wetland vegetation, such as Irises, Loosestrife and various grasses.

Within the evaluation of the recent flood situations and the request for increasing retention capacity the Canine Centre was cancelled in 2015. It was located close to the dam. The landfill on which the training site was situated was removed.



## REVITALIZATION OF THE CHANNEL UNDER SMETANKA

2013

Even under the Smetanka hill Rokytka has changed significantly. Historically there was a meandering channel and even a millrace. In the 19th century Rokytka was straightened and its surrounding was covered. Afterwards the shores overgrew with impenetrable vegetation of *Robinia pseudoacacia* (Black Locust).

Revitalization in this part of Rokytka involved excavation of landfills, expansion and diversification of the channel, and creating an ecological berm. Two small islands were formed in the channel and one wall for kingfishers, who often occurred in this area, but could not find suitable nesting conditions there. Several trunks from surrounding felled trees were placed and stabilized into the stream channel and would serve as dead wood in the water, which is a very important part of aquatic ecosystems. Thanks to the brightening the aquatic vegetation began to evolve in the stream, such as *Batrachium*.

As a part of the revitalization modification of the confluence of Rokytka with the Little Rokytka was accomplished, where 2 m of dumps were extracted there and a pleasant access to water arose.

Thanks to the revitalization measures Rokytka became again a part of the urban recreational greenery in this area. You can come down right to the water surface in many places very easily. One of the islands was immediately occupied by kids, as if they were pirates from Hrdlořezy.



Before revitalization

## FAUNA AND FLORA

Out of the revitalized areas the Čihadla dry retention reservoir is probably the most valuable. The area of the retention reservoir is now largely overgrown with meadow communities of *Arrhenatherum* meadows, partly also with communities of reeds, herbaceous vegetation along the watercourses and tall-herb sedges. It is possible to observe more precious herbs such as *Caltha palustris* (Marsh-marigold), *Iris pseudacorus* (Yellow Flag) and *Thalictrum lucidum* (Shining Meadow-rue) there.

The pools are inhabited by three species of amphibians – Agile Frog, *Pelophylax ridibundus* (Marsh Frog) and *Bufo bufo* (Common Toad). In 2010 twelve species of Odonata were found here and twelve species of water molluscs were found in the pools and streams. All species are common and widespread even in the territory of Prague.

According to a recent survey information about 294 species of butterflies was successfully gathered. Eight species are closely tied up with the typical biotope localities.

The pools are overgrown with abundant water vegetation. There are for example Water Lilies, *Nuphar* (Pond-lily), *Hydrocharis morsus-ranae* (Frogbit), *Nymphoides peltata* (Fringed Water-lily) and *Stratiotes aloides* (Water Soldiers). A few clumps of *Batrachium* appeared in the area of Under Smetanka after revitalization and brightening the stream channel.

The most common species of fish in Rokytka are *Gobio gobio* (Gudgeon) and *Squalius cephalus* (European Chub).



Fringed Water-lily



Marsh Frog



Common Frogbit



Water Soldiers

# Revitalization of Rokytka Stream



Potoky pro život – Streams for Life



## ROKYTKA

**Stream length:** 37.5 km

**Catchment area:** 134.85 km<sup>2</sup>

**Tributaries:** Říčanský, Křenický, Běchovický, Svěpravický, Hostavický, Vackovský, Prosecký stream, Chvalka and Little Rokytká

**Flow Manager:** City of Prague

**Investor:** City of Prague represented by the Environmental Protection Department of City Hall of Prague

Rokytká is the watercourse in the basin of the lower Vltava. The word 'rokyta', which is the root of its name, is of an old Slavic origin and stood for willows that still line the river.

The total length of the stream is 37.5 km. It springs southeast from Ricany in Ricansky Wood between villages Tehov and Tehovec at the altitude of 453 m. There are two springs and after a few hundred meters they run together and appear to be the beginning of the longest stream in Prague and its length in the area of Prague is 31.5 km.

Rokytká flows through many ponds and protected areas. The stream and its surrounding underwent significant changes in the past. In the history, the wine region of Liben and Vysocany, where people came because of nature and the countryside for recreation even at the beginning of the 19th century, went through an extensive transformation during the 19th and 20th centuries. Industrial development in this neighbourhood was considerable, cement manufacturers and alcohol beverage manufacturers, etc. appeared there.

Water power of Rokytká was also used to drive the mills built in its proximity. At the beginning of the 20th century, the most significant regulations were accomplished on Rokytká. During the years 1905–1910 it was straightened, deepened and the channel fortified from Libeň to Hloubětín. Other regulations of the channel were performed at many places of the watercourse in the 70's.

### Characteristics of the channel of Rokytká stream

Natural: 6.64 km

Vaulting: 0.83 km

Close to nature: 6.51 km

Water areas: 3.09 km

Technically modified: 5.53 km

Revitalized: 1.83 km

## REVITALIZATION ABOVE HOŘEJŠÍ POND

2014

The Rokytká channel, over the Hořejší Pond, was straightened in the early 20th century and along its banks alley of walnut and pear trees was planted. Thanks to many years of neglected maintenance they overgrew, however, with self-seeded vegetation. The Rokytká's channel itself was downgraded to a channel used for quick water drainage. The bottom lacked segmentation, the left bank was inaccessible and completely devastated by large colonies of nutrias.

As a part of the revitalization the entire channel of Rokytká, over the Hořejší Pond, was transmitted into the meadow on the left bank. The aim was to create a nature close, meandering and shallow channel, as it probably had looked like before regulation. In order to maintain the capacity of the flow profile ca a 20 m wide depression (berm) was created in the centre of the meadow, in which a new channel was formed. A few small ponds arose in the curves and vertical walls for kingfishers were also established there. During the construction of the berm it was found out that the whole meadow was filled up with backfills of 1.5 m high.

The original channel of Rokytká was filled up. To increase the protection of the surrounding estates the meadow near the buildings was increased by about 0.7 m. A part of the event was also a construction of threshing bicycle paths. Generally, the whole area became more attractive and the surrounding landscape was linked with the aquatic environment.



Before revitalization



Before revitalization



## REVITALIZATION UNDER HOŘEJŠÍ POND

2013

Rokytká lived up to big changes even under the Hořejší Pond. Originally there was a broad floodplain and in the space between the current Rokytká and the drive to Kejrův Mill Rokytká had several channels. There was even natural swimming pool in the channel of Rokytká. This area has been gradually filled up and currently there are 2–3 m of landfill. Within the construction of the Industrial Street, the channel of Rokytká was transferred in the length of about 300 m, straightened and fortified in the shape of a concrete trapezoid.

In the upper part of the modification, where the channel was not fortified and its banks were greatly undermined, the stabilization of the banks with large boulders was accomplished. The dying concrete fortification was knocked down and replaced by heavy boulder rockfill, so called alpine finish. If possible, the segmentation of the channel was made of stone layers. The bottom was left natural with seated stones forming a mosaic and a stone threshold. Thus a channel, which was close to nature and also stable, was built. It provides living space for water plants and animals. To make Rokytká more attractive, slow descents to the water area and a small seating area was built there.

## ADJUSTMENTS ALONG HOŘEJŠÍ POND

2012

Rokytká, near the Hořejší Pond, has undergone many fundamental changes in the last century. It originally flew directly through the Hořejší Pond. In 1961, during the reconstruction of the pond and construction of a natural swimming pool, a dividing dam was built and the pond was rebuilt into a side pond. To fill the pond up a step was built in the drive and the channel was paved. Lower the downstream an experimental hydrostatic weir was built. It was called Jermářův weir.

As a part of the revitalization of this part of Rokytká, the remains of non-functional Jermářův weir and supportive concrete constructions were removed. The height difference in the channel above and below the weir was solved by boulder chute. The boulder chute also replaced the original step at the inflow to the pond. Both of the chutes are migratory and penetrable for common species of fish found in Rokytká.



Before revitalization

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[www.praha-priroda.cz](http://www.praha-priroda.cz)

