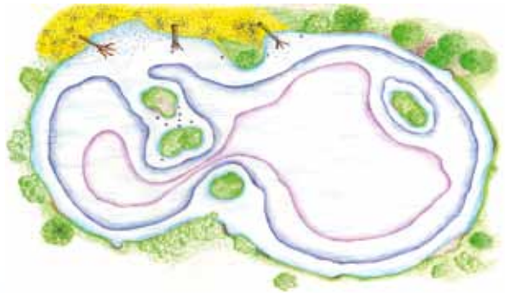
Diagram of the planned Kršeljivec sinkhole pond revitalization (IzVRS)



A new image of sinkhole ponds

Standing waters like the sinkhole ponds in the vicinity of the village called Hrast pri Vinici are becoming an increasingly rare habitat in Bela krajina and elsewhere. Due to abandonment or improper use these habitats of endangered plant and animal species are disappearing too. The most urgent problem in the pilot area is the declining population of European pond turtles and a number of amphibian species. The WETMAN project includes plans for their long-term preservation based on the following urgent measures:

- revitalising the Kršeljivec sinkhole pond,
- improving habitat conditions of Gornji kal and Krivače by decrising the slope of the banks, setting up resting areas and creating optimal conditions for reproduction and egg deposition,
- removing the excessive vegetation on the banks,
- fishing out predatory fish that prey on turtle offspring and tadpoles,
- establishing a long-term maintenance system for sinkhole ponds and their immediate surroundings,
- finding a way of using the area that would disturb the endangered species as little as possible,
- raising public awareness of the importance of preserving the area's biodiversity.

Project lead partner is

ZAVOD REPUBLIKE SLOVENIJE ZA VARSTVO NARAVE

Project partners are:

INŠTITUT ZA VODE REPUBLIKE SLOVENIJE · ZAVOD ZA GOZDOVE SLOVENIJE · Zavod za ribištvo Slovenije · OBČINA METLIKA · OBČINA KRANJSKA GORA · RADIO TELEVIZIJA SLOVENIJA

The project is co-financed by:

REPUBLIKA SLOVENIJA
MINISTRSTVO ZA KMETIJSTVO IN OKOLJE

Municipality of Črnomelj, Municipality of Zreče, City Municipality of Maribor, Municipality of Slovenska Bistrica, City Municipality of Slovenj Gradec and Municipality of Lovrenc na Pohorju.

Published by: Institute of the Republic of Slovenia for Nature Conservation
Authors: Andrej Hudoklin, Mateja Nose Marolt
Drawings: Samo Jenčič
Photos: Kristjan Brkič, Andrej Hudoklin, Dušan Klenovšek, Matej Simčič, Nina Simčič
Design and print: Birografika Bori
Print run: 1000 copies
March 2012

www.wetman.si

This brochure was published as a part of the "Conservation and Management of Freshwater Wetlands in Slovenia – WETMAN" (LIFE 09NAT/SI/000374) project with funding from the LIFE+ EU financial instrument. The text does not necessarily reflect the views of the European Commission.

LIFE+ is the EU's funding instrument for the environment. It facilitates the implementation of EU environmental policy by co-financing sustainability projects and projects with added value in terms of conservation of environment and nature in EU member states. LIFE+ Nature co-finances projects for preservation of habitats and biodiversity in Nature 2000 areas.

For more information visit: ***http://ec.europa.eu/environment/life/***

WETMAN

GORNJI KAL, KRIVAČE AND KRŠELJIVEC

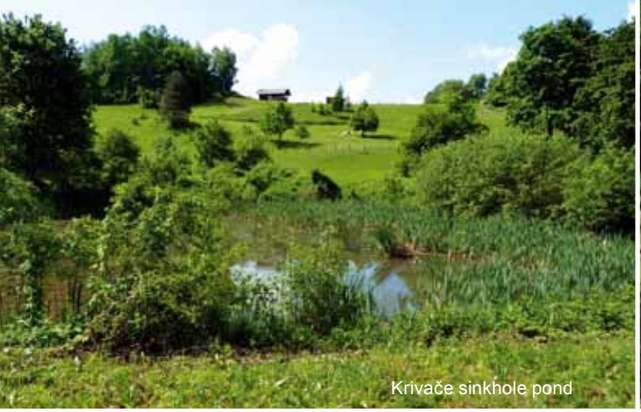
Visiting the turtles at sinkhole ponds

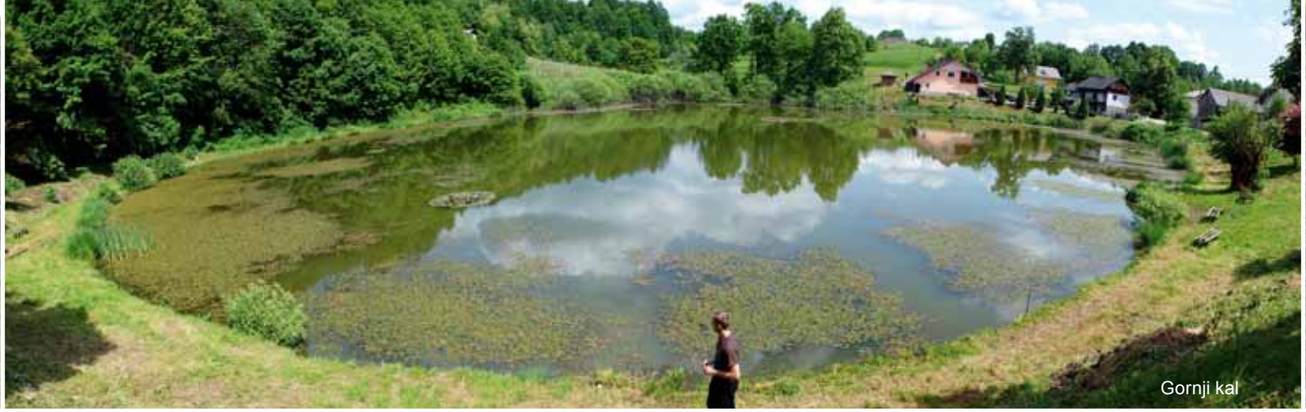
Project description:

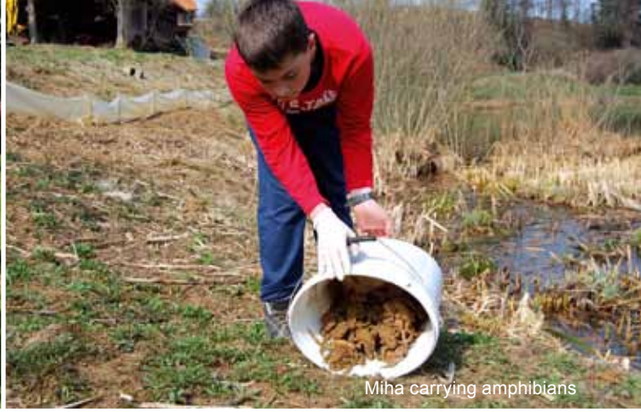
The goal of the "Conservation and Management of Freshwater Wetlands in Slovenia – WETMAN" project is to restore and improve the condition of six Slovene wetlands that are also designated as Natura 2000 sites. These are the Pilot areas: Pohorje bogs, Zelenci, Mura oxbow lakes near Petišovci, Planik, Vrhe and three sinkhole ponds in Bela krajina (Gornji kal, Krivače and Kršeljivec).

The project lasts from 1st February 2011 until 1st February 2015 and will fund nature protection activities in individual pilot areas. These activities and the establishment of a sustainable pilot area management will significantly contribute to preservation of wetlands in Slovenia. The WETMAN project (LIFE 09NAT/SI/000374) will be carried out with co-financing by LIFE+ EU funding instrument.

The WETMAN project pilot area Gornji kal is located on the southern edge of Bela krajina, between the villages Hrast pri Vinici and Perudina and contains three sinkhole ponds (Gornji kal, Krivače, Kršeljivec). The Franciscan cadastre shows that sinkhole ponds have been regulated in clayey karst depressions since the beginning of the 19th century. They are completely independent bodies of water that mostly depend on local rainfall. In the past, sinkhole ponds have been used as watering holes for livestock and for washing clothes. Construction of waterworks and changes to farming led to a decline in use of sinkhole ponds several decades ago. The shallow bodies of water were left to be overgrown and filled in with material. Today, the Kršeljivec sinkhole pond is dry and overgrown, but Gornji kal and Krivače have remained important habitats for endangered animals and plants that require water, particularly the European pond turtle and amphibians.


Krivače sinkhole pond


Gornji kal


Miha carrying amphibians

Gornji kal, also called Selski kal, in the village of Hrast pri Vinici is the largest village sinkhole pond in Bela krajina. Water covers the shallow and curved depression with a diameter of about 100 m and a circumference of 350 m. The average water depth is about 1.4 m and varies to a degree of 0.5 m. The majority of the bank is without vegetation. The sinkhole pond is maintained and used for breeding fish.

Krivače is a smaller sinkhole pond located at the northern outskirts of Hrast pri Vinici. Overgrowing vegetation has strongly reduced the size of the water surface. Several years ago the locals restored the pond and, due to ponors at the southern edge of the valley, moved it to the north. The banks are densely overgrown and the bottom is particularly exposed to siltation due to the pond's location at the bottom of the valley.

Kršeljivec, to the east of the Perudina village, was once one of the larger sinkhole ponds in Bela krajina. The clayey layer at its bottom was damaged and unsuccessfully restored, which caused the pond to dry up. It was gradually overgrown by bushes and its edges became covered by construction and municipal waste.

The European pond turtle is disappearing

The European pond turtle, Slovenia's only freshwater turtle, is the most valuable sinkhole pond species from nature protection's point of view. In Slovenia it is usually found in the waters of Krka, Ljubljansko barje – a bog near the capital, and in Bela krajina. The turtle's essential habitats are the wetlands near Prilozje, Obrh, the headwaters of Lahinja and Podturnščica and, of course, the pilot area of Gornji kal, which is the most isolated location on the karst plain.

Initial survey of the turtle in 2011 revealed a surprisingly low number of individuals; a total of three in Gornji kal and only two in Krivače, which is way below the area's potential. Even more disturbing was the realization that no young turtles were found that could serve as evidence of successful reproduction in the recent period. Everything points to the fact that we are looking at the last surviving animals of a once thriving population.

These unfavourable conditions were primarily caused by sinkhole ponds in the broader area being abandoned, filled in and left to be overgrown, which reduced the size and lowered the quality of turtle habitats. The fatal factor was the introduction of invasive fish that pray on turtle offspring; occasional disturbances also present a problem.

Frog wedding in the spring

In addition to the European pond turtle, the sinkhole ponds also serve as home and shelter for a number of other animal and plant species. The most endangered among them are amphibians, several species of dragonflies and the marsh plants greater spearwort and bulrush.

Nine amphibian species were recorded in both active sinkhole ponds. The most common among them were toads. Brown frogs (agile frog) were present in much lower numbers, with newts (Italian crested newt, common newt, alpine newt) and fire-bellied toad being quite rare. Their decline in numbers is probably connected with introduction of invasive fish that prey upon their tadpoles, unsuitable pond structure and with a lack of shallow water areas along the banks.

The drying of Kršeljivec and other sinkhole ponds and wetlands in the vicinity has changed the migration paths of amphibians, which is why Gornji Kal and Krivače have become the largest local spawning grounds. Each spring, thousands of amphibians come to spawn here. The toad population of Gornji kal has recently grown in size and in early spring they are massively migrating from their wintering areas to the two sinkhole ponds. Losses due to traffic on local roads are reduced by temporary protective barriers over which about 7.000 amphibians have to be carried each spawning season.


Ruddy Darter


European pond turtle


Sedge


Frog Wedding