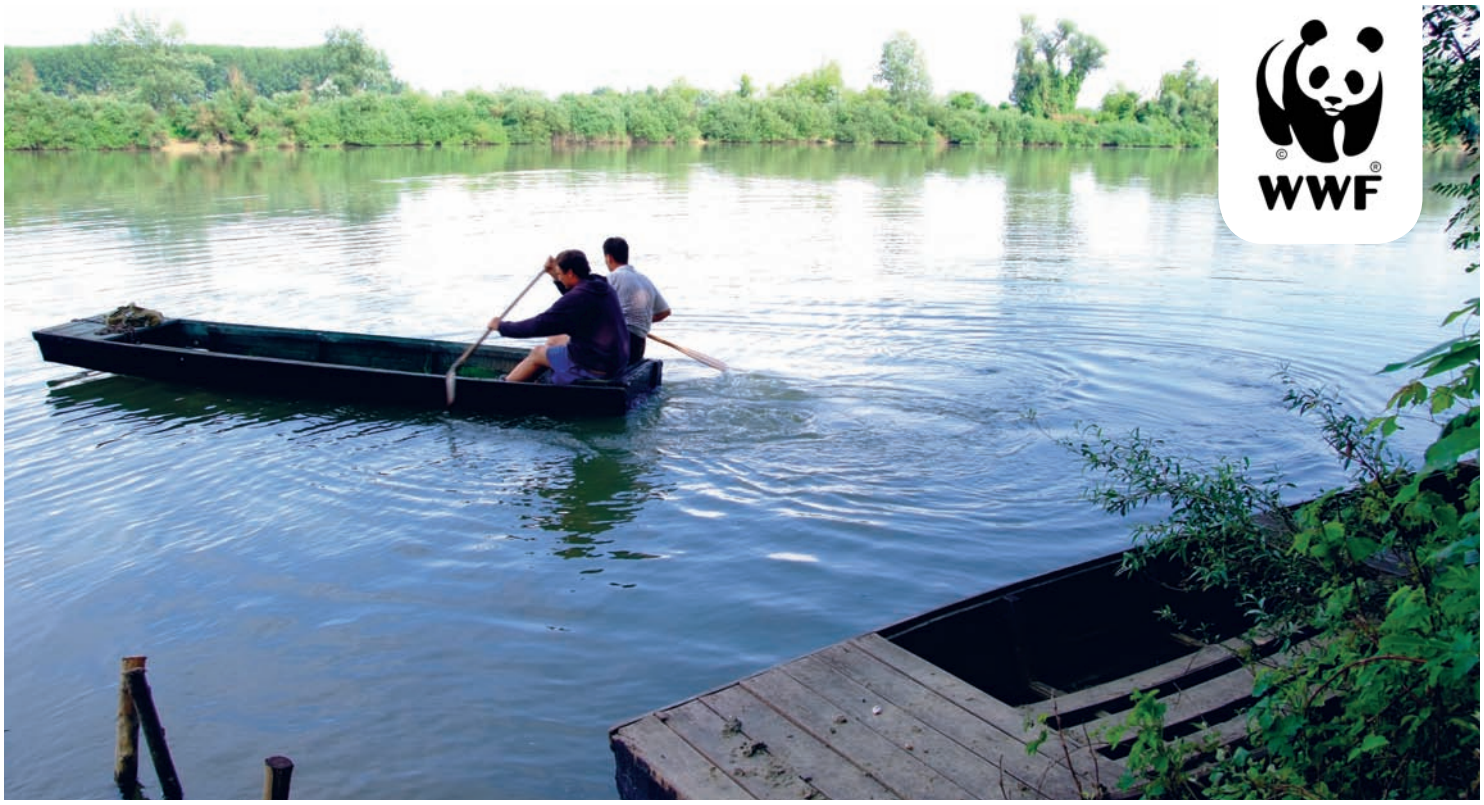

TISZA FLOODPLAINS

A WWF *One* Europe, *More* Nature *Pilot Project* Site

WWF "One Europe, More Nature (OEMN)" has initiated an innovative pilot project in Tiszatarján village, next to the Tisza River in north-eastern Hungary. Its goal is to restore and diversify the area's natural floodplains and produce local renewable energy while increasing and diversifying local income streams.

A new company, set up within the frame of the project by the Tiszatarján municipality and a local farmer, paid local people to cut wild bushes of the highly invasive Amorpha species, which was shipped to, and burnt, at a large nearby energy plant to produce "green energy". Large areas of land formerly covered by the Amorpha, together with less productive arable lands, are now being given back to nature, to restore the floodplain's former glory. Some of the area is being replanted with willow trees, which will serve as a long-term, sustainable supply of "biomass" for the power plant. Participating farmers are obliged to set some lands aside for wetland and grassland conservation, the management of which will be paid for by revenues from biomass sales. Additional project "mechanisms" include the introduction of grazing animals such as Hungarian grey cattle and water buffalo to prevent the return of invasive species, and to assist with grassland management. Finally, these changes provide an attractive landscape for eco-tourism, which will bring in additional revenues to economically diversify and better sustain this Hungarian rural community.

About the Project Area

Location
The project's main location is the active floodplain of the Tisza River between Tiszatarján village and Tisza Lake. The area is "between the river dykes" covering some 3,500 ha of a 30 km long river section, from 0.5 to 4 km wide. Some 10 km away from Tiszaújváros (a large industrial centre next to the Tisza River, where the power station AES Hungary has its headquarters), Tiszatarján is part of the Mezőcsát "micro-region" in Borsod-Abaúj-Zemplén County, North Hungary.

Significant landscapes, habitats and species
150 years ago, the area was a beautiful mosaic of sparsely forested floodplain grasslands (similar to savannah), wetlands (e.g. oxbows, depressions) and floodplain softwood forests. Many landscapes and species remain, but far less in number than before. In 1989, a large part of the area was protected as a national park, and internationally protected as a Ramsar wetland site. The area is home to globally significant species such as the black stork, whitetailed eagle and countless water birds that migrate to the area in the spring, including herons and geese. The area is especially noted for its "Tisza Flowering", the mating dances of a Mayfly (Palingenia longicauda) which create a breathtaking immense cloud of swarming winged insects for only three to four days each May or June.

Human presence
Tiszatarján's population is 1,465. The population of the micro-region is decreasing and includes a fairly visible gypsy (Roma) minority while average population density is 40 persons/km^2, much lower than the national average of 108 persons/km^2.

Economic status
The micro-region is currently economically depressed, average incomes are low, the level of unemployment is higher than the national average, and the majority of the population are inactive earners. Education and training are below the national average.

Employed people represent 22.6% of the population with 14.8% in agriculture, 35.2% in industry and 50% in the service sector (e.g. local small shops and tourism facilities). Many inhabitants commute outside of the micro-region to working places and large factories such as AES Hungary, a chemical company and the Borsodi brewery. The proportion of agricultural businesses in the "depressed" areas is significantly larger than the regional average.

Historically, the area's habitats and landscapes were maintained and enhanced through traditional practices such as extensive grazing (of local breeds of Hungarian Grey cattle and Mangalica pigs), hay harvesting, sustainable forest management, floodplain orchards (cherry, pear, apple, and plum production), reed harvesting, sustainable fishing and handicraft production (e.g. willow branch baskets).

Problems

In the 19th century, massive changes were introduced by the Hungarian aristocracy and land-owning classes to increase land areas for arable production and seemingly improve flood protection. The result was the engineered regulation of the Tisza River within large earthen dykes, wetland drainage, the straightening of river bends and reductions in river length. Later construction of new regulated canals and a hydropower plant led to the creation of the artificial Tisza Lake. In wetland areas within the dykes, some traditional practices were maintained, however, outside the dykes, new fields, settlements and roads developed.

In the early 1970s, Hungarian agriculture was characterized by drastic increases in energy-intensive inputs (e.g. artificial fertilizers). Yields doubled over 25 years while the diversity of yields decreased. As a result, traditional practices declined even more. With the end of communism in 1989, farmers were hard hit as many state-run agricultural co-operatives closed. Land parcels distributed to private owners were often too small to be financially viable, and there were difficulties in finding markets for local products such as meat and milk. Grazing almost completely stopped within the dykes as many former farmers gave up farming and many lands were left unmanaged.

The net result of these many changes is that environmental degradation proceeded. Most wetlands disappeared, both inside and outside the dykes. Many of the natural watercourses flowing to the area dried up, including streams from the nearby Bükk Mountains that were blocked and regulated. Groundwater levels dropped and saline soil replaced many former floodplain grasslands, making the area dehydrated and reducing meadow fertility. The risk of floods increased, because the riverbed deepened, and the flood water retention capacity of the floodplains decreased.

A major problem resulting from the decreased grazing and scything was widespread colonization by invasive species such as wild Amorpha fructicosa ("running acacia") in the floodplain grasslands and wetlands. Natural forest areas also disappeared, replaced mainly by hybrid poplar forests planted after World War II and with the start of intensive agriculture in the 1970s. This move towards monoculture continues today.

Solutions and Results

WWF's main goal is to restore the area's natural floodplains and produce local renewable energy while increasing and diversifying local income streams.

The mechanisms used by WWF to reach this goal include: **(1)** new green energy production; **(2)** subsidized floodplain maintenance and restoration; **(3)** extensive grazing; and **(4)** eco-tourism expansion.

1) New green energy production
A limited company, "Tiszatarján Kft", was established by the Tiszatarján municipality and a local farmer to manage the project area (initially 53 ha) during and after WWF's involvement. WWF then mediated an agreement between the company and the energy provider, AES Hungary, whereby the company would provide AES with biomass to produce "green energy" (which is a positive contribution in mitigating climate change). The contract was based on a number of nature conservation criteria written by WWF, such as the requirement for biomass to be certified by WWF.

In 2008, the company contracted local unemployed workers to cut and remove invasive Amorpha fructicosa from the floodplains. The resulting bundled 400 tonnes of biomass was sold to AES Hungary, generating 32,000 Euros of new income and employing two people full-time and more than 30 people seasonally (including many unemployed gypsies).

The company prevents the return of Amorpha fructicosa, and replaces it in some less valuable areas with willow, a local species which will continually be cut to produce a regular supply of biomass for AES and therefore jobs and income for the community. In 2008, the first willow seedlings were planted in areas formerly covered by Amorpha and in former arable lands. The project will later be expanded to nearby areas where invasive species will be similarly cut and replaced with natural areas and with willows for increased green energy production. A long-term goal is for the area to become energy self-sufficient.

2) Subsidized floodplain maintenance and restoration
The contract between AES and the company obliges landowners to set aside a certain amount of former arable land for restoration of floodplain habitats, especially wetlands and grasslands. Income earned from the selling of biomass is used by the farmer to cover the costs (subsidize) of maintaining the habitat. This enhances biodiversity and boosts provision of ecological services such as floodwater retention.

Examples of wetland work includes: restoring arable lands that experience regular excess water into wetlands or reed beds; prohibiting water drainage or the use of pesticides and artificial manure; and stopping the advancement of aggressive weeds and invasive species (e.g. Amorpha). Examples of grasslands work includes: prohibitions on new conversions to arable land, on the use of pesticides, artificial manure and irrigation, and on the introduction of alien species; whilst introducing wise-scything practices for grasses.

3) Extensive grazing
The company has re-introduced water buffalo (and it is planned that in the future, Hungarian long-horned Grey Cattle, beavers and possibly wild horses will be brought here too) to prevent invasive species from re-colonizing and to help restore the grasslands to their former species-rich glory. Another expectation is the future sale of organic "green beef" to supplement local incomes.

4) Ecotourism expansion
The resultant improvements to the landscapes and biodiversity make the area more attractive to tourists and encourage the development of local tourism facilities. Recently, a bike trail along the top of the dykes was developed. A new ecological corridor to connect protected areas in the Mezősát micro-region with Tisza Lake is also envisioned.

In July 2008, Tiszatarján hosted the "Tisza Big Jump" – part of a Europe-wide public event where people jumped into their nearby rivers and lakes at exactly the same time to signify their concern for water and river ecology.

OEMN Mission

WWF's One Europe More Nature (OEMN) project uses an innovative approach to forge unusual partnerships so that business and nature can co-exist. Its mechanisms lead to win-win solutions for all, allowing Europe's rural workers to make incomes from the countryside while protecting nature. OEMN, tested at many pilot rural locations throughout Europe, is now mainstreaming conservation into everyday European business life.

Other WWF OEMN pilot project sites

Prespa (Albania, Former Yugoslav Republic of Macedonia, Greece), Väinameri (Estonia), Merja Zerga (Morocco), Gelderse Poort (Netherlands), Maramures (Romania), Sinca Noua (Romania), Doñana (Spain)

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