Study tour to floodplains of Pripet River in Belarus

(May 3 – 8, 2006)

Background

The LIFE-Nature project "Restoration of Latvian Floodplains for EU priority species and habitats" is targeted at restoring the floodplain meadows (habitat type 6450) as a breeding and/or feeding habitat for species of EU importance, such as *Crex crex*, Gallinago media, Aquila pomarina*, Aquila clanga** at the Project Sites.

During the process of the floodplain restoration we often encounter the situations when multiple choices of possible restoration methods are available. Choosing different possibilities would lead to different results in the floodplain management. We aim to restore our floodplains to the state as close as possible to what they have been before their degradation due to both abandonment and drainage. Therefore we would obviously choose the option that does not prevent us from reaching the final target even if it is more complicated for reaching some short-term goal than another option that might be more efficient for reaching the short-term goal but in long term would prevent us from reaching the final target. While restoring the floodplains to the state prior to their abandonment is relatively easy, restoration actions, such as shrub cutting and initial mowing has to be regarded as only the first steps towards full restoration of the functions of the habitat. All of the project sites have been affected by drainage and we do not have an example of fully natural (unaffected by drainage) large floodplain meadows elsewhere in Latvia, to serve as a model site.

During the elaboration of Site Management Plans of the project territories (action A.5) we are planning not only the direct short term restoration measures for the sites (carried out by the Project – C actions) but also long-term activities including restoration of the original water regime and eliminating the impact of the drainage (described as Threat 4 in the Project document). These measures often cause disputes as landowners and local authorities are concerned that after restoration of natural hydrological regime the management of the meadows will not be possible or the flood risk will be increased. In order to gain their acceptance for measures related to changes of water regime, we need examples from unaffected floodplain meadows that could be regarded as best possible proof.

There are no large and intact floodplain meadows remaining in the Baltic countries and lesser so they are in other parts of the Europe west of Latvia. In fact, eastern Poland is the westernmost border of the distribution range of this habitat type. The only still remaining European examples of large floodplain meadows in their original state and with traditional management can be found only in Belarus, Ukraine and Russia. We chose visiting Belarus due to following logical and practical reasons:

1. Floodplains of the Pripet River are among the few best examples of floodplain habitat types still remaining in Europe.
2. Visiting Middle Pripet Landscape Reserve and Pripet National Park would be the most cost effective study tour considering all the choices available. Being a neighbouring country to Latvia, it can be easily visited by minibus thus there will be no air fares involved and thus total costs per person will be considerably lower.
3. There is a landscape reserve and a National park established in the floodplains of the Pripet River, thus there is the administration of this protected territory and we have

established contacts with experts working with floodplain meadow ecosystems on different levels – from scientific studies to practical management. They served as good and reliable information source to provide us with first-hand experience and expertise.

The study tour did allow us to see fully natural floodplain meadows, i.e. the final target of the activities started with our LIFE Project. We were able to discuss meadow management issues with people having experience in floodplain management in fully natural conditions. We gatherer experience on co-existence of people and farming with the floods. Study tour enabled us to evaluate habitat preferences and especially microhabitat requirements in these circumstances. Thus visiting these was a great opportunity to analyze similarities and differences between habitats in different parts of target species distribution range thus getting better understanding of species requirements in fine scale and feature level.

Participants of the study tour

Ten participants took part in the study tour. LIFE Floodplain project was represented by project manager Inga Racinska and regional coordinators Ainars Aunins and Janis Reihmanis. The rest were project partners: Rolands Auzins and Martins Kalnins from Nature Protection board (project partner, responsible for organisation of further management of 10 project sites) and Valerijs Selis, Otars Opermanis, Guntars Villa, Irina Spurina and Dace Gravite from North Vidzeme Biosphere Reserve (project partner, responsible for further management of 6 project sites).

Course and events of the study tour

May 3

Departure from Riga (7:00), travel through Vilnius and Minsk to Turov, Belarus. Meeting Dr. Eduard Mongin from Belorussian Institute of Zoology in Minsk who joined us for a trip as a guide. Delay for several hours on the Lithuanian – Belorussian border did not allow us to meet Dr. Alexander Kozulin from APB-Birdlife Belarus which was scheduled in Minsk. Checking in the guesthouse of the Pripet National park in Turov (22:30).

May 4

Meeting an expert from the administration of the Pripet National Park who accompanied us during our visits within the National park.

Dr. Edward Mongin (left) and Svyatoslav (center) answer the numerous questions on various aspects of floodplain ecosystems in Belarus.

Morning trip was devoted to visiting floodplain meadows of the Pripet River within the Pripet National park.

Afternoon trip was mostly devoted to visiting floodplain oak forests and other habitat types in the national park.

Floodplain oak forest

The meeting with representatives of administration of Pripet National Park and Belarusian Institute of Zoology

The late afternoon was devoted to meeting a deputy director general of the Pripet national park, presentation of the LIFE Floodplain project to representatives of administration of Pripet National Park Night and Belarusian Institute of Zoology as well as to discussions on landscape planning, protection regimes, habitat management and cooperation with the local communities and farmers.

In late evening there was a boat trip to Great Snipe *Gallinago media* lek which was located on an elevated part of the floodplain meadow being an island at the time of our visit.

Night trip to *Gallinago media* lek

May 5

***Gallinago media* lekking area at daylight**

Morning was devoted to boat trip to visit again those floodplain meadows of the Pripet River that were visited the previous night to see the habitats in the daylight. Discussions on habitat management at Great Snipe leks and feeding areas took place.

Afternoon and late evening trip was made to fens, floodplain and wooded meadows on the floodplain area of the Ubort River which is a tributary to Pripet. We visited a lek site of a Great Snipe *Gallinago media*. Discussions on habitat requirements and preferences of the target species of the LIFE Floodplain project took place.

Crossing a flooded area of meadows on floodplains of Ubort River

Approaching the wooded meadows on the floodplains of Ubort River

Wooded meadows on the floodplains of Ubort River

Waiting for the *Gallinago media* to start lekking

May 6

Departure from Turov. Visiting floodplains of Gorin River at several locations in the Middle Pripet Landscape Reserve. These meadows have been dammed and thus the

original flood regime has been affected. Although large areas are still flooded and floods in their peak reach higher water level than before damming, the flood period is much shorter. Discussions on different flood regimes and flood effects on habitats and species, exchange of experience in management planning and achieving management targets took place.

Damming a part of the floodplain meadows reduces the area yearly affected by the floods and increases water level during the peak of the floods. This increases the risk of flooding of settlements and agricultural areas downstream the dammed zone.

The drained areas are managed more intensively. They have lost some of their former floodplain properties such as fertility of the soil and diversity of patches with different vegetation.

Oxbows and other natural depressions form grassland-wetland mosaic after the flood maximum and increase availability of the water edge utilised by feeding waders

Affected areas of the river floodplains are more prone to overgrowing in their abandoned parts than natural areas of the floodplains

May 7

Morning trip was devoted to visiting fen area in the Middle Pripet Landscape Reserve that was known as a breeding area of the globally threatened Aquatic Warbler *Acrocephalus paludicola*. Discussions on effects of abandonment of the floodplain meadows and fens took place. Afternoon and evening was devoted to visiting fens in the floodplain zone of Lake Sporovo. The lake is situated north of Pinsk and has a protection regime of Nature reserve. We visited previously known lek area of the Great Snipe *Gallinago media*.

Crossing the fen area in the Middle Pripet Landscape Reserve

Fens in the floodplain zone of Lake Sporovo

May 8

Departure from Pinsk (6:00) through Minsk and Daugavpils to Riga (20:00)

Lessons learnt during the study tour

Differences in floodplain meadow habitats between Latvia and Belarus

The most important difference between the floodplain meadows of the two countries is the size of the areas affected by the annual spring floods. In the examples that we saw in Belarus (Pripet, Ubort, Gorin and others) flooded were vast areas exceeding at least 2 km and often reaching even 10 km in width and tens or hundreds (Pripet) of kilometres in length. Most parts of the floodplains were unaffected by drainage and only comparatively small proportion of all meadows were converted into polder systems.

The flood areas in the floodplains of the Pripet River often reach more than 10 km in width

Even in the 1st decade of May water level was very high in the natural parts of the Pripet floodplains


Retreating floods create peninsulas (on left) and islands (on right) covered with grasslands forming a suitable habitat for various meadow bird species, especially waders and ducks

In contrast, Latvian floodplain examples that still exist are rather narrow (very rarely exceed 2 km) and occur in relatively short stretches along the rivers often with considerable distance between them. The larger flooded area of the Belarusian floodplains results in effectively larger open meadow area, i.e. larger core areas, lesser fragmentation and better connectivity between the habitat patches. As larger areas are involved, the hydrological (soil moisture) conditions are more diverse within the meadow and consequently so are vegetation structure and communities too. It results in Belarusian floodplain meadows providing niche for more species (see further).

Habitats in an unaffected (natural) system of river floodplains

Visiting natural river floodplains with unaffected hydrology was the main target of our study tour. The best examples we saw in the floodplains of Pripet River in the Pripet National Park as well as in the floodplains of Ubort River that is tributary to Pripet River.

Although the land surface by its definition is relatively flat in the floodplain areas, the terrain is more diverse in the parts where original hydrological regime has not been affected. In such areas the remnants of the old riverbeds as well as other depressions form a complex of wetlands and grasslands. Although during the peak of the floods most of the area is covered with water, numerous small islands covered with grassland appear after this peak and they are separated from mainland by several streams other than the main river. Access to these islands by terrestrial predators is limited if compared with the meadows directly connected to the mainland. Floods in such areas may last up to end of May (depending on the weather conditions) and, although after the end of the flooding period they are connected to the mainland again, ground nesting birds have higher overall nest survival there as significant part of the nesting period has already passed before.

Temporary pools are used by Fire-bellied Toads *Bombina bombina* as spawning grounds

The diverse hydrological conditions due to the oxbows and other natural depressions as well as flat areas with different elevation level provide increased amount of grassland-wetland edge as well as areas with different soil moisture ranging from water above soil to dry soil at almost any time of vegetation season. This is very important for the bird species that are feeding probing the soil such as *Gallinago media* as in these diverse conditions they are less dependent on weather: there will always be suitable feeding areas even in the driest periods.

Wooded meadows on the floodplain of the Ubort River

This hydrological diversity provides conditions also for different vegetation communities to form thus creating also high structural diversity in the meadows. Thus ecological niches are available to increased numbers of vertebrate and invertebrate animal species.

The effects of the diverse moisture conditions and vegetation structure on bird fauna are described in detail further below.

Apart from the open floodplain meadows also the wooded meadows were typical part some of the river floodplains. They contributed not only to the structural and landscape diversity, they also provided habitat for breeding *Ciconia ciconia* and *Bubo bubo*.

Habitats in an affected system of river floodplains

During the study tour we paid attention also to places where manipulations of the hydrological regime had taken place thus affecting floodplain ecosystems.

A typical case was damming the floodplain area on both sides of the river valley thus narrowing it. This approach allowed farmers to reclaim some land for converting into arable lands or expanding villages. As a result, in the remaining floodplain area water level during the flood maximum reached higher water level than before. This increases the risk of flooding of settlements and agricultural areas downstream the dammed zone, as the

dammed area does not serve as a sponge anymore. Although the floods were higher during their peak, they became shorter. At the time of our visit (the 1st decade of May) the affected areas were not covered with water anymore while those where the natural hydrological regime was maintained was still flooded.

Meadows with affected hydrology are more dry and uniform than meadows with natural hydrological regime

The affected meadows not only were drier, they also had more uniform terrain. Thus these meadows were more uniform, without the wet depressions. This resulted in decreased diversity of breeding bird species. Most of these meadows were unsuitable for *Gallinago media*, which is the target species of our project. In those meadows that are still suitable, the numbers are more variable depending on weather conditions that affect the moisture level in the meadows.

Nevertheless these meadows play important role for the waders tolerating dryer conditions such as *Vanellus vanellus* and *Tringa totanus*. Also large numbers of migrating *Philomachus pugnax* used them as stopover place as well as for lekking and further breeding.

Differences in bird fauna between Latvian and Belorussian floodplain meadows

The larger meadow area and more diverse soil moisture and vegetation conditions provided habitat not only for the species that are typical and characteristic for Latvian floodplains but they were also able to maintain additional set of species.

Chlidonias leucoptera* and *Chlidonias niger* on a flooded part of a meadow together with a flock of resting *Philomachus pugnax

During the flood period the large Belorussian floodplain meadows resemble a large shallow lake with islands and emergent vegetation. Such properties of the habitat are used by the three marsh tern species: *Chlidonias leucoptera*, *Chlidonias niger* and *Chlidonias hybridus*. These species need the emergent vegetation to breed and medium sized insects to feed on which are numerous enough to support a colony of these birds.

The Belarusian floodplain meadows are richer with waders (both more species and individuals) than those in Latvia. The *Gallinago media*, *Gallinago gallinago* and *Tringa glareola* that are characteristic for the wet parts of meadows are replaced by *Tringa totanus*, *Limosa limosa*, *Vanellus vanellus*, *Xenus cinereus* and *Haematopus ostralegus* in the more dry parts. The open meadow area plays the most important role here: large meadows provide niche for each of the species and can support large enough numbers of individuals to form the semi colony for effective protection against predators. It is

important that the species diversity is reduced by alterations of hydrological regime: only the species adapted to dry conditions tolerate this.

Both natural and affected floodplain meadows were used by large numbers of migrating *Philomachus pugnax*. A part of them stay in the meadows to breed

***Bufo viridis* is a characteristic amphibian species in Belorussian floodplain meadows**

Also densities of the typical meadow ducks such as *Anas quequedula, Anas clypeata* and *Anas strepera* are found on higher densities in these large Belarusian meadows. Such increased densities of birds also attract more avian predators and play important role as feeding resources for *Aquila clanga*. It has been speculated before that this species possibly does not occur in the Latvian floodplains because the densities and total numbers of possible prey species are too low to support a pair of this raptor, especially during the summer months.

Effect of management and lack of management on biodiversity in floodplains

Abandonment also in Belarus is an important issue reducing the open area and quality of the floodplain meadows. However as most of the agriculture is based on large collective farms and there are very few individual farmers, the abandonment did not reach the level that was characteristic for the east European countries that underwent land ownership reform during 1990-ies.

The meadows in Belarus are managed both by mowing and grazing. The existence of the large collective farms ensures large-scale management due to large herds belonging to the same owner. In Latvian conditions where agriculture is dominated by small scale farming, large herds of cattle or sheep are rare. Thus typical pasture size is too small to be suitable for most of the wader species. In Belarus it is opposite: those meadows that are still managed are large enough to provide food for the large herds of cattle and thus also suitable for the typical meadow bird species.

Nevertheless, the agriculture underwent hard times during the 1990ies also in Belarus and number of cattle significantly decreased. Thus also the intensity of meadow management decreased. It is resulting in large territories not grazed or mown. However, burning of old grass in the abandoned areas is a common practice each spring. We saw freshly burnt areas in many of the visited places. Although this method does not fully stop the overgrowing, it helps to reduce its speed and currently is the only factor keeping large meadow areas open and suitable for waders.

Man and the floods

In all of the areas with natural floodplains, local people adjusted their farming and other activities to floods. They also used annual knowledge on flood levels to exploit natural elevations and other terrain forms for permanent or temporary buildings.

Byelorussian villages were typically located on elevations spreading down to the maximum water level reached by floods during their peak

***Ciconia ciconia* feeds on the border between the village and floods**