

THE PRUT FLOODPLAIN POTENTIAL RAMSAR SITE. CURRENT SITUATION AND PERSPECTIVES

Gina Radu¹, Iuliana Ticalo², Dan Buruiana³

¹Regional Environmental Protection Agency Galati, Romania, *arii.protejate@arpmgl.anpm.ro*

²Prut-Barlad Water Basin Administration, Iasi, Romania, *iulia.ticalo@dap.rowater.ro*

³A.I.Cuza University, Iasi, Romania, *dan_buruiana@yahoo.com*

Abstract

The Prut River Floodplain is a representative near-natural wetland located in trans-border position, between Romania and the Moldavian Republic. Although there is a dam along the river (at about 50 - 150 m distance from the shore) this wetland plays an important hydrological and ecological role in the functioning of the Prut River (one of the most important tributary of the lower Danube basin). The boundaries of proposed Ramsar site overlap the boundary of Lower Prut Floodplain Natural Park in Galati county (according with Government decision no. 2151/2004) and the boundary of ROSCI Prut River - Site of Community Importance (according with Government decision no. 2387/2011). The total area is approximately 20500 ha. The micro delta features, with inner lakes, canals and dead river branches support high diversity of plant and animal species. The natural hydrologic range of the wetland was changed by anthropogenic activities which substantially disturb the bird populations connected with wetlands. Nevertheless, recent ornithological inventories certify the presence of more than 220 species inhabit in the site, breeding, nesting, wintering or in migration. Being a component of the East-Elbic migration route, the Prut Floodplain represents an important staging area for most of migratory species. During migration in spring and autumn, over 20000 birds can be recorded.

Keywords: floodplain, wetland, site, Ramsar.

1. CURRENT SITUATION

Prut Floodplain covers a vast range of natural and habitats with a stunning diversity of flora and fauna, not only national but also European interest. The ecological characteristics of the Lower Prut Floodplain is the gate of entry into the Danube Delta Biosphere Reserve, being on the route of three major corridors for migratory birds on the Eurasian territory (East Elbic route, Carpathian route and Pontic route), led to include this area in the European ecological network NATURA 2000 (as Special Protection Area and Site of Community Importance) and in the Lower Danube Green Corridor. The Commission Decision from 12 December 2008 (notified under document number C(2008) 8066),(2008/966/EC) adopting, pursuant to Council Directive 92/43/EEC, an initial list of sites of Community importance for the Steppic biogeographical region, includes Site of Community Importance ROSCI0105 Lower Prut Floodplain (5656 ha) and ROSCI0213 Prut River (12506 ha). In the area of the proposed site integrates 6 national natural reserves for the conservation of natural lakes, forests, landscape or to protect the endemic species. The Lower Prut Floodplain Natural Park (on a surface of 8247 ha) has been founded based on Govern. Dec. 2151/2004 regarding the establishing of the regime of protected natural area for new zones. The Lower Prut Floodplain Natural Park is the first unit of this type in the Prut basin and the most important protected area near the Danube Delta. This territory still shelters a really high level of biodiversity, generally and of the bird fauna's diversity, especially, nor only due the border status that permitted just a strictly checked presence of the people (local community, fishermen), but also due the low level of industrial development of the area – excepting the hydro-technical arrangements done in the sixty years of the last century, for decades, the principal activities in the area being the agriculture, grazing, fisheries activities and, only occasionally till now, hunting games. Artificial and natural lakes can be found in the lower course of the river: Carja, Mata-Radeanu, Sovarca, Vlascuta, Pochina, Vladesti which offer shelter for a large number of birds and also to some economically important fish species.

One of the most important hydro-technical work in the eastern part of Romania was the reducing the surface of Brates Lake to tenth from initial surface.

Main vegetation types at the site are grassland, forest and aquatic vegetation. The grasslands support about 200 species of plants. Main forest vegetation is represented by *Salix* spp. and *Populus* spp. Aquatic vegetation includes (enrooted) submerged, floating, and emergent vegetation (especially reed beds). In

addition to the globally threatened species, quite a number of nationally rare and threatened floral and faunal species occur at the site.

2. PERSPECTIVES

2.1. Location

The Prut Floodplain is located in the south-eastern part of Romania, along the Prut river which is representing the European Union east border and the state border between Romania and the Moldavian Republic. The target site is in Galati, Vaslui and Iasi counties, on the administrative territory of the following localities: Tulucesti, Frumusita, Foltesti, Mastacani, Vladesti, Oancea, Suceveni, Cavadinesti, Berezeni, Dranceni, Duda-Epuren, Falciu, Lunca Banului, Murgeni, Stanilesti, Vetrisoaia, Bivolari, Golaiesti, Gorban, Grozesti, Prisacani, Probota, Trifesti, Tutora, Ungheni and Victoria.

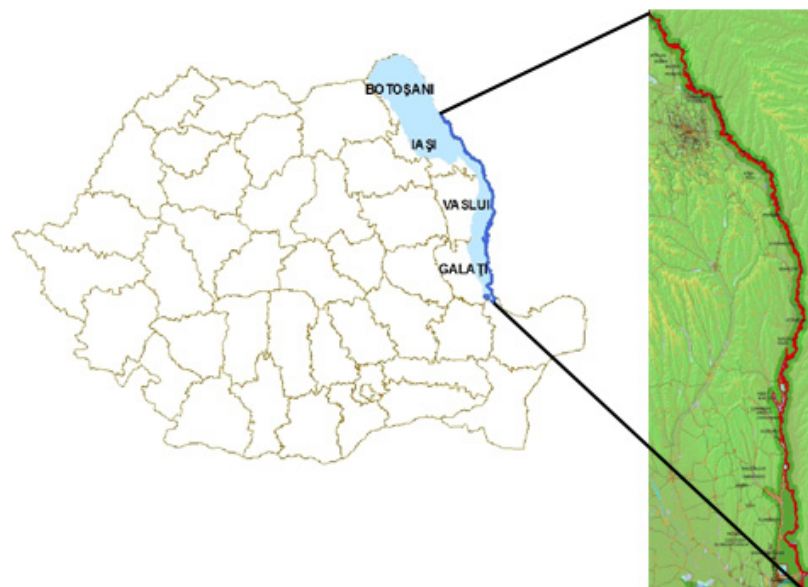


Figure 1 Location of the site Prut Floodplain

2.2. Arguments for declaration Prut Floodplain as site Ramsar

2.2.1 Noteworthy flora and fauna

The Prut meadow vegetation is represented by natural vegetal formations of pastures and forests specific to alluvial soils which are flooded periodically and with a supplement of phreatic humidity. The pastures are made up of mesophilic and mesohydrophilic species represented by graminaceae. Swamp vegetation is made up of *Carex riparia*, *Scirpus sylvaticus*, *Typha latifolia*, *Phragmites communis*, *Equisetum arvense*, *Mentha aquatic* etc. while *Lemna trisulca*, *Hydrocharis morsus - ranae*, *Potamogeton natans* are to be found in water ponds. There are also very rare species such as *Nymphaea alba*, *Salvinia natans*, *Thelypteris palustris*, *Nymphoides peltata*, *Vallisneria spiralis*, *Stratioides aloides*, *Alisma gramineum*, *Iris pseudacorus*, *Sagittaria sagittifolia*, *Potamogeton crispus*, *Ceratophyllum demersum* etc. On some sectors along the river Prut some forest phytocenosis fragments are still to be found, such as:

- *Vitis sylvestris*, *Fraxinus pallisae*, *Frangula alnus*.
- *Salvinia natans* L., *Trapa natans* L. (both in Annex I, Berne Convention).

2.2.2 Noteworthy habitats

The main habitats occurring in the Prut floodplain area are the followings:

Aquatic habitats - most of the ponds and lakes have open surface where only submerged aquatic vegetation is present. Along the shore of these man-managed systems there is present the typical aquatic vegetation with floating leaves. The dominant plant associations occurring at the ponds and lakes are *Nymphoidetum*, *Hydrocharicaetum*, *Nymphoidetum* and mixtures of *Lemna* sp. and *Polyrbiza* sp.

Reed marshes - the reed-marshes occur along the shores of the ponds and fishfarms. The dominant association is *Scirpo-Phragmitetum*, mostly vegetal communities described as *Phragmiteta*

angustifolia, *Typhaeta angustifolia*. Also there have been recorded other marshland vegetal communities described as *Eleocharieta palustris*, *Eleocharieta acicularis*. In case of some natural areas (Vlascuta, Branesti) and fishfarms from Mata, Vladesti-Maicasu, Rogojeni, Vadeni, Oancea and Brates several hundred hectares are covered by plant communities dominated by reed (*Phragmites australis*), species which is covering 80-100 % of the surfaces association.

Forests - along the shore of the Prut floodplain there are a strap-like willow forests, where there have been recorded the following vegetal associations: *Salicetum albae-agrostidosum stoloniferae*, *Salicetum caricosum-ripariae*, *Salicetum alytrigosum repensis*, *Salicetum rubosum caesii* etc. In the areas between the willows and the main dam (parallel to the river) there are poplar plantations and bushy areas.

Meadows - wet meadows occur mostly in Mata – Radeanu, Oancea and the some spots near Vladesti-Maicasu. The width of these meadows is usually at about 100 m, being regularly flooded during the high-water periods (spring and autumn). The characteristic vegetal communities of these meadows are: *Elyptrigetum (repensis) agrostidosum (stoloniferae)*, *Elyptrigetum eleocharosum (palustris)*, *Elyptrigetum cynodosum (dactyloni)*.

Mesophilus (moderately) wet meadows are present on the slopes of the main dam. The characteristic vegetal communities of these meadows are : *Agrostidetum (stoloniferae) eleocharosum (palustris)*, *Agrostidetum juncosum gerardi*, *Agrostidetum glyceriosum maximae* etc.

In few and isolated areas there are present steppe associations, characteristic for dry meadows as: *Bromopsidetum (riparae) thymosum (marshalliani)* , *Bromopsidetum (riparae) artemisiosum (australicae)*, *Botrichloetum (ischaemi) thymosum (marshalliani)*, *Agrostidetum potentilosum repentis*, *Agrostidetum roriposum sylvestris* etc.

2.2.3 Criteria for declaration Prut Floodplain as site Ramsar

The site meets 8 of the 9 criteria for declaration Prut Floodplain as site Ramsar.

Criterion 1. In the proposed site, three Important Bird Areas were identified and established: Carja – Mata - Radeanu ponds, Prut River valley (Vlădesti ponds – Frumusita) and Brates Lake (the last two are belonging to the Lower Prut floodplain Natural Park), being included in the “Romanian Nature 2000 Network” (HG 1284/2007), while the sector Mata – Radeanu is, also, part of the mentioned natural park.

The following habitat types mentioned in Annex I of the EU Habitat Directive are present within the site:
3130 Oligotrophic to mesotrophic standing water with vegetation *Littorelletea uniflorae* and /or *Isoëto-Nanojuncetea*

3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* – type vegetation

3160 Dystrophic lakes and ponds

3270 Rivers with muddy banks with vegetation *Chenopodion rubri* and *Bidention*

6150 Low altitude grasslands (*Alopecurus pratensis* *Sanguisorba officinalis*)

6430 Hydrophilous tall herb fringe communities of plains and of montane to alpine levels

91FO Riparian forests mixed along major rivers (*Ulmion minoris*) with *Quercus robur*, *Ulmus laevis*, *Fraxinus excelsior* or *Fraxinus angustifolia*

92A0 *Salix alba* and *Populus alba* galleries

Criterion 2. The habitat diversity in Prut Floodplain supporting high species diversity. Together with wetlands, all the habitat types present in proposed site are very important supporting vulnerable, endangered species and threatened ecological communities.

In Prut Floodplain 3 plant species are not threatened at national level but included in Berne Convention and Habitats Directive :

- *Marsilea quadrifolia* (Annex 1 Berne Convention, Annex 2 Habitats Directive)
- *Salvinia natans* L., *Trapa natans* L. (both Annex 1, Berne Convention).

The site additionally supports a number of species protected in Europe, including 65 species listed in the EU Bird Directive and three bird species under the Appendix I (*Haliaeetus albicilla*, *Numenius tenuirostris* and *Pelecanus onocrotalus*) and 113 bird species protected under the Appendix II of convention on the Conservation of Migratory Species of Wild Animals (CMS) Also, the site supports a number of species protected in Europe, listed in the EU Habitat Directive :

Invertebrates – 5 species, molluscs - 1 specie, fishes – 9 species, amphibians – 10 species, reptiles – 4 species, mammals – 11 species, plants - 1 specie. The site supports species protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):

- 5 species from Appendix I: *Aquila heliaca*, *Falco peregrinus*, *Haliaeetus albicilla*, *Numenius tenuirostris*, *Lutra lutra*;
- 14 species from Appendix II: *Asio flammeus*, *Asio otus*, *Athene noctua*, *Branta ruficollis*, *Bubo bubo*, *Ciconia nigra*, *Falco columbarius*, *Falco subbuteo*, *Falco tinnunculus*, *Falco vespertinus*, *Grus grus*, *Otus scops*, *Platalea leucorodia*, *Strix aluco*.

Criterion 3. The Prut Floodplain is part of Lower Danube and is often referred to as a 'green corridor' not just because its lush green vegetation contrasts sharply with the surrounding steppes but also because it provides a vital ecological corridor for wildlife. Prut Floodplain supports populations of plant and animal species important for maintaining the biological diversity of the steppic biogeographic region (as listed under Criterion 2). In total 35 species of the Habitats Directive are present in proposed area, including invertebrates, molluscs, fish, amphibians, reptiles, mammals and plants. The low terraces of the Prut rivers and dams are the concentration areas for small rodents like the European souslik *Spermophilus citellus*, the Southern Birch Mouse *Sicista subtilis* and black-bellied hamster *Cricetus cricetus*, burrowing into the soft soil to create their communal warrens. The abundance of small rodents attracts, in turn, a number of larger birds of prey like the shorttoed snake-eagle *Circaetus gallicus*, lesser spotted eagle *Aquila pomarina*, imperial eagle *Aquila heliaca* and the peregrine falcon *Falco peregrinus*. The golden jackal *Canis aureus* is also present in Prut Floodplain where it has established a small resident population. In the area lives a community of bird species of global, European, and/or national concern inhabiting steppe habitats: shelduck *Tadorna tadorna*, pallid harrier *Circus macrourus*, long-legged buzzard *Buteo rufinus*, short-toed eagle *Circaetus gallicus*, imperial eagle *Aquila heliaca*, red-footed falcon *Falco vespertinus*, eagle owl *Bubo bubo*, slender-billed curlew *Numenius tenuirostris*, crested lark *Galerida cristata*, tawny pipit *Anthus campestris* but also many colourful species of bunting, quail and partridge as well as larks and pipits, some of them are highly endangered.

Criterion 4. Prut river is one of the major routes for migrating birds coming from Eastern and North-eastern Europe. Consequently, the river, the floodplain and their close neighbourhood has a special value at a critical stage of the biological cycle of these groups.

Protected bird species effectively were recorded as following:

- a) Annex I Bird Directive species: 65;
- b) Critically Endangered and Endangered: 2;

During migration, the site is important for species, as well as for over 20,000 individuals of other migratory waterfowl. The mammals (*Lutra lutra*) find here an optimal environment for reproduction and protection against hunters. The site is highly important for waterfowl's habitat, sheltering sedentary wild birds on one hand, as well as Eastern and North-eastern population that rest during migration periods.

Criterion 5. 227 bird species, from the total of about 500 European bird species, inhabit in the site, breeding, nesting, wintering or in migration. Being a component of the East-Elbic migration route, the Prut Floodplain represents an important staging area for most of migratory species. During migration in spring and autumn, over 20000 birds can be recorded. For further details and bird counts, please see attached to this RIS Annex Species, worksheet Birds.

Criterion 6. *Chlidonias hybridus*, *Chlidonias niger*, *Pelecanus onocrotalus*, *Alcedo atthis*, *Chlidonias hybridus*, *Sterna hirundo*, *Ciconia nigra*, *Falco columbarius*, *Egretta alba* and *Plegadis falcinellus* are present on the Prut Floodplain during migration, and the individuals percent of each species represents evermore than 1 % of the entire world population.

Criterion 7. The fish populations vary yearly and depend on the dimensions of spring floods, trophic resources and the turbidity of water (if high, the fish tend to migrate to the Danube Delta. The ichthyofauna of Prut Floodplain area is represented by 48 fish species, many of them mentioned in the IUCN Red List of Threatened Species or in EU Habitats Directive and Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), inhabit water covered areas in the site (See attached to this RIS Annex Species, worksheet Fish). The lower Prut includes important flood plains that in connection with the natural flood events are creating an important heterogeneity of the habitats. The fishes in the lower Prut river belongs to 6 orders and 10 families. But in the middle and upper portion of the river one can find other 3 orders and 7 families. In the lower Prut they are 13 fish species protected either at national or international level.

Criterion 8. The lower sector of Prut river is an important spawning ground, nursery (*Aspinus aspinus*, *Misgurnus fossilis*, *Cobitis taenia*, *Rhodeus sericeus amarus*) and migration path (*Pelecus cultratus*, *Zingel streber*, *Zingel zingel*, *Gobio kessleri*, *Gymnocephalus schraetzer*) of freshwater fish stocks, including sturgeons.

3. CONCLUSIONS

Actual fauna of invertebrate and vertebrate is very diverse in a large diversity of habitats. In proposed area were identified 48 species of fish, 18 species of amphibians and reptile, more than 220 species of birds and 23 species of mammals. The invertebrate fauna is well represented by mollusks and insects.

The birds, more than any group of vertebrates, have a large living surface in the area presented in terms of the number of species as well as the number of individuals. From the approximately 370 species of birds present in Romania, in Prut Floodplain are recorded than 227 species. Not all of them are present constantly in the area. The largest part of the birds found in the area are migrating species (118 species) representing international natural resources; among these, we mention the white stork, the bee-eater, the The site includes 212 species from the IUCN Red List of Threatened Species 2011: Least Concern – 201 species, Vulnerable – 2 species, Endangered – 1 specie, Near Threatened - 7 species and Critically Endangered - 1 specie.

There is a relatively high diversity of species of bats, as there is now a percentage of 71.42% of all species in Moldova and 50% of all species in Romania, but some values are higher following the completion of a more extended study, spread over several years. To maintain the current status of resources and services provided by ecosystems from Prut Floodpain and its proximity but also to improve their ability to provide this for long-term is required to consider biodiversity management in transboundary context:

- developing a common cross-border policy for biodiversity conservation and create an framework for effective implementation,
- designation of transboundary protected areas for biodiversity conservation by including the protected areas with different protection status on both sides of the Prut River,
- permanent exchange of information between bodies involved in biodiversity conservation in a transboundary context,
- developing and implementation the project regarding biodiversity conservation in partnership in a transboundary context between strong partners.

REFERENCES

- BirdLife International, 2001, Important Bird Areas and potential Ramsar sites in Europe, BirdLife International, Wageningen, The Netherlands;
- Council Directive 79/409/EEC on the Conservation of Wild Birds, "Bird Directive";
- Davideanu, G., Mosu, A., Davideanu, A., Miron, A., 2008, Ihtiofauna Raului Prut, Romania, Republica Moldova, Societatea Ecologica pentru Protectia si Studiarea Florei si Faunei Salbatice AQUATERRA, Societatea Bioremedierii Ecosistemelor acvatice si Umede "EURIBIONT", Iasi
- Geacu, S (2002), *Colinele Covurluiului. Potential ecologic. Comunitati biologice. Modificarea antropica a peisajului geographic*, Editura Univers Enciclopedic, Bucuresti
- H.G. 971/2011 – Hotarare de Guvern pentru modificarea si completarea H.G. nr. 1284/2007 privind declararea ariilor de protectie speciala avifaunistica ca parte integranta a retelei ecologice europene Natura 2000 în Romania
- Mititelu, D., Sarbu, I., Patrasc, A., Gociu, Z., Oprea, A., 1993, *Flora si vegetatia judetului Galati*, Bul. Grad. Bot., Iasi, 4, 69-101
- OUG 57/2007 – Ordonanta de urgenta privind regimul ariilor naturale protejate, conservarea habitatelor naturale, a florei si faunei salbatice;
- Oprea *et al.*, Starea de conservare a biodiversitatii în zona transfrontaliera Romania-Republica Moldova. Proiect Phare *Mutual management Romania-Republic of Moldova for biodiversity conservation on the border between the two countries: 37-70* 2008) or 222 (Papadopol & Mandru, *Contributii la cunoasterea pasarilor (Aves) din regiunea Iasi*,
- Water Basin Administration "Prut - Barlad", Prut-Barlad River Basin Management Plan, Iasi, 2009
- Ordinul nr. 2387/2011 pentru modificarea Ordinului nr. 1964/2007 privind instituirea regimului de arie naturala protejata a siturilor de importanta comunitara, ca parte integranta a retelei ecologice europene Natura 2000 în Romania.
- Oltean, M., si colab., 1994, *Lista rosie a plantelor superioare din Romania*, Edit. Acad. Rom., Bucuresti.
- Patriche Gabriela, Mancu C.O, 2008, Preliminary data records of dragonflies (*Insecta: Odonata*) from Lower Prut Floodplain Natural Park, Acta Musei Brukenthal, III, pp. 95-101.
- Patriche Gabriela 2009, Promoting studies on dragonflies (*Insecta: Odonata*) and environmental education in the Lower Prut Floodplain Natural Park, Book of Abstracts, Annual Zoological Congress of „Grigore Antipa” Museum, pp. 73.
- “Romanian Ornithological Society” database.