

## PROTECTED WETLANDS IN ROMANIA

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### Abstract

The purpose of this paper is to identify and analyze the existing protected wetlands. After defining what criteria an area would meet to be considered a protected wetland, the overview presents 345 sites, which cover 2.5 mil. ha (10.5% of the territory). The paper proceeds to analyze the sites on three levels: Ramsar sites (19), Natura 2000 sites (62 SPAs and 115 SCIs) and national nature reserves (149). Of these, 249 sites are rivers and lakes, 88 sites are swamps and bogs, and only 8 sites are estuaries, lagoons, areas and offshore islands. There is a range in size of sites from 0.2 ha (glacial lakes) to 580,000 ha (Danube Delta), with the median size being 7,232 ha. In the present, protected wetlands are subjected to anthropogenic impact on ecosystems by: poaching; tourism; habitat change; invasive species; water pollution.

**Keywords:** wetlands, protected areas, vulnerability, Romania

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## 1. INTRODUCTION

The purpose of this working paper is to provide an overview on protected wetlands in Romania. This overview identifies 345 protected areas. For this assessment, it is necessary to establish a definition and some criteria for what constitutes a wetland. Wetlands are areas where water is the primary controlling factor. These areas are established by their role from ecologically, bothanically, zoologically, limnologically, hydrologically point of view and by of their importance for waterbirds in all seasons. They have multiple importance: flood control, water supply underground layer, nutrient and sediment retention, water purification, climate change mitigation.

Under the text of the Ramsar Convention, wetlands are defined as: “areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres”. In addition, there are human-made wetlands such as fish or farm ponds, reservoirs, sewage farms and canals. In 1991, Romania joined the Convention on Wetlands of International Importance, approved by Law no. 5/1991.

## 2. METHOD AND DATA SOURCES

For this analysis, the protected areas (wetlands) in Romania is divided into three parts, according to their importance:

- international areas: wetlands of international importance (Ramsar sites);
- communitary or „Natura 2000” areas: communitary importance sites and special protection areas;
- national areas: scientific reserves, national parks, nature monuments, nature reserves and national parks.

This working paper relies on existing information extracted from different databases: the Annotated Ramsar List of Wetlands of International Importance ([www.ramsar.org](http://www.ramsar.org)); the Natura 2000 data – the European Network of Protected Areas ([www.eea.europa.eu](http://www.eea.europa.eu)); the European Environment Information and Observation Network ([www.eionet.europa.eu](http://www.eionet.europa.eu)) and the natural protected areas from the Romanian Environment and Climate Changes Minister ([www.mmediu.ro](http://www.mmediu.ro)). Additional sources of data from other published sources have been consulted (Mohan&Ardelean, 2006; Balteanu et al., 2008; Chape et al., 2008; John Samad, 2008).

In Romania, the legal basis for declaring protected areas consists of: Law no. 5/2000 on national planning, Section III protected areas; Government Decisions (GDs) no. 2151/2004, no. 1581/2005 and no. 1143/2007 establishing protected natural area regime for new zones; Official Gazette 1964/2007 for the creation of the protected area of Communitary importance sites (SCI) as part of the European ecological network Natura 2000 in Romania; GD no. 1284/2007 declaring Bird Special Protection Areas (SPA) as part of the European ecological network Natura 2000 in Romania; GD no. 1066/2010 for the creation of the new

protected area in the Biosphere Reserve "Danube Delta" and their inclusion in the category of scientific reservations; GD no. 1217/2010 for the creation of the Cefa Natural Park; Order no. 2387/2011 amending Order no. 1964/2007 for the creation of SCIs as part of the European ecological network Natura 2000 in Romania; GD no. 971/2011 amending and supplementing GD no. 1284/2007 declaring SPAs as part of the European ecological network Natura 2000 in Romania.

### 3. RESULT AND DISCUSSION

At present, there are 345 protected areas that have been included in our study according to the definition of wetlands. They covered 2,494,928 ha, which represent 10.5% of the Romanian territory.

Of these, on habitat classes, 249 sites (51% of the area) are rivers and lakes, 88 sites (42% of the area) are swamps and bogs, and only 8 sites (7% of the area) are estuaries, lagoons, areas and offshore islands.

On the relief levels, the largest area of protected wetland areas is the low plain areas (over 70%), while in the mountain area are the fewest and lowest (only 19% of them).

There is a range in size of sites from 0.2 ha to 580,000 ha (Figure1). The smallest sites (less than 0.60 ha) are glacial lakes in the Fagaras Mountains (Galbena, Hartop, Buda). The largest is the Danube Delta with 580,000 ha, followed by Iron Gates Natural Park with 125,543 ha and Danube Islands-Bugeac-Iortmac with 82,832 ha. In general, protected sites are small with the median size being 7,232 ha.

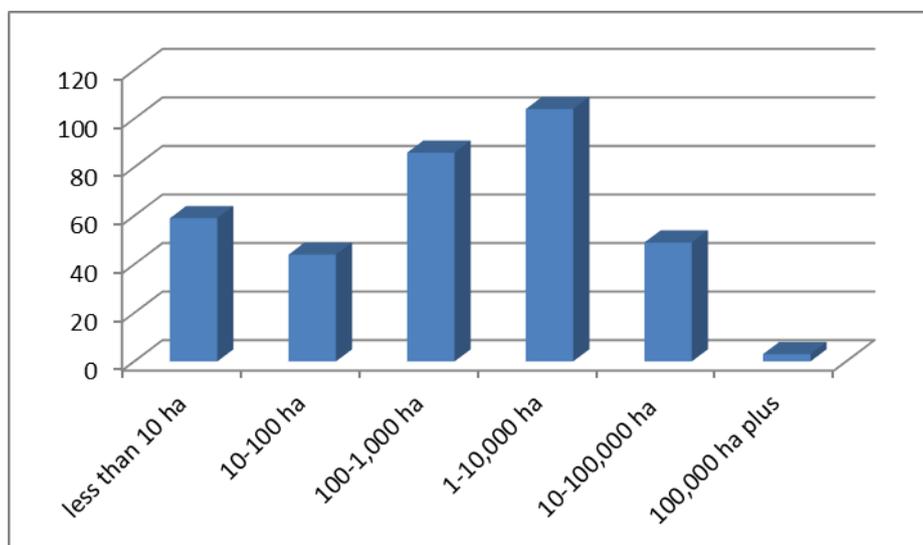


Figure 1. Number of protected wetlands (by category of size)

#### 3.1. Protected areas of international interest

Romania presently has 19 sites (Figure 2) designated as internationally important wetlands (Ramsar sites), with a surface area of 1,156,448 hectares.

In the Romanian network of protected areas, the *Danube Delta* is distinguished both as surface and the level of biodiversity, having a triple status: Biosphere Reserve, Ramsar site (a wetland of international importance) and the Natural and Cultural World Heritage Site. It includes Delta itself, maritime Danube to Cotul Pisicii, Isaccea-Tulcea floodplain, Sărăturile Murighiol-Plopu, Razim-Sinoe, the Black Sea from Chilia arm to Cape Midia, internal marine waters and territorial sea to 20 m isobath. As one of the largest wetlands in the world, the largest compact reed area in the world, it is a true museum of biodiversity: original landscapes; 1,689 species of flora, of which are 4 endemic species, 14 vulnerable or endangered species and 4 species protected by the Bern Convention; 3,448 species of fauna, of which 86 species of mollusks, 2,219 species of insects, 125 species of fish (24 protected by the Bern Convention), 10 species of amphibians (9 protected), 11 species of reptiles (all protected), 325 species of birds (313 protected) and 42 species of mammals (22 protected). Also meet 30 ecosystem types: natural or partially modified by man (lowland floodplain areas covered with hygrophile vegetation fixed, coastal marine waters, lakes with large areas or natural active exchange of water, meadows on low marine sand, lakes partially covered with floating

vegetation, lagoons communicating with the sea, the Danube and main branches, streams and canals); anthropogenic (agricultural and fishery facilities; poplar plantations on river levees, human settlements).

**Small Island of Brăila** in the Lower Danube region, contains a representative sample of habitats characteristic of floodplains as well as a former inland delta. The site is of major interest for at least 34 internationally protected bird species and 65 species of fish. **Mureș Floodplain** consists of a high variety of ecosystems, a mixture of meadows, periodically flooded areas with forests, arable land and pastures, and about 40 isles on the river. These ecosystems are among few examples of this type of habitat remaining in Europe.

**Dumbravita Fishpond Complex** includes reservoir and fishponds, with a very rich flora and make an important breeding site for over 30 waterbird species and staging area for more than 100 bird species, some that are rare for Romania. **Poiana Stampei Peat Bog** is the largest oligotrophic peat bog in Romania.

**Lake Techirghiol**, near the Black Sea coast, divided into three parts (with salty, brackish and fresh water), provides a very important roosting place for waterfowl, especially geese and ducks.

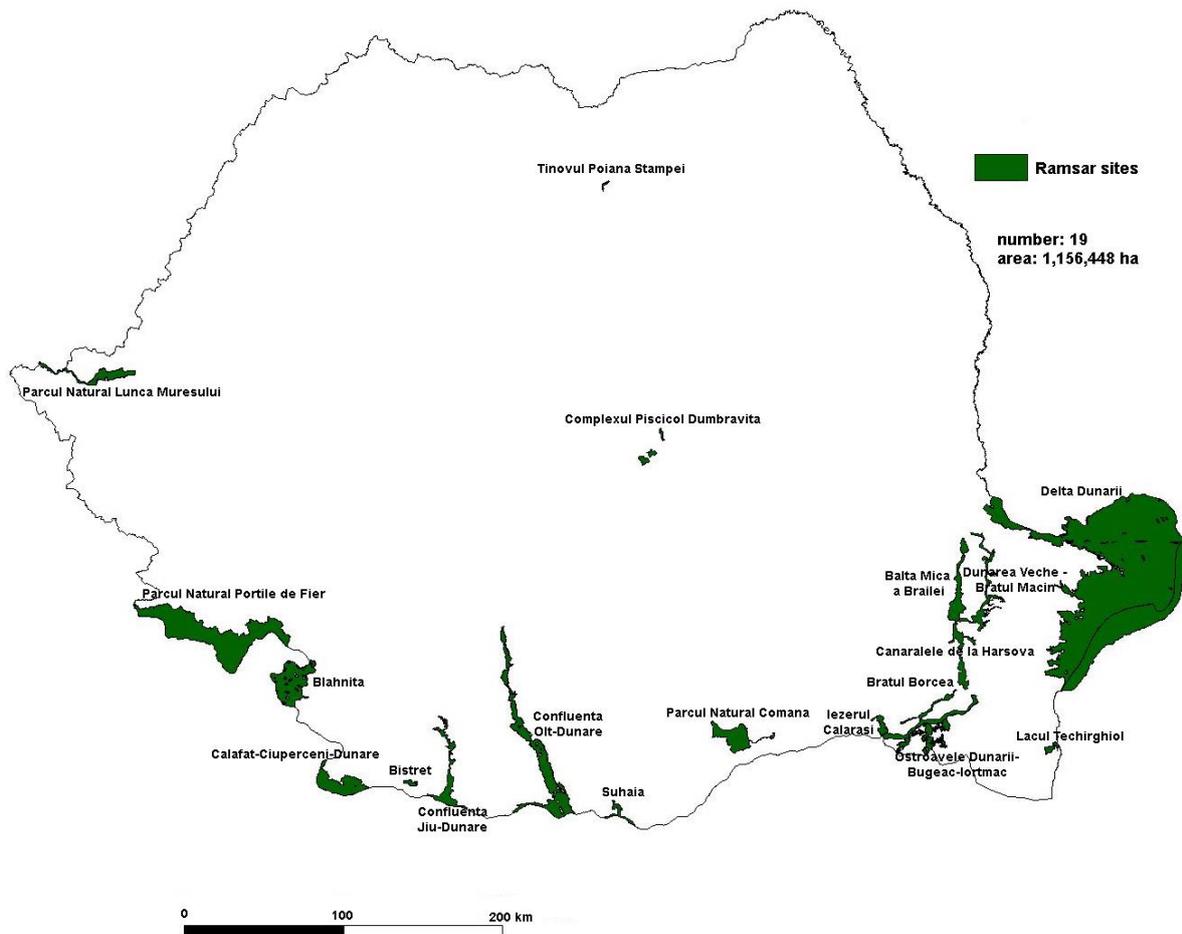


Figure 2. Ramsar sites

**Iron Gates Natural Park** conserved about 3700 species of flora and 5200 species of fauna, most of them being endemic. **Comana Natural Park** is located in the flat plain of southern Romania characterized by a high diversity of flora and fauna and consisting mainly of forests, agro-ecosystems, meadows, rivers, lakes, canals, oxbow lakes and a micro-delta. Some 157 bird species have been observed in the park and about 1,300 plant species.

**Olt-Danube Confluence, Jiu-Danube Confluence, Calafat-Ciuperceeni-Danube** and **Blahnița** include a great variety of ecosystems: alluvial meadows and forests, small lakes, swamps, old branches of the river, sand islands, dunes, marshes, channels, arable lands.

**Borcea Arm, Old Danube-Măcin Arm, Canaralele de la Hârșova** and **Danube Islands-Bugeac-Iortmac** are part of the Danube meadow and is situated in an important migration corridor, providing breeding, resting and feeding for many rare bird species.

As Danube are used to delineate the borders between Romania and Bulgaria, there are 3 transboundary natural sites as Ramsar sites. These are: *Bistret - Ibisha Island*, *Lake Călărași - Srebarna* and *Suhaia - Belene Islands Complex*.

### 3.2. Protected areas of community interest

Natura 2000 is an ecological network composed of sites designated under the Birds Directive (Special Protection Areas, SPAs) and the Habitats Directive (Sites of Community Importance, SCIs). By designation of new sites and changing the limits of previously designated, in Romania there are 177 Natura sites (SPAs and SCIs) (Figure 3), without those included in the Ramsar list.

*Lower Prut Floodplain* corresponds to land with many lakes and swamps, located on important migration routes of birds (over 60 species). Fish ponds from *Cefa* is a bird refuge, particularly by ensuring passage conditions, feeding and nesting, especially because they are the bird migration corridor Panono-Bulgarian and also shares a border with the protected area Biharugra, part of the National Park Körös-Maros in Hungary.

*Balta Alba-Amara-Jirlau-Lacul Sarat Caineni* consists of lakes along the river Buzău river, is an important site for breeding populations and is a feeding and resting area for *Branta ruficollis* during migration and winter and may candidat as Ramsar site.

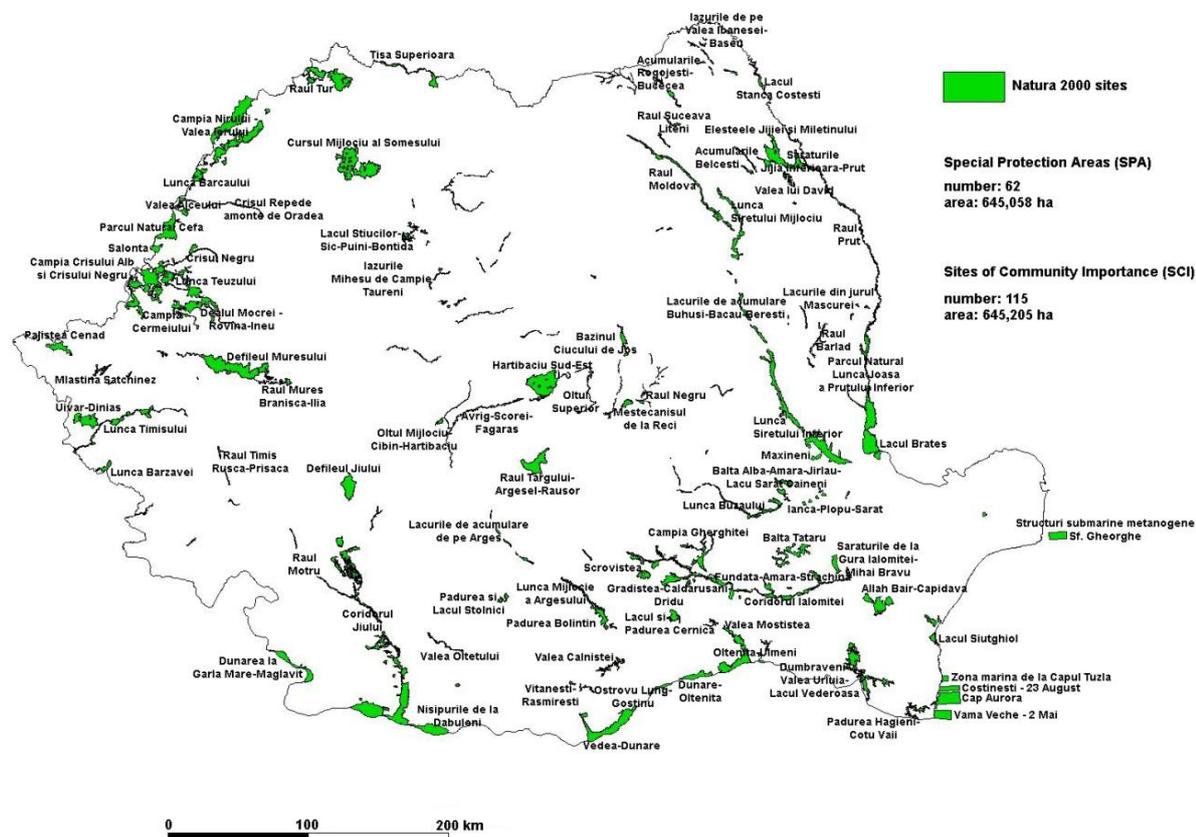


Figure 3. Protected areas as Natura 2000 sites

*Lakes Faragau-Glodeni* - lowland ponds ecosystem, reed beds associations with *Sphagnum* and *Dryopteris thelypteris*. *Mlastina dupa Lunca (Meadow Marsh)* - preserved in excellent condition mesotrophic peat swamp, with 4 types of habitats which preserves 28 plant species (13 glacial relict) and 127 protected animal species. *Peatbog from (Turbaria de la) Dersca* - an eutrophic marsh, with some rare plant species in the vascular flora.

*Oltenita-Mostistea-Chiciu* - numerous species of birds nest in riverbanks, Danube floodplain meadows and ponds. *Crisul Alb between Gurahont and Ineu* - important site in terms of ichthyofauna protection; home for 14 fish species, all native with *Leuciscus Leuciscus*, critically endangered species.

Other protected areas are of high importance for species of amphibians *Bombina* and *Triturus*, and the mammal *Lutra lutra*: *Lakes around Măscurea* (being one of the few sites designated for *Emys orbicularis*), *Lakes Fălticeni* (an important stopover for migratory birds), *Putna River*, *Somesul Mic* and

*Spinney of Santau*. For the species *Unio crassus* and *Rhodeus sericeus amarus* are important protected areas *Crisul Repede upstream Oradea*, *Târnava Mare River between Copșa Mică and Mihălț* and *Middle Siret-Bucecea*.

A number of sites hosting the important numbers of protected bird species (in Annex 1 of the Birds Directive, Annexes Bonn Convention on migratory species, globally endangered species): eg. *Avrig-Scorei-Fagaras* (117 species), *Ciocanesti-Danube* (96 species), *Lake Galatui* (80 species), *Lake Oltina* (118 species), *Lake Siutghiol* (79 species), *Lakes Tasaul-Corbu* (82 species), *Reservoirs of the Arges* (30 species), *Maxineni* (82 species), *Mostistea Valley* (78 species). Also these sites are important for breeding populations or during migration and wintering ground for waterfowl. During migration, the sites hosting more than 20,000 copies of waders, are possible candidates as Ramsar sites.

Other sites are designated as IBA according to criteria developed by BirdLife International. For ex. *Ianca-Plopu-Sarat* (109 protected bird species, especially for *Aythya nyroca*, *Branta ruficollis*, *Plegadis falcinellus*, *Egretta alba*, *Platalea leucorodia*, *Phalacrocorax pygmaeus*).

*Ponds of Ibanesei valley- Baseu* and *Ponds Miheșu de Câmpie - Taureni* include areas with important populations of threatened species in the European Union. They are an important stopover for migratory birds and *Reservoirs Buhuși – Bacău – Berești* is one of the most important place of migratory waterfowl in Moldavia.

### 3.3. Protected areas of national interest

The lower stretch, but interesting for specific alpine landscape in Fagaras Mountains are reserves (Jgheburoasa and Scărisoara Galbena lakes), Caldarea Galcescu (Parang Mountains), Iezerul Surianul and Iezerele Cindrelului (Figure 4).

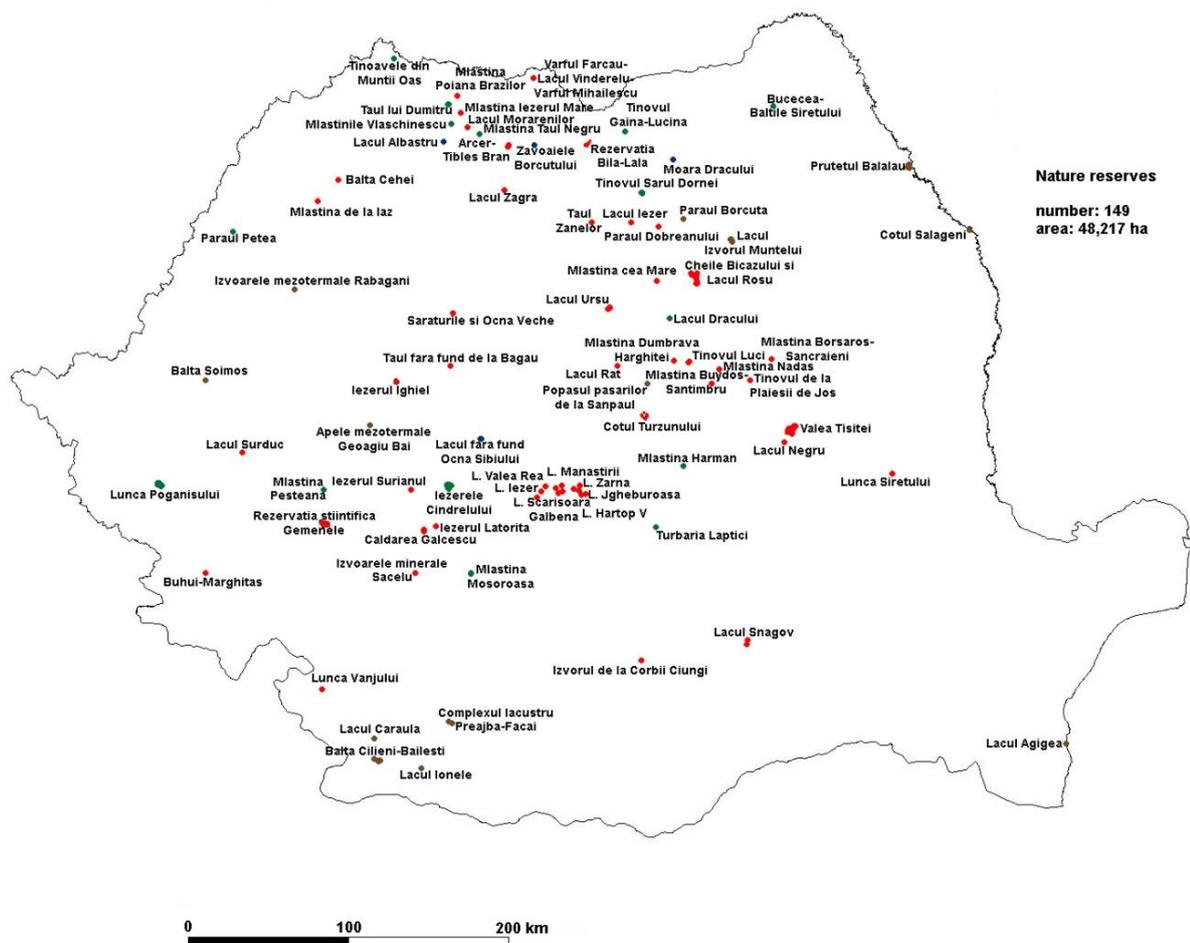


Figure 4. Nature reserves

A number of oligotrophic and eutrophic swamps are important for scientific interest, hosting glacial relicts. Most of these are concentrated in depressions in the eastern Transylvania (Tinovul Luci, Tinovul

from Plaiesii de Jos, Harman Swamp), Ignis Mountains (Taul lui Dumitru, Poiana Brazilor Swamp), Dorna Depression (Tinovul Șarul Dornei), Obcinele Bucovinei (Tinovul Gaina-Lucina).

Interesting are also salt lakes with heliothermic: Tăul fără fund from Bagau and Bear Lake (Lacul Ursu) from Sovata.

Near Oradea, Petea Creek is unique in the country through its thermal nature and the presence of tertiary relicts *Nymphaea lotus thermalis* and *Melanopsis parreyssi*.

North of Bucharest, Snagov Lake hosts an interesting aquatic vegetation and oak forests mixed with lime, hornbeam and ash.

#### 4. CONCLUSION

Wetlands are under pressure to anthropogenic impact on ecosystems by: poaching; mass tourism; semi-natural habitat change (meadows, pastures) due to cessation of agricultural activities such as mowing or grazing; uncontrolled invasive species; water pollution by nitrates from treating crops with different substances from agricultural lands surrounding the site and inside.

Wildlife and especially birds record high disturbance due to changing conditions of shelter and tranquility by cutting woody vegetation, the movement of livestock, the burning of reed vegetation and agricultural residues.

The use of water for household consumption and wastewater discharge is now an important issue for rural areas, most of them having no sewerage system.

Therefore, territorial planning require harmonization of all present and future interests in these humid areas, with the land structure remains unchanged, to maintain protected natural habitats by Romanian and EU laws.

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