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# STUDY ON EVALUATING THE CONSERVATION STATUS OF SPECIES OF MAMMALS AT THE NATURAL PROTECTED AREA „GILORT RIVER"

**Irina-Ramona PECINGINA, Roxana-Gabriela POPA**

„Constantin Brancusi" University of Targu Jiu, 30 Eroilor Street,
Targu Jiu, Gorj, Romania

Corresponding author email: irinacornescu@yahoo.com

***Abstract***

*The „Gilort River" Natural protected area lies in Gorj, Getic Subcarpathians in the Ciolanei Depression and is a site of community importance forming part of the Natura 2000 European network. The purpose of „Gilort River" protected area is to protect and conserve important species at national and community level (Lutra lutra, Bombina variegata, Eudontomyzon mariae, Gobio albipinnatus, Barbus meridionalis, Sabanejewia aurata). The paper presents the methodology for assessing the conservation status of mammal's species of Lutra lutra. There have been carried out evaluations in the field, between Januarys to April 2015, with a frequency of 3-4 per month, applying the multi-criteria method, which was based on the following criteria: local distribution, population, habitat of the species and prospects. Following the evaluation and presentation of the distribution of the Lutra lutra species and of the areas favorable for its protection, it was shown that there were traces of the presence of the otter in the river Gilort, on sandy beaches in inaccessible areas difficult to access, close to areas with greater depth of water, being identified a maximum of two family groups of otters, meaning 7 individuals. The evaluation demonstrated that the conservation status is unfavorable and inadequate.*

***Key words****: Natural Protected Area, assessment, conservation.*

## INTRODUCTION

The ***Gilort River protected area*** is a site of community importance and belongs of the Natura 2000 European network.

The purpose of Gilort River protected area is to protect and conserve species of important national and Community level (*Lutra lutra, Bombina variegata, Eudontomyzon mariae, Gobio albipinnatus, Barbus meridionalis, Sabanejewia aurata*).

The reason for designating area Gilort River as protected was due to existence on its territory of the species of relevant community interest for conservation in the biogeographic region they belong.

The Gilort River protected area lies in Gorj, in Getic Subcarpathians , in the Ciolanei Basin and is bordered by the localities: Pociovalistea and Bumbesti-Pitic at north, natural protected area Prigoria-Bengesti and localities Mirosloveni, Albeni, Bolbocesti and Barzeiu de Gilort at east, locality Doseni at south and localities Albeni, Bengesti, Ciocadia and Balcesti at weast.

The natural protected area develops longitudinally from north to south, with a length of 21.75 km Gilort River (Figure 1).

*The Gilort River protected area* is located within the territorial administrative units of Bengesti, Albeni, Novaci, Bumbesti-Pitic and Targu Carbunesti in the Gorj County, including an area of 873 ha (Figure 2).

The landscape is characterized by the presence of hills and riverbed topography created by the action of rivers.

From the geographically point of view, the Gilort River protected area is located at the 45.076561 north latitude and 23.612975 eastern longitude.

The average altitude is 300 m. The access to the protected area Gilort River is by National Road 67, in the north, north-east or the west of the protected area.

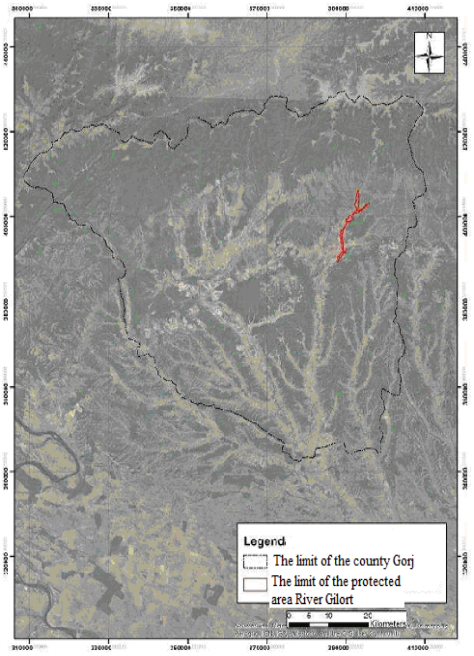


Figure 1. Localisation of the Gilort River natural protected area *(GIS software)*

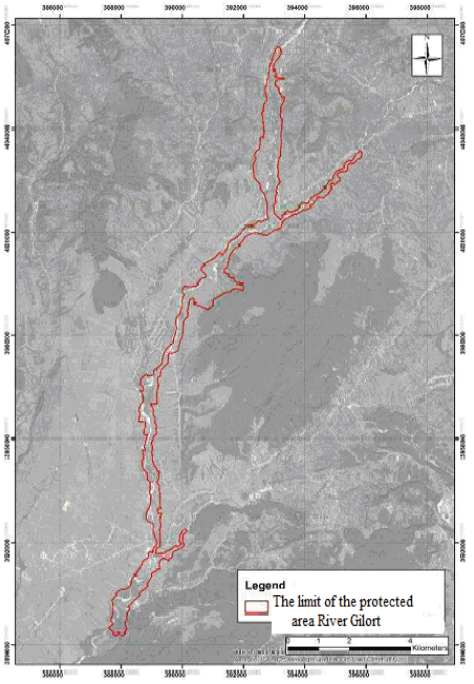


Figure 2. Limits of the Gilort River natural protected area *(GIS software)*

**Abiotic environment**

From the geological point of view, the protected area is located on the fluvial and fluvial-lacustrine deposits formed in the Quaternary and Holocene Lower and Upper, Pleistocene Quaternary and Neogene Miocene Ages.

In terms of relief, the Gilort River protected area is located in the Subcarpathians of Gorj, positioned in the central of Gorj County.

The hydrology protected area is characterized by the presence of Gilort River with the tributaries: Ciocadia (on the right) and Yellow Creek and Calnicul (on the left). The basin which includes the area is the Jiu Basin wich is characterized by a reception area of 10080 km$^2$ and an oblong shape which is taken over by the river Gilort River, the most important left tributary of the river Jiu. It collects water from the southern slope of the mountain Parang, with an area of springs located at 1.800 m altitude (Figure 3).

From the climate perspective Gilort River protected area is located in the temperate continental climate, specific of hills and plateaus climate, with variability from north to south.

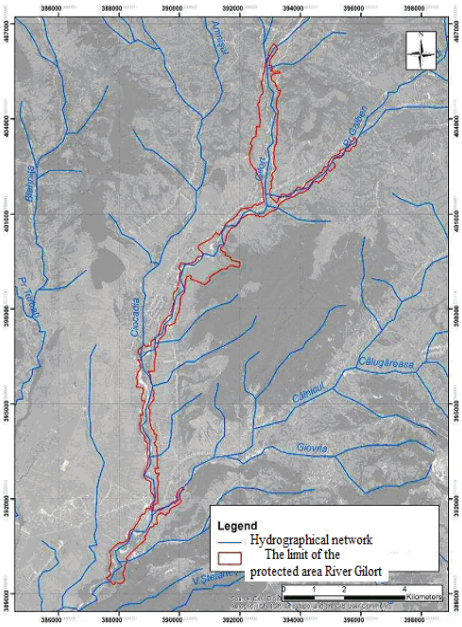


Figure 3. The hydrographic network of the Gilort River natural protected area *(GIS software)*

Analyzing the edaphic potential, the soils present in the analyzed area are included in four major classes of soils. The soil distribution within the protected area has a high variability, comprising 6 types of soils. The specific vegetation formation is influenced, among others, by the characteristics of soils. This, in turn, influences the fauna that inhabit different habitats developed as it is the case of species of amphibians and mammals.

**Biotic environment**

***The ecosystems*** within the Gilort River protected area are differentiated in 5 main categories: forest ecosystems, grassland ecosystems, agricultural ecosystems, aquatic ecosystems and urban ecosystems.

Characteristic for *Lutra lutra* species and for fish species is the aquatic ecosystem. Within the protected area was identified the habitat of community interest 91E0* *alluvial forests cu Alnus glutinosa and Fraxinus excelsior (Alno-Padion).*

***The fauna*** is represented by species of national and community interest: mammals *(Lutra lutra),* amphibians *(Bombina variegata)* and fishes *(Eudontomyzon mariae, Gobio albipinnatus, Barbus meridionalis, Sabanejewia aurata)*

## MATERIALS AND METHODS

For evaluating the conservation status of species of mammals *Lutra lutra* assessments were developed on the field in the period January-April 2014, with a frequency of 3-4 ratings per month. The assessment of the conservation status of the community interest species of *Lutra lutra* from the protected area was carried out as specified in table 1.

Table 1. Specifications for evaluating the conservation status of mammal's species of community interest (*** Guidelines for Application of IUCN Red List at Regional Levels)

| Parameters | Conservation status | | | |
|---|---|---|---|---|
| **Species code** | **Favorable** | **Unfavorable Inappropriate** | **Unfavorable totally inadequate** | **Unknown** |
| **Aria distribution** | - distribution area stable or increasing;<br>- reduction area distribution with less than 10% | - reduction distribution area with 11-20% | - reduction distribution area with more than 20% | - insufficient data |
| **Population** | **A** ≥33 ex./year | **A** = 25-20 ex./year (a decrease of 10- 40%) | **A** < 13 ex./year (a decrease of more than 40%) | - insufficient data |
| **Habitat of the species** | - the habitat of the species is stable or increasing;<br>- reduction habitat with less than 5% | - reduction habitat with 6% - 15% | -reduction habitat with more than 15% | - insufficient data |
| **Future prospects** (maximum 30 years) | **1** = perspectives Good - viability and prosperity of species are provided | **2** = perspectives Weak – it is probably that species meet difficulties if conditions of environment are not modified. | **3** = perspectives Bad – species under the influence of severe threats its viability is not assured | - insufficient data |
| **Evaluating the conservation status** | **All "green" or three "green" and one "unknown"** | **One or More "orange" but neither "red"** | **One or more "red"** | |

Specific habitats for *Lutra lutra* identified within the protected area Gilort River are mosaic type and subject to anthropic pressure (by hydraulic engineering, operating aggregated minerals activities, tourism activities, fishing, grazing, the presence of free or wanderer dogs), following which trophic resources and habitat are limited, adversely affecting otter populations within the site.

The current observed trend is of slow degradation under the effect of specific habitat threats.

In Romania the otter is widespread close to all waters rich in fish but its abundance is low.

The overall population in Romania was estimated at 3,000 specimens, considering that it shows a declining trend, although in some regions (eg. Tisa basin) has a slight improvement due to a lower demand for fur

and to the cessation to use some pollutants used in the past (eg. DDT). However, there are no extensive or long-term studies to monitor the situation at the national level of the *Lutra lutra* populations. Of the ten subspecies of European otter in the whole Palearctic area for the Romania territory, there is only the subspecies nominated – *Lutra lutra* Linnaeus, 1758.
As habitat they prefer lakes and ponds, rivers and any body of water bordered by high vegetation and even coastal areas in general all aquatic environments that allow diving and finding food. Otter's habitat preference for such areas makes it vulnerable to pollution and to the annoyance done by tourism activities.

## RESULTS AND DISCUSSIONS

In Natura 2000 site Gilort River, the otter traces of presence were recorded along the Gilort River, mainly on sandy beaches in the human inaccessible areas, usually near areas with deeper water where they can search for food.
The area occupied by *Lutra Lutra* is estimated at 32.5 km$^2$ and is expressed by the minimum convex polygon.
The minimum convex polygon is the unit used by IUCN for determining the area of distribution of species and expresses the surface determined by the extremes appearance points of the species (Table 2).

Table 2. Minimum convex polygon for *Lutra Lutra* from the Gilort River protected area

| Species | MCP (km$^2$) |
|---|---|
| *Lutra lutra* | 32.5 km$^2$ |
| | size distribution = 21.9 km$^2$ |
| | size distribution = 45.4 km$^2$ |

Corroborating the data from the literature concerning the territorial size of the otters family groups with the surface of protected area it is considered that the population of otters that may exist in the Gilort River protected area do not exceed two family groups, which is also the number identified from field observations (7 specimens).
The distribution of *Lutra lutra* species and the favorable areas for the protection of the species are shown in figures 4 and 5.

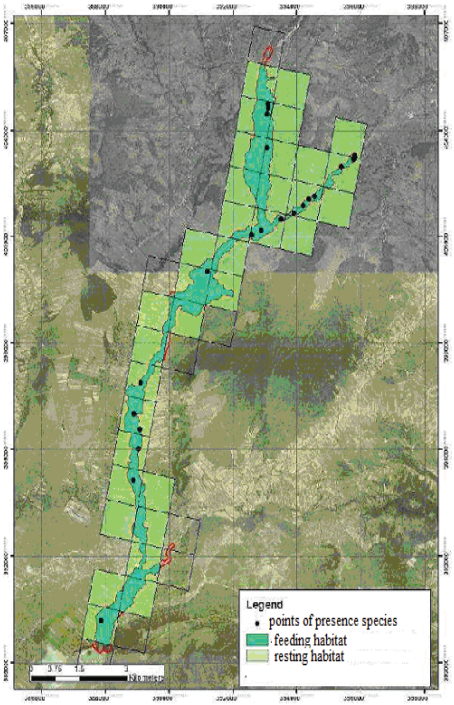


Figure 4. Distribution of the *Lutra lutra* species *(GIS software)*

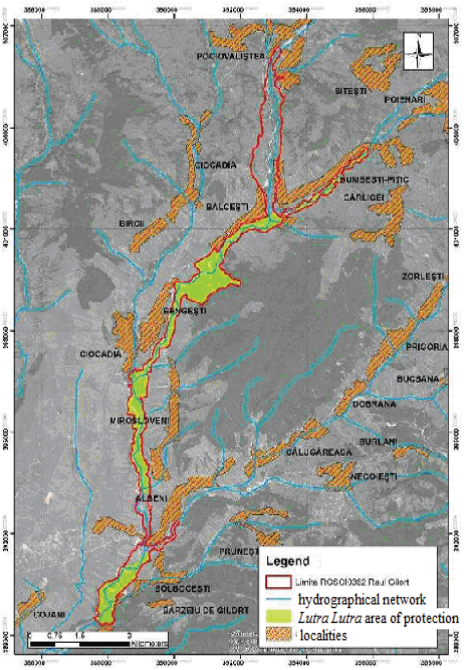


Figure 5. Favorable areas for protection of *Lutra lutra* species *(GIS software)*

At the Natura 2000 site Gilort River level, the state of the preservation of the species of *Lutra lutra* was evaluated on the following criteria: local distribution (spread of the species in the protected area), population, habitat of the species, perspectives (concerning population, area and habitat presence) and resulted as ***unfavorable inadequate*** (Table 3).

Table 3. Conservation status of *Lutra lutra* in Natura 2000 Site Gilort River

| **Parameters** | **Conservation status** | | | |
|---|---|---|---|---|
| **Species code** | **Favorable (green)** | **Unfavorable conditions (orange)** | **Total unfavorable conditions (red)** | **Unknown (insufficient information)** |
| Distribution local (spreading species in the protected area) | Observation of tracks attendance were identified evenly between the boundaries of protected area | | | |
| **Population** | There were seen and confirmed the presence of two family groups in the studied area | | | |
| **Habitat of the species** | | Specific present habitat mosaic type, but under anthropic pressure of grazing activities, the presence of of free or wanderer dogs, mining mineral aggregates and fishing | | |
| **Perspectives (relating to population, area and the presence of habitat)** | | The current trend observed is of slow degradation under the effect of threats on the specific habitat | | |
| **Evaluating the conservation status** | | **Unfavorable inadequate** | | |

## CONCLUSIONS

For evaluating the conservation status of species of mammals *Lutra lutra* assessments were developed on the field in the period January-April 2014, with a frequency of 3-4 ratings per month. Corroborating the data from the literature concerning the territorial size of the otters family groups with the surface of protected area it is considered that the population of otters that may exist in the Gilort River protected area do not exceed two family groups, which is also the number identified from field observations (7 specimens).

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