AgroLife Scientific Journal - Volume 5, Number 2, 2016
ISSN 2285-5718; ISSN CD-ROM 2285-5726; ISSN ONLINE 2286-0126; ISSN-L 2285-5718

RESEARCH OF DYNAMIC ICHTYOFAUNA FROM COMANA NATURE PARK

Andra Marina NUȚĂ, Ștefan DIACONESCU, Tiberius DĂNĂLACHE, Radu FILEP, Carmen Georgeta NICOLAE

University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăști Blvd, District 1, Bucharest, Romania

Corresponding author email: andranuta@yahoo.com

Abstract

The paper aims to present the evolution of the ichtyofauna from Comana Nature Park, since 2011, on the watercourses of the Neajlov River, Comana Pond or Neajlov Delta, Gurbanu river and Putu-Greci ponds. In the past, have been identified on these waterways inside of the protected area, fish species protected at national and community level, such as grig (Cobitis taenia), eel (Misgurnus fossilis), boart (Rhodeus sericeus amarus), glossy ibis (Umbra krameri), or endemic - Comana chub (Leuciscus borys thenicus). In 2011 it was finished a project for ecological restoration of the Neajlov Delta, that which built a dam on the river Neajlov, the results being flooding the pond and getting a permanent body of water by 40%. The effects of this ecological restoration were the increased of populations of birds and especially fish eating populations, improvement of the habitat and recovering of whole aquatic ecosystem. It is required that the process of monitoring the fish species to continue because is very important to know them evolution as a result of the implementation of the ecological reconstruction, and also to monitor the other wetlands from the protected area for identified the effect of restoration on them. The importance of the research is that the declaration of the nature park was based on existing inventories of species in 1998, and the absence of updates based on extensive research, makes that the management of the area becoming ineffective.

Key words: *ichtyofauna, Comana Nature Park, bioconservation.*

INTRODUCTION

Comana Nature Park, a protected natural area of national interest in Romania, covers an area of 24 963 ha, with defined and recognized three nature reserves, two in forest and one in the aquatic environment (Figure 1).

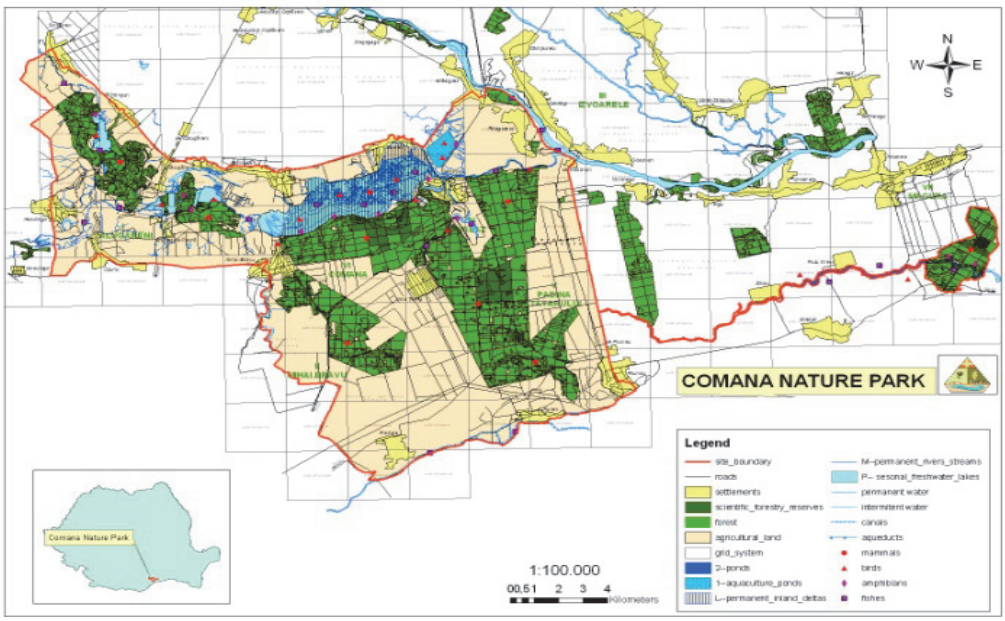

Figure 1. The map of Comana Nature Park

The rich River network present in the park, the main body of natural water regime is on the Neajlov River before the point of confluence with the Arges River, where it forms a delta area ramble type called Comana Pond or Neajlov Delta. Its reserve regime, occupies an area of 1200 ha and is the habitat for many species of aquatic plants, birds, aquatic mammals and fish (Comana Management Plan, 2006).

In the protected area, was identified also Gurbanu River - a very important habitat for fishes, amphibians, birds and invertebrates, Putu-Greci Ponds - important habitat for fishes (Integrated Comana Management Plan, 2012). Reducing the stocks recorded in the country due to over-fishing, habitat fragmentation by development project surface water and pollution of the general environment has manifested itself and within the natural park where the works of rehabilitation of the marsh for agriculture and land navigation of the river Neajlov have resulted in a significant negative impact. Through an ecological restoration project succeeded in arranging a dam on the river delta flooding and Neajlov view to increasing permanent water surface at a rate of 5% to 40% (Figure 2). The secondary effect was increased populations of birds, especially the fish eating populations and fisheries resurgence and intensification, it acts as repressor factors in restoring the natural fish populations. Since the last inventory of the ichtyofauna occurred in 1998, before ecological restoration in 2011, it is necessary to carry out research to determine the specific population and ichtyofauna in the area.

Figure 2. Before/after the ecological restoration

MATERIALS AND METHODS

The research will be based on scientific fishing nets or by using electroshock. The aim is to determine the fish species from basin of Neajlov River included in the park and analysis specific characteristics in terms of relative abundance, size, weight, frequency, sex ratio, age, etc.

Among the most common species catch in Comana Nature Park, is the rudd - *Scardinius erythrophthalmus* (a), the zander - *Sander lucioperca* (b), the perch - *Perca fluviatilis* (c), (Figure 3). Also there are protected species at national and community level, as the grig *(Cobitis taenia*), the eel *(Misgurnus fossilis)*, the boart *(Rhodeus sericeus amarus)*, the glossy ibis *(Umbra krameri)*, or endemic - the Comana chub *(Leuciscus borysthenicus)* (Botnariuc and Tatole, 2005).

Figure 3. Some fish species catch in Neajlov river

RESULTS AND DISCUSSIONS

The importance of the theme is that the declaration of Natural Park was based on existing inventories of species in 1998, and the absence of updates based on extensive research makes data base management area becoming ineffective.

In 1998 research has begun in the field, namely the identification of fish species, research that were needed to declare the area a nature park. The research lasted until 2004, and at that same year the area was declared a protected area of national interest and the fish species identified were in number 30, among fish species characteristic of rivers in the plains being and species protected at community level. After the project of ecological restoration which it was built a dam on the Neajlov River, was started annual monitoring of ichtyofauna, research focusing on Comana Pond because it represents the largest wet land area in the park, other areas will be explored in the coming period.

In the period 2011-2015 the most common fish species that have been identified were *Esox lucius, Misgurnus fossilis, Aspius aspius, Cyprinus carpio carpio, Perca fluviatilis, Silurus glanis, Rhodeus sericeus amarus, Rutilus rutilus,* mostly prey species (Table 1).

Table 1. The situation of fishs pecies from Comana Nature Park in the period 2011-2015 compared with 1998

Species identified during 1998-2004	Species identified in 2011	Species identified in 2012	Species identified in 2013	Species identified in 2014	Species identified in 2015
Esox lucius L.	√	√	√	√	√
Cobitis taenia taenia L.		√	√	√	√
Cobitis megaspila N.					
Sabanejewia romanica B.				√	√
Misgurnus fossilis L.		√	√	√	√
Abramis brama L.					
Alburnus alburnus R.			√		√
Aspius aspius L.	√	√	√	√	√
Barbus barbus L.	√				
Barbus meridionalis R.					
Carassius auratus gibelio					
Carassius carassius L.	√	√	√	√	√
Ctenopharyngodon idella V.					
Cyprinus carpio carpio L.	√	√	√	√	√
Hypophthalmicthys molitrix R.					
Lepomis gibbosus L.					
Leuciscus borysthenicus					
Leuciscus cephalus L.					
Leuciscus idus L.					
Pseudoras boraparva T. & S.					
Rhodeus sericeus amarus B.		√	√	√	√
Rutilus rutilus L.		√	√	√	√
Scardinius erythrophthalmus				√	
Romanogobio kesslerii D.					
Gymnocephalus baloni H. & H.					
Gymnocephalus cernua L.					
Perca fluviatilis L.	√	√	√	√	√
Sander lucioperca L.					√
Silurus glanis L.	√	√	√	√	√
Umbra krameri					
Total: 30 species	**Total: 7 species**	**Total: 10 species**	**Total: 11 species**	**Total: 13 species**	**Total: 13species**

The species identified in 2011-2015 period, are fish species characteristic of standing fresh water as lakes, swamps, ponds or streams with a slow course, as is Neajlov River basin (Bud and Diaconescu, 2010).

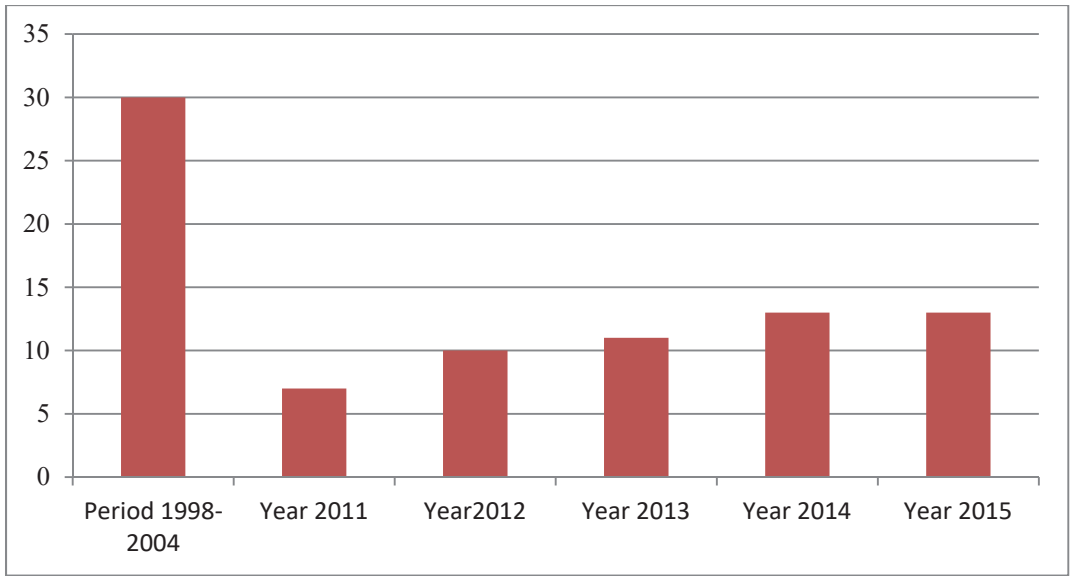

Figure 4. Dynamic ichtyofauna from Comana Nature Park during 1998-2015

There is a decrease in the number of the fish species catch in 2011 comparative with 1998, this decrease may be due because of influences of human activities but also because in these years was identified only fish fauna of Comana Pond, the other three existing wetlands in the park were not covered (Figure 4).

ACKNOWLEDGEMENTS

This research work was carried out with the support of Comana Nature Park Administration and Faculty of Animal Science, University of Agronomic Sciences and Veterinary Medicine of Bucharest.

CONCLUSIONS

The number of the fish species has increased during the period 2011-2015, with a positive impact upon ichtyofauna.

Because of the increasing of the surface permanent water, the increasing of the specific habitat for reproduction and development of fish species, increasing food and removing illegal fishing, all of this make that the number of fish species increased.

It's deemed necessary that the monitoring process to continue both in Comana Pond also in Neajlov River, Gurbanu River and Putu-Greci ponds.

REFERENCES

Botnariuc N., Tatole V., 2005. Red Book of vertebrates from Romania. Romanian Academy - National Museum of Natural History "Grigore Antipa", Bucharest, p. 80-86.

Bud I., Diaconescu Ș., 2010. Increasing carp and other fish species. Ceres Publisher House, Bucharest, p. 34-38.

***Comana Nature Park Administration, 2012. Integrated Management Plan of Comana Nature Park, Comana, p. 56-65.

***Comana Nature Park Administration, 2006. Management Plan of Comana Nature Park, Comana, p. 30-42.