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PRELIMINARY RESULTS REGARDING THE DISTRIBUTION OF HERPETOFAUNA OF COMMUNITY INTEREST FROM ROSCI0065

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Abstract
Our study was conducted in Tulcea County between August 2019 and November 2021.
Herpetofauna was identified in the dig-mal flood zone of the Danube River, between Grindu locality and Tulcea city and in the area ofthe Somova-Parches aquatic complex. The herpetofaunal study consisted of extensive transect surveys. The transects were made at distances that allow us to identify and monitor the target species according to the approved working methodologies.
During the investigation, seven species of amphibians and three species of reptiles were identified. For each species, the status of species protection has been established in accordance with the Habitats Directive 92/43 EEC, GEO 57/2007 and the EU Status.
This case study presents the distribution and abundance of species of community interest (Emys orbicularis, Bombina bombina and Triturus drobrogicus). A total of 534 individuals were identified during this period. Therefore, this study is a contribution to the knowledge of the distribution of species of Community interest in the area of ROSCI0065..

Keywords: amphibians, herpetofauna, distribution, reptiles.

1. INTRODUCTION

The herpetofauna of Romania is characterised by a nice mixture of southern, Balkan species, many central European ones and a number of endemic taxa. Herpetofauna is in decline worldwide, at an alarming rate, reptiles along with amphibians are considered among the most endangered groups of vertebrates (Cogălniceanu et. al., 2013). The decline of reptiles and amphibians has been induced by a variety of threats, such as the destruction or degradation of habitats, direct persecution, the collection of individuals from nature, the introduction of exotic species, pollution.

Of the total area of the Danube Delta Biosphere Reserve in Romania (5800 km2) more than half belongs to the "Danube Delta" (3510 km2), and the rest of the remaining area belongs to the upstream Danube Meadow, Isaccea-Tulcea sector (102 km2), lagoon complex Razim-Sinoie (1145 km2), the neighboring strip from the Black Sea (1030 km2) to the 20 m isobaths, and the Danube river between Cotul Pisicii and Isaccea (13 km2) (Gâștescu et. al., 2005, Gâștescu, 2009).

Site of Community Interest ROSCI0065 The Danube Delta is located on the territory of Tulcea (93%) and Constanţa (7%) counties, belonging to the steppe and pontic bioregions. This site covers a large area and includes a wide variety of aquatic, marshy, terrestrial, fluvial, fluvio-marine and coastal ecosystems, which has created the possibility of populating the region with a high biodiversity.

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The Natura 2000 network is a European system of protected natural areas (Natura 2000 sites) comprising a representative sample of wild species and natural habitats of community interest (Ghiurcă, 2018). While the Romanian Natura 2000 network is quite effective in covering the protected species as compared to the European general situation (Trochet et. al., 2013), mapping the distribution of protected species within sites remains of paramount importance in assessing them and increasing the effectiveness of the sites' protective function (Hartel, 2013).

2. MATERIALS AND METHODS

Area description

- Isaccea-Tulcea floodplain

It is located upstream of Tulcea. The area has the appearance of a depression and is an undisturbed meadow sector, which causes it to be flooded during the high spring waters, feeding the lakes and swampy areas covered with reeds and plaur.

- Somova - Parcheș aquatic complex

The aquatic complex Somova–Parches (last area of the Danube floodplain) located in a field on the right side of Danube, upstream to entrance in the Danube Delta (Figure 1). This aquatic complex with an overall surface of 9170 ha, is one of the fishing resources of fresh water of the Danube Delta Biosphere Reserve and an important aquatic area for biodiversity, located in free status of flooding10. The present length of channels and brooks is of 35.5 km and the most important lakes are: Rotundu (228 ha), Gorgonel (141 ha), Tilincea (188 ha), Parches (196 ha), Somova (123 ha) and Caslita (153 ha), and Somova (149 ha) (Driga, 2004, Burada, 2016).

- Danube river between Cotul Pisicii and Isaccea

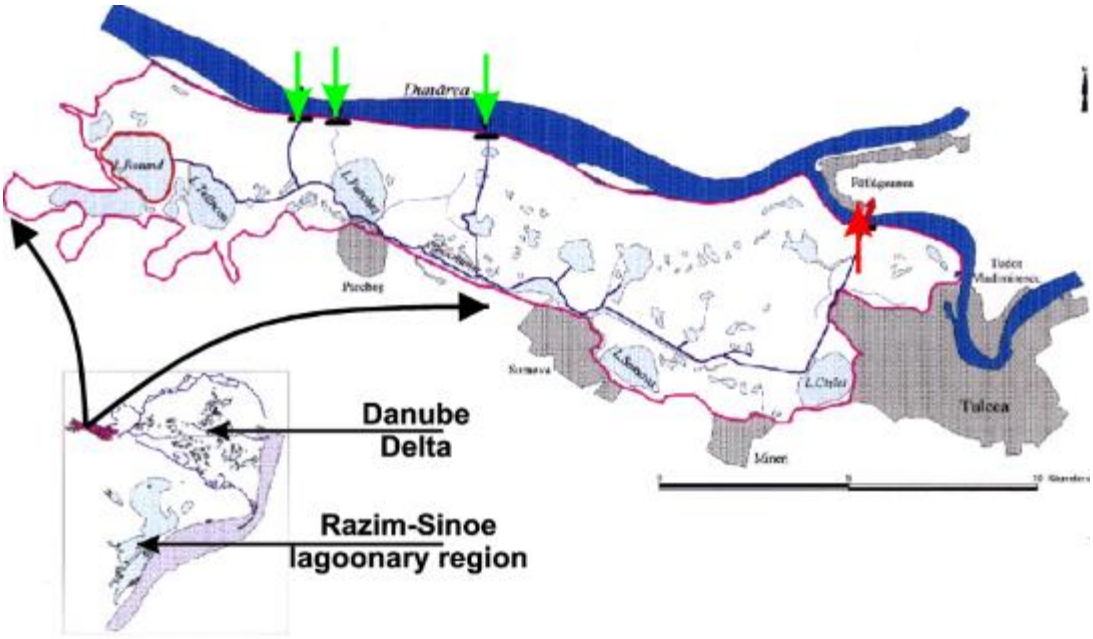

Figure 1. Location and general features of Somova-Parcheş lake complex.
***Legend: green arrows – water inlets; red arrow – water outlet; red line – conventional limit of Somova-Parcheş lakecomplex* (Török, 2006)**

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Methodology

Our investigations regarding herpetofauna of aquatic complex Somova–Parches, Isaccea-Tulcea floodplain and Danube river between Cotul Pisicii and Isaccea were made between years 2019-2021. Our studies were carried out based on transects method namely diurnal aquatic active linear transect (Török et. al., 2013). Transect length. In the case of large-area habitats, the method applies to long transects of 100 m, between the ends of two neighboring transects being a distance of 20 m (in the case of habitats with small, the method can be applied on the entire perimeter of the investigated aquatic body). The herpetofaunal study consisted of extensive transect surveys. All the captured specimens were released after identification. The species was identified after Cogălniceanu, 2002 and Cioflec, 2019, 2020.

For each species identified, the protection status of the species has been established in accordance with the Habitats Directive 92/43 EEC, GEO 57/2007 and the EU Status (Török et. al., 2013).

3. RESULTS AND DISCUSSIONS

The herpetofaunal study consisted of extensive transect surveys.

The transects were made on distances that allow us to identify in Site of Community Interest ROSCI0065 we identified 7 species of amphibians: *Triturus dobrogicus* (Figure 2), *Lissotriton vulgaris* (Figure 3), *Bombina bombina* (Figure 4), Hyla arborea (Figure 5), *Pelophylax ridibundus*, *Pelophylax kl.esculentus* (Figure 6), *Pelophylax lessonae* and 3 reptile species: Emys orbicularis (Figure 7), *Natrix natrix* (Figure 8), and Natrix testelata (Figure 9). We have noted the inclusion in the systematics and protection status of all identified species (Table 1).

Table 1. Identified amphibian and reptile species and protection status

Class	Order	Family	Species	Code N2000	OUG 57/2007	Habitats Directive 92/43/EEC 1992	EU status
Amphibia	Anura	Ranidae	*Pelophylax ridibundus*	-	Annex 5A	Annex V	little worrying
			Pelophylax kl. esculentus	-	Annex 5A	Annex V	little worrying
			Pelophylax lessonae	-	Annex 4B	Annex IV	-
		Hylidae	*Hyla arborea*	-	Annex 4A	Annex IV	little worrying
		Bombinatoridae	*Bombina bombina*	1188	Annex 3 și 4A	Annex II și IV	little worrying
	Caudata	Salamandridae	*Triturus dobrogicus*	1993	Annex 3 și 4A	Annex II	almost threatened
			Lissotriton vulgaris	-	Annex 4B	-	-
Reptilia	Chelonii	Emydidae	*Emys orbicularis*	1220	Annex 3 și 4A	Annex II și IV	vulnerable
	Squamata	Colubridae	*Natrix natrix*	-	-	-	-
			Natrix testelata	-	Annex 4A	Annex IV	little worrying

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Figure 2. Triturus dobrogicus (original photo)

Figure 3. Lissotriton vulgaris (original photo)

Figure 4. Bombina bombina (original photo)

Figure 5. Hyla arborea (original photo)

Figure 6. Pelophylax kl. esculentus (original photo)

Figure 7. Emys orbicularis (original photo)

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Figure 8. Natrix natrix (original photo)

Figure 9. Natrix testelata (original photo)

Distribution and abundance of species of community interest

Following field observations, data were recorded on the distribution of species of Community interest.

Bombina bombina

Specimens belonging to the species Bombina bombina have been identified in the protected area since March in the Isaccea area and until the first week of November on the canals and ridges of Lake Parcheș.

Abundant populations and intermediate stages of development have been identified especially on the more remote canals of Lake Câșla, which are shallow and difficult to access (Figure 10).

Figure 10. Distribution of the species Bombina bombina in the aquatic complex Somova-Parcheș
Legend: yellow-2019, red-2020 and white-2021

The species was identified both on the banks of the Danube (stony and earthy), and in the temporary ponds in the flooded area of the Danube or in the dredged canal near the localities of Isaccea, Rachelu and Revărsarea (Figure 11).

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Figure 11. Distribution of the species Bombina bombina in the dig-mal flood zone of the Danube River, between Grindu locality and Tulcea city
Legend: yellow-2019, red-2020 and white-2021

A number of 371 individuals were recorded, of which the most common forms were adults (n = 232), followed by juveniles (n = 134) and larvae (n = 5). The highest abundance of the species was recorded in 2021 (54%) (Figure 12).

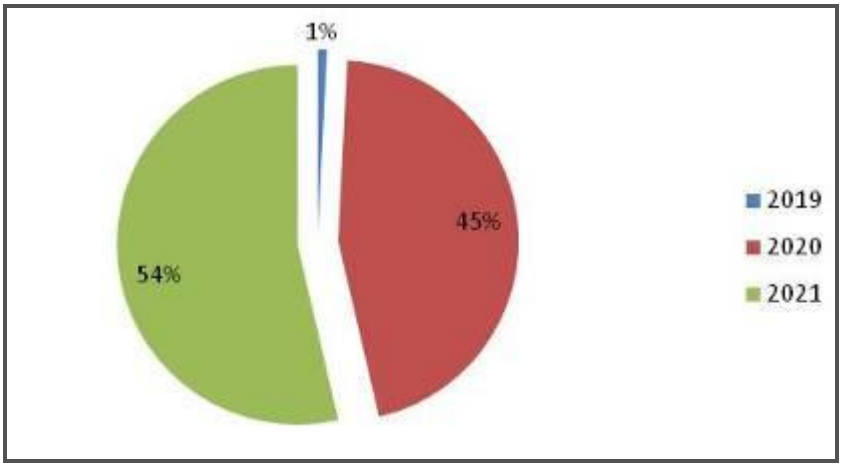

Figure 12. Relative abundance of the species Bombina bombina

Triturus dobrogicus

Specimens belonging to the species *Triturus dobrogicus* have been identified in the protected area since June in the Isaccea area and until the second week of November on the Somova gorge on the ridges of the Ivanova canal.

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On the ridges and canals of the Somova-Parches aquatic complex. favorable feeding, sheltering, breeding and wintering habitats of this species have been identified (Figure 13).

Figure 13. Distribution of the species Triturus dobrogicus in the aquatic complex Somova-Parcheș
Legend: yellow-2019, red-2020 and white-2021

The species was identified in a larger number in a permanent channel from Isaccea at the end of June 2021 (Figure 14).

Figure 14. Distribution of the species Triturus dobrogicus in the permanent channel from Isaccea dig
Legend: yellow-2019, red-2020 and white-2021

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A number of 70 individuals were recorded, of which the most common forms were juveniles (n = 38), followed by adults (n = 26) and larvae (n = 6). The highest abundance of the species was recorded in 2021 (50%) (Figure 15).

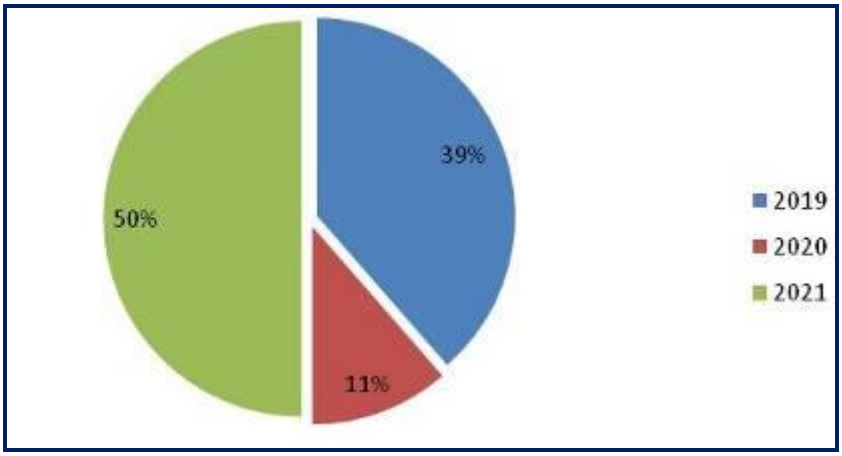

Figure 15. Relative abundance of the species Triturus dobrogicus

Emys orbicularis

Specimens belonging to the species *Emys orbicularis* have been identified in the protected area since March on the ridges of the canal leading to Lake Casla and until the first week of November on the canals of Lake Parcheș.

Most specimens were observed on the canals of the Somova-Parcheș aquatic complex on the water's edge or on various logs in the sun. Being a sensitive section, at the slightest noise it is thrown into the water and disappears (Figure 16).

Figure 16. Distribution of the species Emys orbicularis in the aquatic complex Somova-Parcheș
Legend: yellow-2019, red-2020 and white-2021

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The species was also identified in temporary or permanent ponds in the flooded area of the Danube near the localities of Isaccea, Revărsarea and Rachelu (Figure 17).

Figure 17. Distribution of the species Emys orbicularis in the flooded area of the Danube near the localities of Isaccea, Revărsarea and Rachelu
Legend: yellow-2019, red-2020 and white-2021

A number of 93 individuals were identified, with the specification that the most common forms recorded are adults (n = 62), followed by corpses (n = 22) and juveniles (n = 9). The highest abundance of the species was recorded in 2020 (Figure 18).

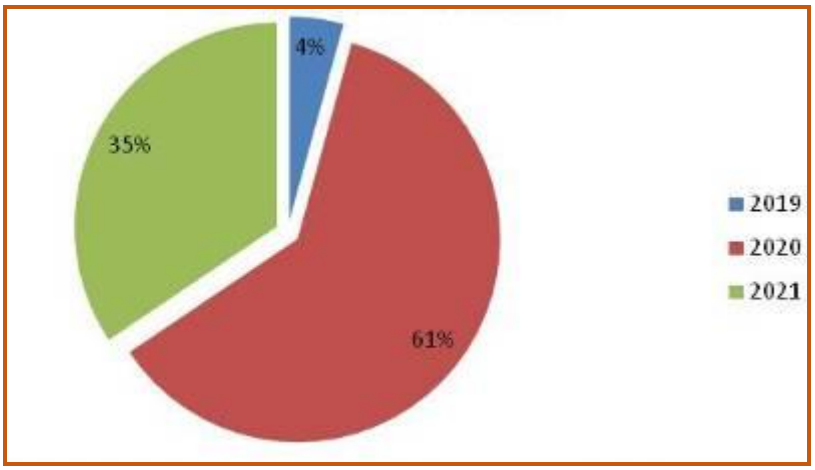

Figure 18. Relative abundance of the species Emys orbicularis

4. CONCLUSIONS

The herpetofauna in the meadow area of ROSCI0065, namely in the dig-mal flood zone of the Danube River, between Grindu locality and Tulcea city and in the area ofthe Somova-Parches

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aquatic complex. comprises seven species of amphibians and three species of reptiles. Eight of the identified species are included in the Annexes to the Habitats Directive 92/43 / EEC / 1992. One reptile and two amphibians are species of Community interest whose conservation requires the designation of a special conservation area. Nine of the identified species are included in the annexes of GEO 57/2007. From an EU Statute perspective, one species is vulnerable (water turtle) and one is almost endangered (dogrogean ridge newt).
During the study period (August 2019- November 2021) a number of 534 species of community interest were identified for the ROSCI0065 meadow area, stating that of the three species the highest abundance was recorded in the species *Bombina bombina* (70%).

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