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PRELIMINARY DATA ON TWO PLANT GROUPS (MACROPHYTES AND INVASIVE ALIEN PLANT SPECIES) ALONG THE FLOW OF THE MIRUSHA RIVER REPUBLIC OF KOSOVO

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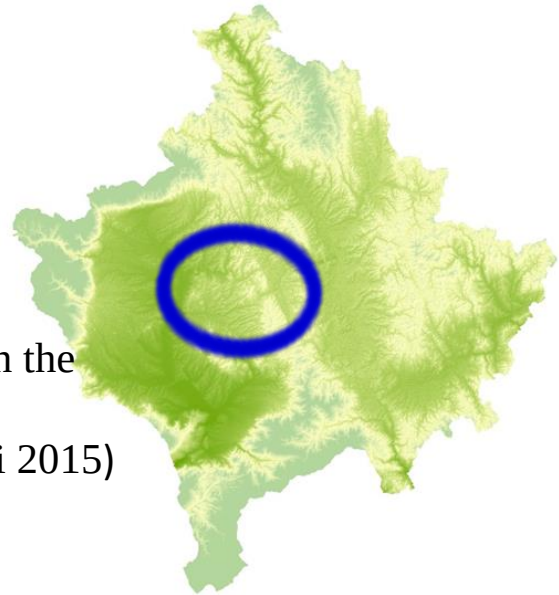
ABSTRACT

The rivers of Kosovo as aquatic ecosystems, based on the researches so far, present biodiversity values. This research, carried out in the period 2023-2025, results in numerous plant species along the flow of the Mirusha River. Of the vascular flora, plant species from two interesting groups of plants (macrophyte plants and invasive alien plants) have an important place. In this paper, for the first time for this river, we present preliminary data on these two plant groups. The Mirusha River basin has a continental climate, while the soils are of different types. The average annual precipitation is 700-800 mm, while the average annual air temperature is 10 ^{0}C (10.6 ^{0}C). Along the course of the Mirusha River, there is forest-shrub vegetation consisting of *oak* species (*Quercus*), *willow* (*Salix*) and *poplar* (*Populus*) species, with less vegetation of *common alder* (*Alnus glutinosa*). Also, significant parts are covered by *reeds* (*Phragmites*), *bulrushes* (*Typha*) and *pontweeds* (*Potamogeton*). Where the water flows more slowly in the river, there is vegetation dominated by *duckweeds* (*Lemna*). Of the macrophyte plant species, species from the genera *Ceratophyllum*, *Lemna*, *Potamogeton*, etc. have been identified. While, among the invasive alien plant species (IAPS), species from the genera *Galinsoga*, *Helianthus*, *Impatiens*, *Echinocystis*, *Reynoutria*, *Datura*, etc. have been identified.

Key words: Flora, Macrophytes, IAPS, Ecosystems, Mirusha River, Kosovo.

INTRODUCTION

The researched area (the Mirusha River course) starting from the Bllacë locality to Mrasor-Volljakë, passes through the territory of the municipalities **Suharekë, Malishevë, Klinë, Rahovec**, that is, it passes through the territory of settlements **Bllacë, Temeqinë, Bellanicë, Banjë, Malishevë, Mirushë, Damanek, Bubël, Panorc, Dush i Vogël, Llapçevë, Volljakë and Mrasor.**



Mirusha River, position on the map of Kosovo
(prepared by: Ferim Gashi 2015)

In this paper, the results of the vascular flora carried out in the research during the year 2023-2025 are presented.

PURPOSE AND SIGNIFICANCE OF THE RESEARCH

The research was conducted with the aim of:

- Recognizing the vascular flora of two plant groups (macrophytic plants and invasive alien plants)
- Achieving reliable results
- Analyzing the action - anthropogenic impact,
- Discussing the results achieved and reaching conclusions.

ANTHROPOGENIC IMPACT

The most common ways are:

- direct interventions in the riverbed especially in settlements
- discharge of wastewater
- disposal of waste

MATERIAL AND METHODS

During the year 2023-2025, the research of the vascular flora was carried out along the course of the Mirusha River. In particular, **Macrophytes** and **Invasive Alien Plant Species** have been researched.

During the work in the field, in order to document the results, floristic material was collected.

The determination of the floristic material up to the plant species was carried out according to the standard methods for the identification of plant species. For this purpose, materials from different authors such as Demiri, M. (1983), Jordanov, D. etj. (1963-1982), Josifovic, M. etj. (1970-1986), Micevski, K. (1993-2001), Misic, Lj. & Lakusic, R. (1990), Pajazitaj, Q. (2017), Paparisto, K. et al (1988, 1992), Schauer, Th., & Caspari, C. (1996), Polunin, O. (1997), Qosja, Xh. etj. (1996), Saric, M. etj. (1992), Stevanovic, V. etj. (2012), Tutin, T. G. etj. (1964-1980), Vangjeli, J. etj. (2000), Vangjeli, J. (2003, 2016, 2018, 2021), etc.

Macrophytes plants?

Macrophytes are common defined as those "***growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content***".

Macrophytes plants maybe floating, floating-leaved, submerged, or emergent and may complete their life cycle in still or flowing water, or on inundated or non inundated hydro soils (Cronk & Fennessy, 2001).

7. RESEARCH RESULTS

REGISTER OF THE FLORA

SPERMATOPHYTA
ANGIOSPERMAE

DICOTYLEDONEAE

Fam. *Ceratophyllaceae* Gray	=1 sp.		
Ceratophyllum demersum L.		Hyd.(A)	Subkozm.

MONOCOTYLEDONEAE

Fam. *Alismataceae*	=2 sp.		
Alisma plantago-aquatica L.		Hyd.(A)	Subkozm.
Alisma lanceolatum With.		Hyd.(A)	Subkozm.

Fam. ***Araceae*** =1 sp.

Lemna minor L.	Hyd.(A)	Subkozm.

Fam. ***Cyperaceae*** =1 sp.

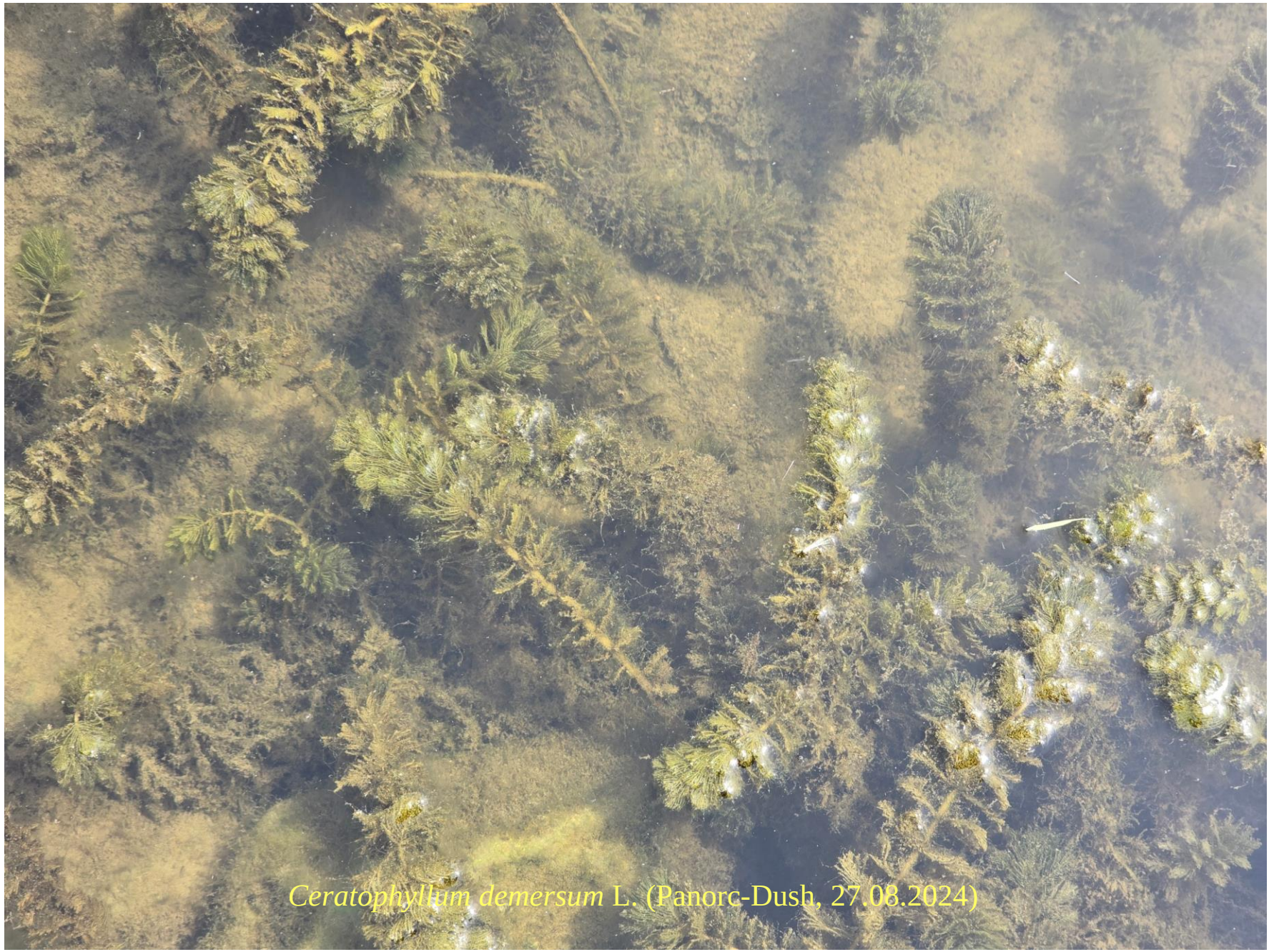
Schoenoplectus lacustris Palla	H	Subkozm.

Fam. ***Potamogetonaceae*** **Bercht. & J. Presl** =2 sp.

Potamogeton crispus L.	Hyd. (A)	Subkozm.
Potamogeton natans L.	Hyd. (A)	Subkozm.

Fam. ***Typhaceae*** =1 sp.

Typha latifolia L.	G	Kozm.



Ceratophyllum demersum L. (Panorc-Dush, 27.08.2024)

Lemna minor L. (Damanek-Bubël, 27.08.2024)

Typha angustifolia L. (Lubizhdë, 04.06.2024)

Invasive Alien Species?

Invasive alien species are ***plants, animals, pathogens and other organisms that are non-native to an ecosystem, and which may cause economic or environmental harm or adversely affect human health. In particular, they impact adversely upon biodiversity, including decline or elimination of native species - through competition, predation, or transmission of pathogens - and the disruption of local ecosystems and ecosystem functions*** (https://www.cbd.int/idb/2009/about/what).

7. RESEARCH RESULTS

REGISTER OF THE FLORA

SPERMATOPHYTA
ANGIOSPERMAE

DICOTYLEDONEAE

Fam. *Asteraceae*	=3 sp.		
Conyza canadensis L. Cronq.		T	Adv.-Amer.Nor.
Galinsoga parviflora Cav.		T	Adv.-Amer.Sou.
Helianthus tuberosus L		G	Adv.-Amer.Nor.
Fam. *Balsaminaceae* A.Rich.	=1 sp.		
Impatiens glandulifera Royle.		T	Adv.-Himal.
Fam. *Cucubitaceae* Juss.	=1 sp.		
Echinocystis lobata (Michx.) Torr.		T	Adv.-Amer.Nor.

Echinocystis lobata (Michx.) Torr. & A. Gray (Damanek-Bubël, 27.08.2024)

Fam. *Fabaceae*	=1 sp.		
Robinina pseudoacacia L.		P	Adv.Amer.Nor
Fam. *Polygonaceae*	=1 sp.		
Reynoutria japonica Houtt.		G	Aziat.West.
Fam. *Solanaceae*	=1sp.		
Datura stromonium L.		T	Adv.-Evroas.-Amer.


Thank You for your attention!