



BIRD PROTECTION AND
STUDY SOCIETY OF SERBIA



Bird Protection and Study Society of
Serbia (BPSSS)

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Unacceptable damming of central Serbia's last major stronghold for the White-throated Dipper

Damming rivers to create reservoirs for various purposes is a long-standing practice. In 2021, plans emerged to construct a dam 30 meters high and 100 meters wide at the crest, located approximately 6,530 meters upstream from the Studenica's confluence with the Ibar River (Raška District, SW Serbia). This project would create a reservoir with a normal/operational water level of 404 meters above sea level. Based on an average multi-year flow of 6.96 m³/s, the reservoir would span roughly 1,400 meters and hold a volume of approximately 467,400 m³. These specifications are particularly concerning because the Studenica is a pristine mountain river with a diverse and well-documented aquatic ecosystem. Such habitats are becoming increasingly rare, isolated and endangered by the development of small hydropower plants (SHPP), pen stocking, water intake systems and various forms of wastewater pollution. Currently, almost every mountain river basin in Serbia is under threat. With many already severely degraded, the priority has to be to preserve remaining rivers in their natural state to protect biodiversity, maintain surface water quality and safeguard the rivers' natural self-purification capacity. Evidence shows that flooding river valleys to create reservoirs degrades water quality, accelerates eutrophication, reduces oxygen levels, alters downstream water chemistry, obstructs fish migration, hinders self-purification processes and leads to either direct or indirect contamination of groundwater. Serbia already has several examples of reservoirs that, after only 30 to 40 years, have suffered siltation and significant loss of water quality, which made them unsafe for local supply. Thus, protecting clean, self-purifying watercourses is essential for securing drinking water and recharging underground aquifers with high-quality water supply. While the Studenica still supports a range of fauna, from insects to fish, fish populations are a fraction of what they were 40 years ago and the European Grayling (*Thymallus thymallus*) has vanished entirely. The environmental toll of "development" has clearly been eroding the life of this majestic river for decades.

The Bird Protection and Study Society of Serbia database contains extensive records on the bird fauna of the lower Studenica. To date, 102 species have been documented along the river and within a 500-meter radius, largely through the efforts of a local member, Miroslav Milićević. Most of these are strictly protected or protected species, predominantly forest birds and those inhabiting mosaic open habitats. The most significant bird species in this ecosystem is the White-throated dipper (*Cinclus cinclus*). It is the only songbird that dives to forage for aquatic invertebrates among stones on



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the riverbed. Since these birds cannot hunt in polluted or turbid water, not the diverse insect life they depend on can survive such conditions, they serve as a key indicator of pristine mountain rivers. Their presence, particularly in large numbers, identifies the Studenica as an aquatic ecosystem of extraordinary importance. In addition to supporting dippers, the river acts as a vital water source and a productive year-round feeding ground for numerous other bird species attracted by its abundant insect populations.

White-throated Dipper Abundance in the Contested Project Area

The proposed dam site is located approximately 6.2 km upstream from where the Studenica meets the Ibar. While the first 2.5 km of the river pass through inhabited areas near the hamlet of Ratari, the entire region upstream of Ratari serves as a critical breeding ground for the White-throated dipper and the Grey Wagtail (*Motacilla cinerea*). The most beautiful section is a 7.5 km picturesque stretch extending from Ratari to a bridge 1.1 km downstream from the Studenica Monastery. This area offers ideal nesting conditions, yet the dam would be positioned directly in the middle of this high-quality habitat. Submerging 1.5 km of the river would eliminate these nesting sites and it is highly questionable whether the birds could still breed along the reach from the dam down to Ratari. In this scenario, at least five pairs of Dippers would disappear from this reach of the Studenica and both their foraging and nesting grounds would be permanently lost. Along with the Lopatnica River to the north, the Studenica is one of the last unpolluted and un-penstocked waterways in the Ibar basin where Dippers still breed. Other tributaries, such as the Grajička, Brevina and Savošnjica, have already been enclosed into pipes. Given that one part of the Lopatnica also faces threats from potential flooding/damming and hydropower development (allegedly abandoned), preserving the Studenica in its natural state is essential. It currently represents the final refugium for the White-throated Dipper in this region of Serbia.

During winter, White-throated Dippers from the entire Studenica basin congregate in the river's lower course, where foraging is more accessible – especially during cold winters and when the riverbanks are covered in snow and ice. Data from winter waterbird censuses conducted in 2020, 2021 and 2026 underscore the vital importance of this river section (Table 1). Since Dippers are a resident species, these winter counts provide a reliable estimate for the population of the entire Studenica river basin. Across four surveyed river segments covering approximately 25 km (Figure 1), the highest numbers of Dippers and area coverage was in 2021, when 142 individuals were counted. This is an exceptionally high abundance and such figures are currently undocumented elsewhere in Serbian ornithological literature (Table 1). Given that smaller numbers of Dippers also remain further upstream, the Studenica basin likely supports a wintering population of 200-300 individuals – definitely among the most significant in Serbia. Unfortunately, the proposed reservoir would be located directly within the second study area. This specific section supported between 19 and 56



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individuals during January surveys – birds that would lose their essential feeding, resting and nesting habitats if the dam is constructed.

Table 1. White-throated dipper abundance across four segments of the lower Studenica River in 2020, 2021 and 2026.

Studenica river sectors / years	I	II	III	IV	SUM
2020		56	29		85
2021	20	45	42	35	142
2026	7	19	14		40

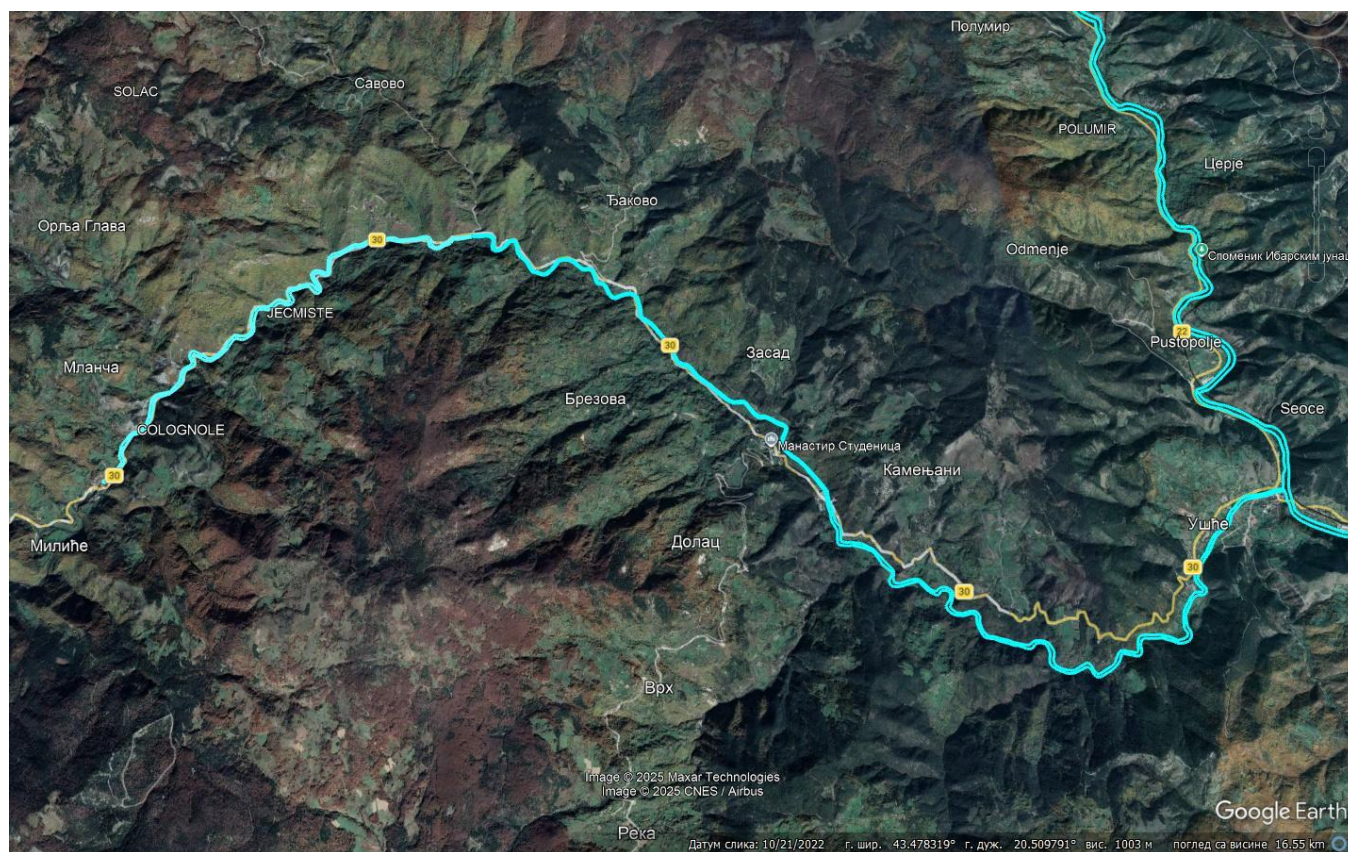


Figure 1. The four river sectors segments of the Studenica River between Ušće and Miliće surveyed in January 2020, 2021 and 2026.



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Serbia's breeding population of White-throated Dippers is estimated at 2,410-3,400 pairs; excluding Kosovo and Metohija, this range falls to 1,961-2,821. This makes the Studenica uniquely significant, as it supports over 5% of the national population. The European Red List of Birds, published by BirdLife International, indicates that Serbia's population already declined by 10-30% between 2007 and 2019 – a trend that continues due to pollution and small hydropower development. As mountain rivers are increasingly flooded by dams or piped, polluted by wastewater or depleted by drought and flash floods, this already small population is becoming increasingly fragmented and threatened. With no alternative habitats left, these pressures may have already pushed the national population below 2,000 pairs – a number comparable to the inhabitants of a small Serbian village. Damming part of the Studenica would only accelerate this decline by destroying vital nesting and wintering grounds while fundamentally altering the river's chemistry.

The "Gradina" Project

Problem of SHPPs on Studenica river is not new one and has led to several large protests in the past (1, 2). Although previously promised not to continue damming of the Studenica river in 2021, that project was restarted in after only 3 years (3, 4). In those terms in 2024 the new proposal for the Gradina SHPP was open for public inspection for only a few days. Critically, the project lacked the hydrogeological study required by the Law on Environmental Impact Assessment – a crucial step, as reservoir construction can negatively impact groundwater quality. The transparency of the process was also highly questionable. Instead of the standard procedure of displaying plans on panels in a public building, the documents were only posted on the City Administration's website. The Department of Urbanism's assertion that an online-only review fulfills legal obligations appears to be an attempt to circumvent the public's right to information guaranteed by the Aarhus Convention. Such procedural irregularities suggest that the "project" is both legally unsound and unjustified.

Given the significance of the Studenica as one of Serbia's last large, clean and well-preserved rivers – and likely the most important site for the nesting and wintering of the nationally threatened White-throated dipper – the Bird Protection and Study Society of Serbia firmly opposes any further degradation of this waterway. Instead, we advocate for more effective action to conserve the region's biodiversity and its surface and groundwaters. These are fundamental resources for the survival of future generations in a country now dominated by heavily polluted aquatic habitats and watercourses, such as the Ibar.

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SOURCES:

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APPENDIX Photos from the Studenica river made by Miroslav Milićević



The Studenica River, suitable area for breeding of White-throated Dipper



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3 adult individuals of White-throated Dipper, the Studenica River, January 2021



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Two adult individuals of White-throated Dipper, the Studenica River



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Nest of White-throated Dipper (*Cinclus cinclus*) on Gradina locality