- Mohl A, Korn-Varga I, Györfi E (2020): The ecological corridor Mura-Drava-Danube and future five-country biosphere reserve. IUCN Guidelines for Conserving Connectivity through Ecological Networks and Corridors 30, 104–106
- Natura MURA (2021): Restoration of wetland habitats along the Mura [online] https://natura-mura.eu/o-projektu/ (accessed 28 March 2024).
- Schneider-Jacoby M (1994): Sava and Drava ecological value and future of the two main rivers in Croatia. Periodicum Biologorum 96, 4, 348–356
- Schneider-Jacoby M (2012): Overview of the Drava river basin. Danube News 14, 25, 2–4. Special Issue Tributaries of the Danube II: Drava/Mura Protected River Corridor Threatened by Hydropower, ed. by J Bloesch
- Schneider-Jacoby M, Mohl A (2012): Mura-Drava-Danube: five countries three rivers – one biosphere reserve. Danube News 14, 25, 5–8. Special Issue Tributaries of the Danube II: Drava/Mura – Protected River Corridor Threatened by Hydropower, ed. by J Bloesch
- Schwarz U, Mohl A (2009): Lifeline Drava-Mura 2009–2020. A plan for conserving and restoring the Drava and Mura Rivers for nature and People. WWF and Euronatur Foundation, Vienna
- Stumberger B, Mohl A, Schneider-Jacoby M (2021): Biosphärenreservat Mur, Drau und Donau – Leben durch Flussdynamik. Naturreiseführer durch eine einzigartige Flusslandschaft am Südrand Mitteleuropas. EuroNatur Service GmbH, Radolfzell
- UNESCO (2021): Report of the 33rd Session of the MAB-ICC, Abuja, Nigeria [online] https://unesdoc.unesco.org/ark:/48223/pf0000380848/PD-F/380848eng.pdf.multi (accessed 28 March 2024).
- WISE DRAVA LIFE (2021): Wise water management for the conservation of river and flood habitats along the Drava River [online] https://lifeprogramhrvatska.hr/en/projects/wisedravalife-wise-water-management-for-the-conservation-of-river-and-flood-habitats-along-the-drava-river-life17-nathu-000577/ (accessed 28 March 2024).
- WWF (2013): Assessment of the River and floodplain restoration potential in the transboundary UNESCO biosphere reserve "Mura-Drava-Danube". WWF Vienna



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- WWF (2023): Mur-Drau-Donau: 20 Millionen Euro zur Renaturierung des "Amazonas Europas" [online] https://www.wwf.at/mur-drau-donau-20millionen-euro-zur-renaturierung-des-amazonas-europas/ (accessed 28 March 2024).
- WWF/EuroNatur (2016): "Amazon of Europe" Bike Trail; From the Alps to the Pannonian plain along the largest natural river system in Central Europe. Vienna; Implementation concept [online] http://www.amazon-of-europe.com/ en/bike-trail/ (accessed 28 March 2024).
- Zollner D, Wolf L (2020): Transboundary Nomination Form for the '5-Country Biosphere Reserve Mura-Drava-Danube' (TBR MDD). ECO Klagenfurt, Klagenfurt, Austria

Islands as a Web of Life – Humans and Nonhumans in the Middle of the Danube

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When, in May 2020, I submitted an application to the Romanian National Research Agency (UEFISCDI) for a research project on the historical and social life of Lower Danube islands, many of my fellow anthropologists and historians raised an eyebrow. Indeed, islands are vital elements of the river ecosystem as they are playing important hydro-morphological and ecological functions. They contribute to water self-purification and the retention of sediments and nutrients, they provide important habitats for birds, animals, insects and fish reproduction and feeding, and support of a wide variety of vegetation and endemic species (Wyrick 2005; Schneider 2015; Krause 2016). It is hard to deny the river islands importance for the nonhuman life. Islands of the Lower Danube are not inhabited mostly because they are too small for this. For instance, around 1900, the average size of the 122 islands along the Lower Danube was 1.2 km², with a perimeter of 4,6 km. In 2022, the average size of the 81 Lower Danube islands were 1.8 km² with 5.5 km perimeter

(Dorondel et al. 2023). With fex exceptions, most of the Lower Danube islands were never inhabited. One important exception is the Ada Kaleh Island inhabited by a handful of people since Medieval times (Dorondel & Ion under review). Few of them were temporarily inhabited or were used as places of refugee in the 19th century (lancovici 1960). Besides, fluvial islands have a 'nomadic' character (Lahiri-Dutt & Samantha 2013): they move along the river, they modify their shape, they merge with one another or separate. They are highly volatile landscapes (Krause & Eriksen 2023). The social vacuity of Lower Danube islands is not an inherent quality of the river islands worldwide. In other parts of the world, for instance in Southeast Asia, the fluvial islands however volatile, are inhabited by people who find an alternative to the mainland (Lahiri-Dutt & Samantha 2013). Yet, to dismiss the social study of Danube islands would be a hasty assessment.

River islands stay in a sheer opposition with their maritime and ocean peers, which are larger, inhabited, more stable and thus more visible for historians and anthropologists (see for instance Patton 1996; Prokić & Šimkova 2024). For historians and anthropologists, European river islands suffer from a social vacuity that made them uninteresting as an object of study and rendered them invisible. So, the question is: Why study



Figure 1. Pigs roaming freely in the ponds in the Danube floodplains. Desa village, Oltenia, June 2016. Photo by S. Dorondel

historically and ethnographically an uninhabited place? In this paper I argue that uninhabited river islands are important landscapes despite their social vacuity. In fact, the point I want to make here is that a space does not have to be inhabited in order to be vital for humans. As Dipesh Chakrabarty (2022, 14) has pointed out many spaces that are not inhabited – such as oceans or the Siberian permafrost – influence the human live, locally and globally. I see Danube islands vital for the riparian population wellbeing and local economy.

Since the 15th century the Ottoman documents attested the wuse of Lower Danube islands by the riparian population on both banks of the river (in what are today Romania and Bulgaria) as wood collection and preferred grazing places for their animals (Kayapinar 2004). Collecting wood from the islands was important for the riparian population. Especially in the



Figure 2. Interspecies relationships. On the Danube banks, Southern Romania, June, 2022. Photo by Adrian Deoancă

summer, when the water was low and the canal between the islands and the bank was either dry or easily to be crossed by horse carts villagers cut the trees that grew back rapidly on the islands. The yearly floods brought nutrients which made the trees grow faster than on the mainland. Besides, the island forests were protected from the summer draught by the inherent moisture of the island's soil. In a document from June 1888 the forest on some islands is presented as *being so thick that a lamb cannot go through it'.*¹ Until the emergence of the nation-states of Romania and Bulgaria (1878) the riparian population was free to cut wood on the islands. In 1830, the Russian Empire initiated the first assessment and allocation of the Danube islands based on a newly acquired international law principle: when a river separates two states, the islands on the left side of the thalweg in the direction of the running river belong to the left bank state whereas those on the right side of the thalweg to the right bank state.² Once the Wallachian state acquired the islands, local entrepreneurs entered in a race to lease the forest for exploitation. After 1831, the riparian population was in a permanent state of conflict with local entrepreneurs for access to the rich islands' resources. As a consequence, while before 1831 the exploitation of forests was rather punctual and for the needs of locals, only after this date the entrepreneurs started a thorough exploitation of the forest. It was not just the forest at stake but also the collection of reeds and rushes which were important for the locals but also for the local industry that used these wetland plants. Most islands had water canals and ponds full of fish which remained after the annual Danube floods and were an important part of the entrepreneurs' revenue.³ Even more, some local entrepreneurs suggested the Romanian Ministry of Agriculture at the end of the nineteenth century that cultivating the large pastures of the islands (some over 100 hectares) with corn, oat or pepper would maximize the revenue of the state.⁴

For more than six months of the year, the locals sent their animals - pigs, cows, horses - on the nearby islands. From spring to late autumn animals found plenty of food on the lavishly vegetated islands. Pigs scavenged roots and worms and found plenty of snails and molluscs around the ponds scattered around the islands. Horses and cows found plenty of vegetation to graze. Economically speaking, it made a lot of sense. For six months or more, the animal owners had no worries about their animals. They were able to invest the time they would have spent with the animals in some other lucrative jobs. The only thing owners had to do was to go on the island every 5 days and feed their animals with some corn. This was not to supplement the animal's diet but rather to recreate the bond between the owner and their animal, and to keep animals from going completely wild. Equally important was the fact that domestic pigs interbred with the wild boars. If the domestic pig has usually more fat than the wild boar the mixed pigs had less fat and thus more meat.

Animals roaming freely on Danube islands was an ordinary image until the end of the nineteenth century when the nation-states Romania and Bulgaria emerged after 1878. Until then, when the Danube was an 'Ottoman river', the riparian population from both banks were allowed to bring their animals and to collect trees form the islands for a fee paid to the local bay (Kayapinar 2004). Often, both Romanian and Bulgarian shepherds would bring their flocks to spend the winter in places next to the Danube or even on the Danube islands. We collected tens of interviews in villages along the Danube in Bulgaria and Romania, where old people still had a vivid memory of the time when their fathers and grandfathers brought their animals on the nearby islands.⁵ In fact, this practice totally stopped only after the installation of the socialist regime in both countries Romania and Bulgaria. For the Romanian population, at least, the islands became inaccessible, as the Romanian regime was much stricter than the Bulgarian one in policing the border.

After the 1990s, the riparian population did not retake the habit of bringing their animals to the islands, but kept them mostly in the former floodplains which escaped the socialist land reclamation. Figure 1 and figure 2 show such cases.

The islands became even more important for fishermen, especially after the 1960s. Starting in the 1960s a pharaonic program of agricultural land reclamation started in both Romania and Bulgaria. In Romania, between the 1960s and 1989, around 500,000 ha of land was reclaimed and more than 1,000 km of levees were built along the Danube. Leaving aside many socio-economic consequences, one in particular was damaging for the fish and the fishermen. The former floodplains with their warm, shallow, quiet waters from ponds and lakes from the yearly floods were the preferred spawning grounds for many fish species. The wetland vegetation was the perfect sanctuary for the fry.

Once the floodplain was drained and levees were built the connection with the Danube was lost. The shallow waters protected by the branches of the trees growing on the banks of the islands represent a protection area for the fry. These natural nurseries also attract predatory fish species such as pike or perch. Fishermen are aware of this and they often install fishnets close to the islands' banks (see *fig. 3*). When the waterlevel of the Danube is high, fishermen also set up nets between the trees on the islands.



Figure 3. A round fishnet installed on the proximity of a vegetated island's bank. Pardina, Tulcea County, Romania, June 2023. Photo by S. Dorondel

Conclusions

Neglected in the southeast European historiography, fluvial islands were vital for the riparian population and for the riparian states. As sources of revenue for the state, as sources of conflict between an emerging capitalist class of local entrepreneurs supported by the young nation-states and the local people whose livelihood they threatened, fluvial islands were and are disputed and contested, connected to and disconnected from the mainland. They are 'webs of live' in which the human and the non-human are intimately intertwined.

Notes

- ¹ The National Archive of Romania, Fund Ministerul Agriculturii, Regii, File no. 2283/1889, p. 19
- ² See for more details on this process Dorondel, Serban and Cain (2019)
- ³ Monitorul Oficial al Romaniei nr. 6, Marti 10(22) ianuarie 1878, p. 116
- ⁴ The National Archives of Romania, Fund M.A.D. Regii, File 910/1888, p. 15
- ⁵ Fieldwork carried out within the research project State, Communities and the Nature of the Lower Danube islands: an Environmental History (2021-2023) funded by the Romanian National Research Agency (UEFISCDI) (PN-III-P4-ID-PCE-2020-1238)

Bibliography

Chakrabarty D (2022): The Climate of History in a Planetary Age. The University of Chicago Press, Chicago and London

- Dorondel S, Serban IS, Cain D (2019): The Play of Islands: Emerging Borders and Danube Dynamics in Modern Southeast Europe. Environment and History 25(4), 521-547
- Dorondel S et al. (2023): Stat, comunități și natură în zona Dunării de Jos: o istorie a insulelor dunărene (1830-2020). Raport științific 2023 [State, Communities and Nature of the Lower Danube Islands: An Environmental history (1830-2020). Scientific Report 2023]. https://danislandsproject. wordpress.com/publications/
- Dorondel S, Ion A (under review): The Entangled Life of Islands: Or, Why the Nonhuman Resettlement Project of Ada Kaleh Failed. In: Heidemann F, Schorch Ph (eds.): Experiencing Islandness: Oceans and Beyond. University of Hawaii Press, Honolulu
- lancovici S (1960): Fuga locuitorilor din ostroavele Dunării din cauza exploatării boeirești (1833-1834). Studii Revistă de Istorie XIII(4), 158-182
- Kayapinar A (2004): Les îlles ottomans du Danube au XVIs siècles. In: Nicolas V, Veinstein G (eds.): Insularité Ottmanes. Maisonneuve et Larose, Institute français d'études anatoliennes, Istanbule, 177-202.
- Krause F (2016): Rivers, Borders, and the Flows of the Landscape. In: Kannike A, Tasa M (eds.): The Dynamics of Cultural Borders. University of Tartu Press, Tartu, 24-45
- Krause F, Eriksen TH (2023): Inhabiting Volatile Worlds. Social Anthropology 2023, 1-13. doi:10.3167/saas.2023.04132300
- Lahiri-Dutt K, Samantha G (2013): Dancing with the River. People and Life on the Chars of South Asia. Yale University Press, New Haven and London
- Patton M (1996): Islands in Time. Island Sociography and Mediterranean Prehistory. Routledge, London and New York
- Prokić M, Šimkova P (2024): Entire of Itself? Towards an Environmental History of Islands. The White Horse Press, Cambridge
- Schneider E (2015): The Danube Delta: Lessons Learned from Nature Restoration Projects. In: Iordachi C, Assche K. van (eds.): The Bio-Politics of the Danube Delta. Nature, History, Policies. Lexington Books, Lanham, 87-114
- Wyrick JR (2005): On the Formation of Fluvial Islands. Ph.D. Dissertation. University of Oregon

The SOS-Water Project

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Background

Our planet can be seen as a complex system with several critical components that influence its health, such as climate and biodiversity. The Safe Operating Space framework establishes safe thresholds for these components, ensuring that humanity operates within a zone where the Earth System remains within its functional boundaries, while at the same time a just humanity can thrive.

The SOS framework has found its way into the public debate, stimulating the irrevocable discussion on the cooperative coexistence of human society and the Earth system. The framework moves away from the classic opposition between human benefit and nature conservation and sets the stage for a new narrative based on cooperation between nature and society. Yet the inspiring principles of the SOS framework have rarely, if ever, found their way into practical applications.

One of the most important components of the Earth is freshwater use. Scientists estimate that we've exceeded the safe limit, meaning we're using and polluting freshwater faster



than nature can replenish it. This can lead to water scarcity, affecting everything from ecosystems to agriculture and drinking water supplies. In the coming decades, these challenges are likely to be exacerbated by climatic and social changes in many regions of the world. There is therefore an urgent need to define a safe operating space (SOS) for water resources in a changing climate and society, to ensure sufficient and reliable water supplies of a quality acceptable for human activities and natural ecosystems.

Staying within the safe zone for water requires innovative solutions, from water conservation to sustainable agricultural practices, to ensure a healthy future for all.

Project outline

SOS-Water is a project funded by the European Union's Horizon Europe Framework Programme for Research and Innovation. It has a consortium of ten European partners and one additional partner from Vietnam. SOS-Water is coordinated by the Water Security Group of the International Institute for Applied Systems Analysis (IIASA).