

The Danube – a European Lifeline

Why a lifeline?

- It is the most international river in the world, flowing through 10 countries.
- Impacts the lives of more than 80 million people in 19 states in its basin.
- 20 million people rely directly on the Danube in their daily lives, i.e. for drinking water.
- Flows through four European capitals.
- Unique mix of species, with about 2,000 vascular plants and more than 5,000 animal species, including 41 mammals, 180 breeding birds, 100 fishes, eight reptiles and twelve amphibians.

What is it worth?

- The Danube and its waters are used for hydropower generation, agriculture, navigation, and industry, to name a few.
- If too much of the floodplains are taken for these uses, ecological values are deteriorated, and humans will suffer in the long term (i.e. from lack of pure drinking water, more impacts from severe and intense floods)
- Wetlands and rivers provide us with biodiversity, scientific value, climate regulation, potential tourism and socio-cultural values.



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From source to mouth

The Danube has its source in the Black Forest in Germany, and flows over 2800 km to its mouth in the Black Sea. Through the valleys of Bavaria, it enters Austria and on to Vienna, continues on to Bratislava in Slovakia, before it divides Buda and Pest in Hungary. After the Hungarian plains, it flows into Croatia connecting with the Drava River forming the wetlands of Kopacki Rit, and passes the last capital on its way, Belgrade in Serbia. The Danube forms the border between Bulgaria and Romania, before it heads north to Moldova, and creates one of the last intact river deltas in Europe on the border between Ukraine and Romania.

Nature along the Danube

In Austria, the Donau-Auen National Park has approximately 11,000 hectares of floodplain forests, riparian habitats and side arms. This is the last intact floodplain of the upper Danube. Together with the floodplains of the

Lower Morava and Dyje (Austria, Czech Republic and Slovak Republic) it forms a transboundary *Wetland of international importance* and was declared as a trilateral *Ramsar Site*.

One of the most important resting sites for migrating birds in Europe is the **Neusiedlersee and Ferto-Hanság** (Austria and Hungary). It has been a transboundary National Park since 1993, and World Heritage Site since 2003. Here one can still find a steppe lake area with a huge reed belt, adjacent small lakes and traditional pastures.

As a part of the Duna-Drava National Park, established in 1996, the **Gemenc-Béda-Karapancsa Wetlands** (Hungary) is an *Important Bird Site* (Black Stork, Sea Eagle). The site is also an excellent fish spawning ground.

Throughout the year, 100 days of flooding creates an abundance of food

resources for fish, and one of the most important fish-spawning grounds along the entire Danube is **Kopacki Rit** in Croatia. It contains extended floodplain forests (willow, poplar and oak), floodplain lakes, ponds, extensive reed beds and marshes, and is designated as a *Ramsar Site* and a Nature Park.

Just opposite Kopacki Rit lies the wetland complex of **Gornje Podunavlje** (Serbia) with 19,648 ha of floodplain habitats. This spatially and ecologically unique complex with its mosaic of water, marsh, swamp, meadows, bush and forest ecosystems is characterised by a high biodiversity and significant number of threatened, rare, endemic and relict species.

The middle and lower **Drava-Mura wetlands** (Slovenia, Croatia, Hungary) form an intact bio- and landscape corridor of 380 km from the alpine foothills up to the Pannonian Lowlands on the Danube. The floodplain corridor covers 60,000 ha and forms a unique living space, especially for migratory freshwater species and alpine pioneer species living on sand, gravel bars and islands, as well as for forest species and mammals, such as river otters and beavers.

The **Sava wetlands** extend through Croatia, Serbia and Montenegro, and Bosnia and Herzegovina. The Nature Park of Lonjsko Polje constitutes the largest wetland in Croatia and covers an area of more than 100,000 ha. Obedska Bara is the largest wetland in Serbia within this system and extends to more than 30,000 ha.

The **Ecsedi Lap Complex** is formed by the Tisza and shared by (Ukraine, Slovak Republic, Romania, and Hungary). It is a riverine "eco-corridor", which is 400 km long and has a size of 140,000 ha.

(The Lower Danube and the Danube Delta are described in separate factsheets.)

Danube River Basin

The Danube River Basin (DRB) covers five of the eight bio-geographical regions in Europe: the Alpine, the Continental, the Pannonic, the Steppic and the Black Sea Region. The Danube basin covers 801,463 km² (about one third of continental Europe outside Russia), and is the most international river basin in the world. It extends

over all or part of the territories of 19 states. The largest sub-basins in the Danube River Basin include the Tisza, Sava, Drava, and Siret Rivers. Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria, Moldova, Ukraine are riparian states. Additional basin states are Albania, Bosnia and Herzegovina, Czech Republic, FYR of Macedonia, Italy, Montenegro, Poland, Slovenia, and Switzerland.

Human Use of the Danube

The Danube and its waters are used for agriculture, industry, and fisheries, to name a few. Major river systems are suitable for hydroelectric power generation, navigation (the Danube is a major international commercial waterway) as well as receiving waters for effluents and drinking water supply, if we manage them properly.

In the first approximately 1000 km – from the source in Germany down to Gabcikovo – 59 dams and man-made barriers exist, many of them built decades ago. In this section, the Danube is interrupted by a dam and accompanying impoundment every 16 km on average. Only very few stretches on the Upper Danube can still be characterized as "free flowing". These sections are Vohburg-Weltenburg and Straubing-Vilshofen in Germany, and the Wachau area and the stretch between Vienna and Bratislava.

Downstream of Bratislava three more hydropower plants exist. The first of these, the Gabcikovo dam system, has been operating since 1992, and diverts approximately 80% of the Danube's water into a side channel and reservoir. The remaining 40 km of the original riverbed are affected by a lack of water. The diversion and the flood protection works severely affect the surrounding wetlands on both sides of the Danube.

The Iron Gate dams I and II, located in the transboundary area of Romania and Serbia, impound the Danube up to Novi Sad (Serbia). The Iron Gate I dam was completed in 1972; the Iron Gate II was completed in 1985. Navigable conditions on the formerly very dangerous Djerdap gorge section of the Danube are completely improved, and navigation is possible throughout the year.

The economic value of the Danube

Apart from being a crucial asset for agricultural production, and fulfilling water requirements for certain industries, the Danube has a value in itself. Floodplain ecosystems provide a broad range of services such as the provision of fish, reed, wood, drinking water, nutrient reduction/storage and flood risk mitigation among others.

One can estimate the economic value of wetlands according to their biodiversity, scientific value, climate regulation, potential tourism, socio-cultural values. Various studies have valued the Danube wetlands between USD 450-520/ha-year¹.

Further Readings:

International Commission for Protection of the Danube River: The Danube Basin Analysis, WFD Roof Report, 2004.

Value of biodiversity - Documenting EU examples where biodiversity loss has led to the loss of ecosystem services. Marianne Kettunen & Patrick ten Brink. Final report for the European Commission. Institute for European Environmental Policy (IEEP), Brussels, Belgium. 2006.

From WWF: The Economic Values of the World's Wetlands

¹ Gren I.M. Groth K.H. Sylven M., Economic Values of Danube Floodplains, Journal of Environmental Management, Volume 45, Number 4, December 1995, pp. 333-345(13); Gren, I-M. 1994. Valuation of Danube Floodplains. Report to WWF-Auen Institute (Institute for Danube Floodplain Ecology), Rastatt, Germany; Kosz, M. 1996. Valuing Riverside Wetlands: the Case of the "Donau-Auen" National Park. Ecological Economics 16 (2), S. 109-127