

Hydroelectricity or national park?

ZÁVOCZKY SZABOLCS

Duna-Drava National Park Directorate

H-7625 Pécs, Tetteye tér 9.

The importance of Drava in nature conservation

River Drava, down to on its section shared by Hungary and Croatia (i.e. above the Mura mouth), is loaded with a range of power plants. Despite this fact, its section reaching from the Mura mouth to its confluence with Danube - especially between Órtilos and Barcs - appears quite natural, although river regulation has been done in this section as well. The importance of Drava from the aspect of Hungarian and European nature conservation is ensured by rare and threatened habitat types associated with upper and middle section characteristics that are constantly in the state of dynamic change. Such habitats are related with a multitude of morphological structures characteristic of this particular Drava reach. As opposed to the straightened, canal-like, strongly transformed flowing waters typical of other Hungarian rivers, here there are several geomorphological phenomena that cannot be observed today in the majority of transformed and regulated rivers. This Drava reach is characterized with dynamic bank-destructing (high embankments), bank-building (low shorelines) and shoal-creating (gravel and sand shoals) activity, resulting in a particularly diverse range of habitats. Natural values occurring along river Drava are associated with these dynamically changing habitats.

River bed deepening

Of course the fact that a series (23) of hydroelectric power stations do exist above the lowermost one at Dubrava cannot be questioned, yet the river section that follows has remained home for a range of protected, strictly protected and internationally significant plant and animal species. The continuation of riverbed deepening is another undoubtable fact, yet the decision to build another power plant or a series of power stations down to the Danube confluence would be nothing but a technocratic solution to that problem, lacking any ecological basis. One of the proved reasons for increasing riverbed deepening besides river regulations is the altered flow dynamics below hydroelectric power plants. In addition to that, the series of dams built along Drava has cut off the natural migration of gravel and boulders, and it is also an obvious fact that each and every cubic metre of gravel excavated from the river further increases the speed of riverbed erosion. In certain parts of Europe (e.g. Austria, Donau-Auen National Park) instead of permitting gravel excavation from the Danube riverbed, what is done instead is that several hundred thousand m³ of gravel, specified in its grain size fractions, are released into the river annually, in order to stop further deepening.

The planned hydroelectric plant and the Duna-Drava National Park

The Drava section where Croatia plans to establish the Novo Virje hydroelectric power plant is between Zákány and Vízvár, where the river turns away from the state border, and flows entirely within the territory of the Republic of Croatia. The common river sections both directly above and below the planned power plant are the ones that make up Duna-Drava National Park.

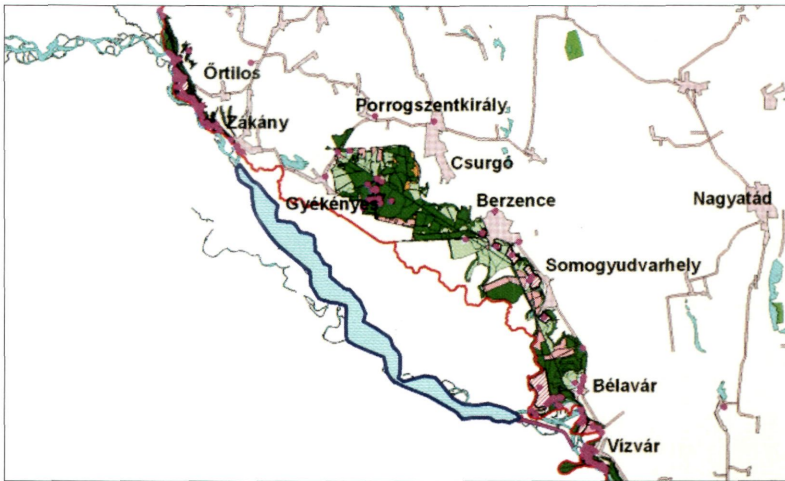


Fig. 1.: Location of the planned hydroelectric power station at Novo Virje, and Duna-Drava National Park

Ecological corridor

River Drava, as an ecological corridor and a continuous system of habitats would be fundamentally threatened by the creation of a hydroelectric plant. The damming of water for nearly 30 kilometres would entirely eliminate the diverse habitats found in this section, leaving what is an artificial reservoir resembling a uniform lake rather than a river, physically cutting in half and thus eliminating the ecological corridor character. Plant and animal populations and communities not respecting state borders will be torn apart and would then disappear due to the lack of suitable habitats. Connections between individuals of the populations would be disrupted, and whether the numbers of individuals in communities above and below the dammed area are suitable for maintaining viable populations is at least questionable. The example of the threatened bird, the little tern (*Sterna albifrons*) is illustrative enough: its breeding populations are found only in this Drava section including both Hungarian and Croatian territories. This bird breeds on gravel shoals with no vegetation at all, thus about 80% of its habitats would surely disappear as a result of damming, moreover those attempting to nest on the section below the power plant would be threatened by the enormous daily fluctuations of water level (1.5-2 m) caused by the operation order of the power station. But this is only one example out of many.

A nature monitoring system has been operated in Hungary since 1999 in the presumed effect zone. By looking at various groups of living organisms (16 groups), the monitoring has provided a wide view on natural values of Duna-Drava National Park, and information about changes of wildlife here. Natural values in the area are well reflected by data shown in Table 1.

Table 1.: Protected and strictly protected animal species listed in international nature conservation agreements ratified by Hungary and in the Habitat and Bird Directives of the EU Natura 2000, living in the Hungarian effect zone of the planned Novo Virje hydroelectric plant

Number of protected species	Number of strictly protected species	Number of species listed in annexes to Natura 2000 directives	Number of species listed by the Bern Convention	Number of species listed by the Bonn Convention	Number of species listed in CITES
262	36	134	232	97	29

Effects expected above the planned interventions

The westernmost areas of Duna-Drava National Park are in its Western-Drava Region, at villages Zákány and Őrtilos. Here the Drava is characterized with gravel shoals, partly without vegetation, and partly covered by purple willow bush associations (*Salicetum purpurae*). These are the shoals where considerable populations of the german tamarisk (*Myricaria germanica*), found only here in Hungary, were discovered. Regarding its habitat requirements and population size, the german tamarisk is very sensitive to damming, because as a member of pioneer plant associations on gravel shoals, its habitats can be significantly influenced by changes affecting water levels and sediment carriage.

The silty banks of the narrow flood area are covered by almond-leaved willow bush associations (*Salicaetum triandre*). Gallery forest habitats that are under considerable inundation and ground water influence, can radically change in case the river is dammed up. The river being quite fast-flowing and carrying gravel, is the only habitat for several reophilous fish species.

Effects expected below the planned interventions

Part of the Eastern Drava Region of Duna-Drava National Park is located below the planned power plant. Here, too, the Drava builds gravel shoals. At some places today's main riverbed runs along the very foot of the Inner-Somogy high bank, at other places it turns away from it, creating a cca. 1000 m wide floodland with dead arms of considerable extent. Oxbows and dead branches are typical in the section below Vízvár. Between the villages Vízvár and Bélavár there are several abandoned gravel pit lakes that have already regenerated and become significant wetland habitats. Natural vegetation in the low floodland areas near Vízvár is made up by willow gallery forests (*Leucojo aestivi - Salicetum albae*). In the willow woods along the river protected plant species are found

such as the summer snowflake (*Leucojum aestivum*), *Peucedanum verticillare*, and the giant scouring rush (*Equisetum hyemale*). Alder gallery forests (*Alnetum*) are more limited here than willow woods, containing the dominant common alder (*Alnus glutinosa*) and some specimens of grey alder (*Alnus incana*).

A particular problem is that the planned tailwater canal would not flow back into the river right at the dam, but would arrive back to the Drava bed at Hungarian border from a 2 km long, concrete bed. Thus, water regime in the present Drava main bed would change drastically - decrease critically -, with the returned water volume planned to be only 40 m³/s. This would actually mean that the present main bed (being only Hungarian for more than 1000 m) and the connecting dead branch system near BÉlavár and Vízvár (belonging to the national park) would completely dry out, because these areas are situated on the gravel table of the Drava river and are thus continuously connected to the main bed which determines their water volumes and levels. Wetland areas found here are part of habitats for several protected and strictly protected species, and are included in the NATURA 2000 network.

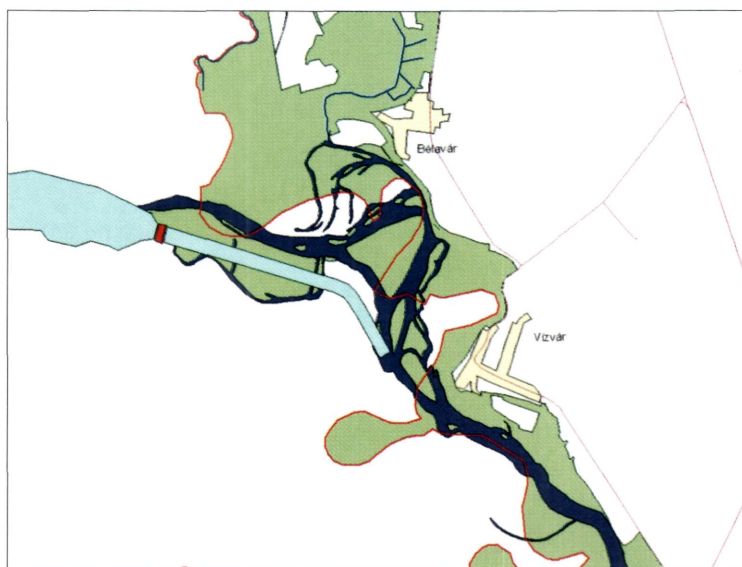


Fig. 3.: The location of the tailwater canal (tail-race) near the Hungarian border

Operating regime

Another problem arises from the operation regime of the power plant. The fluctuation of released water volumes during damming would make it impossible for breeding bird communities to nest on the gravel shoals in the tailwater section near Vízvár. Abrupt water level changes (even as much as 2 m a day) would significantly influence breeding success, and would lead to the elimination of wildlife forms on such gravel shoals.

Ecotourism

There has been an increasing demand for wild-water canoe touring on Drava in recent years. Today around 2000 persons paddle along the section from Órtilos to Drávaszabolcs, among nomadic circumstances. The planned hydroelectric power plant would fundamentally influence developing ecotourism potential in the region.

Hungary, by founding Duna-Drava National Park and by signing international agreements, as well as by accepting the EU Natura 2000 directives, has committed itself to the long-term conservation and maintenance of natural habitats and wildlife of river Drava. Our duty is similar in the process of introducing the EU Water Framework Directive. Our common objective is to find solutions to problems that arise, in a way that ecological conditions are thoroughly considered and still existing natural values are not destroyed. For we have only borrowed the Drava from our ancestors.

Vízerőmű vagy nemzeti park

ZÁVOCZKY SZABOLCS

A Dráva folyó a magyar-horvát közös érdekű szakasz kezdetéig (Mura torkolat) vízi erőművek sorozatával terhelt. Ennek ellenére a Mura torkolattól a Dunába való torkolásig terjedő szakasza - különösen Órtilos és Barcs között - természetközeli képet mutat - annak ellenére, hogy a folyószabályozások ezt a szakaszt sem kerülték el.

Horvátország a novo-virjei erőmű telepítését a Drávanak arra, a Zákány és Vízvár közötti szakaszára tervezi, ahol a folyó eltávolodik a határtól és teljes egészében Horvát Köztársaság területén folyik. A tervezett erőmű feletti és alatti közös érdekű Dráva szakasz a Duna-Dráva Nemzeti Park területeit jelenti.

A Dráva folyó mint ökológiai folyosó és egybefüggő élőhely rendszer alapvetően van veszélyeztetve a vízlépcső létesítésével. A közel 30 km hosszúságú duzzasztás teljesen felszámolja az ezen a szakaszon található változatos élőhelyeket és helyette egy egyveretű inkább tóra, mint folyóra hasonlító mesterséges víztározó tér alakul ki, ami fizikailag vágja ketté és szünteti meg az ökológiai folyosó jellegét. A két ország határait nem ismerő növény-és állatfajok közösségei (populációi) szakadnak ketté és tűnnek el megfelelő élőhelyek hiányában.

Magyarország 1999 óta természeti monitoring rendszert működtet a feltételezett hatásterületen. A monitoring a vizsgált élőlényeken, élőlénycsoportokon keresztül (16 vizsgált csoport) átfogó képet nyújt a Duna-Dráva Nemzeti Park természeti értékeiről és az itt előforduló élővilág változásáról.

Magyarország a Duna-Dráva Nemzeti Park létesítésével és a nemzetközi természetvédelmi egyezmények aláírásával, valamint az Európai Unió Natura 2000 direktíváinak elfogadásával kötelezettséget vállalt arra, hogy a Dráva folyó természetközeli élőhelyeit és élővilágát hosszú távon megőrzi és fenntartja. Hasonló a feladatunk az EU Víz Keretirányelv bevezetésének folyamata során is. Közös célunk az, hogy a felmerülő problémákra megoldásokat találjunk, de úgy, hogy figyelembe vesszük az ökológiai adottságokat, és nem pusztítjuk el a még meglévő természeti értékeinket.