POST-CONFERENCE FIELD TRIP
TAGLIAMENTO RIVER
September 22nd, 2017

Field guides

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Participants and fees

A limited number of participants is allowed. The participation fee is 60 Euro.

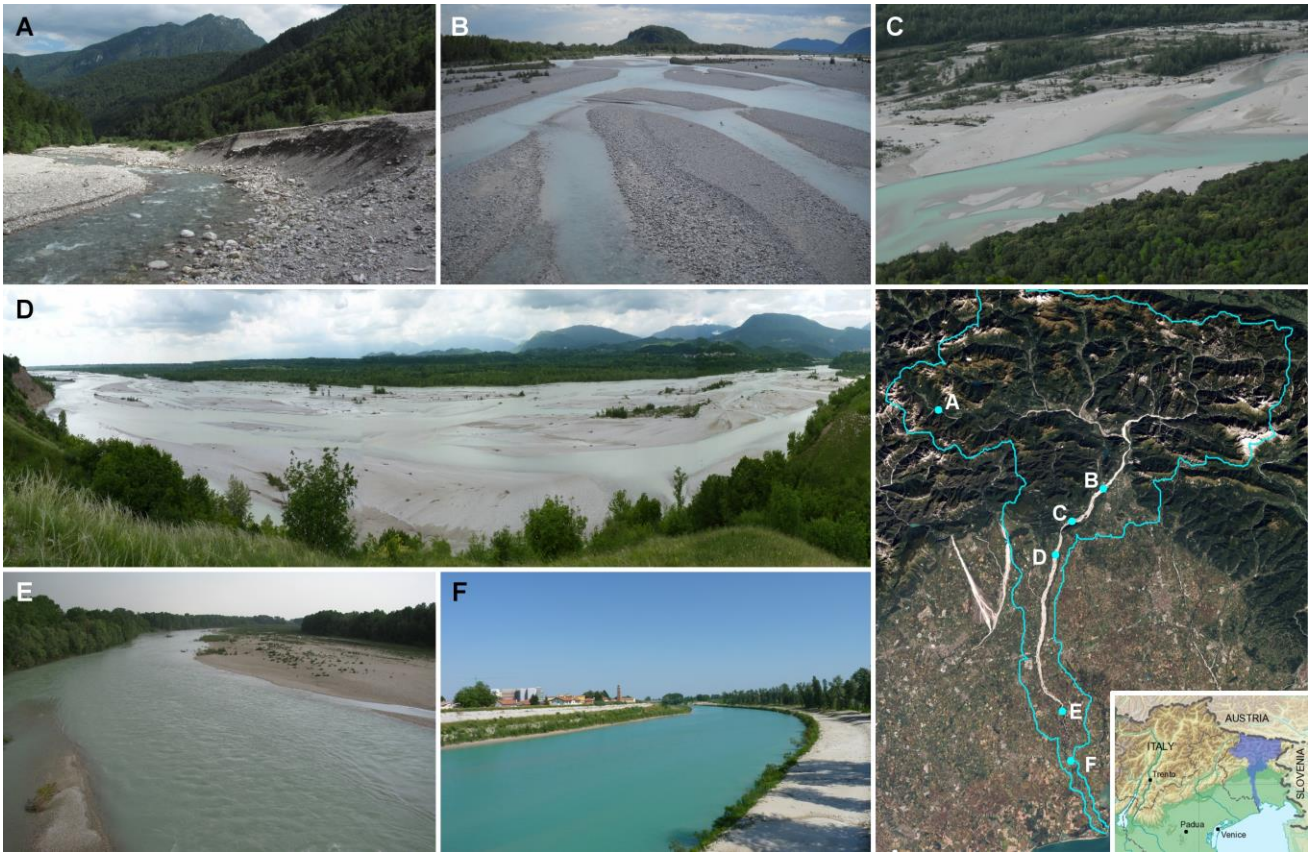

Fig. 1: Overview of the Tagliamento River

Programme and logistic details

We will get to the Tag on a dedicated bus leaving from Padova at 9.00 am, and getting back to Padova approximately at 7.30pm. Exact timing will be confirmed to the registered participants at the Conference. The fieldtrip will focus on the middle course of the Tagliamento, with a visit at panoramic sites where scenic views of the braided section of the river can be enjoyed. After getting a flavor of the local cuisine from the Friuli region, a walk on the river bars and vegetated islands is foreseen to stimulate discussion among participants and to provide a direct experience of such a unique river system in Europe.

Description of the field site

The Tagliamento River in NE Italy flows from the Southern Alps to the Adriatic Sea. Its catchment covers an area of about 2600 km^2 and is characterized by transitional, alpine to Mediterranean climatic conditions with high annual precipitation (up to 3000 mm/year in the prealpine area). The river maintains a near-natural, flashy pluvio-nival regime with peaks in spring and autumn.

The river shows a distinctive sequence of geomorphic types along its 172-km long course. In the upper course, a series of confined and semi-confined multi-thread sections are separated by narrow gorges (Fig 1 A-C), while large, unconfined braided sections make up the majority of the intermediate course (Fig. 1D). A transition from braided to wandering and meandering occurs in the lower catchment (Fig. 1E) where slope decreases and dominant grain size gradually switches from gravel to sand.

The braidplain is up to 1.5 km wide and is bordered by nearly continuous riparian vegetation dominated by poplars and willows. Vegetative regeneration of uprooted trees deposited on gravel bars is the main process leading to the formation of vegetated islands. As the channel pattern is highly dynamic, most islands have a relatively short lifespan (about 20 years). In the prealpine section of the river, rocky outcrops generate a sequence of downwelling and upwelling reaches, where water availability governs the growth rate of riparian vegetation.

Human pressure on the Tagliamento River is remarkably low compared with other rivers in the Alps. Water abstraction for hydropower generation and irrigation occurs on the main stem, but its effect on flood regime is negligible. Groynes and levees are present in some piedmont sections, but only the lowermost 20 km are channelized (Fig. 1F).

From the 1950s onwards, the Tagliamento River has been subject to a reduction of sediment supply caused by reforestation, construction of retention structures on the tributaries and gravel mining on the main course. Braidplain width dropped by more than 30% between the 1950s and the 1980s and vegetation encroached on gravel bars (Fig. 2), but narrowing seems to have stopped or slightly

reversed over the past decade.

Fig. 2: Morphological change over the past 60 years

As a consequence, the Tagliamento River still shows the key functional processes of a near-pristine braided river: a near-natural flow regime, a highly dynamic braidplain where channel pattern evolution occurs over a wide range of discharges, a complex mosaic of habitats that is constantly reworked by disturbances, and strong vertical, lateral and longitudinal connectivity.

Therefore, the Tagliamento River is considered a model system, as it offers a unique opportunity to observe the natural dynamics of a large Alpine river. Research conducted over the last two decades by an international community of scientist covers a wide range of topics including network evolution (for example using ground-based images, Fig. 3), reconstruction and prediction of long-term morphological change, surface/groundwater interactions, island formation and evolution, wood-vegetation-sediment interactions, habitat dynamics, composition and diversity of terrestrial and aquatic communities.

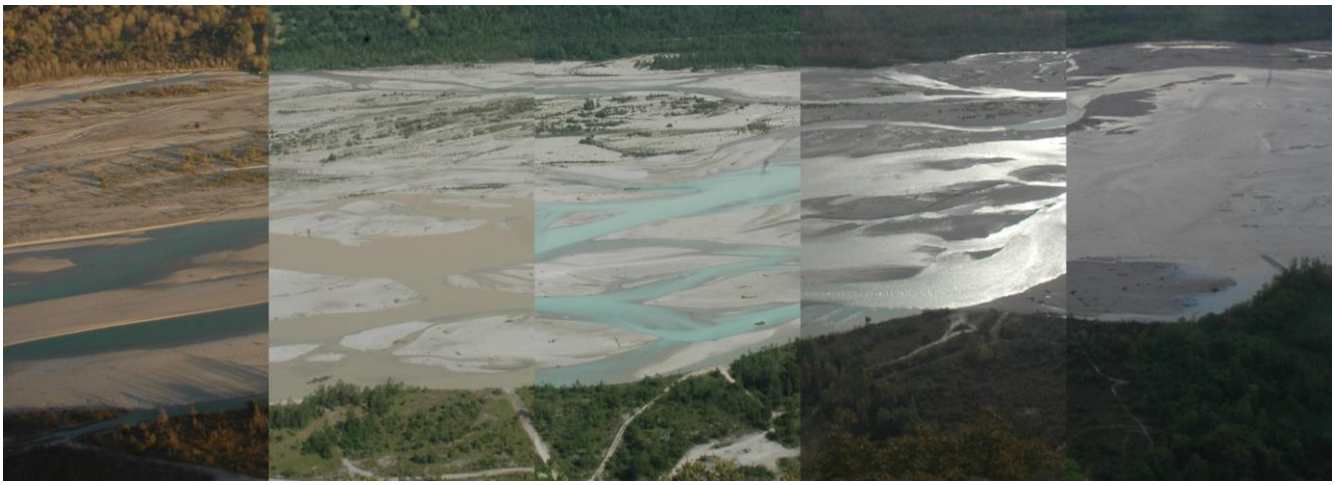

Fig. 3: A composite of ground-based images acquired at various flow levels