

Living with water

FLOODING AND DROUGHT ISSUES IN THE REGION TRAUN

Thalheim is located on the Traun, a river that regularly causes flooding in the region. Although there have been no extreme flooding events in Thalheim in recent years, the town is located in the HQ 100 and HQ 30 risk zones. For this reason, the municipality wants to take preventive measures.

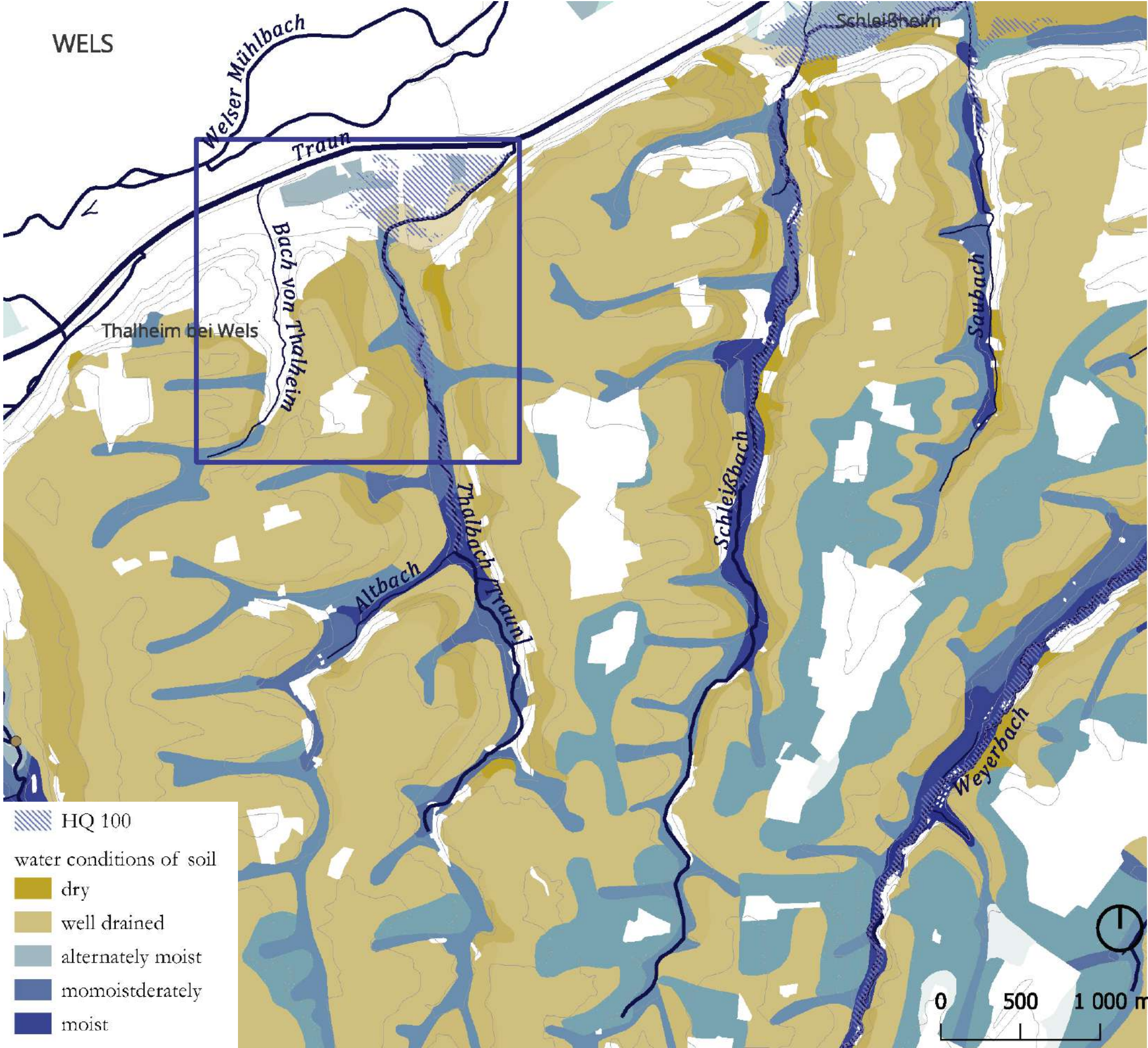
The overview map shows the river system of Upper Austria with the respective catchment areas. The Traun is one of the main waterways here. Measures can be taken not only in the HQ risk zones but should also be implemented earlier in the catchment area to prevent water from accumulating at the end of the catchment area. From an ecological point of view, rivers are dynamic systems, so catchment

areas should be considered as interconnected.

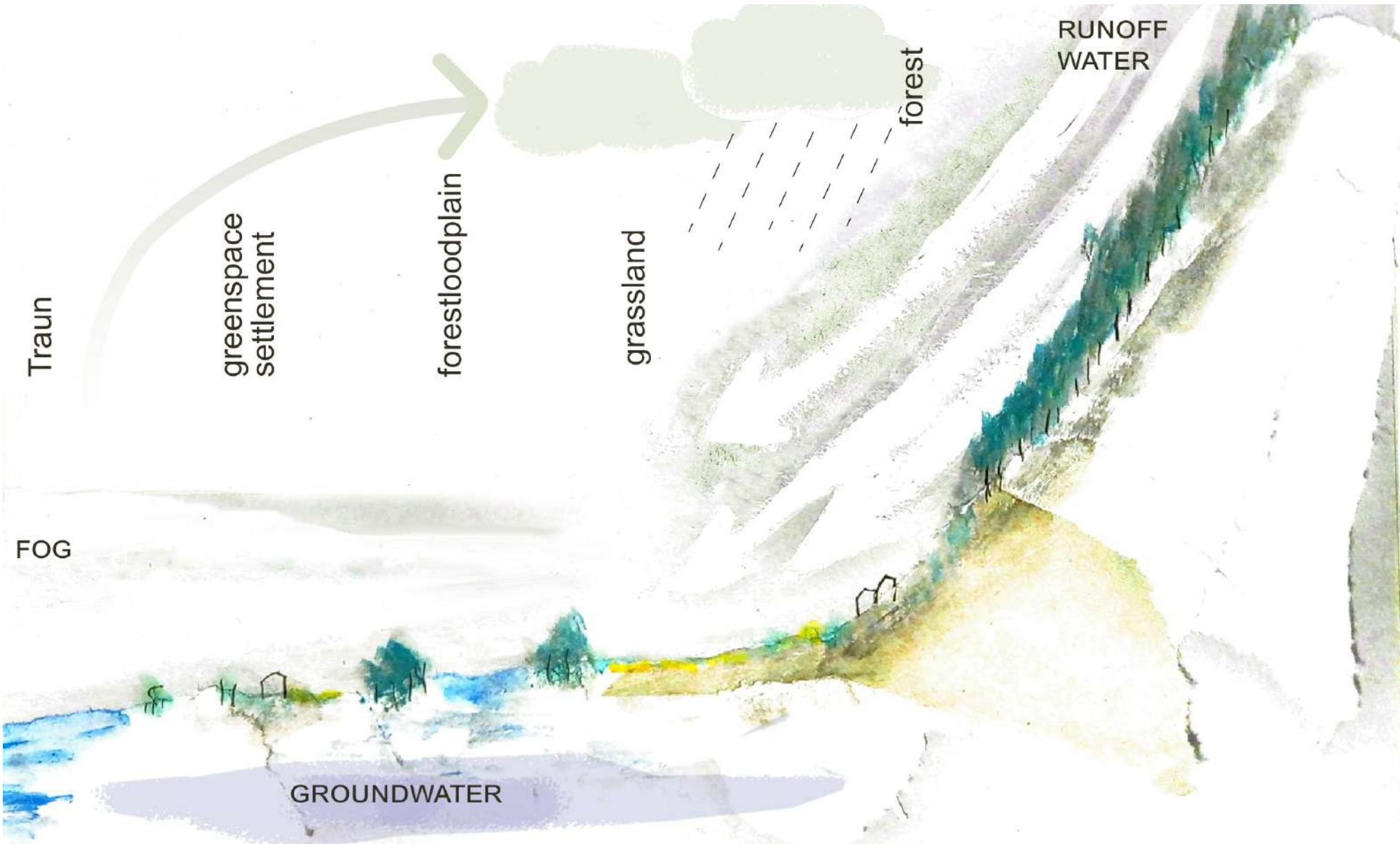
On the other hand, increasing heat and drought are also problems affecting the region. It therefore makes sense to find and implement compensatory measures for these two phenomena.

The map of soil conditions also shows the soil conditions in terms of water retention capacity and soil moisture. It is easy to see how the soil is more moist where there are watercourses. The topography is also easy to understand.

The areas most affected by flooding are low-lying valleys along the Traun river and at the confluences of streams and watercourses.



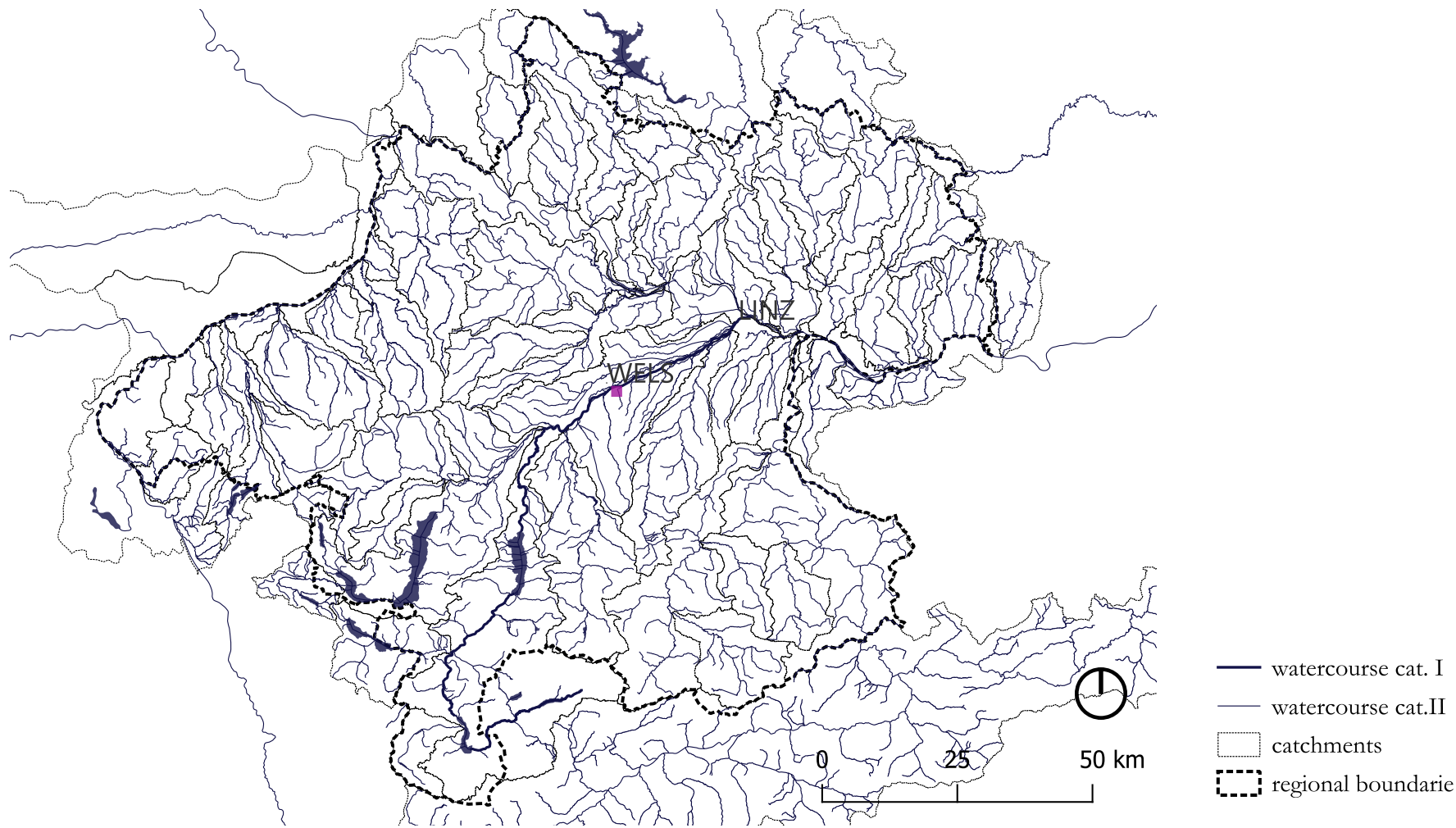
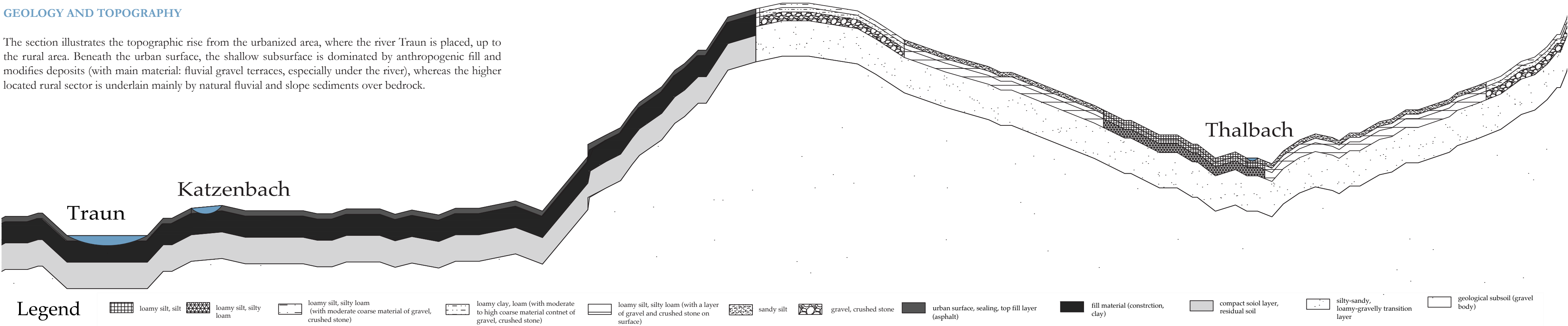
soil conditions Thalheim bei Wels



water cycle with problematic water runoff

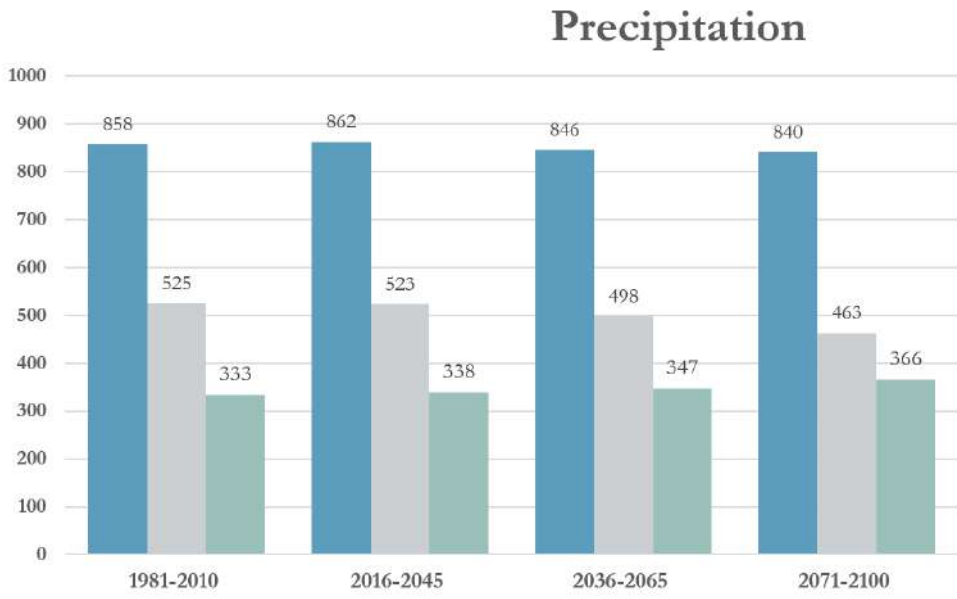
GEOLOGY AND TOPOGRAPHY

The section illustrates the topographic rise from the urbanized area, where the river Traun is placed, up to the rural area. Beneath the urban surface, the shallow subsurface is dominated by anthropogenic fill and modifies deposits (with main material: fluvial gravel terraces, especially under the river), whereas the higher located rural sector is underlain mainly by natural fluvial and slope sediments over bedrock.

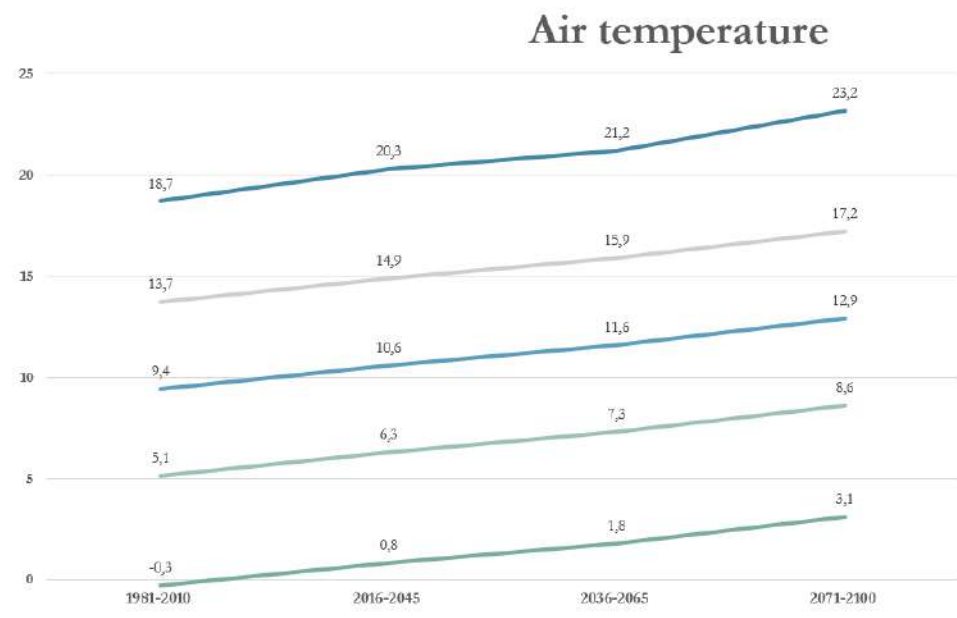


catchments and riversystem Upper Austria

Weather

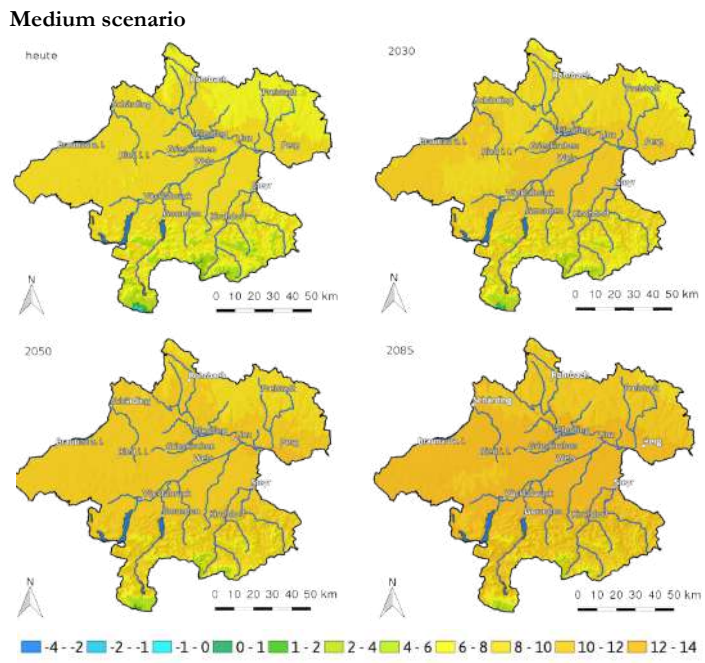
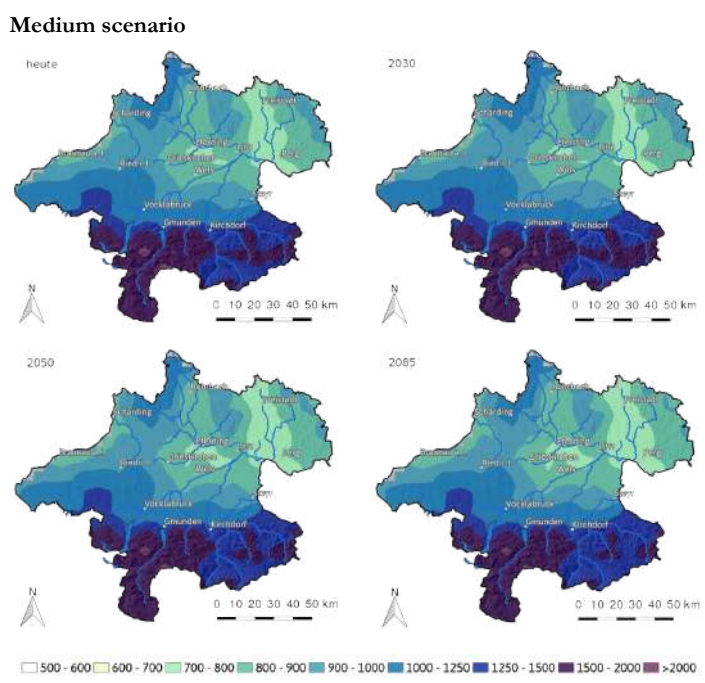


The graphic shows that annual precipitation in Thalheim remains nearly constant until 2100, but its distribution across the seasons shifts significantly. Summers become considerably drier while winters become wetter. As a result, the risk of summer droughts increases, while in winter, high flows and flooding are likely to occur more frequently.



Temperature Development: the mean annual temperature of about 9.4 °C (1981–2010) is projected to rise to 11–12 °C by mid-century and nearly 13 °C by century's end—an overall warming of roughly 3.5 °C.

weather conditions Upper Austria

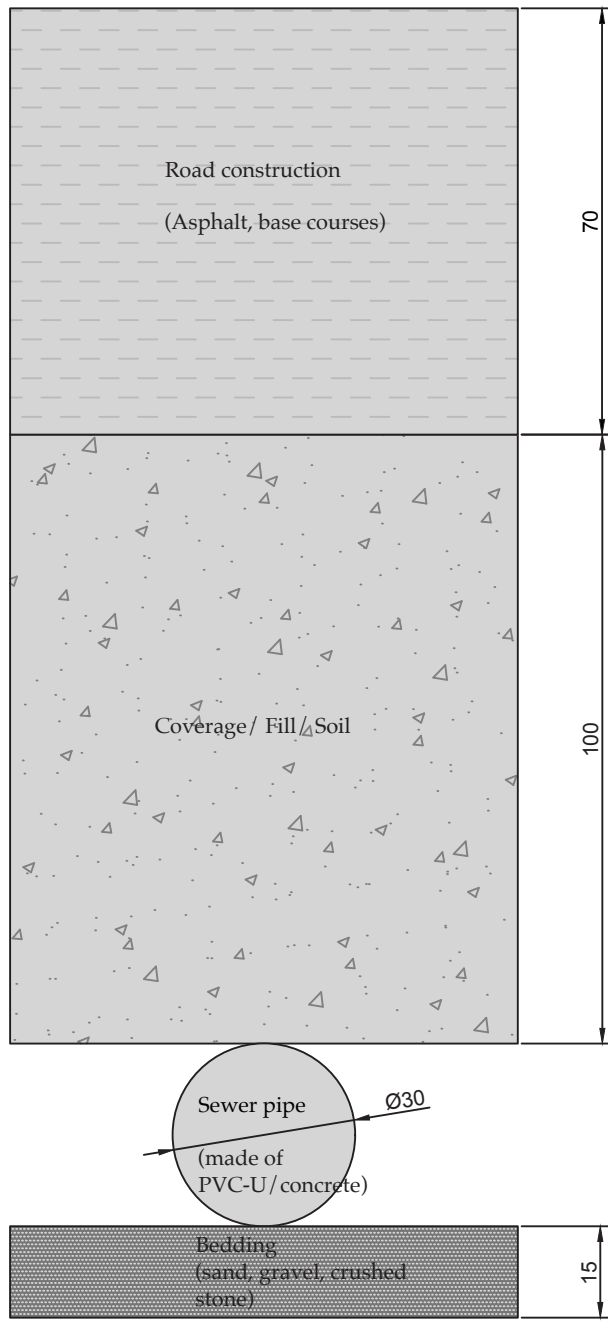


SLOPE WATER

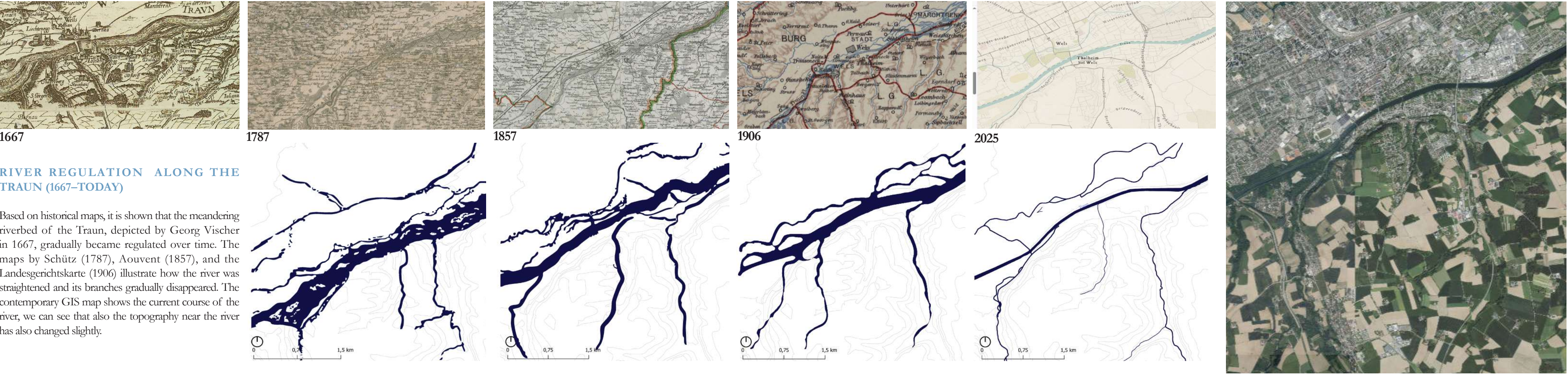
The flooding problem in Thalheim is primarily caused by surface water runoff. This is because the area has significant elevation differences. During periods of heavy rainfall, water collects in populated areas along the banks of the River Traun. As the soil has a high lime content in places, rainwater runs off quickly. At the same time, the low storage capacity leads to drought conditions. However, the soil alongside watercourses is often more moisture-retentive and damp.

SEWER SYSTEM

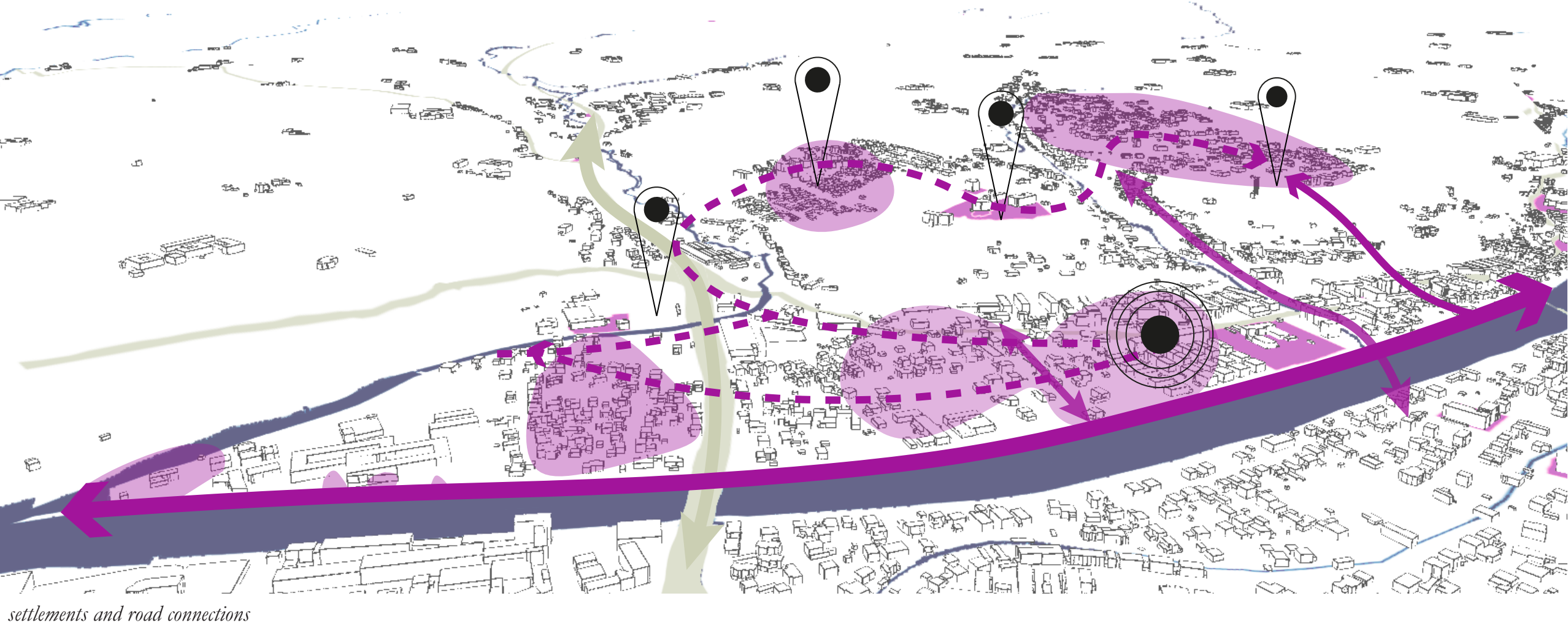
Unfortunately, no publicly available detailed plans of the Thalheim sewer system exist. However, it is known that Linz AG operates the sewer system and that it is a separate system (wastewater and rainwater are separated). Therefore, the dimensions in centimeters could be derived from the specifications for the dimensioning and construction of such a sewer system according to Austrian standards (ÖNORM EN 1610, RVS 11.06.31, ÖWAV guideline11).



What does it mean to live with water?

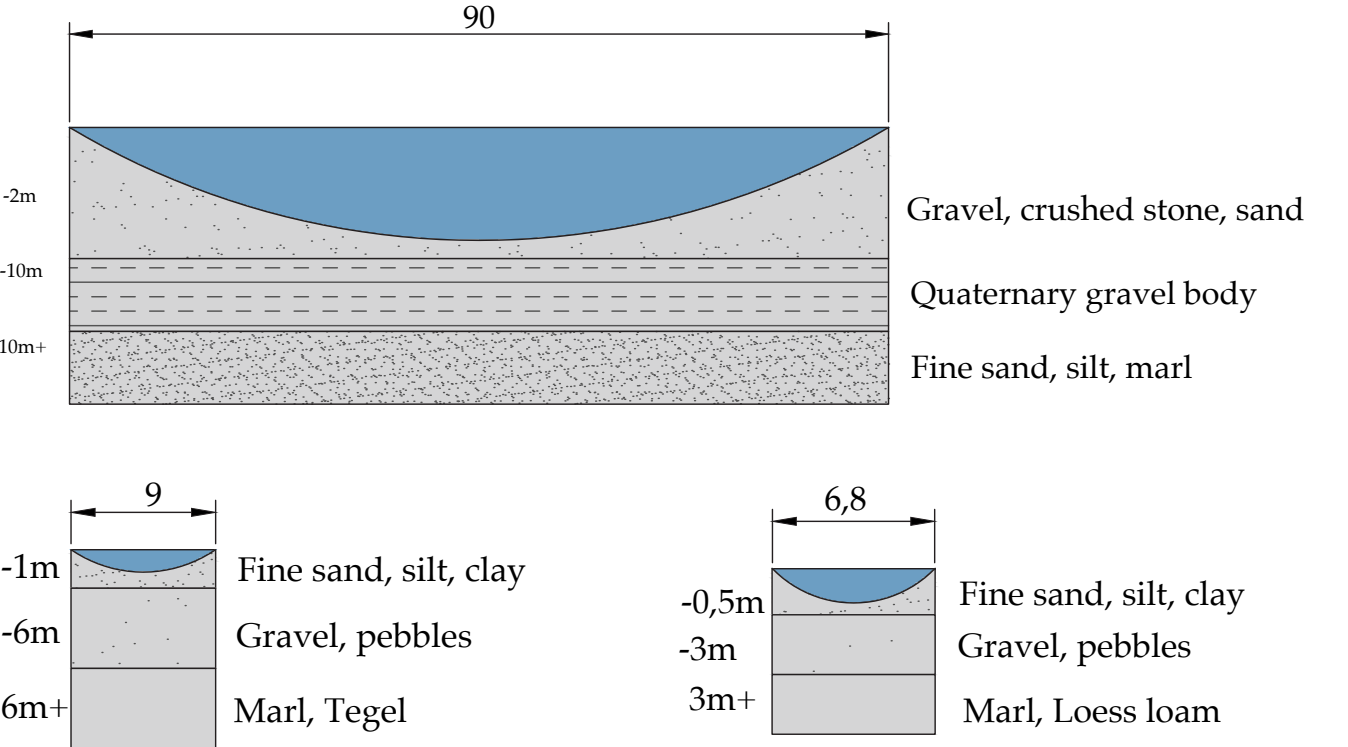


CONNECTIONS IN THE LANDSCAPE



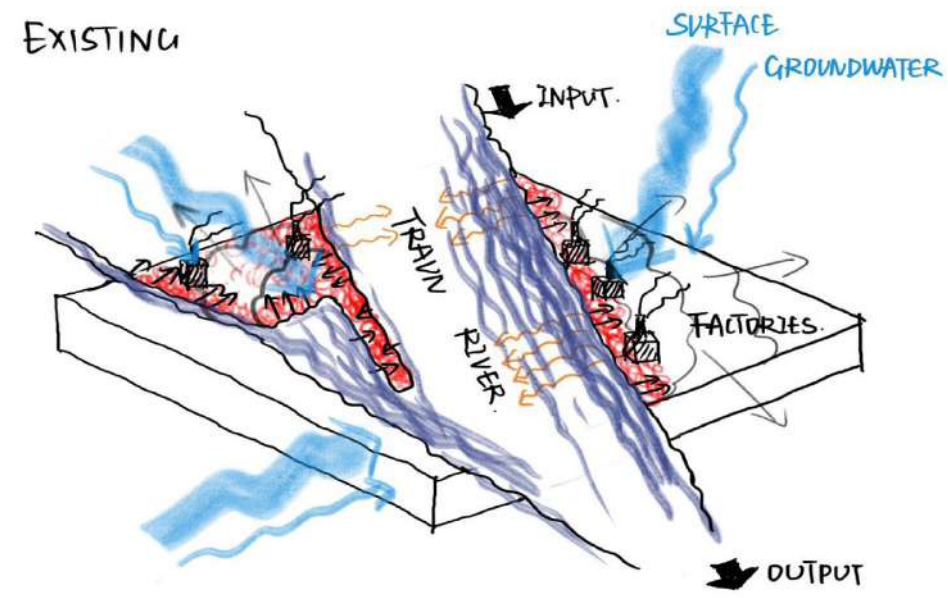
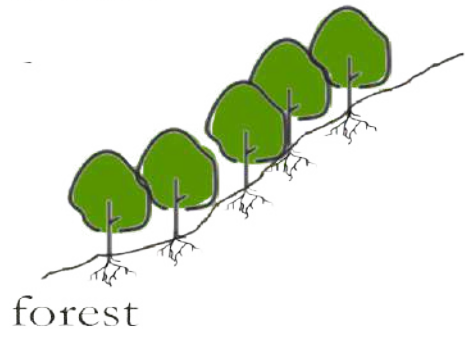
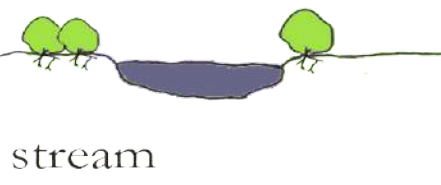
RIVER REGULATION

In addition to the Traun River and the two smaller watercourses, the area contains the following habitat types: riparian forest, forest, meadow (succession area), wetland, and hedge. These habitats provide living space for both people and a wide variety of animal species. On a small area, there are densely built residential and industrial zones, often alongside small patches of untouched natural spaces.



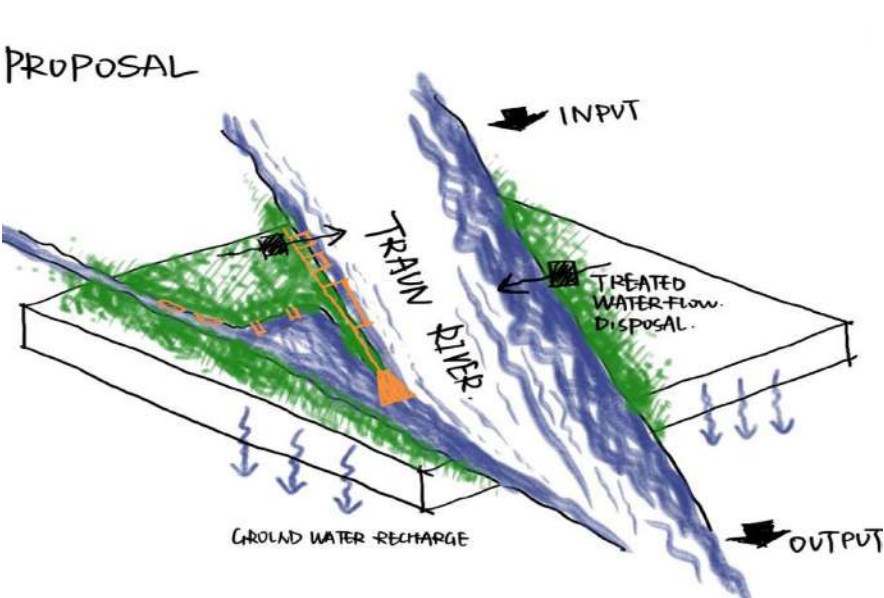
HABITAT TYPES

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EXISTING

- Highly engineered river corridor .
- Flood risk.
- Surface runoff+groundwater convergence.
- Urban pressure and industrial footprint.
- Ecological degradation and invasive species.
- Lack of human and river connect.



PROPOSAL

- REDUCE
Reduce polluted runoff and sediment.
- RESTORE
Restore natural edges and river ecology.
- RECONNECT
Reconnect people with the river.
- RECHARGE
Enhance infiltration and water cycle.

