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DEVELOPING THE GREEN INFRASTRUCTURE FUNCTIONALITY ASSESSMENT

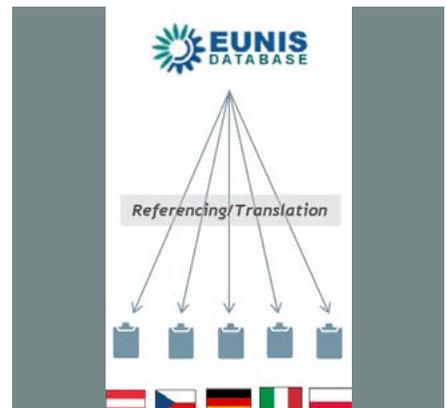
The University of Vienna's Department of Botany and Biodiversity Research is coordinating Work Package 2 in the MaGICLandscapes project. The objective of the work package is to develop a tool and methodology for assessing the functions of green and blue infrastructure in order to inform conservation and planning activities in the project area and beyond.

To date most assessments of natural and semi-natural elements of green infrastructure have rightly concentrated on the biodiversity and conservation value of those elements, such as its contribution to the local landscape character or the persistence of species, especially those that are considered threatened. What previous and current assessments seldom consider is the value of those elements in terms of their functions specifically ecosystem services (here: landscape services) and/or their functions related to their physical and functional connectivity in terms of landscape structure and thus their contribution to ecological networks.



Mapping of local GI elements and biotopes | Maps: University of Vienna

Level of naturalness	Hemerobiotic State	Definition
1	Metahemerobic	paved, built up, destroyed
2	Polyhemerobic	completely transformed
3	a-euhemerobic	partly transformed
4	b-euhemerobic	strongly influenced
5	Mesohemerobic	moderately influenced
6	Oligohemerobic	semi-natural
7	Ahemerobic	natural



Left: Measuring the 'naturalness' of GI elements using the Hemeroby indices 1-7; right: Compilation of regional biotope catalogues by referencing common EUNIS biotope types with national habitat catalogues | Source: University of Vienna

ASSESSMENT ENABLES COMPREHENSIVE DECISION-MAKING PROCESSES

The tools being developed aim to combine both functions in one assessment method, supporting a more comprehensive decision-making process when considering conservation, enhancement and creation of new GI elements in the landscape in rural, peri-urban and where applicable in the urban realm. As the work package progresses the project partners will communicate and facilitate the adoption of the assessment methods through participatory

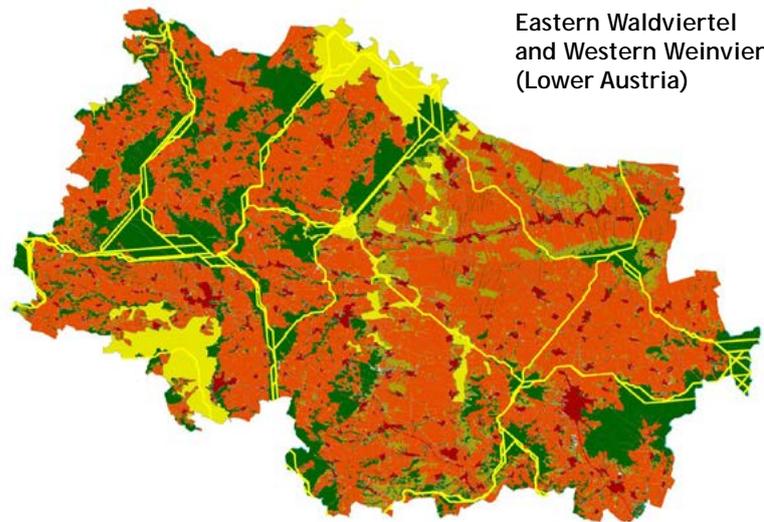
approaches and training with target groups.

The method is a balance of fieldwork and desk-based processing. The fieldwork involves biotope mapping, identifying and measuring the 'naturalness' of GI elements using the Hemeroby index and an analysis of potential and existing physical barriers and

obstacles. The Hemeroby index is scored using a scale of 1 to 7, where 1 is the least natural/highly modified/artificial state such as paved or built-up areas and where 7 is most natural such as a pristine wilderness.

The desk-based assessment uses GIS software to determine the GI elements' contribution

to landscape connectivity, as mentioned above this can be functional connectivity such as 'stepping stones' of habitat within a landscape or physical connectivity such as a large block of woodland or a river for example. Both the fieldwork and desk-based approaches will be trialled in the nine project case study areas during the first half of 2019. Maps and data for each case study area will be produced demonstrating the functions of green infrastructure. The Manual of Green Infrastructure Functionality Assessment will be delivered by the end of 2019.



Eastern Waldviertel and Western Weinviertel (Lower Austria)

Green Infrastructure Map of the Austrian case study area: core areas and corridors | Map: University of Vienna

ON THE TRAIL OF THE WILDCAT: 3RD MAGICLANDSCAPES PARTNER MEETING IN THAYATAL NATIONAL PARK

The national park information centre surrounded by open landscapes and woodland was the perfect venue to reflect on the activities and results so far and to discuss the next steps of the transnational and regional inventories of green infrastructure. This time the focus was on reaching an agreement on the methods for detailed analysis of functional connectivity and services of selected GI elements at the local level.

The transnational mapping of green infrastructure was completed by the Leibniz Institute for Ecological Urban and Regional Development. The map shows the Central European Programme Space and all land use categories which are designated as Green Infrastructure in the framework of the project.

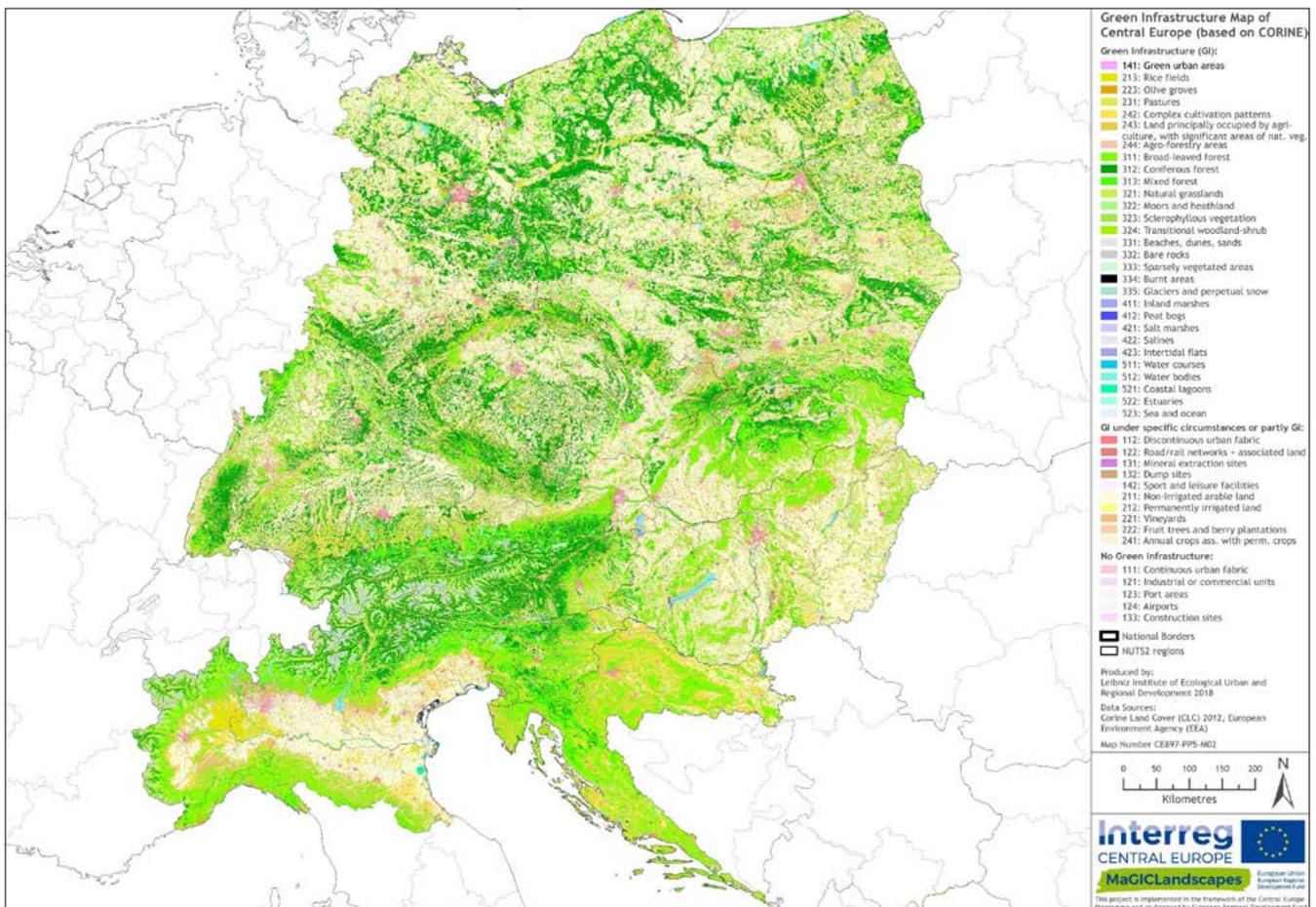
In the next months the partners will map local elements of green infrastructure they selected for a more detailed functionality assessment including ecological connectedness and functions (landscape services) (see article on page 1). In addition to the mapping work, field work will be used to assess the naturalness of selected GI elements in their case study areas.

On a guided field trip the project partners discovered parts of the Austrian National Park core area. Dr. Thomas Wrбка from the University of Vienna explained the geological and ecological features of this area. Geology that led to a very biodiverse area in this relatively small area. The nearby

Thaya Bridge connects the town of Hardegg with the community of Čížov. It is a symbol for friendship and cooperation between the people of Austria and the Czech Republic after the fall of the Iron Curtain in 1989, this cooperation extends to nature conservation in a common National Park.



Above: Round table at 3rd MaGICLandscapes Partner Meeting; below: Inspecting local green infrastructure | Photos: Marco Neubert



Central European Map of Green Infrastructure | Source: IOER

CONNECTING GREEN CORRIDORS OF THE EASTERN WALDVIERTEL AND WESTERN WEINVIERTEL

The Lower Austrian case study area of MaGICLandscapes project covers the districts of Horn and Hollabrunn. From the geological and topographic point of view the case study area represents a transition area between two landscape entities - the Waldviertel in the west and the Weinviertel in the east. Due to its high biodiversity large areas of the case study area are part of the Natura 2000 Network. Within MaGICLandscapes the University of Vienna and Thayatal National Park will develop strategies to connect local green infrastructure elements to a broader network.

The Eastern Waldviertel is shaped by the highlands of a shallow gneiss landscape. The River Thaya partially marks the its northern border to the Czech Republic. The river gives its name to the transboundary National Park Thayatal/Podyjí . It is an outstanding biodiversity hot spot there covering the Thaya canyon and the surrounding slopes and plateaus covered mainly by woodland.

Due to the combination of loamy, clayey sediments and loess deposits this region is more fertile than other parts of the area and is

therefore intensively used by agriculture.

The predominant landscape is a mix of agriculture, forests and copses with red pines, pioneer plants (birch, aspen, sweet cherry) and common oak forming important centres of biodiversity and providing habitats for plants and numerous animal groups (e.g. as refugium for amphibians and reptiles or breeding areas for birds including birds of prey such as Montagu's harrier (*Circus pygargus*), great grey shrike (*Lanius excubitor*), western marsh harrier (*Circus aeruginosus*) or the grey

partridge (*Perdix perdix*)).

The eastern part of the Waldviertel is a remote area on Austria's northern border with the Czech Republic. There are very few transports corridors dissecting the landscape. More and more people are discovering the Waldviertel as destination for tourism and recreation.

FORESTED HIGHLANDS TO THE WEST, OPEN LANDSCAPE OF THE PANNONIAN BASIN TO THE EAST

The Manhartsberg - a gneissic rock ridge - is the highest hill in the area and marks the border between



Left: The Retz windmill surrounded by vineyards in the Western Weinviertel | Photo: Marco Neubert; above right: The River Thaya meandering through a hilly landscape covered mainly by mixed forest | Photo: Jan Pavlík; below right: Where do we need GI? Participants of the regional workshop in Hardegg discuss GI and local landscape. | Photo: Karin Widhalm

the Eastern Waldviertel and the Western Weinviertel, which is characterised by wide open valleys and molasse sediments with rolling hills. With an annual precipitation between 450 and 600 mm, the area is one of the driest parts of Austria consequently there are no distinctive river networks in the region.

Here you can find more meadows and less wetlands compared to the Eastern Waldviertel. Due to the Pannonian climate and the loess soil this region was predestined for viticulture, and is Austria's biggest wine growing region. As a result of river regulation and drainage associated with arable farming many of the previously widespread wet meadows and waterlogged habitats have been lost. On steeper hillsides and knolls the landscape becomes more structured with viticulture interspersed by patches of dry and xeric grassland as well as heath land. At slightly higher elevations warm temperate oak forest can be found.

The vegetation in this area is unique, as you can not only find Pannonian species but also species normally found much further to the east. This includes species such as Adriatic lizard orchid

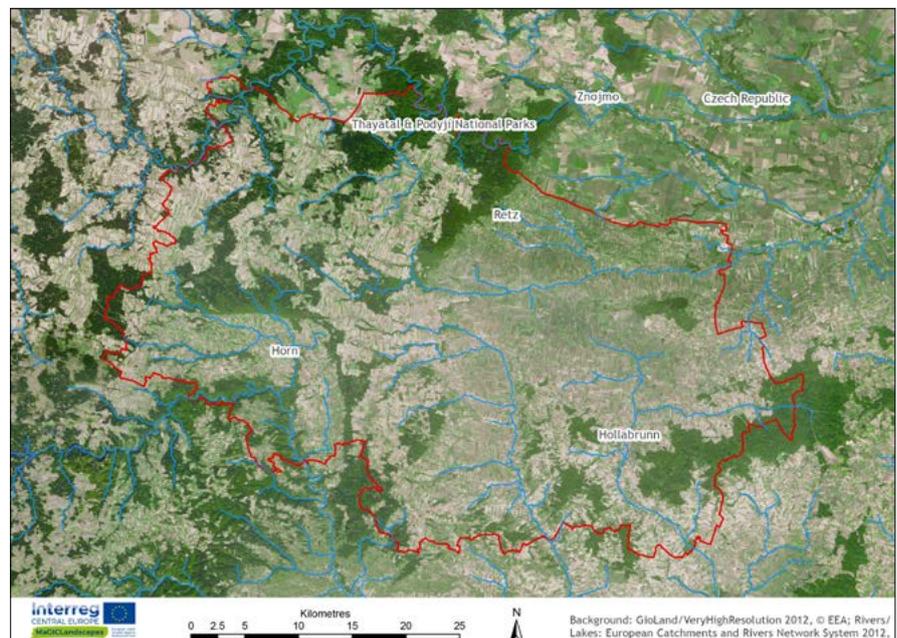
(*Himantoglossum adriaticum*) and the Tuberous Jerusalem sage (*Phlomis tuberosa*). Besides the great bustard (*Otis tarda*) the Western Weinviertel is home for several other endangered bird species such as Montagu's harrier (*Circus pygargus*) and the red-backed shrike (*Lanius collurio*).

PARTICIPATION OF LOCAL STAKEHOLDERS

The continuous involvement of local stakeholders in the

development process of local strategies and actions for the improvement of landscape connectivity and for investments in green infrastructure is an important aspect of the project.

People, who live, work, plan and manage in the Eastern Wald- and Western Weinviertel, support the project partners with their local expertise helping to make the outputs both usable and useful. The first workshop in Hardegg



MaGICLandscapes case study area "Eastern Waldviertel and Western Weinviertel" in Lower Austria | Map: IOER

in November 2018 has already demonstrated the number of (potential) benefits of green infrastructure elements in the case study area. The participants exchanged ideas for GI

enhancement by means of trees planting alongside river banks, new concepts of pasturing and of ecologically-friendly forestry. It is also foreseen to develop a corridor plan for the wildcat (*Felis*

silvestris) by identifying potential movement corridors within and between the National Park and the surrounding landscapes.

CAPITALISATION ON RESULTS: COOPERATION WITH OTHER PROJECTS

The Interreg Central Europe Programme fosters transnational cooperation, not only between institutions and the member states, but also between the projects within the programme and beyond, helping to capitalise on results and outputs.

MaGICLandscapes is already cooperating with other projects in the Central European and other Cooperation Programmes. The networking takes place both between partners from different projects in the same regions as well as at the transnational level between Lead Partners. In late November 2018 MaGICLandscapes gave a presentation at the kick-off conference of Interreg Danube Programme's DaRe to Connect Project (Supporting Danube Region's Ecological Connectivity by linking Natura 2000 Areas along the

Green Belt). Within this project the Bavarian branch of BUND-Friends of the Earth Germany has brought together public authorities, universities, NGOs, foundations, protected area administrations, all of which strive for the same goal: to further connect valuable habitats along the European Green Belt (EGB) often called the backbone of European green infrastructure.

Within six pilot regions alongside the EGB the partners will identify potential and feasible ecological corridors between Natura 2000 sites and other protected areas to enhance the international GI resource. Information about the ecological functionality and ecosystem services on both sides of the EGB (25 km buffer) will be derived by means of high-resolution satellite imagery (SENTINEL-2).



MaGICLandscapes' presentation at DaRe to Connect kick-off conference

MaGICLandscapes will further exchange experiences and results with the DaRe to Connect project partners, particularly regarding the assessment of landscape functionality and services.

www.interreg-danube.eu/d2c

MaGICNEWS

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