

VERIFICATION OF THE POSSIBILITY OF USING GEOGRAPHICAL INFORMATION SYSTEMS TO IDENTIFY NEW EDUCATIONAL, SPORTS AND RECREATION TRAILS, IN THE CZECH BORDER – JESENÍKY AREA.

SACRAL MONUMENTS IN THE REGION:
own photography

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ABSTRACT:
The area of Jeseníky has a rich history, but its continuity has been disrupted in 20th century. Remains of landscape memory can be found in the form of small sacral architecture, historical paths, trees or border stones. This paper verifies possibility of using GIS to track it, and transform fragments of urbanized countryside into new educational / sport trails. The aim is to provide better understanding of the fragile relationship between landscape and urban areas in the region and its history.

KEY WORDS:
GIS, educational trails, landscape memory, Rychlebské trails, restoration of sacral architecture

INTRODUCTION:

The interest in spending leisure time in nature is increasing. It is no longer a pastime only for the urban population, but also for the villagers, who used to spend their free time in the fields in history. Many studies, such as Cooperation is in our nature: Nature exposure may promote cooperative and environmentally sustainable behavior (ZELENSKI J.M., DOPKO R.L., CAPALDI C.A., 2015) show, that there are not only benefits related to our health, in spending free time in nature. In 2020, due to Covid-19 pandemic, it was not possible to travel abroad. Domestic tourism increased, which has a negative effect on our most visited areas. It is already clear today, that tourist areas in the Czech Republic should be expanded. Selection of new interesting tourist areas should not be artificial. It is much easier to enlarge already active areas than to create new.
To increase the interest of an area, contemporary art and architecture could be used. As Moore describes in his article (MOORE R., 2017), contemporary architecture helped to increase tourism in quiet, post-industrial city of Bilbao. By this logic, it could be possible to use this "Guggenheim effect" for example by land art or architecture in nature. These tendencies are already visible in Jeseníky. One of the most photographed objects near Javorník city is a sculpture of timber chairs on Lánský hill. In my opinion, the restoration of small elements in the countryside has great potential to provide better understanding of the fragile relationship between landscape and urban areas in the region. For example, the importance of restoring of the Baroque landscape in South Moravia is addressed, by

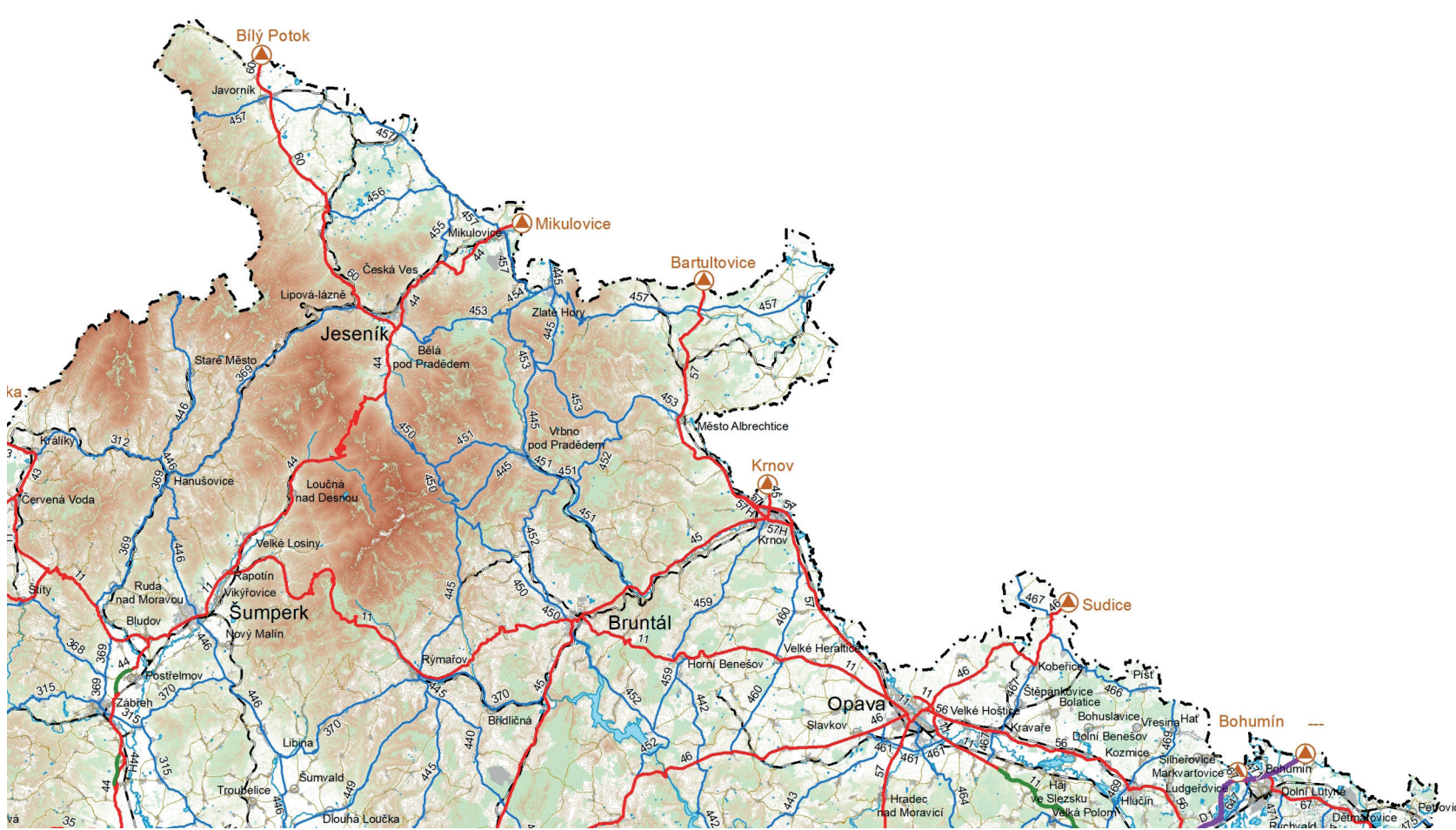


RYCHLEBSKÉ TRAILS
<https://magazin.aktualne.cz/cestovani/z-bohem-zapomenuhokraje-raj-pro-kyklisty-rychlebske-stezky/~5bd4bac699031ea9c800cc47ab5f12z/>

ESSENCE OF THE PROJECT

The area of the Czech borderland has been less populated since the Middle Ages due to demanding, mountainous, climatic conditions and frequent military skirmishes. Interest in it increased only during the industrial revolution, when industry and mining developed rapidly in some border areas. The cultural and economic expansion of this area was suspended mainly by a series of events after World War II when the native German population was evicted on the basis of Beneš's decrees, thus breaking the continuity of development, but also cultural and social ties. The new population that settled here had almost no relation to this landscape. The onset of communism associated with collectivization left agricultural production as well as the entire cultural landscape in a state of disrepair.

Nowadays, the original style of cattle breeding is slowly returning to some areas, and small organic farms are being set up. The area between Javorník, Vidnava, Černá Voda, Lipová-Lázně and the town of Jeseník was chosen as the main area of research.
The transport accessibility of the area is relatively good, the direct connection of the town of Jeseník with Brno and Prague, good connection to Ostrava, as well as dense network of regular bus lines and a railway line, could be a prerequisite for rapid development. Although this area is located only 23 km far from the popular ski resort Ramzová, 20 km far from Lázně Jeseník and 30 km far from the Nízké Lázeňské Lázně, attendance of these parts was very low in the past.
However, around 2008, near the village of Černá Voda, local enthusiasts began to build a network of downhill trails for mountain bikes. The original idea was to build new routes according to modern trends. Based on the Lesy ČR (Czech Forests) initiative, the owners of part of the land, the restoration of old hunting trails being the main backbone of the network of trails was finally promoted. Thank to this inconspicuous idea, the memory of our ancestors is revived in the atmosphere of Rychlebské trails.
Nowadays, Rychlebské trails are considered to be one of the largest and best quality downhill areas in the country. Their attendance has increased sharply in recent years, and nowadays people from Prague, Slovakia, and Poland come here to spend their holidays. A rapid increase in accommodation demand was connected to this phenomenon. In the village of Černá Voda, many half-dilapidated houses were restored and transformed into boarding houses, small hotels and eco-resorts. Several new pubs, a fisherman's bastion and a bakery were built here. Currently, the tourists interest exceeds the capacity of the village.



THE ROAD NETWORK: DIRECTORATE OF ROADS AND MOTORWAYS (RSD) MAP ->
https://www.rsd.cz/wps/wcm/connect/c627e870-3aa0-4636-924c-325d43a64a/2021_L_cr_500vst.jpg?MOD=AJPERES

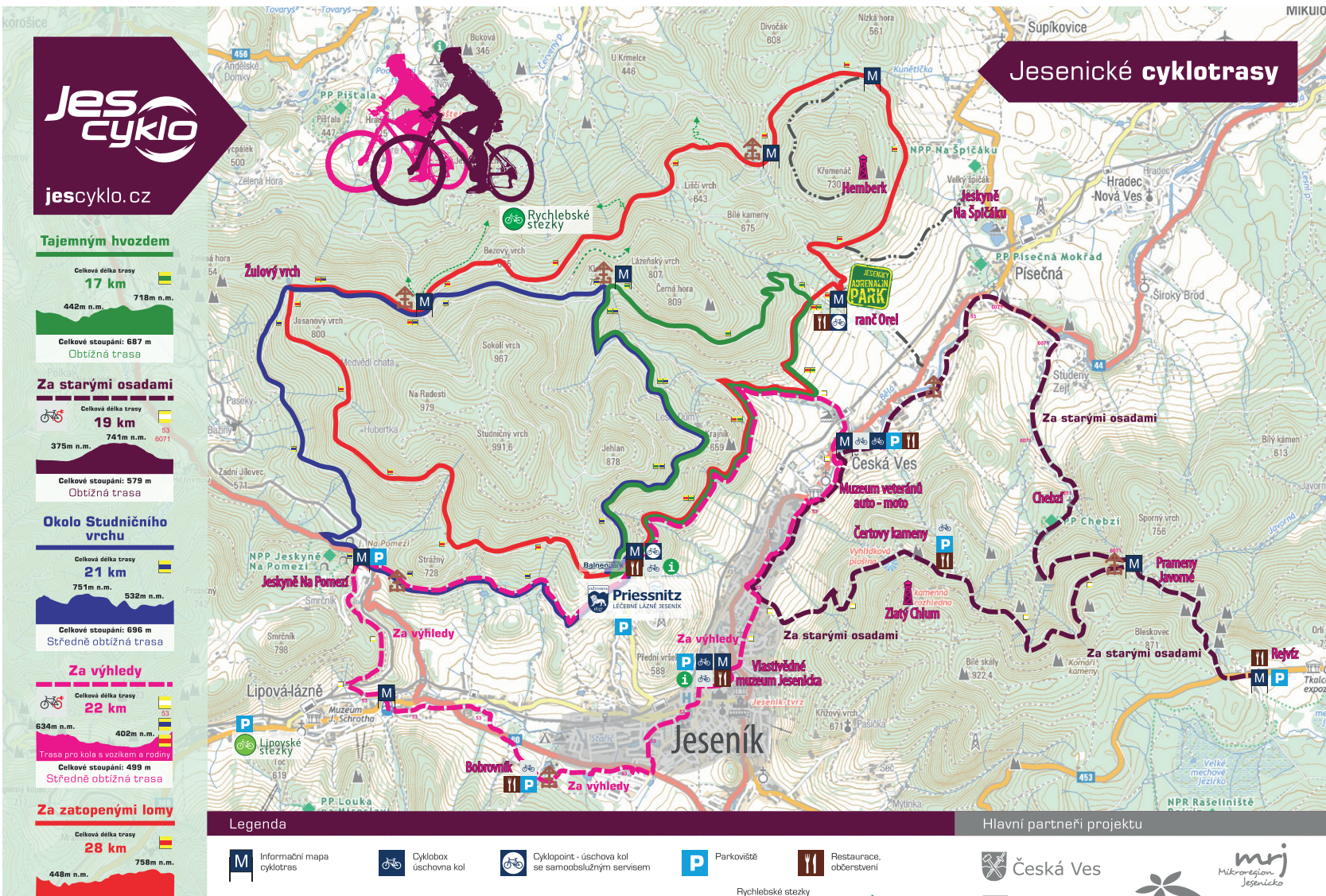


LOCAL LANDART: AUTHOR UNKNOWN, LANSKY HILL NEAR JAVORNIK
<http://www.wk-bike.cz/vrcholp.php?vrchol=28>



the work of Ponešová and Foretník (PONEŠOVÁ B., FORETNÍK J., 2016). The result of their work is not only an analysis of the mentioned landscape, but also a number of proposals for its restoration and activation. Small sacral architecture was often built at intersections or along important paths and footpaths. At the same time, the choice of the site was unrepeatable. From such places, we can often see all urbanized structure of villages, the dominant of a church or significant hill. The passion and crucifixes have the potential to become a guide to the landscape. As Čílek says, it can help us to perceive the surroundings through the eyes of our ancestors and allowing us to share a common space even at a different time (ČÍLEK V. 2010, p.48) and in a different context.

Another interesting work is a study entitled Landscape of Data - Virtual Reconstruction of the Lost Šumava (GOGOLÁK I., GRASSE L., HORNÍČKOVÁ K., PACLÍKOVÁ K., PREUZŠ M., TREJBAL J., ZIFČÁK Š., 2018), published in the magazine Zlatý řez. It deals with the mapping of extinct municipalities in the Vysočina region, their digitization and conversion into a 3D model. The model was uploaded to a program that allows you to perceive a non-existent village in augmented reality. The visitor can thus better imagine where the individual houses stood and how they were arranged. This unusual approach helps to better understand the history of the area and to increase the interest of public.
Very important is also ecological aspect of restoration of historical paths or creating of new trails. Current paths used to cross the vast fields helping people to walk freely through the countryside.



RYCHLEBSKÉ TRAILS
<http://ryscyklo.cz/>

It might seem that everything is fine, tourism in the area is alive and everything works well. The problem, however, is the narrow centralization of tourism resulting in an excessive burden on Černá Voda, while the economic situation of its surrounding is not improving much. The houses in the surrounding villages are still neglected, dilapidated or completely ruined. There are a few job opportunities and it is necessary to commute far. Salaries are deep below the average in the Czech Republic. Young people are moving to cities and villages are gradually being depopulated.

The questionnaire, which was conducted in the summer of 2021 in Černá Voda, showed that the vast majority of visitors of the Rychlebské trails are men aged 20-40. Thus, the assumption that this is a specific adrenaline issue for a narrow circle of visitors was confirmed. Probably, the creation of new, less demanding routes full of attractions and natural monuments could increase the interest, for example, for families with children or older age categories.

LANDSCAPE MEMORY

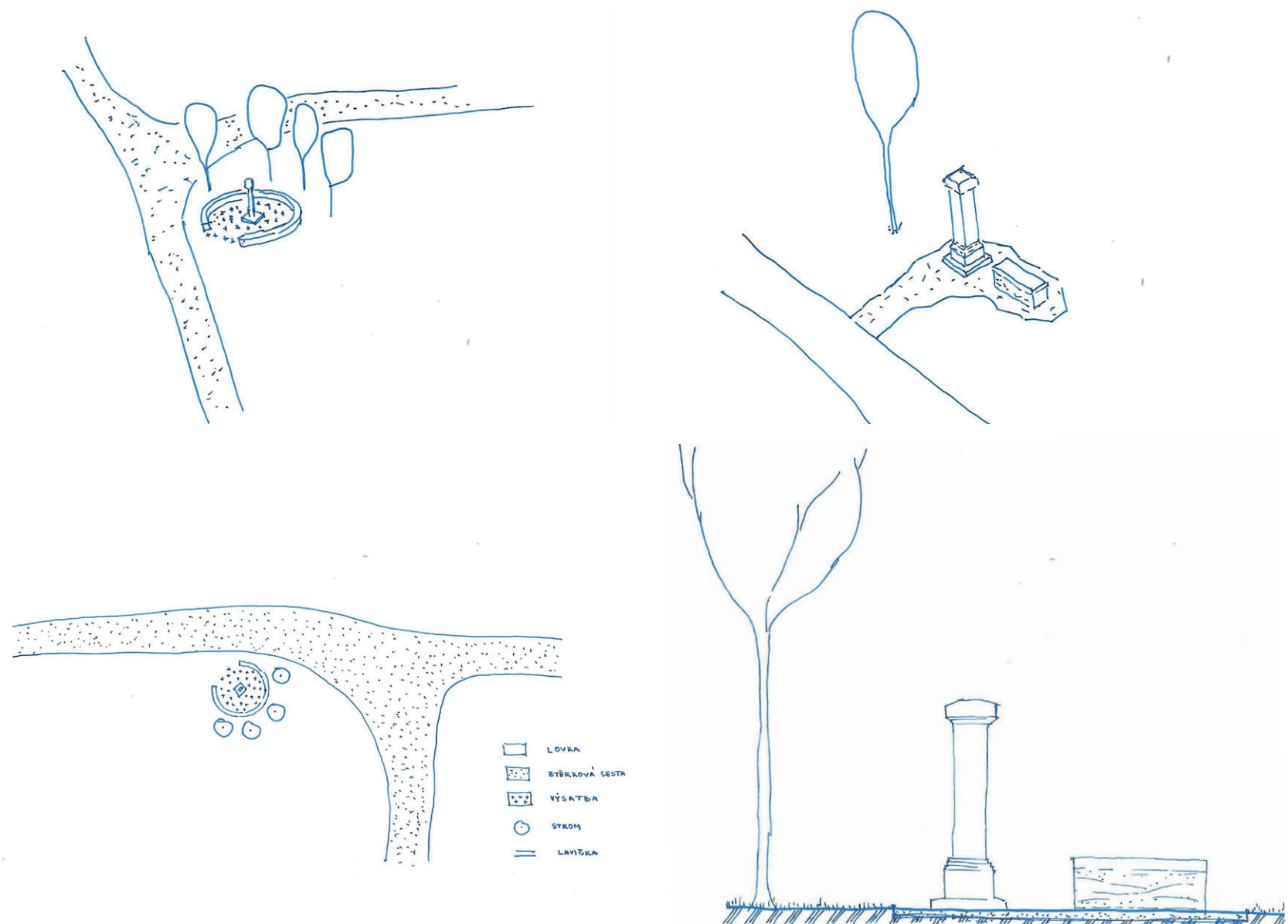
The landscape in the area is beautiful. Wavy hills, views, rocks, flooded quarries, endless pastures, herds of cows and forests. Compared to other popular areas, it has something extra - a painful history that led to the extinction of man-made beauties. It is unbelievable how many church spires and entire depopulated villages have been the target of military exercises. The church of St. Barbara in the completely destroyed village of Zálesí, or the chapel of St. Joseph in the village of Hranický with just one house remained could be some examples. Due to collectivization, many roads and footpaths disappeared or fell into disrepair, and the small sacral architecture, which sensitively completed the landscape in the past, fell victim to communist ideology or weather conditions. The restoration of the extinct routes, the preservation of dilapidated elements of sacral architecture as well as a reminder of the strong history of the place could become a key theme of tourism in this area.

METHODOLOGY

To verify his thesis, that GIS could be used to identify new educational, sport and recreational trails we will need specific data.
In the first phase, it is necessary to select suitable paths (linear elements). The road network of the Directorate of Roads and Motorways (Ředitelství silnic a dálnic - ŘSD) will serve as input data. However, sports and recreational routes will try to avoid these routes. Furthermore, it is necessary to select suitable existing field paths and footpaths based on visual mapping in the field. The analysis of extinct important paths based on historical mapping from 1836, or old chronicles is another suitable basis.



HISTORICAL PATHS ANALYSIS
<https://ags.cukk.cz/archiv/>

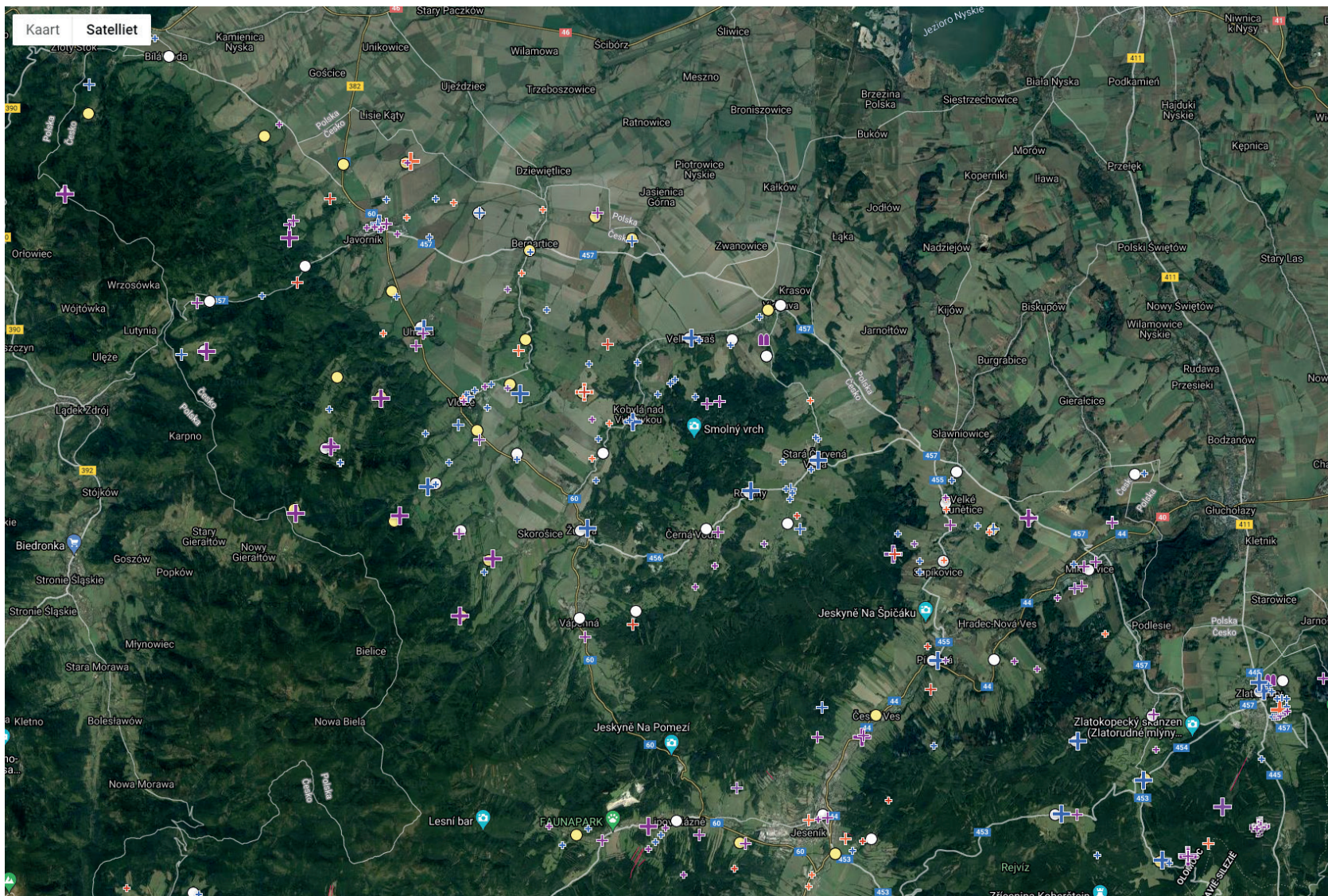


RESTORATION IDEAS, Stará Červená Voda

Over time, however, the fields were plowed and combined into large units. Heller states that more than a hundred mayors have now joined the „1000 a 1 cesta pro krajinu“ (1000 and 1 road for the landscape) project, restoring at least a thousand plowed roads. Besides serving the tourists, they keep the water in the landscape thanks to anti-erosion zones or alleys possibly forming along them. (HELLER J., 2019). The restoration of field roads is one of the most important tools of municipalities to support the sustainability of water in the landscape. These roads are captured in old maps and often remain the property of the municipality. (ČÍLEK P., in HELLER J., 2019) The result should be a permeable, sustainable diversified landscape, self-sufficient in rainwater distribution.

Modern technology could be used to identify suitable trails. Geographical information systems are already used to identify ideal trails for technical networks. It has been proved, that it can be also helpful, in searching for expansion of the network of cycling paths (BÍL M., BÍLOVÁ M., KUBEČEK J., 2012). But it has never been used in combination of points of interest in the field of art and architecture.

You will get to know the Sudetenland for the first generation of immigrants - either they have nothing to do with the landscape at all, or they will begin to discover it until they are old. The second and third generations were born here and are already at home. They begin to own the landscape and the landscape begins to own them. Their dead are somehow trying to live with the first settlers. It's tough and it takes time. ČÍLEK V. (2010, p.116)

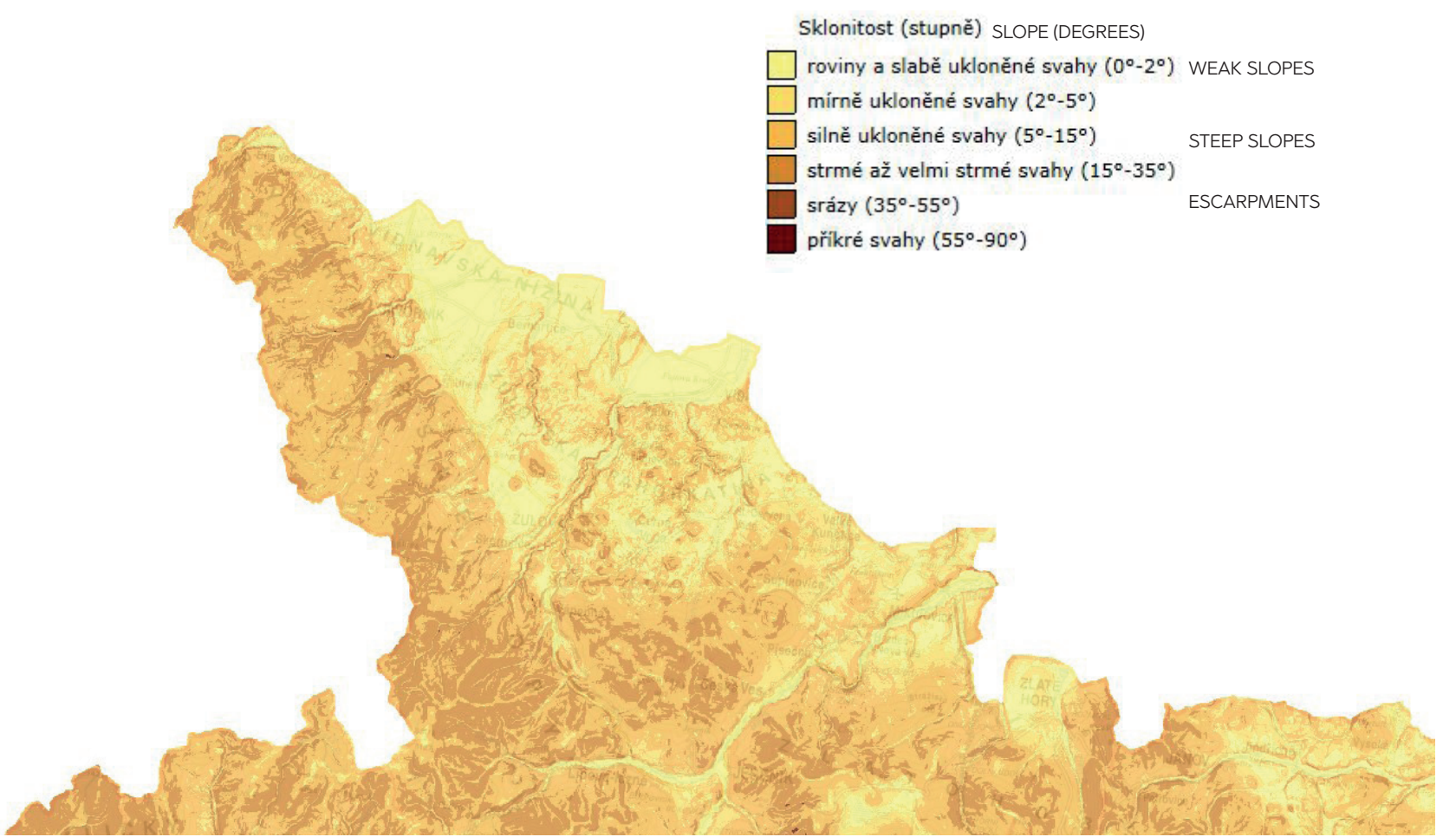
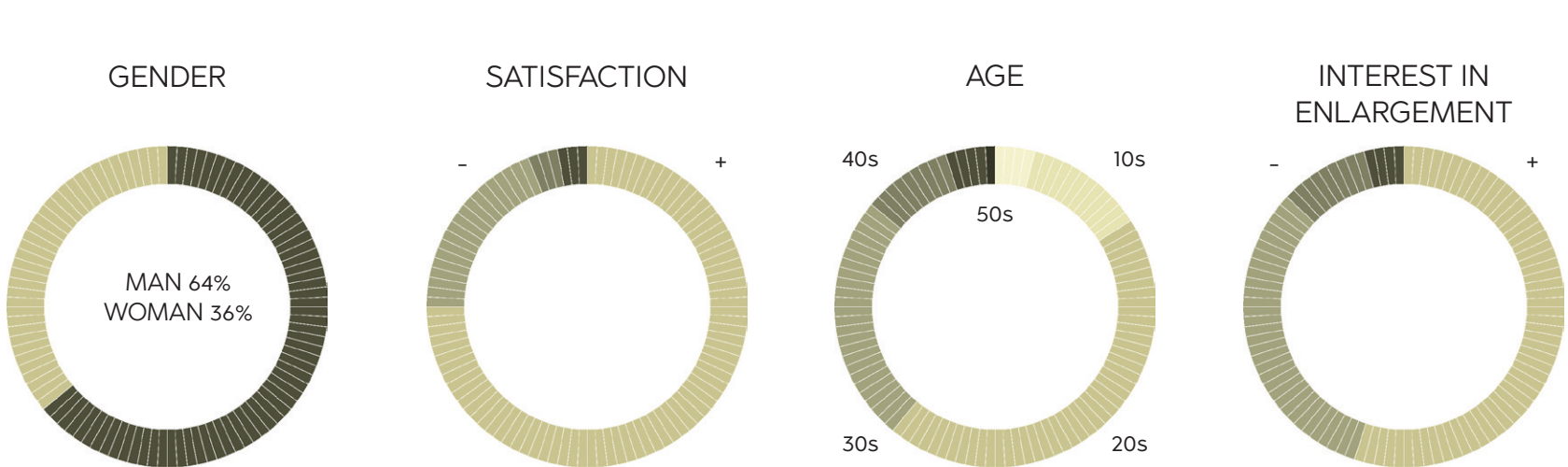


SACRAL MONUMENTS IN THE REGION
<https://zaniklekestely.cz>

Topographic analysis will not be important for the purposes of this project. We assume that the main backbone of the network will be field roads, which were originally intended for wagons hauled by cattle, so they could not be too steep in nature.
In the second phase, it will be necessary to identify potential points of interest (point elements). GPS coordinates of dilapidated monuments from the zaniklekestely.cz and zaniklekestely.cz servers will serve as an important basis. These were created on the initiative of an association of volunteers who map them. Many monuments are still in relatively good condition and their restoration or reconstruction would not be difficult.

The resulting suitable routes are obtained by creating envelope curves, for example, at a distance of 20m from the selected paths (line elements), which would contain points of interest (point elements).

QUESTIONNAIRE, SUMMER 2021, ČERNÁ VODA:



TOPOGRAPHIC ANALYSIS
made by MapoMat application

RESULTS AND DISCUSSION

By this method the selection of suitable trails is very simple. Programs such as QGIS and ArcGIS are offering basic tools to create quick analysis based on envelope curves method. Selecting points of interest, that are included in surface of envelope curves, is also one of the basic tools.
The main issue is collecting of GPS data. If an Excel table containing all GPS coordinates of individual objects was available, data would not have to be filled in manually. Analyzing of historical maps is also not easy, since many of them are incomplete.
It is clear that the analysis could be deeper or more specific. Additional input data such as infrastructure (bus and train stops, restaurants, accommodation), natural monuments or prospects selected by field research could change the results. In more complicated terrain the topographic data could be also useful.

CONCLUSION

Selection of suitable trails is not the end result. It is also important to continue with design phase. Simple restoration of sacral monuments might not be enough. The importance of sacral buildings in the landscape due to the limited presence of religious peasants on the fields and due to the quite atheistic period we live in, is disappearing. New generation would be able to form a more current view of their renewal. For such task, well known artists could be invited, or workshop of students of art and architecture could be organized.
Based on the above assumptions it is clear, that GIS could help to identify new trails which could disperse tourism to wider areas and enrich awareness of its history.

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