



# RUINS

**Sustainable re-use, preservation and modern management of historical ruins in Central Europe**  
**- elaboration of integrated model and guidelines based on the synthesis of the best European experiences**  
**MATEJ BEL UNIVERSITY IN BANSKA BYSTRICA**

## RUINS PROJECT OUTPUTS

**4 tools developed for the sustainable use of cultural heritage and resources:**

- **Universal transnational model of sustainable preservation and protection of the medieval ruins**
- **Universal transnational model form of modern management of medieval ruins**
- **Universal transnational model forms of contemporary use of medieval ruins**
- **Transnational guidelines: how to apply integrated model in development of the comprehensive action plan**

## RUINS PROJECT CONSORTIUM

- 1) Lublin University of Technology, Poland – Project Leader
- 2) Matej Bel University, Slovakia
- 3) The Institute of Theoretical and Applied Mechanics CAS, v. v. i, Czech Republic
- 4) ICOMOS Poland - Polish National Committee of the International Council on Monuments and Sites, Poland
- 5) City of Zadar, Croatia
- 6) Higher Institute on Territorial Systems for Innovation, Italy
- 7) Italian Association for the Council of Municipalities and Regions of Europe, Italy Venetian Heritage Cluster, Italy
- 8) Municipality of Velenje, Slovenia
- 9) Zadar County Development Agency ZADRA NOVA, Croatia

### LOCAL POPULATION AND CONNECTING PEOPLE WITH CULTURAL HERITAGE

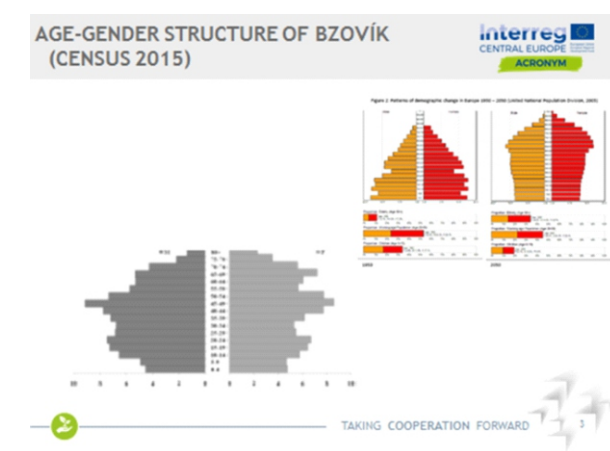
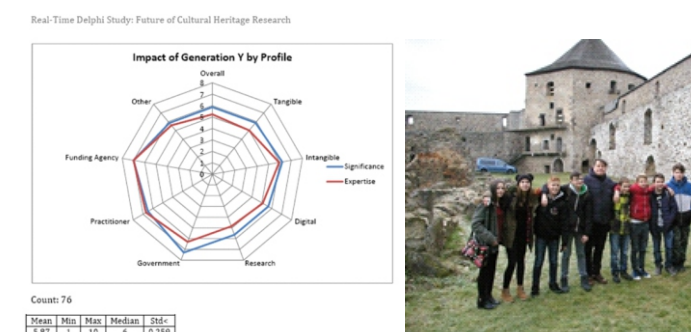
PhDr. Ivan Murin, PhD.      Mgr. Ivan Souček, PhD.  
Mgr. Dagmara Majerová, PhD.      RNDr. Jana Jačudová, PhD.

#### Local linking information

- to increase understanding of quantitative and qualitative heritage databases along cultural, spatial, temporal or other scales, using data mining and similar techniques.
- to integrate the available cultural heritage information in different fields of study including, but not limited to history, ethnology, science, digital heritage in order to move the field towards truly interdisciplinary heritage studies.
- to explore how processes can be exploited to generate new knowledge around cultural heritage.
- to advance use of reference collections of materials and data through better characterisation, cataloguing and improved accessibility, thus establishing links between disparate contents for knowledge and management, taking into account different spatial and other frameworks.

#### Change

- to local understand changes and their consequences for ruins
  - to build on local system integrated with assessment of impact of agents of change on cultural heritage.
- The **younger generations** will have an important impact on cultural heritage. They will redefine the definitions and enforce new practices. The younger generation will be the driving force and will have a more significant impact. The impact is unpredictable, but will surely exist.



Comparison of Bzovik local demography with European demography in 1950 and prognosis to 2050

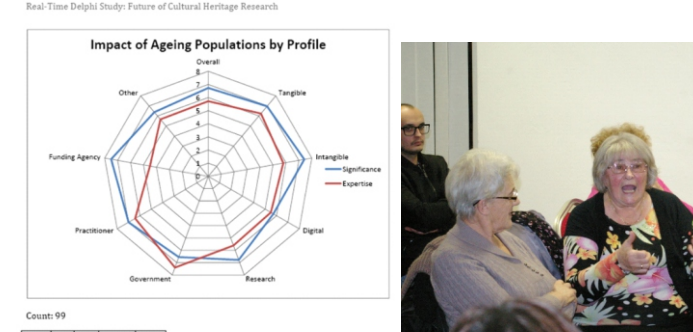


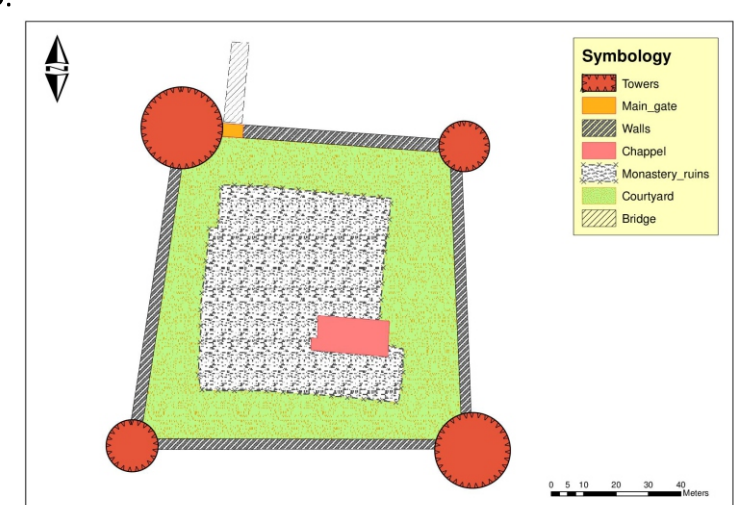
Figure 3 a.) Impact of Aging Populations to culture heritage b.) Old Generation in knowledge workshops

### TERRESTRIAL 3D SCANNING AND MODELLING FOR HERITAGE SUSTAINABILITY

Ing. Pavol Midula  
RNDr. Matej Masný, PhD.  
Mgr. Michal Filadelfi



Figure 1: Presentation of terrestrial 3D scanning method in Bzovik



#### THE SUGGESTED APPLICATION OF GIS TOOLS WITHIN THE FRAMEWORK OF PROJECT RUINS

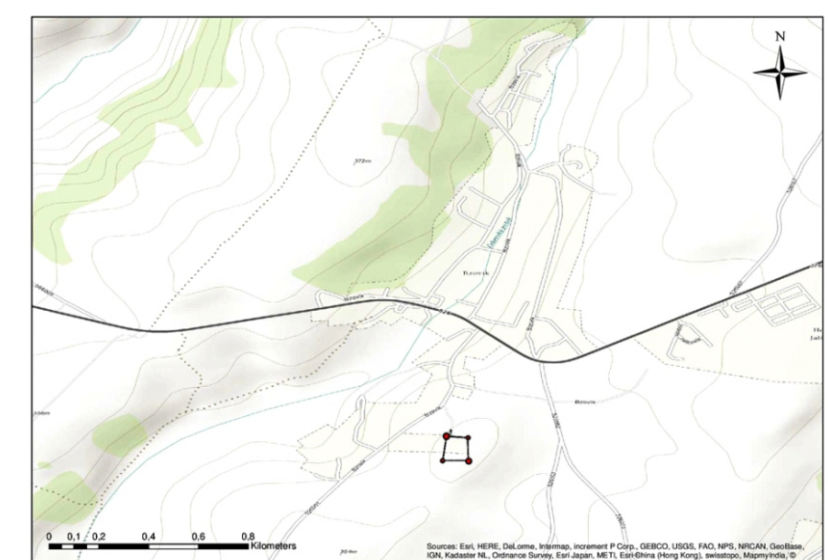
Geographical information systems (GIS) have a widespread use in modern research. The application of this tool is mostly used in natural sciences, however, the potential of cartographic data could play a useful role in other disciplines as well. Project RUINS presents a specific field, completely associated with map and geographic evaluation. The presented chapter presents the compendious overview of using GIS tools in this field.

#### Equipment:

- software equipment: ArcGIS Desktop, QGIS Desktop;
- GPS Devices.

#### Goals:

- ground plans: create new, compare the situation with the old ones;
- using as an additional tool of green area management and ruin conservation;
- evaluation of the surrounded environment's influence.



### MANAGEMENT AND MARKETING TOOLS FOR THE USE OF RUINS

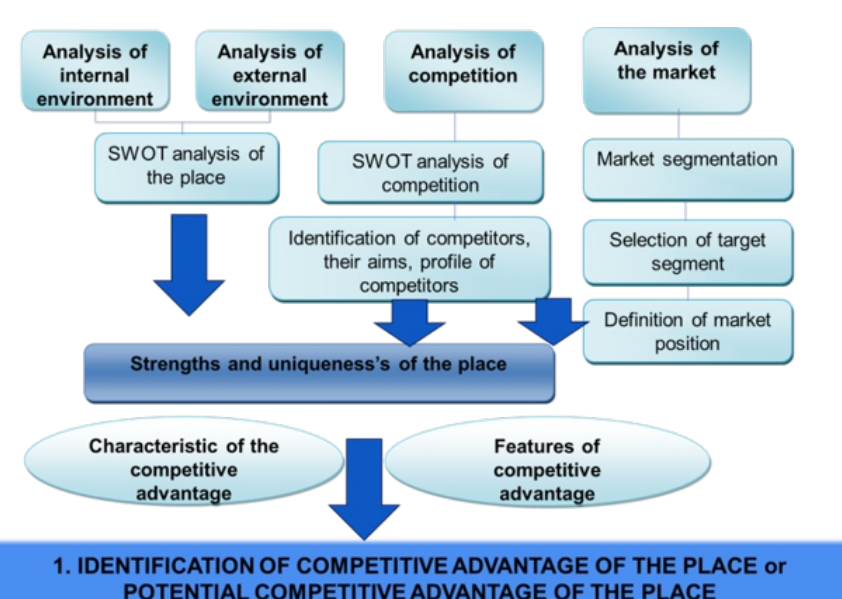
Doc. Ing. Anna Vaňová, PhD.  
Ing. Kamila Boršková, PhD.

Goals of management and marketing in cultural heritage localities should be oriented on:

#### Preservation and promotion of

- **aesthetic** (ruins may have particular aesthetic qualities that are a result of their ruined state. Some ruins are picturesque and evocative. Aesthetics relate to our human senses and the way we respond emotionally to a place because of its beauty, symbolism, picturesque or evocative qualities.)
- **historic** (Ruins are sometimes the only remaining physical evidence of significant historical events, phases, activities or way of life.)
- **scientific** (many places have the potential to provide important and new information about a particular aspect of the past)
- **social** (The strong and special associations between a community or cultural group and a place are the essence of social significance. Social value can derive from a community's ongoing relationship with the ruined place.)
- **spiritual** (spiritual value can encompass places with symbolic, ceremonial, sacred and religious meanings)

value for past, present or future generations.



1. IDENTIFICATION OF COMPETITIVE ADVANTAGE OF THE PLACE OR POTENTIAL COMPETITIVE ADVANTAGE OF THE PLACE

### PREVENTION OF RISK

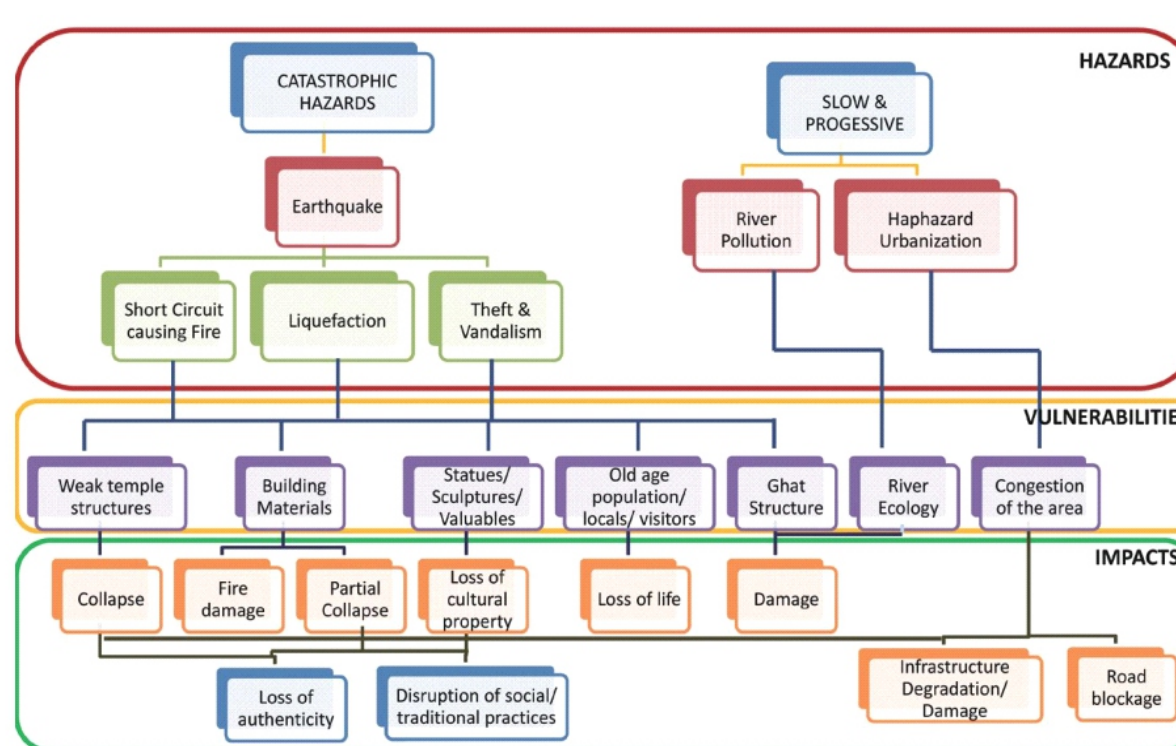
prof. RNDr. Iveta Marková, PhD.

#### Risk Analysis

There exist many opportunities when performing "Risk Analysis". Generally, Risk Analysis by "Chart by the ITC 2015 Participants (see figure below)" is an instruction how to prepare for an optimal development of risk management and find events which are likely to cause of damage.

The whole process consists of the following phases:

1. Risk Identification; 2. Risk assessment (Disaster Scenario); 3. Risk management (Main task of managers); 4. Monitoring and control



#### Organising Fire safety of cultural heritage by FIRE-TECH (2005)

The funding and maintenance of cultural heritage lies in the hands of the owner of the property in all countries. In some countries, the local / regional / central government may give subsidies for these activities. In England, English Heritage can give subsidies, and in the Netherlands, the Netherlands Department for Conservation can give subsidies. The responsibility of the fire safety of cultural heritage lies mainly in the hands of the owner. In almost all countries, this responsibility is also shared with the local / regional / central government. In Scotland, Historical Scotland is responsible, as the central government body, for the fire safety of cultural heritage. On a regional level the fire brigade holds the responsibility and on the local the building control officers hold the responsibility. In different countries different organizations / government bodies set the priorities related to protection of cultural heritage. In Switzerland this is the responsibility of the fire authority. In Germany the responsibility lies with the local government body. In Italy the responsibility lies with the central government / a central government body. In Slovakia the responsibility lies with the local government body.

### GEOLOGICAL AND BIOLOGICAL ANALYSIS GEOLOGICAL STUDY OF THE BUILDING MATERIAL

Prof. RNDr. Peter András, CSc., Dpt. of Environmental Science, Faculty of Natural Sciences, Matej Bel University, Banská Bystrica, Slovakia  
Prof. RNDr. Ján Špišiak, DrSc., Dpt. of Geology and geography, Faculty of Natural Sciences, Matej Bel University, Banská Bystrica, Slovakia  
Assoc. prof. RNDr. Ingrid Turšová, PhD., Dpt. of Biology, Faculty of Natural Sciences, Matej Bel University, Banská Bystrica, Slovakia

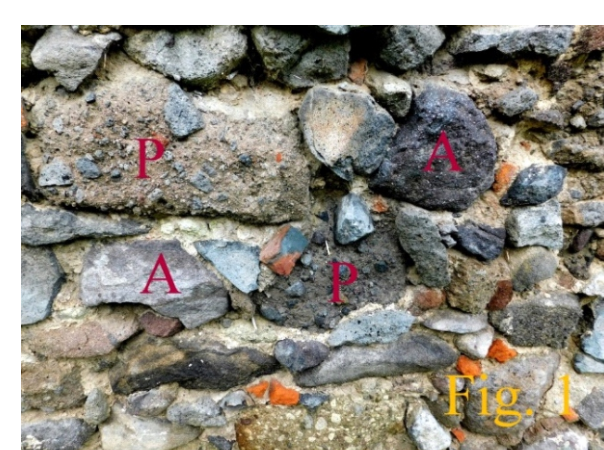
The building complex was built in two steps:

- a) Cist, Abbey founded around 1130 was built at first
- b) The second structural step was the building of the fortification

The complex was built from local geological material (rocks) but there are some differences in the rate of the used rock types during the building works in two mentioned building periods

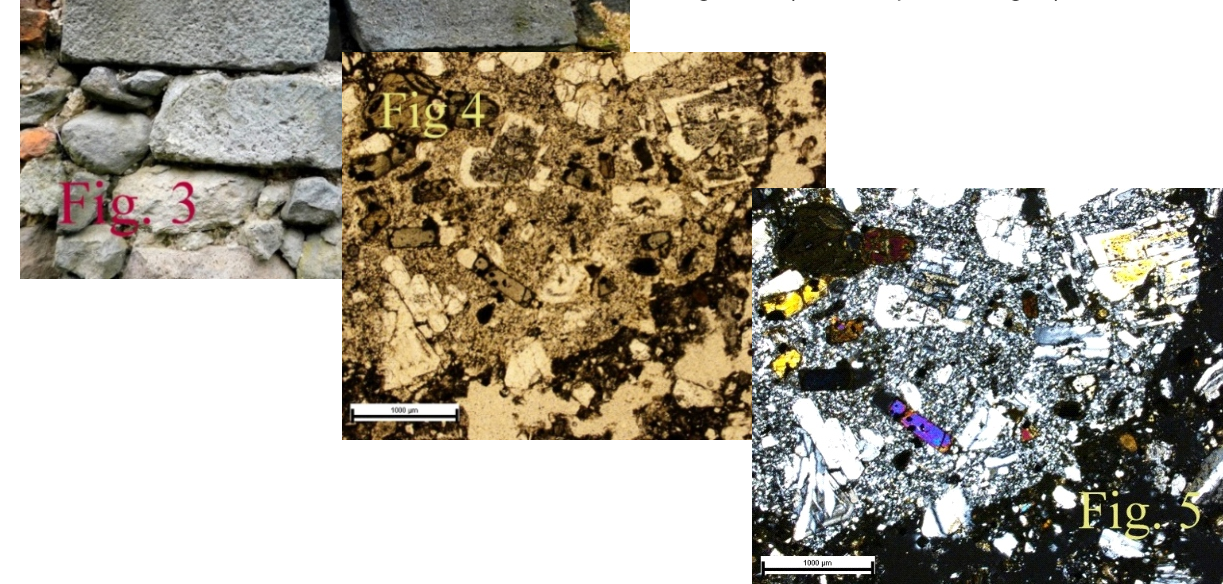
The predominant rock material both in the ruins of cloister, as well as in the preserved parts of the fortification consists of:

andesites (A), dacite and pyroclastic material (P) – Fig. 1



The cloister was built from more variegated material (Fig. 2) and in the ruins of the cloister, more soft rocks are visible (sandstones, rhyolite tuffs) as in the younger fortification, which is built predominantly from andesite. Most stones are not chiselled but some portion of the stones was carved (Fig. 3).

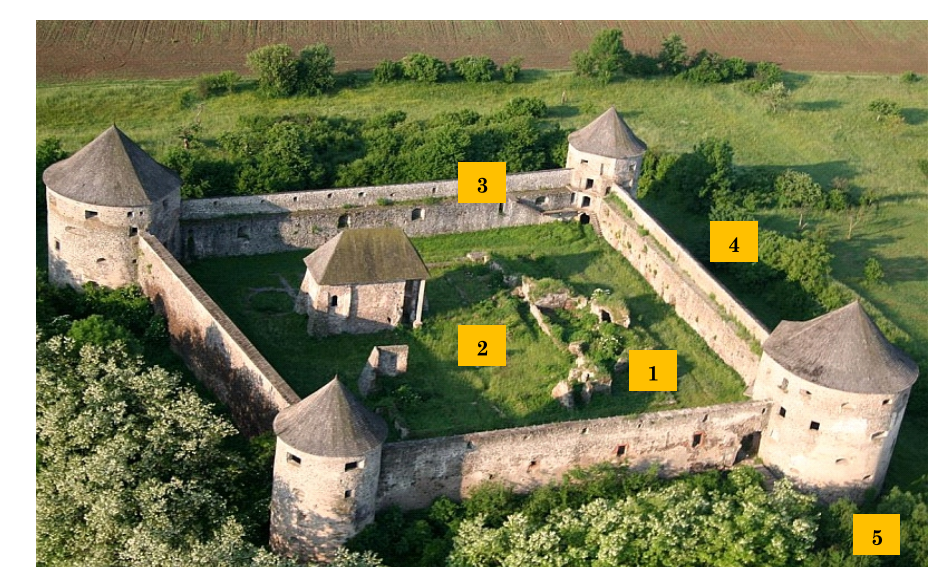
Microscopic study of the rock material  
Ignimbrite - caked fragments of dacitic rocks and of fine-grained ash (parallel polars; Fig. 4)  
Zonal feldspars and pyroxenes are visible in fragments (crossed polars; Fig. 5)



### Biological analysis of the heritage area

The ruins represent the area:

- with open habitats and specific ecological conditions:
  - rock substrate on the surface, deficiency of nutrients, shallow soil, variable orientation of slopes and walls, quick evaporation of water
- with many rare and endangered species of plants and animals
- with synanthropic and invasive species, the number of which grows during conservation and restoration (often up to 25 – 30 %).



#### Results of soil analyses

	pH/KCl	Cu	humus	N	P	K	Ca	Mg
Sample	[g.kg <sup>-1</sup> ]	[g.kg <sup>-1</sup> ]	[g.kg <sup>-1</sup> ]	[mg.kg <sup>-1</sup> ]	[mg.kg <sup>-1</sup> ]	[mg.kg <sup>-1</sup> ]	[mg.kg <sup>-1</sup> ]	[mg.kg <sup>-1</sup> ]
1	6,97	35,98	62,02	2,39	30,65	640,57	11,13	1160,25
2	7,36	23,74	40,93	2,10	18,48	862,97	11,79	1017,37
3	7,14	59,13	101,95	4,91	41,87	640,57	11,79	919,23
4	7,48	20,25	34,90	1,59	17,90	416,63	11,79	1312,97
5	7,09	39,91	68,80	2,49	87,48	640,57	8,70	473,64
6	6,98	41,66	71,81	2,82	44,69	640,57	6,49	388,07
7	6,4	36,41	62,78	3,50	32,14	640,57	3,40	212,79
8	6,54	36,41	62,78	2,92	97,92	724,42	4,62	147,72

blue – maximum value; yellow – minimum value