

Projected Geopark Yotvings — Polish-Lithuanian cross border area

Marek Graniczny¹, Zbigniew Kowalski¹, Magdalena Czarnogórska¹, Monika Krzeczyńska¹,
Donatas Pupienis², Jonas Satkunas²



M. Graniczny



Z. Kowalski



M. Czarnogórska



M. Krzeczyńska



D. Pupienis



J. Satkunas

Projected Geopark Yotvings is located in NE Poland and SW Lithuania (Fig. 1). According to the geographical and geomorphological classifications, most of its area belongs to the Lithuanian Lakeland (Polish part of it is called Suwałki Lakeland).

This initiative undertaken by the Polish Geological Institute and Geological Survey of Lithuania and sponsored by INTERREG Program has included: geopark description, geopark map, elaboration of the four educational paths and geotop database (Czarnogórska et al., 2007; Graniczny et al., 2006).

The most recent sediments covering the geopark territory, are the Neogene ones (Pleistocene to Holocene), up to 280 m thick. Pleistocene deposits were formed in glacial, fluvial and lacustrine environment during glaciations and interglacials.

The area was covered by ice sheets during eight glaciations: Narew, Nida, San 1, San 2, Liwiec, Odra, Warta and Wisła. Interglacial sediments (Augustovian, Mazovian and Eemian) are also recognized. Present landforms were modeled during the last Vistulian Glaciation, a maximum extent to the Biebrza Valley (out of the territory of proposed Geopark). During the last ice sheet retreat to the north, accompanied by several oscillations, the following marginal and dead-ice landforms such as: frontal (terminal) moraines, push moraines, dead-ice moraines, eskers, kames, glacial tunnel valleys and kettle holes were formed. All of them constitute the peculiar and magnificent landscape.

Because of the unique beauty of these lands and numerous nature rarities, several protected areas as reserves, national parks, landscape parks and regional parks were established in this region at the territories of Poland and

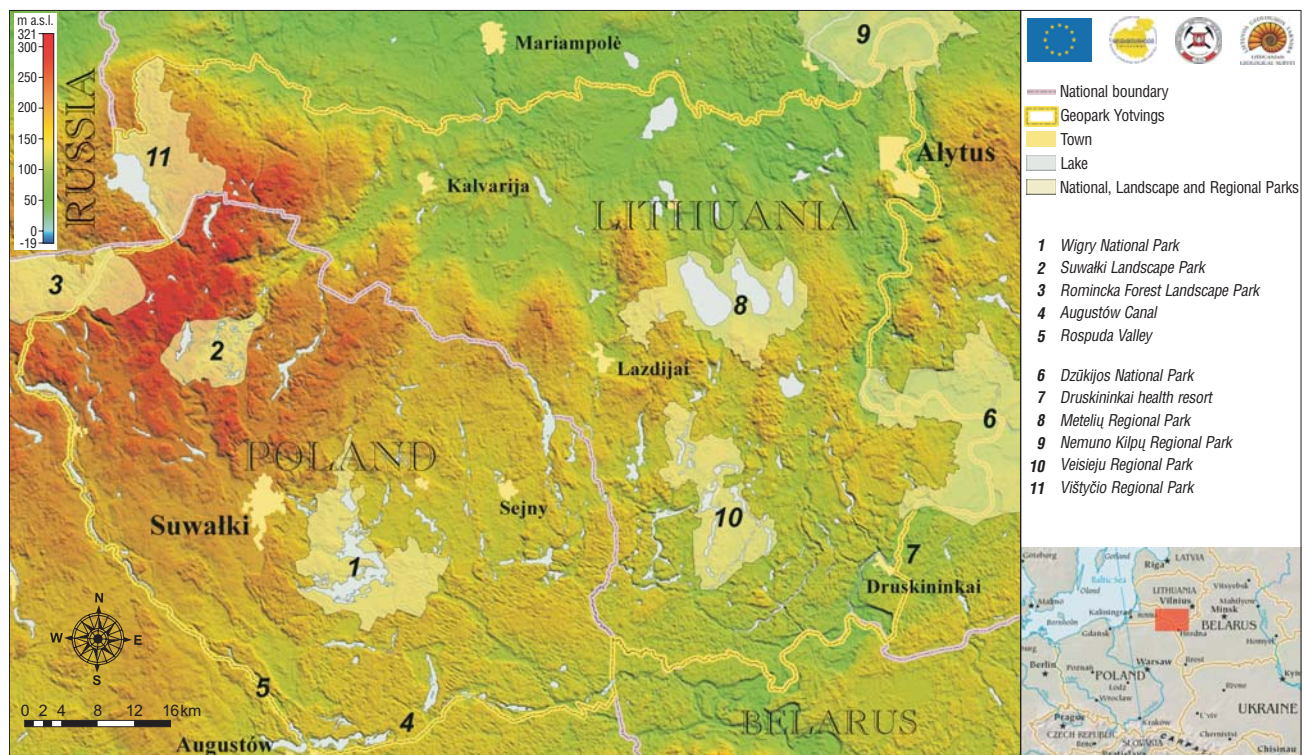


Fig. 1. Map of the projected Geopark Yotvings

¹Polish Geological Institute, ul. Rakowiecka 4, 00-975 Warszawa, Poland

²Geological Survey of Lithuania, Konarskio 35, LT-2600, Vilnius, Lithuania

Lithuania. These protected areas will be important elements of the Geopark Yotvings. They are as follows:

- ❑ Wigry National Park;
- ❑ Suwałki Landscape Park (see page 614);
- ❑ Romincka Forest Landscape Park;
- ❑ Augustów Canal;
- ❑ Rospuda Valley;
- ❑ Dzukija National Park;
- ❑ Druskininkai health resort;
- ❑ Meteliai Regional Park;
- ❑ Nemunas Loops Regional Park;
- ❑ Veisiejai Regional Park;
- ❑ Vištytis Regional Park.

Projected Geopark Yotvings integrates on its territory main values of nature, which are protected in Poland and Lithuania within different existing organizational units mentioned above. The main aim of the creation of the geopark is emphasizing and integration of the abiotic elements of the environment located in the cross-border area.

Four proposed educational paths include:

- ❑ Augustów Canal (Fig. 2) educational path as an example of historical, technical and natural heritage. Cruise by boat of the “Augustów Sailing”. Proposed route: Augustów — harbor of the *Warszawa Hotel* — Studzieniczna — Augustów). Time: about 3 hours.
- ❑ Glacial landscape educational path along the Hańcza Lake and neighboring areas (Fig. 3). Proposed route: Szurpiły — Stara Hańcza (10 sites). Total length about 12 km. Way of sightseeing: by bicycle or car, or foot.
- ❑ Vištytis landscape educational path (Fig. 4) between Vištytis Boulder and Liubiškių Stone — 6 sites. Way of sightseeing: by bicycle or car, or foot.
- ❑ Nemunas landscape educational path (Fig. 5) between Švendubrė stone or “Devil’s stone” and Janionių (Kiškeliušės) ravine — 9 sites. Way of sightseeing: by bicycle or car, or foot.

Geological sites — geotops or geosites are places of particular importance to the science of geology. The importance may be in their research value, by which we may better understand the geological processes of Planet Earth.



Fig. 2. Augustów Canal Przewięź sluice (Augustów path). It is a precious masterpiece of water construction, unique on the European scale, dating from the first half of the 19th century. Preserved wholly, it is a testimony to engineering art of Polish constructors, both military and civil. Historically, this waterway was to link the Vistula with the Nemunas through the Narew, Biebrza, Netta and Czarna Hańcza Rivers. Furthermore, through the Windawa River it was connected to the Baltic port Windawa. The Canal is exceptionally beautiful and offers sightseeing and tourist attractions. Currently, the Canal’s combined length from Dębowo Sluice on the Biebrza to Niemnowo Sluice in Belarus is 101.2 km, out of which 21.2 km are on the Belorussian side. Photo by Z. Kowalski

Meanwhile others can have a wider appeal, such as coastal sites where children can discover the delight of hunting for fossils. Geotops can be enormous, involving many tens of miles of coastline, or they may be tiny, such as a single but nevertheless important glacial erratic.

Geotops are selected by a range of organizations to fulfill a variety of purposes. The process occurs mainly at three levels. Firstly, sites may be selected at the international or world level. For example, some geological sites are recognized as World Heritage sites, while others may be considered at the European level as European Geosites whereas the others have the local regional value or are candidate sites.



Fig. 3. Bachanowo Boulder Field (Hańcza path). Geological and landscape reserve was established here in 1972. The enormous concentration of erratic boulders is observed. Their number is estimated about 10,000. Boulders are an erosional remain of the esker outwashed within the extent of the Hańcza sub-phase of the Vistulian (Weichselian) Glaciation. The highest esker elevation is located 25 m above the water level. Photo by M. Graniczny



Fig. 4. Vištytis stone (Vištytis path). Vištytis stone, which is third in Lithuania by size, lays by the road Kybartai-Vištytis. This big boulder of glacial origin is 7.2 m long, 5.7 m wide and 3.7 m high. A big part of the stone is below the surface. Strange shape of the stone reminds a devil's foot. Local myth states that the bowl on top of the rock never dries up, even during a drought as it is filled up because it is, "a footprint left by a devil". There is a ladder so you can go up and check. Photo by D. Pupienis



Fig. 5. Janionys stones (Nemunas path). The Janionys stones are made up of magmatic rocks. The boulders were transported by the continental glaciation. Paleoastronomical Society held an expedition with aim to explore the Janionio stone group on the right bank of the Nemunas, close to the village of Janionio. It is guessed that these stones once constituted the Moon Calendar, whose central part is the astronomical "Sun Clock". It has survived till our days. The system vectors point to the position of the rising sun on the horizon during equinox and solstices. Photo by D. Pupienis



There are many typical and unique geological objects at the Polish Lithuanian cross-border area. They are spread over a large area and are important for science, culture or country recognition. The registration of inanimate nature monuments was completed after analyzing and generalizing the information from literature, interpretation of the aerial photos and during cooperation with employees of the areas protected by law.

Geotops database was initiated at the Lithuania Geological Survey. The idea was developed and implemented within the common Lithuanian-Polish Belt of the Yotvings project. The database comprises following information: outcrops, eskers, erratic boulders, boulder fields, hills, springs, dunes, ravines, mineral resources, mineral water resources etc.

The most interesting for visitors and most attractive geological objects were included into the special joint Polish-Lithuanian database of geotops. The geotops inventory and the compilation of the database Geopark Yotvings geotops have been initiated in 2006 at the Polish-Lithuanian cross-border territory. The former data were revised and supplemented. At present, the joint Polish-Lithuanian database contains information on more than 137 geological (81), geomorphological (37) and hydrogeological (19) sites.

The information about geotops includes most of all available geological, historical, archeological data, protection status, address, location (GPS coordinates) and photos that are accessible via the Internet.

The webpage addresses of the Geopark Yotvings are as follows:

<http://www.lgt.lt/index.php?page=185>

and <http://www.lgt.lt/index.php?page=188>

The webpage of geotops database:

<http://www.lgt.lt/index.php?page=186>

<http://piritas.lgt.lt/Scripts/hsrun.exe/hahtserver2/MapXtreme/geotops/MapXtreme>

[e.htx;start=auditas?zemelapis=geotops_en](http://piritas.lgt.lt/Scripts/hsrun.exe/hahtserver2/MapXtreme/geotops/MapXtreme.e.htx;start=auditas?zemelapis=geotops_en)

The webpage of educational paths:

<http://www.lgt.lt/index.php?page=187>

<http://www.lgt.lt/index.php?page=189>

<http://www.lgt.lt/index.php?page=190>

<http://www.lgt.lt/index.php?page=191>

Currently some negotiations and applications are under preparation to establish formal organizational framework of the Geopark Yotvings, a beautiful and attractive region localized in North-Eastern Europe between two friendly nations, members of the European Community.

References

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