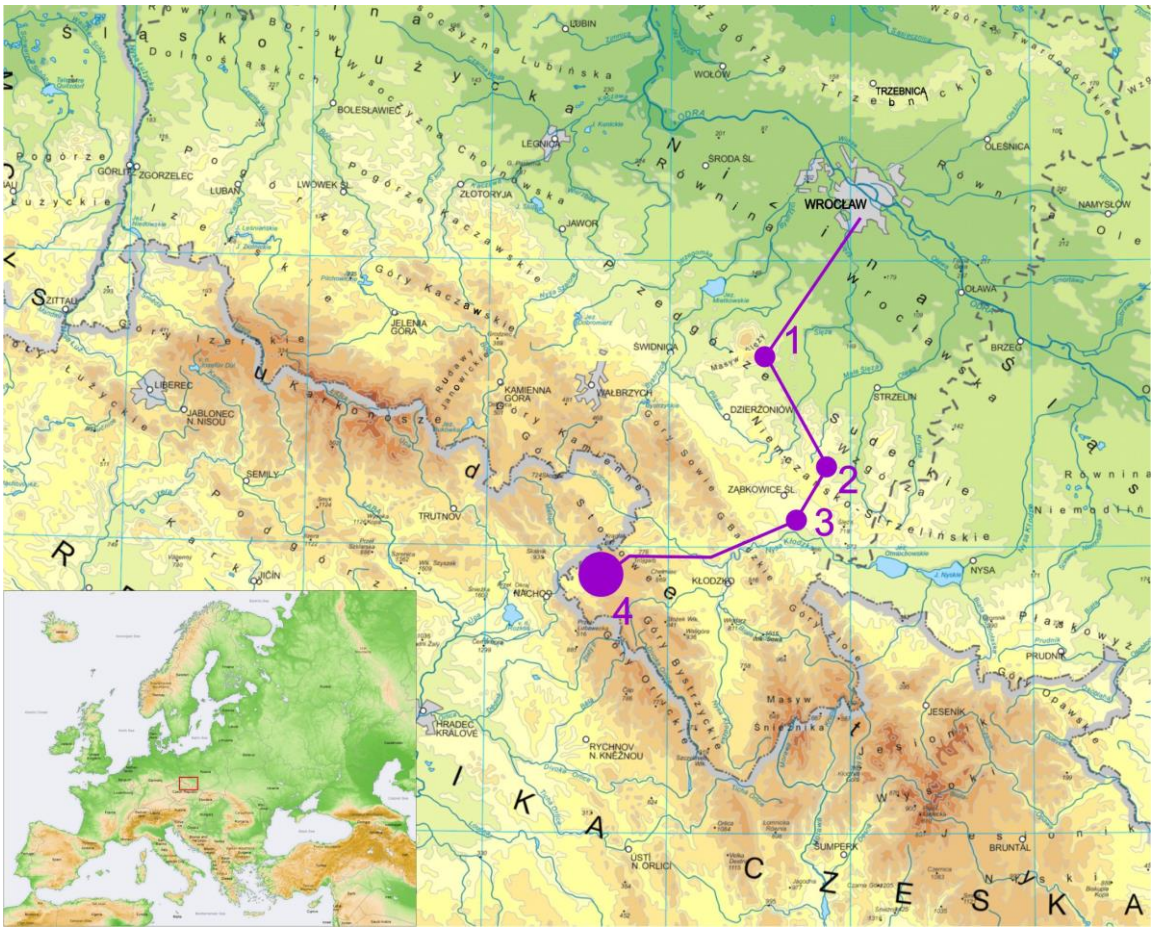
29. CONGRESS OF THE POLISH SOIL SCIENCE SOCIETY (PTG), WROCŁAW 2015

POST-CONFERENCE TOUR: SOILS AND LANDSCAPES OF THE SUDETEN FORELAND AND THE STOŁOWE MOUNTAINS (SW POLAND)

This two-day excursion starts and ends in Wrocław **(04-05.09.2015).** The route runs through the massif of Mt. Ślęża and the Niemczańsko-Strzelińskie Hills, then crosses the Bardzkie Mountains and the Kłodzka Valley, and finally reaches the Stołowe Mountains on the Czech-Polish border.

The excursion allows presentation of three pedological topics: (1) serpentinite soils in the massif of Mt. Ślęża, (2) relict Chernozems developed from loess under Neolithic barrows (kurgans) in the Niemczańsko-Strzelińskie Hills, and (3) the influence of geological substrate on the morphology and properties of soils and forest habitats in the Stołowe Mountain National Park.

Additional tourist attraction will be a visit to the former Hohenzollern palace in Kamieniec Ząbkowicki (first day) and the walk through the rocky labyrinth Błędne Skały in the Stołowe Mts. National Park (second day). In the reserve (time-dependent) is a short walk through a Cistercian abbey in Henryków, where the famous Latin "Henrykow Chronicle" with the first sentence in Polish (1270) was written.



1. SERPENTINITE SOILS IN THE MASSIF OF MT. ŚLĘŻA

Isolated massif of Mt. Ślęża, known as the "Silesian Olympus", is developed of granite, gabbro, and serpentinite rocks. The summit of Mt. Ślęża was a nunatak during the Odra glaciation (Riss1/Saale-Drenthe), while its slopes and the lower hills in the surrounding were fully covered by the ice sheet. During the Warta (Riss 2/Saale-Warthe) and Wisła (Vistulian, Weichsel) glaciations the massif was in the periglacial zone, and similarly to large areas of the Silesian Lowland and the Sudeten Foreland it was covered with a thin loess layer. Soil cover of massif is currently a unique mosaic of soils affected by both diverse bedrock geology and glacial deposits admixtures, and often re-modelled by periglacial slope processes. Due to their mineral composition, the most unique are soils developed from serpentinite or having admixture of serpentinite regolith. Two soil profiles will be presented in the massif of Mt. Ślęża: ranker (Leptosol) and Cambisol or Luvisol.

2. RELICT CHERNOZEMS UNDER NEOLITHIC KURGANS AND THE LATE-HOLOCENE SOIL DEVELOPMENT IN THE LOESS AREAS (THE NIEMCZAŃSKO-STRZELIŃSKIE HILLS)

Chernozem-type soils with shallow leaching of carbonates were identified recently under the Neolithic kurgans (barrows) discovered on the loess hill near the village Muszkowice (near Henryków). A preliminary dating has indicated the Neolithic age of the organic matter in the Chernozemic humus horizon. Chernozems or other humus-rich soils do not occur in the immediate vicinity of kurgans, where Luvisols having a well-formed sequence of eluvial and illuvial horizons (argic) predominate. The humus horizon in these soils is only 6-8 cm thick, and the dominant humus form is mull or mull-moder that indicates the high biological activity and a high rate of organic matter transformation under existing beech forest (or mixed stand).





3. HOHENZOLLERN CASTLE IN KAMIENIEC ZĄBKOWICKI

The design and construction of a new ancestral residence was commissioned in 1838 by the Dutch princess Marianne of Orange, the owner of extensive estate in the Silesia and the Sudetes Mts. The project of neo-gothic palace was prepared by Karl Friedrich Schinkel, the most renowned architect of Prussia. Palace construction and decoration of the gardens lasted (with interruptions) for over 30 years. In 1873, the Silesian estates including the palace were inherited by the prince Albrecht Hohenzollern, Prussian field marshal and nephew of Emperor Wilhelm I.

During World War II the palace was a transitional magazine for artworks evacuated from around Silesia. In 1945 the palace was ransacked, and in 1946 burned down, probably by leaving them soldiers of the Red Army. Palace reconstruction began in the 80's of twentieth century. In 2013 it has been made available to the public.

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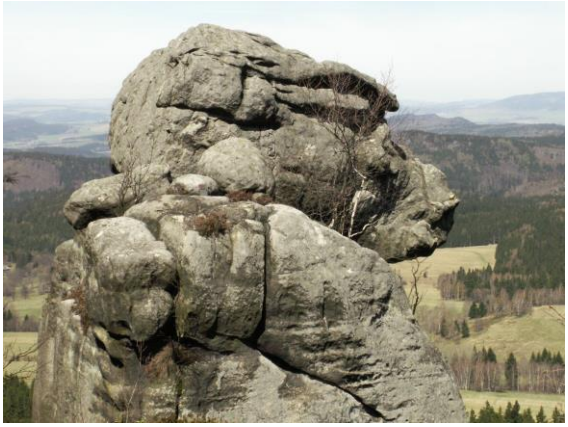
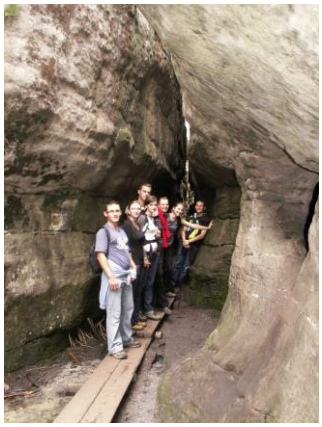
4. STOŁOWE MOUNTAINS NATIONAL PARK (SMNP)

SMNP was established in 1993 to protect the unique nature and landscape values of the mountain massif made from upper Cretaceous sandstone and marl (mudstones). The biggest attraction of the SMNP are rock-cities (rock labyrinths) on top of Mt. Szczeliniec (919 m) and on the summit of Mt Skalniak (see: Błędne Skały), as well as several groups of fancy sandstone rocks called "rock mushrooms". "Błędne Skały" labyrinth was a place where the outdoor scenes for the movie "The Chronicles of Narnia: Prince Caspian" were filmed.



The Stołowe Mts. (literally: Table Mountains) are a relatively low mountain range, thus unlike the Giant Mountains, the impact of climate zonality is poorly marked and the main drivers of the spatial structure of the soil cover are the bedrock variability and surface relief. Soil developed from the Upper Cretaceous rocks prevail in the central part of the SMNP: Podzols (on sandstone), and Cambisols and Luvisols/Alisols (on mudstone), as well as different variants of peat soils and strongly gleyed soil in spring areas. The southern part of PNGS built of red granites of the Carboniferous age is covered by acid Dystric Cambisols. In turn, the northern outskirts of the SMNP are dominated by Permian red sandstones and conglomerates that provide the parent material for various trophic variants of brown earths (Dystric and Eutric Cambisols, locally Luvisols).

5 pits of soils derived from the most important parent materials (Upper Cretaceous sandstone and mudstone, Permian sandstone, granodiorite, peat) will be presented under typical geomorphological conditions and typical forest vegetation. During the field session, the issues of soil-forming processes in the mountain soils will be discussed, as well as the impact of morphological processes on the formation of soil substrate (slope covers), and the problems of the forest habitat quality evaluation (including the use of complex numerical indicators).