

Late Jurassic restricted environments of the shallow-water carbonate succession of NW and NE margins of the Holy Cross Mts as a place of accumulation of unusual fossils

The planned study is focused on Upper Jurassic shallow water carbonate platform deposits from the NW and NE margins of the Holy Cross Mts (central Poland) and paleoenvironments characterized by limited marine influences, such as lagoons or tidal flats, which have significant potential for accumulation of rare fossils. This project has an interdisciplinary character and has three main objectives: (1) precise biostratigraphic dating of rocks from the studied sites, in reference to the chronostratigraphic schemes of the Upper Jurassic in central Europe and determination of their sedimentological succession, omission surfaces and microfacies; (2) acquisition and paleobiological interpretation of new paleontological materials with particular emphasis on selected groups of invertebrates (i.e. crustaceans) and vertebrates (marine and terrestrial reptiles); (3) Determination of paleoenvironmental conditions, temporal climatic variations and marine connections based on faunistic, sedimentological and stable isotope methods (oxygen and carbon isotope composition of oyster shells and vertebrate teeth).

The study will allow better understanding of the functioning of Late Jurassic ecosystems. Detailed diagnosis of a fossil complex, which contains according to a preliminary analysis previously unknown species, deciphering its biostratigraphical and paleobiogeographical relations as well as sedimentological and paleoenvironmental characteristics will provide new and valuable information about faunistic migrations, water circulation, variations of sea-level, a shape of the Late Jurassic marginal sea of central Poland and types of its deposits.

One can expect that, as a result of this project, science will receive a well-documented picture of faunistic complexes of the Late Jurassic – a so called “*window into a Late Jurassic world*”. Comparative studies of extremely well-preserved paleontological material will also contribute to better understanding of their adaptation to specific environmental conditions and evolutionary lines of numerous vertebrate and invertebrate animal groups.

The proposed study is of great importance not only for paleontology and popularization of this field in Poland, but also for the development of regional geotourism projects. Continuation of cyclical workshops and lectures, which we have been conducting for several years in the communes of Sławno and Iłża, is planned as part of this project. Their major role is the promotion of natural knowledge among inhabitants of the region by initiating an atmosphere of understanding and respect for the natural environment. These activities will be mainly targeted at school children and adolescents, as well as people interested in studying and protecting cultural and natural heritage of our country.

Our past scientific activities resulted in the opening in June 2019 of an educational center in Sławno, which consists of the exhibition pavilion and educational routes. We also plan to conduct similar activities in collaboration with the commune of Iłża, where are located known exposures of Upper Jurassic rocks (Błaziny and Krzyżanowice). Also, new ones will certainly appear in connection with the initiated construction of the Iłża bypass (ring road).