

## General information on the surroundings of Kraków (S. Poland)

Anna MEDWECKA-KORNAŚ

Krakow (Cracow) is located in the valley of the Wisla (Vistula) River (Fig. 1) at 200-350 m a.s.l. between the foothills of the Carpathian Mountains (Pogorze Karpackie) and the plateau of the Malopolska Upland (Wyzyna Malopolska) (KORNAS and MEDWECKA-KORNAŚ 1974, DUBIEL 1991). The relief and the geological structure of the surroundings of the city are highly variegated (Fig. 2). The climate, characterized by the basic data in Fig. 3, also has some

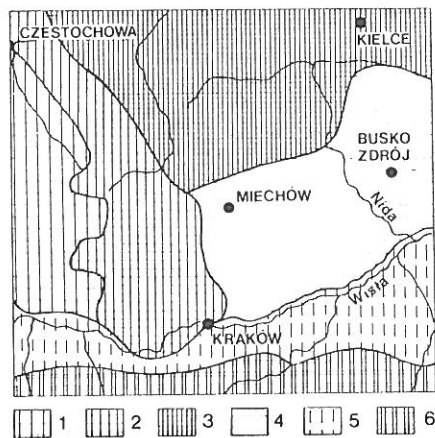


Fig. 1. Geobotanical division of the surroundings of Krakow. 1-4 the Malopolska Upland: 1 - the Silesian Upland, 2 - the Krakow-Czestochowa Upland, 3 - the region of the Gory Swietokrzyskie Mts., 4 - Loess Uplands (the region of Miechow and Busko with the Nida Basin), 5 - the Sandomierz Basin and the Vistula Valley, 6 - the foothills of the Carpathian Mountains. According to SZAFER 1966, slightly modified.

specific local features in various parts of the region. Our itinerary of two days in this area led through three different parts of the Malopolska Upland. The Ojcow National Park is the most interesting sector of the Cracow Jurassic Up-

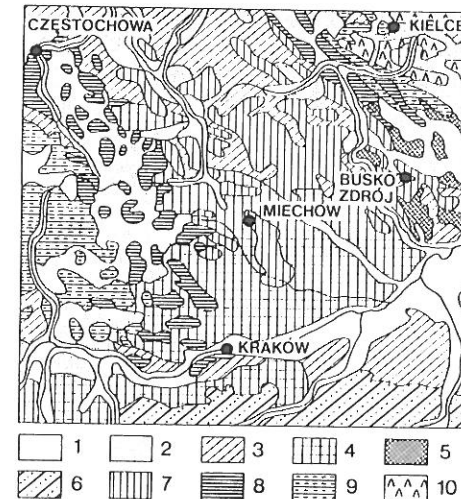


Fig. 2. Schematic geological map of the surroundings of Krakow. Holocene: 1 - sand and silt of fluvial accumulation; Pleistocene: 2 - sand and gravel of fluvial and fluvioglacial accumulation, 3 - boulderclay embankments, 4 - loess and sandy loess, Miocene: 5 - sandstone and silt with gypsum; Paleogene; Cretaceous: 7 - marl and limestone; Jurassic: 8 - limestone; Triassic, Permian and Carboniferous: 9 - schist, sandstone and limestone; Devonian, Silurian and Cambrian: 10 - quartzitic range, sandstone, schist and limestone. According to "Atlas Polski". 4. 1953. PPWK, Warszawa. Modified.

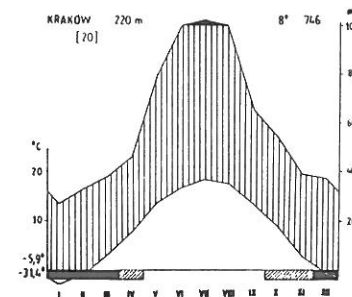


Fig. 3. Climatic diagram of Krakow (drawn according to the method of Gaussen and Walter). The upper line indicates the monthly precipitation means, the lower line the monthly temperature means.

land (Jura Krakowska), which is a part of the more extensive Cracow-Czestochowa Upland (Jura Krakowsko-Czestochowska). Of the two small steppe reserves visited, the "Skorocice" Reserve is situated in the Nida River Basin and the "Waly" Reserve in the Miechow Upland. Two localities in the Vistula Valley were also viewed, the archaeological site in Pleszow and the meadows near Kostrze, as well as the meadows in Rudawa Valley and the locality of *Betula oycoviensis* in Kobylanska Valley (Fig. 4). The Carpathian Hills were visited on the way to the Tatra and the Pieniny Mts. The Cracow Jurassic Upland is distinguished by the occurrence of Upper Jurassic limestone covered by Quarternary loess deposits. White calcareous rock, rising here and there on the plateau (e.g. on its highest point near Jerzmanowice, 502 m a.s.l.) and cropping out in many places on the slopes of deeply incised valleys (e.g. in the Ojcow National Park) make the landscape very picturesque. Calcareous rock may be seen even in the centre of Krakow, on the slopes of the hills of the Wawel Castle and the neighbouring Pauline Monastery Skalka (Little Rock). It forms the steep cliffs below the Benedictine Abbey at Tyniec (about 10 km west of Krakow). The valley of the Rudawa River, with its meadow vegetation forms a left tributary of the Vistula and divides the Cracow Jurassic Upland into the northern and the southern parts. The Nida Basin and the Miechow Upland, situated between the Cracow-Czestochowa Upland and the

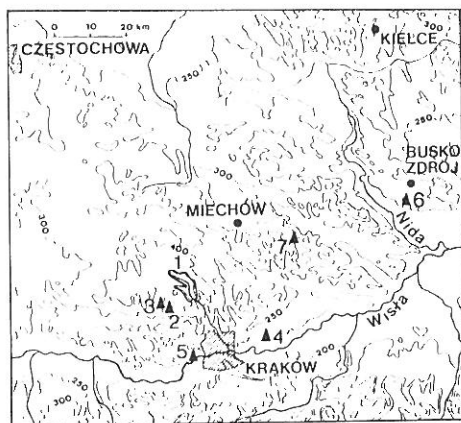


Fig. 4. Location of sites visited by the 19th International Phytogeographic Excursion (IPE) on 8-10 July 1989. 1 - the Ojcow National Park, 2 - meadows in the Rudawa Valley, 3 - locality of *Betula oycoviensis* in the Kobylanska Valley, 4 - Neolithic site at Pleszow, 5 - meadows in the Vistula Valley, 6 - the steppe reserve "Skorocice", 7 - the steppe reserve "Waly".

Gory Swietokrzyskie Mts. (Holy Cross Mountains) near Kielce, have a slightly more continental climate than the Cracow Upland. The most interesting feature of these areas is the occurrence of especially rich xerothermic flora and vegetation, above all, grassland communities (often called steppe grasslands). This type of vegetation is rather rare in Poland and forms very small, isolated islands, dispersed in the agricultural and forest landscape, mainly on soils too shallow for cultivation. It can be observed in the "Skorocice" Reserve on the Miocene gypsum rock and in the "Waly" Reserve on Cretaceous marl.

Archaeological finds in Krakow and its surroundings give evidence of very ancient, Neolithic and even Palaeolithic human existence here. The town of Krakow, founded in the early Middle Ages, already existed in the form of separate settlements in prehistoric times. It presently numbers 744'000 inhabitants. Various industrial objects are located within the city limits and close surroundings including the gigantic steel works of Nowa Huta and the electric power plant of Skawina (KLIMASZEWSKI 1979). These, and the industrial objects in Silesia, 60-80 km to the west, as well as by long-distance emissions from the neighbouring countries, cause very heavy air pollution, primarily with  $SO_2$  and  $H_2F_2$ . This is only one of the many causes of the far-reaching modification and destruction of vegetation occurring in the city of Krakow (DUBIEL 1991) and its surroundings.

## REFERENCES

- DUBIEL E., 1991: Map of actual vegetation of the city of Cracow. (In Polish with English summary). Zesz.Nauk.Uniw.Jagiell., Prace Bot. 22, 121-133.  
 KLIMASZEWSKI M. (ed.), 1979: Atlas of the Krakow municipal voivodeship. (In Polish). Polska Akad.Nauk - Urzad Miasta Krakowa, Krakow. 48 p.  
 KORNAS J. and MEDWECKA-KORNAS A., 1974: The vegetation of Cracow. (In Polish with English summary). Folia Geogr., Ser. Geogr.-Phys. 8, 153-169.  
 SZAFER W. (ed.), 1966: The vegetation of Poland. Pergamon Press, PWN, Oxford/Warszawa. 738 p.

Address of the author: Prof. Dr. Anna MEDWECKA-KORNAS  
 Institute of Botany  
 Jagiellonian University  
 Lubicz 46  
 31-512 Krakow, Poland