Nadleśnictwo Lubaczów

9. ROZTOCZE GORGES (*DEBRZE*)

Mount Brusno

Mount Brusno, with an elevation of 371 meters above sea level, rises above the plateau of the Eastern Roztocze region. It is composed of Miocene rocks dating from about 23 to 5 million years ago. At its highest point, clastic limestones are exposed—these contain fragments of snail and clam shells as well as pieces of algae. Further down the slopes, there is a thick layer (about 20 meters) of quartz sands mixed with glauconite (a blue-green clay mineral). The top of this series consists of coarse-grained calcareous sandstones. At the foot of the northwestern slope, in the lower part of the Brusienka valley, Late Cretaceous rocks called gezy are locally exposed. At the base of Mount Brusno, these Late Cretaceous and Miocene rocks are overlain by deluvial (slope) sands and clays that formed from the end of the Vistulian glaciation up to modern times (Fig. 1).

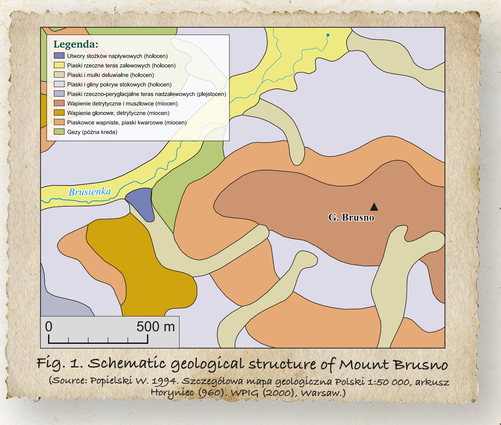
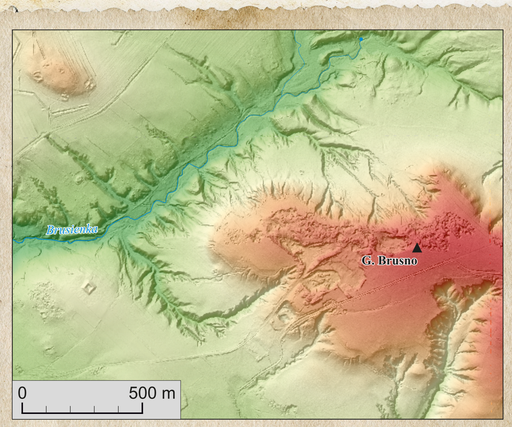


Fig. 1. Schematic geological structure of Mount Brusno
(Source: Popielski W. 1994. Szczegółowa mapa geologiczna Polski 1:50 000, arkusz Horyniec (960). WPIG (2000). Warsaw.)

When did the debrze form?

They may have first appeared during climate shifts at the end of the Pleistocene. Large volumes of water running off Mount Brusno's slopes likely eroded shallow gullies in the thawing permafrost, which were later colonized by vegetation. Another phase in their development could have been tied to deforestation and the advent of agriculture, as the absence of vegetation on the slopes triggered renewed erosional processes.

The sandy-silty deposits in which these debrze occur are continually exposed to atmospheric conditions, particularly intense rainfall. Heavy rains can cause these deposits to move downslope, leading to the ongoing deepening of the gullies.



Ryc. 2 Cechy ukształtowania powierzchni wzgórza Brusno
(Źródło: DEM z siatką kwadratów o rozdzielczości 5 metrów z publicznie dostępnych zasobów Głównego Urzędu Geodezji i Kartografii (GUGiK).)

Are Mount Brusno's slopes cut by "gorges" or "debrze"?

In everyday language, the Polish term wąwóz (gorge) is used for any dry valley cutting into a hillside. However, from a geomorphological viewpoint (the science studying the characteristics and origins of landforms), a true gorge has specific traits: a narrow bottom, steep or even cliff-like sides ending in a distinct break of slope, and talus accumulations at the base of these slopes. The valleys observed in the Eastern Roztocze do not fully exhibit these geomorphological features. Although they have extremely narrow bottoms and, in cross-section, resemble the letter "V," they formed on steep, typically forested slopes made up of sandy-clayey deposits, sculpted by rill erosion from rainwater and/or meltwater. Mount Brusno's slopes are cut by features known locally as debrze (also called parowy or wądoły). These depressions can be deep (up to 10 meters) and form branching systems. The head sections (so-called "heads") of these debrze are carved out of clastic Miocene limestones, while their remaining stretches are cut through quartz sands. At the mouths of some of these debrze, alluvial fans have developed (Figs. 1–2).

Roztoczańskie debrze

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