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Geology, landscape and Earth-life links in the Kruger National Park

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The major rock formations and geomorphological features of the world famous Kruger National Park are outlined, and the close link between these and soil types together with ecozones is highlighted. Rock types of the Archaean basement terrain underlie the western portion of Kruger NP and range from ancient gneiss with komatiitic greenstone xenoliths, to potassic granites which give rise to the inselbergs of southern Kruger NP. A range of sandy soils support a number of distinctive ecozones with variations largely dependent on rainfall (Fig. 1).

Karoo basaltic lava plains underlie much of eastern Kruger and give rise to dark brown to black clay-rich soils with their distinctive vegetation types, also determined as a function of rainfall. Excellent exposures of lava flows can be seen in the valleys and mini gorges of eastern Kruger NP (Fig. 2). Dolerite dyke swarms intrude the lava flows and heralded the initial split of Gondwana and the opening of the proto-Indian Ocean 180 million years ago (Fig. 3). Rhyolite lava flows and related granophyres occur along the Mozambique boarder and give rise to the Lebombo mountain range and its distinctive ecozone.

Figure 1: Exfoliated monolithic dome of homogeneous potassic granite in the highest rainfall area of southwest Kruger NP, enveloped by thick sandy soil and the Pretoriuskop Sourveld ecozone.

Broad alluvial flood plains flank the major rivers of northern Kruger NP, and have spread out on the broad flat basaltic lava plains, with more localised alluvial soils along most river banks hosting riverine vegetation. Finally, ecozones with their distinctive vegetation assemblages strongly control the type of fauna likely to occur in various ecozones, with the link between the biotic and abiotic perhaps more evident in Kruger NP than anywhere else in South Africa.

Figure 2: Shallow, east-dipping (towards horizon) basaltic lava flows with massive, resistant basal flow components and light-coloured and amygdaloidal, less resistant upper flow components. Olifants River mini-gorge, east of Olifants camp.

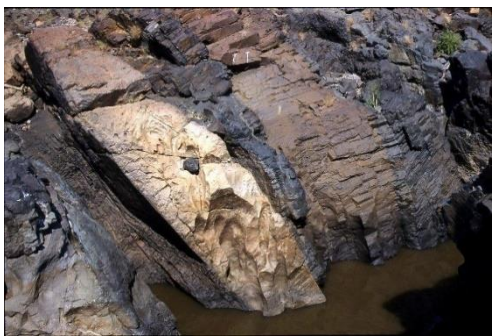

Figure 3: Westward dipping and columnar jointed dolerite dyke swarm (with one felsic dyke) intruding basaltic lava flows. Olifants River mini gorge.