



BRIEF BACKGROUNDS

IDALIA NATIONAL PARK

BLACKALL - YARAKA DISTRICT

Idalia is essentially an undulating plateau fringed by scarps. The following is a summary of its history taken from the geological literature:

1. The rocks now exposed in its fringing scarps were originally soft sedimentary rocks that were deposited on vast plains of lakes and rivers in late Cretaceous times (about 100 million years ago), after the great inland sea of early Cretaceous times had withdrawn to the north. These rocks are known as the **Winton Formation**. Dinosaurs stalked these plains, as revealed by the fossil skeletons currently being unearthed near Winton.

2. Eventually the supply of sediment to the plains dwindled and the region became dry land. From the end of the Cretaceous to the early Tertiary period (about 70-50 million years ago), the land was subjected to a major episode of deep weathering. The rocks were softened by percolating surface waters, and chemical elements were leached and redistributed. A three-layered profile developed beneath the surface, with a hardened surface layer enriched in silica, a mottled intermediate layer, and a bottom layer enriched in iron in the form of ironstone boulders (concretions). This is known as the **Morney Profile**, and it may be up to 90m deep. It has affected most of the Winton Formation around the scarps of Idalia.

3. The deep weathering event was followed by slight uplift and erosion of the region, and some of the Morney Profile was removed. From about 55 to 35 million years ago (still in the early Tertiary period) a network of streams flowing

towards the present South Australia deposited thick sandy sediments eroded from the east. These are known as the **Glendower Formation**, and some of them form the cap of the Idalia plateau.

4. In the mid Tertiary, about 30 million years ago, there was another period of deep weathering, which resulted in the **Canaway Profile**. This has a hardened silica-rich crust above a mottled zone. It has apparently affected the Glendower Formation as well as the underlying, partially eroded Morney Profile. (Places where the crust of the Canaway Profile coincides with the bottom iron-rich layer of the Morney Profile appear to have been favourable for the depositing of silica in the form of opal. There have been some small opal mines on the scarps just to the west of the Idalia park).

5. Since those times, erosion of the region has continued, and large expanses of the weathering profiles and the underlying Winton Formation have been removed. However in places the hard, horizontal surface crusts of the profiles have resisted erosion to remain as flat-topped mesas, plateaux and ridges, with the lower layers of the profiles exposed on their flanks. This is the case at Idalia.

The variations of colour in the rocks on the scarps of Idalia probably originate from the weathering profiles in the Winton Formation and possibly the Glendower Formation.

Note: The above is taken from the geological literature only. It is hoped more detail can be provided in the future if field inspections are possible