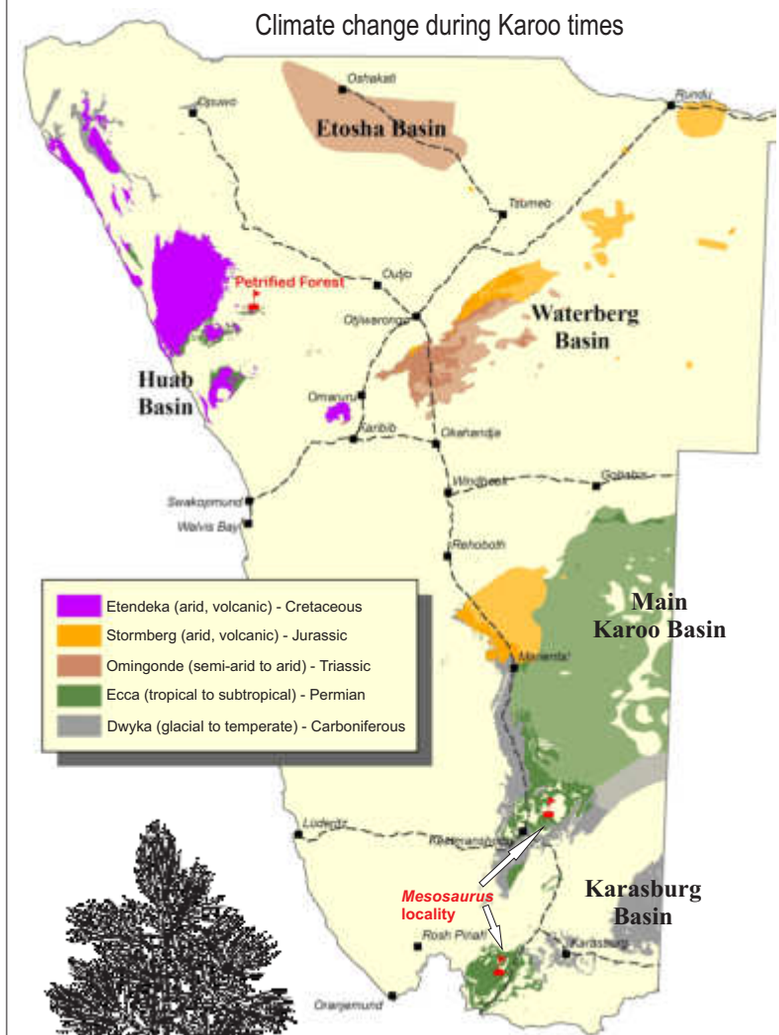
PETRIFIED FOREST

Source: Roadside Geology of Namibia

After the Dwyka glaciation of the Carboniferous, which buried the whole of southern Africa under a thick ice sheet, more congenial living conditions developed during the Permian (ca. 300-250 million years ago). With the gradual temperature rise, temperate to subtropical conditions developed and new species appeared on the scene, whose fossil remains tell the story of their life. Some of them, such as the alligator-like reptile Mesosaurus tenuidens*, are very distinct, and help to reconstruct the extent of palaeo-environments and climate zones from Southern Africa into South America, which at the time formed part of the Gondwana supercontinent. But not only animal life flourished, and one of the best sites to see the relics of ancient woods* in situ *is the Petrified Forest, some 45 km west of Khorixas.*

Climate change during Karoo times



Although the occurrence of fossilized wood in rocks of the lower Karoo Supergroup is not uncommon, the "Petrified Forest" is the biggest accumulation of large fossil logs found in southern Africa, as well as one of the best preserved. Here, several hundred individual logs occur at the base of the Ecca Group within the brownish, cross-bedded sandstones of the Tsarabis Formation. They were deposited in an ancient river channel, probably during a heavy flood event, when the increased rate of discharge uprooted the living plants and subsequently ensured their rapid burial by fluvial sediment in their present position. Relatively recent erosion has exposed several complete logs and also many smaller pieces of petrified wood. The larger logs are up to 1.2 m in diameter and at least two trees are exposed with their full length of about 45 m.

At the time of deposition possibly much more diverse, the silicified and agatized (and partly calcified) wood found at the Petrified Forest belongs to seven different species of the collective type *Dadoxylon arberi* Seward. In colour it varies from brown with white streaks to red with light-coloured streaks or off-white. The presence of annual growth rings of varying thickness indicates a seasonal climate with pronounced rainfall variation. Cell structures are also well preserved.

Dadoxylon arberi Seward was a conifer belonging to the now extinct order *Cordaitales* of the class *Gymnospermopsida*. The highly branched tree was characterized by a straight, gradually tapering trunk, needle-like leaves, and a shallow root system. The short simple pollen cones were only a few centimetres in length.

Reconstruction of the conifer *Dadoxylon arberi Seward* (after Stewart & Rothwell, 1983)

Cross-section through the Karoo Supergroup at the Petrified Forest (from *Roadside Geology of Namibia*)