Animals before people

The types of plants growing on the West Coast relate not just to the northerly trend of diminishing rainfall, but also to the bedrock geology. The bedrock forms the foundation of the living landscape by influencing the types of soil that form, the plants that can grow in those soils and the animals those plants can support. By feeding on the plants, the animals in turn impact the plants – the eating and trampling of trees by elephants promote grassland, for example. Animals tend to fossilise more readily than plants owing to their hard, skeletal parts – bones and teeth made of apatite and shells made of calcite. Land animals provide clues to the amount and types of plants growing at the time, plants that are otherwise not easily fossilised. Although fossils of some of the earliest complex animals occur in the Nama Group sediments of southern Namibia, the fossil record of past animal life on the West Coast is scant. In part this reflects the fact that the Cape Supergroup sediments contain few fossils. More significantly, few deposits younger than the Cape Supergroup have managed to survive on the West Coast because of its long history of uplift and erosion. Rocks of the interior Karoo Basin, along with marine deposits offshore, help to fill this long gap, but the record of land animals living on the West Coast is only reasonably well known for the last 5 million years, owing in large part to a rare window into the past that is revealed by fossils at the West Coast Fossil Park located 10 km west of Langebaan (Fig. 122).

The West Coast Fossil Park (WCFP) was originally a phosphate mine and many of its fossils were destroyed. However, if not for the mine, the fossils that were recovered would have remained buried and unknown to us. The site was restored after the mine closed in 1993. Densely overgrown thickets of Australian rooikrans were replaced by indigenous plants, a beautiful visitor's centre was built from lottery proceeds and mine

Figure 122. View from the new visitor's centre at the WCFP overlooking the old phosphate mine pit (left). In the distance is the white tent covering the excavated bone bed (right).

workers were retrained in fossil processing, tourism and education. One of the layers in particular contains a spectacularly preserved jumbled concentration of bones discovered during mining. This bone bed forms the centrepiece of the park. Most of the large fossil bones, unearthed in the bone bed by careful excavation using old dental tools and fine brushes, were left in place, reflecting their original position where they came to rest 5 million years ago. Excavation pits in the bone bed are dug to variable depths to preserve a portion of the deposit untouched for future research and, as a plus, provide useful three-dimensional perspectives of the deposit. The exposure of bones, all juxtaposed and intermingled, is far more captivating than bones stored in museum boxes, or even bones that have been reassembled into animal skeletons in a museum showcase.

If you were to travel back 5 million years, major aspects of the landscape would look more or less as they do today. However, the climate was warmer and wetter than today with more abundant plant growth. The plants in turn supported an animal menagerie distinctly different from today: short-necked giraffe-like animals (sivatheres), relatives of the elephant bearing four tusks (gomphotheres), rhinoceros, giant pigs, sabre-tooth cats and Africa's only known bear – an enormous carnivore three times the size of a lion.[36] These animals are all now extinct but their fossils occur in the WCFP (Fig. 123).

The bone bed is thought-provoking and compels the observer to think about how it might have formed. Did a big flood send animal carcasses floating down as bloated bags of bones? Was it a waterhole where dead animals accumulated and were trampled upon by other animals? It appears that the site was close to the coast as indicated by fossil whale, seal and cormorant bones. Some have argued that the site was near the mouth of the proto-Berg River, which they propose emptied into Saldanha Bay rather than into St Helena Bay to the north where it flows today. Others, including myself, argue that the deeply incised Berg River channel has existed where it is today for at least the last 5 million years. Rather than a river mouth estuary, the site may have been a waterhole that attracted animals and focused their bones over time.[37] Trampling by animals coming to drink at the hole may have dismembered and broken bones of animals that had died there previously. The large number of tiny frog bones suggests fresh water, as opposed to the variably salty waters of an estuary, and the low mud content of the deposit suggests a spring-fed waterhole rather than a riverbank. The odd whale and seal bone may have washed over into the waterhole site when it was located near the shore during periods of higher sea level. As we shall see, the fossil record reveals several major turnovers in West Coast animals in the last 5 million years – turnovers that are linked to changes in climate and include members of our human lineage.

Extract from Compton, J.S., 2021. *West Coast, A Natural History*, Earthspun Books (johnscompton.com).

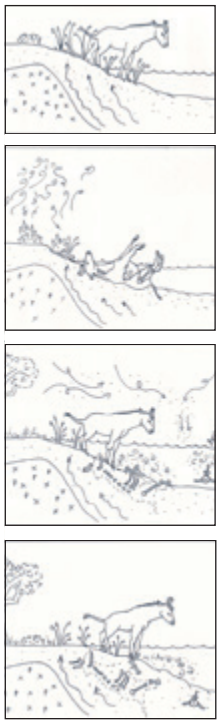

Figure 123. Many of the large bones visible in the bone bed of the WCFP (lower left) belong to at least 12 individual short-necked giraffes (sivatheres; wooden sculpture upper right, with inset of fossil jaw) whose bones may have been trampled as they were buried at a waterhole (upper left). Other large animals include gomphotheres (right) and a large bear (lower right, with fossil jaw bone). Among the many small animals are an assortment of shrews, moles, birds and lots of tiny frog bones.