

Dinosaur hunting in Winton, Queensland

By Lesley Kool

In May 2019 we took a road trip to outback Queensland to visit the Australian Age of Dinosaurs (AAOD) and the Eromanga Natural history Museum. We were supposed to be part of the Dinosaur Dreaming group that went to Winton last September to help the AAOD diggers relocate a sauropod dinosaur trackway, but problems arose and we were unable to go. Having set our heart on returning to Winton after four years and with winter fast approaching Victoria, we decided to head up there and enjoy some of Queensland's famous hospitality and sunshine.

Our visit happened to coincide with the start of the annual dinosaur dig, run by the AAOD, and we were invited to take part in the first day at a new site. Prospecting for dinosaur bones is similar to the way we prospect in Victoria in that you wander around looking at the ground, known as "emu bobbing" until you find exposed bone. That is where the similarity ends.

In Victoria, most of the right age rocks containing Early Cretaceous fossils are situated along the south coast; from Dinosaur Cove to Lorne along the Otway coast and from San Remo to Inverloch along the Bass Coast. Prospecting along the Victorian coast line involves having an accurate assessment of when low tide occurs, allowing access to the rocky shore platform and ensuring you don't get cut off from your access point by the incoming high tide. Not all the rock exposed along the south coast is sedimentary rock so it helps to have an accurate geological map of Victoria to help you locate the right rock. Not all Early Cretaceous sedimentary rock contains fossils. We have found from many years of prospecting that sandstone and mudstone rarely contain vertebrate fossils, but you may find some well-preserved plant fossils in the mudstone. Most of the fossil bones are found in what is called "sandstone/mudstone conglomerate", which as the name suggests is a mixture of sand and mud as well as plant material, often carbonised, and if you are lucky you will see a bone exposed in cross-section on the surface of the rock. At this point, if you do not have a collecting permit issued by Parks Victoria, you are not allowed to collect that specimen, but you can photograph it, make careful note where you found it and then contact Museum Victoria. If you found it along the Bass Coast then it is best to contact Mike Cleeland at the Bunurong Environment Centre in Inverloch.



"Emu bobbing" in Victoria – Harmers Haven near Cape Paterson.

In Winton, prospecting involves gaining permission from the local station owner to search his/her paddocks looking for bone fragments that have been pushed up from beneath the black soil to weather on the surface. Most of the fossil bones discovered by this method are fragments of larger bones belonging to the giant sauropod dinosaurs that were obviously prolific in this area around 95 million years ago. Once they died their bones were often scattered and deteriorated over time. A very few were quickly buried by sediments carried by flooding water and these are the ones that survived until the present time. The bones are often preserved in hard sandstone and are buried beneath the black soil. Over time successive droughts and flooding events cause the black soil to expand and contract, forcing loose bone fragments to be pushed to the surface. It is the accumulation of these bone fragments on the surface that alert the prospectors to the possibility of more complete bones below the surface.

When we were invited to participate in the first day of the annual AAOD dig I was delighted to see that we were exploring a new site as the last time we took part in a dig at Winton they had just started the second week of their three week dig and had already uncovered a large sauropod bone. So to be part of the initial search and “emu bobbing” was really interesting.



“Emu bobbing” in a paddock somewhere east of Winton.

After the first week’s group of “diggers, duggers and silly old buggers” (depending on how many times they had participated in the dig) had been assigned their sleeping quarters and had the orientation and safety talks, we headed off in convoy to the new dig site, which was approximately one kilometre from the dig base. Dig manager, Trish Sloan described the procedure to the diggers and showed everyone the small concentration of house-brick sized bones that had led to the reason we were exploring this particular area. We were given small metal pegs with pink tape attached and then we spread out in a rough circle approximately 20 metre radius from the wooden post marking the exposed bones. When we came across an exposed bone fragment we inserted a metal peg next to it. Within 30 minutes the area around the central peg was littered with small pink pegs, indicating bone fragments ranging in size from a fifty cent piece to half a house brick.



The white pieces are the bones, having weathered on the surface for some time.

Trish then set up a grid of four quadrats each approximately 25 metres squared. We were then given digging implements ranging from screwdrivers to trowels and asked to choose a quadrat and commence digging into the soil below the exposed bones. It was nice not to worry about the tide coming in, although the small bush flies were extra friendly.



The diggers in the various quadrats with the AAOD gazebo in the background.

We continued this process until lunch was called and we gratefully sat under the large opened-sided gazebo, which gave some relief from the warm sun.

After lunch Gerry and I were taken to visit the sauropod trackway site on another station, while the rest of the group recommenced their digging. By the end of the day Trish and her team had a pretty good idea of where the greatest concentration of bone was and the front end loader was brought in to carefully scrape away the black soil, one thin layer at a time until more complete bones were unearthed.

We didn't get the chance to return to the dig site but at the end of the dig the team had made a number of interesting discoveries including some sauropod teeth, a few megaraptorid theropod teeth, crocodile teeth and plesiosaur teeth. Interestingly, no large sauropod bones were encountered, but a small ornithopod dinosaur bone was found, which is unusual in this area. However, the dinosaur teeth

are reasonably diagnostic, meaning that a lot of information can be gleaned from their size and shape. Palaeontologist Stephen Poropat was significantly impressed with the discoveries that they are planning to return to the site next year in the hope of finding more.

The method of recovering the fossil bones at Winton is very different to the way we collect bones in Victoria. Apart from the fact that most of our sites are situated along a rocky coastline and we are at the mercy of the tides, the biggest difference is the black soil versus the hard sandstone/mudstone conglomerate. The initial digging in a relatively soft black soil using garden tools and screw drivers is so different to wielding sledgehammers, mallets and chisels. The majority of fossil sites around Winton have yielded mostly large sauropod bones, including a magnificent series of articulated sauropod neck vertebrae, which is currently being prepared at the AAOD preparation lab on the Jump Up.

Large bones mean large plaster jackets as the bones are often cracked and too unstable to remove from site without support. This differs markedly from the bones found at the Victorian sites, where at the Flat Rocks site most of the bones are less than 10cms long. One wall of the AAOD prep lab is taken up with shelves of plaster jackets waiting to be opened and each sauropod bone takes experienced preparators months to prepare. One polystyrene box can hold as many as twenty newspaper-wrapped fossils from the Flat Rocks or Eric the Red West site.



A volunteer preparator carefully removing rock from around a dinosaur bone in a plaster jacket.

Next episode will cover the preparation of the fossil bones at the AAOD, Eromanga and Victoria.