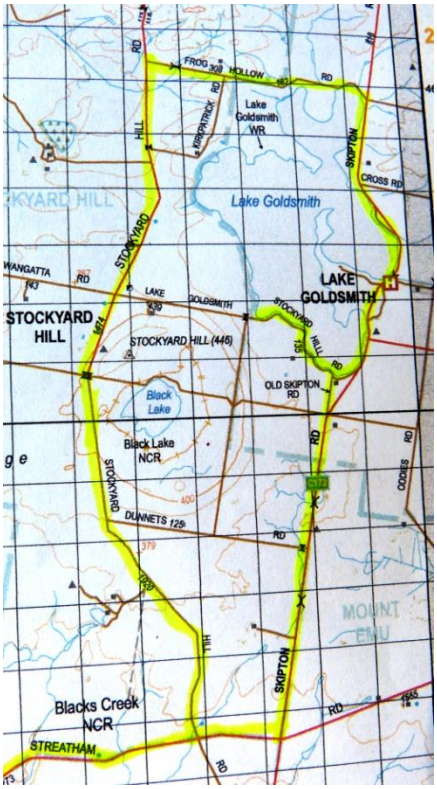
HFNC Excursion to Black Lake Wildlife Reserve on 22 May 2021

Rod Bird & Diane Luhrs

Present: Glenys Cayley, Janeen Samuel, Roger Thompson, Peter Hocking, Diane Luhrs & Rod Bird.

This excursion was prompted by an article Roger Thompson read in The Age in 2020. Part of that account mentions '*…there's a rusted but unlocked gate down this rough track is Black Lake Wildlife Reserve, a caldera of a volcano which, when full of water, is home to hundreds of water birds. There's a band of basalt boulders that ring the lake, covered in lichen hanging from the limbs… a dark and eerie place important to the local indigenous people…*' HFNC members were interested in a visit there.



We left Hamilton at about 9.30 am, taking the Carngham Rd off the Glenelg Highway at Streatham. The Stockyard Hill Rd is found about 1 km from the intersection with the Skipton Rd. We turned left (north) along the unsealed Stockyard Hill Rd (it runs at first along the eastern edge of the small, treeless Black Hill Nature Conservation Reserve). The Black Lake Wildlife Reserve appears to begin on the right (east) where Dunnets Rd enters.

We drove north to near the top of the rise where we found a lane running to the east. And there was the 'rusty gate! (tied up with baler twine). We walked along this lane to the top of the rise. The lane ran close to the north end of the lake. It was not clear how good this track would be for vehicles with low clearance so we drove back to a gateway a km or so to the south.

View to the lake from the NW bank

Below – view from the SW bank

We walked into the reserve and along the fence that ran at right angle from the road. That high point gave us very good views across the caldera.

What was apparent on this lava landscape was the effort expended in removing large rocks from the surface, now forming long lines on the treeless paddocks.

SE part of the lake and a line of rocks

Basalt boulders on the eastern rim of the caldera

We passed through a couple of gates on our way down to the lake. All of the reserve appears to be under grazing lease with sheep, in some competition with a large mob of Eastern Grey Kangaroos. The entire site outside the perimeter of the lake appears to have been cleared many years ago and probably some of the rich red earth bank cultivated. At some stage, perhaps in the 1980s, a substantial planting of trees was done on the lower bank on the west side. Drooping Sheoak, wattles and eucalypts were planted.

Is 'caldera' the correct term for this volcanic feature? E.S. Hills (1975) in '*Physiography of Victoria'* describes an **explosion caldera** as a deconstructional downward-sinking collapse of the lava into the underground chamber, leaving a relatively flat surface above which small cones may build up. The stratified rocks of the volcanic cone may be revealed by the collapse. We saw a ring of large boulders around much of the lake, which has a very flat surface, punctuated in a couple of places by small rocky islands. The lake appears to be about 1 km across but is irregular in shape.

Geologist Ross Cayley supplied this preliminary information (he has yet to visit this site):

'Caldera' specifically refers to a collapse feature – usually when the volcano/landscape subsides because there has been a volume loss somewhere at greater depth…due to the loss of magma in the underlying chamber – either because it has all erupted…leaving an underlying 'void' that then collapses, or because the magma has gone elsewhere due to deeper-level crustal processes (probably more common).

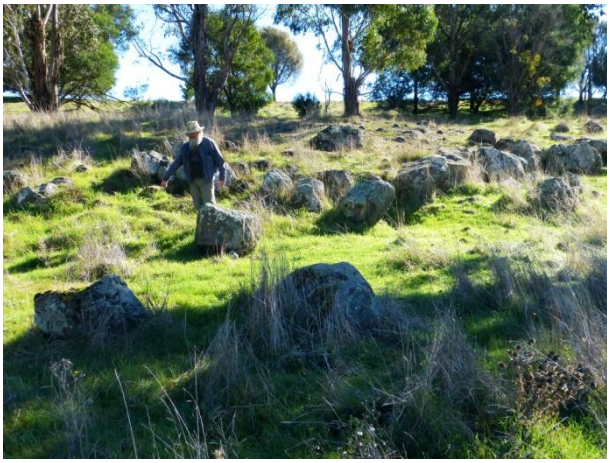
Looking at Black Lake on Google Earth, I don't reckon that has happened here, so I'm not at all convinced that 'caldera' is the right term to describe it… calderas in other places (Kenya, Tanzania, Indo, the western US, etc) have very distinctive characteristics that I'm not seeing at Black Lake.

Instead, to me it looks more like a volcanic crater that is broad and low-angle because it was explosive, but subsequently had its throat in-filled by later, lower-energy eruptions, as you mention. Without seeing the surrounding rocks I can't really make a call. If it was surrounded by layered 'tuff'-like rocks (and it does have that kind of appearance on Google Earth) I'd consider calling it a Maar volcano. Like a smaller version of Tower Hill – these types of eruptions were explosive because the rising magma encountered geology with a LOT of groundwater, which the magma then flashed to steam, leading to BOOM!. They produce distinctive rocks, so if that has happened it will be obvious as soon as I see it.

Age? Not sure, but it looks quite well defined, and looks like it's been superimposed on the surrounding weathered 'stony rise' country, so I reckon it might be on the younger side of 1 million years.

Lakes may form in a caldera (or a Maar) but, on our visit, the lake was virtually dry. There was a shimmer on the far side that appeared to be water but proved to be dry grass. Diane found a small patch of water (maybe 20 m^2) near the little rocky island that had 1-2 cm of water and some frogs (Ewing's Tree Frog – *Litoria ewingi*) calling. Peter walked across the middle of the lake and found it quite dry.

Looking from the edge of the island across the lake to the eastern side (GC photo)



Basalt boulders on the western rim of the caldera

View from the rocky island to west bank

We found some remnant tree/shrub vegetation on the west bank and on the island. We walked across to the rocky island which was littered with blocks of basalt. Tree Violet (*Melyctus dentatus*) was prominent and one specimen of Blackwood (*Acacia melanoxylon*) grew on the island. Tree Violet shrubs can be seen in the photo above. The lone Blackwood is shown in the photo below.

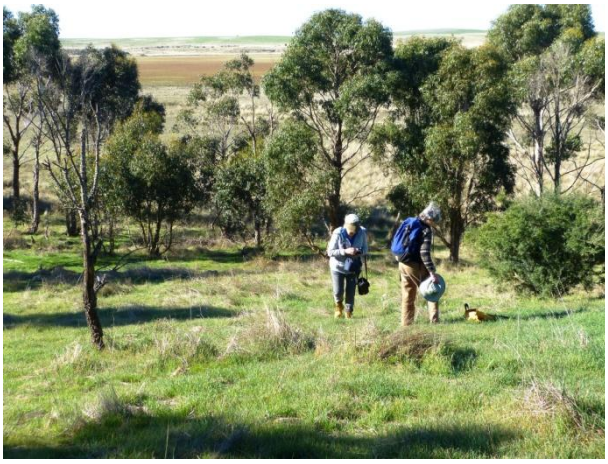
The wind-pruned Blackwood on the island

A large mob of kangaroos moved off the eastern end as we approached. They – and sheep – had kept the grass under control on this area. Apart from the Poa tussocks near the shore there was virtually no vegetation above 3 cm in height anywhere on the lake, and much bare ground.

The Beaded Glasswort that grows on the wetter spots suggests that the surface is at least moderately saline. There is no surface drainage from the lake and oceanic salt is being deposited from rainfall, if not from inflow. Unless there is underground seepage the major export of salt is by wind blast removing surface salt-encrusted dust particles.

We did not do a survey of plants but those we noted included Common Tussock (Poa labillardierei), Beaded Glasswort (*Sarcocornia quinqueflora*), Crane's-bill (*Geranium* sp.), Bluebell (*Wahlenbergia* sp.), Bidgee Widgee (*Acaena novae-zelandiae*) among the basalt rocks or on the lake surface.

We found several species of fungi on the banks. These included Slender Parasol Mushroom (*Macrolepiota procera*), Giant Gold Cap (*Gymnopilus junonius*), Honey Fungus (*Armillaria luteobubalina*), Rooting Shank (*Xerula radicata*) and Little Pins (*Richinella fibula*).

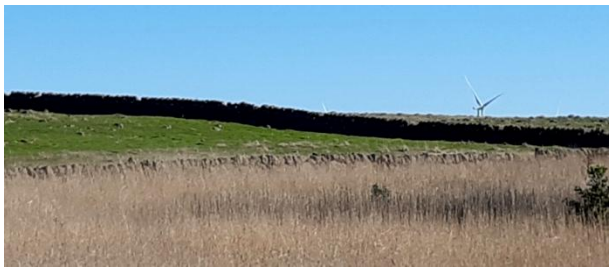


Fungi admirers on the treed west bank of Black Lake

Slender Parasol (*Macrolepiota procera*)

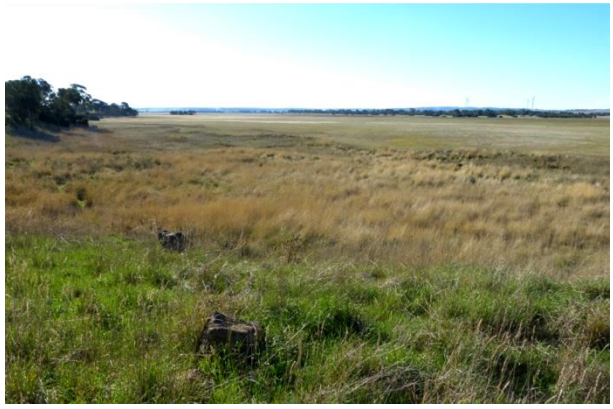
There was an excellent dry-stone wall running for over a km on the western side of the Stockyard Hill Rd, mostly in good condition.

We did not make a detailed survey of birds in the area, since there was no water in the lake. The birds we saw were White-plumed Honeyeater, Common Skylark, Nankeen Kestrel, Brown Falcon, Wedge-tailed Eagle (2), Australian Magpie, Little Raven, Superb Fairy-wren, Magpie-lark and Masked Lapwing.



Following lunch among rocks and trees on the western shore, we left the reserve and drove along Stockyard Hill Rd to Frog Hollow Rd. Drystone basalt walls (photo left) and wind turbines are prominent on the hills. Frog Hollow Rd runs east to meet the Skipton Rd.

Our objective was to look at **Lake Goldsmith** and we passed along its north shore before turning south on the Skipton Rd and driving along its eastern shore.



Lake Goldsmith from Stockyard Creek Rd

We turned west on the Stockyard Creek Rd to look at the south end of the lake. The lake was dry, except for one long puddle on the mid-eastern side!

We saw only Black Swan (2 birds), Golden-headed Cisticola, White-fronted Chat, Striated Field Wren, Australian Magpie and Long-billed Corella.

It seems that Lake Goldsmith is very shallow – possibly only a metre or so depth at best. It is quite extensive and may be a good resource for migratory waders in summer.

It would be interesting to visit this lake – and the nearby Black Lake – when they hold some water.

A last thought – what is the derivation of the name ‘Black Lake’? A clue may exist in *The Age* article cited above. The site may have had great significance to the Aborigines who lived in the area and the first pastoralists may have named the lake after the indigenous people they displaced.