Impacts of Fire and Storms on Influencing Change at Yarrangobilly

Regina Roach

Yarrangobilly Caves is located in Kosciuszko National Park in the NSW Snowy Mountains. The Yarrangobilly karst area is 11 kms and up to 1.5km wide and has over four hundred cave entrances. In the tourist precinct, six caves are designated as show caves and two other caves are used as adventure caves.

The fire front which ravaged the Yarrangobilly valley on 4 January 2020 was followed by several wind and storm events which exacerbated the earlier environmental changes and impacted significantly upon the infrastructure and tourist activities at the caves.

This article views some of the changes which followed, and the challenges presented to management as they sought to either repair or upgrade the damaged infrastructure.

Simultaneously NSW National Parks and Wildlife Service' are placing greater emphasis on increasing revenue from its park assets. During 2020-21 the public were invited to comment on the two development proposals which would impact development at Yarrangobilly - the *Draft Mountain Bike Trail Master Plan* and the *Yarrangobilly Caves Draft Precinct Plan*. This combination of all these factors will result in changes at Yarrangobilly.

Stage 2 - Clearing of dangerous burnt trees. Stage 1 focused on creating access to Yarrangobilly Caves. The new bridge has been constructed. It provides access to the picnic areas and is higher, wider, and fireproof. The previous bridge burnt in the fire.

Walking track to South Glory Cave after the fire. Extensive spalling and many new fossils are now evident. The 100-year-old pines which had been blown over in a storm about 6 years previously were partially burnt in the fire and are lying above the path.

Due to a combination of loose soil, little vegetation, and a major rain event the pines were displaced onto the path. This resulted in the closure of the South Glory Cave and limited access to the walks and Thermal Pool. The pine trees were sectioned and moved from the path and the fence repaired.

This is Rules Creek. The Yarrangobilly Caves water supply / hydro power pipeline is located underneath this track. The 1956 asbestos hydro line burnt or was damaged by falling trees in the fire. Some pipes needed to be retrieved from above the creek - a difficult asbestos clean-up task. As visitors drive down to the caves, they clearly view the replacement hydro line scar in the bush.

These are the replacement hydro line pipes. Due to the steepness of the site the pipes were stored on the Caves' Exit Road until the trench was dug. As the trench was located above the Entry Road this necessitated the closing of road for short periods so displaced rocks could not land on any vehicles.

Rules Creek Dam with silt - Yarrangobilly's water and hydro power source. The rain event, after the fire, when the hills had little vegetation cover deposited large amounts of silt into the waterways and dam. This limited the capacity of the hydro plant to produce electricity. The dam was unable to be desilted during the winter because the wet ground and steep terrain made it too dangerous for the excavator to access the site. The lack of power limited Yarrangobilly's ability to utilize all show caves by using electricity.

Yarrangobilly Caves was closed for some time after the fire, the storm limited access to the South Glory Caves, then COVID lockdown occurred, then 'freedom time' and visitation records were smashed. However, lack of available electricity resulted in many show caves being unavailable for touring so the small, highly decorated delicate Jillabenan Cave was showcased for tours as it required less electricity, and a greater number of tours could be accommodated in it. This half of the stalagmite was cut and removed from the cave in 1992 to enable the cave to become wheelchair accessible.

This is the other half of the stalagmite located in situ in the cave. Not only was black ash tracked into the cave on people's footwear, but the continual lights caused a significant lampenflora issue. The black lampenflora grew on the walls and ceiling, ash/dirt coated the floor and slashed onto formations. Later cave cleaning commenced under the guidance of volunteers, John Brush, Marj Coggan and Beth Little who showed guides how to clean caves and the lampenflora prevention techniques. Future issues like this may be averted if there is recognition that caves do have a limited carrying capacity and caves /karst are fragile ecosystems. Will this cave recover, or will the damage be permanent?

Sandstone blocks in a limestone environment!! These limestone blocks and a new footbridge located near the Yarrangobilly Visitors Centre are part of the cultural walk as proposed in the *Yarrangobilly Caves Draft Precinct Plan*. This work was completed while the Plan was in the public consultation phase. The location of the proposed walk is very close to the creek with sediment likely to enter the Rules Creek influx. Maybe its route requires changing?

Thermal Pool after the first major rain event. The steep terrain, loose soils and the vegetation denuded slope resulted in soil sliding into the pool. The large Eucalyptus trees which once grew on this slope were removed after damaged sustained in the 2003 fires. Only their stumps remain.

Thermal pool a year after the fire. Massive regeneration of trees and vegetation rehabilitation beside the stairs. To place the *Yarrangobilly Caves Draft Precinct Plan* and the *Draft Mountain Bike Trail Master Plan* into perspective. The Draft Precinct Plan proposes a large covered shade area beside and parallel to the cement of the far side of the pool. The new toilet block and changerooms will be located behind the seat on the swampy ground where the seeps up from either underground (the water is 27 degrees and rises from about 270m underground) or from the old course of the Yarrangobilly River.

Yarrangobilly River is located 40m from the thermal pool. The water from the Thermal Pool flows into the Yarrangobilly River here. The Draft Precinct Plan's proposed two onsens with gas heated water be located here beside the river. Both would have been washed away in the first rain event. The proposed *Draft Mountain Bike Trail Master Plan* proposed the construction of a bridge at this location which has Aboriginal significance. This Draft Mountain Bike Plan is still 'alive/active' although it was not selected initially for funding.

The *Yarrangobilly Caves Draft Precinct Plan* results have not been released yet. The future? How to incorporate the past, keep the aesthetics and move forward will be a challenging balance on this karst landscape.