



MOLE CREEK SINKHOLE CLEAN-UP

– Rolan Eberhard

In an earlier article ('Use and Abuse of Sinkholes' ACKMA Journal 61, pp 22-24) I lamented on the historically widespread practice of dumping in sinkholes and caves in the agricultural karstland of Mole Creek in northern Tasmania.



Cathie Plowman retrieving a toaster (one of two) dumped in Harrys Creek Cave.
Photo: David Butler.

While there is evidence to suggest that this practice is now less frequent than in the past, an unsightly and hazardous legacy of rubbish-filled karst features exists – a potential source of toxic leachates from discarded chemical containers, batteries, car bodies etc. Other negative effects include the health risk to landowners and cavers who enter affected sites, reductions in the aesthetic quality of otherwise

attractive natural features, and the example set of inappropriate waste management in a sensitive karst environment.

In 2008 Launceston-based cavers bagged up 18 sacks of rubbish that had been dumped in Harrys Creek Cave, a streamsink on State forest west of Mole Creek township. The nasty mess included seven 20 litre fuel drums, the rusted state of which made it difficult to determine if they had contained anything hazardous at the time they were dumped

While the drums may well have been empty, any residue of their former contents would have been washed downstream into the Union Cave system and ultimately the Mersey River. This selfless effort by caver volunteers deserves to be praised, but barely scratched the surface of the broader sinkhole rubbish problem around Mole Creek, the scale of which demanded a more significant injection of resources.

The decision in 2009 by NRM North, the funding body established under the Tasmanian government's Natural Resource Management Framework and its enabling legislation, to allocate funds for a karst clean-up program, was therefore timely and welcome. The project was coordinated by Stuart Brownlea (NRM North) and brought together Meander Valley Council, Tasmania Parks and Wildlife Service, landowners and the (then) Department of Primary Industry and Water (DPIW), in a significant collaborative effort. The initial stage was to identify candidate sites and contact potentially interested landowners.



At Elderberry Cave. Above – Working to remove refuse. Below – Cars retrieved...



This was followed by a field inspection to assess a range of site-specific issues: ease of access for heavy machinery, stability of slopes overlooking affected karst features, volume and type of fill to be removed, special requirements for hazardous materials, hydrological context, potential disturbance to flora and fauna, and follow-up rehabilitation. The health and safety of the people involved was an obvious priority, given that they would be working in close proximity with a large excavator and that some sites were known to contain hazardous materials such as asbestos.

These considerations limited the scope for involving volunteers, although this was considered initially. A documented works plan was developed for each property, with input from DPIW's Land Conservation Branch and Biodiversity Conservation Branch.

Local contractor Andrew Walters' skill as an excavator operator was an important factor, allowing rubbish to be retrieved from sometimes difficult locations while reducing the level of collateral damage to the environment. Repeated turning and tracking of the excavator was minimised as far as practicable.

Rubbish pulled out of karst features was initially stockpiled on site by the carefully positioned excavator, which later transferred it to a nearby dump truck. Despite the care taken, wet conditions meant that significant ground disturbance was sometimes unavoidable, necessitating follow-up rehabilitation works. Following recovery, rubbish was either recycled

or disposed of at an approved Council waste facility at Deloraine. The volume of material removed from individual sinkholes was often much larger than initially expected, as rubbish on top invariably obscured stuff underneath. For example, two or three relatively small sinkholes on a property at Mayberry yielded some 24 cubic metres of rubbish, about half of this being empty beer bottles (must have been some party!). The remainder comprised assorted domestic rubbish and a lot of silage plastic.

Some of the most polluted karst features at Mole Creek are located on recently reserved land managed by the Parks and Wildlife Service. Most of the dumping at these sites pre-dates the creation of the reserves, which were formerly private land or State forest. However, evidence was found of recent dumping, particularly at several very large sinkholes within the Sensation Gorge Conservation Area. The proximity of these sinkholes to Liena Rd had clearly facilitated their use for illicit dumping, as rubbish could be easily offloaded from a car or ute on the roadside. The amount of material being dumped is likely to have increased following closure of a nearby landfill in the early 1990s. The landfill itself is located within a cluster of karst depressions which are now covered over. The environmental status of the site is currently being investigated.



Linda and the giant pink bunny.

Car bodies, batteries, fridges, drums, machinery and building material including a large amount of asbestos were recovered from the Sensation Gorge Conservation Area. Thankfully, the considerable number of farm animal carcasses that had evidently been dumped there had been

largely consumed by native animals or rotted away. Seventy tyres were removed from one sinkhole alone. Material was winched out on cable or chain where the depth and steepness of the sinkholes precluded reaching it with a grabber or bucket mounted on the excavator arm. Smaller rubbish was bagged and carried out by hand.

This work was supervised Linda Overend from PWS Mole Creek, supported by a team from Mole Creek and other PWS field centres. The PWS staff demonstrated a high level of commitment and professionalism under often arduous and unpleasant conditions. Not a nice job, but they stuck at it with good humour until it was done.

Technically, the most challenging site addressed in the sinkhole clean-up program is an active streamsink known as Elderberry Cave, also located on recently reserved land. This streamsink is the principal source of water in nearby White Rabbit Cave system. Several car bodies plus much domestic and agricultural rubbish had been dumped directly into the streamsink, which had been partly dozed in and was largely obscured by weeds and junk.



Stockpile of metal rubbish to be recycled
– Sensation Gorge Conservation Area

The fact that the site was a streamsink required a particularly cautious approach, due to the risk of solid and liquid contaminants disturbed during removal being washed deeper into the karst system. Also of concern was the stability of the steep marginal slopes of the depression containing the streamsink. Some of these slopes comprised clayey sediments resting on partially buried rubbish.

There was concern that ongoing fluvial erosion might cause slumping and collapse as the feature adjusts to a more stable state following removal of the anthropogenic fill. These issues were addressed by close supervision of the excavator, hand picking rubbish where possible, and follow-up erosion mitigation measures. Some rubbish buried in the walls of the depression was left in situ, to avoid seriously destabilising already over-steepened slopes. The condition of the site will be the subject of ongoing monitoring.

A bewildering array of rubbish was extracted from Elderberry Cave, in addition to the car bodies that initially attracted attention to the site. A lot of it was typical household rubbish, but of more concern was the considerable amount of agricultural refuse, including drums for petroleum products, veterinary products and chemicals, as well as barbed wire and other sharp rusty objects. A large quantity of broken asbestos sheeting was removed from the site by a qualified operator.

The follow-up rehabilitation involved putting down jute matting on the steeper disturbed slopes and installing silt traps to reduced eroded sediment being washed into the streamsink from adjacent disturbed ground. A quantity of native seedlings was planted. Weed management will be an ongoing issue at this already badly weed infested site. The possible involvement of Karstcare volunteers in follow-up weed control activities has been discussed with Karstcare co-ordinator David Wools-Cobb.

Preliminary figures for the project as a whole suggest the following:

- 320 m³ rubbish removed to landfill;
- 60 m³ scrap metal recycled;
- 100 tyres recycled;
- several ute loads of asbestos removed;
- 50 m³ green waste (mainly woody weeds from Elderberry Cave).

At one level this project was a depressing insight into peoples' ignorance of the environmental effects of their actions or, in some cases perhaps, their gross disregard for others and the environment. On the other hand, the project delivered an immediate and tangible improvement in the condition of the environment.

That this was achieved as a collaborative endeavour by a number of different players, underpinned by funding from NRM North, is positive too. In the longer term, the hope is that increased community awareness following publicity of the project in local papers will lead to fewer incidences of dumping in karst features, around Mole Creek and other northern Tasmanian agricultural karstlands.



Elderberry Cave following rehabilitation.