

The on-going saga to protect the Harmans Valley lava flow

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The Harmans Valley lava flow originated at the Mt Napier volcano in Western Victoria and flowed across the landscape in a pre-existing valley. At about 40,000 years old, the flow is one of the most recent in Australia. It is widely regarded as the best example in Australia of a lava flow constrained by a valley and for having one of the most intact and significant collections of young volcanic features. In addition, the flow contains the renowned Byaduk lava caves, has Aboriginal and early-European cultural heritage significance as well as dramatic landscape values.

The Mount Napier volcano and the upper part of the flow, containing many of the Byaduk caves, are protected within the Mount Napier State Park. However, for most of its length, the Harmans Valley flow is on privately-owned land where until recently, features on and in the flow - including caves, had been afforded very little if any protection, despite lobbying efforts over many years by concerned local residents, cavers, academic institutions and the local Aboriginal community.

In 2004 and again in 2015-16, sections of the flow were bulldozed, crushed and levelled to improve farming potential. Some surface features were obliterated and, as the most significant damage was in areas that are visible from a public viewing point, the landscape significance has diminished.

In October 2016, the Victorian State Government imposed an interim Significant Landscape Overlay (SLO) on those parts of the flow that lie on private land within the Southern Grampians Shire. This landscape protection control is due to expire on 31 October 2018. In March 2018, the Victorian Government held a public hearing to consider whether the SLO protection measure should be made permanent.

This paper reviews efforts to protect the flow and its important geological, landscape, ecological and cultural features and considers the likelihood of achieving effective permanent protection.

Introduction

The Harmans Valley basalt lava flow in Western Victoria originated at Mt Napier and flowed down a pre-existing valley (Figure 1) for more than 20 kilometres in a westerly, then south-easterly direction. For most of this distance, the flow is located within the Southern Grampians Shire, but the last several kilometres fall within the Glenelg and Moine Shires and in these lower reaches, much of the flow is swamp covered, with little or no outcrop.

The renowned Byaduk lava caves occur within the flow and in addition, many surface features of the flow are still visible, including Tumuli, or lava blisters, lava lakes, levees and examples of a'a and pahoehoe lava surfaces. The flow is regarded by experts as the best preserved in Australia and is very important for education and research purposes. Much of what we know about the features of the flow comes from the work of Ken Grimes, a geologist, speleologist and former member of the Commission on Volcanic Caves who passed away suddenly in 2016. The flow also has Aboriginal and early-European cultural heritage significance as well as dramatic landscape values, which were also noted by Ken.

Mt Napier and the upper part of the flow, containing many of the Byaduk caves, are protected as they are within the boundaries of the Mt Napier State Park. However, most of the flow is on private property where, until recently, it had been afforded very little protection.



Figure1. Major features of the Mt Napier State Park and Upper Harmans Valley.

In 2004 and again in 2015-16, some sections of the flow were bulldozed and levelled, an operation called rock crushing, to improve its farming potential. The rock crushing operations obliterated some surface features and, as the most significant damage has been in areas that are visible from a public viewing point (the Harmans Valley lookout), the landscape significance has been diminished.

Geological setting

The Harmans Valley area lies within the Newer Volcanic Province (Figure 2), which covers an area of 25,000 Km² in Western Victoria and southeast South Australia (Cas, 2018). It comprises more than 400 eruption sites, extensive lava flows and scoria cones. The province has been active for around 8 million years, with the most recent eruption occurring at Mt Shank at the western edge of the province about 5000 years ago. Cas considers the province is still active and, as it is the only volcanic province in Australia that is still active, it is of national scientific significance.

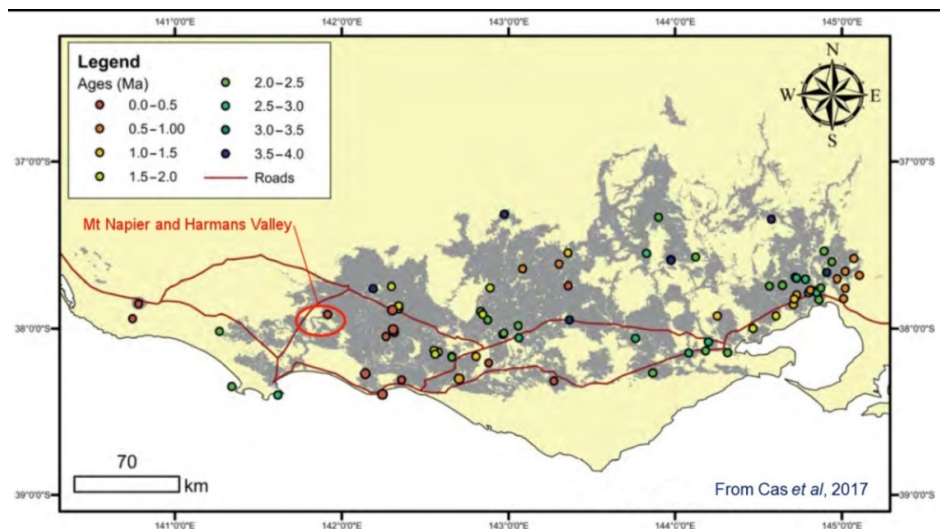


Figure2. The Newer Volcanic Province of Western Victoria and southeast South Australia.

Mt Napier, the source of the Harmans Valley flow is close to the more recent end of the spectrum. Recent studies of Mt Napier and the Harmans Valley flow suggest an age of about 40,000 years (Cas, 2018). In geological terms, this is very young and explains why many surface features of the flow are still visible and why a range of dramatic lava cave features remain intact.

Features of the flow

From a speleo perspective, the most important features of the Harmans Valley flow are the caves. As already noted, many of these are within the Mt Napier State Park. Caves have also been found in other parts of the flow but relatively little is known about them because of access constraints.

From a geological perspective, the most striking features are the tumuli, or lava blisters as they are sometimes called. These are steep-sided mounds of rock up to 10 metres high and 30 metres across that are thought to result from underlying pressure of lava forcing up the solidifying, but still plastic, surface of the flow. It is possible that steam, generated where the lava flows over wet or swampy areas, played a role in their formation. The tumuli are more common in areas where the lava flow is thin, such as near the edge of the flow and in side valleys. Tumuli occur in volcanic areas in other countries, but they are generally of a much smaller size than the ones found in Harmans Valley.

Other features of the flow include lava ridges, hummocky terrain (known locally as stony rises), lateral levees, lava canals and drained lava lakes, as well as smaller-scale features such as columnar jointing and pahoehoe and a'a surfaces. While these are common in volcanic areas, they are invaluable at the state and national level for education and research purposes as the Harman's valley flow is relatively intact, very young and readily accessible.

Rock removal and quarrying operations

The first inhabitants of the area, ancestors of the Gunditjmara people, fashioned loose basalt boulders into shelters. Foundations of these structures can still be seen in the area.

Since the early days of European settlement, people have been continuing to modify the surface of the flow. At first, farmers improved the grazing value of their land by picking up loose rocks and using them to build dry stone walls. Later, farm tracks were pushed across the flow. As the rocky ground also proved to be a readily available source of material, rock was removed by the truckload for road construction works in the district. There are also several small quarries in the area where the aim was to dig beneath the basalt to access the underlying limestone, which was in demand for agricultural and construction purposes.

None of these small-scale operations had a major impact on either the important geological features of the flow or on the overall landscape vista, such as is visible from a public lookout beside the Hamilton-Port Fairy Road (Figure 3). Indeed, one of the valuable landscape attributes of the area is now considered to be the dry stone walls. They are also regarded as contributing to the cultural significance of the area.

In mid-2004, heavy machinery was used to break up and flatten the surface of the flow over a 15 hectare area. Surplus rock was pushed into several large heaps. Unfortunately, the damage was visible from the public lookout.



Figure 3. Mt Napier and the Harmans Valley lava flow as it was in 1975, from the lookout beside the Hamilton-Port Fairy Road.

In November 2015, after a change in landowners, the crushed area was re-worked and in July 2016, an additional 5 hectares to the east of the earlier work was worked over and the size of the rock heaps increased.

Attempts at protection

In the 1990s the Victorian Division of the Geological Society of Australia assigned the Mt Napier volcano area, including the Harmans Valley flow, National significance as a Geological Heritage feature (Rosengren, 1994). It also assigned several individual listings, including international significance to the Wallacedale Tumuli and national significance to the Byaduk Caves. The current status of the listings is uncertain, but in any case they afforded no legal protection. In Victoria, there is no protection for geological sites unless they are on the National Heritage List (which does not include anything in the Harmans Valley area) or are within a National or State Park. This means protection for Mt Napier, for some of the Byaduk caves and other features within the Mt Napier State Park. However, for features on private land, protection is only possible by indirect means – that is, if the geological sites also happen to have other values that are covered by environmental, planning or Aboriginal heritage legislation.

At the time of the crushing work in mid-2004, there was a push for protection of significant geological features located on private land. Amid widespread local concerns about the rock crushing, the landowner agreed to halt work pending consideration of the issue by Southern Grampians Shire Council. The Council proposed seeking an Environmental Significance Overlay (ESO) under the Victorian *Planning and Environment Act 1987* for all areas of the flow on private land within the shire. In October 2004, the (then) Victorian Department of

Sustainability and the Environment (DSE) drew up a map of the proposed ESO over the area of the flow based on information provided by Ken Grimes. Unfortunately, the ESO was never gazetted.

In early to mid-2005, DSE appeared to have been more focussed on negotiating with the landowner to “offset” the damage caused to native vegetation during the rock crushing by undertaking plantings elsewhere on his property. Perhaps this was because DSE realised there was no basis for taking action for the destruction of geological features. It is not clear whether any agreement was reached with the landowner and there is no on-the-ground evidence of any planting ever taking place. Of course, from a geological perspective, planting in other areas of the flow had the potential to obscure the geology and landscape features.

In 2012, the (then) Department of Planning and Community Development completed a landscape assessment study in southwestern Victoria (*The South West Landscape Assessment Study*) in partnership with shire councils in the region. The aim of the study was to identify and assess key landscapes and make recommendations regarding their protection and management. The Harmans Valley, as viewed from the Harmans Valley lookout, was identified as being of state-level significance and proposed a Significant Landscape Overlay (SLO) for the area, noting rather poetically that:

“The view (from the lookout) is contained within the sweeping curve of the valley, with Mount Napier visible in the background. While other parts of the surrounding landscape are visible, the view cone describes the extent of the view that is dominated by the lava flow.

The open, cleared foreground and elevated position of the viewing location allows for excellent, uninterrupted views over the lava flow. There is a high contrast between the rough texture of the flow and the dark, scrubby bracken growing in its crevices, and the smooth, grassy slopes of the valley walls. The lava flow is a dramatic visual feature that twists across the middle ground. The central location of Mount Napier and the span of the landscape between it and the viewing location makes it easy to appreciate the distance that the river of lava travelled when the volcano was active. This is further highlighted by dark vegetation that frames the valley and directs the eye across the volcanic features”.

Despite this statement, there was no immediate action to implement the SLO.

The area visible from the lookout changed hands, and in November 2015, the new owner started to rework the area crushed in 2004. The works were soon halted after a stop-work order was issued by the Southern Grampians Council and the owner was asked to complete a Cultural Heritage Management Plan (CHMP) under the terms of the State *Aboriginal Heritage Act 2006*.

Early in 2016, the Victorian Government enacted the *Aboriginal Heritage Amendment Act 2016* which among other things, sought to clarify when a CHMP was required and also changed the nature of the CHMP from a guidance document to an approval one. The extent to which the landowner resolved the CHMP issues is not known, but in mid-2016 he recommenced works. On 8 July 2016, another stop-work order was issued under the Act. As was the case in 2004, there was a negative reaction in the local media. In response the

landowner noted there was no SLO over his land and that the real damage was done ten years earlier by someone else.

At about the same time, following representations to the Minister for Planning, an interim SLO was gazetted to cover all parts of the flow that were on private land within the Southern Grampians Shire. This basically meant there was a planning objective to maintain the landscape character and setting of the lava flow. The SLO was gazetted on 26 October 2016 with validity until 31 October 2018.

In 2017, the Southern Grampians Shire Council drafted a proposal for a permanent SLO in consultation with the Department of Environment, Land, Water and Planning (DELWP). In terms of the planning policy framework in Victoria, as set out in the *Planning and Environment Act 1987* (PEA), the shire council was the designated planning authority for the proposal. In October 2017, DELWP released a draft proposal for a permanent SLO for public comment and invited submissions to Council by 20 October 2017. Council received a total of 75 submissions, including one from the Commission on Volcanic Caves. Most of the submissions supported the SLO being made permanent.

DELWP established a planning panel to consider the submissions and in early March 2018, it convened a 2-day public hearing in Hamilton at which submitters were given the opportunity to speak. There were 18 presentations including by the Shire Council, representatives of the Gunditj Mirning Traditional Owners Aboriginal Corporation, academic institutions, community groups, landowners, the State Environment Department, geotourism organisations, the Australasian Cave and Karst Management Association Inc (ACKMA) and the IUS Commission on Volcanic Caves. A wide range of views was expressed in the hearing and during an associated field inspection (Figure 4). The hearing and outside discussions took place in a constructive and productive manner and a range of amendments proposed to the draft SLO addressed some of the concerns of landowners, most of whom did not support the SLO being made permanent, as well as those of the organisations seeking permanent protection of the flow who wanted specific restrictions on undertaking earthworks.



Figure 4. Field inspection of a rock crushed area during the public hearing, March 2018.

Perhaps the most significant amendment, which addressed a major concern of landowners, was to change the boundaries of the proposed SLO from a cadastral basis to the actual margins of the flow, plus a narrow (50 metre) buffer zone. The buffer zone was intended to cover potential errors in defining the margins of the flow as well as protecting the landscape setting of the flow in its valley. A buffer zone of 100 metres would have more adequately protected the landscape setting but there was little support for it. Changing the basis for defining the boundaries of the flow had the effect of removing some large parcels of land which had only very small sections of flow. It was also agreed there was little reason to include areas where the surface of the flow was completely covered with soil or wetland areas.

The Planning Panel submitted its report to the designated planning authority (the Shire Council) on 16 April 2018. The report was made available to the public about a month later. To a large extent, the report recommended what academics, field naturalists, ACKMA and the Commission on Volcanic Caves proposed at the Public Hearing. On 14 June, Council formally considered the report and voted unanimously to adopt the two most important recommendations of the Planning Panel report. It deferred consideration of a third recommendation that Council and DELWP develop a “plain English” guide to assist landowners through the application process for permits under the Planning and Environment Act.

Council will now advise the Victorian Minister for Planning of its decision and the permanent Significant Landscape Overlay will come into effect after a notice is placed in the Victorian Government Gazette.

Conclusion

The vista of Harmans Valley lava flow as viewed from the Hamilton Port Fairy Road has changed significantly since I first saw it in 1975. Farm management tracks have been pushed across the rocky surface of the flow, vegetation has been killed off or removed and a 20 hectare area has been crunched, levelled and sown with pasture grasses. In addition, the growth of trees in softwood plantations has obscured the lower slopes of Mt Napier. The result is that the landscape values of the area have been significantly diminished and its value as an education and research tool may have been lessened.

Nevertheless, the flow remains the best preserved, dramatic and most readily observable flow in Australia. The flow also remains very important for Aboriginal and early European cultural heritage reasons. For these reasons, I am very pleased a Significant Landscape Overlay under the Victorian *Planning and Environment Act* will give legislated protection to the flow. However, as at 24 August 2018, the SLO has still not been gazetted and even after this happens, on-going vigilance will be required to ensure there is strict compliance.

Acknowledgements

It is unlikely that I would have become involved in the Harmans Valley issue without Ian Lewis drawing my attention to recent developments in the Harmans Valley in October 2017. For this I am grateful.

I would especially like to thank Janeen Samuel for giving me access to Ken Grimes' emails, maps and papers on the Harmans Valley issue. Ken was working on the issue right up to the time of his sudden and tragic death in August 2016 and I wish to acknowledge Ken's long term commitment to raising public awareness of the importance of the Harmans Valley area and in documenting and seeking to protect its geological and cultural features as well as its landscape values.

I also acknowledge Emeritus Professors Ray Cas and Bernie Joyce in expanding my understanding of the Harmans Valley flow and the Newer Volcanic Province, through access to papers and stimulating discussions at Hamilton in March 2018.

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